

Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas/

28600

September 20, 2019

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

**RE: Chalmers #5301 44-24 4T2
SESE Sec. 24, T.153N., R.101W.
McKenzie County, North Dakota
Baker Field
Well File No. 28600
STRIPPER WELL DETERMINATION**

Dear Mr. Travis:

Oasis Petroleum North America LLC (Oasis) filed with the North Dakota Industrial Commission – Oil and Gas Division (Commission) on September 4, 2019 an application for a Stripper Well Determination for the above captioned well.

Information contained in the application indicates that the above mentioned well is a stripper well pursuant to statute and rule, and Oasis has elected to designate said well as a stripper well. The well produced from a well depth greater than 10000 feet and was completed after June 30, 2013. During the qualifying period, April 1, 2017 through March 31, 2018, the well produced at a maximum efficient rate or was not capable of exceeding the production threshold. The average daily production from the well was 24.7 barrels of oil per day during this period.

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

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

Sincerely,

David J. McCusker
Petroleum Engineer

Cc: ND Tax Department



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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

TK

Well File No.
28600



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 January 15, 2015
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03. Approximate Start Date	

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

Well Name and Number Chalmers 5301 44-24 4T2R					
Footages 877 F S L	245 F E L	Qtr-Qtr SESE	Section 24	Township 153 N	Range 101 W
Field Baker	Pool Bakken	County McKenzie			

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

Name of Contractor(s)

Address	City	State	Zip Code
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DETAILS OF WORK

Effective 1/15/2015 the above referenced well is on pump.

End of Tubing: 2-7/8" L-80 tubing @ 10080'

Pump: 2-1/2" x 2.0" x 24' insert pump @ 9918'

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

FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 4-1-2015	
By 	
Title JARED THUNE	
Engineering Technician	

Industrial Commission of North Dakota

Well or Facility No

Oil and Gas Division

28600

Verbal Approval To Purchase and Transport Oil

Tight Hole Yes

OPERATOR

Operator OASIS PETROLEUM NORTH AMERICA LL	Representative Kelly Johnson	Rep Phone (701) 580-0524
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WELL INFORMATION

Well Name CHALMERS 5301 44-24 4T2R	Inspector Richard Dunn
Well Location SESE QQ Sec Twp Rng	County MCKENZIE
	Field BAKER
Footages 877 Feet From the S Line	Pool BAKKEN
245 Feet From the E Line	
Date of First Production Through Permanent Wellhead	12/25/2014
	This Is Not The First Sales

PURCHASER / TRANSPORTER

Purchaser OASIS PETROLEUM MARKETING LLC	Transporter HILAND CRUDE, LLC
---	---

TANK BATTERY

Central Tank Battery Number :

SALES INFORMATION This Is Not The First Sales

ESTIMATED BARRELS TO BE SOLD	ACTUAL BARRELS SOLD	DATE
5000	BBLS	251
	BBLS	BBLS

DETAILS

--

Start Date **12/25/2014**
Date Approved **12/25/2014**
Approved By **Jessica Gilkey**



AUTHORIZATION TO PURCHASE AND TRANSFER 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.
28600
NDIC CTB No.
220407

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.
PLEASE SUBMIT THE ORIGINAL AND FOUR COPIES.



Well Name and Number CHALMERS 5301 44-24 4T2R	Qtr-Qtr SESE	Section 24	B.L. 153	Township Range 101	County McKenzie
---	-----------------	---------------	-------------	--------------------------	--------------------

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 December 25, 2014
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 December 25, 2014
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
Prairie Field Services, LLC	25%	December 25, 2014
Other Transporters Transporting From This Lease	% Transported	Date Effective
		December 25, 2014
Comments		

I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Date January 29, 2015
Signature 	Printed Name Brianna Salinas
	Title Marketing Assistant

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

FOR STATE USE ONLY

Date Approved FEB 26 2015
By
Title Oil & Gas Production Analyst



WELL COMPLETION OR RECOMPLETION REPORT - FORM 6

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

FEB 2015

RECEIVED
ND OIL & GAS
DIVISION

Well File No.
28600

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PI 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"/> Abandoned 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 Chalmers 5301 44-24 4T2R				Spacing Unit Description Sec 24/20 T153N R101W S 19+20 - 153-100				
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
877 F S L	245 F E L	SESE	24	153 N	101 W	McKenzie
Spud Date	Date TD Reached	Drilling Contractor and Rig Number			KB Elevation (Ft)	Graded Elevation (Ft)
April 6, 2014	September 6, 2014	Nabors B25			1967	1942

Type of Electric and Other Logs Run (See Instructions)

MWD/GR FROM KOP TO TD; CBL FROM INT TD TO SURFACE

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

PERFORATION & OPEN HOLE INTERVALS

PRODUCTION

Current Producing Open Hole or Perforated Interval(s), This Completion, Top and Bottom, (MD Ft) Lateral 1-11074' to 20938'							Name of Zone (If Different from Pool Name)	
Date Well Completed (SEE INSTRUCTIONS) December 25, 2014			Producing Method Flowing		Pumping-Size & Type of Pump			Well Status (Producing or Shut-In) Producing
Date of Test 01/18/2015	Hours Tested 24	Choke Size 22 /64	Production for Test		Oil (Bbls) 831	Gas (MCF) 14	Water (Bbls) 1888	Oil Gravity-API (Corr.) °
Flowing Tubing Pressure (PSI)		Flowing Casing Pressure (PSI)		Calculated 24-Hour Rate	Oil (Bbls) 831	Gas (MCF) 14	Water (Bbls) 1888	Gas-Oil Ratio 16

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 11/25/2014	Stimulated Formation Three Forks		Top (Ft) 11074	Bottom (Ft) 20938	Stimulation Stages 36	Volume 98038	Volume Units Barrels
Type Treatment Sand Frac	Acid %	Lbs Proppant 6229694	Maximum Treatment Pressure (PSI) 8877		Maximum Treatment Rate (BBLS/Min) 38.0		
Details 40/70 Ceramic: 25340 30/50 Ceramic: 0 40/70 White: 863519 20/40 White: 5340835							
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

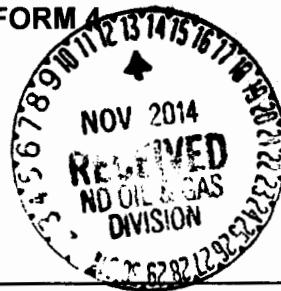
I hereby swear or affirm that the information provided is true, complete and correct as determined from all available records.	Email Address ccovington@oasispetroleum.com	Date 211215
--	---	-----------------------

Signature <i>Chelsea Covington</i>	Printed Name Chelsea Covington	Title Production Tech II
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SUNDRY NOTICES AND REPORTS ON WELLS - FORM A

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



Well File No.
28600

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date November 12, 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	Change well status to CONFIDENTIAL

Well Name and Number

Chalmers 5301 44-24 4T2R

Footages	Qtr-Qtr	Section	Township	Range
877 F S L	245 F E L	SESE	24	153 N 101 W
Field BAKER	Pool BAKKEN		County MCKENZIE	

24-HOUR PRODUCTION RATE

Before	After
Oil	Bbls
Water	Bbls
Gas	MCF

Name of Contractor(s)

Address

City

State

Zip Code

DETAILS OF WORK

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

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 Assistant	Date November 12, 2014	
Email Address jswenson@oasispetroleum.com		

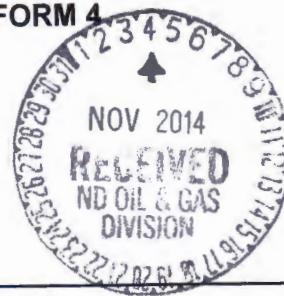
FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date <i>11/17/14</i>	
By <i>Alice L. Walker</i>	
Title Engineering Technician	



SUNDRY NOTICES AND REPORTS ON WELLS - FORM 4

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



Well File No.
28600

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date October 30, 2014
<input type="checkbox"/> Report of Work Done	Date Work Completed
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	
Approximate Start Date	

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

Well Name and Number Chalmers 5301 44-24 4T2R				
Footages 877 F S L	Qtr-Qtr 245 F E L	Section SESE	Township 24	Range 153 N 101 W
Field Baker	Pool Bakken	County McKenzie		

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address	City	State	Zip Code
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DETAILS OF WORK

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 Assistant	Date October 30, 2014	
Email Address jswenson@oasispetroleum.com		

FOR STATE USE ONLY

<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date	<i>November 5, 2014</i>
By	
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)

CTB

Well File No.

220407-01



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date October 15, 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	Central production facility-commingle prod		

Well Name and Number
(see details)

Footages	F	L	F	L	Qtr-Qtr	Section	20	Township	153 N	Range	100 W
Field					Pool			County			

Bakken McKenzie

24-HOUR PRODUCTION RATE

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

Name of Contractor(s)

Address	City	State	Zip Code
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DETAILS OF WORK

Oasis Petroleum North America LLC requests approval to commingle oil and gas in a central production facility known as: 5300 19-20 CTB 2 with common ownership for the following wells:

Well File #28342 Chalmers 5301 44-24 2TR SESE Sec 24-153N-R101W API 3305305924

Well File #20407 Chalmers 5301 31-19H LOT3 Sec 19-153N-101W API 33005303472

Well File #28599 Chalmers 5301 44-24 3BR SESE Sec 24 153N-101W API 3305306010

Well File #28600 Chalmers 5301 44-24 4T2R SESE Sec 21 153N-101W API 3305306011

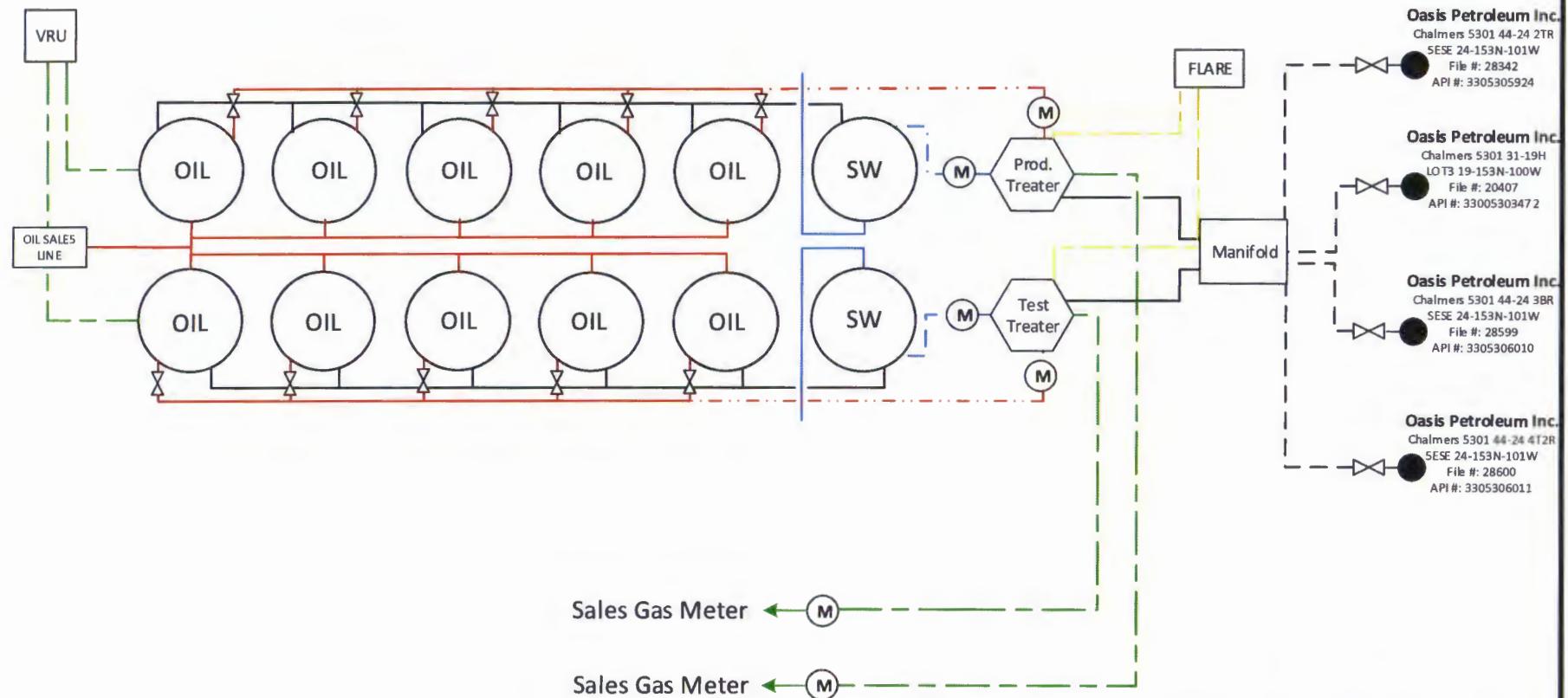
Please find the following attachments:

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

Company Oasis Petroleum North America LLC	Telephone Number 281-404-9591	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Chelsea Covington	
Title Regulatory Assistant	Date October 13, 2014	
Email Address ccovington@oasispetroleum.com		

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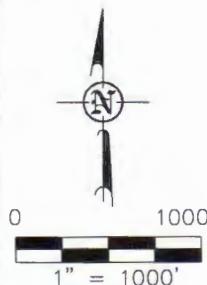
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 10-17-2014	
By 	
Title PETROLEUM ENGINEER	



OASIS PETROLEUM				
CHALMERS 5300 19-20 CENTRAL TANK BATTERY 2				
DATE SEPTEMBER 23, 2014	REV. 0	BY LEE	APPR. NA	SCALE NA
LOCATION NORTH DAKOTA	FIELD BAKER			

BATTERY LOCATION PLAT
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "5300 19-20 CTB(A)"
 SECTION 24, T153N, R101W, 5TH P.M., MCKENZIE COUNTY, NORTH DAKOTA

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY DARYL D. KASEMAN, PLS, REGISTRATION NUMBER 3880 LS ON 10/7/14 AND THE ORIGINAL DOCUMENTS ARE STORED AT THE OFFICES OF INTERSTATE ENGINEERING, INC.



(24)

5300 19-20 CTB(A)

CHALMERS 5301 44-24 2TR
 CHALMERS 5301 44-24 3BR
 CHALMERS 5301 44-24 4T2R

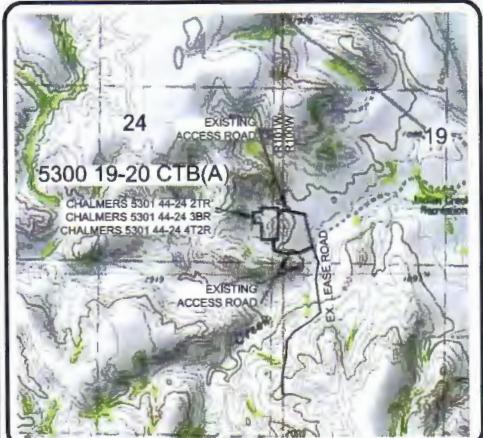
FOUND STONE
 W/ AC
 AZ 90°44'54"
 5267.09' FOUND STONE & REBAR

AZ 90°03'03"

AZ 90°03'03" 2651.37'

FOUND STONE & REBAR

VICINITY MAP



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1/5

 **INTERSTATE
ENGINEERING**
Professionals you need, people you trust

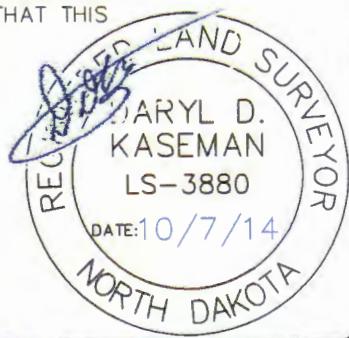
Interstate Engineering, Inc.
 P.O. Box 648
 425 East Main Street
 Sidney, Montana 59270
 Ph (406) 433-5617
 Fax (406) 433-5618
www.interstateeng.com
 Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
 BATTERY LOCATION PLAT
 SECTION 24, T153N, R101W

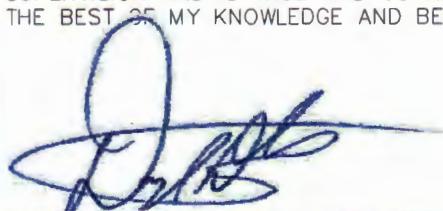
MCKENZIE COUNTY, NORTH DAKOTA

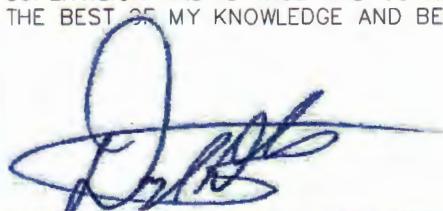
Drawn By:	J.D.M.	Project No.:	S14-09-241
Checked By:	D.D.K.	Date:	OCT. 2014

Revision No.	Date	By	Description



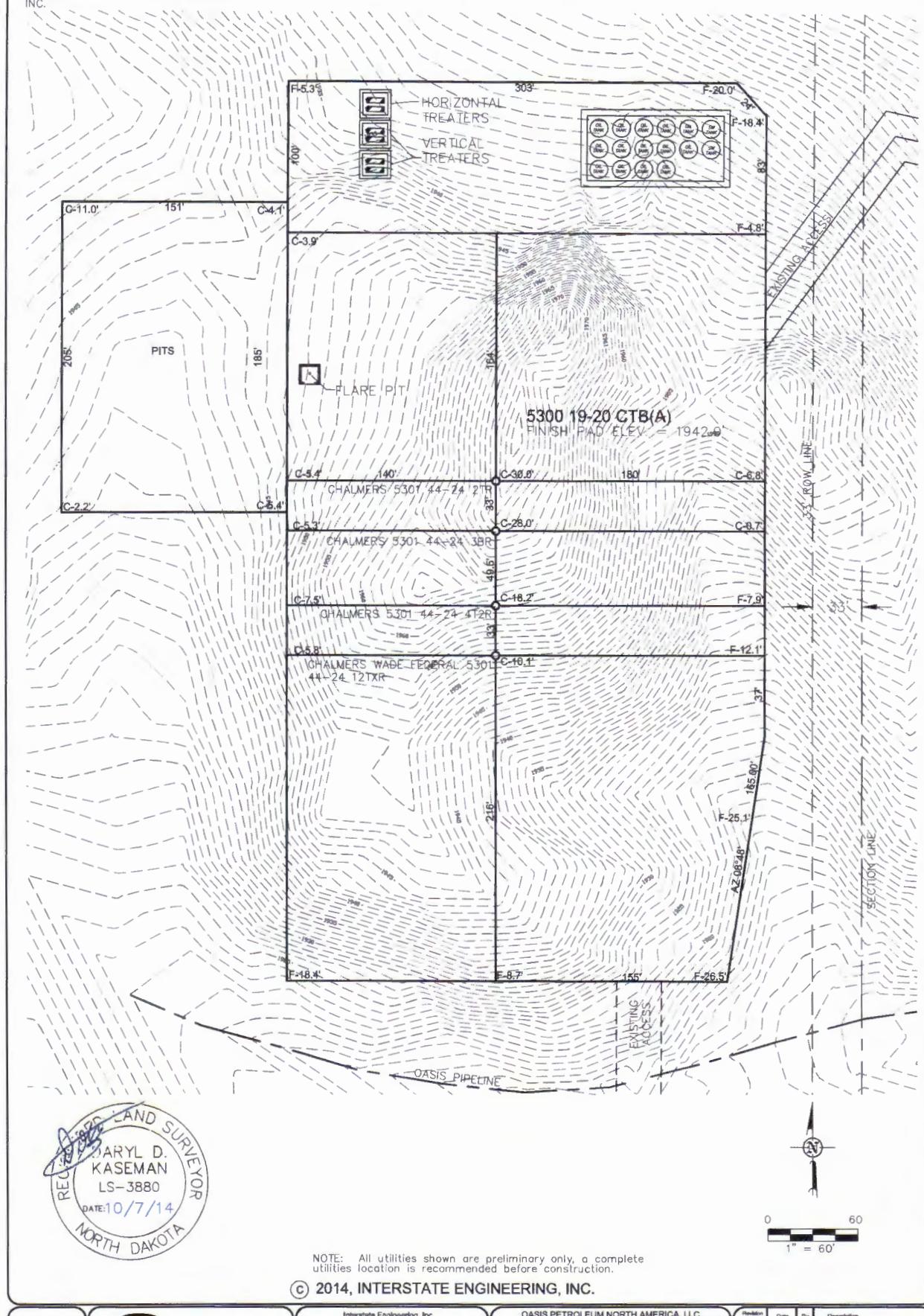
DARYL D. KASEMAN LS-3880


 DARYL D. KASEMAN
 LS-3880
 DATE: 10/7/14


 DARYL D. KASEMAN
 LS-3880
 DATE: 10/7/14

THIS DOCUMENT WAS ORIGINALLY ISSUED
AND SEALED BY DARYL D. KASEMAN,
PLS, REGISTRATION NUMBER 3880 ON
10/7/14 AND THE ORIGINAL
DOCUMENTS ARE STORED AT THE
OFFICES OF INTERSTATE ENGINEERING,
INC.

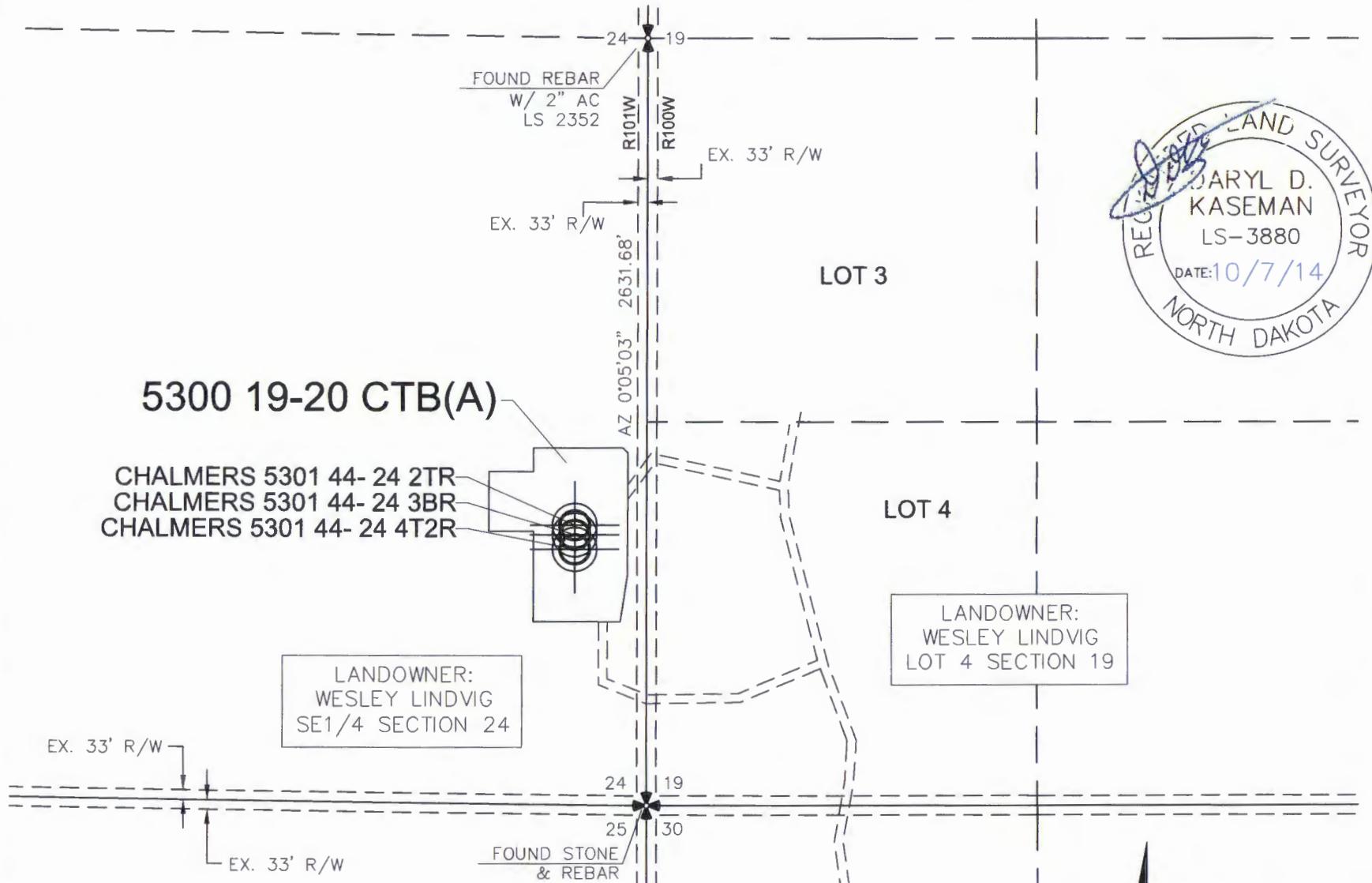
PAD LAYOUT
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"5300 19-20 CTB(A)"
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"5300 19-20 CTB(A)"

SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



THIS DOCUMENT WAS ORIGINALLY ISSUED AND
SEALED BY DARYL D. KASEMAN, PLS,
REGISTRATION NUMBER 3880 ON 10/7/14
AND THE ORIGINAL DOCUMENTS ARE STORED AT
THE OFFICES OF INTERSTATE ENGINEERING, INC.

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

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OASIS PETROLEUM NORTH AMERICA, LLC	Revision No.	Date	By	Description
ACCESS APPROACH				
SECTION 24, T153N, R101W				
MCKENZIE COUNTY, NORTH DAKOTA				
Drawn By: _____	Project No.: _____	Drawn On: _____	Checked By: _____	Date: _____

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 Montana, North Dakota and South Dakota





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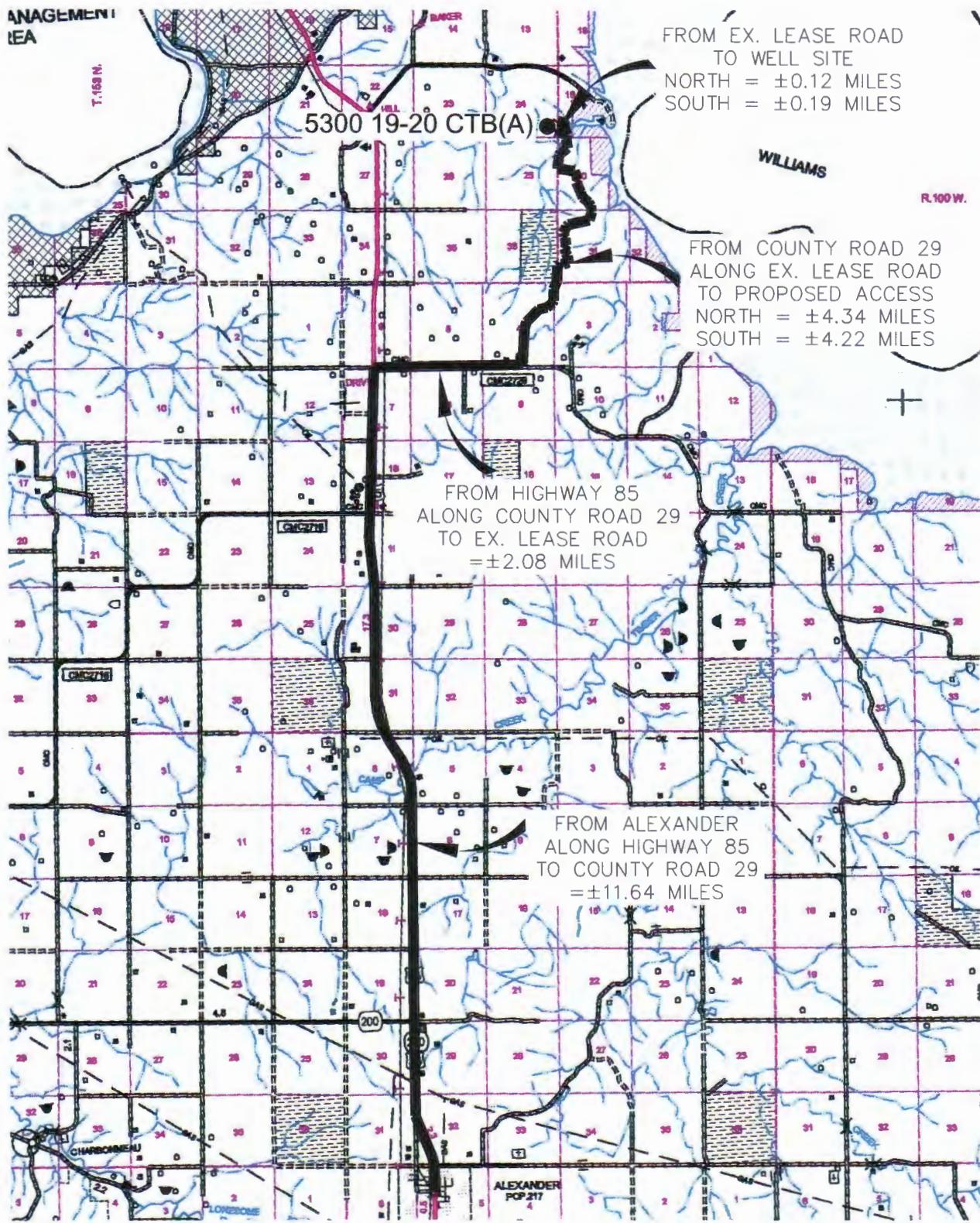
OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 24, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By:	J.D.M.	Project No.:	S14-09-251
Checked By:	D.D.K.	Date:	OCT 2014

Revision No.	Date	By	Description

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "5300 19-20 CTB(A)"
 SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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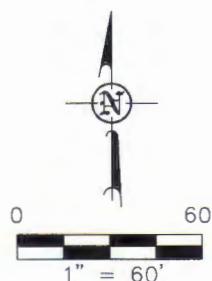
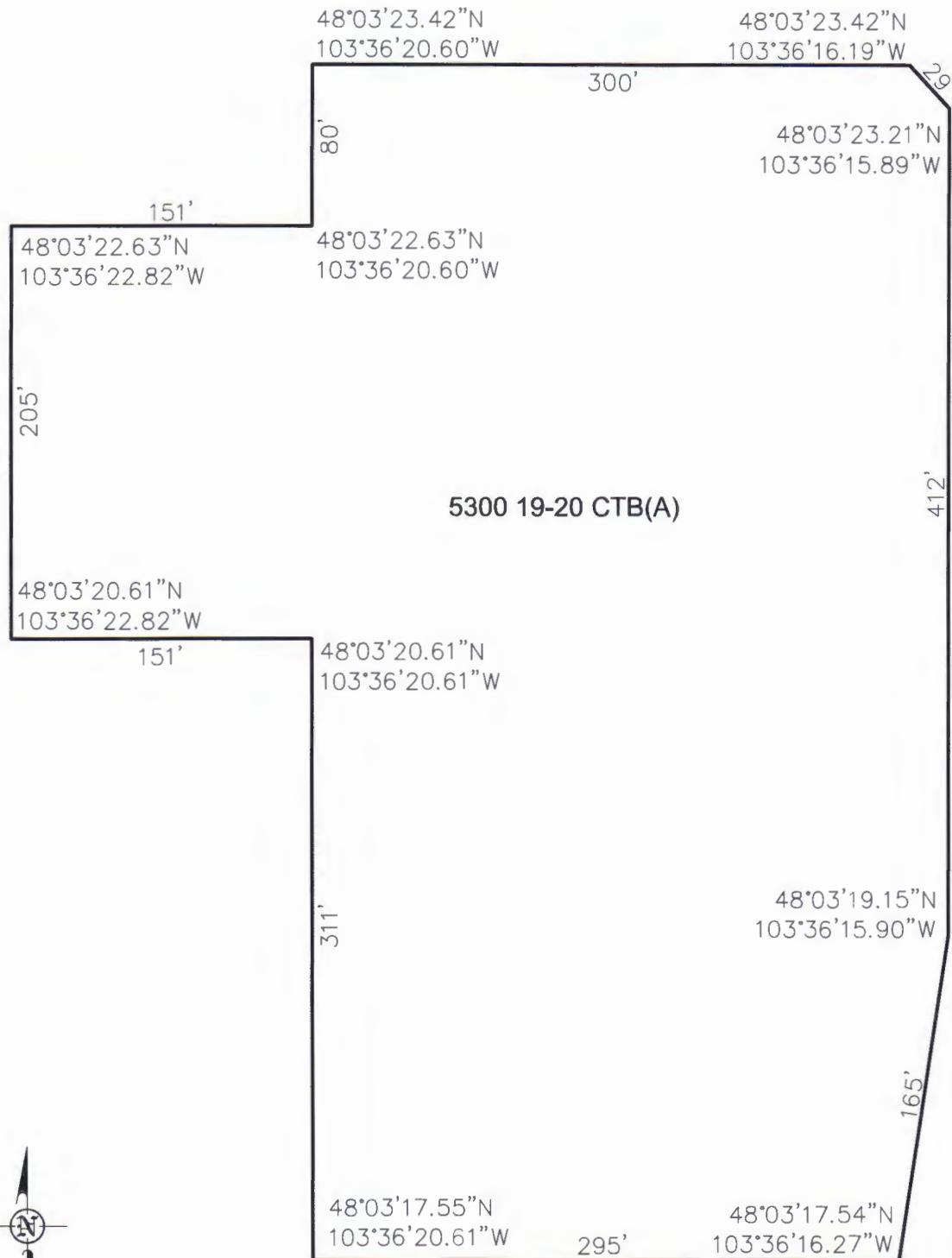
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OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Revision No.	Date	By	Description

Drawn By: J.D.M. Project No.: S14-09-241
Checked By: D.D.K. Date: OCT 2014

LAT/LONG PAD CORNERS



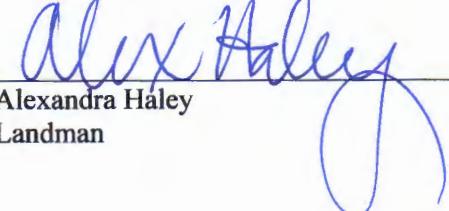
COMMINGLING AFFIDAVIT

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

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

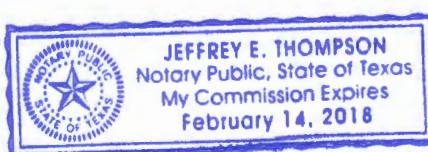
1. Sections 19 & 20, Township 153 North, Range 100 West, Williams County North Dakota constitute a spacing unit in accordance with the applicable orders for the Bakken pool.
2. Three wells have been drilled in the spacing unit, which are known as the Chalmers 5300 44-24 2TR, Chalmers 5300 44-24 3BR, and Chalmers 5300 44-24 4T2R.
3. By NDIC Order 19005 dated May 11, 2012 and recorded in Williams County as Document No. 737164, all oil and gas interest within the aforementioned spacing unit were pooled.
4. All Working Interests, Royalty Interests and Overriding Royalty Interests in the Chalmers 5300 44-24 2TR, Chalmers 5300 44-24 3BR, and Chalmers 5300 44-24 4T2R will be in common.

Dated this 15th day of September, 2014


Alexandra Haley
Landman

STATE OF TEXAS)
) ss.
COUNTY OF HARRIS)

Subscribed to and sworn before me this 15th day of September, 2014




Jeffrey E. Thompson
Notary Public
State of Texas
My Commission Expires: 2-14-18



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.
28600



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 September 23, 2014
<input type="checkbox"/> Notice of Intent to Begin a Workover Project that may Qualify for a Tax Exemption Pursuant to NDCC Section 57-51.1-03.	Approximate Start Date

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

Well Name and Number Chalmers 5301 44-24 4T2R				
Footages 877 F S L	Qtr-Qtr 245 F E L	SESE	Section 24	Township 153 N
Range 101 W				
Field Baker	Pool Bakken	County McKenzie		

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

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

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 09/23/2014

The surface owners, Wes Lindvig was contacted on 09/23/2014
Wes Lindvig 140758 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 281-404-9591	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Chelsea Covington	
Title Regulatory Assistant	Date September 24, 2014	
Email Address ccovington@oasispetroleum.com		

FOR STATE USE ONLY	
<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date 10-6-14	
By 	
Title 	



Oasis Petroleum North America, LLC

Chalmers 5301 44-24 4T2R

877' FSL & 245' FEL

SE SE Section 24, T153N, R101W

Baker Field / Three Forks 2nd Bench

McKenzie County, North Dakota

BOTTOM HOLE LOCATION:

281.88' south & 10,434.73' east of surface location or approx.

595.12' FSL & 323.64' FEL, SE SE Section 20, T153N, R100W

Prepared for:

Clay Hargett
Oasis Petroleum North America, LLC
1001 Fannin Street, Suite 1500
Houston, Texas 77002

Prepared by:

Hannah Thatcher, Daniel Haynes
PO Box 80507; Billings, MT 59108
(406) 259-4124
geology@sunburstconsulting.com
www.sunburstconsulting.com

WELL EVALUATION

Chalmers 5301 44-24 4T2R



Figure 1: Nabors B25 drilling the Oasis Petroleum North America Chalmers 5301 44-24 4T2R during July 2014, south of Williston in McKenzie County, North Dakota.
(Photos by Hannah Thatcher, wellsite geologist)

INTRODUCTION

The Oasis Petroleum North America, LLC Chalmers 5301 44-24 4T2R well [SE SE Section 24, T153N, R101W] is located approximately 31 miles south of Williston, North Dakota. The horizontal well was spud on June 22, 2014 and represents a continuation of Oasis Petroleum's development of the Three Forks Formation within Baker Field. The Chalmers was planned to drill an approximately 9,863' lateral along a proposed azimuth of 91.34°. The well bore will be enhanced for production by multistage fracture stimulation.

OFFSET CONTROL INFORMATION

Offset well data used for depth correlation during curve operations are found in the 'Structure' section appended to this report. The Chalmers 5301 44-24 3BR and the Chalmers 5301 44-24 2TR were the primary offsets used because they are located on the same pad.

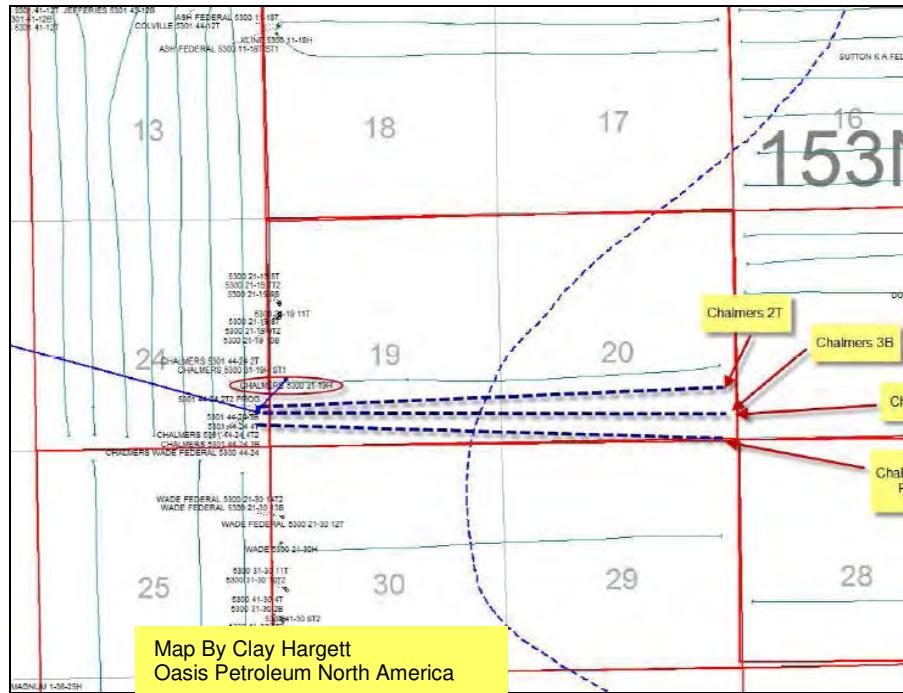


Figure 2: Offsetting control wells in relation to the Chalmers 44-22 4T2 well.

GEOLOGIC EVALUATION

Methods:

Geologic supervision of the Chalmers 5301 44-24 4T2R was provided by Sunburst Consulting, Inc. with two well site geologists. A digital gas detector and chromatograph were interfaced with a Pason electronic data recorder system. The unit of measure for gas on this well was units (u), which was defined as 100 units equaling 1% methane equivalent in air. The EDR provided drill rate, on-off bottom and pump strokes to the gas detection computer and received total gas information from Sunburst for viewing around location. Lagged samples were caught by the rig crew in 30' intervals from 8,230' MD to 10,870' MD, 10' intervals from 10,870' MD to 11,170' MD, and 30' intervals from 11,170' MD to 20,963' TD. Wet and dry cuttings were examined under a tri-ocular microscope and complete lithologic descriptions and sampling intervals are provided in the lithology document within this evaluation. The set of dry cuttings collected during the duration of the well were sent to the State of North Dakota. Evidence of light hydrocarbons present in the drilling fluid was reported by the gas chromatography equipment and documented on the mud log presented with this report.

Zones of Interest:

The Mission Canyon Formation (Mississippian; Madison Group) was drilled at 9,288' TVD (-7,320') and is comprised largely of light gray lime mudstone followed by gray to tan earthy textured argillaceous lime mudstone. Shows within the Mission Canyon ranged from 30 to 190 units against 9.6 ppg mud.



Figure 3 & 4: Wet cutting of the Lodgepole Formation (left) and False Bakken sub-interval (right) at 10X.

The top of the Lodgepole Formation was logged at 9,846' TVD (-7,878'). In general the Lodgepole can be described as a medium to dark gray brown argillaceous lime mudstone with a crystalline texture and trace amounts of disseminated pyrite (Figure 3). The False Bakken (Carrington Shale), drilled at 10,574' TVD (-8,606'), is comprised of very dark brown to black, slightly pyritic shale with an earthy texture, and was found to be soft to firm (Figure 4). Strong hydrocarbon shows in the lower 100' of the Lodgepole were as high as 204 total gas units; suggest that some of the oil and gas from the Upper Bakken Shale may be exploiting fractures thought to exist in the Lower Lodgepole.

The Bakken Formation (Devonian – Mississippian) has four formal members, an upper and lower black, fissile, organic-rich pyritic shale, separated by an arenaceous limestone, siltstone and silty sandstone middle member. These three members overlay a silty shale or siltstone of the Pronghorn Member toward the basin depositional center. The Upper Bakken Shale was drilled at 10,585' TVD (-8,617') with sample returns typically described as black, carbonaceous, *petroliferous* shale with trace amounts of disseminated pyrite (Figure 5). The Middle Bakken, penetrated at 10,600' TVD (-8,632'), consists of a varying thickness and sequence of interbedded siltstone, limestone and silty sandstone. *Trace spotty light brown oil staining* was present along with gas shows as high as 330 TGU. Penetrated at 10,639' TVD (-8,671'), the Lower Bakken Shale was described as a black to dark brown carbonaceous shale with trace amounts of disseminated pyrite (Figure 6). Gas shows encountered in the Lower Bakken read as high as 548u (C1-C4). The Pronghorn was penetrated at 10,654' TVD (-8,686') and is commonly described as a dark to medium gray siltstone with calcite cement.



Figure 5 & 6: Wet cuttings of the Upper Bakken Shale (left), Lower Bakken Shale (right) at 10X.

The Three Forks Formation (Devonian; Kaskaskia Sequence.) represents a regressive sequence deposited in a supratidal sabkha environment. The first bench was drilled at 10,676' TVD (-8,708') and is comprised of a light to medium gray, cream to off white sucrosic dolomite with trace to occasional amounts of disseminated pyrite and light green shale also with trace amounts of disseminated pyrite. The second bench was drilled at 10,706' TVD (-8,738') and is comprised of a light to medium gray, cream to off white dolomite with trace to occasional amounts of disseminated pyrite and light green shale also with trace amounts of disseminated pyrite (Figure 7). The dolomite also contains possible intercrystalline porosity. Another component of the Three Forks is are light gray brown to gray green claystone with dolomite cement and trace amounts of pyrite overlain by an orange to pink and green dolomite. Shows within the Three Forks Formation ranged from 50 to 430 units in a drilling mud of 9.5-10.5 ppg.



Figure 7: Wet cuttings of the Three Forks 2nd Bench dolomite and shale at 10X.

Geo-steering:

Kick-off point for the curve was established from the isopach of the “base last salt” marker to the Three Forks “target” in the offset wells. The Chalmers 5301 44-24 3BR was used as the primary offset through the vertical and curve sections. While drilling the curve, measured gamma ray signatures were compared to those of the three offsets and aided in the landing of the curve. The landing target was confirmed by the depth of the False Bakken, which was consistent with the offset wells. The curve was successfully landed within the Three Forks Formation at a depth of 11,100' MD (10,709' TVD) placing the well bore approximately 3' below the first Claystone member. Directional tools were then pulled out of the hole and a string of 7" casing was set (11,042' MD) and then cemented by Schlumberger.

Samples from the target zone varied in porosity, oil staining, color, cementation, and pyrite content. Stratigraphic location in the target zone was based on these sample observations along with gas shows, drill rates and gamma ray values. Severe doglegs were to be avoided so as to obtain the desired vertical section and aid in a successful completion liner run at TD.

The Oasis Petroleum North America, LLC prospect geologist defined the an initial target zone as an 20' zone that began 6' below the first Claystone member and ended six feet above the second claystone member 32' below the first Claystone member. The target zone consisted of an upper dolomite and shale interval reading 120-150 count gamma (A marker). The center of the target interval was comprised of a cleaner dolomite with lesser amounts of shale reading 90-120

count gamma (B marker). The base of the target zone was characterized by a clean dolomite with trace amounts of shale with gamma readings of 70-90 (C marker). The A-C gamma markers were used for determining depth within the target interval and plotted on the Chalmers 44-22 4T2R dip profile (Figure 9).

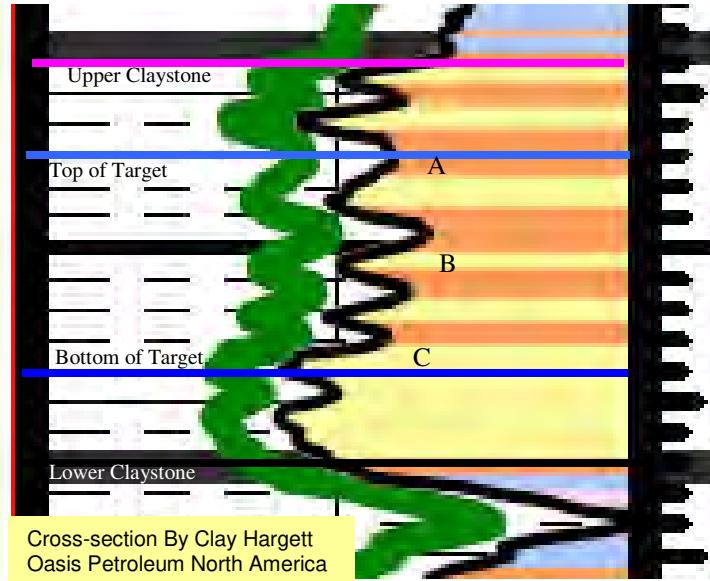


Figure 8: Offset gamma ray profile of the upper Three Forks (0-200 api. scale) *See dip profile (Figure 9) for marker presentation*

Using the aforementioned information gathered during drilling, offset log information and the structural data provided from Oasis Petroleum North America, LLC., well site geologists were able to anticipate, and interpret the local apparent dip during the drilling of the Chalmers 44-22 4T2R well. A total depth of 20,963' MD was reached on September 5th, 2014 at 15:00 CDT. The target resultant was 100% within the Three Forks 2nd Bench. The resulting structure of the Three Forks was a fall in TVD of 83' over 9,963' MD; resulting in an overall down dip of -0.48° as portrayed on the Chalmers 44-22 4T2R dip profile (Figure 9).

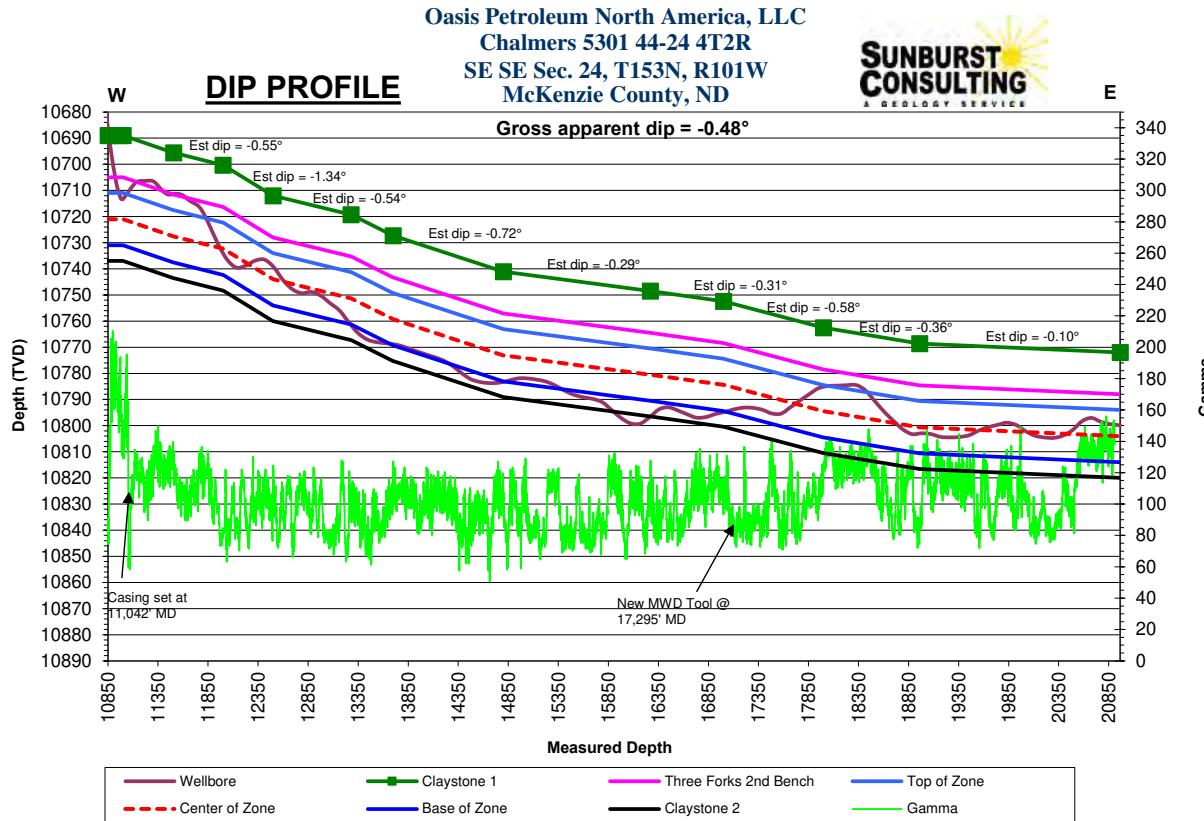


Figure 9: Well profile representing estimated dip value & gamma ray for the Chalmers 44-22 4T2R lateral.

Hydrocarbons:

Gas monitoring and fluid gains were monitored to evaluate the viability of this reservoir during the drilling of the Chalmers 44-22 4T2R well. In the invert mud system, hydrostatic conditions were maintained near balance. This allowed for gas and fluid gains from the well to be monitored. Gas shows were encountered in vertical, curve and lateral drilling of the well.

Background gas observed during the drilling of the lateral ranged from 45 to 280 units. Invert drilling fluid was used throughout the drilling of the vertical and curve weighing 9.6-10.4 ppg. The lateral was drilled with saline drilling fluid with a mud weight of 9.5-9.6 ppg. Gas shows ranged up to 420 units and connection gases were observed up to 335 units. C1-C4 gas components were observed throughout the course of the lateral. Trip gases were observed as high as 1928 units. Oil shows were very light throughout the lateral ranging from 0-3% in sample. When present it was a *light brown spotty oil stain that yielded a slow to moderate streaming to diffuse light green cut fluorescence*.

SUMMARY

The Nabors B25 drilling rig successfully drilled a two-section horizontal well bore within the Three Forks Formation at the Chalmers 44-22 4T2R. A net of 9,863' was drilled within the Three Forks. A mud program consisting of diesel invert (9.8–10.4 ppg), during the vertical and curve build sections, and saline based mud (9.5-9.6 ppg), during the lateral maintained stable hole conditions and permitted adequate analysis of gas concentrations.

Projections of dip were successfully used to maintain the well bore in the Three Forks 2nd Bench for 100% of the lateral. Samples from the target consisted of a light to medium gray, cream to off white dolomite with trace to occasional amounts of disseminated pyrite and light green shale also with trace amounts of disseminated pyrite. Intercrystalline porosity was generally seen throughout the entire lateral. Hydrocarbon shows in the target zone were high throughout the lateral. Samples from the ideal zone contained a spotty light brown oil stain.

The Chalmers 44-22 4T2R will be fitted with a 4 ½" production liner and swell packers in preparation for a fracture stimulation that will determine the true commercial value of the well. The well currently awaits fracture stimulation.

Respectfully submitted,

Hannah Thatcher
Daniel Haynes
Sunburst Consulting, Inc.
September 5, 2014

WELL DATA SUMMARY

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

ADDRESS: 1001 Fannin Street, Suite 1500
Houston, Texas 77002

WELL NAME: Chalmers 5301 44-24 4T2R

API #: 33-053-06011-00-00

WELL FILE #: 28600

SURFACE LOCATION: 877' FSL & 245' FEL
SE SE Section 24, T153N, R101W

FIELD/ OBJECTIVE: Baker Field / Three Forks 2nd Bench

COUNTY, STATE McKenzie County, North Dakota

BASIN: Williston

WELL TYPE: Three Forks Horizontal

ELEVATION: GL: 1,943'
KB: 1,968'

SPUD/ RE-ENTRY DATE: Spud: 6/22/2014; Reentered: 7/13/2014

BOTTOM HOLE LOCATION: 281.88' south & 10,434.73' east of surface location or approx.
595.12' FSL & 323.64' FEL, SE SE Section 20, T153N, R100W

CLOSURE COORDINATES: Closure Azimuth: 91.55°
Closure Distance: 10,438.53'

TOTAL DEPTH / DATE: 20,963' on Septmeber 5, 2014
80% within target interval

TOTAL DRILLING DAYS: 15 days

CONTRACTOR: Nabors B25

<u>PUMPS:</u>	H &H Triplex (stroke length - 12")
<u>TOOLPUSHERS:</u>	Casey Pippenger, Bruce Walter
<u>FIELD SUPERVISORS:</u>	Mike Crow, Travis Handran
<u>CHEMICAL COMPANY:</u>	Fluid Control
<u>MUD ENGINEER:</u>	Keith McCarty, Warren Carlson
<u>MUD TYPE:</u>	Fresh water in surface hole Diesel invert in curve; Salt water in lateral
<u>MUD LOSSES:</u>	Invert Mud: 425 bbls., Salt Water: Not tracked
<u>PROSPECT GEOLOGIST:</u>	Clay Hargett
<u>WELLSITE GEOLOGISTS:</u>	Hannah Thatcher, Daniel Haynes
<u>GEOSTEERING SYSTEM:</u>	Sunburst Digital Wellsite Geological System
<u>ROCK SAMPLING:</u>	30' from 8,230' - 10,840' 10' from 10,840' -11,170' 30' from 11,170' - 20,963' (TD)
<u>SAMPLE EXAMINATION:</u>	trinocular microscope & fluoroscope
<u>SAMPLE CUTS:</u>	Trichloroethylene
<u>GAS DETECTION:</u>	MSI (Mudlogging Systems, Inc.) TGC - total gas with chromatograph Serial Number(s): ML-382
<u>DIRECTIONAL DRILLERS:</u>	RPM Mike Crow, Travis Handran
<u>MWD:</u>	Ryan Directional Service Inc. Dave Unger, Daniel Ogden
<u>CASING:</u>	Surface: 13.375" 36# J-55 set to 2,095' Intermediate Surface: 9 5/8" 40# HCL-180 set to 6,035' Intermediate: 7" 32# HCP-110 set to 11,042'
<u>SAFETY/ H₂S MONITORING:</u>	Oilind Safety

KEY OFFSET WELLS:

Oasis Petroleum North America

Chalmers 5301 44-24 3BR

SE SE Section 24, T153N, R101W

McKenzie Co., ND

KB: 1,968'

Oasis Petroleum North America

Chalmers 5301 44-24 2TR

SE SE Section 24, T153N, R101W

McKenzie Co., ND

KB: 1,968'

Oasis Petroleum North America

Chalmers 5300 31-19H

NW SW Sec.19, T153N, R100W

McKenzie Co., ND

KB: 1,929'

WELL LOCATION PLAT

OASIS PETROLEUM NORTH AMERICA, LLC.

1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

SECTION 24, T153N, R101W, S08 P.M., MCKENZIE COUNTY, NORTH DAKOTA

B26 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE

"CHALMERS 5301 44-24 3BR"

FOUND REBAR
W/ 2" AC
LS 2352

EDGE OF
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CALCULATED
IN LAKE

FOUND REBAR
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LS 2352

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LAKE
CALCULATED
IN LAKE

AZ 900'00'00"
1947' (GLO)

AZ 900'00'00"
1831.5' (GLO)

AZ 900'00'00"
1056' (GLO)

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(24)

CHALMERS 5301 44-24 3BR

GROUN ELEV 19700'
LATITUDE 48°03'20" N
LONGITUDE 103°36'18" W
GPS SURVEY DATUM: NAD 83

245'

926'

2631.68'

AZ 0'05'03"

AZ 900'30.03"

5267.09'

FOUND STONE
W/ AC

AZ 9044'54"

FOUND STONE
& REBAR

FOUND STONE
& REBAR

FOUND STONE
& REBAR

AZ 359'55'00"
1831.5' (GLO)

AZ 359'55'00"
1947' (GLO)

AZ 359'55'00"
1056' (GLO)

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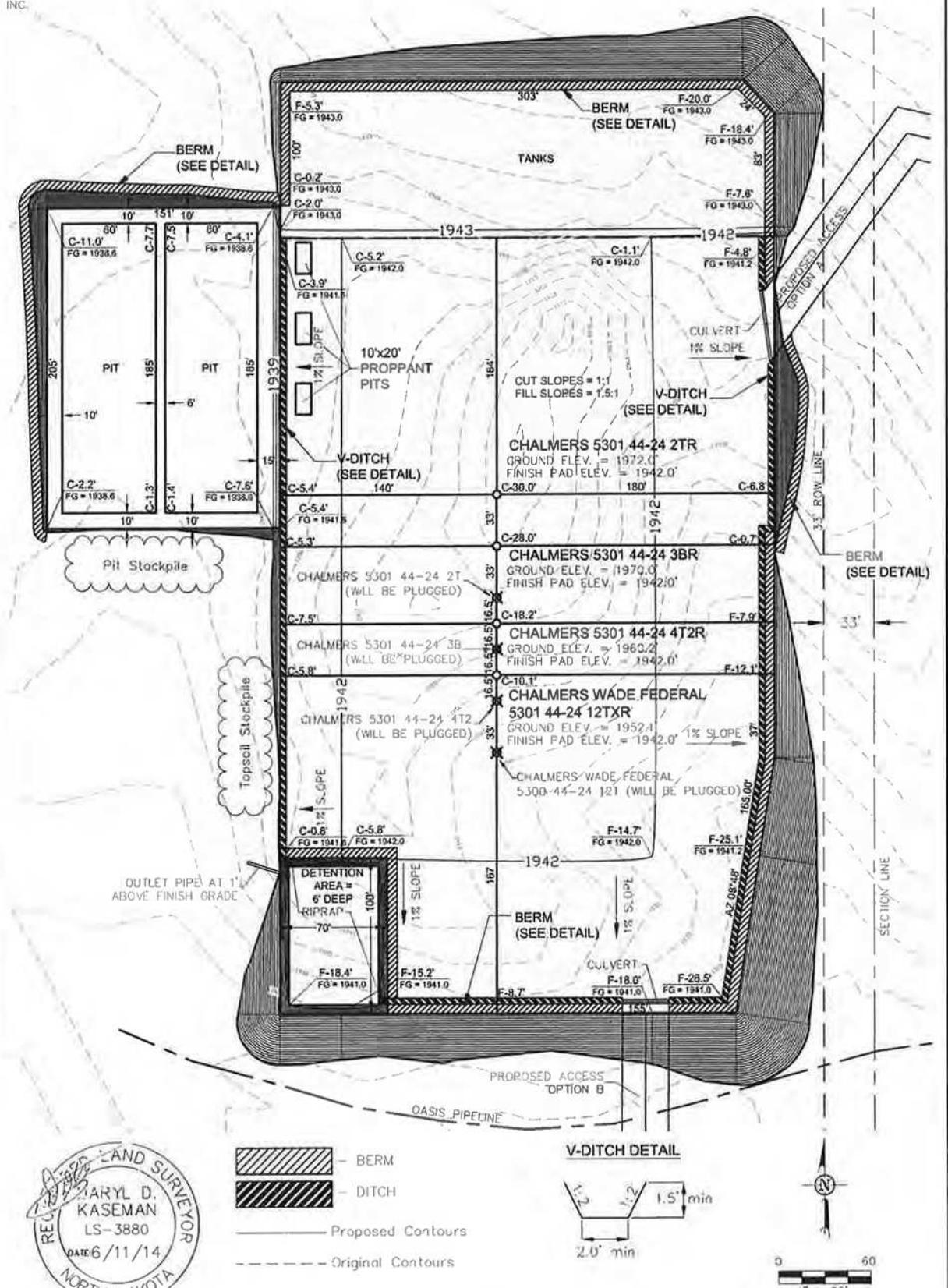
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INC.

PAD LAYOUT
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"CHALMERS 5301 44-24 3BR"
926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
Sidney, Montana 59270
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www.Interstateeng.com
Other offices in Montana, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.L.S. Project No.: 81308-23501
Checked By: H.D.E. Date: MAY 2014

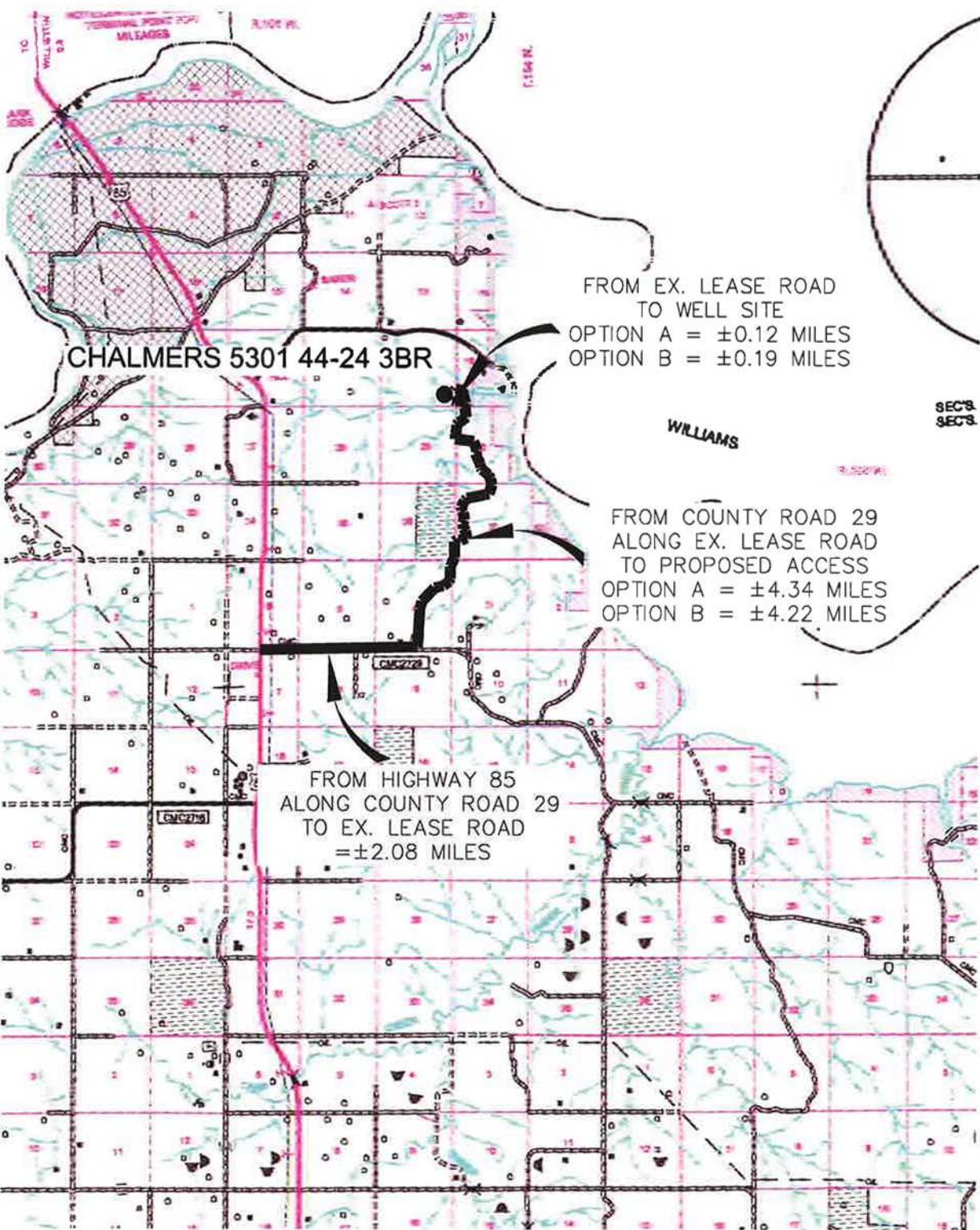
Record No.	Date	By	Description
REV. 5	1/25/14	BRI	CH-MODZ. PAD LAYOUT
REV. 4	3/29/14	JDS	ADDED WELL TO PAD
REV. 5	3/29/14	JDS	CHANGED NAME, WOULD WELL
REV. 5	5/7/14	ZDM	ADDED SURVEYS
			THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. IT IS NOT A CONTRACTUAL DRAWING. IT IS THE PROPERTY OF INTERSTATE ENGINEERING, INC. AND IS PROVIDED FOR THE USE OF THE CONTRACTOR ONLY.

COUNTY ROAD MAP

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

"CHALMERS 5301 44-24 3BR"

926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

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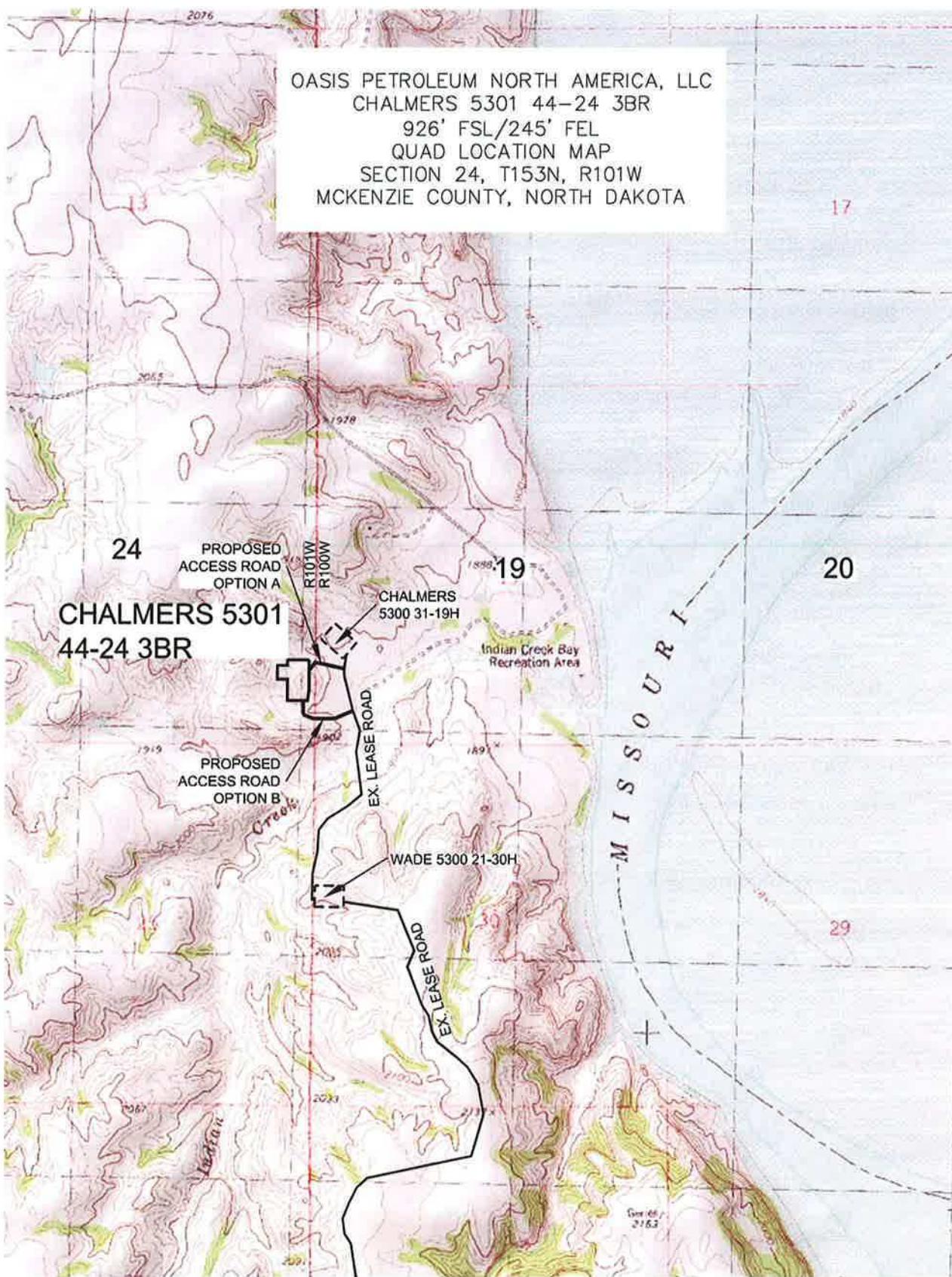
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OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S.	Project No: S13-09-235-01
Checked By: D.D.K.	Date: MAY 2014

Revision No.	Date	By	Description
REV 3	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/26/14	JJS	CHANGED PAD LAYOUT
REV 4	3/29/14	JJS	ADDED WELL TO PAD
REV 5	3/29/14	JJS	CHANGED NAME, MOVED WELL
REV 6	5/11/14	JJS	ADDED DIMENSIONS



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**INTERSTATE
ENGINEERING**

SHEET NO

Interstate Engineering, Inc.
P.O. Box 648
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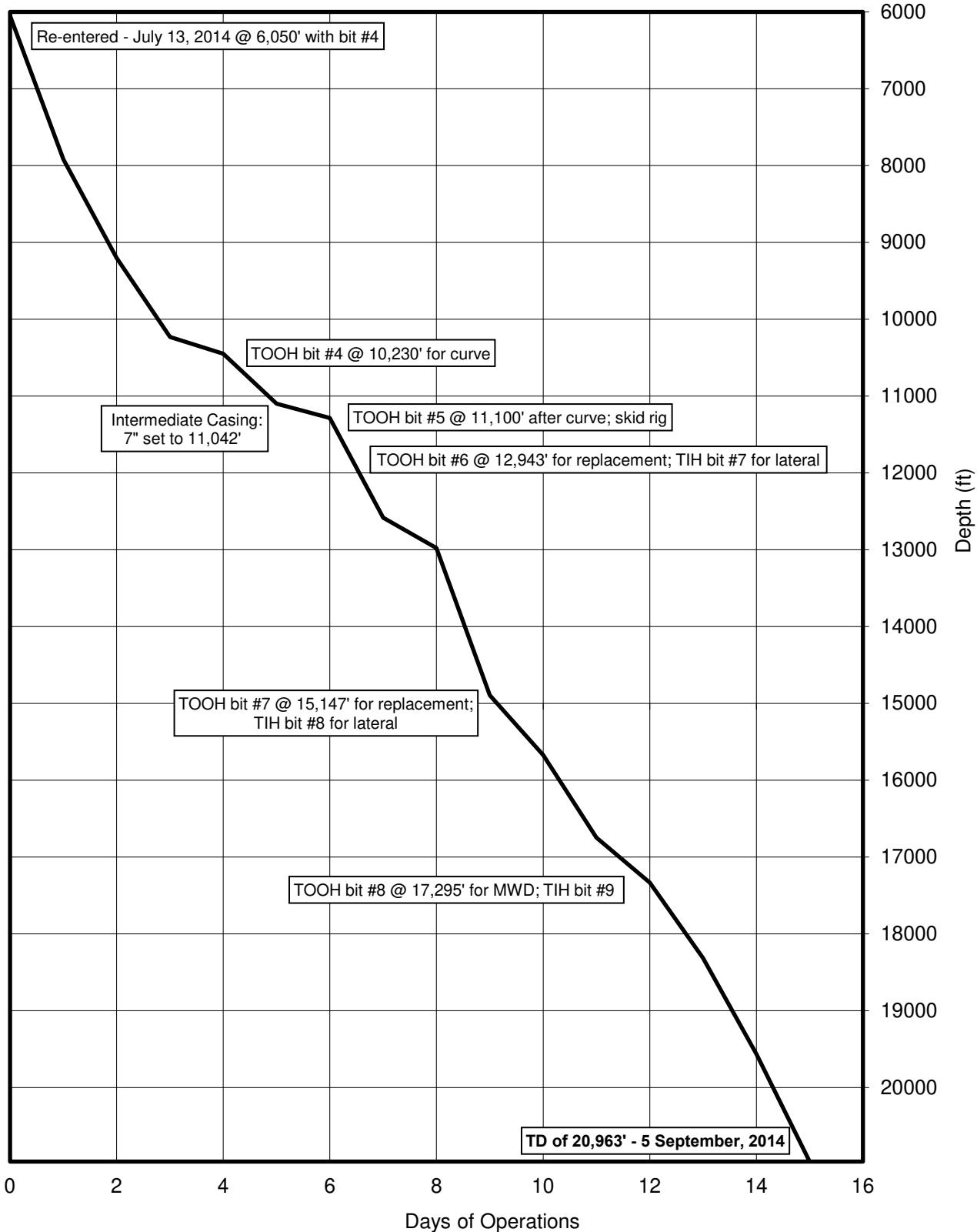
<p>Interstate Engineering, Inc. P.O. Box 648 425 East Main Street Sidney, Montana 59270 Ph. (406) 433-5617 Fax (406) 433-5618 www.interstateeng.com</p>	<p>OASIS PETROLEUM NORTH AMERICA, LLC QUAD LOCATION MAP SECTION 24, T153N, R101W</p>
<p>MCKENZIE COUNTY, NORTH DAKOTA</p>	
<p>Drawn by: J.S.</p>	<p>Project No.: S13-09-235-01</p>
<p>Checked by: D.D.K.</p>	<p>Date: MAY 2014</p>

Revision No.	Date	By	Description
REV 2	1/25/13	JJB	CHANGED PAD LAYOUT
REV 3	1/25/14	JBB	CHANGED PAD LAYOUT
REV 4	1/25/14	JJB	ADDED WELL TO PAD
REV 5	1/25/14	JJB	CHANGED NAME, MOVED WELL
REV 6	8/17/14	JMB	ADDED UNITS/INCHES

TIME VS. DEPTH

Oasis Petroleum North America, LLC

Chalmers 5301 44-24 4T2R



MORNING REPORT SUMMARY

Day	Date 2014	Depth (0600 Hrs)	24 Hr Footage	Bit #	WOB (Klbs RT)	RPM (RT)	WOB (Klbs MM)	RPM (MM)	PP	SPM 1	SPM 2	GPM	24 Hr Activity Summary		Formation
0	7/13	6,050'	-	-	-	-	-	-	-	-	-	-			-
1	7/14	7,920'	1870	4	25	50	10	253	3300	75	75	517	TIH, drill out float, formation integrity test, drill F/6050 to 6895, rig service, drill F/6895 to 7920		-
2	7/15	9,201'	1281	4	25	50	10	253	3280	75	75	517	Drill F/7931 to 8605, service rig, greased crown and blocks, drill F/8605 to 9201		-
3	7/16	10,230'	1029	4	25	50	10	253	3400	75	75	517	Drill F/9165 to 9864, service top drive/greased black jack, lower well/functioned HCR, drill F/9864 to 10230, circulate and condition, TOOH		-
4	7/17	10,447'	217	5	25	50	10	253	3200	75	75	517	TOOH, LD BHA, pre job safety CBL logging rig up and meeting, case hole logs, rig down loggers, P/U BHA, TIH, drill F/10230 to 10447		-
													Working as directed by operator on previous well, Skid rig, RD flowline, catwalk, derrick assists, water, air to rig, Skid rig, walk install wellheads, weatherford, remove nightcap, install pack off, Rig up, catwalk, flowline w/ crane truck, Nipple up BOPS		Three Forks
5	8/26	11,100'	653	6	25	50	10	253	3200	75	75	517	Test BOPs, Install/remove wear bushing, Pick up BHA, TIH, Service top drive/fix dye blocks/grease blackjack/crown and blocks, TIH, Change rotating head/rubber remove trip nipple install rotating head, Reaming/washing, Drilling cement/float and shoe, Formation integrity test (fit) 9.7 MW @ 1900 pounds for 30 minutes, Drill F/ 11100 to 11,142		Three Forks
													Drill F/ 11271 to 11920, Service top drive, Drills BOP etc./time 5.25 min, Drill F/ 11920 to 12584		Three Forks
6	8/27	11,285'	185	6	26	40	28	258	2550	0	80	281	Drill F/ 12943 to 12948, Lay down on STD washed HWDP, TOOH/lay down SDS		Three Forks
7	8/28	12,584'	1299	6	17	60	43	138	3322	0	80	281	Drill F/12948 to 12943/lay down on STD washed HWDP, Install/remove wear bushing/pull rotating head/install trip nipple/no flow, TOOH, Pick up BHA, TH, Change rotating head/rubber/remove trip nipple/install rotating head, TIH, Cut drilling line, TIH, Drill F/12943 to 12978		Three Forks
8	8/29	12,978'	394	6	17	50	40	138	2410	80	0	281	Drill F/13001-14064, Service top drive/function HCR, Drill F/14064-14893		Three Forks
9	8/30	14,893'	1915	7	20	40	43	138	2893	80	0	281	Drill F/14893 to 15147, TOOH, Change rotating head/rubber/pull rotating rubber/install trip nipple 0, TOOH, Lay down BHA, Pick up BHA, TH, Service top drive, TIH, Change rotating head/rubber/remove trip nipple/install rotating head, TIH, Circulate and condition fill pipe and bottoms up, Drill F/15147 to 15672		Three Forks
10	8/31	15,672'	779	8	21	50	43	138	3811	80	0	281	Drill F/ 15778 to 16746		Three Forks
11	9/1	16,746'	1074	8	20	50	32	131	3010	76	0	267	Drill F/ 16748 to 17295, Service top drive/ck brakes/calibrate martin decker, Drills-BOP etc., Drill F/17295 to 17332, TOOH, Lay down BHA, Pick up BHA, TIH.		Three Forks
12	9/2	17,332'	586	9	20	50	32	131	3010	76	0	267	TIH, Circulate and condition tag bottom, Drill F/17330 to 17641, Service top drive, Drill F/17641 to 17750, Well control BOP drill, Drill F/ 17750 to 18315		Three Forks
13	9/3	18,315'	983	9	17	60	45	138	3390	80	0	281	Drill F/ 17861 to 18858, Service top drive, Drill F/18858 to 19563		Three Forks
14	9/4	19,563'	1248	9	15	55	52	138	3420	0	80	281	Drill F/19563 to 20963		Three Forks
15	9/5	20,963'	1400	9	14	55	52	138	3558	0	80	281	Drill F/19563 to 20963		Three Forks

DAILY MUD SUMMARY

Date 2014	Mud Depth	Mud WT (ppg)	Vis (sec/ qt)	PV (cP)	YP (lbs/ 100 ft ²)	Gels (lbs/ 100 ft ²)	600/ 300 (ratio)	NAP/ H ₂ O (% by vol)	Cake (API/ HTHP)	Cor. Solids (%)	Oil/ H ₂ O (%)	pH	Excess Lime (lb/bbl)	C ⁻ (mg/L)	LGS/ HGS (%)	Salinity (ppm)	ES	Gain/ Loss (bbls)	
07/05	80'	10.9	60	20	9	8/13/-	49/29	82.9/17.1	68/14	-3	16.8	68/14	1.5	-	1.9	20k	3.5/13	190564	620
07/06	1,046'	10.9	60	20	9	8/13/-	49/29	82.9/17.1	68/14	-3	16.8	68/14	1.5	-	1.9	20k	3.5/13	190564	620
07/07	2,095'	10.9	60	20	9	8/13/-	49/29	82.9/17.1	68/14	-3	16.8	68/14	1.5	-	1.9	20k	3.5/13	190564	620
07/08	2,095'	11.6	61	21	9	9/14/-	51/30	82.5/17.5	66/14	-2	18.8	66/14	1.5	-	1.9	20k	3.5/15.3	190564	535
07/09	3,620'	11.45	78	32	21	20/25/-	85/53	76.5/23.5	62/19	-3	17.8	62/19	2.2	-	2.8	20k	3.4/14.4	147829	560
07/10	5,620'	11.6	57	27	15	15/20/-	69/42	78.8/21.	63/17	-3	18.8	63/17	2	-	2.6	20k	4.0/14.8	162397	580
07/11	5,709'	11.6	55	23	14	14/19/-	60/37	78.8/21.2	63/17	-3	18.8	63/17	2.1	-	2.7	20k	3.5/15.3	162397	620
07/12	6,050'	11.8	63	24	12	13/18/-	60/36	80/20	64/16	-3	18.8	64/16	2	-	2.6	20k	3.5/15.6	170813	625
07/13	6,150'	9.8	59	19	10	10/15/-	48/29	77/23	67/20	-3	11.8	67/20	1.5	-	1.9	20k	3.6/8.5	141484	500
07/14	8,213'	9.9	50	20	12	11/16	52/32	79.1/20.9	68/18	-2	12.8	68/18	1.9	-	2.5	20k	4.8/5	154771	660
07/15	8,106'	9.9	50	20	12	11/16	52/32	79.1/20.9	68/18	-2	12.8	68/18	1.9	-	2.5	20k	4.8/5	154771	660
08/24	8,170'	9.9	50	20	12	11/16	52/32	79.1/20.9	68/18	-2	12.8	68/18	1.9	-	2.5	20k	4.8/5	154771	660
08/25	8,312'	9.9	49	18	9	4/7/-	45/27	79.5/20.5	70/18	-3	10.2	70/18	2	-	2.59	30k	3.7/6.5	256962	652
08/26	11,411'																-57		
08/27	11,411'	9.55	28	1	1	-	3/2	-	0/91.6	-	-	-	-	-	9	-	137k	0.1/0	-
08/29	13,317'	9.55	29	1	1	-	-3/2	-	0/91.7	-	-	-	-	-	8.5	-	147k	0.1/0	-
08/31	15,890'	9.5	29	1	1	-	3/2	-	0/92	-	-	-	-	-	8	-	145k	0.1/0	-
09/02	17,380'	9.5	26	1	1	-	3/2	-	0/92	-	-	-	-	-	8	-	158k	0.1/0	-
09/04	19,830'	9.6	26	1	1	-	3/2	-	0/93	-	-	-	-	-	8.5	-	180k	0.1/0	-

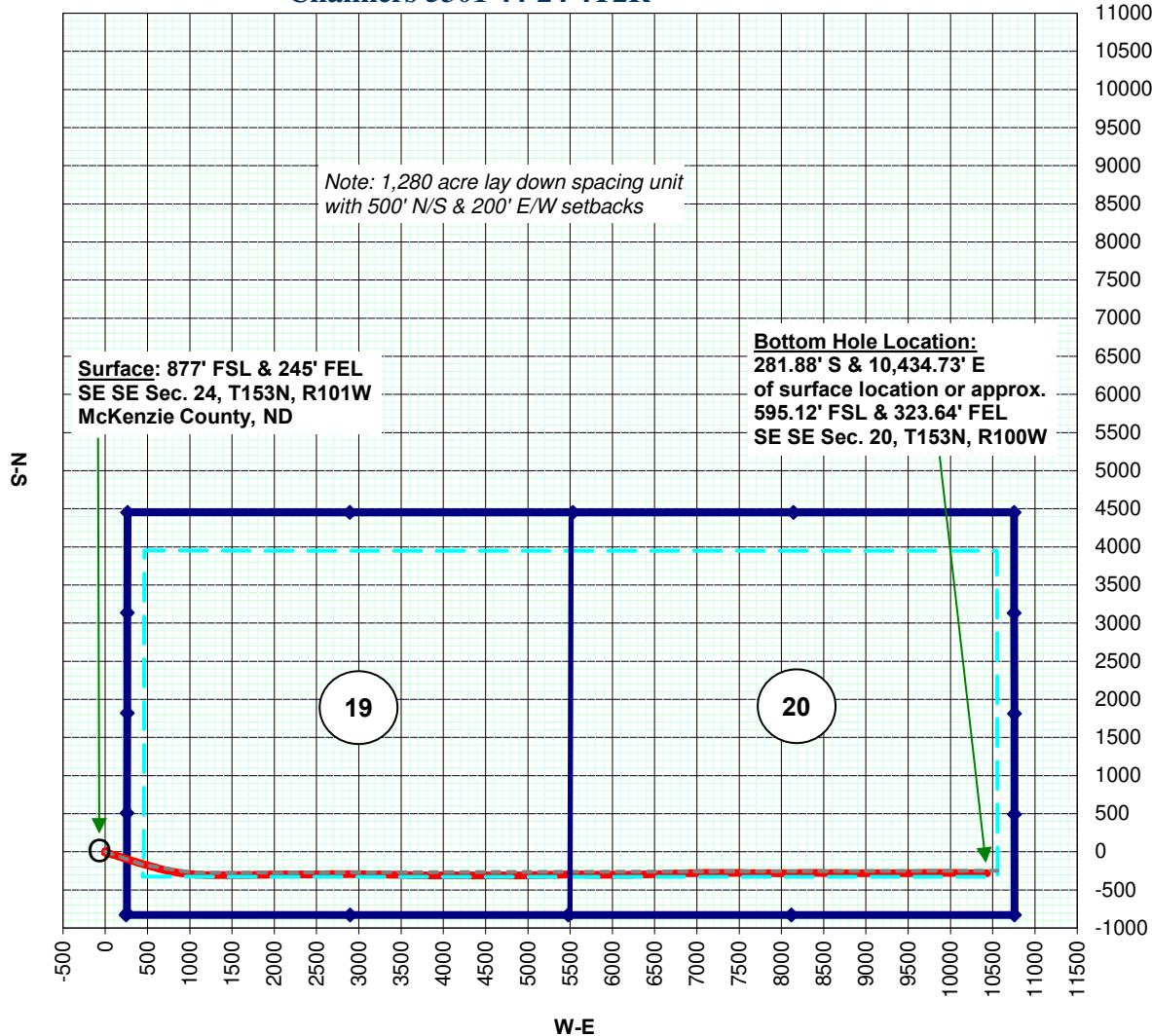
Change mud from diesel invert to salt water

BOTTOM HOLE ASSEMBLY RECORD

Bit #	Size (in.)	Type	Make	Model	Bit Data					Motor Data			Reason For Removal	
					Depth In	Depth Out	Footage	Hours	Σ hrs	Vert. Dev.	Make	Bend	Rev/Gal	
1	17 1/2	PDC	NOV	-	80'	2,095'	2,015'	14	14	Surface	-	-	-	TD surface
2	12 1/4	PDC	Atlas	S616U	2,095'	5,672'	3,577'	30.5	44.5	Vertical	Bico	1.00°	0.29	Replacement
3	12 1/4	PDC	Atlas	S616U	5,672'	6,050'	378'	8.5	53	Vertical	Hunting	2.38°	0.29	Replacement
4	8 3/4	PDC	Security	MM55D	6,050'	10,230'	4,180'	61.5	114.5	Vertical	NOV	2.50°	0.29	TD Vertical
5	8 3/4	PDC	Security	MMD55M	10,230'	11,100'	870'	25.5	140	Curve	Baker	2.50°	0.29	TD curve
6	6	PDC	Security	MMD64D	11,100'	12,943'	1,843'	23	163	Lateral	Baker	1.50°	0.49	Lateral
7	6	PDC	Baker	T-406	12,943'	15,147'	2,204'	30.5	193.5	Lateral	Baker	1.50°	0.49	Lateral
8	6	PDC	Security	MMD64D	15,147'	17,295'	2,148'	38.5	232	Lateral	Baker	1.50°	0.49	Lateral
9	6	PDC	Baker	T307	17,295'	20,963'	3,668'	77	309	Lateral				TD Lateral

PLAN VIEW

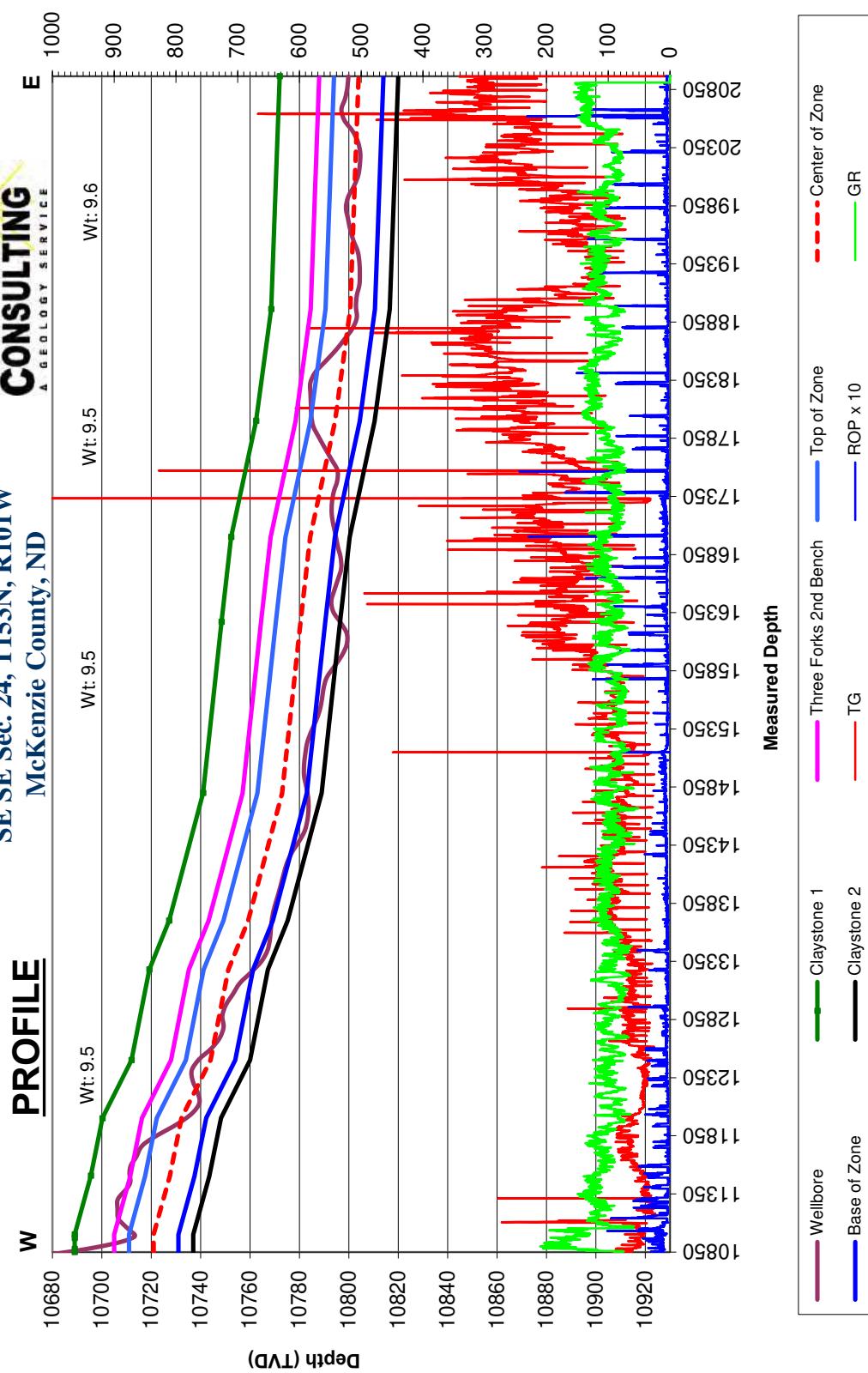
Oasis Petroleum North America, LLC
Chalmers 5301 44-24 4T2R



Oasis Petroleum North America, LLC
 Chalmers 5301 44-24 4T2R
 SE SE Sec. 24, T153N, R101W
 McKenzie County, ND



PROFILE



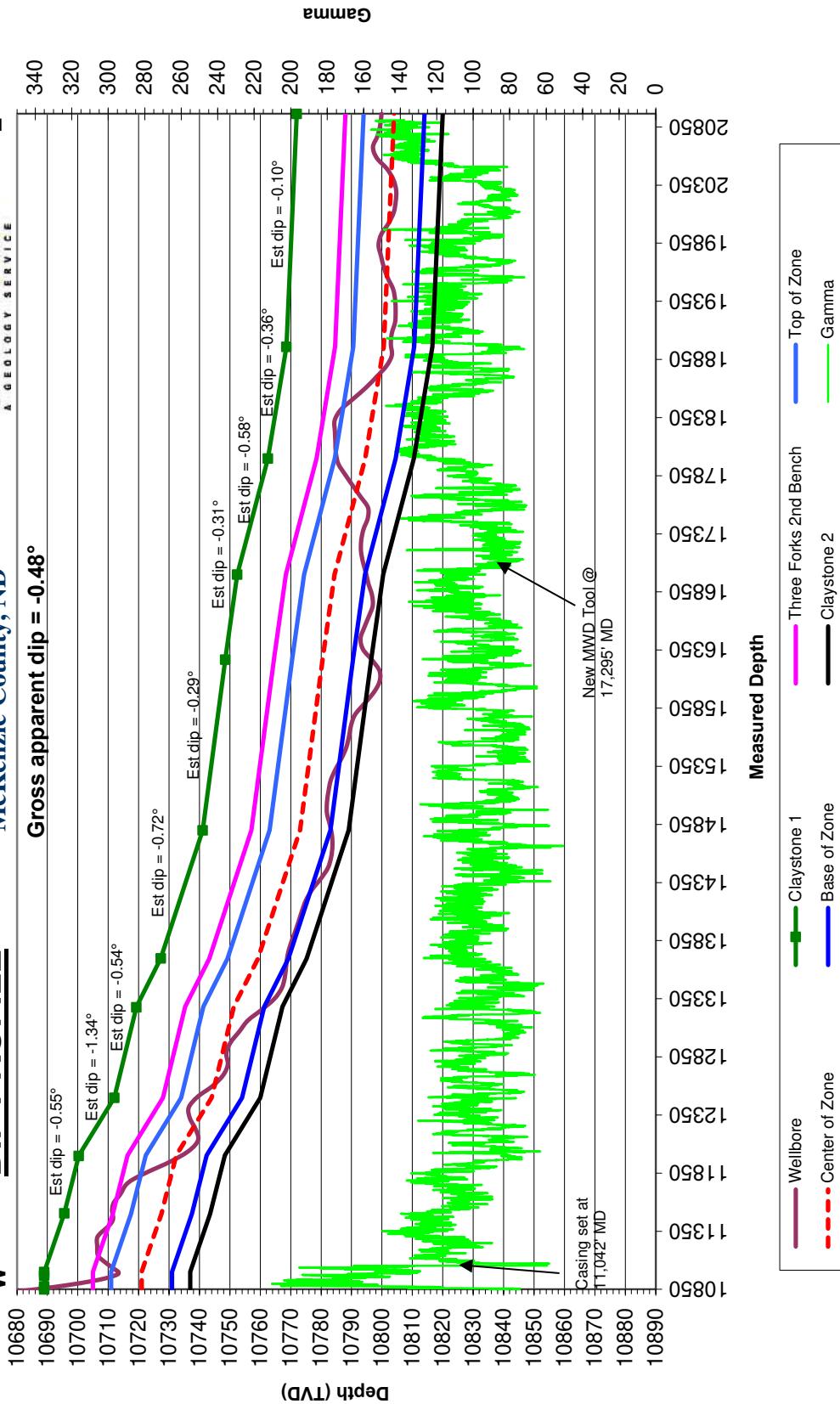
FORMATION MARKERS & DIP ESTIMATES

Oasis Petroleum North America, LLC - Chalmers 5301 44-24 4T2R

Dip Change Points	MD	TVD	TVD diff.	MD diff.	Dip	Dipping up/down	Type of Marker
Marker							
Upper Claystone	10,970'	10,689.00					
Top of Target	11,000'	10,689.00	0.00	30.00	0.00	Flat	Gamma
Upper Claystone	11,507'	10,695.60	6.60	507.00	-0.75	Down	Gamma
Center of Target	12,000'	10,700.30	4.70	493.00	-0.55	Down	Gamma
High Gamma Marker	12,500'	10,712.00	11.70	500.00	-1.34	Down	Gamma
Base of Zone	13,279'	10,719.30	7.30	779.00	-0.54	Down	Gamma
Base of Zone	13,700'	10,727.30	8.00	421.00	-1.09	Down	Gamma
Base of Zone	14,800'	10,741.10	13.80	1100.00	-0.72	Down	Gamma
Lower Claystone	16,270'	10,748.50	7.40	1470.00	-0.29	Down	Gamma
Lower Claystone	17,000'	10,752.40	3.90	730.00	-0.31	Down	Gamma
Top of Zone	18,000'	10,762.50	10.10	1000.00	-0.58	Down	Gamma
Center of Zone	18,960'	10,768.60	6.10	960.00	-0.36	Down	Gamma
Target Depth	20,963'	10,772.00	3.40	2003.00	-0.10	Down	Gamma
Gross Dip							
Initial Target Contact	11,000'	10,689.00					
Projected Final Target Contact	20,963'	10,772.00	83.00	9963.00	-0.48	Down	Projection

Oasis Petroleum North America, LLC
Chalmers 5301 44-24 4T2R
SE SE Sec. 24, T153N, R101W
McKenzie County, ND

DIP PROFILE



SUNBURST CONSULTING, INC.

< >

Operator:	Oasis Petroleum North America, LLC	
Well :	Chalmers 5301 44-24 4T2R	
County:	McKenzie	State: ND
QQ:	SE SE	Section: 24
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	877	FN/SL: S
	245	FE/WL: E

Kick-off:	7/17/2014
Finish:	9/5/2014
Directional Supervision:	Ryan

Date: 9/15/2014
 Time: 12:36
F9 to re-calculate

Proposed dir: 91.34

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
Tie	2031.00	0.20	159.90	2030.88	3.22	11.37	11.37	0.58
1	2097.00	0.30	174.40	2096.88	2.94	11.43	11.35	0.18
2	2190.00	0.40	184.10	2189.88	2.37	11.43	11.37	0.12
3	2284.00	0.70	186.50	2283.87	1.48	11.34	11.30	0.32
4	2377.00	1.10	183.30	2376.86	0.02	11.22	11.22	0.43
5	2470.00	1.40	197.20	2469.84	-1.96	10.84	10.88	0.46
6	2564.00	1.30	220.50	2563.81	-3.86	9.80	9.89	0.59
7	2657.00	0.70	221.80	2656.80	-5.09	8.74	8.86	0.65
8	2750.00	0.70	235.90	2749.79	-5.83	7.89	8.02	0.18
9	2843.00	0.80	219.10	2842.78	-6.65	7.01	7.16	0.26
10	2937.00	0.40	202.10	2936.78	-7.47	6.47	6.65	0.46
11	3030.00	0.10	180.50	3029.78	-7.85	6.35	6.53	0.33
12	3123.00	0.30	36.00	3122.78	-7.73	6.49	6.67	0.41
13	3217.00	0.40	35.40	3216.78	-7.27	6.83	7.00	0.11
14	3310.00	0.40	40.90	3309.77	-6.76	7.23	7.38	0.04
15	3403.00	0.40	38.70	3402.77	-6.26	7.64	7.79	0.02
16	3496.00	0.40	43.10	3495.77	-5.77	8.07	8.20	0.03
17	3590.00	0.60	49.80	3589.77	-5.21	8.67	8.79	0.22
18	3683.00	0.50	48.30	3682.76	-4.63	9.34	9.45	0.11
19	3776.00	0.60	59.30	3775.76	-4.11	10.07	10.16	0.16
20	3869.00	0.60	79.70	3868.75	-3.77	10.96	11.05	0.23
21	3963.00	0.60	96.00	3962.75	-3.74	11.94	12.02	0.18
22	4056.00	0.10	341.80	4055.75	-3.71	12.40	12.48	0.70
23	4149.00	0.40	284.50	4148.74	-3.55	12.06	12.14	0.38
24	4243.00	0.40	262.90	4242.74	-3.51	11.41	11.49	0.16
25	4336.00	0.40	261.10	4335.74	-3.60	10.77	10.85	0.01
26	4429.00	0.60	262.60	4428.74	-3.71	9.97	10.05	0.22
27	4522.00	0.60	261.50	4521.73	-3.85	9.00	9.09	0.01
28	4616.00	0.60	267.80	4615.73	-3.94	8.02	8.11	0.07
29	4709.00	0.70	270.00	4708.72	-3.96	6.97	7.06	0.11
30	4802.00	0.80	264.60	4801.71	-4.02	5.75	5.85	0.13
31	4895.00	0.70	248.80	4894.70	-4.29	4.58	4.68	0.25
32	4989.00	0.70	245.30	4988.70	-4.73	3.52	3.63	0.05
33	5082.00	0.70	239.10	5081.69	-5.26	2.52	2.64	0.08
34	5175.00	0.70	238.50	5174.68	-5.85	1.55	1.68	0.01

SUNBURST CONSULTING, INC.

< >

Operator:	Oasis Petroleum North America, LLC	
Well :	Chalmers 5301 44-24 4T2R	
County:	McKenzie	State: ND
QQ:	SE SE	Section: 24
Township:	153	N/S: N
Range:	101	E/W: W
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[North and East are positive and South and West are negative, relative to surface location]

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
35	5269.00	0.60	229.80	5268.68	-6.47	0.68	0.83	0.15
36	5362.00	0.70	241.40	5361.67	-7.05	-0.19	-0.03	0.18
37	5455.00	0.50	239.30	5454.67	-7.53	-1.04	-0.86	0.22
38	5548.00	0.20	140.70	5547.67	-7.87	-1.28	-1.10	0.61
39	5642.00	0.40	148.40	5641.66	-8.27	-1.01	-0.81	0.22
40	5735.00	0.10	216.80	5734.66	-8.61	-0.89	-0.69	0.40
41	5828.00	0.10	223.00	5827.66	-8.74	-0.99	-0.79	0.01
42	5922.00	0.30	1.40	5921.66	-8.55	-1.04	-0.84	0.40
43	5996.00	0.20	332.70	5995.66	-8.24	-1.10	-0.90	0.21
44	6094.00	0.10	256.00	6093.66	-8.11	-1.26	-1.07	0.21
45	6187.00	0.40	183.20	6186.66	-8.46	-1.35	-1.16	0.41
46	6281.00	0.90	70.30	6280.66	-8.54	-0.68	-0.48	1.19
47	6374.00	0.50	45.80	6373.65	-8.01	0.30	0.49	0.53
48	6467.00	0.40	132.30	6466.65	-7.94	0.83	1.02	0.67
49	6561.00	0.10	127.10	6560.65	-8.21	1.14	1.33	0.32
50	6654.00	0.70	40.30	6653.64	-7.83	1.57	1.76	0.75
51	6747.00	0.50	38.20	6746.64	-7.08	2.19	2.36	0.22
52	6840.00	0.70	72.90	6839.63	-6.59	2.99	3.14	0.44
53	6934.00	0.70	107.60	6933.63	-6.59	4.08	4.23	0.44
54	7027.00	0.90	11.30	7026.62	-6.05	4.77	4.91	1.29
55	7120.00	1.20	13.30	7119.61	-4.39	5.13	5.23	0.32
56	7213.00	0.60	8.30	7212.59	-2.96	5.43	5.50	0.65
57	7307.00	0.60	26.00	7306.59	-2.03	5.71	5.76	0.20
58	7400.00	0.70	27.30	7399.58	-1.08	6.19	6.21	0.11
59	7493.00	0.40	353.30	7492.58	-0.26	6.41	6.42	0.46
60	7587.00	0.40	7.60	7586.58	0.39	6.42	6.41	0.11
61	7680.00	0.70	52.50	7679.57	1.06	6.91	6.88	0.54
62	7773.00	0.70	45.20	7772.57	1.81	7.76	7.72	0.10
63	7866.00	1.00	26.40	7865.56	2.93	8.53	8.46	0.44
64	7960.00	1.10	316.20	7959.54	4.32	8.27	8.16	1.29
65	8053.00	0.80	304.20	8052.53	5.33	7.11	6.99	0.39
66	8146.00	0.90	263.40	8145.52	5.61	5.85	5.72	0.65
67	8240.00	0.90	231.20	8239.51	5.06	4.54	4.42	0.53
68	8333.00	0.90	232.10	8332.50	4.16	3.40	3.30	0.02
69	8426.00	1.00	211.30	8425.49	3.01	2.40	2.33	0.38

SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC	
Well :	Chalmers 5301 44-24 4T2R	
County:	McKenzie	State: ND
QQ:	SE SE	Section: 24
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	877	FN/SL: S
	245	FE/WL: E

Kick-off:	7/17/2014
Finish:	9/5/2014
Directional Supervision:	Ryan

Date: 9/15/2014
 Time: 12:36
F9 to re-calculate

Proposed dir: 91.34

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
70	8519.00	1.10	207.30	8518.47	1.53	1.57	1.53	0.13
71	8613.00	1.30	225.20	8612.45	-0.02	0.40	0.40	0.45
72	8706.00	0.90	191.80	8705.43	-1.48	-0.50	-0.47	0.79
73	8799.00	0.70	177.80	8798.42	-2.77	-0.63	-0.56	0.30
74	8892.00	0.90	158.70	8891.42	-4.01	-0.34	-0.25	0.36
75	8986.00	1.10	174.20	8985.40	-5.60	0.02	0.15	0.36
76	9079.00	0.20	108.40	9078.40	-6.54	0.26	0.41	1.11
77	9172.00	0.70	94.80	9171.39	-6.64	0.98	1.14	0.55
78	9266.00	0.40	78.60	9265.39	-6.62	1.88	2.03	0.36
79	9359.00	0.40	78.80	9358.39	-6.49	2.51	2.66	0.00
80	9452.00	0.50	88.40	9451.38	-6.42	3.24	3.39	0.13
81	9545.00	0.50	103.10	9544.38	-6.50	4.04	4.19	0.14
82	9639.00	0.10	172.10	9638.38	-6.67	4.45	4.60	0.50
83	9732.00	0.50	141.90	9731.38	-7.07	4.71	4.87	0.45
84	9825.00	0.60	71.70	9824.37	-7.24	5.42	5.59	0.69
85	9919.00	0.20	56.50	9918.37	-7.00	6.03	6.19	0.44
86	10012.00	0.20	264.90	10011.37	-6.92	6.00	6.16	0.42
87	10105.00	0.80	197.80	10104.37	-7.55	5.64	5.82	0.80
88	10175.00	0.60	203.40	10174.36	-8.35	5.35	5.54	0.30
89	10202.00	0.70	220.60	10201.36	-8.61	5.18	5.38	0.81
90	10233.00	2.50	125.40	10232.35	-9.14	5.61	5.82	8.57
91	10265.00	7.00	115.60	10264.23	-10.39	7.94	8.18	14.24
92	10296.00	11.30	112.60	10294.83	-12.38	12.45	12.73	13.95
93	10327.00	16.20	111.30	10324.93	-15.12	19.28	19.63	15.84
94	10358.00	20.00	109.00	10354.39	-18.41	28.33	28.75	12.47
95	10389.00	22.60	107.50	10383.27	-21.93	39.02	39.53	8.57
96	10420.00	25.70	106.50	10411.56	-25.63	51.15	51.74	10.09
97	10451.00	29.60	106.50	10439.01	-29.72	64.94	65.62	12.58
98	10482.00	33.40	106.00	10465.44	-34.25	80.49	81.27	12.29
99	10513.00	37.40	106.80	10490.70	-39.32	97.71	98.61	12.99
100	10544.00	41.00	107.60	10514.72	-45.12	116.43	117.45	11.73
101	10575.00	43.70	108.60	10537.63	-51.61	136.27	137.44	8.98
102	10607.00	46.70	109.60	10560.18	-59.04	157.72	159.06	9.63
103	10638.00	50.40	110.50	10580.69	-67.01	179.55	181.06	12.13
104	10669.00	54.20	110.30	10599.65	-75.56	202.53	204.24	12.27

SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC	
Well :	Chalmers 5301 44-24 4T2R	
County:	McKenzie	State: ND
QQ:	SE SE	Section: 24
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	877	FN/SL: S
	245	FE/WL: E

Kick-off:	7/17/2014
Finish:	9/5/2014
Directional Supervision:	Ryan
Date:	9/15/2014
Time:	12:36
F9 to re-calculate	
Proposed dir:	91.34

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
105	10700.00	56.10	110.30	10617.36	-84.39	226.39	228.30	6.13
106	10731.00	57.10	110.20	10634.43	-93.34	250.67	252.79	3.24
107	10762.00	60.30	110.30	10650.53	-102.51	275.52	277.84	10.33
108	10793.00	64.60	109.80	10664.86	-111.93	301.33	303.87	13.94
109	10824.00	68.70	109.20	10677.15	-121.43	328.16	330.91	13.34
110	10855.00	71.90	108.50	10687.60	-130.85	355.77	358.74	10.54
111	10886.00	74.90	108.40	10696.45	-140.25	383.95	387.13	9.68
112	10917.00	77.80	108.40	10703.77	-149.76	412.53	415.92	9.35
113	10948.00	80.70	108.30	10709.55	-159.35	441.44	445.04	9.36
114	10980.00	86.40	107.90	10713.14	-169.22	471.65	475.48	17.86
115	11001.00	92.70	107.10	10713.31	-175.53	491.66	495.64	30.24
116	11042.00	93.50	107.20	10711.09	-187.61	530.78	535.03	1.97
117	11116.00	92.20	107.10	10707.41	-209.40	601.40	606.14	1.76
118	11146.00	91.00	106.20	10706.57	-217.99	630.14	635.06	5.00
119	11177.00	89.70	106.40	10706.38	-226.69	659.89	665.01	4.24
120	11208.00	90.20	106.20	10706.41	-235.39	689.64	694.96	1.74
121	11239.00	90.10	105.00	10706.33	-243.73	719.50	725.00	3.88
122	11270.00	90.20	103.10	10706.25	-251.25	749.57	755.24	6.14
123	11301.00	89.00	101.60	10706.47	-257.88	779.85	785.67	6.20
124	11332.00	87.50	100.60	10707.41	-263.85	810.26	816.20	5.81
125	11363.00	87.50	100.59	10708.76	-269.54	840.70	846.77	0.03
126	11394.00	87.70	100.80	10710.06	-275.29	871.13	877.33	0.94
127	11424.00	88.40	98.40	10711.08	-280.29	900.69	907.00	8.33
128	11455.00	89.70	98.10	10711.60	-284.74	931.37	937.77	4.30
129	11486.00	90.50	97.90	10711.54	-289.05	962.07	968.56	2.66
130	11516.00	90.50	95.20	10711.28	-292.47	991.87	998.43	9.00
131	11547.00	89.40	95.40	10711.31	-295.34	1022.73	1029.36	3.61
132	11578.00	89.70	94.70	10711.55	-298.07	1053.61	1060.29	2.46
133	11609.00	88.20	92.70	10712.12	-300.07	1084.54	1091.26	8.06
134	11640.00	88.00	92.40	10713.15	-301.44	1115.49	1122.24	1.16
135	11671.00	88.70	92.60	10714.04	-302.80	1146.45	1153.22	2.35
136	11702.00	88.80	92.20	10714.72	-304.09	1177.41	1184.20	1.33
137	11732.00	88.90	92.30	10715.32	-305.27	1207.38	1214.19	0.47
138	11763.00	87.30	90.60	10716.35	-306.06	1238.36	1245.17	7.53
139	11794.00	86.60	90.30	10718.00	-306.30	1269.31	1276.13	2.46

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SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC	
Well :	Chalmers 5301 44-24 4T2R	
County:	McKenzie	State: ND
QQ:	SE SE	Section: 24
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	877	FN/SL: S
	245	FE/WL: E

Kick-off:	7/17/2014
Finish:	9/5/2014
Directional Supervision:	Ryan
Date:	9/15/2014
Time:	12:36
F9 to re-calculate	
Proposed dir:	91.34

Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
140	11857.00	84.80	90.40	10722.72	-306.68	1332.13	1338.94	2.86
141	11950.00	85.60	89.80	10730.50	-306.84	1424.80	1431.59	1.07
142	12043.00	86.90	89.60	10736.58	-306.36	1517.60	1524.35	1.41
143	12135.00	89.40	89.50	10739.55	-305.64	1609.54	1616.25	2.72
144	12228.00	91.60	89.00	10738.74	-304.42	1702.52	1709.18	2.43
145	12321.00	90.70	88.60	10736.88	-302.47	1795.48	1802.07	1.06
146	12414.00	89.80	88.60	10736.47	-300.20	1888.45	1894.96	0.97
147	12507.00	86.60	88.80	10739.39	-298.09	1981.37	1987.80	3.45
148	12599.00	87.30	89.20	10744.29	-296.49	2073.23	2079.59	0.88
149	12692.00	88.40	90.00	10747.77	-295.84	2166.16	2172.48	1.46
150	12786.00	89.70	90.50	10749.33	-296.25	2260.14	2266.45	1.48
151	12880.00	90.90	91.10	10748.84	-297.56	2354.13	2360.44	1.43
152	12975.00	87.40	89.20	10750.25	-297.81	2449.10	2455.39	4.19
153	13069.00	89.10	89.50	10753.12	-296.75	2543.04	2549.29	1.84
154	13163.00	87.50	88.50	10755.91	-295.11	2636.98	2643.16	2.01
155	13257.00	86.90	89.40	10760.50	-293.39	2730.86	2736.97	1.15
156	13350.00	88.00	89.70	10764.64	-292.66	2823.76	2829.83	1.23
157	13444.00	89.00	90.30	10767.10	-292.66	2917.73	2923.77	1.24
158	13538.00	89.80	91.20	10768.08	-293.89	3011.71	3017.76	1.28
159	13631.00	89.70	91.10	10768.49	-295.75	3104.69	3110.76	0.15
160	13726.00	89.70	90.80	10768.99	-297.33	3199.68	3205.75	0.32
161	13819.00	89.10	90.70	10769.96	-298.54	3292.66	3298.74	0.65
162	13913.00	89.30	91.80	10771.27	-300.60	3386.63	3392.73	1.19
163	14007.00	89.20	91.50	10772.50	-303.30	3480.58	3486.72	0.34
164	14101.00	89.40	91.40	10773.65	-305.68	3574.55	3580.72	0.24
165	14195.00	89.00	91.20	10774.96	-307.81	3668.51	3674.71	0.48
166	14289.00	88.50	89.80	10777.02	-308.63	3762.48	3768.67	1.58
167	14383.00	88.00	89.70	10779.89	-308.22	3856.44	3862.59	0.54
168	14476.00	89.10	90.20	10782.24	-308.14	3949.41	3955.53	1.30
169	14571.00	89.60	90.30	10783.32	-308.56	4044.40	4050.51	0.54
170	14665.00	89.90	90.00	10783.73	-308.80	4138.40	4144.49	0.45
171	14758.00	90.30	90.20	10783.56	-308.96	4231.40	4237.47	0.48
172	14853.00	90.60	90.40	10782.82	-309.46	4326.39	4332.45	0.38
173	14946.00	90.50	90.40	10781.93	-310.11	4419.39	4425.43	0.11
174	15040.00	89.50	89.80	10781.93	-310.28	4513.38	4519.41	1.24

SUNBURST CONSULTING, INC.

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Operator:	Oasis Petroleum North America, LLC	
Well :	Chalmers 5301 44-24 4T2R	
County:	McKenzie	State: ND
QQ:	SE SE	Section: 24
Township:	153	N/S: N
Range:	101	E/W: W
Footages:	877	FN/SL: S
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Kick-off:	7/17/2014
Finish:	9/5/2014
Directional Supervision:	Ryan
Date:	9/15/2014
Time:	12:36
F9 to re-calculate	
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Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
175	15135.00	89.90	90.40	10782.42	-310.44	4608.38	4614.38	0.76
176	15229.00	89.20	90.30	10783.16	-311.02	4702.38	4708.36	0.75
177	15323.00	88.90	89.90	10784.72	-311.18	4796.36	4802.33	0.53
178	15417.00	88.70	89.10	10786.69	-310.36	4890.34	4896.26	0.88
179	15512.00	89.40	89.00	10788.26	-308.78	4985.31	4991.17	0.74
180	15606.00	89.50	88.60	10789.17	-306.82	5079.29	5085.07	0.44
181	15700.00	89.70	88.40	10789.82	-304.36	5173.25	5178.96	0.30
182	15793.00	88.70	89.10	10791.12	-302.33	5266.22	5271.85	1.31
183	15887.00	87.60	88.70	10794.16	-300.52	5360.15	5365.71	1.25
184	15981.00	88.70	89.70	10797.19	-299.21	5454.09	5459.60	1.58
185	16075.00	88.90	89.70	10799.16	-298.72	5548.07	5553.54	0.21
186	16169.00	91.00	90.90	10799.24	-299.21	5642.06	5647.51	2.57
187	16263.00	92.00	90.20	10796.78	-300.11	5736.02	5741.47	1.30
188	16356.00	91.70	90.40	10793.78	-300.60	5828.97	5834.41	0.39
189	16450.00	89.30	90.70	10792.96	-301.50	5922.96	5928.39	2.57
190	16544.00	89.20	89.60	10794.19	-301.75	6016.95	6022.36	1.17
191	16638.00	89.00	89.60	10795.66	-301.09	6110.93	6116.30	0.21
192	16731.00	89.40	88.90	10796.96	-299.88	6203.92	6209.23	0.87
193	16825.00	90.90	88.90	10796.72	-298.07	6297.90	6303.14	1.60
194	16919.00	90.50	88.60	10795.57	-296.02	6391.87	6397.04	0.53
195	17012.00	90.50	89.00	10794.76	-294.07	6484.84	6489.95	0.43
196	17106.00	90.70	89.00	10793.77	-292.43	6578.82	6583.86	0.21
197	17200.00	90.10	88.50	10793.12	-290.38	6672.80	6677.76	0.83
198	17295.00	89.80	87.50	10793.20	-287.07	6767.74	6772.60	1.10
199	17389.00	89.30	87.50	10793.94	-282.97	6861.64	6866.39	0.53
200	17483.00	89.00	88.30	10795.33	-279.52	6955.57	6960.21	0.91
201	17576.00	90.90	89.80	10795.41	-277.98	7048.55	7053.12	2.60
202	17670.00	92.10	89.70	10792.95	-277.57	7142.52	7147.05	1.28
203	17764.00	91.00	90.50	10790.41	-277.73	7236.48	7241.00	1.45
204	17858.00	92.00	90.20	10787.95	-278.31	7330.44	7334.95	1.11
205	17951.00	90.80	89.90	10785.68	-278.39	7423.41	7427.89	1.33
206	18045.00	90.20	90.90	10784.86	-279.05	7517.41	7521.88	1.24
207	18138.00	90.00	90.30	10784.69	-280.02	7610.40	7614.87	0.68
208	18231.00	90.20	89.90	10784.53	-280.18	7703.40	7707.85	0.48
209	18325.00	89.90	89.60	10784.45	-279.77	7797.40	7801.81	0.45

SUNBURST CONSULTING, INC.

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Minimum Curvature Method (SPE-3362)

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

No.	MD	INC	TRUE				SECT	DLS/ 100
			AZM	TVD	N-S	E-W		
210	18418.00	87.60	90.40	10786.48	-279.77	7890.37	7894.76	2.62
211	18512.00	87.40	89.90	10790.58	-280.02	7984.28	7988.65	0.57
212	18606.00	87.60	90.10	10794.68	-280.02	8078.19	8082.53	0.30
213	18699.00	88.10	89.50	10798.17	-279.69	8171.12	8175.43	0.84
214	18793.00	87.90	89.50	10801.45	-278.87	8265.06	8269.32	0.21
215	18887.00	89.90	90.10	10803.25	-278.55	8359.04	8363.27	2.22
216	18982.00	90.50	90.40	10802.92	-278.96	8454.04	8458.25	0.71
217	19076.00	89.10	90.00	10803.25	-279.29	8548.03	8552.23	1.55
218	19171.00	89.60	89.70	10804.33	-279.04	8643.03	8647.19	0.61
219	19266.00	90.20	90.60	10804.49	-279.29	8738.03	8742.17	1.14
220	19361.00	90.00	90.50	10804.33	-280.20	8833.02	8837.16	0.24
221	19455.00	90.80	90.50	10803.67	-281.02	8927.01	8931.14	0.85
222	19550.00	91.30	90.50	10801.93	-281.85	9021.99	9026.12	0.53
223	19644.00	90.30	90.00	10800.62	-282.26	9115.98	9120.09	1.19
224	19739.00	90.80	89.70	10799.71	-282.01	9210.98	9215.05	0.61
225	19833.00	90.20	90.40	10798.89	-282.09	9304.97	9309.03	0.98
226	19927.00	88.70	89.80	10799.79	-282.26	9398.97	9403.00	1.72
227	20020.00	88.40	88.70	10802.14	-281.04	9491.93	9495.90	1.23
228	20114.00	89.50	89.50	10803.86	-279.56	9585.90	9589.81	1.45
229	20208.00	89.70	89.00	10804.52	-278.33	9679.89	9683.75	0.57
230	20302.00	90.10	89.70	10804.68	-277.27	9773.88	9777.69	0.86
231	20396.00	91.00	90.80	10803.78	-277.68	9867.87	9871.67	1.51
232	20490.00	91.60	90.40	10801.65	-278.66	9961.84	9965.63	0.77
233	20584.00	92.50	90.00	10798.29	-278.99	10055.78	10059.55	1.05
234	20678.00	89.00	90.70	10797.06	-279.56	10149.75	10153.52	3.80
235	20772.00	89.20	90.50	10798.53	-280.55	10243.74	10247.50	0.30
236	20866.00	89.70	90.30	10799.44	-281.20	10337.73	10341.48	0.57
237	20963.00	89.80	90.50	10799.86	-281.88	10434.73	10438.47	0.23

FORMATION TOPS & STRUCTURAL RELATIONSHIPS

Subject Well:		Offset Wells:									
Formation/ Marker	Prog. Top	Prog. Datum (MSL)	Driller's Depth Top (MD)	Driller's Depth Top (TVD)	Datum (MSL)	Interval Thickness	To Target	Dip To Prog.	Dip To Chalmers 5301 44-24 3BR	Dip To Chalmers 5301 44-24 2TR	Dip To Chalmers 5300 31-19H
Kibbey Lime	8,269'	-6,301'	8,267'	8,266'	-6,298'	172'	2,443'	3'	2'	-2'	13'
Charles	8,433'	-6,465'	8,439'	8,438'	-6,470'	545'	2,271'	5'	1'	-9'	5'
UB	8,982'	-7,014'	8,982'	8,983'	-7,015'	84'	1,726'	-1'	4'	-1'	34'
Base Last Salt	9,062'	-7,094'	9,068'	9,067'	-7,099'	46'	1,642'	5'	4'	-5'	31'
Ratcliffe	9,109'	-7,141'	9,114'	9,113'	-7,145'	175'	1,596'	4'	4'	-4'	34'
Mission Canyon	9,286'	-7,318'	9,289'	9,288'	-7,320'	558'	1,421'	2'	3'	-2'	29'
Lodgepole	9,845'	-7,877'	9,847'	9,846'	-7,878'	109'	863'	1'	3'	-1'	37'
Lodgepole A	9,952'	-7,984'	9,956'	9,955'	-7,987'	136'	754'	3'	7'	-2'	7'
Lodgepole B	10,093'	-8,125'	10,092'	10,091'	-8,123'	68'	618'	2'	38'	2'	25'
Lodgepole C	10,180'	-8,212'	10,160'	10,159'	-8,191'	115'	550'	21'	68'	0'	28'
Lodgepole D	10,283'	-8,315'	10,275'	10,274'	-8,306'	147'	435'	9	4'	1'	16'
Lodgepole E	10,428'	-8,460'	10,432'	10,421'	-8,453'	72'	288'	7'	8'	0'	15'
Lodgepole F	10,501'	-8,533'	10,518'	10,493'	-8,525'	81'	216'	8'	4'	-1'	15'
False Bakken	10,577'	-8,609'	10,626'	10,574'	-8,606'	11'	135'	3'	10'	3'	21'
Upper Bakken	10,585'	-8,617'	10,642'	10,585'	-8,617'	15'	124'	0'	7'	0'	19'
Middle Bakken	10,602'	-8,634'	10,668'	10,600'	-8,632'	39'	109'	2	12'	2'	22'
Lower Bakken	10,644'	-8,676'	10,740'	10,639'	-8,671'	15'	70'	5'	8'	5'	14'
Pronghorn	10,655'	-8,687'	10,800'	10,654'	-8,686'	22'	55'	1'	4'	1'	9'
Threeforks 1st Bench	10,669'	-8,701'	10,816'	10,676'	-8,708'	16'	33'	-7'	-1'	-2'	3'
Claystone 1	10,690'	-8,722'	10,876'	10,692'	-8,724'	14'	17'	-2'	10'	10'	15'
Three Forks 2nd Bench	10,702'	-8,734'	10,973'	10,706'	-8,738'	6'	3'	-4'	8'	8'	14'
Target Top	10,710'	-8,742'	10,999'	10,712'	-8,744'	3'	-3'	-2'	12'	12'	18'
Landing Target	10,715'	-8,747'	11,100'	10,709'	-8,741'	-	0'	6'	20'	20'	26'

CONTROL DATA

Operator:	Oasis Petroleum North America			Oasis Petroleum North America			Oasis Petroleum North America
Well Name:	Chalmers 5301 44-24 3BR			Chalmers 5301 44-24 2TR			Chalmers 5300 31-19H
Location:	SE SE Section 24, T153N, R101W McKenzie Co., ND shares pad with subject well			SE SE Section 24, T153N, R101W McKenzie Co., ND shares pad with subject well			NW SW Sec.19, T153N, R100W McKenzie Co., ND 0.16 miles northeast of subject well
Elevation:	KB: 1,968'			KB: 1,968'			KB: 1,929'
Formation/ Zone	E-Log Top	Datum (MSL)	Interval Thickness to Target	E-Log Top	Datum (MSL)	Interval Thickness to Target	E-Log Top
Kibbey Lime	8,268'	-6,300'	171'	2,461'	8,264'	-6,296'	165'
Charles	8,439'	-6,471'	548'	2,290'	8,429'	-6,461'	553'
UB	8,987'	-7,019'	84'	1,742'	8,982'	-7,014'	80'
Base Last Salt	9,071'	-7,103'	46'	1,658'	9,062'	-7,094'	47'
Ratcliffe	9,117'	-7,149'	174'	1,612'	9,109'	-7,141'	177'
Mission Canyon	9,291'	-7,323'	558'	1,438'	9,286'	-7,318'	559'
Lodgepole	9,849'	-7,881'	99	880'	9,845'	-7,877'	108'
Lodgepole A	9,948'	-7,980'	105'	781'	9,953'	-7,985'	140'
Lodgepole B	10,053'	-8,085'	38'	676'	10,093'	-8,125'	66'
Lodgepole C	10,091'	-8,123'	187'	638'	10,159'	-8,191'	116'
Lodgepole D	10,278'	-8,310'	151'	451'	10,275'	-8,307'	146'
Lodgepole E	10,429'	-8,461'	68'	300'	10,421'	-8,453'	71'
Lodgepole F	10,497'	-8,529'	87'	232'	10,492'	-8,524'	85'
False Bakken	10,584'	-8,616'	8'	145'	10,577'	-8,609'	8'
Upper Bakken	10,592'	-8,624'	20'	137'	10,585'	-8,617'	17'
Middle Bakken	10,612'	-8,644'	35'	117'	10,602'	-8,634'	42'
Lower Bakken	10,647'	-8,679'	11'	82'	10,644'	-8,676'	11'
Pronghorn	10,658'	-8,690'	17'	71'	10,655'	-8,687'	19'
Threeforks 1st Bench	10,675'	-8,707'	27'	54'	10,674'	-8,706'	28'
Claystone 1	10,702'	-8,734'	12'	27'	10,702'	-8,734'	12'
Three Forks 2nd Bench	10,714'	-8,746'	10'	15'	10,714'	-8,746'	10'
Target Top	10,724'	-8,756'	5'	10,724'	-8,756'	5'	10,691'
Landing Target	10,729'	-8,761'	-	0'	10,729'	-8,761'	-

LANDING PROJECTION

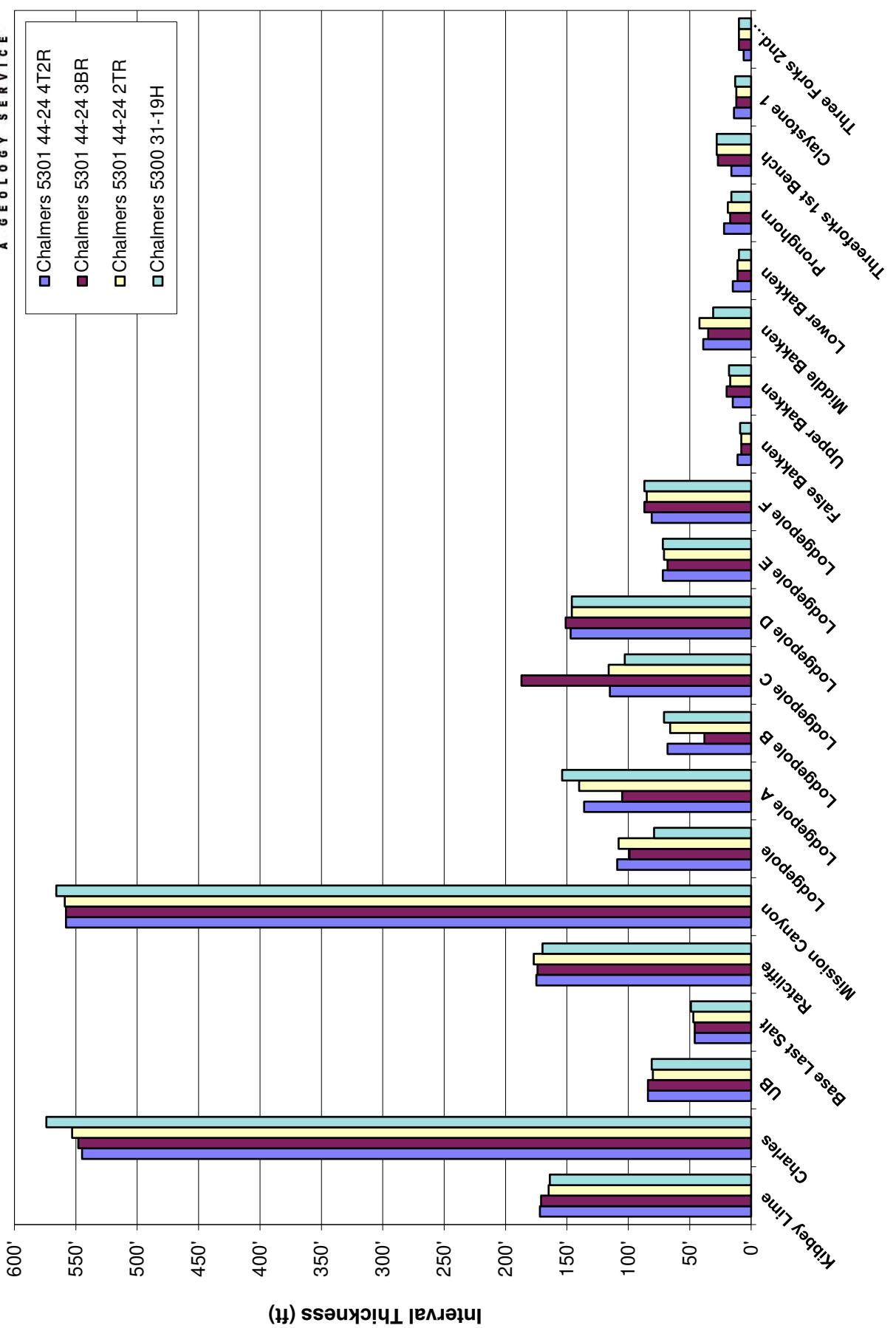
Formation/ Zone:	Proposed Top of Target From:		
	Chalmers 5301 44-24 3BR	Chalmers 5301 44-24 2TR	Chalmers 5300 31-19H
Kibbey Lime	10,727'	10,731'	10,722'
Charles	10,728'	10,738'	10,730'
UB	10,725'	10,730'	10,701'
Base Last Salt	10,725'	10,734'	10,704'
Ratcliffe	10,725'	10,733'	10,701'
Mission Canyon	10,726'	10,731'	10,706'
Lodgepole	10,726'	10,730'	10,698'
Lodgepole A	10,736'	10,731'	10,728'
Lodgepole B	10,767'	10,727'	10,710'
Lodgepole C	10,797'	10,729'	10,707'
Lodgepole D	10,725'	10,728'	10,719'
Lodgepole E	10,721'	10,729'	10,720'
Lodgepole F	10,725'	10,730'	10,720'
False Bakken	10,719'	10,726'	10,714'
Upper Bakken	10,722'	10,729'	10,716'
Middle Bakken	10,717'	10,727'	10,713'
Lower Bakken	10,721'	10,724'	10,721'
Pronghorn	10,725'	10,728'	10,726'
Threeforks 1st Bench	10,730'	10,731'	10,732'
Claystone 1	10,719'	10,719'	10,720'
Three Forks 2nd Bench	10,721'	10,721'	10,721'
Target Top	10,717'	10,717'	10,717'
Landing Target	10,709'	10,709'	10,709'

Current Landing Target (3' below the base of the Claystone 1):

10,709'

INTERVAL THICKNESS

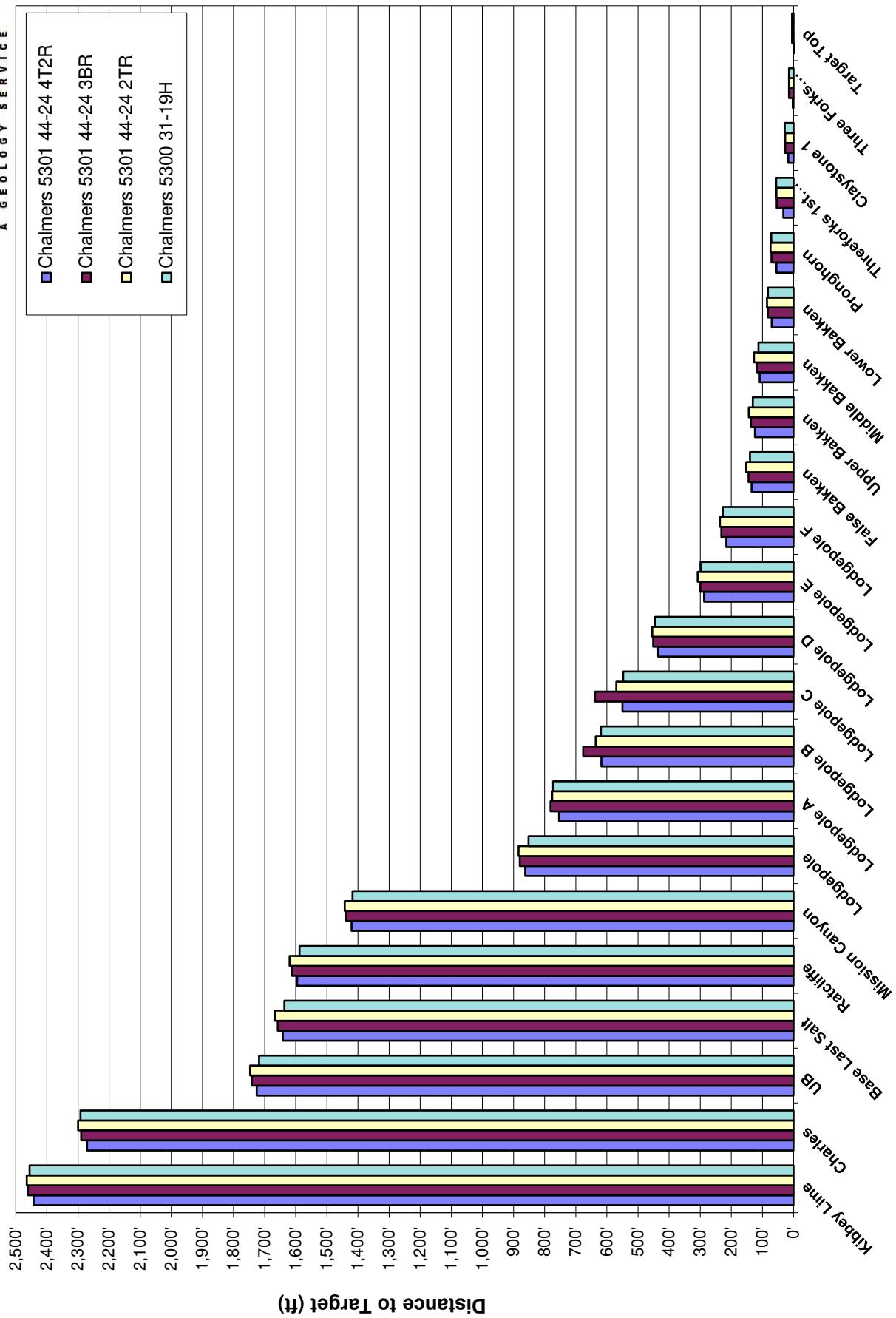
Oasis Petroleum North America, LLC - Chalmers 5301 44-24 4T2R





ISOPACH TO TARGET

Oasis Petroleum North America, LLC - Chalmers 5301 44-24 4T2R



LITHOLOGY

Rig crews caught lagged samples in 30' intervals under the supervision of Sunburst geologists. A detailed list of sampling intervals is included in the well data summary page. Sample or gamma ray marker tops have been inserted in the sample descriptions below for reference. Samples were examined wet and dry under a trinocular microscope. The drilling fluid was diesel-based invert from surface casing to intermediate casing, while salt water drilling fluid was used throughout the lateral. Sample collection began at 8,230'.

Drilling in the Kibbey Formation

8230-8260 SILTSTONE: dark orange to light brown, tan, pink, soft, sub blocky, calcite cement, poorly cemented; rare ANHYDRITE: off white, soft, amorphous texture; trace SILTY SANDSTONE: tan to off white, very fine grained, sub rounded, moderately sorted, calcite cement, poorly cemented

Kibbey "Lime" [8,267' MD, 8,266' TVD (-6,298')]

8260-8290 SILTSTONE: orange to light brown, tan, gray, soft, sub blocky, calcite cement, poorly cemented; rare ANHYDRITE: off white, light pink, soft, amorphous texture; trace SILTY SANDSTONE: tan to off white, very fine grained, sub round, moderately sorted, calcite cement, poorly cemented

8290-8320 SILTSTONE: dark orange to light brown, tan, pink, soft, sub blocky, calcite cement, poorly cemented; occasional ANHYDRITE: off white, soft, amorphous texture; trace SILTY SANDSTONE: as above

8320-8350 SILTSTONE: dark orange to light brown, tan, pink, soft, sub blocky, calcite cement, poorly cemented; occasional ANHYDRITE: off white, soft, amorphous texture; trace SILTY SANDSTONE: as above

8350-8380 SILTSTONE: dark orange to light brown, tan, pink, soft, sub blocky, calcite cement, poorly cemented; occasional ANHYDRITE: off white, soft, amorphous texture; trace SILTY SANDSTONE: as above

8380-8410 SILTSTONE: dark orange to light brown, tan, pink, soft, sub blocky, calcite cement, poorly cemented; occasional ANHYDRITE: off white, soft, amorphous texture; trace SILTY SANDSTONE: as above

The First Charles Salt [8,439' MD, 8,438' TVD (-6,470')]

8410-8440 SALT: translucent, microcrystalline, anhedral, crystalline texture, hard, frosted; trace LIMESTONE: mudstone, light to medium gray to gray brown, microcrystalline, firm to hard, argillaceous in part, dense, chalky texture, no visible porosity

8440-8470 SALT: translucent, microcrystalline, anhedral, crystalline texture, hard, frosted; trace LIMESTONE: mudstone, light to medium gray to gray brown, microcrystalline, firm to hard, argillaceous in part, dense, chalky texture, no visible porosity

8470-8500 SALT: translucent, microcrystalline, anhedral, crystalline texture, hard, frosted; trace LIMESTONE: mudstone, light to medium gray to gray brown, microcrystalline, firm to hard, argillaceous in part, dense, chalky texture, no visible porosity

8500-8530 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light to medium gray, rare gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8530-8560 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light to medium gray, rare gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8560-8590 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light to medium gray, rare gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8590-8620 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light to medium gray, rare gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8620-8650 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light to medium gray, rare gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8650-8680 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light to medium gray, rare gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8680-8710 SALT: translucent, rare milky, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, medium gray, occasional gray brown, trace light gray, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8710-8740 SALT: translucent, rare milky, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, medium gray, occasional gray brown, trace light gray, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8740-8770 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light gray, trace gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8770-8800 SALT: translucent, rare frosted, microcrystalline, anhedral, crystalline texture, hard; occasional LIMESTONE: mudstone, light gray, trace gray brown, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8800-8830 LIMESTONE: mudstone, light gray, trace gray brown, rare off white, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8830-8860 LIMESTONE: mudstone, light gray, trace gray brown, rare off white, microcrystalline, firm to hard, argillaceous in part, dense, earthy texture, no visible porosity

8860-8890 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: off white, soft, massive, amorphous, no visible porosity

8890-8920 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, occasional light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, rare ANHYDRITE: off white to white, soft, massive, amorphous, no visible porosity, trace SALT: as above

8920-8950 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, occasional light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, rare ANHYDRITE: off white to white, soft, massive, amorphous, no visible porosity, trace SALT: as above

8950-8980 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, occasional light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, rare ANHYDRITE: off white to white, soft, massive, amorphous, no visible porosity, trace SALT: as above

UB [8,982' MD, 8,983' TVD (-7,015')]

8980-9010 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, occasional light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, rare ANHYDRITE: off white to white, soft, massive, amorphous, no visible porosity, trace SALT: as above

9010-9040 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, occasional light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, rare ANHYDRITE: off white to white, soft, massive, amorphous, no visible porosity, trace SALT: as above

Base Last Salt [9,068' MD, 9,067' TVD (-7,099')]

9040-9070 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, occasional light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, rare ANHYDRITE: off white to white, soft, massive, amorphous, no visible porosity, trace SALT: as above

9070-9100 SALT: translucent, rare milky, crystalline, hard, euhedral; occasional ARGILLACEOUS LIMESTONE: mudstone, cream to tan, rare light to medium gray, slightly mottled, microcrystalline, firm, dense to banded, earthy texture, no visible porosity

Ratcliffe [9,114' MD, 9,113' TVD (-7,145')]

9100-9130 ARGILLACEOUS LIMESTONE: mudstone, cream to tan, rare brown, trace gray, slightly mottled, microcrystalline, firm, dense to banded, earthy texture, no visible porosity; trace ANHYDRITE: off white, soft, massive, amorphous, no visible porosity

9130-9160 ARGILLACEOUS LIMESTONE: mudstone, cream to tan, rare brown, trace gray, slightly mottled, microcrystalline, firm, dense to banded, earthy texture, no visible porosity; trace ANHYDRITE: off white, soft, massive, amorphous, no visible porosity

9160-9190 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9190-9220 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9220-9250 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9250-9280 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

Mission Canyon [9,289' MD, 9,288' TVD (-7,320')]

9280-9310 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9310-9340 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9340-9370 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9370-9400 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9400-9430 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9430-9460 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9460-9490 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9490-9520 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9520-9550 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9550-9580 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9580-9610 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9610-9640 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9640-9670 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9670-9700 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9700-9730 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9730-9760 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9760-9790 ARGILLACEOUS LIMESTONE: mudstone, cream, tan, light gray, microcrystalline, firm, dense to banded, earthy texture, no visible porosity, occasional ANHYDRITE: as above

9790-9820 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, microcrystalline, firm to friable, rare algal material; trace ANHYDRITE: off white, massive, soft, amorphous

Lodgepole [9,847' MD, 9,846' TVD (-7,878')]

9820-9850 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, microcrystalline, firm to friable, rare algal material; trace ANHYDRITE: off white, massive, soft, amorphous

9850-9880 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture, trace algal material

9880-9910 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture, trace algal material

9910-9940 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture, trace algal material

9940-9970 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture

9970-10000 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture

10000-10030 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture

10030-10060 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture; trace ANHYDRITE: off white, massive, soft, amorphous

10060-10090 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture; trace ANHYDRITE: off white, massive, soft, amorphous

10090-10120 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture; trace ANHYDRITE: off white, massive, soft, amorphous

10120-10150 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture; trace ANHYDRITE: off white, massive, soft, amorphous

10150-10180 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, trace dark gray, microcrystalline, firm to friable, earthy texture; trace ANHYDRITE: off white, massive, soft, amorphous

10180-10230 ARGILLACEOUS LIMESTONE: mudstone, light to medium gray brown, tan, microcrystalline, firm to friable, rare algal material; rare ANHYDRITE: off white, massive, soft, amorphous

10210-10240 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10240-10270 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10270-10300 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10300-10330 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10330-10360 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10360-10390 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10390-10420 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10420-10450 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10450-10480 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10480-10510 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10510-10540 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10540-10570 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

10570-10600 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

False Bakken [10,626' MD, 10,574' TVD (-8,606')]

10600-10630 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

Upper Bakken Shale [10,642' MD, 10,585' TVD (-8,617')]

10630-10660 ARGILLACEOUS LIMESTONE: mudstone, medium gray to dark gray, microcrystalline, firm, banded, dense, trace anhydrite, trace disseminated pyrite, no visible porosity

Middle Bakken [10,668' MD, 10,600' TVD (-8,632')]

10660-10690 SHALE: black to very dark brown, firm, blocky, earthy texture, disseminated pyrite, petroliferous, carbonaceous, no visible porosity, abundant brown even oil stain

10690-10720 SILTSTONE: light gray to light gray brown, sub blocky, calcite cemented, trace disseminated pyrite, possible intergranular porosity; occasional SILTY SANDSTONE: as above; trace SHALE: as above, trace spotty light brown oil stain

Lower Bakken Shale [10,740' MD, 10,639' TVD (-8,671')]

10720-10750 SILTSTONE: light gray to light gray brown, sub blocky, calcite cemented, trace disseminated pyrite, possible intergranular porosity; occasional SILTY SANDSTONE: as above; trace SHALE: as above, trace spotty light brown oil stain

10750-10780 SHALE: black to very dark brown, firm, blocky, earthy texture, disseminated pyrite, petroliferous, carbonaceous, no visible porosity, abundant brown even oil stain

Pronghorn [10,800' MD, 10,654' TVD (-8,686')]

10780-10810 SILTSTONE: as above; trace SHALE: black to dark brown, firm to hard, blocky, earthy texture, carbonaceous, rare disseminated pyrite

Three Forks First Bench [10,816' MD, 10,676' TVD (-8,708')]

10810-10840 SILTSTONE: as above; trace SHALE: black to brown, firm, blocky, earthy texture, carbonaceous, rare disseminated pyrite

10840-10870 ARGILLACEOUS DOLOMITE: mudstone, medium gray to gray brown, pale grain, cream to tan, fine crystalline, sucrosic texture, firm to friable, rare disseminated pyrite, silty in part, sandy in part, possible intercrystalline porosity, trace spotty light brown oil stain; rare SHALE: as above; trace DOLOMITE: mudstone, tan, pink, friable, earthy texture, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain

Claystone 1 [10,876' MD, 10,692' TVD (-8,724')]

10870-10880 ARGILLACEOUS DOLOMITE: mudstone, medium gray to gray brown, pale grain, cream to tan, fine crystalline, sucrosic texture, firm to friable, rare disseminated pyrite, silty in part, sandy in part, possible intercrystalline porosity, trace spotty light brown oil stain; rare SHALE: as above; trace DOLOMITE: as above, trace spotty light brown oil stain

10880-10890 ARGILLACEOUS DOLOMITE: mudstone, medium gray to gray brown, pale grain, cream to tan, fine crystalline, sucrosic texture, firm to friable, rare disseminated pyrite, silty in part, sandy in part, possible intercrystalline porosity, trace spotty light brown oil stain; rare SHALE: as above; trace DOLOMITE: as above, trace spotty light brown oil stain

10890-10900 ARGILLACEOUS DOLOMITE: mudstone, medium gray to gray brown, pale grain, cream to tan, fine crystalline, sucrosic texture, firm to friable, rare disseminated pyrite, silty in part, sandy in part, possible intercrystalline porosity, trace spotty light brown oil stain; rare SHALE: as above; trace DOLOMITE: as above, trace spotty light brown oil stain

10900-10910 ARGILLACEOUS DOLOMITE: as above; occasional CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; rare SHALE: as above

10910-10920 ARGILLACEOUS DOLOMITE: as above; occasional CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; rare SHALE: as above

10920-10930 ARGILLACEOUS DOLOMITE: as above; occasional CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; rare SHALE: as above

10930-10940 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity, trace spotty light brown oil stain

10940-10950 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity, trace spotty light brown oil stain

10950-10960 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above, trace spotty light brown oil stain

10960-10970 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

Three Forks Second Bench [10,973' MD, 10,706' TVD (-8,738')]

10970-10980 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

10980-10990 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

10990-11000 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above, trace spotty light brown oil stain

11000-11010 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11010-11020 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11020-11030 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11030-11040 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11040-11050 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11050-11060 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11060-11070 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain

11070-11080 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain

11080-11090 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11090-11100 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11100-11110 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11110-11140 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11140-11170 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain

11170-11200 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, fast weak diffuse pale green cut fluorescence

11200-11230 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; rare SHALE: as above, fast weak diffuse pale green cut fluorescence

11230-11260 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; rare SHALE: as above, fast weak diffuse pale green cut fluorescence

11260-11290 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; rare SHALE: as above, fast weak diffuse pale green cut fluorescence

11290-11320 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; rare SHALE: as above, fast weak diffuse pale green cut fluorescence

11320-11350 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; rare SHALE: as above, fast weak diffuse pale green cut fluorescence

11350-11380 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; rare SHALE: as above, fast weak diffuse pale green cut fluorescence

11800-11830 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; trace SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, no visible porosity, fast weak diffuse pale green cut fluorescence

11830-11860 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; trace SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, no visible porosity, fast weak diffuse pale green cut fluorescence

11860-11890 CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity; occasional DOLOMITE: as above; trace SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, no visible porosity, fast weak diffuse pale green cut fluorescence

11890-11920 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

11920-11950 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

11950-11980 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

11980-12010 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

12010-12040 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

12040-12070 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above; trace CLAYSTONE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

12070-12100 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

12100-12130 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

12130-12160 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; common SHALE: as above, trace spotty light brown oil stain, fast weak diffuse pale green cut fluorescence

14320-14350 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14350-14380 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14380-14410 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14410-14440 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14440-14470 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14470-14500 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14500-14530 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14530-14560 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14560-14590 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14590-14620 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14620-14650 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

14650-14680 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain, fast weak cloudy pale green cut fluorescence

15790-157820 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, weak contaminated with lube

15820-15850 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, weak contaminated with lube

15850-15880 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, weak contaminated with lube

15880-15910 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, weak contaminated with lube

15910-15940 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; trace CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity, trace spotty light brown oil stain,, weak contaminated with lube

15940-15970 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; trace CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity, trace spotty light brown oil stain,, weak contaminated with lube, weak contaminated with lube

15970-16000 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; trace CLAYSTONE: light gray, medium gray to tan, occasional off white, massive, fine crystalline, dolomitic cement, trace disseminated pyrite, no visible porosity, trace spotty light brown oil stain,, weak contaminated with lube, weak contaminated with lube

16000-16030 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain, weak contaminated with lube

16030-16060 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; rare CLAYSTONE: as above, trace spotty light brown oil stain, weak contaminated with lube

16060-16090 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; occasional CLAYSTONE: as above, trace spotty light brown oil stain, weak contaminated with lube

16090-16120 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; common CLAYSTONE: as above, trace spotty light brown oil stain, weak contaminated with lube

16120-16150 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above; common CLAYSTONE: as above, trace spotty light brown oil stain, weak contaminated with lube

20680-20710 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: as above, trace spotty light brown oil stain, heavy contaminated with lube

20710-20740 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20740-20770 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20770-20800 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20800-20830 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20830-20860 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20860-20890 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20890-20920 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube

20920-20963 DOLOMITE: mudstone, tan, pink, friable, earthy texture, rare sucrosic texture, hard to firm, silty in part, sandy in part, trace disseminated pyrite, possible intercrystalline porosity, trace spotty light brown oil stain; occasional SHALE: light green, light gray, friable, earthy texture, trace disseminated pyrite, trace spotty light brown oil stain, heavy contaminated with lube



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

Monday, September 08, 2014

State of North Dakota

Subject: **Surveys**

Re: **Oasis**
Chalmers 5301 44-24 4T2R
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
Ogden, Daniel	MWD Operator	O.H.	0'	2095'	06/22/14	06/23/14	MWD	2095'
Ogden, Daniel	MWD Operator	O.H.	2095'	11042'	07/06/14	07/18/14	MWD	11042'
Ogden, Daniel	MWD Operator	O.H.	11042'	20898'	08/26/14	09/05/14	MWD	20963'

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

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

Hudson, Douglas
Well Planner



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

Tuesday, June 24, 2014

State of North Dakota
County of McKenzie Co.

Subject: Survey Certification Letter

Survey Company: Ryan Directional Services, Inc.
Job Number: 7789
Survey Job Type: Ryan MWD
Customer: Oasis Petroleum N.A. LLC
Well Name: Chalmers 5301 44-24 4T2R
Rig Name: Nabors B-25

Surface: 48°03'20.01", -103°36'18.55"
A.P.I. No: 33-053-06011
Location: McKenzie Co., North Dakota
RKB Height: 25'
Distance to Bit: 64'

Surveyor Name	Surveyor Title	Borehole Number	Start Depth	End Depth	Start Date	End Date	Type of	TD Straight Line Projection
Daniel Ogden	MWD Supervisor	OH	100'	2095'	06/22/14	06/23/14	MWD	2095'

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.



Daniel Ogden
MWD Supervisor
Ryan Directional Services, Inc.

**RYAN DIRECTIONAL SERVICES, INC.**

A NABORS COMPANY

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

Friday, July 18, 2014

State of North Dakota
County of McKenzie

Subject: **Survey Certification Letter**

Survey Company: Ryan Directional Services, Inc.

Job Number: 7830

Surface: 153N-100W-19/20

Survey Job Type: Ryan MWD

A.P.I. No: 33-053-06011

Customer: Oasis Petroleum North America LLC

Location: McKenzie, North Dakota

Well Name: Chalmers 5301 44-24 4T2R

RKB Height: 25'

Rig Name: Nabors B-25

Distance to Bit: 59'

Surveyor Name	Surveyor Title	Borehole	Start	End	Start	End	Type	TD Straight	Line	Projection
		Number	Depth	Depth	Date	Date	of			
Daniel Ogden	MWD Supervisor	OH	2095'	11042'	07/06/14	07/18/14	MWD	11100'		

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.

Daniel Ogden
MWD Supervisor
Ryan Directional Services, Inc.



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

Saturday, September 06, 2014

State of North Dakota
County of McKenzie

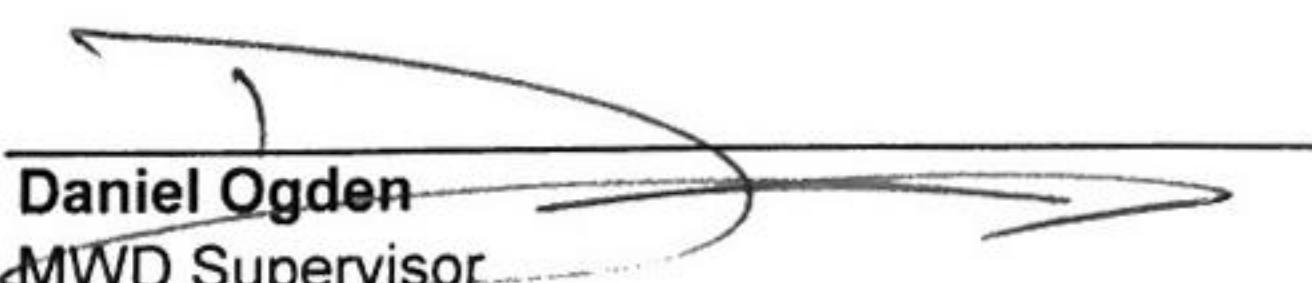
Subject: **Survey Certification Letter**

Survey Company: Ryan Directional Services, Inc.
Job Number: 7944
Survey Job Type: Ryan MWD
Customer: Oasis Petroleum North America LLC
Well Name: Chalmers 5301 44-24 4T2R
Rig Name: Nabors B-25

Surface: 48°03'20.49", -103°36'18.55"
A.P.I. No: 33-053-06011
Location: McKenzie, ND
RKB Height: 25'
Distance to Bit: 65'

<i>Surveyor Name</i>	<i>Surveyor Title</i>	<i>Borehole Number</i>	<i>Start Depth</i>	<i>End Depth</i>	<i>Start Date</i>	<i>End Date</i>	<i>Type of</i>	<i>TD Straight Line Projection</i>
Daniel Ogden	MWD Supervisor	OH	11100'	20963'	08/26/14	09/05/14	MWD	20963'

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.


Daniel Ogden
MWD Supervisor
Ryan Directional Services, Inc.



SURVEY REPORT

Customer: **Oasis Petroleum N.A. LLC**
Well Name: **Chalmers 5301 44-24 4T2R**
Rig #: **Nabors B-25**
API #: **33-053-06011**
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **Daniel Ogden**
Directional Drillers: **RPM**
Survey Corrected To: **True North**
Vertical Section Direction: **90**
Total Correction: **8.27**
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
Tie in to Conductor Well Depth									
Tie In	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	184	0.60	158.50	73.00	184.00	0.35	-0.90	0.35	0.33
2	215	0.70	159.80	73.00	214.99	0.48	-1.23	0.48	0.33
3	308	0.40	49.50	73.00	307.99	0.92	-1.55	0.92	0.99
4	402	1.00	53.20	73.00	401.98	1.83	-0.84	1.83	0.64
5	495	0.90	67.40	77.00	494.97	3.15	-0.08	3.15	0.27
6	588	0.90	62.50	77.00	587.96	4.47	0.54	4.47	0.08
7	680	0.70	38.20	77.00	679.95	5.46	1.32	5.46	0.42
8	772	0.90	43.90	77.00	771.94	6.31	2.28	6.31	0.23
9	865	1.20	62.40	78.00	864.93	7.68	3.26	7.68	0.48
10	957	0.90	46.20	78.00	956.91	9.06	4.20	9.06	0.46
11	1049	0.90	52.10	80.00	1048.90	10.15	5.15	10.15	0.10
12	1142	0.20	322.00	86.00	1141.90	10.62	5.72	10.62	0.99
13	1234	0.30	356.90	87.00	1233.90	10.51	6.09	10.51	0.19
14	1326	0.30	166.10	89.00	1325.90	10.56	6.10	10.56	0.65
15	1418	0.50	200.60	91.00	1417.89	10.47	5.49	10.47	0.33
16	1510	0.30	211.00	93.00	1509.89	10.21	4.91	10.21	0.23
17	1604	0.20	213.80	93.00	1603.89	9.99	4.56	9.99	0.11
18	1697	0.40	135.90	96.00	1696.89	10.13	4.19	10.13	0.44
19	1790	0.40	147.50	96.00	1789.89	10.53	3.68	10.53	0.09
20	1883	0.10	64.30	100.00	1882.89	10.77	3.44	10.77	0.43
21	1977	0.40	109.90	86.00	1976.88	11.16	3.37	11.16	0.36
22	2031	0.20	159.90	86.00	2030.88	11.37	3.22	11.37	0.58
23	2097	0.30	174.40	93.00	2096.88	11.42	2.94	11.42	0.18
24	2190	0.40	184.10	5548.00	2189.88	11.42	2.37	11.42	0.12
25	2284	0.70	186.50	100.00	2283.88	11.33	1.47	11.33	0.32
26	2377	1.10	183.30	102.00	2376.87	11.22	0.02	11.22	0.43
27	2470	1.40	197.20	105.00	2469.84	10.83	-1.96	10.83	0.46
28	2564	1.30	220.50	109.00	2563.82	9.80	-3.87	9.80	0.59
29	2657	0.70	221.80	111.00	2656.80	8.73	-5.09	8.73	0.65
30	2750	0.70	235.90	114.00	2749.80	7.89	-5.84	7.89	0.18
31	2843	0.80	219.10	116.00	2842.79	7.01	-6.66	7.01	0.26
32	2937	0.40	202.10	120.00	2936.78	6.47	-7.47	6.47	0.46
33	3030	0.10	180.50	120.00	3029.78	6.35	-7.85	6.35	0.33
34	3123	0.30	36.00	123.00	3122.78	6.49	-7.74	6.49	0.41
35	3217	0.40	35.40	125.00	3216.78	6.82	-7.27	6.82	0.11
36	3310	0.40	40.90	129.00	3309.78	7.22	-6.76	7.22	0.04
37	3403	0.40	38.70	131.00	3402.78	7.64	-6.26	7.64	0.02
38	3496	0.40	43.10	132.00	3495.77	8.06	-5.77	8.06	0.03
39	3590	0.60	49.80	132.00	3589.77	8.66	-5.21	8.66	0.22
40	3683	0.50	48.30	134.00	3682.77	9.34	-4.63	9.34	0.11
41	3776	0.60	59.30	134.00	3775.76	10.06	-4.11	10.06	0.16
42	3869	0.60	79.70	136.00	3868.76	10.96	-3.78	10.96	0.23
43	3963	0.60	96.00	140.00	3962.75	11.93	-3.74	11.93	0.18
44	4056	0.10	341.80	145.00	4055.75	12.39	-3.71	12.39	0.70
45	4149	0.40	284.50	147.00	4148.75	12.05	-3.55	12.05	0.38
46	4243	0.40	262.90	149.00	4242.75	11.41	-3.51	11.41	0.16
47	4336	0.40	261.10	149.00	4335.74	10.77	-3.60	10.77	0.01
48	4429	0.60	262.60	150.00	4428.74	9.96	-3.72	9.96	0.22
49	4522	0.60	261.50	152.00	4521.74	9.00	-3.85	9.00	0.01
50	4616	0.60	267.80	154.00	4615.73	8.02	-3.94	8.02	0.07
51	4709	0.70	270.00	156.00	4708.72	6.96	-3.96	6.96	0.11
52	4802	0.80	264.60	156.00	4801.72	5.75	-4.02	5.75	0.13
53	4895	0.70	248.80	156.00	4894.71	4.57	-4.29	4.57	0.25
54	4989	0.70	245.30	158.00	4988.70	3.52	-4.74	3.52	0.05
55	5082	0.70	239.10	159.00	5081.69	2.51	-5.27	2.51	0.08
56	5175	0.70	238.50	159.00	5174.69	1.54	-5.85	1.54	0.01
57	5269	0.60	229.80	156.00	5268.68	0.68	-6.47	0.68	0.15
58	5362	0.70	241.40	156.00	5361.68	-0.20	-7.06	-0.20	0.18
59	5455	0.50	239.30	156.00	5454.67	-1.04	-7.54	-1.04	0.22
60	5548	0.20	140.70	158.00	5547.67	-1.29	-7.87	-1.29	0.61
61	5642	0.40	148.40	154.00	5641.67	-1.01	-8.28	-1.01	0.22
62	5735	0.10	216.80	161.00	5734.67	-0.89	-8.62	-0.89	0.40
63	5828	0.10	223.00	163.00	5827.67	-1.00	-8.74	-1.00	0.01
64	5922	0.30	1.40	163.00	5921.67	-1.05	-8.56	-1.05	0.40
65	5996	0.20	332.70	165.00	5995.67	-1.10	-8.25	-1.10	0.21



SURVEY REPORT

Customer: **Oasis Petroleum N.A. LLC**
Well Name: **Chalmers 5301 44-24 4T2R**
Rig #: **Nabors B-25**
API #: **33-053-06011**
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **Daniel Ogden**
Directional Drillers: **RPM**
Survey Corrected To: **True North**
Vertical Section Direction: **90**
Total Correction: **8.27**
Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
66	6094	0.10	256.00	129.00	6093.67	-1.26	-8.12	-1.26	0.21
67	6187	0.40	183.20	134.00	6186.67	-1.36	-8.46	-1.36	0.41
68	6281	0.90	70.30	140.00	6280.66	-0.68	-8.54	-0.68	1.19
69	6374	0.50	45.80	143.00	6373.65	0.30	-8.01	0.30	0.53
70	6467	0.40	132.30	147.00	6466.65	0.83	-7.95	0.83	0.67
71	6561	0.10	127.10	149.00	6560.65	1.14	-8.22	1.14	0.32
72	6654	0.70	40.30	152.00	6653.65	1.57	-7.83	1.57	0.75
73	6747	0.50	38.20	156.00	6746.64	2.19	-7.08	2.19	0.22
74	6840	0.70	72.90	159.00	6839.64	2.98	-6.59	2.98	0.44
75	6934	0.70	107.60	159.00	6933.63	4.08	-6.60	4.08	0.44
76	7027	0.90	11.30	163.00	7026.63	4.76	-6.05	4.76	1.29
77	7120	1.20	13.30	165.00	7119.61	5.13	-4.39	5.13	0.32
78	7213	0.60	8.30	168.00	7212.60	5.42	-2.96	5.42	0.65
79	7307	0.60	26.00	170.00	7306.59	5.71	-2.03	5.71	0.20
80	7400	0.70	27.30	172.00	7399.59	6.18	-1.09	6.18	0.11
81	7493	0.40	353.30	170.00	7492.58	6.41	-0.26	6.41	0.46
82	7587	0.40	7.60	172.00	7586.58	6.41	0.39	6.41	0.11
83	7680	0.70	52.50	172.00	7679.58	6.90	1.06	6.90	0.54
84	7773	0.70	45.20	174.00	7772.57	7.76	1.80	7.76	0.10
85	7866	1.00	26.40	176.00	7865.56	8.52	2.93	8.52	0.44
86	7960	1.10	316.20	176.00	7959.55	8.26	4.32	8.26	1.29
87	8053	0.80	304.20	177.00	8052.54	7.11	5.33	7.11	0.39
88	8146	0.90	263.40	179.00	8145.53	5.85	5.61	5.85	0.65
89	8240	0.90	231.20	181.00	8239.51	4.54	5.06	4.54	0.53
90	8333	0.90	232.10	185.00	8332.50	3.39	4.15	3.39	0.02
91	8426	1.00	211.30	185.00	8425.49	2.39	3.01	2.39	0.38
92	8519	1.10	207.30	186.00	8518.47	1.56	1.52	1.56	0.13
93	8613	1.30	225.20	188.00	8612.45	0.39	-0.03	0.39	0.45
94	8706	0.90	191.80	190.00	8705.44	-0.51	-1.49	-0.51	0.79
95	8799	0.70	177.80	194.00	8798.43	-0.63	-2.77	-0.63	0.30
96	8892	0.90	158.70	197.00	8891.42	-0.35	-4.02	-0.35	0.36
97	8986	1.10	174.20	199.00	8985.41	0.01	-5.60	0.01	0.36
98	9079	0.20	108.40	201.00	9078.40	0.26	-6.54	0.26	1.11
99	9172	0.70	94.80	197.00	9171.40	0.98	-6.64	0.98	0.55
100	9266	0.40	78.60	199.00	9265.39	1.87	-6.62	1.87	0.36
101	9359	0.40	78.80	201.00	9358.39	2.51	-6.50	2.51	0.00
102	9452	0.50	88.40	201.00	9451.39	3.23	-6.42	3.23	0.13
103	9545	0.50	103.10	201.00	9544.38	4.03	-6.50	4.03	0.14
104	9639	0.10	172.10	203.00	9638.38	4.44	-6.68	4.44	0.50
105	9732	0.50	141.90	206.00	9731.38	4.70	-7.08	4.70	0.45
106	9825	0.60	71.70	206.00	9824.38	5.42	-7.24	5.42	0.69
107	9919	0.20	56.50	208.00	9918.37	6.02	-7.00	6.02	0.44
108	10012	0.20	264.90	208.00	10011.37	6.00	-6.92	6.00	0.42
109	10105	0.80	197.80	210.00	10104.37	5.64	-7.56	5.64	0.80
110	10175	0.60	203.40	210.00	10174.37	5.34	-8.36	5.34	0.30
111	10202	0.70	220.60	188.00	10201.36	5.18	-8.61	5.18	0.81
112	10233	2.50	125.40	192.00	10232.35	5.60	-9.15	5.60	8.57
113	10265	7.00	115.60	195.00	10264.24	7.93	-10.40	7.93	14.24
114	10296	11.30	112.60	195.00	10294.83	12.44	-12.38	12.44	13.95
115	10327	16.20	111.30	199.00	10324.94	19.28	-15.12	19.28	15.84
116	10358	20.00	109.00	203.00	10354.40	28.32	-18.42	28.32	12.47
117	10389	22.60	107.50	203.00	10383.28	39.02	-21.94	39.02	8.57
118	10420	25.70	106.50	203.00	10411.56	51.15	-25.64	51.15	10.09
119	10451	29.60	106.50	203.00	10439.02	64.94	-29.72	64.94	12.58
120	10482	33.40	106.00	206.00	10465.44	80.49	-34.25	80.49	12.29
121	10513	37.40	106.80	206.00	10490.71	97.71	-39.33	97.71	12.99
122	10544	41.00	107.60	206.00	10514.73	116.42	-45.12	116.42	11.73
123	10575	43.70	108.60	206.00	10537.64	136.27	-51.61	136.27	8.98
124	10607	46.70	109.60	206.00	10560.18	157.72	-59.05	157.72	9.63
125	10638	50.40	110.50	206.00	10580.70	179.54	-67.02	179.54	12.13
126	10669	54.20	110.30	210.00	10599.65	202.53	-75.56	202.53	12.27
127	10700	56.10	110.30	210.00	10617.37	226.39	-84.39	226.39	6.13
128	10731	57.10	110.20	210.00	10634.43	250.67	-93.35	250.67	3.24
129	10762	60.30	110.30	210.00	10650.53	275.51	-102.52	275.51	10.33
130	10793	64.60	109.80	210.00	10664.87	301.33	-111.93	301.33	13.94



SURVEY REPORT

Customer: **Oasis Petroleum N.A. LLC**
Well Name: **Chalmers 5301 44-24 4T2R**
Rig #: **Nabors B-25**
API #: **33-053-06011**
Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **Daniel Ogden**
Directional Drillers: **RPM**
Survey Corrected To: **True North**
Vertical Section Direction: **90**
Total Correction: **8.27**
Temperature Forecasting Model (Chart Only): **Logarithmic**

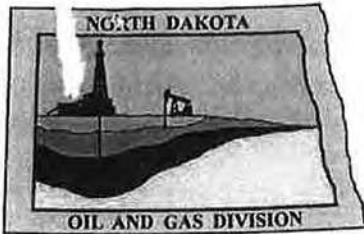
Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
131	10824	68.70	109.20	212.00	10677.15	328.15	-121.43	328.15	13.34
132	10855	71.90	108.50	212.00	10687.60	355.77	-130.86	355.77	10.54
133	10886	74.90	108.40	212.00	10696.46	383.95	-140.26	383.95	9.68
134	10917	77.80	108.40	212.00	10703.77	412.53	-149.76	412.53	9.35
135	10948	80.70	108.30	212.00	10709.55	441.43	-159.35	441.43	9.36
136	10980	86.40	107.90	212.00	10713.15	471.64	-169.23	471.64	17.86
137	11001	92.70	107.10	212.00	10713.31	491.66	-175.54	491.66	30.24
138	11042	93.50	107.20	212.00	10711.09	530.78	-187.61	530.78	1.97
139	11116	92.20	107.10	212.00	10707.42	601.40	-209.40	601.40	1.76
140	11146	91.00	106.20	213.00	10706.58	630.13	-217.99	630.13	5.00
141	11177	89.70	106.40	210.00	10706.39	659.88	-226.69	659.88	4.24
142	11208	90.20	106.20	208.00	10706.42	689.64	-235.40	689.64	1.74
143	11239	90.10	105.00	208.00	10706.33	719.49	-243.73	719.49	3.88
144	11270	90.20	103.10	208.00	10706.25	749.57	-251.26	749.57	6.14
145	11301	89.00	101.60	210.00	10706.47	779.85	-257.89	779.85	6.20
146	11332	87.50	100.60	213.00	10707.42	810.25	-263.85	810.25	5.81
147	11363	87.50	100.61	212.00	10708.77	840.69	-269.55	840.69	0.03
148	11394	87.70	100.80	212.00	10710.07	871.13	-275.31	871.13	0.89
149	11424	88.40	98.40	213.00	10711.09	900.69	-280.31	900.69	8.33
150	11455	89.70	98.10	212.00	10711.60	931.36	-284.75	931.36	4.30
151	11486	90.50	97.90	212.00	10711.55	962.06	-289.07	962.06	2.66
152	11516	90.50	95.20	213.00	10711.29	991.86	-292.49	991.86	9.00
153	11547	89.40	95.40	213.00	10711.31	1022.73	-295.35	1022.73	3.61
154	11578	89.70	94.70	215.00	10711.56	1053.60	-298.08	1053.60	2.46
155	11609	88.20	92.70	217.00	10712.12	1084.53	-300.08	1084.53	8.06
156	11640	88.00	92.40	219.00	10713.15	1115.48	-301.46	1115.48	1.16
157	11671	88.70	92.60	219.00	10714.04	1146.44	-302.81	1146.44	2.35
158	11702	88.80	92.10	217.00	10714.72	1177.41	-304.08	1177.41	1.64
159	11732	88.90	92.30	219.00	10715.32	1207.38	-305.23	1207.38	0.75
160	11763	87.30	90.60	219.00	10716.35	1238.35	-306.02	1238.35	7.53
161	11794	86.60	90.30	222.00	10718.00	1269.31	-306.26	1269.31	2.46
162	11857	84.80	90.40	224.00	10722.72	1332.12	-306.64	1332.12	2.86
163	11950	85.60	89.80	222.00	10730.51	1424.80	-306.81	1424.80	1.07
164	12043	86.90	89.60	222.00	10736.59	1517.59	-306.32	1517.59	1.41
165	12135	89.40	89.50	226.00	10739.56	1609.54	-305.60	1609.54	2.72
166	12228	91.60	89.00	226.00	10738.75	1702.52	-304.38	1702.52	2.43
167	12321	90.70	88.60	228.00	10736.88	1795.48	-302.43	1795.48	1.06
168	12414	89.80	88.60	230.00	10736.47	1888.45	-300.16	1888.45	0.97
169	12507	86.60	88.80	233.00	10739.39	1981.37	-298.05	1981.37	3.45
170	12599	87.30	89.20	237.00	10744.29	2073.22	-296.45	2073.22	0.88
171	12692	88.40	90.00	240.00	10747.78	2166.15	-295.80	2166.15	1.46
172	12786	89.70	90.50	242.00	10749.34	2260.14	-296.21	2260.14	1.48
173	12880	90.90	91.10	244.00	10748.85	2354.12	-297.52	2354.12	1.43
174	12975	87.40	89.20	237.00	10750.25	2449.09	-297.77	2449.09	4.19
175	13069	89.10	89.50	240.00	10753.13	2543.04	-296.71	2543.04	1.84
176	13163	87.50	88.50	240.00	10755.91	2636.98	-295.07	2636.98	2.01
177	13257	86.90	89.40	235.00	10760.51	2730.85	-293.35	2730.85	1.15
178	13350	88.00	89.70	239.00	10764.64	2823.75	-292.62	2823.75	1.23
179	13444	89.00	90.30	237.00	10767.10	2917.72	-292.62	2917.72	1.24
180	13538	89.80	91.20	240.00	10768.09	3011.71	-293.85	3011.71	1.28
181	13631	89.70	91.10	242.00	10768.49	3104.69	-295.71	3104.69	0.15
182	13726	89.70	90.80	242.00	10768.99	3199.67	-297.29	3199.67	0.32
183	13819	89.10	90.70	244.00	10769.97	3292.66	-298.51	3292.66	0.65
184	13913	89.30	91.80	244.00	10771.28	3386.62	-300.56	3386.62	1.19
185	14007	89.20	91.50	246.00	10772.51	3480.58	-303.26	3480.58	0.34
186	14101	89.40	91.40	246.00	10773.66	3574.54	-305.64	3574.54	0.24
187	14195	89.00	91.20	242.00	10774.97	3668.51	-307.77	3668.51	0.48
188	14289	88.50	89.80	240.00	10777.02	3762.48	-308.59	3762.48	1.58
189	14383	88.00	89.70	242.00	10779.89	3856.43	-308.18	3856.43	0.54
190	14476	89.10	90.20	240.00	10782.24	3949.40	-308.10	3949.40	1.30
191	14571	89.60	90.30	242.00	10783.32	4044.39	-308.52	4044.39	0.54
192	14665	89.90	90.00	242.00	10783.73	4138.39	-308.76	4138.39	0.45
193	14758	90.30	90.20	244.00	10783.57	4231.39	-308.93	4231.39	0.48
194	14853	90.60	90.40	244.00	10782.82	4326.39	-309.42	4326.39	0.38
195	14946	90.50	90.40	246.00	10781.93	4419.38	-310.07	4419.38	0.11

**SURVEY REPORT**

Customer: **Oasis Petroleum N.A. LLC**
 Well Name: **Chalmers 5301 44-24 4T2R**
 Rig #: **Nabors B-25**
 API #: **33-053-06011**
 Calculation Method: **Minimum Curvature Calculation**

MWD Operator: **Daniel Ogden**
 Directional Drillers: **RPM**
 Survey Corrected To: **True North**
 Vertical Section Direction: **90**
 Total Correction: **8.27**
 Temperature Forecasting Model (Chart Only): **Logarithmic**

Survey #	MD	Inc	Azm	Temp	TVD	VS	N/S	E/W	DLS
196	15040	89.50	89.80	246.00	10781.93	4513.38	-310.24	4513.38	1.24
197	15135	89.90	90.40	249.00	10782.43	4608.38	-310.40	4608.38	0.76
198	15229	89.20	90.30	249.00	10783.17	4702.37	-310.98	4702.37	0.75
199	15323	88.90	89.90	251.00	10784.72	4796.36	-311.14	4796.36	0.53
200	15417	88.70	89.10	251.00	10786.69	4890.33	-310.32	4890.33	0.88
201	15512	89.40	89.00	253.00	10788.27	4985.31	-308.75	4985.31	0.74
202	15606	89.50	88.60	253.00	10789.17	5079.28	-306.78	5079.28	0.44
203	15700	89.70	88.40	253.00	10789.83	5173.25	-304.32	5173.25	0.30
204	15793	88.70	89.10	251.00	10791.13	5266.21	-302.29	5266.21	1.31
205	15887	87.60	88.70	249.00	10794.16	5360.15	-300.48	5360.15	1.25
206	15981	88.70	89.70	251.00	10797.19	5454.09	-299.17	5454.09	1.58
207	16075	88.90	89.60	253.00	10799.16	5548.06	-298.60	5548.06	0.24
208	16169	91.00	90.90	253.00	10799.25	5642.06	-299.01	5642.06	2.63
209	16263	92.00	90.20	255.00	10796.78	5736.02	-299.91	5736.02	1.30
210	16356	91.70	90.40	253.00	10793.78	5828.97	-300.40	5828.97	0.39
211	16450	89.30	90.70	255.00	10792.96	5922.95	-301.30	5922.95	2.57
212	16544	89.20	89.60	257.00	10794.19	6016.94	-301.55	6016.94	1.17
213	16638	89.00	89.60	255.00	10795.67	6110.93	-300.89	6110.93	0.21
214	16731	89.40	88.90	255.00	10796.97	6203.91	-299.67	6203.91	0.87
215	16825	90.90	88.90	257.00	10796.72	6297.89	-297.87	6297.89	1.60
216	16919	90.50	88.60	257.00	10795.57	6391.86	-295.82	6391.86	0.53
217	17012	90.50	89.00	255.00	10794.76	6484.84	-293.87	6484.84	0.43
218	17106	90.70	89.00	257.00	10793.78	6578.82	-292.23	6578.82	0.21
219	17200	90.10	88.50	258.00	10793.12	6672.79	-290.18	6672.79	0.83
220	17295	89.80	87.50	255.00	10793.20	6767.73	-286.86	6767.73	1.10
221	17389	89.30	88.40	253.00	10793.94	6861.67	-283.50	6861.67	1.10
222	17483	89.00	88.30	255.00	10795.34	6955.62	-280.80	6955.62	0.34
223	17576	90.90	89.80	253.00	10795.42	7048.60	-279.25	7048.60	2.60
224	17670	92.10	89.70	255.00	10792.96	7142.56	-278.84	7142.56	1.28
225	17764	91.00	90.50	253.00	10790.41	7236.53	-279.01	7236.53	1.45
226	17858	92.00	90.20	253.00	10787.95	7330.49	-279.58	7330.49	1.11
227	17951	90.80	89.90	255.00	10785.68	7423.46	-279.66	7423.46	1.33
228	18045	90.20	90.90	255.00	10784.86	7517.46	-280.32	7517.46	1.24
229	18138	90.00	90.30	255.00	10784.70	7610.45	-281.29	7610.45	0.68
230	18231	90.20	89.90	257.00	10784.54	7703.45	-281.46	7703.45	0.48
231	18325	89.90	89.60	255.00	10784.45	7797.45	-281.05	7797.45	0.45
232	18418	87.60	90.20	255.00	10786.48	7890.42	-280.88	7890.42	2.56
233	18512	87.40	89.90	255.00	10790.58	7984.33	-280.96	7984.33	0.38
234	18606	87.60	90.10	257.00	10794.68	8078.24	-280.96	8078.24	0.30
235	18699	88.10	89.50	258.00	10798.17	8171.17	-280.64	8171.17	0.84
236	18793	87.90	89.50	255.00	10801.45	8265.11	-279.82	8265.11	0.21
237	18887	89.90	90.10	257.00	10803.26	8359.09	-279.49	8359.09	2.22
238	18982	90.50	90.40	258.00	10802.93	8454.09	-279.91	8454.09	0.71
239	19076	89.10	90.00	258.00	10803.25	8548.08	-280.24	8548.08	1.55
240	19171	89.60	89.70	258.00	10804.33	8643.08	-279.99	8643.08	0.61
241	19266	90.20	90.60	258.00	10804.50	8738.07	-280.24	8738.07	1.14
242	19361	90.00	90.50	258.00	10804.33	8833.07	-281.15	8833.07	0.24
243	19455	90.80	90.50	258.00	10803.68	8927.06	-281.97	8927.06	0.85
244	19550	91.30	90.50	258.00	10801.93	9022.04	-282.80	9022.04	0.53
245	19644	90.30	90.00	258.00	10800.62	9116.03	-283.21	9116.03	1.19
246	19739	90.80	89.70	260.00	10799.71	9211.03	-282.96	9211.03	0.61
247	19833	90.20	90.40	258.00	10798.89	9305.02	-283.04	9305.02	0.98
248	19927	88.70	89.80	260.00	10799.79	9399.01	-283.20	9399.01	1.72
249	20020	88.40	89.70	258.00	10802.15	9491.98	-282.80	9491.98	0.34
250	20114	89.50	89.50	260.00	10803.87	9585.96	-282.14	9585.96	1.19
251	20208	89.70	89.00	262.00	10804.52	9679.95	-280.91	9679.95	0.57
252	20302	90.10	89.70	260.00	10804.69	9773.95	-279.85	9773.95	0.86
253	20396	91.00	90.80	262.00	10803.79	9867.94	-280.26	9867.94	1.51
254	20490	91.60	90.40	264.00	10801.65	9961.91	-281.24	9961.91	0.77
255	20584	92.50	90.00	258.00	10798.29	10055.85	-281.57	10055.85	1.05
256	20678	89.00	90.70	260.00	10797.06	10149.82	-282.14	10149.82	3.80
257	20772	89.20	90.50	262.00	10798.54	10243.81	-283.13	10243.81	0.30
258	20866	89.70	90.30	262.00	10799.44	10337.80	-283.78	10337.80	0.57
259	20898	89.80	90.50	262.00	10799.58	10369.80	-284.01	10369.80	0.70
Projection	20963	89.80	90.50	262.00	10799.81	10434.79	-284.57	10434.79	0.00



Oil and Gas Division

Lynn D. Helms - Director

Bruce E. Hicks - Assistant Director

Department of Mineral Resources

Lynn D. Helms - Director

North Dakota Industrial Commission

www.dmr.nd.gov/oilgas

28606

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

Date: 6/17/2014

RE: CORES AND SAMPLES

Well Name: CHALMERS 5301 44-24 4T2R Well File No.: 28600
Location: SESE 24-153-101 County: MCKENZIE
Permit Type: Development - HORIZONTAL
Field: BAKER Target Horizon: THREE FORKS B2

Dear BRANDI TERRY:

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

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

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

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

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

Sincerely


Stephen Fried
Geologist



SUNDY NOTICES AND REPORTS ON WELLS - FORM 4

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



Well File No.
28400

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June 1, 2014	<input checked="" 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	Waiver to rule Rule 43-02-03-31

Well Name and Number Chalmers 5301 44-24 4T2R					
Footages	877 F S L	Qtr-Qtr	SESE	Section	153 N 101 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

DETAILS OF WORK

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

Oasis Petroleum/ Chalmers 5300 31-19H (NDIC 20407) located within one mile of the subject well

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

Company Oasis Petroleum North America LLC		Telephone Number 281-404-9563
Address 1001 Fannin, Suite 1500		
City Houston		State TX
Signature 		Printed Name Heather McCowan
Title Regulatory Assistant		Date May 28, 2014
Email Address hmccowan@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 6-11-2014	
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.
28600



PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June 18, 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	<u>Change BHL</u>

Well Name and Number

Chalmers 5301 44-24 4T2R

Footages	877 F S L	245 F E L	Qtr-Qtr SESE	Section 24	Township 153 N	Range 101 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
---------	------	-------	----------

DETAILS OF WORK

Oasis Petroleum respectfully requests permission to make the following changes to the above referenced well:

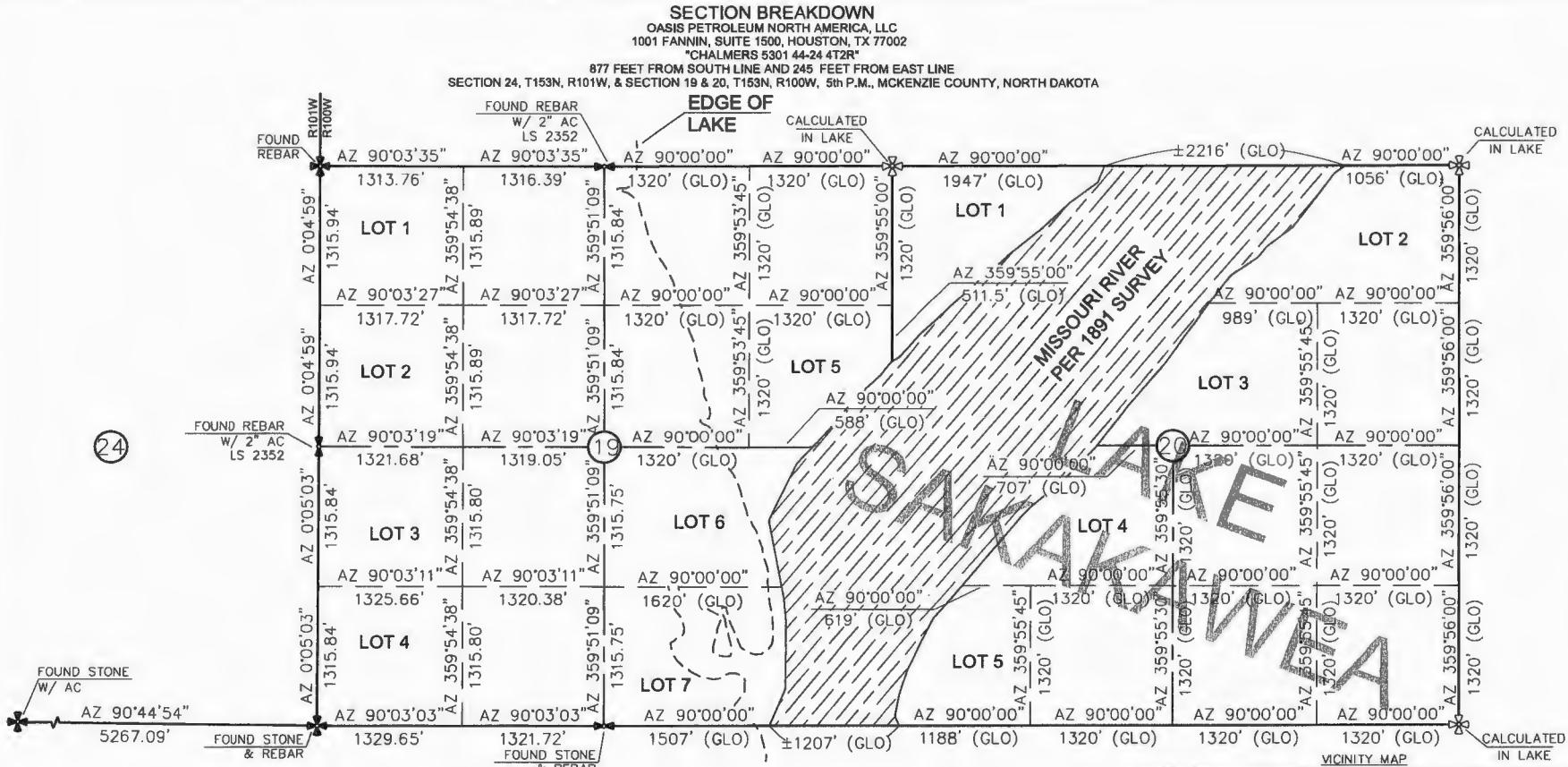
Latitude: 48, 03', 20.01" N

Plats: Please ensure plats attached are on file for the APD.

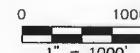
Company Oasis Petroleum North America LLC	Telephone Number 281-404-9563	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Heather McCowan	
Title Regulatory Assistant	Date June 18, 2014	
Email Address hmccowan@oasispetroleum.com		

FOR STATE USE ONLY

<input checked="" type="checkbox"/> Received	<input type="checkbox"/> Approved
Date <i>6/23/14</i>	
By 	
Title Petroleum Resource Specialist	

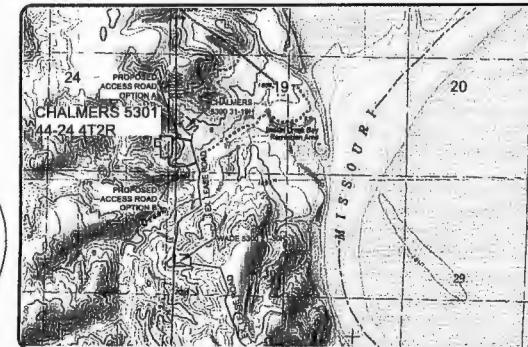
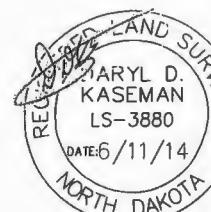


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- ✖ - MONUMENT - RECOVERED
- ✖ - MONUMENT - NOT RECOVERED

ALL AZIMUTHS ARE BASED ON G.P.S.
OBSERVATIONS. THE ORIGINAL SURVEY OF THIS
AREA FOR THE GENERAL LAND OFFICE (G.L.O.)
WAS 1891. THE CORNERS FOUND ARE AS
INDICATED AND ALL OTHERS ARE COMPUTED FROM
THOSE CORNERS FOUND AND BASED ON G.L.O.
DATA. THE MAPPING ANGLE FOR THIS AREA IS
APPROXIMATELY -0°3'.



2/8



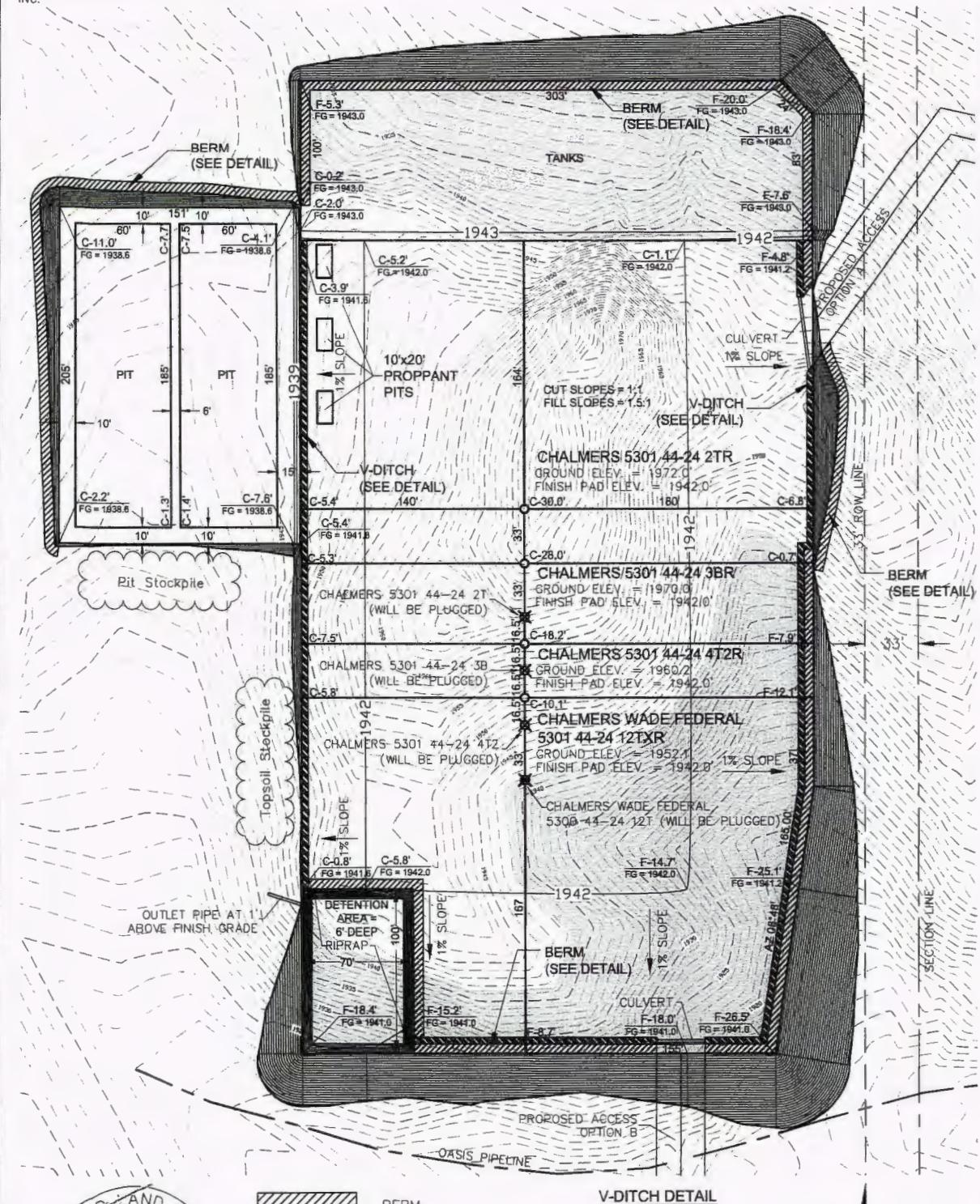
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OASIS PETROLEUM NORTH AMERICA, LLC	
SECTION BREAKDOWN	
MCKENZIE COUNTY, NORTH DAKOTA	
Project No.:	S14-24-24-02
Drawn By:	
Checked By:	
Date:	2014

Interstate Engineering, Inc.
425 P.O. Box 346
SIOUX CITY, IOWA 51101
Ph: (402) 433-5817
Fax: (402) 433-5818
www.interstateengineering.com
Other offices in Minnesota, North Dakota and South Dakota.

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PAD LAYOUT
OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"CHALMERS 5301 44-24 472R"
877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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

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OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No: S15-09-234.02
Checked By: D.D.K. Date: 2014

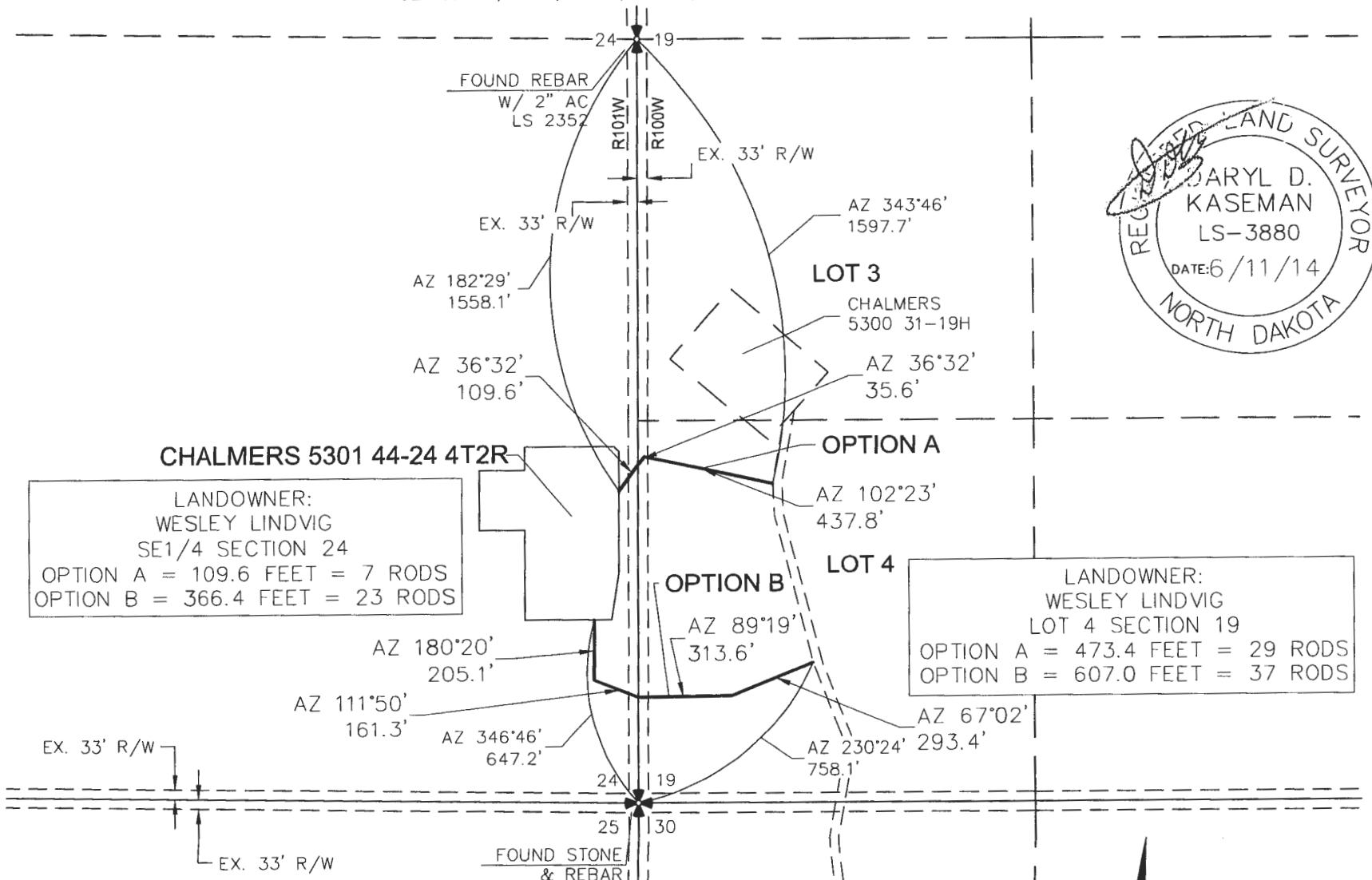
Revision No.	Date	By	Description
REV 3	1/20/14	Bek	CHANGED PAD LAYOUT
REV 4	5/10/14	JJD	ADDED WELL TO PAD
REV 5	5/20/14	JJD	CHANGED NAME, MOVED WELL
REV 6	6/11/14	Zhu	ADDED RAMPS/SHEDS

ALL DRAWINGS ARE IN U.S. UNITS. DRAWING NO. 2 - 2014-09-234.02 FOR OASIS PETROLEUM NORTH AMERICA, LLC. DRAWN BY J.J.S. CHECKED BY D.D.K. DATE 6/11/2014 BY D.D.K. ALL DATA FROM

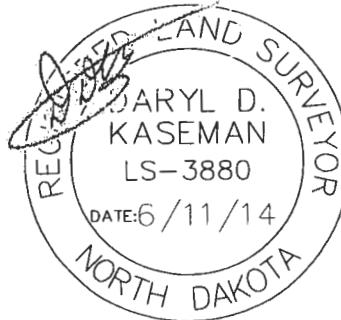
ACCESS APPROACH

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"CHALMERS 5301 44-24 4T2R"

877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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



0 500
1" = 500'

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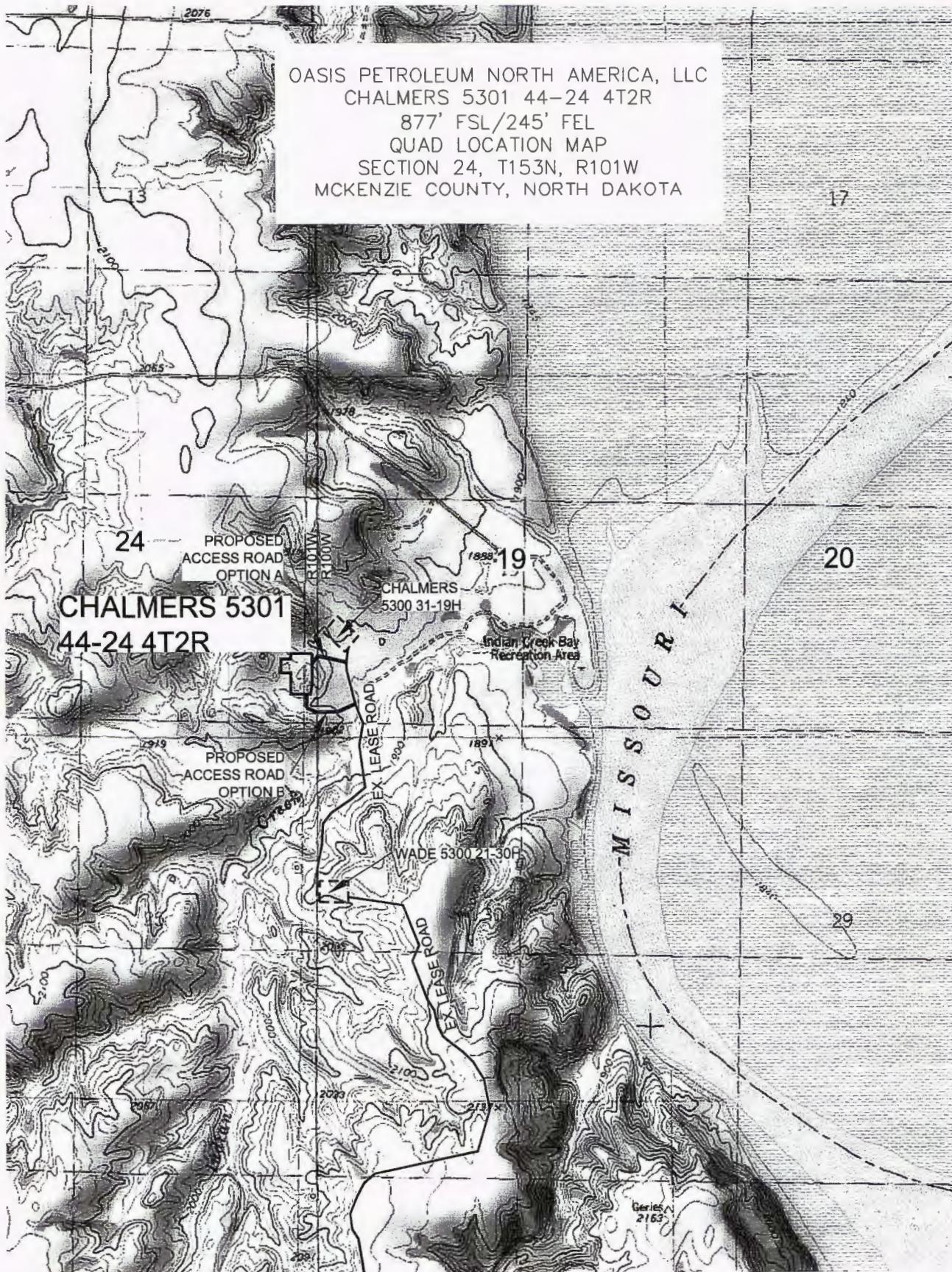
Revision No.	Date	By	Description
REV 2	12/2/13	LS	CHANGED PAD LAYOUT
REV 3	1/20/14	BW	CHANGED PAD LAYOUT
REV 4	5/29/14	LS	ADDED WELL TO PAD
REV 5	5/29/14	AS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JK	ADDED DIMENSIONS

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OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S13-09-235.02
Checked By: D.D.K. Date: MAY 2014

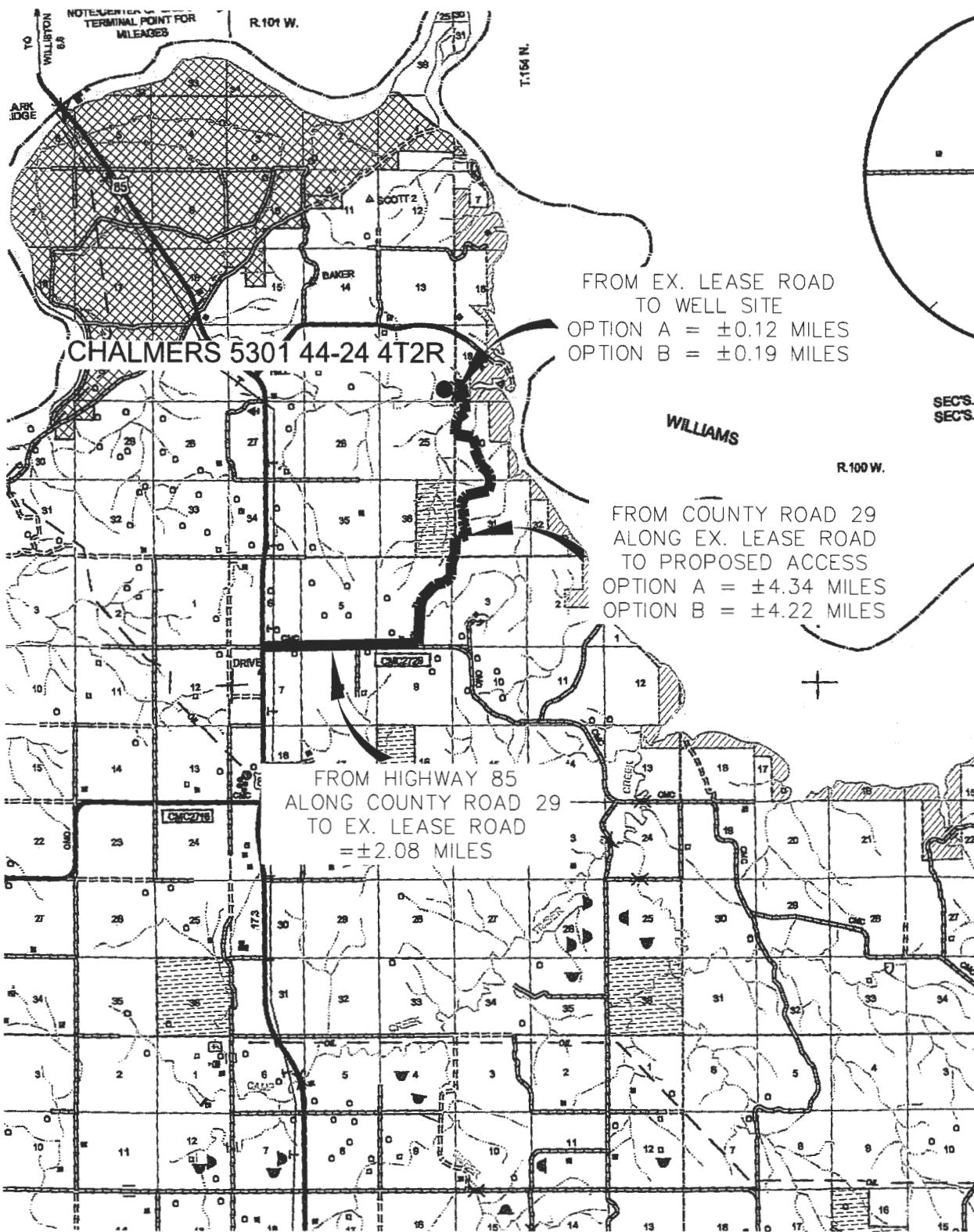
Revision No.	Date	By	Description
REV 2	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHK	CHANGED PAD LAYOUT
REV 4	5/08/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDM	ADDED DIMENSIONS

COUNTY ROAD MAP

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

"CHALMERS 5301 44-24 4T2R"

877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 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 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S13-09-238.02
Checked By: D.D.K. Date: MAY 2014

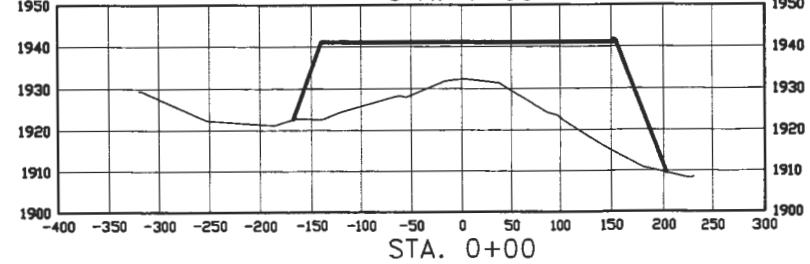
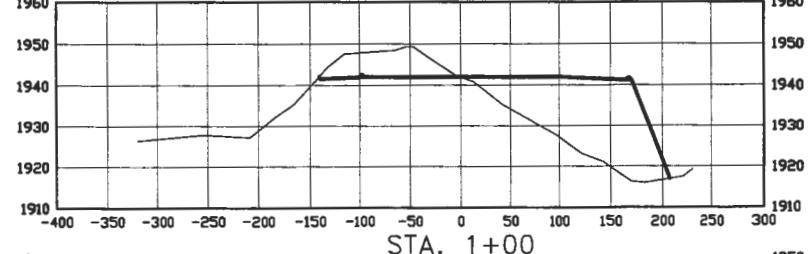
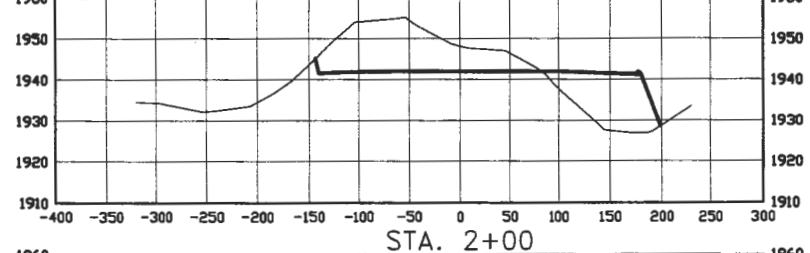
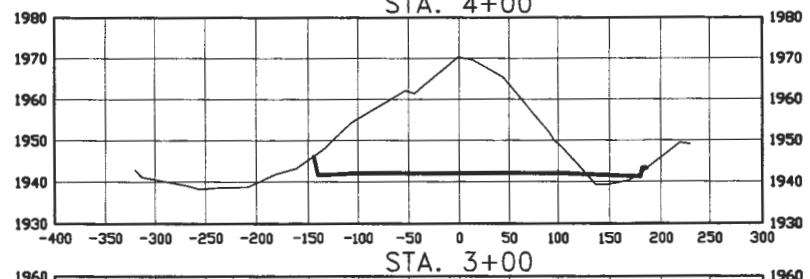
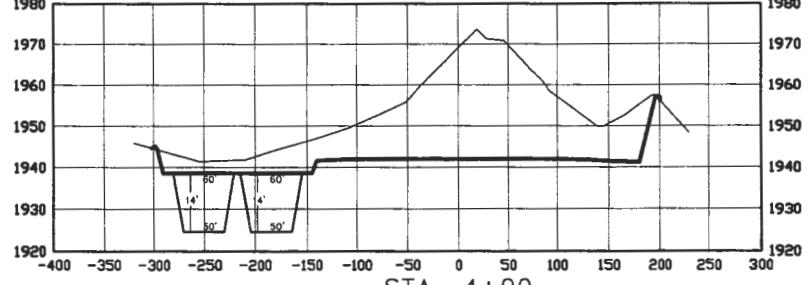
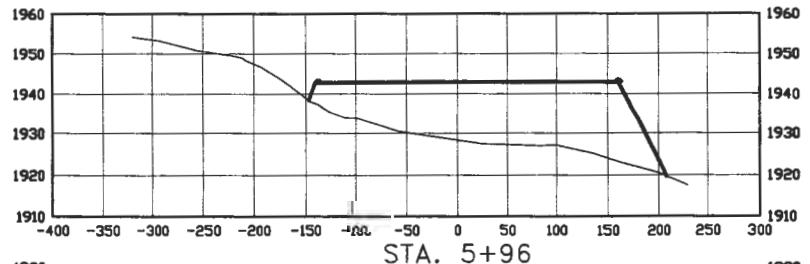
Revision No.	Date	By	Description
REV 2	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHK	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDM	ADDED DIMENSIONS

CROSS SECTIONS

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

"CHALMERS 5301 44-24 4T2R"

877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE
HORIZ 1"=180'
VERT 1"=45'

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OASIS PETROLEUM NORTH AMERICA, LLC
PAD CROSS SECTIONS
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S13-09-235.02
Checked By: D.D.K. Date: MAY 2014

Revision No.	Date	By	Description
REV 2	12/5/13	JAS	CHANGED PAD LAYOUT
REV 3	1/29/14	BHM	CHANGED PAD LAYOUT
REV 4	5/09/14	JAS	ADDED WELL TO PAD
REV 5	5/20/14	JAS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JAS	ADDED DIMENSIONS

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "CHALMERS 5301 44-24 4T2R"
 877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
 SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

WELL SITE ELEVATION	1960.2
WELL PAD ELEVATION	1942.0

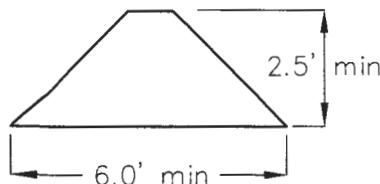
EXCAVATION	55,136
PLUS PIT	<u>9,450</u>
	64,586
EMBANKMENT	37,558
PLUS SHRINKAGE (30%)	<u>11,267</u>
	48,825
STOCKPILE PIT	9,450
STOCKPILE TOP SOIL (6")	4,770
BERMS	1,711 LF = 554 CY
DITCHES	1,029 LF = 157 CY
DETENTION AREA	1,428 CY
STOCKPILE MATERIAL	2,572
DISTURBED AREA FROM PAD	5.91 ACRES

NOTE: ALL QUANTITIES ARE IN CUBIC YARDS (UNLESS NOTED)
 CUT END SLOPES AT 1:1
 FILL END SLOPES AT 1.5:1

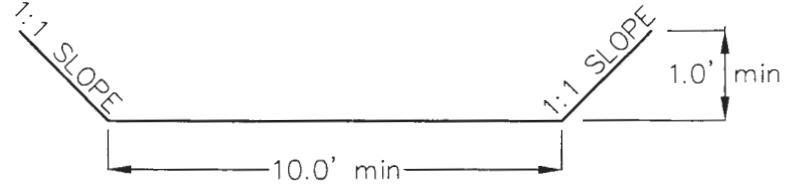
WELL SITE LOCATION

877' FSL
245' FEL

BERM DETAIL



DITCH DETAIL



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OASIS PETROLEUM NORTH AMERICA, LLC
QUANTITIES
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA
Drawn By: J.J.S. Project No.: S13-09-235.02
Checked By: D.D.K. Date: MAY 2014

Revision No.	Date	By	Description
REV 2	12/3/13	ADS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHF	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDM	ADDED DIMENSIONS



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.
28600

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

<input checked="" type="checkbox"/> Notice of Intent	Approximate Start Date June 1, 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	Suspension of Drilling

Well Name and Number Chalmers 5301 44-24 4T2R					
Footages	877 F S	L	245 F E L	Qtr-Qtr SESE	Section 24 Township 153 N Range 101 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) Advanced Energy Services	Address	City	State	Zip Code
--	---------	------	-------	----------

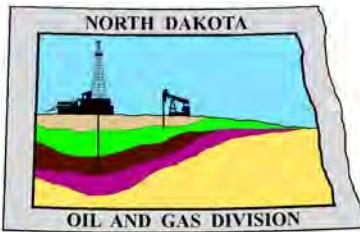
DETAILS OF WORK

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

Company Oasis Petroleum North America LLC	Telephone Number (281) 404-9563	
Address 1001 Fannin, Suite 1500		
City Houston	State TX	Zip Code 77002
Signature 	Printed Name Heather McCowan	
Title Regulatory Assistant	Date May 28, 2014	
Email Address hmccowan@oasispetroleum.com		

FOR STATE USE ONLY	
<input type="checkbox"/> Received	<input checked="" type="checkbox"/> Approved
Date 6/11/14	
By Nathaniel Erbele	
Title Petroleum Resource Specialist	



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

June 11, 2014

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

**RE: HORIZONTAL WELL
CHALMERS 5301 44-24 4T2R
SESE Section 24-153N-101W
McKenzieCounty
Well File # 28600**

Dear Heather:

Pursuant to Commission Order No. 23752, approval to drill the above captioned well is hereby given. The approval is granted on the condition that all portions of the well bore not isolated by cement, be no closer than the **500' setback** from the north & south boundaries and **200' setback** from the east & west boundaries within the 1280 acre spacing unit consisting of Sections 19 & 20 T153N R100W.

PERMIT STIPULATIONS: DUE TO STREAM ADJACENT TO THE WELL SITE, A DIKE IS REQUIRED SURROUNDING THE ENTIRE LOCATION. In cases where a spacing unit is accessed from an off-site drill pad, an affidavit must be provided affirming that the surface owner of the multi-well pad agrees to accept burial on their property of the cuttings generated from drilling the well(s) into an offsite spacing/drilling unit. Effective June 1, 2014, a covered leak-proof container (with placard) for filter sock disposal must be maintained on the well site beginning when the well is spud, and must remain on-site during clean-out, completion, and flow-back whenever filtration operations are conducted. **OASIS PETRO NO AMER must contact NDIC Field Inspector Richard Dunn at 701-770-3554 prior to setting conductor.**

Drilling pit

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

Form 1 Changes & Hard Lines

Any changes, shortening of casing point or lengthening at Total Depth must have prior approval by the NDIC. The proposed directional plan is at a legal location. The minimum legal coordinate from the well head at casing point is: 445' east. Also, based on the azimuth of the proposed lateral the maximum legal coordinates from the well head are: 377' south and 10558' east.

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,

Nathaniel Erbele
Petroleum Resource Specialist



APPLICATION FOR PERMIT TO DRILL HORIZONTAL WELL - FORM 1H

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

PLEASE READ INSTRUCTIONS BEFORE FILLING OUT FORM.

PLEASE SUBMIT THE ORIGINAL AND ONE COPY.

Type of Work New Location	Type of Well Oil & Gas	Approximate Date Work Will Start 6 / 1 / 2013	Confidential Status No
Operator OASIS PETROLEUM NORTH AMERICA LLC		Telephone Number 281-404-9563	
Address 1001 Fannin 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 CHALMERS			Well Number 5301 44-24 4T2R				
Surface Footages 877 F S L 245 F E L		Qtr-Qtr SESE	Section 24	Township 153 N	Range 101 W	County McKenzie	
Longstring Casing Point Footages 727 F S L 204 F W L		Qtr-Qtr SWSW	Section 19	Township 153 N	Range 100 W	County McKenzie	
Longstring Casing Point Coordinates From Well Head 150 S From WH 449 E From WH		Azimuth 108.5 °	Longstring Total Depth 11006 Feet MD 10737 Feet TVD				
Bottom Hole Footages From Nearest Section Line 580 F S L 224 F E L		Qtr-Qtr SESE	Section 20	Township 153 N	Range 100 W	County Williams	
Bottom Hole Coordinates From Well Head 297 S From WH 10534 E From WH		KOP Lateral 1 10259 Feet MD		Azimuth Lateral 1 90 °		Estimated Total Depth Lateral 1 21106 Feet MD 10807 Feet TVD	
Latitude of Well Head 48 ° 03 ' 20.5 "	Longitude of Well Head -103 ° 36 ' 18.55 "	NAD Reference NAD83		Description of Spacing Unit: Sections 19 & 20 T153N R100W (Subject to NDIC Approval)			
Ground Elevation 1960 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 10489 Feet	South Line of Spacing/Drilling Unit 10513 Feet	East Line of Spacing/Drilling Unit 5280 Feet		West Line of Spacing/Drilling Unit 5263 Feet			
Objective Horizons Three Forks - B2						Pierre Shale Top 1918	
Proposed Surface Casing	Size 13 - 3/8 "	Weight 54 Lb./Ft.	Depth 2018 Feet	Cement Volume 967 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 11006 Feet MD 10737 Feet TVD		Cement Volume 898 Sacks	Cement Top 3841 Feet	Top Dakota Sand 5341 Feet
Base Last Charles Salt (If Applicable) 9091 Feet		NOTE: Intermediate or longstring casing string must be cemented above the top Dakota Group Sand.					
Proposed Logs Triple Combo: KOP to Kibby 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**Documents forwarded by email: Drill plan with drilling fluids, Well Summary with casing/cement plans, Directional Plan & Plot, Plats**

Lateral 2

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

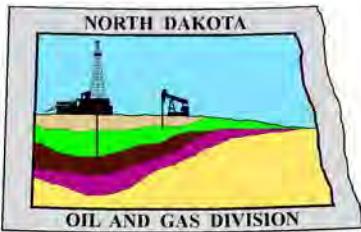
Date

5 / 28 / 2014**ePermit**Printed Name
Heather McCowanTitle
Regulatory Assistant**FOR STATE USE ONLY**

Permit and File Number 28600	API Number 33 - 053 - 06011
Field BAKER	
Pool BAKKEN	Permit Type DEVELOPMENT

FOR STATE USE ONLY

Date Approved 6 / 11 / 2014
By Nathaniel Erbele
Title Petroleum Resource Specialist



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

WELL LOCATION PLAT

OASIS PETROLEUM NORTH AMERICA, LLC

1001 FANNIN, SUITE 1500, HOUSTON, TX 77002

"CHALMERS 5301 44-24 4T2R"

877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

THIS DOCUMENT WAS ORIGINALLY ISSUED
AND SEALED BY DARYL D. KASEMAN,
PLS. REGISTRATION NUMBER 3880 ON
5/21/14 AND THE ORIGINAL
DOCUMENTS ARE STORED AT THE
OFFICES OF INTERSTATE ENGINEERING,
INC.

CHALMERS 5301 44-24 4T2F
GROUND ELEV. 1960.2'
LATITUDE 48°03'20.01"N
LONGITUDE 103°36'18.55"W
GPS SURVEY DATUM: NAD 83

FOUND STONE
W/ AC
AZ 90°44'54"

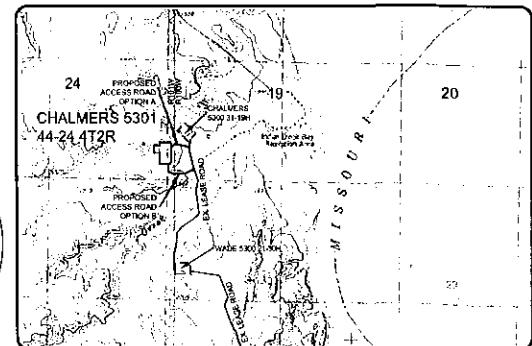
STAKED ON 9/3/13
VERTICAL CONTROL DATUM WAS BASED UPON
CONTROL POINT 16 WITH AN ELEVATION OF 2014.2'

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.

 - MONUMENT - RECOVERED
 - MONUMENT - NOT RECOVERED

DARYL D. KASEMAN LS-3880

A circular stamp with the words "NORTH DAKOTA LAND SURVEYOR" around the perimeter. In the center, it says "RE-REGISTERED" at the top, followed by "MARYL D. KASEMAN" and "LS-3880". At the bottom, it has "DATE: 5/21/14" and "NORTH DAKOTA" at the very bottom.



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ENGINEERING

8

DRILLING PLAN													
OPERATOR	Oasis Petroleum	COUNTY/STATE	McKenzie Co., ND										
WELL NAME	Chalmers 5301 44-24 4T2R	RIG	Nabors B25										
WELL TYPE	Horizontal Three Forks 2nd Bench												
LOCATION	SESE 24-153N-101W	Surface Location (survey plat): 877' FSL		245' FEL									
EST. T.D.	21,106'			GROUND ELEV: 1943 Finished Pad Elev.		Sub Height: 25							
TOTAL LATERA	10,099'			KB ELEV: 1968									
PROGNOSIS:	Based on 1,968' KB(est)		LOGS:	Type	Interval								
MARKER	DEPTH (Surf Loc)	DATUM (Surf Loc)	OH Logs: Triple Combo KOP to Kirby (or min run of 1800' whichever is greater); GR/Res to BSC; GR to surf; CND through the Dakota CBL/GR: Above top of cement/GR to base of casing MWD GR: KOP to lateral TD Logging Waiver: Oasis Chalmers 5300 31-19H 894' to NE sec 19 153N 100W										
Pierre	NDIC MAP	1,918	50										
Greenhorn		4,510	(2,542)										
Mowry		4,914	(2,946)										
Dakota		5,341	(3,373)										
Rierdon		6,356	(4,388)										
Dunham Salt		6,683	(4,715)										
Dunham Salt Base		6,800	(4,832)										
Spearfish		6,887	(4,919)										
Pine Salt		7,135	(5,167)										
Pine Salt Base		7,168	(5,200)										
Opeche Salt		7,235	(5,267)										
Opeche Salt Base		7,269	(5,301)	DST'S:									
Broom Creek (Top of Minnelusa Gp.)		7,469	(5,501)	None planned									
Amsden		7,553	(5,585)										
Tyler		7,720	(5,752)										
Otter (Base of Minnelusa Gp.)		7,920	(5,952)										
Kibbey Lime		8,269	(6,301)										
Charles Salt		8,433	(6,465)	CORES:									
UB		9,010	(7,042)	None planned									
Base Last Salt		9,091	(7,123)										
Ratcliffe		9,141	(7,173)										
Mission Canyon		9,311	(7,343)	MUDLOGGING:									
Lodgepole		9,876	(7,908)	Two-Man: 8,233'									
Lodgepole Fracture Zone		10,109	(8,141)	~200' above the Charles (Kibbey) to Casing point; Casing point to TD									
False Bakken		10,588	(8,620)	30' samples at direction of wellsite geologist; 10' through target @ curve land									
Upper Bakken		10,599	(8,631)										
Middle Bakken		10,616	(8,648)										
Lower Bakken		10,648	(8,680)										
Pronghorn		10,659	(8,691)										
Three Forks 1st Bench		10,676	(8,708)	BOP:									
Three Forks 1st Bench Claystone		10,702	(8,734)	11" 5000 psi blind, pipe & annular									
Three Forks 2nd Bench		10,713	(8,745)										
Three Forks 2nd Bench Claystone		10,742	(8,774)										
Three Forks 3rd Bench		10,761	(8,793)										
Dip Rate:	-0.40° or .70' /100' down												
Max. Anticipated BHP:	4642		Surface Formation: Glacial till										
MUD:	Interval	Type	WT	Vis	WL	Remarks							
Surface:	0' -	2,018'	FW	8.4-9.0	28-32	NC	Circ Mud Tanks						
Intermediate:	2,018' -	11,007'	Invert	9.5-10.4	40-50	30+HtHp	Circ Mud Tanks						
Laterals:	11,007' -	21,106'	Salt Water	9.8-10.2	28-32	NC	Circ Mud Tanks						
CASING:	Size	Wt pdf	Hole	Depth	Cement	WOC	Remarks						
Surface:	13-3/8"	54.5#	17-1/2"	2,018'	Surface	12	100' into Pierre						
Intermediate (Dakota):	9-5/8"	40#	12-1/4"	6,000'	Surface	24	Set Casing across Dakota						
Intermediate:	7"	32#	8-3/4"	11,007'	3,841'	24	1500' above Dakota						
Production Liner:	4.5"	13.5#	6"	21,106'	TOL @ 10,209'								
PROBABLE PLUGS, IF REQ'D:													
OTHER:	MD	TVD	ENL/FSL	FEL/FWL	S-T-R	AZI							
Surface:	2,018	2,018	877' FSL	245' FEL	Sec. 24 153N R101W	Survey Company:							
KOP:	10,259'	10,259'	877' FSL	245' FEL	Sec. 24 153N R101W	Build Rate:	12 deg /100'						
EOC:	11,007'	10,737'	727' FSL	204' FWL	Sec. 19 153N R100W	Turn Rate:	2 deg /100'						
Casing Point:	11,007'	10,737'	727' FSL	204' FWL	Sec. 19 153N R100W	108.0							
Middle Bakken Lateral TD:	21,106'	10,807'	580' FSL	200' FEL	Sec. 20 153N R100W	90.0							
Comments: Request a Sundry for an Open Hole Log Waiver													
Exception well: Oasis Petroleum's J O Anderson 5200 31-28T (33053039510000); 152N/100W/S28; located 0.30 miles S of the proposed location No frac string planned 35 pkrs 2 slvs													
***Note Hard Lines Pit location as depicted on plats. Constructed on native ground, not fill													
				Geology: C. Hargett 9/26/2013									
				Engineering: M. Brown 5-27-14									

Oasis Petroleum
Well Summary
Chalmers 5301 44-24 4T2R
Sec. 24 T153N R101W
McKenzie County, North Dakota

SURFACE CASING AND CEMENT DESIGN

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Make-up Torque (ft-lbs)		
							Minimum	Optimum	Max
13-3/8"	0' to 2,018'	54.5	J-55	STC	12.615"	12.459"	4,100	5,470	6,840

Interval	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c	Cost per ft
0' to 2,018'	13-3/8", 54.5#, J-55, STC, 8rd	1130 / 2.13	2730 / 2.89	514 / 2.63	

API Rating & Safety Factor

- a) Based on full casing evacuation with 9 ppg fluid on backside (2018' setting depth).
- b) Burst pressure based on 9 ppg fluid with no fluid on backside (2018' setting depth).
- c) Based on string weight in 9 ppg fluid at 2018' TVD plus 100k# overpull. (Buoyed weight equals 95k lbs.)

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

Pre-flush (Spacer): 20 bbls fresh water

Lead Slurry: **593 sks** (307 bbls) 2.9 yield conventional system with 94 lb/sk cement, .25 lb/sk D130 Lost Circulation Control Agent, 2% CaCL2, 4% D079 Extender, and 2% D053 Expanding Agent.

Tail Slurry: **374 sks** (77 bbls) 1.16 yield conventional system with 94 lb/sk cement, .25 lb/sk Lost Circulation Control Agent, and .25% CaCL2.

Oasis Petroleum
Well Summary
Chalmers 5301 44-24 4T2R
Sec. 24 T153N R101W
McKenzie County, North Dakota

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' - 6000'	40	HCL-80	LTC	8.835"	8.75"**	5,450	7,270	9,090

**Special Drift

Interval	Description	Collapse	Burst	Tension
		(psi) a	(psi) b	(1000 lbs) c
0' - 6000'	9-5/8", 40#, HCL-80, LTC, 8rd	3090 / 3.96*	5750 / 1.23	837 / 2.75

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 **10%** excess in OH and **0%** excess inside surface casing. TOC at surface.

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

Lead Slurry: **540 sks** (280 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: **373 sks** (77 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
Chalmers 5301 44-24 4T2R
Sec. 24 T153N R101W
McKenzie County, North Dakota

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' - 11540'	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' - 11540'	7", 32#, HCP-110, LTC, 8rd	11890 / 2.13*	12450 / 1.28	897 / 2.17
6777' - 9095'	7", 32#, HCP-110, LTC, 8rd	11890 / 1.88**	12450 / 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 10,630' TVD.
- c. Based on string weight in 10 ppg fluid, (295k lbs buoyed weight) plus 100k lbs overpull.

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

Pre-flush (Spacer): **50 bbls** Saltwater
40 bbls Weighted MudPush Express

Lead Slurry: **219 sks** (86 bbls) 2.21 yield conventional system with 47 lb/sk cement, 37 lb/sk D035 Extender, 3.0% KCl, 3.0% D154 Extender, 0.3% D208 Viscosifier, 0.07% Retarder, 0.2% Anti Foam, 0.5lb/sk D130 LCM

Tail Slurry: **679 sks** (186 bbls) 1.54 yield conventional system with 94 lb/sk cement, 3.0% KCl, 35.0% Silica, 0.5% Retarder, 0.2% Fluid Loss, 0.2% Anti Foam, 0.5 lb/sk LCM

Oasis Petroleum
Well Summary
Chalmers 5301 44-24 4T2R
Sec. 24 T153N R101W
McKenzie County, North Dakota

PRODUCTION LINER

Size	Interval	Weight	Grade	Coupling	I.D.	Drift	Torque
4-1/2"	10175' - 21226'	13.5	P-110	BTC	3.92"	3.795"	4,500

Interval	Length	Description	Collapse (psi) a	Burst (psi) b	Tension (1000 lbs) c
10175' - 21226'	11,051	4-1/2", 13.5 lb, P-110, BTC, 8rd	10680 / 2.00	12410 / 1.28	422 / 1.85

API Rating & Safety Factor

- a) Based on full casing evacuation with 9.5 ppg fluid on backside @ 10784' TVD.
- b) Burst pressure based on 9000 psi treating pressure with 10.2 ppg internal fluid gradient and 9 ppg external fluid gradient @ 10784' TVD.
- c) Based on string weight in 9.5 ppg fluid (Buoyed weight: 128k 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)

Oasis

Indian Hills

**153N-100W-19/20_Altered
Chalmers 5300 44-24 4T2R**

Chalmers 5300 44-24 4T2R

Plan: Design #1

Standard Planning Report

22 May, 2014

Project: Indian Hills
Site: 153N-100W-19/20_Altered
Well: Chalmers 5300 44-24 4T2R
Wellbore: Chalmers 5300 44-24 4T2R
Design: Design #1



WELL DETAILS: Chalmers 5300 44-24 4T2R

Northing
400341.53

Ground Level: 1942.

Easti

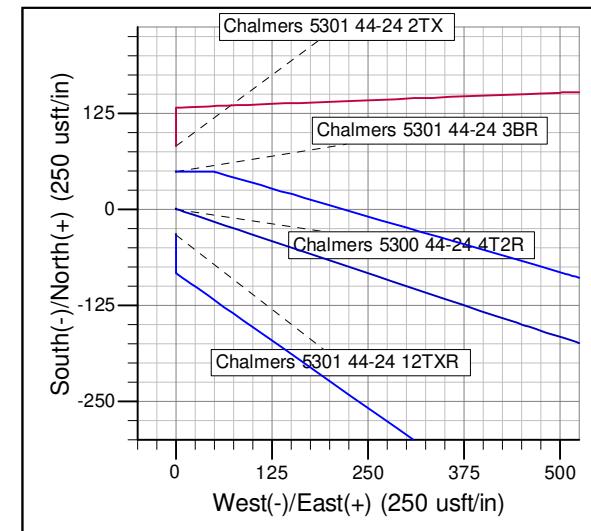
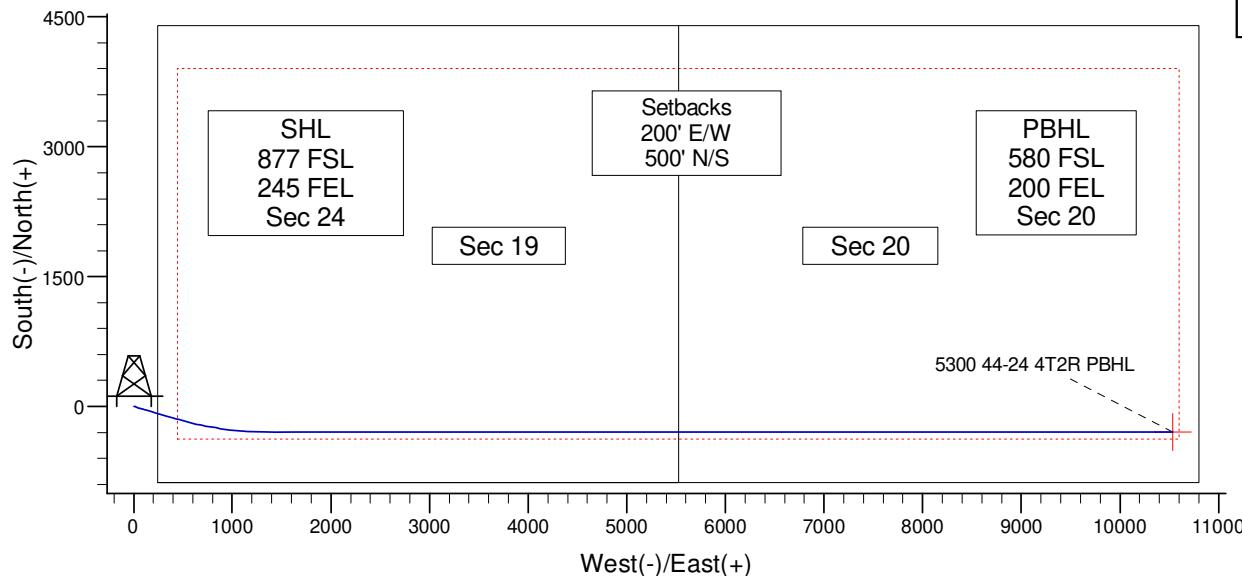
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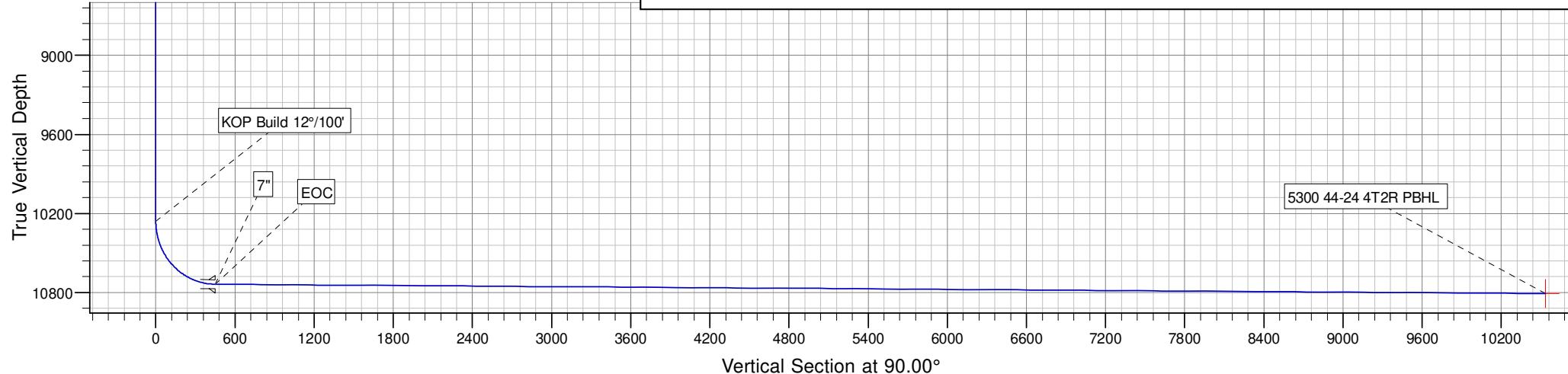
48° 3' 20"

e Longitude

N 103° 36' 18.550 W



CASING DETAILS				SECTION DETAILS							
TVD 10737.0	MD 10007.0	Name 7"	Size 7	Azimuths to True North Magnetic North: 8.27°							
Magnetic Field Strength: 56433.3nT				MD 0.0	Inc 0.00	Azi 0.00	TVD 0.0	+N-S 0.0	+E-W 0.0	Dleg 0.00	Target
Dip Angle: 72.98°				10259.5	0.00	0.00	10259.5	0.0	0.0	0.00	
Date: 5/22/2014				11006.2	89.60	108.45	10737.0	-150.1	449.8	12.00	
Model: IGRF2010				11928.6	89.60	90.00	10743.4	-297.3	1356.4	2.00	
				21106.5	89.60	90.00	10807.5	-297.3	10534.0	0.00	5300 44-24 4T2R PBHL



Ryan Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Company:	Oasis	TVD Reference:	well @ 1967.0usft
Project:	Indian Hills	MD Reference:	well @ 1967.0usft
Site:	153N-100W-19/20_Altered	North Reference:	True
Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Wellbore:	Chalmers 5300 44-24 4T2R		
Design:	Design #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-19/20_Altered		
Site Position:		Northing:	400,357.73 usft
From:	Lat/Long	Easting:	1,209,326.78 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
			Latitude: 48° 3' 20.170 N Longitude: 103° 36' 18.550 W Grid Convergence: -2.31 °

Well	Chalmers 5300 44-24 4T2R				
Well Position	+N/-S +E/-W	-16.2 usft 0.0 usft	Northing: Easting:	400,341.53 usft 1,209,326.13 usft	Latitude: Longitude:
Position Uncertainty		2.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:
					48° 3' 20.010 N 103° 36' 18.550 W 1,942.0 usft

Wellbore	Chalmers 5300 44-24 4T2R				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/22/2014	8.27	72.98	56,433

Design	Design #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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00
10,259.5	0.00	0.00	10,259.5	0.0	0.0	0.00	0.00	0.00	0.00	0.00
11,006.2	89.60	108.45	10,737.0	-150.1	449.8	12.00	12.00	0.00	108.45	
11,928.6	89.60	90.00	10,743.4	-297.3	1,356.4	2.00	0.00	-2.00	-90.06	
21,106.5	89.60	90.00	10,807.5	-297.3	10,534.0	0.00	0.00	0.00	0.00	5300 44-24 4T2R PBI

Ryan Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Company:	Oasis	TVD Reference:	well @ 1967.0usft
Project:	Indian Hills	MD Reference:	well @ 1967.0usft
Site:	153N-100W-19/20_Altered	North Reference:	True
Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Wellbore:	Chalmers 5300 44-24 4T2R		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,259.5	0.00	0.00	10,259.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP Build 12°/100'									
10,275.0	1.86	108.45	10,275.0	-0.1	0.2	0.2	12.00	12.00	0.00
10,300.0	4.86	108.45	10,300.0	-0.5	1.6	1.6	12.00	12.00	0.00
10,325.0	7.86	108.45	10,324.8	-1.4	4.3	4.3	12.00	12.00	0.00
10,350.0	10.86	108.45	10,349.5	-2.7	8.1	8.1	12.00	12.00	0.00
10,375.0	13.86	108.45	10,373.9	-4.4	13.2	13.2	12.00	12.00	0.00
10,400.0	16.86	108.45	10,398.0	-6.5	19.5	19.5	12.00	12.00	0.00
10,425.0	19.86	108.45	10,421.7	-9.0	26.9	26.9	12.00	12.00	0.00
10,450.0	22.86	108.45	10,445.0	-11.9	35.6	35.6	12.00	12.00	0.00
10,475.0	25.86	108.45	10,467.8	-15.1	45.4	45.4	12.00	12.00	0.00
10,500.0	28.86	108.45	10,490.0	-18.8	56.3	56.3	12.00	12.00	0.00
10,525.0	31.86	108.45	10,511.5	-22.8	68.2	68.2	12.00	12.00	0.00
10,550.0	34.86	108.45	10,532.4	-27.1	81.3	81.3	12.00	12.00	0.00
10,575.0	37.86	108.45	10,552.5	-31.8	95.3	95.3	12.00	12.00	0.00
10,600.0	40.86	108.45	10,571.9	-36.8	110.4	110.4	12.00	12.00	0.00
10,621.8	43.47	108.45	10,588.0	-41.4	124.2	124.2	12.00	12.00	0.00
False Bakken									
10,625.0	43.86	108.45	10,590.3	-42.2	126.3	126.3	12.00	12.00	0.00
10,637.2	45.32	108.45	10,599.0	-44.9	134.5	134.5	12.00	12.00	0.00
Upper Bakken									
10,650.0	46.86	108.45	10,607.9	-47.8	143.2	143.2	12.00	12.00	0.00
10,662.0	48.30	108.45	10,616.0	-50.6	151.6	151.6	12.00	12.00	0.00
Middle Bakken									
10,675.0	49.86	108.45	10,624.5	-53.7	160.9	160.9	12.00	12.00	0.00
10,700.0	52.86	108.45	10,640.1	-59.9	179.5	179.5	12.00	12.00	0.00
10,713.3	54.46	108.45	10,648.0	-63.3	189.6	189.6	12.00	12.00	0.00
Lower Bakken									
10,725.0	55.86	108.45	10,654.7	-66.3	198.7	198.7	12.00	12.00	0.00
10,732.8	56.79	108.45	10,659.0	-68.4	204.9	204.9	12.00	12.00	0.00
Pronghorn									
10,750.0	58.86	108.45	10,668.2	-73.0	218.7	218.7	12.00	12.00	0.00
10,765.6	60.73	108.45	10,676.0	-77.2	231.5	231.5	12.00	12.00	0.00
Three Forks 1st Bench									
10,775.0	61.86	108.45	10,680.5	-79.8	239.3	239.3	12.00	12.00	0.00
10,800.0	64.86	108.45	10,691.7	-86.9	260.5	260.5	12.00	12.00	0.00
10,825.0	67.86	108.45	10,701.8	-94.2	282.2	282.2	12.00	12.00	0.00
10,825.6	67.94	108.45	10,702.0	-94.3	282.8	282.8	12.00	12.00	0.00
Three Forks 1st Bench Claystone									
10,850.0	70.86	108.45	10,710.6	-101.6	304.4	304.4	12.00	12.00	0.00
10,857.6	71.77	108.45	10,713.0	-103.8	311.2	311.2	12.00	12.00	0.00
Three Forks 2nd Bench									
10,875.0	73.86	108.45	10,718.1	-109.1	327.0	327.0	12.00	12.00	0.00
10,900.0	76.86	108.45	10,724.5	-116.8	350.0	350.0	12.00	12.00	0.00
10,925.0	79.86	108.45	10,729.5	-124.5	373.2	373.2	12.00	12.00	0.00
10,950.0	82.86	108.45	10,733.3	-132.3	396.6	396.6	12.00	12.00	0.00
10,975.0	85.86	108.45	10,735.7	-140.2	420.2	420.2	12.00	12.00	0.00
11,000.0	88.86	108.45	10,736.9	-148.1	443.9	443.9	12.00	12.00	0.00
11,006.2	89.60	108.45	10,737.0	-150.1	449.8	449.8	11.94	11.94	0.00
EOC									
11,007.0	89.60	108.43	10,737.0	-150.3	450.6	450.6	2.08	0.00	-2.08
7"									
11,100.0	89.60	106.57	10,737.6	-178.3	539.2	539.2	2.00	0.00	-2.00

Ryan Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Company:	Oasis	TVD Reference:	well @ 1967.0usft
Project:	Indian Hills	MD Reference:	well @ 1967.0usft
Site:	153N-100W-19/20_Altered	North Reference:	True
Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Wellbore:	Chalmers 5300 44-24 4T2R		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,200.0	89.60	104.57	10,738.3	-205.1	635.6	635.6	2.00	0.00	-2.00
11,300.0	89.60	102.57	10,739.0	-228.6	732.8	732.8	2.00	0.00	-2.00
11,400.0	89.59	100.57	10,739.7	-248.7	830.7	830.7	2.00	0.00	-2.00
11,500.0	89.59	98.57	10,740.4	-265.3	929.3	929.3	2.00	0.00	-2.00
11,600.0	89.60	96.57	10,741.1	-278.5	1,028.4	1,028.4	2.00	0.00	-2.00
11,700.0	89.60	94.57	10,741.8	-288.2	1,128.0	1,128.0	2.00	0.00	-2.00
11,722.1	89.60	94.13	10,742.0	-289.8	1,149.9	1,149.9	2.00	0.00	-2.00
Three Forks 2nd Bench Claystone									
11,800.0	89.60	92.57	10,742.5	-294.4	1,227.8	1,227.8	2.00	0.00	-2.00
11,900.0	89.60	90.57	10,743.2	-297.2	1,327.7	1,327.7	2.00	0.00	-2.00
11,928.6	89.60	90.00	10,743.4	-297.3	1,356.4	1,356.4	2.00	0.00	-2.00
12,000.0	89.60	90.00	10,743.9	-297.3	1,427.7	1,427.7	0.00	0.00	0.00
12,100.0	89.60	90.00	10,744.6	-297.3	1,527.7	1,527.7	0.00	0.00	0.00
12,200.0	89.60	90.00	10,745.3	-297.3	1,627.7	1,627.7	0.00	0.00	0.00
12,300.0	89.60	90.00	10,746.0	-297.3	1,727.7	1,727.7	0.00	0.00	0.00
12,400.0	89.60	90.00	10,746.7	-297.3	1,827.7	1,827.7	0.00	0.00	0.00
12,500.0	89.60	90.00	10,747.4	-297.3	1,927.7	1,927.7	0.00	0.00	0.00
12,600.0	89.60	90.00	10,748.1	-297.3	2,027.7	2,027.7	0.00	0.00	0.00
12,700.0	89.60	90.00	10,748.8	-297.3	2,127.7	2,127.7	0.00	0.00	0.00
12,800.0	89.60	90.00	10,749.5	-297.3	2,227.7	2,227.7	0.00	0.00	0.00
12,900.0	89.60	90.00	10,750.2	-297.3	2,327.7	2,327.7	0.00	0.00	0.00
13,000.0	89.60	90.00	10,750.9	-297.3	2,427.7	2,427.7	0.00	0.00	0.00
13,100.0	89.60	90.00	10,751.6	-297.3	2,527.7	2,527.7	0.00	0.00	0.00
13,200.0	89.60	90.00	10,752.3	-297.3	2,627.7	2,627.7	0.00	0.00	0.00
13,300.0	89.60	90.00	10,753.0	-297.3	2,727.7	2,727.7	0.00	0.00	0.00
13,400.0	89.60	90.00	10,753.7	-297.3	2,827.7	2,827.7	0.00	0.00	0.00
13,500.0	89.60	90.00	10,754.4	-297.3	2,927.7	2,927.7	0.00	0.00	0.00
13,600.0	89.60	90.00	10,755.1	-297.3	3,027.7	3,027.7	0.00	0.00	0.00
13,700.0	89.60	90.00	10,755.8	-297.3	3,127.7	3,127.7	0.00	0.00	0.00
13,800.0	89.60	90.00	10,756.5	-297.3	3,227.7	3,227.7	0.00	0.00	0.00
13,900.0	89.60	90.00	10,757.2	-297.3	3,327.7	3,327.7	0.00	0.00	0.00
14,000.0	89.60	90.00	10,757.9	-297.3	3,427.7	3,427.7	0.00	0.00	0.00
14,100.0	89.60	90.00	10,758.6	-297.3	3,527.7	3,527.7	0.00	0.00	0.00
14,200.0	89.60	90.00	10,759.3	-297.3	3,627.7	3,627.7	0.00	0.00	0.00
14,300.0	89.60	90.00	10,760.0	-297.3	3,727.7	3,727.7	0.00	0.00	0.00
14,400.0	89.60	90.00	10,760.7	-297.3	3,827.7	3,827.7	0.00	0.00	0.00
14,442.6	89.60	90.00	10,761.0	-297.3	3,870.2	3,870.2	0.00	0.00	0.00
Three Forks 3rd Bench									
14,500.0	89.60	90.00	10,761.4	-297.3	3,927.6	3,927.6	0.00	0.00	0.00
14,600.0	89.60	90.00	10,762.1	-297.3	4,027.6	4,027.6	0.00	0.00	0.00
14,700.0	89.60	90.00	10,762.8	-297.3	4,127.6	4,127.6	0.00	0.00	0.00
14,800.0	89.60	90.00	10,763.5	-297.3	4,227.6	4,227.6	0.00	0.00	0.00
14,900.0	89.60	90.00	10,764.2	-297.3	4,327.6	4,327.6	0.00	0.00	0.00
15,000.0	89.60	90.00	10,764.9	-297.3	4,427.6	4,427.6	0.00	0.00	0.00
15,100.0	89.60	90.00	10,765.6	-297.3	4,527.6	4,527.6	0.00	0.00	0.00
15,200.0	89.60	90.00	10,766.3	-297.3	4,627.6	4,627.6	0.00	0.00	0.00
15,300.0	89.60	90.00	10,767.0	-297.3	4,727.6	4,727.6	0.00	0.00	0.00
15,400.0	89.60	90.00	10,767.7	-297.3	4,827.6	4,827.6	0.00	0.00	0.00
15,500.0	89.60	90.00	10,768.4	-297.3	4,927.6	4,927.6	0.00	0.00	0.00
15,600.0	89.60	90.00	10,769.1	-297.3	5,027.6	5,027.6	0.00	0.00	0.00
15,700.0	89.60	90.00	10,769.8	-297.3	5,127.6	5,127.6	0.00	0.00	0.00
15,800.0	89.60	90.00	10,770.5	-297.3	5,227.6	5,227.6	0.00	0.00	0.00
15,900.0	89.60	90.00	10,771.2	-297.3	5,327.6	5,327.6	0.00	0.00	0.00
16,000.0	89.60	90.00	10,771.9	-297.3	5,427.6	5,427.6	0.00	0.00	0.00

Ryan Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Company:	Oasis	TVD Reference:	well @ 1967.0usft
Project:	Indian Hills	MD Reference:	well @ 1967.0usft
Site:	153N-100W-19/20_Altered	North Reference:	True
Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Wellbore:	Chalmers 5300 44-24 4T2R		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (/100usft)	Build Rate (/100usft)	Turn Rate (/100usft)	
16,100.0	89.60	90.00	10,772.6	-297.3	5,527.6	5,527.6	0.00	0.00	0.00	
16,200.0	89.60	90.00	10,773.3	-297.3	5,627.6	5,627.6	0.00	0.00	0.00	
16,300.0	89.60	90.00	10,774.0	-297.3	5,727.6	5,727.6	0.00	0.00	0.00	
16,400.0	89.60	90.00	10,774.7	-297.3	5,827.6	5,827.6	0.00	0.00	0.00	
16,500.0	89.60	90.00	10,775.4	-297.3	5,927.6	5,927.6	0.00	0.00	0.00	
16,600.0	89.60	90.00	10,776.1	-297.3	6,027.6	6,027.6	0.00	0.00	0.00	
16,700.0	89.60	90.00	10,776.8	-297.3	6,127.6	6,127.6	0.00	0.00	0.00	
16,800.0	89.60	90.00	10,777.5	-297.3	6,227.6	6,227.6	0.00	0.00	0.00	
16,900.0	89.60	90.00	10,778.2	-297.3	6,327.6	6,327.6	0.00	0.00	0.00	
17,000.0	89.60	90.00	10,778.9	-297.3	6,427.6	6,427.6	0.00	0.00	0.00	
17,100.0	89.60	90.00	10,779.6	-297.3	6,527.6	6,527.6	0.00	0.00	0.00	
17,200.0	89.60	90.00	10,780.3	-297.3	6,627.6	6,627.6	0.00	0.00	0.00	
17,300.0	89.60	90.00	10,780.9	-297.3	6,727.6	6,727.6	0.00	0.00	0.00	
17,400.0	89.60	90.00	10,781.6	-297.3	6,827.6	6,827.6	0.00	0.00	0.00	
17,500.0	89.60	90.00	10,782.3	-297.3	6,927.6	6,927.6	0.00	0.00	0.00	
17,600.0	89.60	90.00	10,783.0	-297.3	7,027.6	7,027.6	0.00	0.00	0.00	
17,700.0	89.60	90.00	10,783.7	-297.3	7,127.6	7,127.6	0.00	0.00	0.00	
17,800.0	89.60	90.00	10,784.4	-297.3	7,227.6	7,227.6	0.00	0.00	0.00	
17,900.0	89.60	90.00	10,785.1	-297.3	7,327.6	7,327.6	0.00	0.00	0.00	
18,000.0	89.60	90.00	10,785.8	-297.3	7,427.6	7,427.6	0.00	0.00	0.00	
18,100.0	89.60	90.00	10,786.5	-297.3	7,527.6	7,527.6	0.00	0.00	0.00	
18,200.0	89.60	90.00	10,787.2	-297.3	7,627.6	7,627.6	0.00	0.00	0.00	
18,300.0	89.60	90.00	10,787.9	-297.3	7,727.6	7,727.6	0.00	0.00	0.00	
18,400.0	89.60	90.00	10,788.6	-297.3	7,827.6	7,827.6	0.00	0.00	0.00	
18,500.0	89.60	90.00	10,789.3	-297.3	7,927.6	7,927.6	0.00	0.00	0.00	
18,600.0	89.60	90.00	10,790.0	-297.3	8,027.5	8,027.5	0.00	0.00	0.00	
18,700.0	89.60	90.00	10,790.7	-297.3	8,127.5	8,127.5	0.00	0.00	0.00	
18,800.0	89.60	90.00	10,791.4	-297.3	8,227.5	8,227.5	0.00	0.00	0.00	
18,900.0	89.60	90.00	10,792.1	-297.3	8,327.5	8,327.5	0.00	0.00	0.00	
19,000.0	89.60	90.00	10,792.8	-297.3	8,427.5	8,427.5	0.00	0.00	0.00	
19,100.0	89.60	90.00	10,793.5	-297.3	8,527.5	8,527.5	0.00	0.00	0.00	
19,200.0	89.60	90.00	10,794.2	-297.3	8,627.5	8,627.5	0.00	0.00	0.00	
19,300.0	89.60	90.00	10,794.9	-297.3	8,727.5	8,727.5	0.00	0.00	0.00	
19,400.0	89.60	90.00	10,795.6	-297.3	8,827.5	8,827.5	0.00	0.00	0.00	
19,500.0	89.60	90.00	10,796.3	-297.3	8,927.5	8,927.5	0.00	0.00	0.00	
19,600.0	89.60	90.00	10,797.0	-297.3	9,027.5	9,027.5	0.00	0.00	0.00	
19,700.0	89.60	90.00	10,797.7	-297.3	9,127.5	9,127.5	0.00	0.00	0.00	
19,800.0	89.60	90.00	10,798.4	-297.3	9,227.5	9,227.5	0.00	0.00	0.00	
19,900.0	89.60	90.00	10,799.1	-297.3	9,327.5	9,327.5	0.00	0.00	0.00	
20,000.0	89.60	90.00	10,799.8	-297.3	9,427.5	9,427.5	0.00	0.00	0.00	
20,100.0	89.60	90.00	10,800.5	-297.3	9,527.5	9,527.5	0.00	0.00	0.00	
20,200.0	89.60	90.00	10,801.2	-297.3	9,627.5	9,627.5	0.00	0.00	0.00	
20,300.0	89.60	90.00	10,801.9	-297.3	9,727.5	9,727.5	0.00	0.00	0.00	
20,400.0	89.60	90.00	10,802.6	-297.3	9,827.5	9,827.5	0.00	0.00	0.00	
20,500.0	89.60	90.00	10,803.3	-297.3	9,927.5	9,927.5	0.00	0.00	0.00	
20,600.0	89.60	90.00	10,804.0	-297.3	10,027.5	10,027.5	0.00	0.00	0.00	
20,700.0	89.60	90.00	10,804.7	-297.3	10,127.5	10,127.5	0.00	0.00	0.00	
20,800.0	89.60	90.00	10,805.4	-297.3	10,227.5	10,227.5	0.00	0.00	0.00	
20,900.0	89.60	90.00	10,806.1	-297.3	10,327.5	10,327.5	0.00	0.00	0.00	
21,000.0	89.60	90.00	10,806.8	-297.3	10,427.5	10,427.5	0.00	0.00	0.00	
21,106.5	89.60	90.00	10,807.5	-297.3	10,534.0	10,534.0	0.00	0.00	0.00	

5300 44-24 4T2R PBHL

Ryan Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Company:	Oasis	TVD Reference:	well @ 1967.0usft
Project:	Indian Hills	MD Reference:	well @ 1967.0usft
Site:	153N-100W-19/20_Altered	North Reference:	True
Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Wellbore:	Chalmers 5300 44-24 4T2R		
Design:	Design #1		

Design Targets										
Target Name										
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/S (usft)	+E/W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
5300 44-24 4T2R PBHL	0.00	0.00	10,807.5	-297.0	10,534.0	399,620.07	1,219,839.59	48° 3' 17.050 N	103° 33' 43.485 W	
- plan misses target center by 0.3usft at 21106.5usft MD (10807.5 TVD, -297.3 N, 10534.0 E)										
- Point										

Casing Points										
Measured Depth (usft)	Vertical Depth (usft)	Name			Casing Diameter (")	Hole Diameter (")				
11,007.0	10,737.0	7"			7	8-3/4				

Ryan Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Company:	Oasis	TVD Reference:	well @ 1967.0usft
Project:	Indian Hills	MD Reference:	well @ 1967.0usft
Site:	153N-100W-19/20_Altered	North Reference:	True
Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Wellbore:	Chalmers 5300 44-24 4T2R		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,918.0	1,918.0	Pierre			
4,510.0	4,510.0	Greenhorn			
4,914.0	4,914.0	Mowry			
5,341.0	5,341.0	Dakota			
6,356.0	6,356.0	Rierdon			
6,683.0	6,683.0	Dunham Salt			
6,800.0	6,800.0	Dunham Salt Base			
6,887.0	6,887.0	Spearfish			
7,135.0	7,135.0	Pine Salt			
7,168.0	7,168.0	Pine Salt Base			
7,235.0	7,235.0	Opeche Salt			
7,269.0	7,269.0	Opeche Salt Base			
7,469.0	7,469.0	Broom Creek (Top of Minnelusa Gp.)			
7,553.0	7,553.0	Amsden			
7,720.0	7,720.0	Tyler			
7,920.0	7,920.0	Otter (Base of Minnelusa Gp.)			
8,269.0	8,269.0	Kibbey Lime			
8,433.0	8,433.0	Charles Salt			
9,010.0	9,010.0	UB			
9,091.0	9,091.0	Base Last Salt			
9,141.0	9,141.0	Ratcliffe			
9,311.0	9,311.0	Mission Canyon			
9,876.0	9,876.0	Lodgepole			
10,109.0	10,109.0	Lodgepole Fracture Zone			
10,621.8	10,588.0	False Bakken			
10,637.2	10,599.0	Upper Bakken			
10,662.0	10,616.0	Middle Bakken			
10,713.3	10,648.0	Lower Bakken			
10,732.8	10,659.0	Pronghorn			
10,765.6	10,676.0	Three Forks 1st Bench			
10,825.6	10,702.0	Three Forks 1st Bench Claystone			
10,857.6	10,713.0	Three Forks 2nd Bench			
11,722.1	10,742.0	Three Forks 2nd Bench Claystone			
14,442.6	10,761.0	Three Forks 3rd Bench			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/S (usft)	+E/W (usft)		
10,259.5	10,259.5	0.0	0.0	KOP Build 12°/100'	
11,006.2	10,737.0	-150.1	449.8	EOC	

Oasis

Indian Hills

**153N-100W-19/20_Altered
Chalmers 5300 44-24 4T2R**

**Chalmers 5300 44-24 4T2R
Design #1**

Anticollision Report

22 May, 2014

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	5/22/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	21,106.5	Design #1 (Chalmers 5300 44-24 4T2R)		MWD	MWD - Standard

Summary		Distance						Warning	
Site Name	Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor			
153N-100W-19/20_Altered									
Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12T		2,200.0	2,200.0	33.4	23.0	3.213	CC		
Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12T		21,106.5	21,226.5	579.9	-34.3	0.944	Level 1, ES, SF		
Chalmers 5301 44-24 2TX - Chalmers #2T - Plan #1		2,166.7	2,166.7	82.2	72.3	8.334	CC		
Chalmers 5301 44-24 2TX - Chalmers #2T - Plan #1		21,106.5	21,028.7	452.1	-161.8	0.736	Level 1, ES, SF		
Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR -		2,200.0	2,200.0	48.6	38.6	4.860	CC		
Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR -		21,106.5	20,938.2	147.4	-285.9	0.340	Level 1, ES, SF		

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12TXR - Design #1										Offset Site Error:	0.0 usft	
Survey Program:		0-MWD								Offset Well Error:	2.0 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Semi Major Axis	Offset Wellbore Centre +N/S (usft)	+E/W (usft)	Distance			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/S (usft)	+E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
0.0	0.0	0.0	0.0	2.0	2.0	-180.00	-33.4	0.0	33.4			
100.0	100.0	100.0	100.0	2.0	2.0	-180.00	-33.4	0.0	33.4	29.4	4.00	8.353
200.0	200.0	200.0	200.0	2.0	2.0	-180.00	-33.4	0.0	33.4	29.4	4.05	8.262
300.0	300.0	300.0	300.0	2.1	2.1	-180.00	-33.4	0.0	33.4	29.3	4.14	8.078
400.0	400.0	400.0	400.0	2.1	2.1	-180.00	-33.4	0.0	33.4	29.2	4.28	7.817
500.0	500.0	500.0	500.0	2.2	2.2	-180.00	-33.4	0.0	33.4	29.0	4.46	7.503
600.0	600.0	600.0	600.0	2.3	2.3	-180.00	-33.4	0.0	33.4	28.8	4.67	7.156
700.0	700.0	700.0	700.0	2.5	2.5	-180.00	-33.4	0.0	33.4	28.5	4.92	6.796
800.0	800.0	800.0	800.0	2.6	2.6	-180.00	-33.4	0.0	33.4	28.2	5.20	6.437
900.0	900.0	900.0	900.0	2.7	2.7	-180.00	-33.4	0.0	33.4	27.9	5.49	6.088
1,000.0	1,000.0	1,000.0	1,000.0	2.9	2.9	-180.00	-33.4	0.0	33.4	27.6	5.81	5.755
1,100.0	1,100.0	1,100.0	1,100.0	3.1	3.1	-180.00	-33.4	0.0	33.4	27.3	6.14	5.443
1,200.0	1,200.0	1,200.0	1,200.0	3.2	3.2	-180.00	-33.4	0.0	33.4	26.9	6.49	5.151
1,300.0	1,300.0	1,300.0	1,300.0	3.4	3.4	-180.00	-33.4	0.0	33.4	26.6	6.85	4.881
1,400.0	1,400.0	1,400.0	1,400.0	3.6	3.6	-180.00	-33.4	0.0	33.4	26.2	7.22	4.631
1,500.0	1,500.0	1,500.0	1,500.0	3.8	3.8	-180.00	-33.4	0.0	33.4	25.8	7.60	4.400
1,600.0	1,600.0	1,600.0	1,600.0	4.0	4.0	-180.00	-33.4	0.0	33.4	25.5	7.99	4.188
1,700.0	1,700.0	1,700.0	1,700.0	4.2	4.2	-180.00	-33.4	0.0	33.4	25.1	8.38	3.992
1,800.0	1,800.0	1,800.0	1,800.0	4.4	4.4	-180.00	-33.4	0.0	33.4	24.7	8.78	3.811
1,900.0	1,900.0	1,900.0	1,900.0	4.6	4.6	-180.00	-33.4	0.0	33.4	24.3	9.18	3.644
2,000.0	2,000.0	2,000.0	2,000.0	4.8	4.8	-180.00	-33.4	0.0	33.4	23.9	9.58	3.489

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12TXR - Design #1												Offset Site Error:	0.0 usft		
Survey Program: 0-MWD		Distance												Offset Well Error:	2.0 usft
Reference		Offset		Semi Major Axis				Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
2,100.0	2,100.0	2,100.0	2,100.0	5.0	5.0	-180.00	-33.4	0.0	33.4	23.4	9.99	3.346			
2,200.0	2,200.0	2,200.0	2,200.0	5.2	5.2	-180.00	-33.4	0.0	33.4	23.0	10.41	3.213 CC			
2,300.0	2,300.0	2,299.7	2,299.7	5.4	5.4	-180.00	-34.2	0.0	34.2	23.5	10.77	3.178			
2,400.0	2,400.0	2,399.7	2,399.7	5.6	5.5	-180.00	-35.1	0.0	35.1	24.0	11.14	3.151			
2,500.0	2,500.0	2,499.7	2,499.7	5.8	5.7	-180.00	-36.0	0.0	36.0	24.5	11.52	3.124			
2,600.0	2,600.0	2,599.7	2,599.7	6.0	5.9	-180.00	-36.9	0.0	36.9	25.0	11.90	3.098			
2,700.0	2,700.0	2,699.7	2,699.7	6.3	6.0	-180.00	-37.7	0.0	37.7	25.4	12.28	3.072			
2,800.0	2,800.0	2,799.7	2,799.7	6.5	6.2	-180.00	-38.6	0.0	38.6	25.9	12.67	3.047			
2,900.0	2,900.0	2,899.7	2,899.7	6.7	6.4	-180.00	-39.5	0.0	39.5	26.4	13.06	3.022			
3,000.0	3,000.0	2,999.7	2,999.6	6.9	6.6	-180.00	-40.3	0.0	40.3	26.9	13.46	2.998			
3,100.0	3,100.0	3,099.7	3,099.6	7.1	6.7	-180.00	-41.2	0.0	41.2	27.4	13.86	2.974			
3,200.0	3,200.0	3,199.7	3,199.6	7.3	6.9	-180.00	-42.1	0.0	42.1	27.8	14.26	2.952			
3,300.0	3,300.0	3,299.7	3,299.6	7.5	7.1	-180.00	-43.0	0.0	43.0	28.3	14.67	2.929			
3,400.0	3,400.0	3,399.7	3,399.6	7.8	7.3	-180.00	-43.8	0.0	43.8	28.8	15.08	2.908			
3,500.0	3,500.0	3,499.7	3,499.6	8.0	7.5	-180.00	-44.7	0.0	44.7	29.2	15.49	2.887			
3,600.0	3,600.0	3,599.7	3,599.6	8.2	7.7	-180.00	-45.6	0.0	45.6	29.7	15.90	2.867			
3,700.0	3,700.0	3,699.7	3,699.6	8.4	7.9	-180.00	-46.5	0.0	46.5	30.1	16.31	2.848			
3,800.0	3,800.0	3,799.6	3,799.6	8.6	8.1	-180.00	-47.3	0.0	47.3	30.6	16.73	2.829			
3,900.0	3,900.0	3,899.6	3,899.6	8.9	8.3	-180.00	-48.2	0.0	48.2	31.1	17.15	2.811			
4,000.0	4,000.0	3,999.6	3,999.6	9.1	8.5	-180.00	-49.1	0.0	49.1	31.5	17.57	2.794			
4,100.0	4,100.0	4,099.6	4,099.6	9.3	8.7	-180.00	-49.9	0.0	49.9	32.0	17.99	2.777			
4,200.0	4,200.0	4,199.6	4,199.6	9.5	8.9	-180.00	-50.8	0.0	50.8	32.4	18.41	2.760			
4,300.0	4,300.0	4,299.6	4,299.5	9.7	9.1	-180.00	-51.7	0.0	51.7	32.9	18.84	2.744			
4,400.0	4,400.0	4,399.6	4,399.5	10.0	9.3	-180.00	-52.6	0.0	52.6	33.3	19.26	2.729			
4,500.0	4,500.0	4,499.6	4,499.5	10.2	9.5	-180.00	-53.4	0.0	53.4	33.8	19.69	2.714			
4,600.0	4,600.0	4,599.6	4,599.5	10.4	9.7	-180.00	-54.3	0.0	54.3	34.2	20.12	2.700			
4,700.0	4,700.0	4,699.6	4,699.5	10.6	9.9	-180.00	-55.2	0.0	55.2	34.6	20.54	2.686			
4,800.0	4,800.0	4,799.6	4,799.5	10.8	10.1	-180.00	-56.1	0.0	56.1	35.1	20.97	2.673			
4,900.0	4,900.0	4,899.6	4,899.5	11.1	10.3	-180.00	-56.9	0.0	56.9	35.5	21.40	2.660			
5,000.0	5,000.0	4,999.6	4,999.5	11.3	10.6	-180.00	-57.8	0.0	57.8	36.0	21.84	2.647			
5,100.0	5,100.0	5,099.6	5,099.5	11.5	10.8	-180.00	-58.7	0.0	58.7	36.4	22.27	2.635			
5,200.0	5,200.0	5,199.6	5,199.5	11.7	11.0	-180.00	-59.5	0.0	59.5	36.8	22.70	2.623			
5,300.0	5,300.0	5,299.6	5,299.5	11.9	11.2	-180.00	-60.4	0.0	60.4	37.3	23.13	2.612			
5,400.0	5,400.0	5,399.6	5,399.5	12.2	11.4	-180.00	-61.3	0.0	61.3	37.7	23.57	2.601			
5,500.0	5,500.0	5,499.6	5,499.5	12.4	11.6	-180.00	-62.2	0.0	62.2	38.2	24.00	2.590			
5,600.0	5,600.0	5,599.6	5,599.4	12.6	11.8	-180.00	-63.0	0.0	63.0	38.6	24.44	2.580			
5,700.0	5,700.0	5,699.6	5,699.4	12.8	12.0	-180.00	-63.9	0.0	63.9	39.0	24.87	2.569			
5,800.0	5,800.0	5,799.6	5,799.4	13.1	12.3	-180.00	-64.8	0.0	64.8	39.5	25.31	2.560			
5,900.0	5,900.0	5,899.6	5,899.4	13.3	12.5	-180.00	-65.7	0.0	65.7	39.9	25.75	2.550			
6,000.0	6,000.0	5,999.6	5,999.4	13.5	12.7	-180.00	-66.5	0.0	66.5	40.3	26.18	2.541			
6,100.0	6,100.0	6,099.6	6,099.4	13.7	12.9	-180.00	-67.4	0.0	67.4	40.8	26.62	2.532			
6,200.0	6,200.0	6,199.6	6,199.4	13.9	13.1	-180.00	-68.3	0.0	68.3	41.2	27.06	2.523			
6,300.0	6,300.0	6,299.6	6,299.4	14.2	13.3	-180.00	-69.1	0.0	69.1	41.6	27.50	2.514			
6,400.0	6,400.0	6,399.5	6,399.4	14.4	13.6	-180.00	-70.0	0.0	70.0	42.1	27.94	2.506			
6,500.0	6,500.0	6,499.5	6,499.4	14.6	13.8	-180.00	-70.9	0.0	70.9	42.5	28.38	2.498			
6,600.0	6,600.0	6,599.5	6,599.4	14.8	14.0	-180.00	-71.8	0.0	71.8	42.9	28.82	2.490			
6,700.0	6,700.0	6,699.5	6,699.4	15.1	14.2	-180.00	-72.6	0.0	72.6	43.4	29.26	2.483			
6,800.0	6,800.0	6,799.5	6,799.4	15.3	14.4	-180.00	-73.5	0.0	73.5	43.8	29.70	2.475			
6,900.0	6,900.0	6,899.5	6,899.4	15.5	14.6	-180.00	-74.4	0.0	74.4	44.2	30.14	2.468			
7,000.0	7,000.0	6,999.5	6,999.3	15.7	14.9	-180.00	-75.3	0.0	75.3	44.7	30.58	2.461			
7,100.0	7,100.0	7,099.5	7,099.3	15.9	15.1	-180.00	-76.1	0.0	76.1	45.1	31.02	2.454			
7,200.0	7,200.0	7,199.5	7,199.3	16.2	15.3	-180.00	-77.0	0.0	77.0	45.5	31.46	2.447			

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12TXR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	2.0 usft
Reference				Offset		Semi Major Axis				Distance			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,300.0	7,300.0	7,299.5	7,299.3	16.4	15.5	-180.00	-77.9	0.0	77.9	46.0	31.91	2.441	
7,400.0	7,400.0	7,399.5	7,399.3	16.6	15.7	-180.00	-78.7	0.0	78.7	46.4	32.35	2.434	
7,500.0	7,500.0	7,499.5	7,499.3	16.8	16.0	-180.00	-79.6	0.0	79.6	46.8	32.79	2.428	
7,600.0	7,600.0	7,599.5	7,599.3	17.1	16.2	-180.00	-80.5	0.0	80.5	47.3	33.23	2.422	
7,700.0	7,700.0	7,699.5	7,699.3	17.3	16.4	-180.00	-81.4	0.0	81.4	47.7	33.68	2.416	
7,800.0	7,800.0	7,799.5	7,799.3	17.5	16.6	-180.00	-82.2	0.0	82.2	48.1	34.12	2.410	
7,900.0	7,900.0	7,899.5	7,899.3	17.7	16.8	-180.00	-83.1	0.0	83.1	48.5	34.56	2.405	
8,000.0	8,000.0	8,000.2	8,000.0	18.0	17.1	-180.00	-83.4	0.0	83.4	48.4	35.00	2.383	
8,100.0	8,100.0	8,100.2	8,100.0	18.2	17.2	-180.00	-83.4	0.0	83.4	48.0	35.41	2.356	
8,200.0	8,200.0	8,200.2	8,200.0	18.4	17.4	-180.00	-83.4	0.0	83.4	47.6	35.83	2.328	
8,300.0	8,300.0	8,300.2	8,300.0	18.6	17.6	-180.00	-83.4	0.0	83.4	47.2	36.24	2.302	
8,400.0	8,400.0	8,400.2	8,400.0	18.8	17.8	-180.00	-83.4	0.0	83.4	46.8	36.66	2.276	
8,500.0	8,500.0	8,500.2	8,500.0	19.1	18.0	-180.00	-83.4	0.0	83.4	46.3	37.07	2.250	
8,600.0	8,600.0	8,600.2	8,600.0	19.3	18.2	-180.00	-83.4	0.0	83.4	45.9	37.49	2.225	
8,700.0	8,700.0	8,700.2	8,700.0	19.5	18.4	-180.00	-83.4	0.0	83.4	45.5	37.91	2.200	
8,800.0	8,800.0	8,800.2	8,800.0	19.7	18.6	-180.00	-83.4	0.0	83.4	45.1	38.33	2.176	
8,900.0	8,900.0	8,900.2	8,900.0	20.0	18.8	-180.00	-83.4	0.0	83.4	44.7	38.75	2.153	
9,000.0	9,000.0	9,000.2	9,000.0	20.2	19.0	-180.00	-83.4	0.0	83.4	44.2	39.17	2.130	
9,100.0	9,100.0	9,100.2	9,100.0	20.4	19.2	-180.00	-83.4	0.0	83.4	43.8	39.59	2.107	
9,200.0	9,200.0	9,200.2	9,200.0	20.6	19.4	-180.00	-83.4	0.0	83.4	43.4	40.01	2.085	
9,300.0	9,300.0	9,300.2	9,300.0	20.9	19.6	-180.00	-83.4	0.0	83.4	43.0	40.43	2.063	
9,400.0	9,400.0	9,400.2	9,400.0	21.1	19.8	-180.00	-83.4	0.0	83.4	42.6	40.86	2.042	
9,500.0	9,500.0	9,500.2	9,500.0	21.3	20.0	-180.00	-83.4	0.0	83.4	42.1	41.28	2.021	
9,600.0	9,600.0	9,600.2	9,600.0	21.5	20.2	-180.00	-83.4	0.0	83.4	41.7	41.70	2.000	
9,700.0	9,700.0	9,700.2	9,700.0	21.8	20.4	-180.00	-83.4	0.0	83.4	41.3	42.13	1.980	
9,800.0	9,800.0	9,800.2	9,800.0	22.0	20.6	-180.00	-83.4	0.0	83.4	40.9	42.55	1.960	
9,900.0	9,900.0	9,900.2	9,900.0	22.2	20.8	-180.00	-83.4	0.0	83.4	40.4	42.98	1.941	
10,000.0	10,000.0	10,000.2	10,000.0	22.4	21.0	-180.00	-83.4	0.0	83.4	40.0	43.40	1.922	
10,100.0	10,100.0	10,100.2	10,100.0	22.6	21.2	-180.00	-83.4	0.0	83.4	39.6	43.83	1.903	
10,200.0	10,200.0	10,200.2	10,200.0	22.9	21.4	-180.00	-83.4	0.0	83.4	39.2	44.26	1.885	
10,213.8	10,213.8	10,214.0	10,213.8	22.9	21.4	-180.00	-83.4	0.0	83.4	39.1	44.32	1.882	
10,259.5	10,259.5	10,256.6	10,256.3	23.0	21.5	179.45	-84.0	0.8	84.0	39.5	44.51	1.888	
10,275.0	10,275.0	10,270.6	10,270.3	23.0	21.5	70.46	-84.6	1.7	84.7	40.1	44.54	1.901	
10,300.0	10,300.0	10,293.1	10,292.7	23.1	21.6	69.72	-86.1	3.9	85.9	41.3	44.63	1.926	
10,325.0	10,324.8	10,315.6	10,314.9	23.1	21.6	69.15	-88.3	6.9	87.4	42.7	44.70	1.956	
10,350.0	10,349.5	10,338.0	10,336.8	23.2	21.7	68.73	-91.0	10.7	89.2	44.4	44.76	1.993	
10,375.0	10,373.9	10,360.4	10,358.4	23.2	21.7	68.46	-94.2	15.4	91.2	46.4	44.81	2.035	
10,400.0	10,398.0	10,382.7	10,379.6	23.3	21.8	68.32	-98.1	20.9	93.4	48.6	44.85	2.083	
10,425.0	10,421.7	10,404.9	10,400.5	23.3	21.8	68.32	-102.5	27.1	95.9	51.0	44.89	2.136	
10,450.0	10,445.0	10,427.0	10,420.9	23.4	21.9	68.43	-107.4	34.2	98.6	53.6	44.92	2.194	
10,475.0	10,467.8	10,450.0	10,441.6	23.5	22.0	68.67	-113.1	42.3	101.5	56.5	44.95	2.257	
10,500.0	10,490.0	10,471.1	10,460.2	23.5	22.0	68.95	-118.8	50.4	104.6	59.6	44.99	2.324	
10,525.0	10,511.5	10,493.0	10,479.0	23.6	22.1	69.32	-125.3	59.6	107.9	62.9	45.03	2.396	
10,550.0	10,532.4	10,514.9	10,497.3	23.7	22.1	69.76	-132.2	69.4	111.4	66.3	45.09	2.471	
10,575.0	10,552.5	10,536.7	10,514.9	23.7	22.2	70.25	-139.6	79.9	115.2	70.0	45.17	2.550	
10,600.0	10,571.9	10,558.4	10,531.9	23.8	22.3	70.78	-147.4	91.0	119.1	73.9	45.27	2.632	
10,625.0	10,590.3	10,580.1	10,548.3	23.9	22.4	71.34	-155.6	102.7	123.3	77.9	45.39	2.716	
10,650.0	10,607.9	10,601.8	10,563.9	24.0	22.5	71.91	-164.2	115.0	127.6	82.1	45.53	2.803	
10,675.0	10,624.5	10,623.4	10,578.8	24.2	22.6	72.50	-173.2	127.8	132.2	86.5	45.71	2.892	
10,700.0	10,640.1	10,645.0	10,592.9	24.3	22.7	73.09	-182.6	141.1	137.0	91.0	45.92	2.983	
10,725.0	10,654.7	10,666.5	10,606.3	24.4	22.8	73.67	-192.3	154.9	141.9	95.7	46.15	3.074	
10,750.0	10,668.2	10,688.0	10,618.9	24.6	22.9	74.25	-202.3	169.2	147.0	100.6	46.43	3.166	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12TXR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	2.0 usft
Reference				Offset		Semi Major Axis		Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,775.0	10,680.5	10,709.6	10,630.7	24.8	23.1	74.81	-212.7	183.9	152.3	105.6	46.73	3.259	
10,800.0	10,691.7	10,731.1	10,641.7	25.0	23.2	75.36	-223.3	199.1	157.8	110.7	47.08	3.351	
10,825.0	10,701.8	10,752.6	10,651.8	25.2	23.4	75.89	-234.2	214.6	163.4	115.9	47.45	3.443	
10,850.0	10,710.6	10,775.0	10,661.4	25.4	23.6	76.44	-245.9	231.2	169.1	121.3	47.87	3.533	
10,875.0	10,718.1	10,795.7	10,669.5	25.7	23.7	76.88	-256.8	246.8	175.0	126.7	48.31	3.623	
10,900.0	10,724.5	10,817.3	10,677.0	25.9	23.9	77.34	-268.5	263.3	181.1	132.3	48.78	3.711	
10,925.0	10,729.5	10,839.0	10,683.6	26.2	24.2	77.78	-280.3	280.2	187.2	137.9	49.29	3.798	
10,950.0	10,733.3	10,860.7	10,689.2	26.5	24.4	78.20	-292.4	297.4	193.4	143.6	49.83	3.882	
10,975.0	10,735.7	10,882.5	10,694.0	26.8	24.6	78.60	-304.6	314.8	199.8	149.4	50.40	3.964	
11,000.0	10,736.9	10,904.4	10,697.7	27.1	24.9	78.97	-317.0	332.4	206.2	155.2	50.99	4.043	
11,006.2	10,737.0	10,909.8	10,698.5	27.2	24.9	79.06	-320.1	336.8	207.8	156.6	51.14	4.063	
11,100.0	10,737.6	10,996.3	10,703.2	28.5	26.0	81.28	-369.7	407.5	234.9	181.3	53.63	4.380	
11,200.0	10,738.3	11,100.4	10,704.0	30.2	27.6	82.34	-427.2	494.2	265.5	208.9	56.62	4.689	
11,300.0	10,739.0	11,205.8	10,704.9	32.0	29.3	83.18	-482.3	584.1	296.0	236.1	59.94	4.939	
11,400.0	10,739.7	11,312.6	10,705.8	33.9	31.3	83.86	-534.6	677.1	326.4	262.8	63.54	5.137	
11,500.0	10,740.4	11,420.7	10,706.6	36.0	33.5	84.42	-584.0	773.3	356.5	289.1	67.36	5.292	
11,600.0	10,741.1	11,530.2	10,707.5	38.2	35.9	84.90	-630.4	872.5	386.4	315.0	71.36	5.414	
11,700.0	10,741.8	11,641.2	10,708.4	40.5	38.4	85.30	-673.4	974.8	415.9	340.4	75.50	5.509	
11,800.0	10,742.5	11,753.7	10,709.4	42.9	41.0	85.65	-713.0	1,080.1	445.1	365.4	79.74	5.582	
11,900.0	10,743.2	11,867.7	10,710.3	45.3	43.7	85.96	-748.8	1,188.3	473.8	389.8	84.05	5.637	
11,928.6	10,743.4	11,900.6	10,710.6	45.9	44.5	86.04	-758.4	1,219.8	482.0	396.7	85.29	5.651	
12,000.0	10,743.9	11,983.5	10,711.3	47.7	46.6	86.24	-780.8	1,299.6	501.3	412.2	89.03	5.630	
12,100.0	10,744.6	12,101.8	10,712.2	50.2	49.5	86.46	-808.8	1,414.6	524.9	430.4	94.44	5.558	
12,200.0	10,745.3	12,222.4	10,713.2	52.7	52.6	86.63	-832.4	1,532.7	544.4	444.4	100.05	5.441	
12,300.0	10,746.0	12,344.7	10,714.2	55.3	55.7	86.76	-851.3	1,653.6	559.8	454.0	105.82	5.290	
12,400.0	10,746.7	12,468.5	10,715.2	57.9	58.8	86.86	-865.1	1,776.6	571.0	459.2	111.72	5.111	
12,500.0	10,747.4	12,593.2	10,716.2	60.5	62.0	86.92	-873.6	1,901.0	577.8	460.1	117.71	4.908	
12,600.0	10,748.1	12,718.5	10,717.2	63.2	65.2	86.94	-876.7	2,026.2	580.3	456.5	123.78	4.688	
12,700.0	10,748.8	12,820.2	10,718.0	65.9	67.8	86.95	-876.7	2,127.9	580.3	451.0	129.25	4.489	
12,800.0	10,749.5	12,920.2	10,718.8	68.6	70.4	86.96	-876.7	2,227.9	580.3	445.5	134.71	4.307	
12,900.0	10,750.2	13,020.2	10,719.6	71.3	73.0	86.97	-876.7	2,327.9	580.2	440.0	140.20	4.139	
13,000.0	10,750.9	13,120.2	10,720.4	74.1	75.7	86.98	-876.7	2,427.9	580.2	434.5	145.73	3.982	
13,100.0	10,751.6	13,220.2	10,721.1	76.8	78.3	86.99	-876.7	2,527.9	580.2	429.0	151.27	3.836	
13,200.0	10,752.3	13,320.2	10,721.9	79.6	81.0	87.00	-876.7	2,627.9	580.2	423.4	156.84	3.700	
13,300.0	10,753.0	13,420.2	10,722.7	82.4	83.7	87.00	-876.7	2,727.9	580.2	417.8	162.43	3.572	
13,400.0	10,753.7	13,520.2	10,723.5	85.2	86.4	87.01	-876.7	2,827.9	580.2	412.2	168.04	3.453	
13,500.0	10,754.4	13,620.2	10,724.3	88.0	89.2	87.02	-876.7	2,927.9	580.2	406.6	173.66	3.341	
13,600.0	10,755.1	13,720.2	10,725.1	90.8	91.9	87.03	-876.7	3,027.9	580.2	400.9	179.30	3.236	
13,700.0	10,755.8	13,820.2	10,725.8	93.6	94.6	87.04	-876.7	3,127.9	580.2	395.3	184.95	3.137	
13,800.0	10,756.5	13,920.2	10,726.6	96.4	97.4	87.05	-876.7	3,227.9	580.2	389.6	190.62	3.044	
13,900.0	10,757.2	14,020.2	10,727.4	99.2	100.2	87.06	-876.7	3,327.9	580.2	383.9	196.29	2.956	
14,000.0	10,757.9	14,120.2	10,728.2	102.1	103.0	87.07	-876.7	3,427.9	580.2	378.2	201.98	2.873	
14,100.0	10,758.6	14,220.2	10,729.0	104.9	105.7	87.07	-876.7	3,527.9	580.2	372.5	207.67	2.794	
14,200.0	10,759.3	14,320.2	10,729.8	107.7	108.5	87.08	-876.7	3,627.9	580.2	366.8	213.38	2.719	
14,300.0	10,760.0	14,420.2	10,730.6	110.6	111.3	87.09	-876.7	3,727.9	580.2	361.1	219.09	2.648	
14,400.0	10,760.7	14,520.2	10,731.3	113.4	114.1	87.10	-876.7	3,827.9	580.2	355.4	224.81	2.581	
14,500.0	10,761.4	14,620.2	10,732.1	116.3	117.0	87.11	-876.7	3,927.9	580.2	349.6	230.54	2.517	
14,600.0	10,762.1	14,720.2	10,732.9	119.2	119.8	87.12	-876.7	4,027.9	580.2	343.9	236.27	2.456	
14,700.0	10,762.8	14,820.2	10,733.7	122.0	122.6	87.13	-876.7	4,127.9	580.2	338.2	242.01	2.397	
14,800.0	10,763.5	14,920.2	10,734.5	124.9	125.4	87.13	-876.7	4,227.9	580.2	332.4	247.76	2.342	
14,900.0	10,764.2	15,020.2	10,735.3	127.8	128.3	87.14	-876.7	4,327.9	580.2	326.7	253.50	2.289	
15,000.0	10,764.9	15,120.2	10,736.1	130.6	131.1	87.15	-876.7	4,427.9	580.2	320.9	259.26	2.238	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12TXR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD				Distance								Offset Well Error:	2.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
15,100.0	10,765.6	15,220.2	10,736.8	133.5	134.0	87.16	-876.7	4,527.9	580.2	315.1	265.02	2.189	
15,200.0	10,766.3	15,320.2	10,737.6	136.4	136.8	87.17	-876.7	4,627.9	580.1	309.4	270.78	2.142	
15,300.0	10,767.0	15,420.2	10,738.4	139.3	139.7	87.18	-876.7	4,727.9	580.1	303.6	276.55	2.098	
15,400.0	10,767.7	15,520.2	10,739.2	142.1	142.5	87.19	-876.7	4,827.9	580.1	297.8	282.32	2.055	
15,500.0	10,768.4	15,620.2	10,740.0	145.0	145.4	87.19	-876.7	4,927.8	580.1	292.0	288.10	2.014	
15,600.0	10,769.1	15,720.2	10,740.8	147.9	148.2	87.20	-876.7	5,027.8	580.1	286.3	293.87	1.974	
15,700.0	10,769.8	15,820.2	10,741.6	150.8	151.1	87.21	-876.7	5,127.8	580.1	280.5	299.65	1.936	
15,800.0	10,770.5	15,920.2	10,742.3	153.7	153.9	87.22	-876.7	5,227.8	580.1	274.7	305.44	1.899	
15,900.0	10,771.2	16,020.2	10,743.1	156.6	156.8	87.23	-876.7	5,327.8	580.1	268.9	311.23	1.864	
16,000.0	10,771.9	16,120.2	10,743.9	159.5	159.7	87.24	-876.7	5,427.8	580.1	263.1	317.01	1.830	
16,100.0	10,772.6	16,220.2	10,744.7	162.4	162.6	87.25	-876.7	5,527.8	580.1	257.3	322.81	1.797	
16,200.0	10,773.3	16,320.2	10,745.5	165.2	165.4	87.25	-876.7	5,627.8	580.1	251.5	328.60	1.765	
16,300.0	10,774.0	16,420.2	10,746.3	168.1	168.3	87.26	-876.7	5,727.8	580.1	245.7	334.40	1.735	
16,400.0	10,774.7	16,520.2	10,747.1	171.0	171.2	87.27	-876.7	5,827.8	580.1	239.9	340.20	1.705	
16,500.0	10,775.4	16,620.2	10,747.8	173.9	174.1	87.28	-876.7	5,927.8	580.1	234.1	346.00	1.677	
16,600.0	10,776.1	16,720.2	10,748.6	176.8	176.9	87.29	-876.7	6,027.8	580.1	228.3	351.80	1.649	
16,700.0	10,776.8	16,820.2	10,749.4	179.7	179.8	87.30	-876.7	6,127.8	580.1	222.5	357.60	1.622	
16,800.0	10,777.5	16,920.2	10,750.2	182.6	182.7	87.31	-876.7	6,227.8	580.1	216.7	363.41	1.596	
16,900.0	10,778.2	17,020.2	10,751.0	185.5	185.6	87.31	-876.7	6,327.8	580.1	210.9	369.22	1.571	
17,000.0	10,778.9	17,120.2	10,751.8	188.4	188.5	87.32	-876.7	6,427.8	580.1	205.0	375.03	1.547	
17,100.0	10,779.6	17,220.2	10,752.6	191.3	191.4	87.33	-876.7	6,527.8	580.1	199.2	380.84	1.523	
17,200.0	10,780.3	17,320.2	10,753.3	194.3	194.3	87.34	-876.7	6,627.8	580.1	193.4	386.65	1.500	
17,300.0	10,780.9	17,420.2	10,754.1	197.2	197.2	87.35	-876.7	6,727.8	580.1	187.6	392.47	1.478 Level 3	Level 3
17,400.0	10,781.6	17,520.2	10,754.9	200.1	200.0	87.36	-876.7	6,827.8	580.1	181.8	398.28	1.456 Level 3	Level 3
17,500.0	10,782.3	17,620.2	10,755.7	203.0	202.9	87.37	-876.7	6,927.8	580.1	176.0	404.10	1.435 Level 3	Level 3
17,600.0	10,783.0	17,720.2	10,756.5	205.9	205.8	87.38	-876.7	7,027.8	580.0	170.1	409.92	1.415 Level 3	Level 3
17,700.0	10,783.7	17,820.2	10,757.3	208.8	208.7	87.38	-876.7	7,127.8	580.0	164.3	415.74	1.395 Level 3	Level 3
17,800.0	10,784.4	17,920.2	10,758.1	211.7	211.6	87.39	-876.7	7,227.8	580.0	158.5	421.56	1.376 Level 3	Level 3
17,900.0	10,785.1	18,020.2	10,758.8	214.6	214.5	87.40	-876.7	7,327.8	580.0	152.7	427.38	1.357 Level 3	Level 3
18,000.0	10,785.8	18,120.2	10,759.6	217.5	217.4	87.41	-876.7	7,427.8	580.0	146.8	433.20	1.339 Level 3	Level 3
18,100.0	10,786.5	18,220.2	10,760.4	220.4	220.3	87.42	-876.7	7,527.8	580.0	141.0	439.02	1.321 Level 3	Level 3
18,200.0	10,787.2	18,320.2	10,761.2	223.3	223.2	87.43	-876.7	7,627.8	580.0	135.2	444.85	1.304 Level 3	Level 3
18,300.0	10,787.9	18,420.2	10,762.0	226.2	226.1	87.44	-876.7	7,727.8	580.0	129.3	450.67	1.287 Level 3	Level 3
18,400.0	10,788.6	18,520.2	10,762.8	229.2	229.0	87.44	-876.7	7,827.8	580.0	123.5	456.50	1.271 Level 3	Level 3
18,500.0	10,789.3	18,620.2	10,763.5	232.1	231.9	87.45	-876.7	7,927.8	580.0	117.7	462.33	1.255 Level 3	Level 3
18,600.0	10,790.0	18,720.2	10,764.3	235.0	234.8	87.46	-876.7	8,027.8	580.0	111.9	468.16	1.239 Level 2	
18,700.0	10,790.7	18,820.2	10,765.1	237.9	237.7	87.47	-876.7	8,127.7	580.0	106.0	473.98	1.224 Level 2	
18,800.0	10,791.4	18,920.2	10,765.9	240.8	240.6	87.48	-876.7	8,227.7	580.0	100.2	479.81	1.209 Level 2	
18,900.0	10,792.1	19,020.2	10,766.7	243.7	243.5	87.49	-876.7	8,327.7	580.0	94.4	485.64	1.194 Level 2	
19,000.0	10,792.8	19,120.2	10,767.5	246.6	246.4	87.50	-876.7	8,427.7	580.0	88.5	491.48	1.180 Level 2	
19,100.0	10,793.5	19,220.2	10,768.3	249.6	249.4	87.50	-876.7	8,527.7	580.0	82.7	497.31	1.166 Level 2	
19,200.0	10,794.2	19,320.2	10,769.0	252.5	252.3	87.51	-876.7	8,627.7	580.0	76.8	503.14	1.153 Level 2	
19,300.0	10,794.9	19,420.2	10,769.8	255.4	255.2	87.52	-876.7	8,727.7	580.0	71.0	508.97	1.140 Level 2	
19,400.0	10,795.6	19,520.2	10,770.6	258.3	258.1	87.53	-876.7	8,827.7	580.0	65.2	514.81	1.127 Level 2	
19,500.0	10,796.3	19,620.2	10,771.4	261.2	261.0	87.54	-876.7	8,927.7	580.0	59.3	520.64	1.114 Level 2	
19,600.0	10,797.0	19,720.2	10,772.2	264.1	263.9	87.55	-876.7	9,027.7	580.0	53.5	526.48	1.102 Level 2	
19,700.0	10,797.7	19,820.2	10,773.0	267.1	266.8	87.56	-876.7	9,127.7	580.0	47.7	532.31	1.090 Level 2	
19,800.0	10,798.4	19,920.2	10,773.8	270.0	269.7	87.56	-876.7	9,227.7	580.0	41.8	538.15	1.078 Level 2	
19,900.0	10,799.1	20,020.2	10,774.5	272.9	272.6	87.57	-876.7	9,327.7	580.0	36.0	543.99	1.066 Level 2	
20,000.0	10,799.8	20,120.2	10,775.3	275.8	275.5	87.58	-876.7	9,427.7	580.0	30.1	549.82	1.055 Level 2	
20,100.0	10,800.5	20,220.2	10,776.1	278.7	278.4	87.59	-876.7	9,527.7	580.0	24.3	555.66	1.044 Level 2	
20,200.0	10,801.2	20,320.2	10,776.9	281.6	281.4	87.60	-876.7	9,627.7	579.9	18.4	561.50	1.033 Level 2	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 12TXR - Chalmers 5301 44-24 12TXR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	2.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
20,300.0	10,801.9	20,420.2	10,777.7	284.6	284.3	87.61	-876.7	9,727.7	579.9	12.6	567.34	1.022	Level 2
20,400.0	10,802.6	20,520.2	10,778.5	287.5	287.2	87.62	-876.7	9,827.7	579.9	6.8	573.18	1.012	Level 2
20,500.0	10,803.3	20,620.2	10,779.3	290.4	290.1	87.62	-876.7	9,927.7	579.9	0.9	579.02	1.002	Level 2
20,600.0	10,804.0	20,720.2	10,780.0	293.3	293.0	87.63	-876.7	10,027.7	579.9	-4.9	584.86	0.992	Level 1
20,700.0	10,804.7	20,820.2	10,780.8	296.2	295.9	87.64	-876.7	10,127.7	579.9	-10.8	590.70	0.982	Level 1
20,800.0	10,805.4	20,920.2	10,781.6	299.2	298.8	87.65	-876.7	10,227.7	579.9	-16.6	596.54	0.972	Level 1
20,900.0	10,806.1	21,020.2	10,782.4	302.1	301.8	87.66	-876.7	10,327.7	579.9	-22.5	602.38	0.963	Level 1
21,000.0	10,806.8	21,120.2	10,783.2	305.0	304.7	87.67	-876.7	10,427.7	579.9	-28.3	608.23	0.953	Level 1
21,076.5	10,807.3	21,196.7	10,783.8	307.2	306.9	87.67	-876.7	10,504.1	579.9	-32.8	612.69	0.947	Level 1
21,106.5	10,807.5	21,226.5	10,784.0	308.1	307.5	87.68	-876.7	10,534.0	579.9	-34.3	614.18	0.944	Level 1, ES, SF

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 2TX - Chalmers #2 T - Plan #1												Offset Site Error:	0.0 usft	
Survey Program: 0-MWD												Offset Well Error:	0.0 usft	
Reference		Offset		Semi Major Axis				Distance						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	2.0	0.0	0.00		82.2	0.0	82.2				
100.0	100.0	100.0	100.0	2.0	0.1	0.00		82.2	0.0	82.2	80.1	2.09	39.411	
200.0	200.0	200.0	200.0	2.0	0.3	0.00		82.2	0.0	82.2	79.9	2.33	35.243	
300.0	300.0	300.0	300.0	2.1	0.5	0.00		82.2	0.0	82.2	79.6	2.60	31.574	
400.0	400.0	400.0	400.0	2.1	0.8	0.00		82.2	0.0	82.2	79.3	2.90	28.373	
500.0	500.0	500.0	500.0	2.2	1.0	0.00		82.2	0.0	82.2	79.0	3.21	25.596	
600.0	600.0	600.0	600.0	2.3	1.2	0.00		82.2	0.0	82.2	78.7	3.54	23.194	
700.0	700.0	700.0	700.0	2.5	1.4	0.00		82.2	0.0	82.2	78.3	3.89	21.117	
800.0	800.0	800.0	800.0	2.6	1.7	0.00		82.2	0.0	82.2	78.0	4.26	19.320	
900.0	900.0	900.0	900.0	2.7	1.9	0.00		82.2	0.0	82.2	77.6	4.63	17.761	
1,000.0	1,000.0	1,000.0	1,000.0	2.9	2.1	0.00		82.2	0.0	82.2	77.2	5.01	16.402	
1,100.0	1,100.0	1,100.0	1,100.0	3.1	2.3	0.00		82.2	0.0	82.2	76.8	5.40	15.213	
1,200.0	1,200.0	1,200.0	1,200.0	3.2	2.6	0.00		82.2	0.0	82.2	76.4	5.80	14.168	
1,300.0	1,300.0	1,300.0	1,300.0	3.4	2.8	0.00		82.2	0.0	82.2	76.0	6.21	13.245	
1,400.0	1,400.0	1,400.0	1,400.0	3.6	3.0	0.00		82.2	0.0	82.2	75.6	6.62	12.425	
1,500.0	1,500.0	1,500.0	1,500.0	3.8	3.2	0.00		82.2	0.0	82.2	75.2	7.03	11.693	
1,600.0	1,600.0	1,600.0	1,600.0	4.0	3.5	0.00		82.2	0.0	82.2	74.8	7.45	11.038	
1,700.0	1,700.0	1,700.0	1,700.0	4.2	3.7	0.00		82.2	0.0	82.2	74.3	7.87	10.447	
1,800.0	1,800.0	1,800.0	1,800.0	4.4	3.9	0.00		82.2	0.0	82.2	73.9	8.29	9.914	
1,900.0	1,900.0	1,900.0	1,900.0	4.6	4.1	0.00		82.2	0.0	82.2	73.5	8.72	9.429	
2,000.0	2,000.0	2,000.0	2,000.0	4.8	4.4	0.00		82.2	0.0	82.2	73.1	9.15	8.988	
2,100.0	2,100.0	2,100.0	2,100.0	5.0	4.6	0.00		82.2	0.0	82.2	72.6	9.58	8.585	
2,166.7	2,166.7	2,166.7	2,166.7	5.1	4.7	0.00		82.2	0.0	82.2	72.3	9.86	8.334 CC	
2,200.0	2,200.0	2,200.0	2,200.0	5.2	4.8	0.00		82.2	0.0	82.2	72.2	10.01	8.215	
2,300.0	2,300.0	2,299.3	2,299.3	5.4	5.0	0.00		83.0	0.0	83.0	72.6	10.44	7.955	
2,400.0	2,400.0	2,399.3	2,399.3	5.6	5.3	0.00		83.9	0.0	83.9	73.0	10.87	7.718	
2,500.0	2,500.0	2,499.3	2,499.3	5.8	5.5	0.00		84.8	0.0	84.8	73.5	11.31	7.498	
2,600.0	2,600.0	2,599.3	2,599.2	6.0	5.7	0.00		85.7	0.0	85.7	73.9	11.74	7.294	
2,700.0	2,700.0	2,699.3	2,699.2	6.3	5.9	0.00		86.5	0.0	86.5	74.4	12.18	7.104	
2,800.0	2,800.0	2,799.3	2,799.2	6.5	6.2	0.00		87.4	0.0	87.4	74.8	12.62	6.927	
2,900.0	2,900.0	2,899.3	2,899.2	6.7	6.4	0.00		88.3	0.0	88.3	75.2	13.06	6.761	
3,000.0	3,000.0	2,999.2	2,999.2	6.9	6.6	0.00		89.1	0.0	89.1	75.7	13.50	6.606	
3,100.0	3,100.0	3,099.2	3,099.2	7.1	6.8	0.00		90.0	0.0	90.0	76.1	13.94	6.460	
3,200.0	3,200.0	3,199.2	3,199.2	7.3	7.1	0.00		90.9	0.0	90.9	76.5	14.38	6.323	
3,300.0	3,300.0	3,299.2	3,299.2	7.5	7.3	0.00		91.8	0.0	91.8	77.0	14.82	6.194	
3,400.0	3,400.0	3,399.2	3,399.2	7.8	7.5	0.00		92.6	0.0	92.6	77.4	15.26	6.072	
3,500.0	3,500.0	3,499.2	3,499.2	8.0	7.7	0.00		93.5	0.0	93.5	77.8	15.70	5.956	
3,600.0	3,600.0	3,599.2	3,599.2	8.2	7.9	0.00		94.4	0.0	94.4	78.2	16.14	5.847	
3,700.0	3,700.0	3,699.2	3,699.2	8.4	8.2	0.00		95.3	0.0	95.3	78.7	16.58	5.744	
3,800.0	3,800.0	3,799.2	3,799.2	8.6	8.4	0.00		96.1	0.0	96.1	79.1	17.03	5.646	
3,900.0	3,900.0	3,899.2	3,899.1	8.9	8.6	0.00		97.0	0.0	97.0	79.5	17.47	5.552	
4,000.0	4,000.0	3,999.2	3,999.1	9.1	8.8	0.00		97.9	0.0	97.9	80.0	17.91	5.464	
4,100.0	4,100.0	4,099.2	4,099.1	9.3	9.1	0.00		98.7	0.0	98.7	80.4	18.36	5.379	
4,200.0	4,200.0	4,199.2	4,199.1	9.5	9.3	0.00		99.6	0.0	99.6	80.8	18.80	5.298	
4,300.0	4,300.0	4,299.2	4,299.1	9.7	9.5	0.00		100.5	0.0	100.5	81.2	19.25	5.221	
4,400.0	4,400.0	4,399.2	4,399.1	10.0	9.7	0.00		101.4	0.0	101.4	81.7	19.69	5.148	
4,500.0	4,500.0	4,499.2	4,499.1	10.2	10.0	0.00		102.2	0.0	102.2	82.1	20.14	5.077	
4,600.0	4,600.0	4,599.2	4,599.1	10.4	10.2	0.00		103.1	0.0	103.1	82.5	20.58	5.010	
4,700.0	4,700.0	4,699.2	4,699.1	10.6	10.4	0.00		104.0	0.0	104.0	83.0	21.03	4.945	
4,800.0	4,800.0	4,799.2	4,799.1	10.8	10.6	0.00		104.9	0.0	104.9	83.4	21.47	4.883	
4,900.0	4,900.0	4,899.2	4,899.1	11.1	10.9	0.00		105.7	0.0	105.7	83.8	21.92	4.824	
5,000.0	5,000.0	4,999.2	4,999.1	11.3	11.1	0.00		106.6	0.0	106.6	84.2	22.36	4.767	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 2TX - Chalmers #2 T - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.0	5,100.0	5,099.2	5,099.1	11.5	11.3	0.00	107.5	0.0	107.5	84.7	22.81	4.712	
5,200.0	5,200.0	5,199.2	5,199.1	11.7	11.5	0.00	108.3	0.0	108.3	85.1	23.25	4.659	
5,300.0	5,300.0	5,299.2	5,299.0	11.9	11.8	0.00	109.2	0.0	109.2	85.5	23.70	4.608	
5,400.0	5,400.0	5,399.2	5,399.0	12.2	12.0	0.00	110.1	0.0	110.1	85.9	24.15	4.559	
5,500.0	5,500.0	5,499.2	5,499.0	12.4	12.2	0.00	111.0	0.0	111.0	86.4	24.59	4.512	
5,600.0	5,600.0	5,599.1	5,599.0	12.6	12.4	0.00	111.8	0.0	111.8	86.8	25.04	4.466	
5,700.0	5,700.0	5,699.1	5,699.0	12.8	12.7	0.00	112.7	0.0	112.7	87.2	25.49	4.422	
5,800.0	5,800.0	5,799.1	5,799.0	13.1	12.9	0.00	113.6	0.0	113.6	87.6	25.93	4.380	
5,900.0	5,900.0	5,899.1	5,899.0	13.3	13.1	0.00	114.5	0.0	114.5	88.1	26.38	4.339	
6,000.0	6,000.0	5,999.1	5,999.0	13.5	13.3	0.00	115.3	0.0	115.3	88.5	26.83	4.299	
6,100.0	6,100.0	6,099.1	6,099.0	13.7	13.6	0.00	116.2	0.0	116.2	88.9	27.27	4.261	
6,200.0	6,200.0	6,199.1	6,199.0	13.9	13.8	0.00	117.1	0.0	117.1	89.4	27.72	4.223	
6,300.0	6,300.0	6,299.1	6,299.0	14.2	14.0	0.00	117.9	0.0	117.9	89.8	28.17	4.187	
6,400.0	6,400.0	6,399.1	6,399.0	14.4	14.2	0.00	118.8	0.0	118.8	90.2	28.61	4.152	
6,500.0	6,500.0	6,499.1	6,499.0	14.6	14.5	0.00	119.7	0.0	119.7	90.6	29.06	4.118	
6,600.0	6,600.0	6,599.1	6,598.9	14.8	14.7	0.00	120.6	0.0	120.6	91.1	29.51	4.086	
6,700.0	6,700.0	6,699.1	6,698.9	15.1	14.9	0.00	121.4	0.0	121.4	91.5	29.96	4.054	
6,800.0	6,800.0	6,799.1	6,798.9	15.3	15.1	0.00	122.3	0.0	122.3	91.9	30.40	4.023	
6,900.0	6,900.0	6,899.1	6,898.9	15.5	15.4	0.00	123.2	0.0	123.2	92.3	30.85	3.993	
7,000.0	7,000.0	6,999.1	6,998.9	15.7	15.6	0.00	124.0	0.0	124.1	92.8	31.30	3.964	
7,100.0	7,100.0	7,099.1	7,098.9	15.9	15.8	0.00	124.9	0.0	124.9	93.2	31.75	3.935	
7,200.0	7,200.0	7,199.1	7,198.9	16.2	16.0	0.00	125.8	0.0	125.8	93.6	32.19	3.907	
7,300.0	7,300.0	7,299.1	7,298.9	16.4	16.3	0.00	126.7	0.0	126.7	94.0	32.64	3.881	
7,400.0	7,400.0	7,399.1	7,398.9	16.6	16.5	0.00	127.5	0.0	127.5	94.5	33.09	3.855	
7,500.0	7,500.0	7,499.1	7,498.9	16.8	16.7	0.00	128.4	0.0	128.4	94.9	33.54	3.829	
7,600.0	7,600.0	7,599.1	7,598.9	17.1	16.9	0.00	129.3	0.0	129.3	95.3	33.99	3.804	
7,700.0	7,700.0	7,699.1	7,698.9	17.3	17.2	0.00	130.2	0.0	130.2	95.7	34.43	3.780	
7,800.0	7,800.0	7,799.1	7,798.9	17.5	17.4	0.00	131.0	0.0	131.0	96.2	34.88	3.757	
7,900.0	7,900.0	7,899.1	7,898.8	17.7	17.6	0.00	131.9	0.0	131.9	96.6	35.33	3.734	
8,000.0	8,000.0	8,000.2	8,000.0	18.0	17.8	0.00	132.2	0.0	132.2	96.5	35.76	3.697	
8,100.0	8,100.0	8,100.2	8,100.0	18.2	18.0	0.00	132.2	0.0	132.2	96.0	36.21	3.652	
8,200.0	8,200.0	8,200.2	8,200.0	18.4	18.3	0.00	132.2	0.0	132.2	95.6	36.66	3.607	
8,300.0	8,300.0	8,300.2	8,300.0	18.6	18.5	0.00	132.2	0.0	132.2	95.1	37.10	3.563	
8,400.0	8,400.0	8,400.2	8,400.0	18.8	18.7	0.00	132.2	0.0	132.2	94.7	37.55	3.521	
8,500.0	8,500.0	8,500.2	8,500.0	19.1	18.9	0.00	132.2	0.0	132.2	94.2	38.00	3.479	
8,600.0	8,600.0	8,600.2	8,600.0	19.3	19.2	0.00	132.2	0.0	132.2	93.8	38.45	3.439	
8,700.0	8,700.0	8,700.2	8,700.0	19.5	19.4	0.00	132.2	0.0	132.2	93.3	38.89	3.399	
8,800.0	8,800.0	8,800.2	8,800.0	19.7	19.6	0.00	132.2	0.0	132.2	92.9	39.34	3.361	
8,900.0	8,900.0	8,900.2	8,900.0	20.0	19.8	0.00	132.2	0.0	132.2	92.4	39.79	3.323	
9,000.0	9,000.0	9,000.2	9,000.0	20.2	20.1	0.00	132.2	0.0	132.2	92.0	40.24	3.286	
9,100.0	9,100.0	9,100.2	9,100.0	20.4	20.3	0.00	132.2	0.0	132.2	91.5	40.69	3.250	
9,200.0	9,200.0	9,200.2	9,200.0	20.6	20.5	0.00	132.2	0.0	132.2	91.1	41.14	3.214	
9,300.0	9,300.0	9,300.2	9,300.0	20.9	20.7	0.00	132.2	0.0	132.2	90.6	41.58	3.179	
9,400.0	9,400.0	9,400.2	9,400.0	21.1	21.0	0.00	132.2	0.0	132.2	90.2	42.03	3.146	
9,500.0	9,500.0	9,500.2	9,500.0	21.3	21.2	0.00	132.2	0.0	132.2	89.7	42.48	3.112	
9,600.0	9,600.0	9,600.2	9,600.0	21.5	21.4	0.00	132.2	0.0	132.2	89.3	42.93	3.080	
9,700.0	9,700.0	9,700.2	9,700.0	21.8	21.6	0.00	132.2	0.0	132.2	88.8	43.38	3.048	
9,800.0	9,800.0	9,800.2	9,800.0	22.0	21.9	0.00	132.2	0.0	132.2	88.4	43.83	3.017	
9,900.0	9,900.0	9,900.2	9,900.0	22.2	22.1	0.00	132.2	0.0	132.2	87.9	44.27	2.986	
10,000.0	10,000.0	10,000.2	10,000.0	22.4	22.3	0.00	132.2	0.0	132.2	87.5	44.72	2.956	
10,100.0	10,100.0	10,100.2	10,100.0	22.6	22.5	0.00	132.2	0.0	132.2	87.0	45.17	2.927	
10,200.0	10,200.0	10,200.2	10,200.0	22.9	22.8	0.00	132.2	0.0	132.2	86.6	45.62	2.898	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 2TX - Chalmers #2 T - Plan #1													Offset Site Error:	0.0 usft		
Survey Program: 0-MWD															Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore +N/S (usft)	Centre +E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			Warning	
10,213.4	10,213.4	10,213.6	10,213.4	22.9	22.8	0.00	132.2	0.0	132.2	86.5	45.68	2.894				
10,259.5	10,259.5	10,259.2	10,259.0	23.0	22.9	0.64	132.3	1.5	132.3	86.4	45.87	2.884				
10,275.0	10,275.0	10,274.4	10,274.1	23.0	22.9	-107.27	132.3	2.9	132.4	86.5	45.96	2.882				
10,300.0	10,300.0	10,298.9	10,298.3	23.1	23.0	-106.35	132.5	6.2	133.1	87.0	46.05	2.890				
10,325.0	10,324.8	10,323.2	10,322.3	23.1	23.0	-105.38	132.6	10.8	134.2	88.1	46.14	2.909				
10,350.0	10,349.5	10,347.4	10,345.8	23.2	23.1	-104.38	132.9	16.5	135.9	89.6	46.23	2.939				
10,375.0	10,373.9	10,371.5	10,368.8	23.2	23.1	-103.34	133.1	23.3	138.0	91.7	46.32	2.979				
10,400.0	10,398.0	10,395.4	10,391.4	23.3	23.2	-102.29	133.4	31.3	140.6	94.2	46.41	3.029				
10,425.0	10,421.7	10,419.2	10,413.4	23.3	23.2	-101.24	133.8	40.3	143.6	97.1	46.52	3.088				
10,450.0	10,445.0	10,442.8	10,434.8	23.4	23.3	-100.19	134.2	50.3	147.1	100.5	46.63	3.156				
10,475.0	10,467.8	10,466.3	10,455.5	23.5	23.4	-99.14	134.6	61.3	151.1	104.3	46.75	3.232				
10,500.0	10,490.0	10,489.6	10,475.5	23.5	23.4	-98.11	135.1	73.2	155.4	108.6	46.88	3.316				
10,525.0	10,511.5	10,512.7	10,494.8	23.6	23.5	-97.10	135.6	86.0	160.2	113.2	47.02	3.407				
10,550.0	10,532.4	10,535.7	10,513.3	23.7	23.6	-96.12	136.1	99.6	165.3	118.2	47.17	3.505				
10,575.0	10,552.5	10,558.6	10,531.1	23.7	23.7	-95.15	136.7	114.0	170.9	123.5	47.33	3.610				
10,600.0	10,571.9	10,581.2	10,548.0	23.8	23.8	-94.21	137.2	129.1	176.7	129.2	47.51	3.719				
10,625.0	10,590.3	10,603.8	10,564.0	23.9	23.9	-93.30	137.9	144.9	182.9	135.2	47.71	3.833				
10,650.0	10,607.9	10,626.2	10,579.2	24.0	24.0	-92.41	138.5	161.3	189.3	141.4	47.92	3.951				
10,675.0	10,624.5	10,648.4	10,593.6	24.2	24.1	-91.55	139.2	178.3	196.1	148.0	48.14	4.073				
10,700.0	10,640.1	10,670.5	10,607.0	24.3	24.2	-90.71	139.9	195.8	203.1	154.7	48.39	4.197				
10,725.0	10,654.7	10,692.5	10,619.6	24.4	24.3	-89.89	140.6	213.9	210.4	161.7	48.66	4.323				
10,750.0	10,668.2	10,714.4	10,631.2	24.6	24.5	-89.10	141.3	232.4	217.8	168.9	48.94	4.451				
10,775.0	10,680.5	10,736.2	10,642.0	24.8	24.7	-88.33	142.0	251.4	225.5	176.3	49.25	4.579				
10,800.0	10,691.7	10,758.0	10,651.8	25.0	24.8	-87.58	142.8	270.7	233.3	183.8	49.57	4.707				
10,825.0	10,701.8	10,779.6	10,660.7	25.2	25.0	-86.85	143.5	290.4	241.4	191.4	49.92	4.835				
10,850.0	10,710.6	10,801.2	10,668.7	25.4	25.2	-86.14	144.3	310.4	249.5	199.2	50.29	4.961				
10,875.0	10,718.1	10,822.7	10,675.8	25.7	25.4	-85.45	145.1	330.8	257.7	207.1	50.69	5.085				
10,900.0	10,724.5	10,844.2	10,681.9	25.9	25.6	-84.78	145.9	351.3	266.1	215.0	51.10	5.207				
10,925.0	10,729.5	10,865.7	10,687.1	26.2	25.9	-84.12	146.7	372.2	274.5	223.0	51.54	5.326				
10,950.0	10,733.3	10,887.2	10,691.4	26.5	26.1	-83.49	147.5	393.2	283.0	231.0	52.01	5.442				
10,975.0	10,735.7	10,908.6	10,694.7	26.8	26.3	-82.88	148.4	414.4	291.5	239.0	52.49	5.554				
11,000.0	10,736.9	10,930.2	10,697.0	27.1	26.6	-82.29	149.2	435.8	300.1	247.1	53.00	5.662				
11,006.2	10,737.0	10,935.5	10,697.4	27.2	26.7	-82.15	149.4	441.1	302.2	249.1	53.13	5.688				
11,100.0	10,737.6	11,026.7	10,699.2	28.5	27.9	-83.18	152.7	532.2	333.3	277.6	55.70	5.983				
11,200.0	10,738.3	11,130.3	10,699.9	30.2	29.6	-83.79	153.2	635.8	360.3	301.4	58.97	6.111				
11,300.0	10,739.0	11,227.5	10,700.6	32.0	31.3	-84.21	153.2	733.0	383.7	321.2	62.51	6.138				
11,400.0	10,739.7	11,325.5	10,701.3	33.9	33.2	-84.52	153.2	831.0	403.7	337.3	66.39	6.080				
11,500.0	10,740.4	11,424.1	10,702.0	36.0	35.2	-84.75	153.2	929.6	420.2	349.7	70.53	5.958				
11,600.0	10,741.1	11,523.2	10,702.7	38.2	37.3	-84.92	153.2	1,028.7	433.3	358.5	74.88	5.787				
11,700.0	10,741.8	11,622.7	10,703.4	40.5	39.6	-85.04	153.2	1,128.2	443.0	363.6	79.38	5.581				
11,800.0	10,742.5	11,722.5	10,704.1	42.9	41.9	-85.10	153.2	1,228.0	449.2	365.2	84.00	5.348				
11,900.0	10,743.2	11,822.5	10,704.8	45.3	44.4	-85.12	153.2	1,328.0	452.0	363.3	88.67	5.097				
11,928.6	10,743.4	11,851.1	10,705.0	45.9	45.1	-85.12	153.2	1,356.6	452.1	362.1	90.02	5.022				
12,000.0	10,743.9	11,922.5	10,705.5	47.7	46.8	-85.12	153.2	1,428.0	452.1	358.5	93.55	4.833				
12,100.0	10,744.6	12,022.5	10,706.2	50.2	49.4	-85.12	153.2	1,528.0	452.1	353.5	98.59	4.586				
12,200.0	10,745.3	12,122.5	10,706.9	52.7	51.9	-85.12	153.2	1,628.0	452.1	348.4	103.71	4.359				
12,300.0	10,746.0	12,222.5	10,707.6	55.3	54.6	-85.12	153.2	1,728.0	452.1	343.2	108.91	4.151				
12,400.0	10,746.7	12,322.5	10,708.3	57.9	57.2	-85.12	153.2	1,828.0	452.1	337.9	114.17	3.960				
12,500.0	10,747.4	12,422.5	10,709.0	60.5	59.9	-85.12	153.2	1,928.0	452.1	332.6	119.48	3.784				
12,600.0	10,748.1	12,522.5	10,709.7	63.2	62.6	-85.12	153.2	2,028.0	452.1	327.3	124.84	3.621				
12,700.0	10,748.8	12,622.5	10,710.4	65.9	65.3	-85.12	153.2	2,128.0	452.1	321.9	130.24	3.471				
12,800.0	10,749.5	12,722.5	10,711.1	68.6	68.0	-85.12	153.2	2,228.0	452.1	316.4	135.68	3.332				

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 2TX - Chalmers #2 T - Plan #1													Offset Site Error:	0.0 usft		
Survey Program: 0-MWD															Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset	Wellbore Centre +N/S (usft)	Centre +E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
12,900.0	10,750.2	12,822.5	10,711.8	71.3	70.7	-85.12	153.2	2,328.0	452.1	310.9	141.15	3.203				
13,000.0	10,750.9	12,922.5	10,712.5	74.1	73.5	-85.12	153.2	2,428.0	452.1	305.4	146.65	3.083				
13,100.0	10,751.6	13,022.5	10,713.2	76.8	76.3	-85.13	153.2	2,528.0	452.1	299.9	152.17	2.971				
13,200.0	10,752.3	13,122.5	10,713.9	79.6	79.0	-85.13	153.2	2,628.0	452.1	294.4	157.72	2.866				
13,300.0	10,753.0	13,222.5	10,714.6	82.4	81.8	-85.13	153.2	2,727.9	452.1	288.8	163.29	2.769				
13,400.0	10,753.7	13,322.5	10,715.3	85.2	84.6	-85.13	153.2	2,827.9	452.1	283.2	168.87	2.677				
13,500.0	10,754.4	13,422.5	10,716.0	88.0	87.5	-85.13	153.2	2,927.9	452.1	277.6	174.48	2.591				
13,600.0	10,755.1	13,522.5	10,716.7	90.8	90.3	-85.13	153.2	3,027.9	452.1	272.0	180.10	2.510				
13,700.0	10,755.8	13,622.5	10,717.4	93.6	93.1	-85.13	153.2	3,127.9	452.1	266.4	185.73	2.434				
13,800.0	10,756.5	13,722.5	10,718.1	96.4	95.9	-85.13	153.2	3,227.9	452.1	260.7	191.37	2.362				
13,900.0	10,757.2	13,822.5	10,718.8	99.2	98.8	-85.13	153.2	3,327.9	452.1	255.1	197.03	2.295				
14,000.0	10,757.9	13,922.5	10,719.5	102.1	101.6	-85.13	153.2	3,427.9	452.1	249.4	202.70	2.230				
14,100.0	10,758.6	14,022.5	10,720.2	104.9	104.5	-85.13	153.2	3,527.9	452.1	243.7	208.37	2.170				
14,200.0	10,759.3	14,122.5	10,720.9	107.7	107.3	-85.13	153.2	3,627.9	452.1	238.0	214.06	2.112				
14,300.0	10,760.0	14,222.5	10,721.6	110.6	110.2	-85.13	153.2	3,727.9	452.1	232.3	219.75	2.057				
14,400.0	10,760.7	14,322.5	10,722.3	113.4	113.0	-85.13	153.2	3,827.9	452.1	226.6	225.45	2.005				
14,500.0	10,761.4	14,422.5	10,723.0	116.3	115.9	-85.13	153.2	3,927.9	452.1	220.9	231.16	1.956				
14,600.0	10,762.1	14,522.5	10,723.7	119.2	118.8	-85.13	153.2	4,027.9	452.1	215.2	236.88	1.909				
14,700.0	10,762.8	14,622.5	10,724.4	122.0	121.6	-85.13	153.2	4,127.9	452.1	209.5	242.60	1.864				
14,800.0	10,763.5	14,722.5	10,725.1	124.9	124.5	-85.13	153.2	4,227.9	452.1	203.8	248.33	1.821				
14,900.0	10,764.2	14,822.5	10,725.8	127.8	127.4	-85.13	153.2	4,327.9	452.1	198.0	254.06	1.779				
15,000.0	10,764.9	14,922.5	10,726.5	130.6	130.2	-85.13	153.2	4,427.9	452.1	192.3	259.79	1.740				
15,100.0	10,765.6	15,022.5	10,727.2	133.5	133.1	-85.13	153.2	4,527.9	452.1	186.6	265.54	1.703				
15,200.0	10,766.3	15,122.5	10,727.9	136.4	136.0	-85.13	153.2	4,627.9	452.1	180.8	271.28	1.666				
15,300.0	10,767.0	15,222.5	10,728.6	139.3	138.9	-85.14	153.2	4,727.9	452.1	175.1	277.03	1.632				
15,400.0	10,767.7	15,322.5	10,729.3	142.1	141.8	-85.14	153.2	4,827.9	452.1	169.3	282.78	1.599				
15,500.0	10,768.4	15,422.5	10,730.0	145.0	144.7	-85.14	153.2	4,927.9	452.1	163.5	288.54	1.567				
15,600.0	10,769.1	15,522.5	10,730.7	147.9	147.6	-85.14	153.2	5,027.9	452.1	157.8	294.30	1.536				
15,700.0	10,769.8	15,622.5	10,731.5	150.8	150.4	-85.14	153.2	5,127.9	452.1	152.0	300.07	1.507				
15,800.0	10,770.5	15,722.5	10,732.2	153.7	153.3	-85.14	153.2	5,227.9	452.1	146.3	305.83	1.478 Level 3				
15,900.0	10,771.2	15,822.5	10,732.9	156.6	156.2	-85.14	153.2	5,327.9	452.1	140.5	311.60	1.451 Level 3				
16,000.0	10,771.9	15,922.5	10,733.6	159.5	159.1	-85.14	153.2	5,427.9	452.1	134.7	317.37	1.424 Level 3				
16,100.0	10,772.6	16,022.5	10,734.3	162.4	162.0	-85.14	153.2	5,527.9	452.1	128.9	323.15	1.399 Level 3				
16,200.0	10,773.3	16,122.5	10,735.0	165.2	164.9	-85.14	153.2	5,627.9	452.1	123.2	328.93	1.374 Level 3				
16,300.0	10,774.0	16,222.5	10,735.7	168.1	167.8	-85.14	153.2	5,727.9	452.1	117.4	334.71	1.351 Level 3				
16,400.0	10,774.7	16,322.5	10,736.4	171.0	170.7	-85.14	153.2	5,827.9	452.1	111.6	340.49	1.328 Level 3				
16,500.0	10,775.4	16,422.5	10,737.1	173.9	173.6	-85.14	153.2	5,927.9	452.1	105.8	346.27	1.306 Level 3				
16,600.0	10,776.1	16,522.5	10,737.8	176.8	176.5	-85.14	153.2	6,027.9	452.1	100.0	352.06	1.284 Level 3				
16,700.0	10,776.8	16,622.5	10,738.5	179.7	179.4	-85.14	153.2	6,127.9	452.1	94.2	357.84	1.263 Level 3				
16,800.0	10,777.5	16,722.5	10,739.2	182.6	182.3	-85.14	153.2	6,227.9	452.1	88.4	363.63	1.243 Level 2				
16,900.0	10,778.2	16,822.5	10,739.9	185.5	185.2	-85.14	153.2	6,327.9	452.1	82.7	369.42	1.224 Level 2				
17,000.0	10,778.9	16,922.5	10,740.6	188.4	188.1	-85.14	153.2	6,427.9	452.1	76.9	375.22	1.205 Level 2				
17,100.0	10,779.6	17,022.5	10,741.3	191.3	191.0	-85.14	153.2	6,527.9	452.1	71.1	381.01	1.187 Level 2				
17,200.0	10,780.3	17,122.5	10,742.0	194.3	193.9	-85.14	153.2	6,627.9	452.1	65.3	386.81	1.169 Level 2				
17,300.0	10,780.9	17,222.5	10,742.7	197.2	196.9	-85.14	153.2	6,727.8	452.1	59.5	392.60	1.151 Level 2				
17,400.0	10,781.6	17,322.5	10,743.4	200.1	199.8	-85.14	153.2	6,827.8	452.1	53.7	398.40	1.135 Level 2				
17,500.0	10,782.3	17,422.5	10,744.1	203.0	202.7	-85.15	153.2	6,927.8	452.1	47.9	404.20	1.118 Level 2				
17,600.0	10,783.0	17,522.5	10,744.8	205.9	205.6	-85.15	153.2	7,027.8	452.1	42.1	410.00	1.103 Level 2				
17,700.0	10,783.7	17,622.5	10,745.5	208.8	208.5	-85.15	153.2	7,127.8	452.1	36.3	415.80	1.087 Level 2				
17,800.0	10,784.4	17,722.5	10,746.2	211.7	211.4	-85.15	153.2	7,227.8	452.1	30.5	421.61	1.072 Level 2				
17,900.0	10,785.1	17,822.5	10,746.9	214.6	214.3	-85.15	153.2	7,327.8	452.1	24.7	427.41	1.058 Level 2				
18,000.0	10,785.8	17,922.5	10,747.6	217.5	217.2	-85.15	153.2	7,427.8	452.1	18.9	433.22	1.044 Level 2				

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 2TX - Chalmers #2 T - Plan #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,100.0	10,786.5	18,022.5	10,748.3	220.4	220.1	-85.15	153.2	7,527.8	452.1	13.1	439.02	1.030	Level 2
18,200.0	10,787.2	18,122.5	10,749.0	223.3	223.0	-85.15	153.2	7,627.8	452.1	7.2	444.83	1.016	Level 2
18,300.0	10,787.9	18,222.5	10,749.7	226.2	226.0	-85.15	153.2	7,727.8	452.1	1.4	450.64	1.003	Level 2
18,400.0	10,788.6	18,322.5	10,750.4	229.2	228.9	-85.15	153.2	7,827.8	452.1	-4.4	456.45	0.990	Level 1
18,500.0	10,789.3	18,422.5	10,751.1	232.1	231.8	-85.15	153.2	7,927.8	452.1	-10.2	462.26	0.978	Level 1
18,600.0	10,790.0	18,522.5	10,751.8	235.0	234.7	-85.15	153.2	8,027.8	452.1	-16.0	468.07	0.966	Level 1
18,700.0	10,790.7	18,622.5	10,752.5	237.9	237.6	-85.15	153.2	8,127.8	452.1	-21.8	473.88	0.954	Level 1
18,800.0	10,791.4	18,722.5	10,753.2	240.8	240.5	-85.15	153.2	8,227.8	452.1	-27.6	479.69	0.942	Level 1
18,900.0	10,792.1	18,822.5	10,753.9	243.7	243.4	-85.15	153.2	8,327.8	452.1	-33.4	485.50	0.931	Level 1
19,000.0	10,792.8	18,922.5	10,754.6	246.6	246.4	-85.15	153.2	8,427.8	452.1	-39.2	491.32	0.920	Level 1
19,100.0	10,793.5	19,022.5	10,755.3	249.6	249.3	-85.15	153.2	8,527.8	452.1	-45.1	497.13	0.909	Level 1
19,200.0	10,794.2	19,122.5	10,756.0	252.5	252.2	-85.15	153.2	8,627.8	452.1	-50.9	502.95	0.899	Level 1
19,300.0	10,794.9	19,222.5	10,756.7	255.4	255.1	-85.15	153.2	8,727.8	452.1	-56.7	508.76	0.889	Level 1
19,400.0	10,795.6	19,322.5	10,757.4	258.3	258.0	-85.15	153.2	8,827.8	452.1	-62.5	514.58	0.879	Level 1
19,500.0	10,796.3	19,422.5	10,758.1	261.2	260.9	-85.15	153.2	8,927.8	452.1	-68.3	520.39	0.869	Level 1
19,600.0	10,797.0	19,522.5	10,758.8	264.1	263.9	-85.15	153.2	9,027.8	452.1	-74.1	526.21	0.859	Level 1
19,700.0	10,797.7	19,622.5	10,759.5	267.1	266.8	-85.16	153.2	9,127.8	452.1	-80.0	532.03	0.850	Level 1
19,800.0	10,798.4	19,722.5	10,760.2	270.0	269.7	-85.16	153.2	9,227.8	452.1	-85.8	537.85	0.841	Level 1
19,900.0	10,799.1	19,822.5	10,760.9	272.9	272.6	-85.16	153.2	9,327.8	452.1	-91.6	543.67	0.832	Level 1
20,000.0	10,799.8	19,922.5	10,761.6	275.8	275.5	-85.16	153.2	9,427.8	452.1	-97.4	549.49	0.823	Level 1
20,100.0	10,800.5	20,022.5	10,762.3	278.7	278.4	-85.16	153.2	9,527.8	452.1	-103.2	555.31	0.814	Level 1
20,200.0	10,801.2	20,122.5	10,763.0	281.6	281.4	-85.16	153.2	9,627.8	452.1	-109.1	561.13	0.806	Level 1
20,300.0	10,801.9	20,222.5	10,763.7	284.6	284.3	-85.16	153.2	9,727.8	452.1	-114.9	566.95	0.797	Level 1
20,400.0	10,802.6	20,322.5	10,764.4	287.5	287.2	-85.16	153.2	9,827.8	452.1	-120.7	572.77	0.789	Level 1
20,500.0	10,803.3	20,422.5	10,765.1	290.4	290.1	-85.16	153.2	9,927.8	452.1	-126.5	578.59	0.781	Level 1
20,600.0	10,804.0	20,522.5	10,765.8	293.3	293.0	-85.16	153.2	10,027.8	452.1	-132.3	584.41	0.774	Level 1
20,700.0	10,804.7	20,622.5	10,766.5	296.2	296.0	-85.16	153.2	10,127.8	452.1	-138.2	590.24	0.766	Level 1
20,800.0	10,805.4	20,722.5	10,767.2	299.2	298.9	-85.16	153.2	10,227.8	452.1	-144.0	596.06	0.758	Level 1
20,900.0	10,806.1	20,822.5	10,767.9	302.1	301.8	-85.16	153.2	10,327.8	452.1	-149.8	601.88	0.751	Level 1
21,000.0	10,806.8	20,922.5	10,768.6	305.0	304.7	-85.16	153.2	10,427.8	452.1	-155.6	607.71	0.744	Level 1
21,076.2	10,807.3	20,998.7	10,769.2	307.2	306.9	-85.16	153.2	10,504.0	452.1	-160.1	612.15	0.739	Level 1
21,106.5	10,807.5	21,028.7	10,769.4	308.1	307.8	-85.16	153.2	10,534.0	452.1	-161.8	613.90	0.736	Level 1, ES, SF

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	2.0	0.0	0.01	48.6	0.0	48.6				
100.0	100.0	100.0	100.0	2.0	0.1	0.01	48.6	0.0	48.6	46.6	2.09	23.315	
200.0	200.0	200.0	200.0	2.0	0.3	0.01	48.6	0.0	48.6	46.3	2.33	20.849	
300.0	300.0	300.0	300.0	2.1	0.5	0.01	48.6	0.0	48.6	46.0	2.60	18.679	
400.0	400.0	400.0	400.0	2.1	0.8	0.01	48.6	0.0	48.6	45.7	2.90	16.785	
500.0	500.0	500.0	500.0	2.2	1.0	0.01	48.6	0.0	48.6	45.4	3.21	15.142	
600.0	600.0	600.0	600.0	2.3	1.2	0.01	48.6	0.0	48.6	45.1	3.54	13.721	
700.0	700.0	700.0	700.0	2.5	1.4	0.01	48.6	0.0	48.6	44.7	3.89	12.493	
800.0	800.0	800.0	800.0	2.6	1.7	0.01	48.6	0.0	48.6	44.4	4.26	11.430	
900.0	900.0	900.0	900.0	2.7	1.9	0.01	48.6	0.0	48.6	44.0	4.63	10.507	
1,000.0	1,000.0	1,000.0	1,000.0	2.9	2.1	0.01	48.6	0.0	48.6	43.6	5.01	9.703	
1,100.0	1,100.0	1,100.0	1,100.0	3.1	2.3	0.01	48.6	0.0	48.6	43.2	5.40	9.000	
1,200.0	1,200.0	1,200.0	1,200.0	3.2	2.6	0.01	48.6	0.0	48.6	42.8	5.80	8.382	
1,300.0	1,300.0	1,300.0	1,300.0	3.4	2.8	0.01	48.6	0.0	48.6	42.4	6.21	7.835	
1,400.0	1,400.0	1,400.0	1,400.0	3.6	3.0	0.01	48.6	0.0	48.6	42.0	6.62	7.350	
1,500.0	1,500.0	1,500.0	1,500.0	3.8	3.2	0.01	48.6	0.0	48.6	41.6	7.03	6.918	
1,600.0	1,600.0	1,600.0	1,600.0	4.0	3.5	0.01	48.6	0.0	48.6	41.2	7.45	6.530	
1,700.0	1,700.0	1,700.0	1,700.0	4.2	3.7	0.01	48.6	0.0	48.6	40.8	7.87	6.181	
1,800.0	1,800.0	1,800.0	1,800.0	4.4	3.9	0.01	48.6	0.0	48.6	40.3	8.29	5.865	
1,900.0	1,900.0	1,900.0	1,900.0	4.6	4.1	0.01	48.6	0.0	48.6	39.9	8.72	5.578	
2,000.0	2,000.0	2,000.0	2,000.0	4.8	4.4	0.01	48.6	0.0	48.6	39.5	9.15	5.317	
2,100.0	2,100.0	2,100.0	2,100.0	5.0	4.6	0.01	48.6	0.0	48.6	39.1	9.58	5.079	
2,200.0	2,200.0	2,200.0	2,200.0	5.2	4.8	0.01	48.6	0.0	48.6	38.6	10.01	4.860 CC	
2,300.0	2,300.0	2,300.0	2,300.0	5.4	5.0	0.94	48.6	0.8	48.6	38.2	10.42	4.670	
2,400.0	2,400.0	2,400.0	2,400.0	5.6	5.2	1.97	48.6	1.7	48.7	37.8	10.82	4.496	
2,500.0	2,500.0	2,500.0	2,500.0	5.8	5.4	3.00	48.6	2.5	48.7	37.5	11.23	4.335	
2,600.0	2,600.0	2,600.0	2,600.0	6.0	5.6	4.02	48.6	3.4	48.8	37.1	11.65	4.186	
2,700.0	2,700.0	2,700.0	2,700.0	6.3	5.8	5.04	48.6	4.3	48.8	36.8	12.07	4.047	
2,800.0	2,800.0	2,800.0	2,800.0	6.5	6.0	6.06	48.6	5.2	48.9	36.4	12.48	3.918	
2,900.0	2,900.0	2,900.0	2,899.9	6.7	6.2	7.07	48.6	6.0	49.0	36.1	12.91	3.798	
3,000.0	3,000.0	3,000.0	2,999.9	6.9	6.4	8.08	48.6	6.9	49.1	35.8	13.33	3.686	
3,100.0	3,100.0	3,100.0	3,099.9	7.1	6.6	9.09	48.6	7.8	49.3	35.5	13.75	3.581	
3,200.0	3,200.0	3,200.0	3,199.9	7.3	6.9	10.09	48.6	8.7	49.4	35.2	14.18	3.484	
3,300.0	3,300.0	3,300.0	3,299.9	7.5	7.1	11.08	48.6	9.5	49.6	35.0	14.61	3.393	
3,400.0	3,400.0	3,400.0	3,399.9	7.8	7.3	12.07	48.6	10.4	49.7	34.7	15.04	3.308	
3,500.0	3,500.0	3,500.0	3,499.9	8.0	7.5	13.05	48.6	11.3	49.9	34.5	15.47	3.228	
3,600.0	3,600.0	3,599.9	3,599.9	8.2	7.7	14.02	48.6	12.1	50.1	34.2	15.90	3.154	
3,700.0	3,700.0	3,699.9	3,699.9	8.4	7.9	14.98	48.6	13.0	50.3	34.0	16.33	3.083	
3,800.0	3,800.0	3,799.9	3,799.9	8.6	8.1	15.94	48.6	13.9	50.6	33.8	16.76	3.018	
3,900.0	3,900.0	3,899.9	3,899.9	8.9	8.4	16.88	48.6	14.8	50.8	33.6	17.20	2.956	
4,000.0	4,000.0	3,999.9	3,999.9	9.1	8.6	17.82	48.6	15.6	51.1	33.5	17.63	2.898	
4,100.0	4,100.0	4,099.9	4,099.9	9.3	8.8	18.75	48.6	16.5	51.4	33.3	18.07	2.843	
4,200.0	4,200.0	4,199.9	4,199.8	9.5	9.0	19.66	48.6	17.4	51.6	33.1	18.50	2.792	
4,300.0	4,300.0	4,299.9	4,299.8	9.7	9.2	20.57	48.6	18.3	51.9	33.0	18.94	2.743	
4,400.0	4,400.0	4,399.9	4,399.8	10.0	9.4	21.47	48.6	19.1	52.3	32.9	19.38	2.697	
4,500.0	4,500.0	4,499.9	4,499.8	10.2	9.7	22.35	48.6	20.0	52.6	32.8	19.81	2.654	
4,600.0	4,600.0	4,599.9	4,599.8	10.4	9.9	23.22	48.6	20.9	52.9	32.7	20.25	2.613	
4,700.0	4,700.0	4,699.9	4,699.8	10.6	10.1	24.09	48.6	21.7	53.3	32.6	20.69	2.575	
4,800.0	4,800.0	4,799.9	4,799.8	10.8	10.3	24.94	48.6	22.6	53.6	32.5	21.13	2.539	
4,900.0	4,900.0	4,899.9	4,899.8	11.1	10.5	25.78	48.6	23.5	54.0	32.4	21.57	2.504	
5,000.0	5,000.0	4,999.9	4,999.8	11.3	10.8	26.60	48.6	24.4	54.4	32.4	22.01	2.472	
5,100.0	5,100.0	5,099.9	5,099.8	11.5	11.0	27.42	48.6	25.2	54.8	32.3	22.45	2.441	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR - Design #1													Offset Site Error:	0.0 usft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset	Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.0	5,200.0	5,199.9	5,199.8	11.7	11.2	28.22	48.6	26.1	55.2	32.3	22.89	2.412		
5,300.0	5,300.0	5,299.9	5,299.8	11.9	11.4	29.02	48.6	27.0	55.6	32.3	23.33	2.384		
5,400.0	5,400.0	5,399.9	5,399.8	12.2	11.6	29.80	48.6	27.9	56.0	32.3	23.77	2.358		
5,500.0	5,500.0	5,499.9	5,499.7	12.4	11.9	30.57	48.6	28.7	56.5	32.3	24.21	2.333		
5,600.0	5,600.0	5,599.9	5,599.7	12.6	12.1	31.32	48.6	29.6	56.9	32.3	24.66	2.309		
5,700.0	5,700.0	5,699.9	5,699.7	12.8	12.3	32.07	48.6	30.5	57.4	32.3	25.10	2.287		
5,800.0	5,800.0	5,799.9	5,799.7	13.1	12.5	32.80	48.6	31.3	57.9	32.3	25.54	2.266		
5,900.0	5,900.0	5,899.9	5,899.7	13.3	12.7	33.52	48.6	32.2	58.3	32.4	25.98	2.245		
6,000.0	6,000.0	5,999.9	5,999.7	13.5	13.0	34.23	48.6	33.1	58.8	32.4	26.43	2.226		
6,100.0	6,100.0	6,099.9	6,099.7	13.7	13.2	34.92	48.6	34.0	59.3	32.5	26.87	2.208		
6,200.0	6,200.0	6,199.8	6,199.7	13.9	13.4	35.61	48.6	34.8	59.8	32.5	27.31	2.190		
6,300.0	6,300.0	6,299.8	6,299.7	14.2	13.6	36.28	48.6	35.7	60.3	32.6	27.76	2.174		
6,400.0	6,400.0	6,399.8	6,399.7	14.4	13.9	36.94	48.6	36.6	60.9	32.7	28.20	2.158		
6,500.0	6,500.0	6,499.8	6,499.7	14.6	14.1	37.60	48.6	37.4	61.4	32.7	28.64	2.143		
6,600.0	6,600.0	6,599.8	6,599.7	14.8	14.3	38.24	48.6	38.3	61.9	32.8	29.09	2.129		
6,700.0	6,700.0	6,699.8	6,699.7	15.1	14.5	38.86	48.6	39.2	62.5	32.9	29.53	2.115		
6,800.0	6,800.0	6,799.8	6,799.7	15.3	14.7	39.48	48.6	40.1	63.0	33.0	29.98	2.102		
6,900.0	6,900.0	6,899.8	6,899.6	15.5	15.0	40.09	48.6	40.9	63.6	33.2	30.42	2.090		
7,000.0	7,000.0	6,999.8	6,999.6	15.7	15.2	40.69	48.6	41.8	64.1	33.3	30.86	2.078		
7,100.0	7,100.0	7,099.8	7,099.6	15.9	15.4	41.27	48.6	42.7	64.7	33.4	31.31	2.067		
7,200.0	7,200.0	7,199.8	7,199.6	16.2	15.6	41.85	48.6	43.6	65.3	33.5	31.75	2.056		
7,300.0	7,300.0	7,299.8	7,299.6	16.4	15.9	42.41	48.6	44.4	65.9	33.7	32.20	2.046		
7,400.0	7,400.0	7,399.8	7,399.6	16.6	16.1	42.97	48.6	45.3	66.5	33.8	32.64	2.036		
7,500.0	7,500.0	7,499.8	7,499.6	16.8	16.3	43.51	48.6	46.2	67.1	34.0	33.09	2.027		
7,600.0	7,600.0	7,599.8	7,599.6	17.1	16.5	44.05	48.6	47.0	67.7	34.1	33.54	2.018		
7,700.0	7,700.0	7,699.8	7,699.6	17.3	16.7	44.58	48.6	47.9	68.3	34.3	33.98	2.009		
7,800.0	7,800.0	7,799.8	7,799.6	17.5	17.0	45.09	48.6	48.8	68.9	34.5	34.43	2.001		
7,900.0	7,900.0	7,899.8	7,899.6	17.7	17.2	45.60	48.6	49.7	69.5	34.6	34.87	1.993		
8,000.0	8,000.0	8,000.2	8,000.0	18.0	17.4	45.78	48.6	50.0	69.7	34.4	35.30	1.975		
8,100.0	8,100.0	8,100.2	8,100.0	18.2	17.6	45.78	48.6	50.0	69.7	34.0	35.74	1.951		
8,200.0	8,200.0	8,200.2	8,200.0	18.4	17.8	45.78	48.6	50.0	69.7	33.6	36.17	1.928		
8,300.0	8,300.0	8,300.2	8,300.0	18.6	18.0	45.78	48.6	50.0	69.7	33.1	36.60	1.905		
8,400.0	8,400.0	8,400.2	8,400.0	18.8	18.2	45.78	48.6	50.0	69.7	32.7	37.04	1.883		
8,500.0	8,500.0	8,500.2	8,500.0	19.1	18.5	45.78	48.6	50.0	69.7	32.3	37.47	1.861		
8,600.0	8,600.0	8,600.2	8,600.0	19.3	18.7	45.78	48.6	50.0	69.7	31.8	37.91	1.840		
8,700.0	8,700.0	8,700.2	8,700.0	19.5	18.9	45.78	48.6	50.0	69.7	31.4	38.34	1.819		
8,800.0	8,800.0	8,800.2	8,800.0	19.7	19.1	45.78	48.6	50.0	69.7	31.0	38.78	1.798		
8,900.0	8,900.0	8,900.2	8,900.0	20.0	19.3	45.78	48.6	50.0	69.7	30.5	39.21	1.778		
9,000.0	9,000.0	9,000.2	9,000.0	20.2	19.5	45.78	48.6	50.0	69.7	30.1	39.65	1.759		
9,100.0	9,100.0	9,100.2	9,100.0	20.4	19.7	45.78	48.6	50.0	69.7	29.7	40.08	1.740		
9,200.0	9,200.0	9,200.2	9,200.0	20.6	19.9	45.78	48.6	50.0	69.7	29.2	40.52	1.721		
9,300.0	9,300.0	9,300.2	9,300.0	20.9	20.1	45.78	48.6	50.0	69.7	28.8	40.96	1.703		
9,400.0	9,400.0	9,400.2	9,400.0	21.1	20.4	45.78	48.6	50.0	69.7	28.3	41.39	1.685		
9,500.0	9,500.0	9,500.2	9,500.0	21.3	20.6	45.78	48.6	50.0	69.7	27.9	41.83	1.667		
9,600.0	9,600.0	9,600.2	9,600.0	21.5	20.8	45.78	48.6	50.0	69.7	27.5	42.27	1.650		
9,700.0	9,700.0	9,700.2	9,700.0	21.8	21.0	45.78	48.6	50.0	69.7	27.0	42.71	1.633		
9,800.0	9,800.0	9,800.2	9,800.0	22.0	21.2	45.78	48.6	50.0	69.7	26.6	43.14	1.616		
9,900.0	9,900.0	9,900.2	9,900.0	22.2	21.4	45.78	48.6	50.0	69.7	26.2	43.58	1.600		
10,000.0	10,000.0	10,000.2	10,000.0	22.4	21.6	45.78	48.6	50.0	69.7	25.7	44.02	1.584		
10,100.0	10,100.0	10,100.2	10,100.0	22.6	21.9	45.78	48.6	50.0	69.7	25.3	44.46	1.569		
10,136.6	10,136.6	10,136.9	10,136.6	22.7	21.9	45.78	48.6	50.0	69.7	25.1	44.62	1.563		
10,200.0	10,200.0	10,196.8	10,196.5	22.9	22.1	47.27	48.0	52.0	70.9	26.0	44.89	1.579		

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD				Distance								Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,259.5	10,259.5	10,250.0	10,249.1	23.0	22.2	52.46	45.8	59.6	75.9	30.8	45.14	1.682	
10,275.0	10,275.0	10,264.8	10,263.5	23.0	22.2	-53.99	44.9	62.8	77.9	32.6	45.24	1.721	
10,300.0	10,300.0	10,286.9	10,284.9	23.1	22.3	-51.22	43.3	68.2	81.1	35.8	45.30	1.791	
10,325.0	10,324.8	10,308.9	10,305.8	23.1	22.3	-48.75	41.5	74.6	84.5	39.2	45.31	1.865	
10,350.0	10,349.5	10,330.6	10,326.3	23.2	22.4	-46.56	39.4	81.8	88.0	42.7	45.27	1.943	
10,375.0	10,373.9	10,352.3	10,346.2	23.2	22.5	-44.62	37.1	89.8	91.4	46.2	45.17	2.023	
10,400.0	10,398.0	10,375.0	10,366.7	23.3	22.5	-42.81	34.3	99.2	94.8	49.8	45.01	2.107	
10,425.0	10,421.7	10,395.1	10,384.5	23.3	22.6	-41.37	31.7	108.2	98.2	53.4	44.79	2.193	
10,450.0	10,445.0	10,416.3	10,402.7	23.4	22.7	-40.03	28.7	118.5	101.6	57.1	44.50	2.282	
10,475.0	10,467.8	10,437.3	10,420.4	23.5	22.7	-38.85	25.5	129.5	104.8	60.7	44.15	2.374	
10,500.0	10,490.0	10,458.3	10,437.5	23.5	22.8	-37.82	22.1	141.2	107.9	64.2	43.75	2.467	
10,525.0	10,511.5	10,479.2	10,453.9	23.6	22.9	-36.92	18.5	153.6	111.0	67.7	43.30	2.563	
10,550.0	10,532.4	10,500.0	10,469.7	23.7	23.0	-36.14	14.8	166.6	113.8	71.0	42.80	2.660	
10,575.0	10,552.5	10,520.6	10,484.8	23.7	23.1	-35.48	10.8	180.1	116.6	74.3	42.27	2.758	
10,600.0	10,571.9	10,541.2	10,499.2	23.8	23.2	-34.91	6.7	194.2	119.2	77.5	41.71	2.857	
10,625.0	10,590.3	10,561.8	10,513.0	23.9	23.3	-34.44	2.5	208.9	121.6	80.4	41.13	2.956	
10,650.0	10,607.9	10,582.2	10,526.0	24.0	23.4	-34.05	-1.9	224.0	123.8	83.3	40.54	3.054	
10,675.0	10,624.5	10,602.6	10,538.3	24.2	23.6	-33.74	-6.5	239.6	125.9	85.9	39.96	3.150	
10,700.0	10,640.1	10,625.0	10,551.0	24.3	23.7	-33.51	-11.6	257.3	127.8	88.4	39.40	3.243	
10,725.0	10,654.7	10,643.3	10,560.8	24.4	23.9	-33.36	-15.9	272.2	129.4	90.6	38.85	3.332	
10,750.0	10,668.2	10,663.6	10,570.8	24.6	24.0	-33.28	-20.8	289.1	130.9	92.6	38.35	3.414	
10,775.0	10,680.5	10,683.8	10,580.1	24.8	24.2	-33.26	-25.8	306.3	132.2	94.3	37.90	3.489	
10,800.0	10,691.7	10,704.0	10,588.7	25.0	24.4	-33.30	-31.0	323.9	133.3	95.8	37.52	3.554	
10,825.0	10,701.8	10,725.0	10,596.7	25.2	24.6	-33.42	-36.4	342.6	134.2	97.0	37.22	3.607	
10,850.0	10,710.6	10,744.4	10,603.3	25.4	24.8	-33.59	-41.5	360.1	134.9	97.9	37.00	3.647	
10,875.0	10,718.1	10,764.6	10,609.5	25.7	25.0	-33.83	-46.8	378.5	135.4	98.5	36.90	3.671	
10,900.0	10,724.5	10,784.8	10,614.8	25.9	25.2	-34.13	-52.3	397.3	135.7	98.8	36.90	3.679	
10,925.0	10,729.5	10,805.0	10,619.3	26.2	25.5	-34.49	-57.8	416.2	135.9	98.8	37.02	3.670	
10,950.0	10,733.3	10,825.0	10,622.9	26.5	25.7	-34.91	-63.2	435.0	135.8	98.5	37.26	3.643	
10,975.0	10,735.7	10,845.5	10,625.7	26.8	26.0	-35.41	-68.9	454.5	135.5	97.8	37.64	3.599	
11,000.0	10,736.9	10,865.7	10,627.7	27.1	26.3	-35.97	-74.5	473.9	135.0	96.9	38.15	3.540	
11,006.2	10,737.0	10,870.8	10,628.0	27.2	26.3	-36.11	-75.9	478.7	134.9	96.6	38.29	3.523	
11,026.3	10,737.1	10,887.1	10,628.8	27.5	26.5	-36.47	-80.5	494.4	134.7	95.9	38.74	3.476	
11,100.0	10,737.6	10,956.6	10,629.4	28.5	27.6	-37.17	-99.3	561.2	135.7	95.5	40.23	3.374	
11,200.0	10,738.3	11,053.7	10,630.1	30.2	29.2	-38.03	-122.9	655.5	137.3	94.8	42.53	3.230	
11,300.0	10,739.0	11,150.8	10,630.8	32.0	31.0	-38.83	-143.3	750.4	138.9	93.8	45.10	3.081	
11,400.0	10,739.7	11,247.8	10,631.5	33.9	32.9	-39.59	-160.4	845.8	140.5	92.6	47.90	2.932	
11,500.0	10,740.4	11,344.7	10,632.2	36.0	34.9	-40.30	-174.3	941.7	141.9	91.0	50.90	2.789	
11,600.0	10,741.1	11,441.5	10,632.9	38.2	37.0	-40.96	-185.0	1,037.9	143.4	89.3	54.06	2.652	
11,700.0	10,741.8	11,538.3	10,633.5	40.5	39.3	-41.57	-192.3	1,134.4	144.8	87.4	57.34	2.525	
11,800.0	10,742.5	11,635.0	10,634.2	42.9	41.5	-42.14	-196.4	1,231.0	146.1	85.4	60.72	2.406	
11,900.0	10,743.2	11,732.4	10,634.9	45.3	43.9	-42.64	-197.4	1,328.5	147.3	83.1	64.15	2.296	
11,928.6	10,743.4	11,761.1	10,635.1	45.9	44.6	-42.68	-197.4	1,357.1	147.4	82.3	65.06	2.265	
12,000.0	10,743.9	11,832.4	10,635.6	47.7	46.3	-42.68	-197.4	1,428.5	147.4	79.9	67.47	2.184	
12,100.0	10,744.6	11,932.4	10,636.3	50.2	48.8	-42.68	-197.4	1,528.5	147.4	76.5	70.92	2.078	
12,200.0	10,745.3	12,032.4	10,637.0	52.7	51.4	-42.68	-197.4	1,628.5	147.4	73.0	74.44	1.980	
12,300.0	10,746.0	12,132.4	10,637.7	55.3	54.0	-42.68	-197.4	1,728.5	147.4	69.4	78.01	1.889	
12,400.0	10,746.7	12,232.4	10,638.4	57.9	56.6	-42.68	-197.4	1,828.5	147.4	65.7	81.64	1.805	
12,500.0	10,747.4	12,332.4	10,639.1	60.5	59.3	-42.68	-197.4	1,928.5	147.4	62.1	85.32	1.728	
12,600.0	10,748.1	12,432.4	10,639.8	63.2	61.9	-42.68	-197.4	2,028.5	147.4	58.4	89.03	1.655	
12,700.0	10,748.8	12,532.4	10,640.5	65.9	64.6	-42.68	-197.4	2,128.4	147.4	54.6	92.78	1.589	
12,800.0	10,749.5	12,632.4	10,641.2	68.6	67.4	-42.68	-197.4	2,228.4	147.4	50.8	96.56	1.526	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR - Design #1													Offset Site Error:	0.0 usft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset	Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
12,900.0	10,750.2	12,732.4	10,641.9	71.3	70.1	-42.68	-197.4	2,328.4	147.4	47.0	100.37	1.468	Level 3	
13,000.0	10,750.9	12,832.4	10,642.6	74.1	72.8	-42.68	-197.4	2,428.4	147.4	43.2	104.20	1.414	Level 3	
13,100.0	10,751.6	12,932.4	10,643.3	76.8	75.6	-42.68	-197.4	2,528.4	147.4	39.3	108.05	1.364	Level 3	
13,200.0	10,752.3	13,032.4	10,644.0	79.6	78.4	-42.68	-197.4	2,628.4	147.4	35.5	111.93	1.317	Level 3	
13,300.0	10,753.0	13,132.4	10,644.7	82.4	81.2	-42.68	-197.4	2,728.4	147.4	31.6	115.82	1.273	Level 3	
13,400.0	10,753.7	13,232.4	10,645.4	85.2	84.0	-42.68	-197.4	2,828.4	147.4	27.7	119.73	1.231	Level 2	
13,500.0	10,754.4	13,332.4	10,646.1	88.0	86.8	-42.68	-197.4	2,928.4	147.4	23.7	123.65	1.192	Level 2	
13,600.0	10,755.1	13,432.4	10,646.8	90.8	89.6	-42.68	-197.4	3,028.4	147.4	19.8	127.58	1.155	Level 2	
13,700.0	10,755.8	13,532.4	10,647.5	93.6	92.4	-42.68	-197.4	3,128.4	147.4	15.9	131.53	1.121	Level 2	
13,800.0	10,756.5	13,632.4	10,648.2	96.4	95.2	-42.68	-197.4	3,228.4	147.4	11.9	135.48	1.088	Level 2	
13,900.0	10,757.2	13,732.4	10,648.9	99.2	98.1	-42.68	-197.4	3,328.4	147.4	7.9	139.45	1.057	Level 2	
14,000.0	10,757.9	13,832.4	10,649.6	102.1	100.9	-42.68	-197.4	3,428.4	147.4	4.0	143.43	1.028	Level 2	
14,100.0	10,758.6	13,932.4	10,650.3	104.9	103.8	-42.68	-197.4	3,528.4	147.4	0.0	147.41	1.000	Level 1	
14,200.0	10,759.3	14,032.4	10,651.0	107.7	106.6	-42.68	-197.4	3,628.4	147.4	-4.0	151.40	0.973	Level 1	
14,300.0	10,760.0	14,132.4	10,651.7	110.6	109.5	-42.68	-197.4	3,728.4	147.4	-8.0	155.40	0.948	Level 1	
14,400.0	10,760.7	14,232.4	10,652.3	113.4	112.3	-42.68	-197.4	3,828.4	147.4	-12.0	159.41	0.925	Level 1	
14,500.0	10,761.4	14,332.4	10,653.0	116.3	115.2	-42.68	-197.4	3,928.4	147.4	-16.0	163.42	0.902	Level 1	
14,600.0	10,762.1	14,432.4	10,653.7	119.2	118.1	-42.68	-197.4	4,028.4	147.4	-20.0	167.43	0.880	Level 1	
14,700.0	10,762.8	14,532.4	10,654.4	122.0	120.9	-42.68	-197.4	4,128.4	147.4	-24.1	171.46	0.860	Level 1	
14,800.0	10,763.5	14,632.4	10,655.1	124.9	123.8	-42.68	-197.4	4,228.4	147.4	-28.1	175.48	0.840	Level 1	
14,900.0	10,764.2	14,732.4	10,655.8	127.8	126.7	-42.68	-197.4	4,328.4	147.4	-32.1	179.52	0.821	Level 1	
15,000.0	10,764.9	14,832.4	10,656.5	130.6	129.5	-42.68	-197.4	4,428.4	147.4	-36.2	183.55	0.803	Level 1	
15,100.0	10,765.6	14,932.4	10,657.2	133.5	132.4	-42.68	-197.4	4,528.4	147.4	-40.2	187.59	0.786	Level 1	
15,200.0	10,766.3	15,032.4	10,657.9	136.4	135.3	-42.68	-197.4	4,628.4	147.4	-44.2	191.64	0.769	Level 1	
15,300.0	10,767.0	15,132.4	10,658.6	139.3	138.2	-42.68	-197.4	4,728.4	147.4	-48.3	195.68	0.753	Level 1	
15,400.0	10,767.7	15,232.4	10,659.3	142.1	141.1	-42.68	-197.4	4,828.4	147.4	-52.3	199.73	0.738	Level 1	
15,500.0	10,768.4	15,332.4	10,660.0	145.0	144.0	-42.68	-197.4	4,928.4	147.4	-56.4	203.79	0.723	Level 1	
15,600.0	10,769.1	15,432.4	10,660.7	147.9	146.8	-42.68	-197.4	5,028.4	147.4	-60.5	207.84	0.709	Level 1	
15,700.0	10,769.8	15,532.4	10,661.4	150.8	149.7	-42.68	-197.4	5,128.4	147.4	-64.5	211.90	0.696	Level 1	
15,800.0	10,770.5	15,632.4	10,662.1	153.7	152.6	-42.68	-197.4	5,228.4	147.4	-68.6	215.97	0.682	Level 1	
15,900.0	10,771.2	15,732.4	10,662.8	156.6	155.5	-42.68	-197.4	5,328.4	147.4	-72.6	220.03	0.670	Level 1	
16,000.0	10,771.9	15,832.4	10,663.5	159.5	158.4	-42.68	-197.4	5,428.4	147.4	-76.7	224.10	0.658	Level 1	
16,100.0	10,772.6	15,932.4	10,664.2	162.4	161.3	-42.68	-197.4	5,528.4	147.4	-80.8	228.17	0.646	Level 1	
16,200.0	10,773.3	16,032.4	10,664.9	165.2	164.2	-42.68	-197.4	5,628.4	147.4	-84.9	232.24	0.635	Level 1	
16,300.0	10,774.0	16,132.4	10,665.6	168.1	167.1	-42.68	-197.4	5,728.4	147.4	-88.9	236.31	0.624	Level 1	
16,400.0	10,774.7	16,232.4	10,666.3	171.0	170.0	-42.68	-197.4	5,828.4	147.4	-93.0	240.38	0.613	Level 1	
16,500.0	10,775.4	16,332.4	10,667.0	173.9	172.9	-42.68	-197.4	5,928.4	147.4	-97.1	244.46	0.603	Level 1	
16,600.0	10,776.1	16,432.4	10,667.7	176.8	175.8	-42.68	-197.4	6,028.4	147.4	-101.2	248.54	0.593	Level 1	
16,700.0	10,776.8	16,532.4	10,668.4	179.7	178.7	-42.68	-197.4	6,128.4	147.4	-105.2	252.62	0.583	Level 1	
16,800.0	10,777.5	16,632.4	10,669.1	182.6	181.6	-42.68	-197.4	6,228.3	147.4	-109.3	256.70	0.574	Level 1	
16,900.0	10,778.2	16,732.4	10,669.8	185.5	184.5	-42.68	-197.4	6,328.3	147.4	-113.4	260.78	0.565	Level 1	
17,000.0	10,778.9	16,832.4	10,670.5	188.4	187.4	-42.68	-197.4	6,428.3	147.4	-117.5	264.87	0.556	Level 1	
17,100.0	10,779.6	16,932.4	10,671.2	191.3	190.3	-42.68	-197.4	6,528.3	147.4	-121.6	268.95	0.548	Level 1	
17,200.0	10,780.3	17,032.4	10,671.9	194.3	193.2	-42.68	-197.4	6,628.3	147.4	-125.7	273.04	0.540	Level 1	
17,300.0	10,780.9	17,132.4	10,672.6	197.2	196.1	-42.68	-197.4	6,728.3	147.4	-129.7	277.13	0.532	Level 1	
17,400.0	10,781.6	17,232.4	10,673.3	200.1	199.1	-42.68	-197.4	6,828.3	147.4	-133.8	281.22	0.524	Level 1	
17,500.0	10,782.3	17,332.4	10,674.0	203.0	202.0	-42.68	-197.4	6,928.3	147.4	-137.9	285.31	0.517	Level 1	
17,600.0	10,783.0	17,432.4	10,674.7	205.9	204.9	-42.68	-197.4	7,028.3	147.4	-142.0	289.40	0.509	Level 1	
17,700.0	10,783.7	17,532.4	10,675.4	208.8	207.8	-42.68	-197.4	7,128.3	147.4	-146.1	293.49	0.502	Level 1	
17,800.0	10,784.4	17,632.4	10,676.1	211.7	210.7	-42.68	-197.4	7,228.3	147.4	-150.2	297.59	0.495	Level 1	
17,900.0	10,785.1	17,732.4	10,676.8	214.6	213.6	-42.68	-197.4	7,328.3	147.4	-154.3	301.68	0.489	Level 1	
18,000.0	10,785.8	17,832.4	10,677.5	217.5	216.5	-42.68	-197.4	7,428.3	147.4	-158.4	305.77	0.482	Level 1	

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design 153N-100W-19/20_Altered - Chalmers 5301 44-24 3BR - Chalmers 5301 44-24 3BR - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
18,100.0	10,786.5	17,932.4	10,678.2	220.4	219.4	-42.68	-197.4	7,528.3	147.4	-162.5	309.87	0.476	Level 1
18,200.0	10,787.2	18,032.4	10,678.9	223.3	222.3	-42.68	-197.4	7,628.3	147.4	-166.6	313.97	0.469	Level 1
18,300.0	10,787.9	18,132.4	10,679.6	226.2	225.3	-42.68	-197.4	7,728.3	147.4	-170.7	318.07	0.463	Level 1
18,400.0	10,788.6	18,232.4	10,680.3	229.2	228.2	-42.68	-197.4	7,828.3	147.4	-174.8	322.16	0.457	Level 1
18,500.0	10,789.3	18,332.4	10,681.0	232.1	231.1	-42.68	-197.4	7,928.3	147.4	-178.9	326.26	0.452	Level 1
18,600.0	10,790.0	18,432.4	10,681.7	235.0	234.0	-42.68	-197.4	8,028.3	147.4	-183.0	330.36	0.446	Level 1
18,700.0	10,790.7	18,532.4	10,682.4	237.9	236.9	-42.68	-197.4	8,128.3	147.4	-187.1	334.46	0.441	Level 1
18,800.0	10,791.4	18,632.4	10,683.1	240.8	239.8	-42.68	-197.4	8,228.3	147.4	-191.2	338.56	0.435	Level 1
18,900.0	10,792.1	18,732.4	10,683.8	243.7	242.7	-42.68	-197.4	8,328.3	147.4	-195.3	342.67	0.430	Level 1
19,000.0	10,792.8	18,832.4	10,684.5	246.6	245.7	-42.68	-197.4	8,428.3	147.4	-199.4	346.77	0.425	Level 1
19,100.0	10,793.5	18,932.4	10,685.2	249.6	248.6	-42.68	-197.4	8,528.3	147.4	-203.5	350.87	0.420	Level 1
19,200.0	10,794.2	19,032.4	10,685.9	252.5	251.5	-42.68	-197.4	8,628.3	147.4	-207.6	354.98	0.415	Level 1
19,300.0	10,794.9	19,132.4	10,686.6	255.4	254.4	-42.68	-197.4	8,728.3	147.4	-211.7	359.08	0.410	Level 1
19,400.0	10,795.6	19,232.4	10,687.3	258.3	257.3	-42.68	-197.4	8,828.3	147.4	-215.8	363.18	0.406	Level 1
19,500.0	10,796.3	19,332.4	10,688.0	261.2	260.2	-42.68	-197.4	8,928.3	147.4	-219.9	367.29	0.401	Level 1
19,600.0	10,797.0	19,432.4	10,688.7	264.1	263.2	-42.68	-197.4	9,028.3	147.4	-224.0	371.40	0.397	Level 1
19,700.0	10,797.7	19,532.4	10,689.3	267.1	266.1	-42.68	-197.4	9,128.3	147.4	-228.1	375.50	0.393	Level 1
19,800.0	10,798.4	19,632.4	10,690.0	270.0	269.0	-42.68	-197.4	9,228.3	147.4	-232.2	379.61	0.388	Level 1
19,900.0	10,799.1	19,732.4	10,690.7	272.9	271.9	-42.68	-197.4	9,328.3	147.4	-236.3	383.72	0.384	Level 1
20,000.0	10,799.8	19,832.4	10,691.4	275.8	274.8	-42.68	-197.4	9,428.3	147.4	-240.4	387.82	0.380	Level 1
20,100.0	10,800.5	19,932.4	10,692.1	278.7	277.8	-42.68	-197.4	9,528.3	147.4	-244.5	391.93	0.376	Level 1
20,200.0	10,801.2	20,032.4	10,692.8	281.6	280.7	-42.68	-197.4	9,628.3	147.4	-248.7	396.04	0.372	Level 1
20,300.0	10,801.9	20,132.4	10,693.5	284.6	283.6	-42.68	-197.4	9,728.3	147.4	-252.8	400.15	0.368	Level 1
20,400.0	10,802.6	20,232.4	10,694.2	287.5	286.5	-42.68	-197.4	9,828.3	147.4	-256.9	404.26	0.365	Level 1
20,500.0	10,803.3	20,332.4	10,694.9	290.4	289.4	-42.68	-197.4	9,928.3	147.4	-261.0	408.37	0.361	Level 1
20,600.0	10,804.0	20,432.4	10,695.6	293.3	292.4	-42.68	-197.4	10,028.3	147.4	-265.1	412.48	0.357	Level 1
20,700.0	10,804.7	20,532.4	10,696.3	296.2	295.3	-42.68	-197.4	10,128.3	147.4	-269.2	416.59	0.354	Level 1
20,800.0	10,805.4	20,632.4	10,697.0	299.2	298.2	-42.68	-197.4	10,228.3	147.4	-273.3	420.70	0.350	Level 1
20,900.0	10,806.1	20,732.4	10,697.7	302.1	301.1	-42.68	-197.4	10,328.2	147.4	-277.4	424.81	0.347	Level 1
21,000.0	10,806.8	20,832.4	10,698.4	305.0	304.0	-42.68	-197.4	10,428.2	147.4	-281.5	428.92	0.344	Level 1
21,075.8	10,807.3	20,908.2	10,699.0	307.2	306.3	-42.68	-197.4	10,504.0	147.4	-284.6	432.03	0.341	Level 1
21,106.5	10,807.5	20,938.2	10,699.2	308.1	307.1	-42.68	-197.4	10,534.0	147.4	-285.9	433.28	0.340	Level 1, ES, SF

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

Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to well @ 1967.0usft

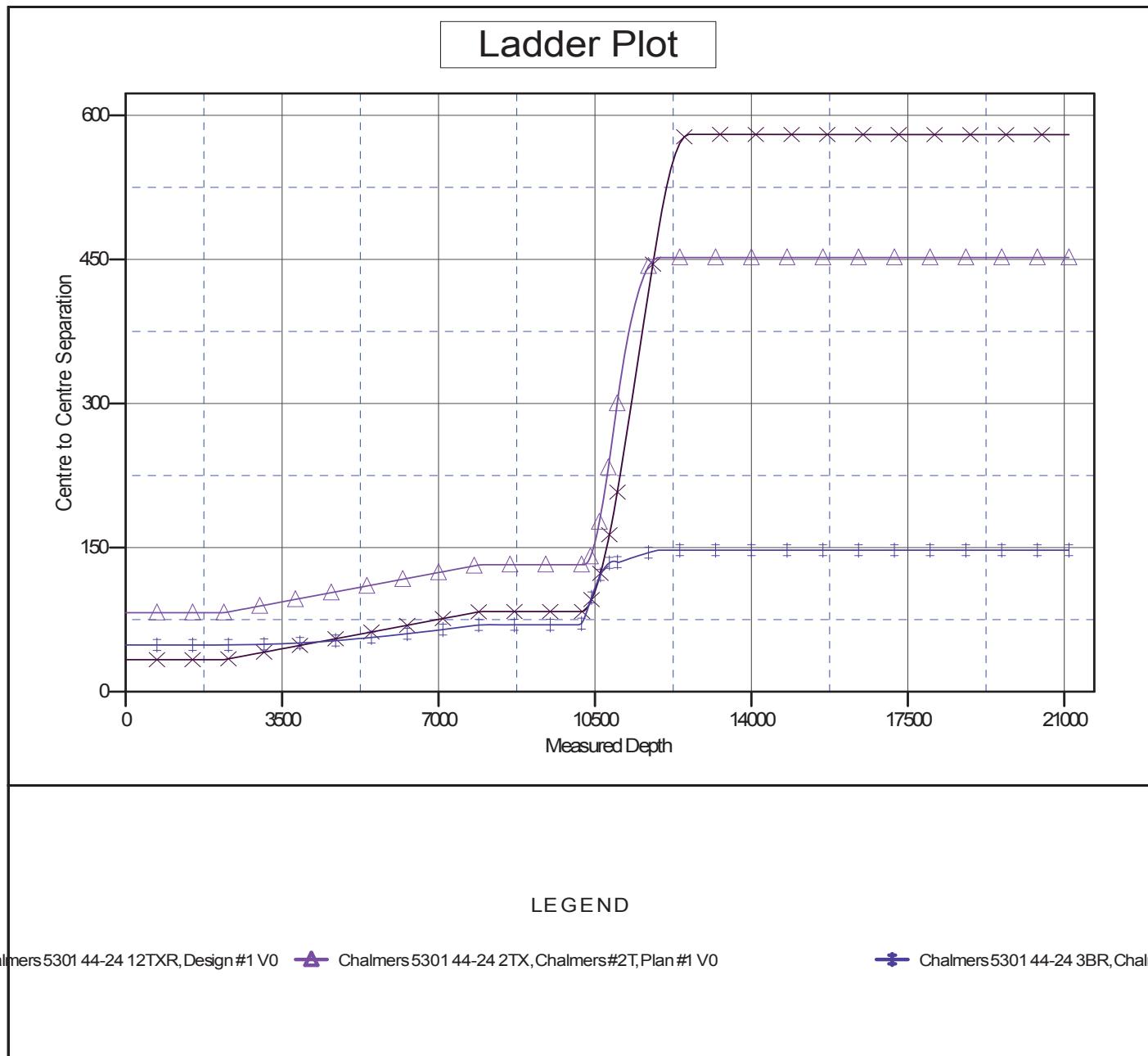
Offset Depths are relative to Offset Datum

Central Meridian is 100° 30' 0.000 W

Coordinates are relative to: Chalmers 5300 44-24 4T2R

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

Grid Convergence at Surface is: -2.31°



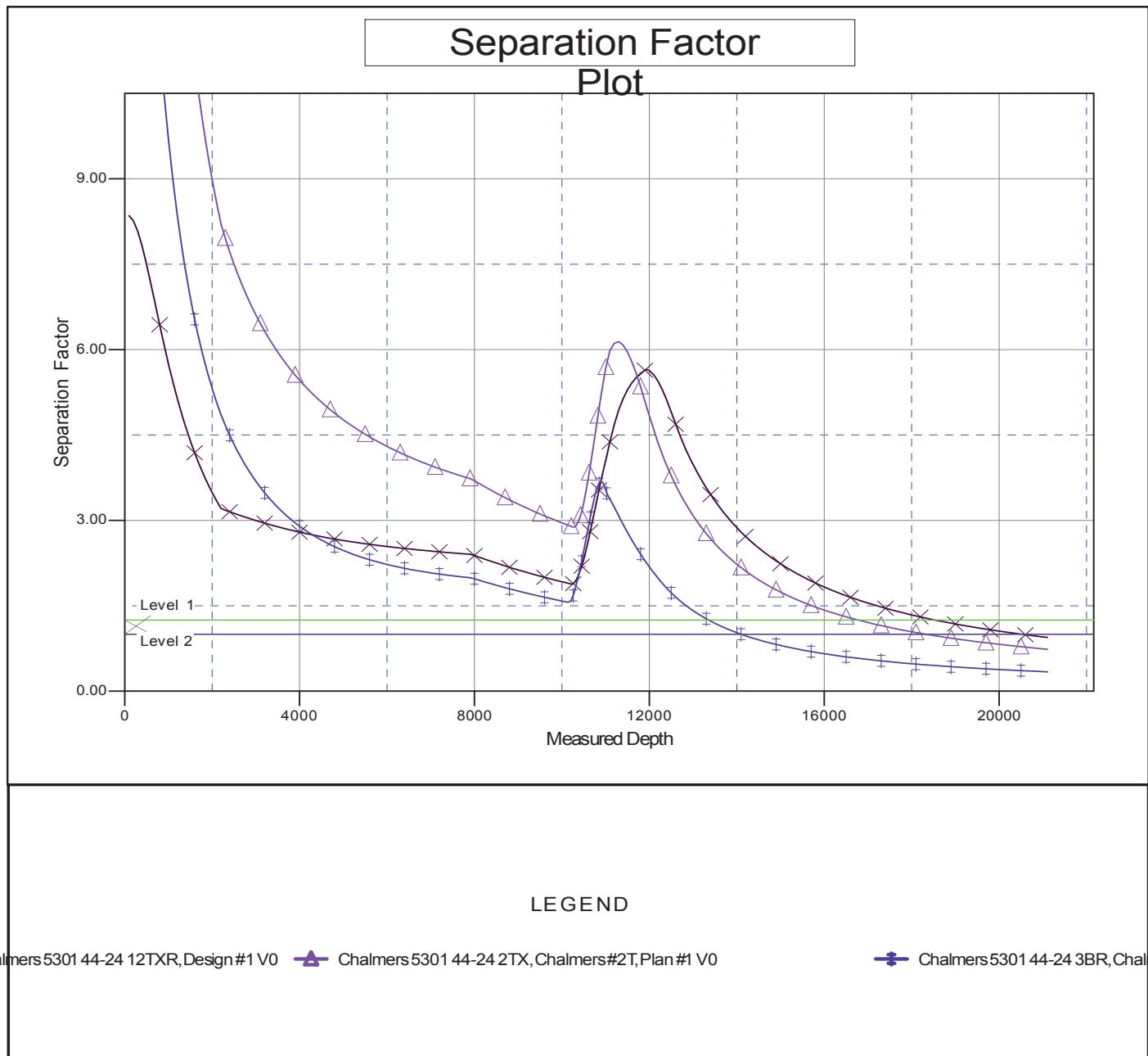
Ryan Directional Services

Anticollision Report

Company:	Oasis	Local Co-ordinate Reference:	Well Chalmers 5300 44-24 4T2R
Project:	Indian Hills	TVD Reference:	well @ 1967.0usft
Reference Site:	153N-100W-19/20_Altered	MD Reference:	well @ 1967.0usft
Site Error:	0.0 usft	North Reference:	True
Reference Well:	Chalmers 5300 44-24 4T2R	Survey Calculation Method:	Minimum Curvature
Well Error:	2.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Chalmers 5300 44-24 4T2R	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to well @ 1967.0usft
 Offset Depths are relative to Offset Datum
 Central Meridian is 100° 30' 0.000 W

Coordinates are relative to: Chalmers 5300 44-24 4T2R
 Coordinate System is US State Plane 1983, North Dakota Northern Zone
 Grid Convergence at Surface is: -2.31°



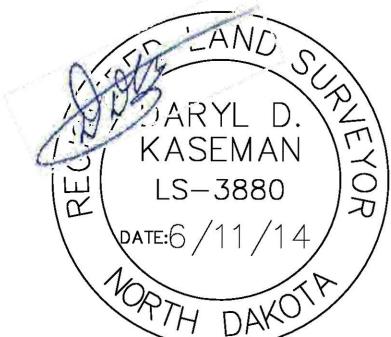
SECTION BREAKDOWN

OASIS PETROLEUM NORTH AMERICA, LLC

INN, SUITE 1500, HOUSTON,
TEXAS 77002-5201. 44-24-387

"CHALMERS 5301 44-24 3BR

926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, & SECTION 19 & 20, T153N, R100W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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ALL AZIMUTHS ARE BASED ON G.P.S.
OBSERVATIONS. THE ORIGINAL SURVEY OF THIS
AREA FOR THE GENERAL LAND OFFICE (G.L.O.)
WAS 1891. THE CORNERS FOUND ARE AS
INDICATED AND ALL OTHERS ARE COMPUTED FROM
THOSE CORNERS FOUND AND BASED ON G.L.O.
DATA. THE MAPPING ANGLE FOR THIS AREA IS
APPROXIMATELY $-0^{\circ}03'$.

-  — MONUMENT — RECOVERED
- — MONUMENT — NOT RECOVERED

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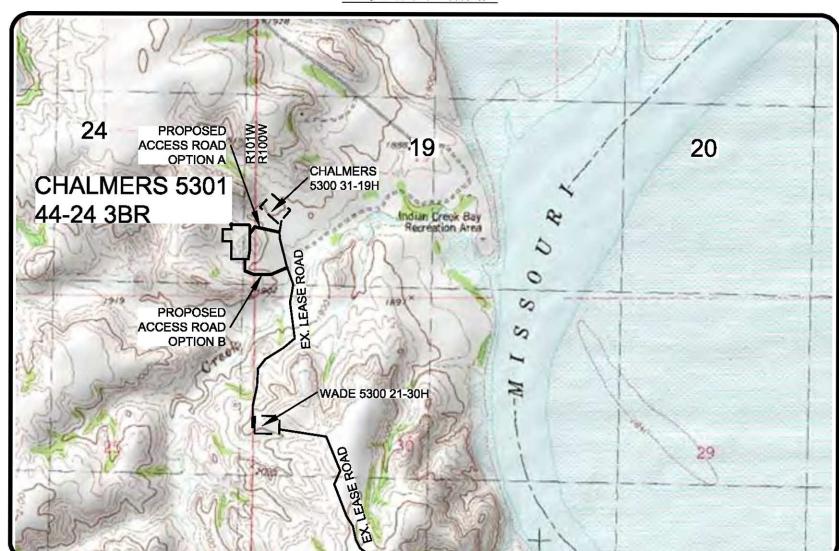
Z/0
SHEET NO.

SHEET NO

Revision No.	Date	By	Description
REV 3	1/20/14	BHH	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDN	ADDED DIMENSIONS

OASIS PETROLEUM NORTH AMERICA, LLC	
SECTION BREAKDOWN	
SECTION 24, T153N, R101W, & SECTIONS 19 & 20, T153N, R100W	
MCKENZIE COUNTY, NORTH DAKOTA	
Drawn By:	J.J.S.
Checked By:	D.D.K.
Project No.:	\$13-09-285.01
Date:	MAY 2014

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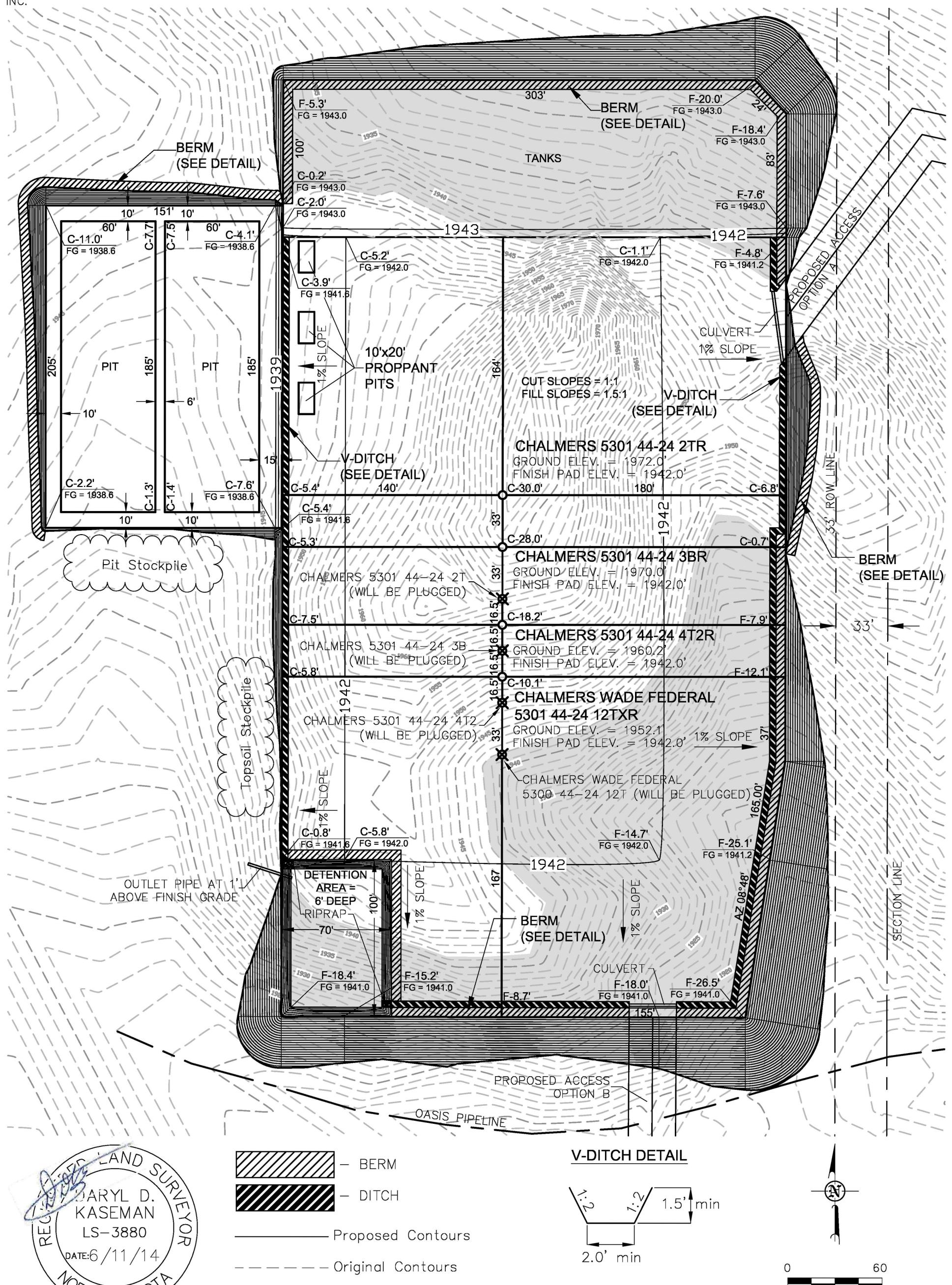
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PAD LAYOUT

OASIS PETROLEUM NORTH AMERICA, LLC
1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
"OHAL MERS 5201.44-24.2PR"

"CHALMERS 5301 44-24 3BR"

926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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

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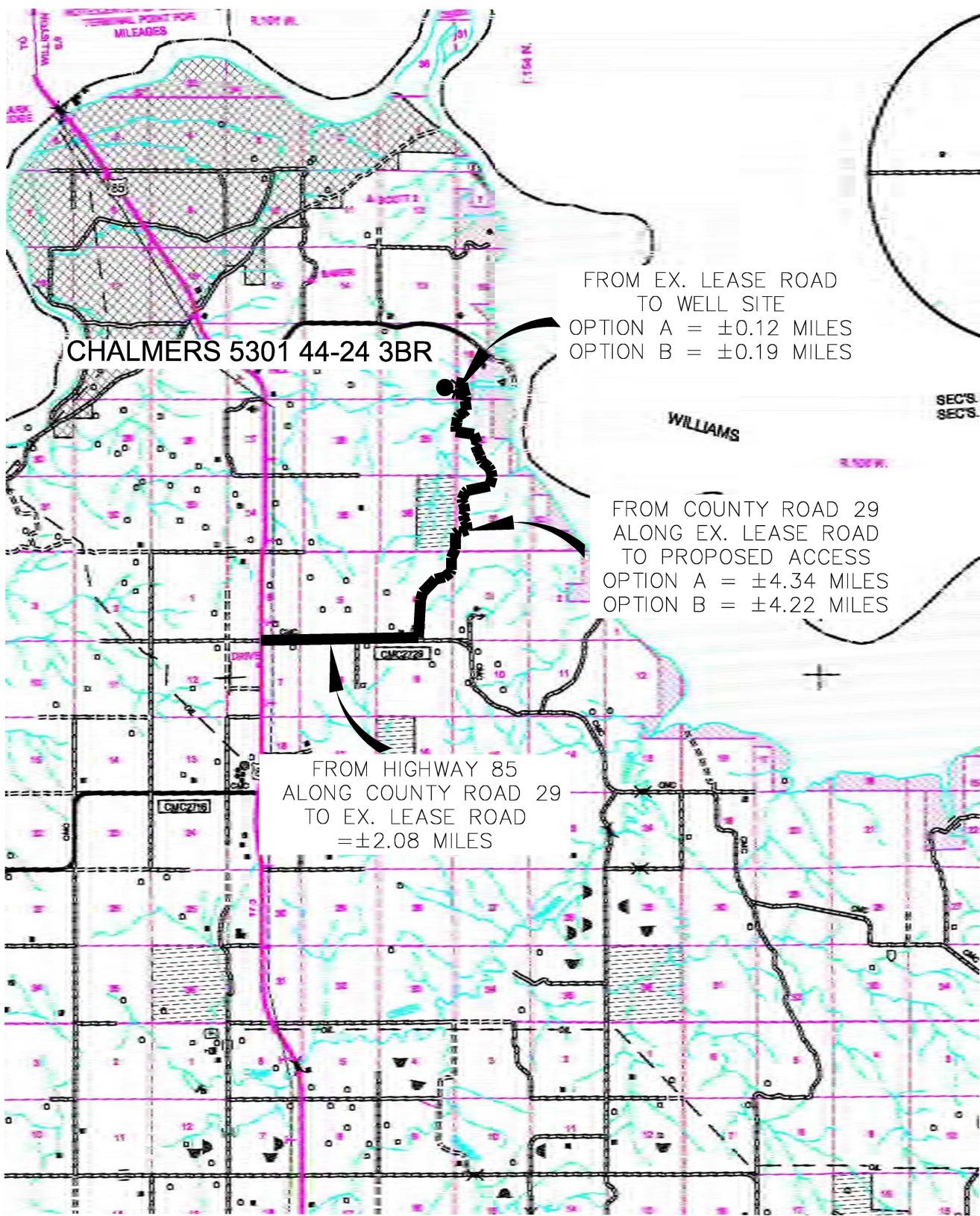
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OASIS PETROLEUM NORTH AMERICA, LLC
PAD LAYOUT
SECTION 24, T152N, R104W

Revision No.	Date	By	Description
REV 3	1/20/14	BHH	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDM	ADDED DIMENSIONS

E:\2013\3131-08-2338.01 Oals Petroleum - 2 of 3 Infill Wells for Chalmers 5300
1-19-14\CAD\CHALMERS 3BR UPDATED 6-11-14.dwg - 6/11/2014 9:23 AM, bklle, miller

COUNTY ROAD MAP
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "CHALMERS 5301 44-24 3BR"
 926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
 SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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SCALE: 1" = 2 MILE

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Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA
Drawn By: J.J.S. Project No.: S13-09-235.01
Checked By: D.D.K. Date: MAY 2014

Revision No.	Date	By	Description
REV 2	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHH	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/1/14	JDM	ADDED DIMENSIONS

WELL LOCATION SITE QUANTITIES
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "CHALMERS 5301 44-24 3BR"
 926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
 SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

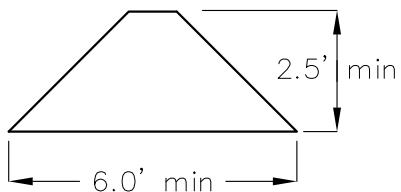
WELL SITE ELEVATION	1970.0
WELL PAD ELEVATION	1942.0
EXCAVATION	55,136
PLUS PIT	<u>9,450</u>
	64,586
EMBANKMENT	37,558
PLUS SHRINKAGE (30%)	<u>11,267</u>
	48,825
STOCKPILE PIT	9,450
STOCKPILE TOP SOIL (6")	4,770
BERMS	1,711 LF = 554 CY
DITCHES	1,029 LF = 157 CY
DETENTION AREA	1,428 CY
STOCKPILE MATERIAL	2,572
DISTURBED AREA FROM PAD	5.91 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

926' FSL
245' FEL

BERM DETAIL



DITCH DETAIL



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OASIS PETROLEUM NORTH AMERICA, LLC
QUANTITIES
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA
Drawn By: J.J.S. Project No.: S13-09-235.01
Checked By: D.D.K. Date: MAY 2014

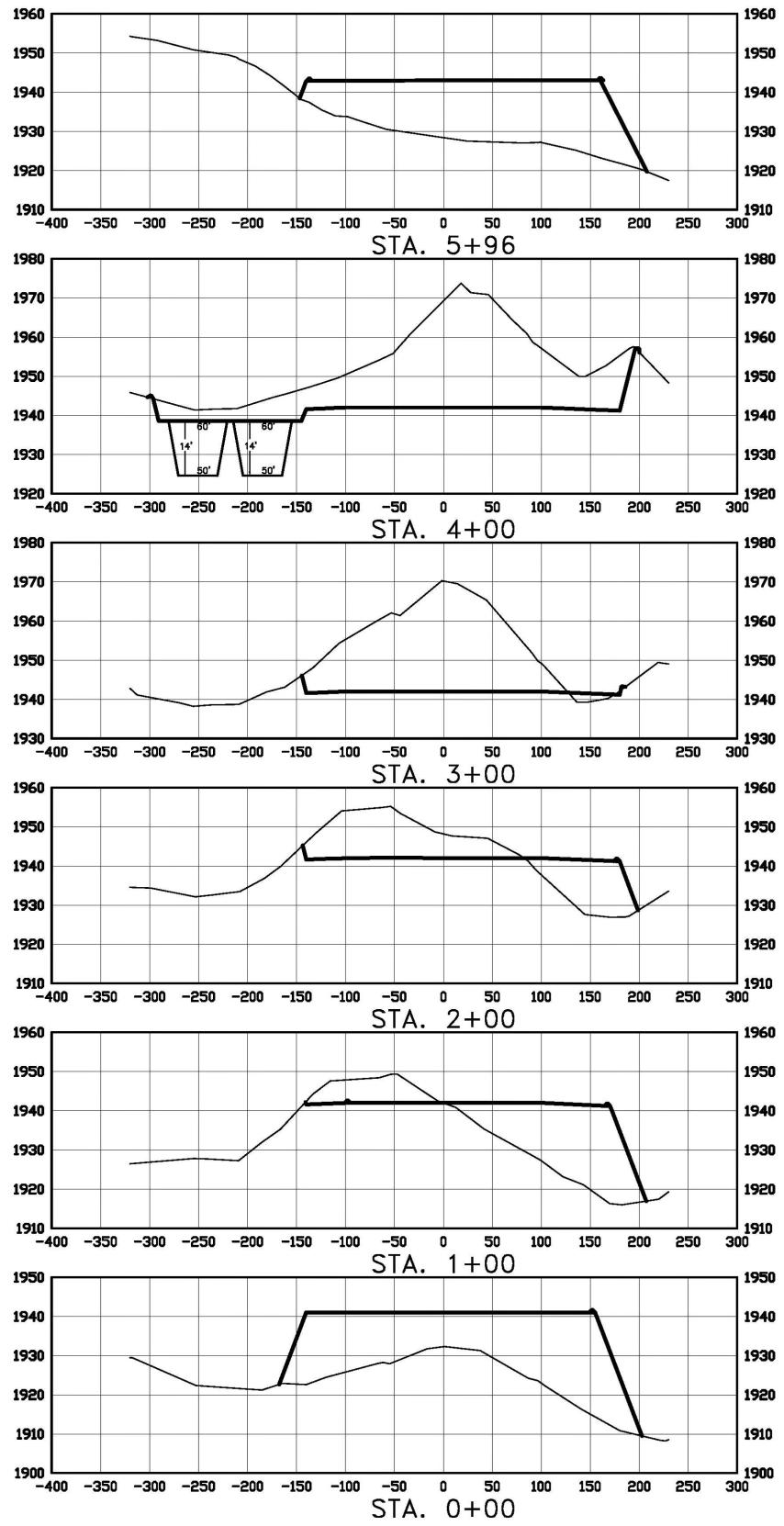
Revision No.	Date	By	Description
REV 2	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHH	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JOM	ADDED DIMENSIONS

CROSS SECTIONS
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "CHALMERS 5301 44-24 3BR"
 926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
 SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA

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SCALE
 HORIZ 1"=180'
 VERT 1"=45'



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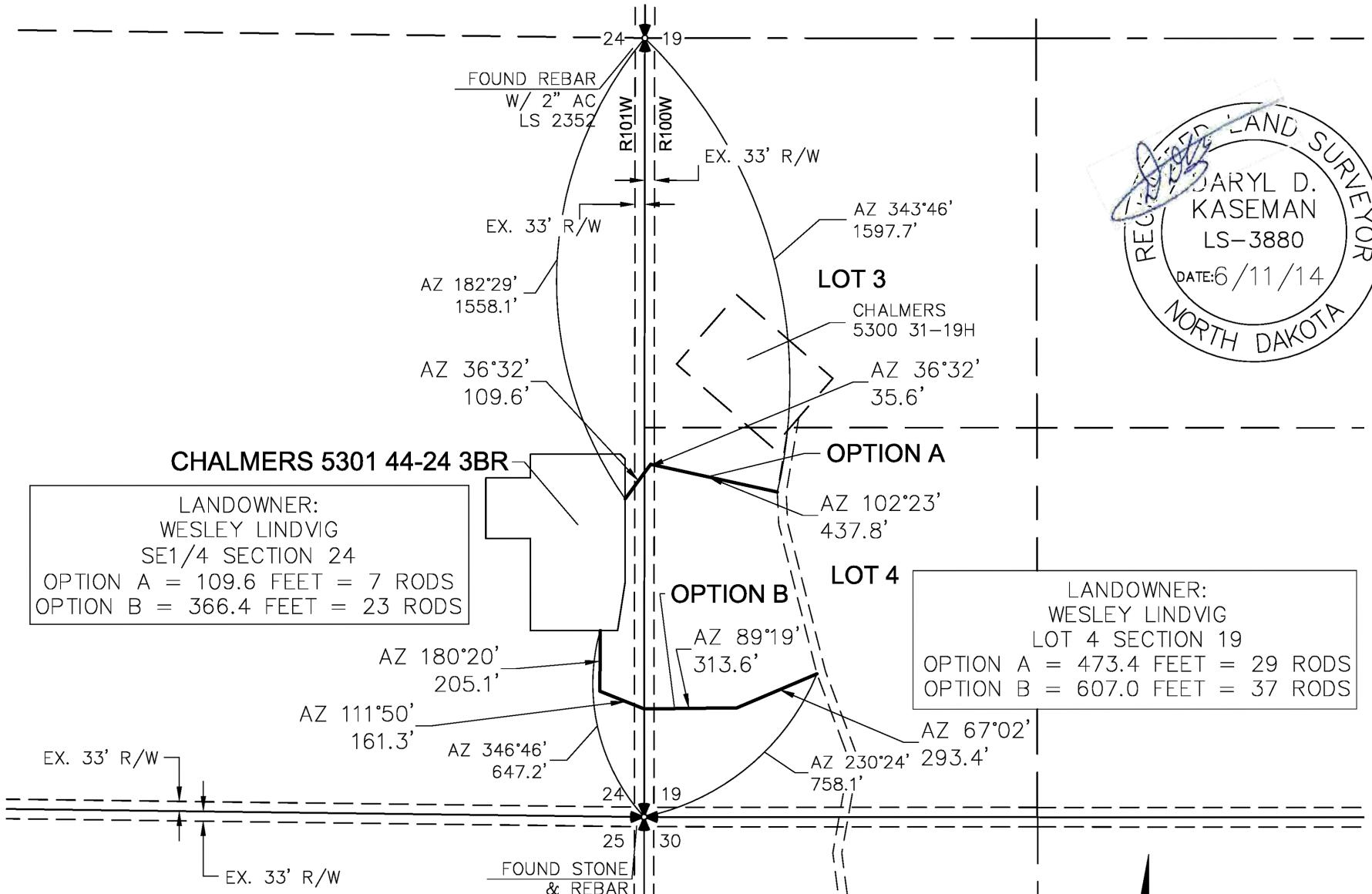
Other offices in Minnesota, North Dakota and South Dakota

OASIS PETROLEUM NORTH AMERICA, LLC
 PAD CROSS SECTIONS
 SECTION 24, T153N, R101W
 MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S13-09-235-01
 Checked By: D.D.K. Date: MAY 2014

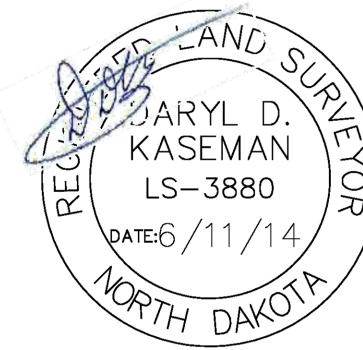
Revision No.	Date	By	Description
REV 2	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/20/14	BH+	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDS	ADDED DIMENSIONS

ACCESS APPROACH
 OASIS PETROLEUM NORTH AMERICA, LLC
 1001 FANNIN, SUITE 1500, HOUSTON, TX 77002
 "CHALMERS 5301 44-24 3BR"
 926 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
 SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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NOTE: All utilities shown are preliminary only, a complete
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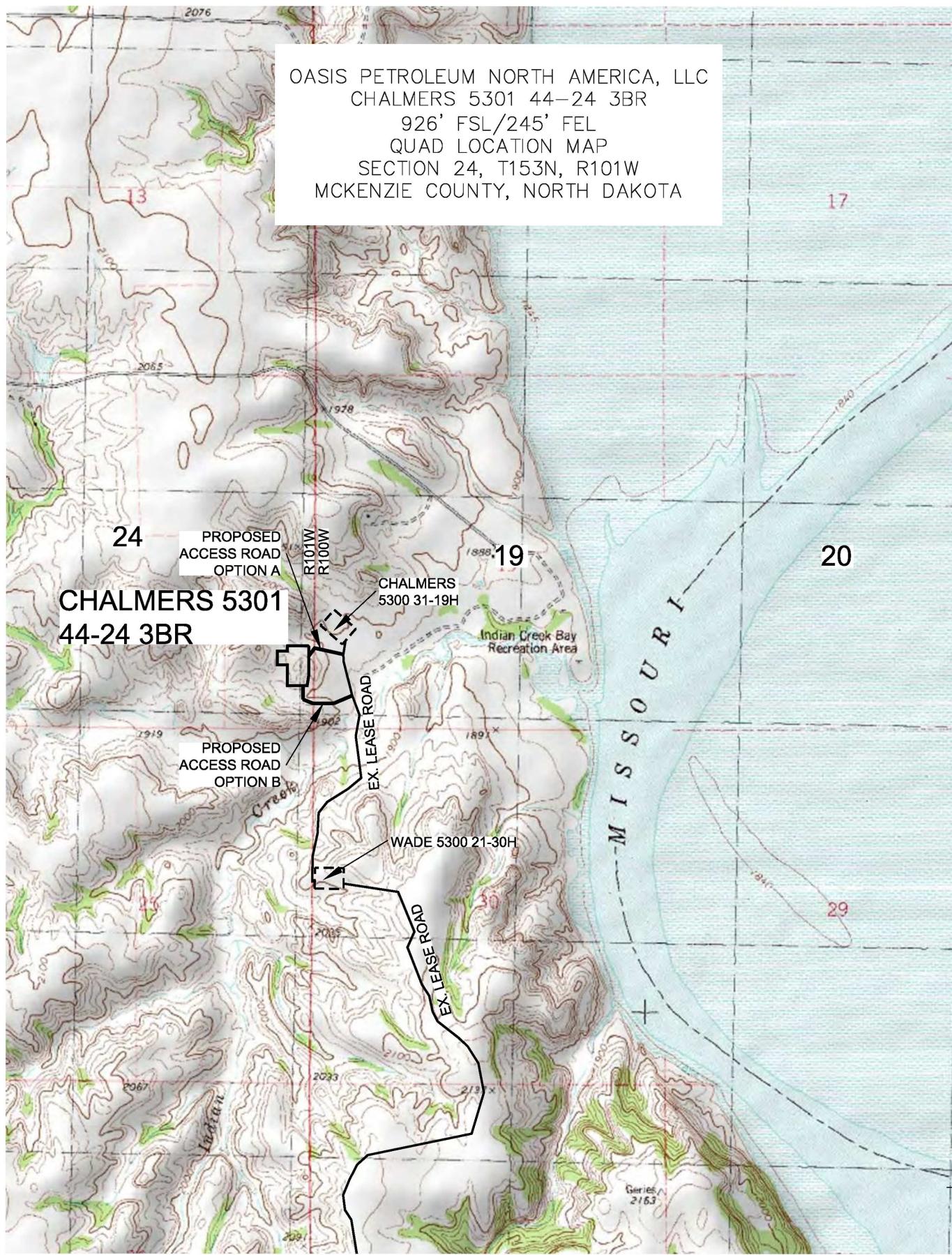
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Revision No.	Date	By	Description
REV 2	1/25/13	LS	CHANGED PAD LAYOUT
REV 3	1/20/14	BSH	CHANGED PAD LAYOUT
REV 4	5/9/14	ASD	ADDED WELL TO PAD
REV 5	5/20/14	LS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	EM	ADDED DIMENSIONS

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www.interstateeng.com
offices in Minnesota, North Dakota and South

OASIS PETROLEUM NORTH AMERICA, LLC
CHALMERS 5301 44-24 3BR
926' FSL/245' FEL
QUAD LOCATION MAP
SECTION 24, T153N, R101W
MCKENZIE COUNTY, NORTH DAKOTA

**CHALMERS 5301
44-24 3BR**

**PROPOSED
ACCESS ROAD
OPTION A**

**PROPOSED
ACCESS ROAD
OPTION B**

Interstate Engineering, Inc.
P.O. Box 648
425 East Main Street
OASIS PETROLEUM NORTH AMERICA, LLC
QUAD LOCATION MAP
SECTION 24, T153N, R101W

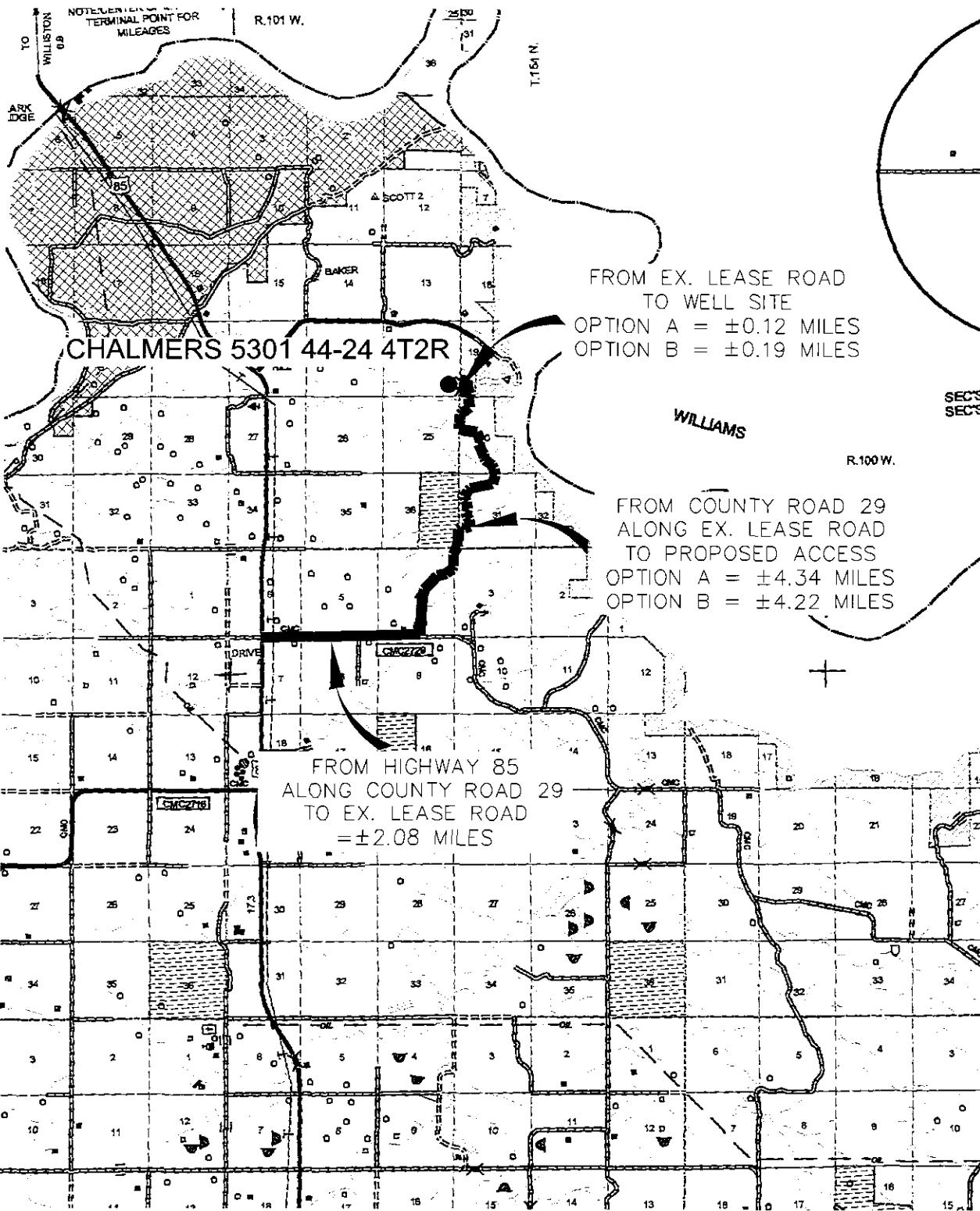
Revision No.	Date	By	Description
REV 2	12/5/13	JJS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHJ	CHANGED PAD LAYOUT
REV 4	5/09/14	JJS	ADDED WELL TO PAD
REV 5	5/20/14	JJS	CHANGED NAME, MOVED WELL
REV 6	6/11/14	JDM	ADDED DIMENSIONS

COUNTY ROAD MAP

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

"CHAI MERS 5301 44-24 4T2B"

877 FEET FROM SOUTH LINE AND 245 FEET FROM EAST LINE
SECTION 24, T153N, R101W, 5th P.M., MCKENZIE COUNTY, NORTH DAKOTA



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OASIS PETROLEUM NORTH AMERICA, LLC
COUNTY ROAD MAP
SECTION 24, T153N, R101W

MCKENZIE COUNTY, NORTH DAKOTA

Drawn By: J.J.S. Project No.: S13-09-235.02
Checked By: D.D.K. Date: MAY 2014

Revision No.	Date	By	Description
REV 1	10/01/13	JWS	CHANGED WELL NAME
REV 2	12/5/13	JWS	CHANGED PAD LAYOUT
REV 3	1/20/14	BHM	CHANGED PAZ LAYOUT
REV 4	5/09/14	JWS	ADDED WELL TO PAD
REV 5	5/20/14	JWS	CHANGED NAME, MOVED WELL



6/1/2014

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

RE: Chalmers 5301 44-24 3BR
Chalmers 5301 44-24 4T2R
Request for a legal street address

Dear NDIC:

Oasis Petroleum has requested a physical street address for the Chalmers 5301 44-24 3BR and Chalmers 5301 44-24 4T2R. The request was made to Aaron Chisolm, in McKenzie County. Upon receiving a legal street address, Oasis will submit the address to the NDIC on a Sundry Notice (form 4) pursuant to 43-02-03-28.

Thank you for your consideration.

Respectfully,

A handwritten signature in blue ink that reads "Heather McCowan".

Heather McCowan
Regulatory Assistant
Oasis Petroleum North America, LLC