

Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS****Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.**5. Lease Serial No.
NMNM104706

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

Contact: RYAN DELONG

TITUS OIL AND GAS PRODUCTION E-Mail: rdelong@titusoil.com

8. Well Name and No.

EL CAMPEON NORTH 17 FED 431H

9. API Well No.

30-025-48145-00-X1

3a. Address

420 THROCKMORTON ST., SUITE 1150
FORT WORTH, TX 76102

3b. Phone No. (include area code)

Ph: 817-852-6358

10. Field and Pool or Exploratory Area

JABALINA-WOLFCAMP, SOUTHWEST

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 17 T26S R35E Tract M 280FSL 650FWL
32.036819 N Lat, 103.395866 W Lon

11. County or Parish, State

LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleation in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Titus respectfully requests the following changes to the approved APD:

Name change from El Campeon North 17 Fed 431H to Love Shack Fed Com 431H

SHL change from 280 FSL and 650 FWL to 269 FSL and 704 FWL, Sec 17 26S-35E(see attached C-102/plat and drilling plan)

BHL change from 10 FNL and 990 FWL, Sec 17 26S-35E to 10 FNL and 990 FWL, Sec 8 26S-35E, Lea County, NM (see attached C-102/plat and drilling plan)

Changes to casing/cement to support 2-mile extension (see attached drilling plan)

Approved. Engineering 25 12/23/20

Approved. DCS. 12/23/2020. DOI- BLM - NM - P020-2020-0756-EA. Same COAs apply

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #541471 verified by the BLM Well Information System

For TITUS OIL AND GAS PRODUCTION L, sent to the Hobbs

Committed to AFMSS for processing by DEBORAH HAM on 12/21/2020 (21DMH0079SE)

Name (Printed/Typed) RYAN DELONG

Title REGULATORY MANAGER

Signature (Electronic Submission)

Date 12/18/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Acting AFM

Date

12/29/20

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

CFO

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

KZ

Additional data for EC transaction #541471 that would not fit on the form

32. Additional remarks, continued

Changes to well TVD/MD to support new well design and 2-mile extensions (see attached drilling plan)

Titus requests a variance to use a 5M annular in the 10M MASP portion of the well (see attached 5M Variance Well Plan)

Attachments: Updated C-102/Survey Plat, Updated Drilling Plan, Updated Directional Plan, Updated Directional AC Report, 5M Variance Well Plan

Revisions to Operator-Submitted EC Data for Sundry Notice #541471

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM104706	NMNM104706
Agreement:		
Operator:	TITUS OIL&GAS PRODUCTION, LLC 420 THROCKMORTON STREET SUITE 1150 FORT WORTH, TX 76102 Ph: 817-852-6358	TITUS OIL AND GAS PRODUCTION L 420 THROCKMORTON ST., SUITE 1150 FORT WORTH, TX 76102 Ph: 8178526358
Admin Contact:	RYAN DELONG REGULATORY MANAGER E-Mail: rdelong@titusoil.com Ph: 817-852-6358	RYAN DELONG REGULATORY MANAGER E-Mail: rdelong@titusoil.com Ph: 817-852-6358
Tech Contact:	RYAN DELONG REGULATORY MANAGER E-Mail: rdelong@titusoil.com Ph: 817-852-6358	RYAN DELONG REGULATORY MANAGER E-Mail: rdelong@titusoil.com Ph: 817-852-6358
Location:		
State:	NM	NM
County:	LEA	LEA
Field/Pool:	WILDCAT; WOLFCAMP	JABALINA-WOLFCAMP, SOUTHWEST
Well/Facility:	EL CAMPEON NORTH 17 FED 431H Sec 17 T26S R35E Mer NMP 280FSL 650FWL 32.036819 N Lat, 103.395869 W Lon	EL CAMPEON NORTH 17 FED 431H Sec 17 T26S R35E Tract M 280FSL 650FWL 32.036819 N Lat, 103.395866 W Lon

District I

1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III

1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-025-48145		2 Pool Code 98234		3 Pool Name WC-025 G-09 S263619C; Wolfcamp	
4 Property Code 329869		5 Property Name LOVE SHACK FED COM			6 Well Number 431H
7 OGRID No. 373986		8 Operator Name TITUS OIL & GAS PRODUCTION LLC			9 Elevation 3204'

10 Surface Location

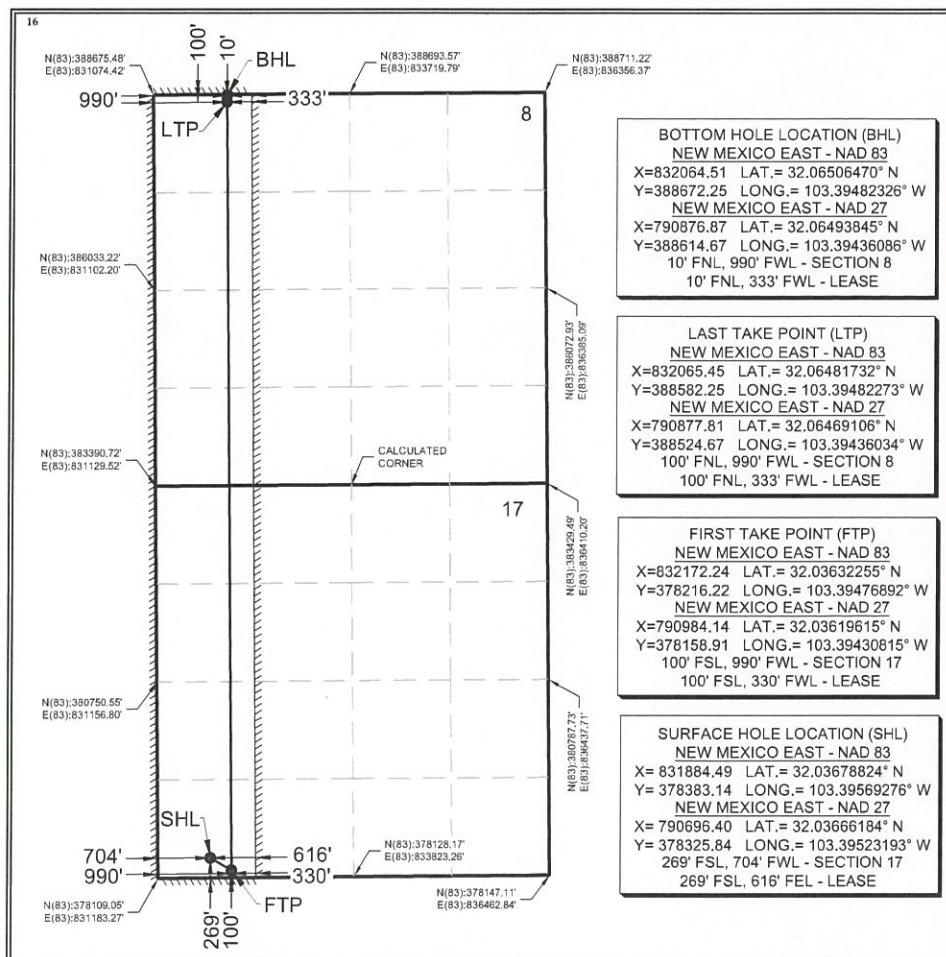
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	17	26-S	35-E		269'	SOUTH	704'	WEST	LEA

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	8	26-S	35-E		10'	NORTH	990'	WEST	LEA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
320	Y		

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Ryan DeLong* Date: 1/15/2020

Printed Name: Ryan DeLong - Regulatory Manager

E-mail Address: rdelong@titusoil.com

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey:

Signature and Seal of Professional Surveyor:

Garrett J. Smeller
NEW MEXICO
25036
01/14/2020
PROFESSIONAL SURVEYOR

Certificate Number:

Titus Oil & Gas Production, LLC - Loveshack Fed Com 431H

1. Geologic Formations

TVD of target	12,678' EOL	Pilot hole depth	NA
MD at TD:	23,083'	Deepest expected fresh water:	250'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1035	Water	
Top of Salt	1518	Salt	
Base of Salt	5009	Salt	
Lamar	5344	Salt Water	
Delaware	5394	Salt Water	
Bone Spring Lime	9285	Oil/Gas	
1st Bone Spring	10503	Oil/Gas	
2nd Bone Spring	11062	Oil/Gas	
3rd Bone Spring	12147	Oil/Gas	
Wolfcamp	12521	Oil/Gas	
Wolfcamp X Sand	12549	Oil/Gas	
Wolfcamp Y Sand	12613	Oil/Gas	
Wolfcamp A	12645	Target Oil/Gas	
Wolfcamp B	12959	Not Penetrated	

2. Casing Program

Hole Size	Casing		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Body
	From	To							
13.5"	0	1060	10.75"	45.5	J55	BTC	4.31	0.82	14.82
9.875"	0	11800	7.625"	29.7	L80HP	BTC	1.13	1.16	2.07
6.75"	0	11300	5.5"	23	P110	BTC	1.63	1.66	3.19
6.75"	11300	23,083	5"	18	P110	BTC	1.63	1.66	3.19
BLM Minimum Safety Factor							1.125	1	1.6 Dry
									1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse.

Variance requested to waive minimum SF for surface casing burst. Surface SF Burst > 0.7 frac gradient at the shoe. Casing burst is stronger than the next intervals formation FG.

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

The 5" casing will be run back 500' into the intermediate casing to ensure the coupling OD clearance is greater than .422" for the cement bond tie in.

Titus Oil & Gas Production, LLC - Loveshack Fed Com 431H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary?	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Titus Oil & Gas Production, LLC - Loveshack Fed Com 431H

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft ³ / sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	440	13.5	1.75	9	8	Lead: Class C + 4% Gel + 1% CaCl ₂
	250	14.8	1.34	6.34	4	Tail: Class C + 2% CaCl ₂
Inter.	1450	10.3	3.6	21.48	16	TXI Lightweight Blend
	250	15	1.27	5.7	4	Tail: 85:15 Class H
Prod	410	11.9	2.5	19	72	Lead: 50:50:10 H Blend
	1330	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
1 st Intermediate	0'	50%
Production	11,300'	35% OH in Lateral (KOP to EOL)

Titus Oil & Gas Production, LLC - Loveshack Fed Com 431H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min.	Type	x	Tested to:
		Required			
		WP			
9-7/8"	13-5/8"	3M	Annular	x	3000 psi
			Blind Ram		3M
			Pipe Ram		
			Double Ram		
			Other*		
6-3/4"	13-5/8"	10M	Annular	x	50% testing pressure
			Blind Ram	x	5M
			VBR Ram	x	
			VBR Ram	x	
			Other*		

See attached 5M Annular Variance Well Control plan for Titus Oil & Gas Production, LLC.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2.
	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	N Are anchors required by manufacturer?
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Titus Oil & Gas Production, LLC - Loveshack Fed Com 431H

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe	FW Gel	8.6 - 8.8	28-34	N/C
Surf csg	9-5/8" Int shoe	Nova N-Gauge	8.4 - 9	28-34	N/C
7-5/8" Int shoe	Lateral TD	OBM	10 - 13.5	35-45	<20

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

The highest mud weight needed to balance formation is expected to be 11.5 ppg. In order to maintain hole stability, mud weights up to 13.5 ppg may be utilized.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing.	
Y	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
Y	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain.
N	Coring? If yes, explain.

Additional logs planned		Interval
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

Titus Oil & Gas Production, LLC - Loveshack Fed Com 431H

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7585 psi at 12678' TVD
Abnormal Temperature	NO 180 Deg. F.

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N H2S is present

Y H2S Plan attached

8. Other Facets of Operation

Y	Is it a walking operation?
N	Is casing pre-set?

x	H2S Plan.
x	BOP & Choke Schematics.
x	Directional Plan



PHOENIX
TECHNOLOGY SERVICES

Titus Oil & Gas Production, LLC

**Lea County, NM - (NAD83 NME)
Love Shack Fed Com
431H**

**OH
Plan 1 01-14-20**

Anticollision Report

14 January, 2020

TITUS
OIL GAS LLC



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Reference	Plan 1 01-14-20
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 50,000.00 u
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Pedal Curve
Casing Method:	Not applied

Survey Tool Program		Date	1/14/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	23,083.71	Plan 1 01-14-20 (OH)	MWD+HDGM+MS	OWSG Rev.2 MWD + HDGM + Multi-Station Cor	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Grevey Com						
211H - OH - Surveys	4,616.48	4,581.70	346.20	310.70	9.751	CC
211H - OH - Surveys	4,700.00	4,664.47	346.49	310.53	9.636	ES
211H - OH - Surveys	12,400.00	12,392.64	651.79	563.01	7.341	SF
Love Shack Fed Com						
321H - OH - Plan 1 01-14-20	1,500.00	1,498.00	59.88	49.40	5.711	CC, ES
321H - OH - Plan 1 01-14-20	23,084.26	22,818.23	711.21	440.29	2.625	SF
511H - OH - Plan 1 01-14-20	1,500.00	1,500.00	29.91	19.42	2.850	CC, ES
511H - OH - Plan 1 01-14-20	23,084.26	23,447.25	557.52	302.42	2.185	SF

Offset Design		Grevey Com - 211H - OH - Surveys											Offset Site Error:	1.00 usft
Survey Program:		171-MWD+HRGM											Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	1.00	1.41	152.42	-593.69	310.09	670.21					
100.00	100.00	76.58	76.58	1.01	1.48	152.43	-593.74	309.99	669.79	667.34	2.46	272.431		
200.00	200.00	176.62	176.61	1.11	1.73	152.48	-593.97	309.52	669.78	667.06	2.71	246.874		
210.73	210.73	187.23	187.23	1.13	1.78	152.48	-594.00	309.45	669.77	667.01	2.76	242.616		
300.00	300.00	275.56	275.55	1.31	2.33	152.54	-594.39	308.83	669.84	666.58	3.25	205.817		
400.00	400.00	373.29	373.28	1.57	2.96	152.63	-595.09	308.06	670.10	666.31	3.80	176.474		
500.00	500.00	469.87	469.84	1.86	3.59	152.74	-596.29	307.28	670.84	666.51	4.33	154.753		
600.00	600.00	568.75	568.71	2.17	4.22	152.86	-597.97	306.48	671.98	666.99	4.99	134.678		
700.00	700.00	669.09	669.04	2.49	4.86	153.00	-599.69	305.62	673.12	667.59	5.52	121.884		
800.00	800.00	770.17	770.10	2.82	5.48	153.13	-601.35	304.68	674.16	668.05	6.11	110.345		
900.00	900.00	871.50	871.41	3.16	6.07	153.27	-602.84	303.63	675.01	668.25	6.76	99.794		
1,000.00	1,000.00	973.37	973.27	3.50	6.47	153.40	-604.10	302.54	675.63	668.19	7.44	90.755		
1,100.00	1,100.00	1,072.17	1,072.05	3.85	6.80	153.51	-605.12	301.54	676.10	667.99	8.11	83.406		
1,200.00	1,200.00	1,169.37	1,169.24	4.20	7.12	153.62	-606.50	300.75	677.01	668.26	8.75	77.330		
1,300.00	1,300.00	1,269.99	1,269.84	4.54	7.55	153.74	-608.02	300.01	678.04	668.62	9.42	72.009		
1,400.00	1,400.00	1,370.98	1,370.83	4.90	8.01	153.85	-609.43	299.26	678.96	668.87	10.09	67.280		
1,500.00	1,500.00	1,472.80	1,472.64	5.25	8.51	153.94	-610.58	298.54	679.67	668.87	10.79	62.972		
1,600.00	1,599.99	1,577.03	1,576.85	5.58	8.96	22.42	-611.40	297.68	678.81	667.25	11.56	58.712		
1,700.00	1,699.91	1,683.81	1,683.62	5.91	9.36	22.75	-611.73	295.61	674.62	662.24	12.38	54.472		

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



Anticollision Report

TITUS
OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
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Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Grevey Com - 211H - OH - Surveys													Offset Site Error:	1.00 usft
Survey Program: 171-MWD+HRGM													Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
1,800.00	1,799.69	1,798.80	1,798.54	6.24	9.69	23.32	-610.96	291.74	666.57	652.73	13.85	48.137		
1,900.00	1,899.27	1,916.09	1,915.63	6.58	10.04	24.12	-607.56	285.87	653.49	638.19	15.29	42.734		
2,000.00	1,998.72	2,023.94	2,023.12	6.92	10.51	24.97	-602.85	278.59	637.26	620.46	16.81	37.912		
2,100.00	2,098.17	2,127.31	2,126.00	7.27	11.19	25.93	-597.43	270.00	619.74	601.61	18.14	34.172		
2,200.00	2,197.62	2,223.26	2,221.49	7.61	11.68	26.86	-592.26	262.22	602.35	583.32	19.03	31.659		
2,300.00	2,297.08	2,318.85	2,316.68	7.97	12.13	27.77	-587.20	255.11	585.46	565.60	19.86	29.484		
2,400.00	2,396.53	2,413.80	2,411.28	8.32	12.49	28.72	-582.57	248.41	569.23	548.64	20.60	27.637		
2,500.00	2,495.98	2,509.62	2,506.79	8.68	12.85	29.70	-578.33	241.97	553.71	532.37	21.34	25.947		
2,600.00	2,595.43	2,606.57	2,603.46	9.04	13.23	30.69	-574.13	236.12	538.66	516.58	22.09	24.390		
2,700.00	2,694.88	2,703.94	2,700.60	9.40	13.61	31.68	-569.99	230.80	524.03	501.19	22.83	22.950		
2,800.00	2,794.33	2,801.51	2,797.92	9.76	14.00	32.81	-566.19	224.88	509.74	486.16	23.58	21.616		
2,900.00	2,893.78	2,899.29	2,895.42	10.13	14.40	34.09	-562.76	218.22	495.84	471.51	24.33	20.380		
3,000.00	2,993.24	2,997.26	2,993.08	10.49	14.81	35.50	-559.52	211.14	482.30	457.23	25.08	19.233		
3,100.00	3,092.69	3,096.14	3,091.60	10.86	15.21	37.07	-556.37	203.51	469.10	443.28	25.82	18.170		
3,200.00	3,192.14	3,195.32	3,190.37	11.23	15.62	38.84	-553.18	194.93	456.07	429.52	26.55	17.177		
3,300.00	3,291.59	3,294.85	3,289.38	11.60	16.03	40.84	-549.88	185.37	443.26	415.98	27.28	16.251		
3,400.00	3,391.04	3,394.23	3,388.14	11.97	16.44	43.08	-546.34	174.85	430.67	402.68	27.99	15.388		
3,500.00	3,490.49	3,491.50	3,484.75	12.34	16.84	45.45	-542.75	164.17	418.62	389.93	28.68	14.594		
3,600.00	3,589.94	3,588.63	3,581.30	12.71	17.24	47.85	-539.29	154.16	407.48	378.11	29.37	13.875		
3,700.00	3,689.40	3,687.58	3,679.73	13.08	17.64	50.33	-535.74	144.64	397.07	367.02	30.05	13.215		
3,800.00	3,788.85	3,786.92	3,778.59	13.46	18.04	52.86	-531.87	135.69	387.10	356.38	30.72	12.602		
3,900.00	3,888.30	3,883.40	3,874.61	13.83	18.43	55.42	-528.11	127.07	377.92	346.55	31.37	12.049		
4,000.00	3,987.75	3,979.70	3,970.42	14.20	18.82	58.17	-524.73	117.96	370.03	338.03	32.00	11.565		
4,100.00	4,087.20	4,077.54	4,067.73	14.58	19.21	61.11	-521.46	108.35	363.32	330.72	32.60	11.144		
4,200.00	4,186.65	4,175.35	4,164.99	14.95	19.60	64.18	-518.19	98.57	357.68	324.49	33.19	10.777		
4,300.00	4,286.10	4,273.76	4,262.88	15.33	19.99	67.31	-514.92	89.02	353.08	319.31	33.77	10.456		
4,400.00	4,385.56	4,372.02	4,360.69	15.70	20.38	70.40	-511.73	80.11	349.40	315.07	34.34	10.176		
4,500.00	4,485.01	4,468.51	4,456.73	16.08	20.76	73.50	-508.77	71.22	347.03	312.15	34.88	9.949		
4,600.00	4,584.46	4,565.42	4,553.13	16.46	21.15	76.70	-506.05	61.81	346.21	310.80	35.41	9.776		
4,616.48	4,600.84	4,581.70	4,569.34	16.52	21.21	77.23	-505.62	60.26	346.20	310.70	35.50	9.751 CC		
4,700.00	4,683.91	4,664.47	4,651.75	16.83	21.53	79.84	-503.62	52.88	346.49	310.53	35.96	9.636 ES		
4,800.00	4,783.36	4,763.58	4,750.53	17.21	21.92	82.79	-501.55	45.06	347.48	310.97	36.51	9.517		
4,900.00	4,882.81	4,861.86	4,848.46	17.59	22.30	85.74	-499.28	37.14	349.33	312.27	37.06	9.425		
5,000.00	4,982.26	4,960.37	4,946.58	17.97	22.69	88.75	-496.64	28.73	352.16	314.54	37.62	9.361		
5,100.00	5,081.72	5,059.44	5,045.26	18.34	23.07	91.72	-493.83	20.39	355.78	317.59	38.19	9.315		
5,200.00	5,181.17	5,159.16	5,144.58	18.72	23.42	94.68	-490.67	12.09	360.06	321.28	38.78	9.285		
5,300.00	5,280.76	5,258.41	5,243.37	19.10	23.73	97.54	-486.57	3.52	364.71	325.33	39.37	9.263		
5,400.00	5,380.55	5,357.59	5,342.13	19.46	24.05	99.87	-482.70	-4.70	369.61	329.61	39.99	9.242		
5,500.00	5,480.48	5,457.26	5,441.49	19.82	24.39	101.55	-479.83	-12.04	374.41	333.78	40.63	9.214		
5,600.00	5,580.47	5,553.03	5,536.99	20.16	24.82	-125.65	-477.65	-19.02	379.21	337.95	41.26	9.190		
5,700.00	5,680.47	5,647.03	5,630.48	20.49	25.29	-124.47	-474.46	-28.19	385.27	343.40	41.87	9.202		
5,800.00	5,780.47	5,744.02	5,726.73	20.82	25.80	-123.04	-470.40	-39.49	392.66	350.15	42.50	9.238		
5,900.00	5,880.47	5,841.93	5,823.84	21.15	26.32	-121.64	-466.36	-51.25	400.64	357.49	43.16	9.283		
6,000.00	5,980.47	5,941.05	5,922.14	21.49	26.72	-120.27	-462.39	-63.31	409.06	365.24	43.82	9.335		
6,100.00	6,080.47	6,040.41	6,020.71	21.82	27.10	-118.99	-458.58	-75.26	417.66	373.17	44.49	9.388		
6,200.00	6,180.47	6,139.20	6,118.72	22.16	27.48	-117.78	-454.89	-87.13	426.48	381.32	45.16	9.444		
6,300.00	6,280.47	6,238.18	6,216.89	22.49	27.86	-116.61	-451.21	-99.11	435.59	389.76	45.83	9.504		
6,400.00	6,380.47	6,338.67	6,316.60	22.83	28.25	-115.49	-447.53	-111.10	444.73	398.20	46.53	9.559		
6,500.00	6,480.47	6,438.90	6,416.09	23.17	28.64	-114.45	-443.94	-122.70	453.74	406.52	47.22	9.609		
6,600.00	6,580.47	6,538.15	6,514.62	23.50	29.02	-113.46	-440.43	-134.09	462.82	414.91	47.91	9.661		
6,700.00	6,680.47	6,637.70	6,613.45	23.84	29.41	-112.52	-436.92	-145.51	472.03	423.43	48.60	9.712		
6,800.00	6,780.47	6,737.84	6,712.90	24.18	29.80	-111.62	-433.50	-156.80	481.22	431.91	49.30	9.760		

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

1/14/2020 2:00:30PM

Page 3

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Grevey Com - 211H - OH - Surveys													Offset Site Error:	1.00 usft
Survey Program: 171-MWD+HRGM													Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,900.00	6,880.47	6,839.40	6,813.79	24.52	30.19	-110.78	-430.15	-167.93	490.27	440.25	50.02	9.801		
7,000.00	6,980.47	6,942.55	6,916.33	24.86	30.59	-109.96	-426.64	-178.54	498.75	448.00	50.75	9.827		
7,100.00	7,080.47	7,045.50	7,018.72	25.20	30.98	-109.16	-422.68	-188.49	506.59	455.10	51.48	9.840		
7,200.00	7,180.47	7,148.20	7,120.81	25.54	31.37	-108.22	-417.20	-198.22	513.88	461.66	52.21	9.842		
7,300.00	7,280.47	7,249.00	7,220.98	25.88	31.75	-107.24	-410.93	-207.55	520.82	467.89	52.93	9.840		
7,400.00	7,380.47	7,349.53	7,320.93	26.22	32.12	-106.34	-405.00	-216.53	527.69	474.05	53.65	9.836		
7,500.00	7,480.47	7,450.21	7,421.08	26.57	32.50	-105.50	-399.41	-225.19	534.47	480.10	54.36	9.831		
7,600.00	7,580.47	7,550.79	7,521.19	26.91	32.88	-104.73	-394.17	-233.51	541.12	486.04	55.08	9.824		
7,700.00	7,680.47	7,649.42	7,619.34	27.25	33.25	-103.98	-388.93	-241.70	547.85	492.07	55.78	9.822		
7,800.00	7,780.47	7,748.17	7,717.56	27.60	33.62	-103.20	-383.29	-250.15	554.85	498.37	56.48	9.823		
7,900.00	7,880.47	7,847.89	7,816.75	27.94	34.00	-102.43	-377.58	-258.72	561.98	504.79	57.20	9.825		
8,000.00	7,980.47	7,948.18	7,916.52	28.28	34.38	-101.70	-372.06	-267.23	569.15	511.24	57.91	9.828		
8,100.00	8,080.47	8,049.88	8,017.77	28.63	34.76	-101.05	-367.08	-275.44	576.11	517.47	58.64	9.825		
8,200.00	8,180.47	8,149.39	8,116.90	28.97	35.14	-100.51	-362.97	-283.02	582.83	523.49	59.35	9.821		
8,300.00	8,280.47	8,245.80	8,212.97	29.32	35.50	-100.08	-359.89	-290.60	590.00	529.97	60.03	9.828		
8,400.00	8,380.47	8,344.52	8,311.33	29.66	35.87	-99.71	-357.46	-298.68	597.65	536.92	60.73	9.841		
8,500.00	8,480.47	8,445.72	8,412.13	30.01	36.26	-99.28	-354.20	-306.94	605.17	543.72	61.45	9.847		
8,600.00	8,580.47	8,544.28	8,510.28	30.36	36.63	-98.79	-350.26	-314.97	612.60	550.44	62.16	9.855		
8,700.00	8,680.47	8,641.15	8,606.73	30.70	37.00	-98.33	-346.51	-323.22	620.46	557.61	62.85	9.872		
8,800.00	8,780.47	8,741.15	8,706.28	31.05	37.38	-97.89	-342.91	-331.97	628.63	565.06	63.57	9.889		
8,900.00	8,880.47	8,842.78	8,807.50	31.40	37.77	-97.48	-339.58	-340.53	636.54	572.25	64.30	9.900		
9,000.00	8,980.47	8,950.99	8,915.33	31.74	38.17	-97.08	-336.11	-348.83	643.76	578.69	65.07	9.893		
9,100.00	9,080.47	9,060.66	9,024.71	32.09	38.58	-96.65	-332.06	-355.61	649.46	583.62	65.84	9.884		
9,200.00	9,180.47	9,168.47	9,132.34	32.44	38.98	-96.29	-328.52	-360.75	653.83	587.24	66.59	9.819		
9,300.00	9,280.47	9,275.47	9,239.25	32.79	39.37	-96.04	-326.04	-364.45	657.01	589.70	67.32	9.760		
9,400.00	9,380.47	9,380.70	9,344.43	33.14	39.74	-95.83	-323.90	-367.10	659.31	591.28	68.03	9.692		
9,500.00	9,480.47	9,484.33	9,448.02	33.48	40.11	-95.64	-321.90	-368.94	660.88	592.15	68.74	9.615		
9,600.00	9,580.47	9,586.69	9,550.35	33.83	40.46	-95.47	-320.00	-370.34	662.06	592.62	69.44	9.535		
9,700.00	9,680.47	9,685.84	9,649.47	34.18	40.80	-95.30	-318.16	-371.51	663.06	592.93	70.13	9.454		
9,800.00	9,780.47	9,783.79	9,747.40	34.53	41.14	-95.11	-316.14	-372.95	664.35	593.52	70.83	9.380		
9,900.00	9,880.47	9,884.53	9,848.10	34.88	41.49	-94.91	-313.87	-374.59	665.77	594.25	71.53	9.308		
10,000.00	9,980.47	9,985.95	9,949.48	35.23	41.84	-94.69	-311.45	-376.05	667.00	594.77	72.23	9.234		
10,100.00	10,080.47	10,091.30	10,054.78	35.58	42.17	-94.44	-308.63	-377.06	667.74	594.78	72.96	9.152		
10,200.00	10,180.47	10,196.09	10,159.52	35.93	42.51	-94.16	-305.34	-377.22	667.67	593.98	73.68	9.061		
10,300.00	10,280.47	10,296.43	10,259.81	36.28	42.81	-93.88	-302.08	-377.05	667.26	592.85	74.41	8.967		
10,400.00	10,380.47	10,396.30	10,359.63	36.63	43.11	-93.62	-298.97	-376.81	666.82	591.68	75.14	8.874		
10,500.00	10,480.47	10,494.95	10,458.25	36.98	43.41	-93.42	-296.64	-376.66	666.53	590.67	75.86	8.786		
10,600.00	10,580.47	10,595.19	10,558.48	37.33	43.72	-93.30	-295.28	-376.61	666.39	589.82	76.57	8.703		
10,700.00	10,680.47	10,698.21	10,661.50	37.68	44.02	-93.26	-294.85	-376.16	665.94	588.68	77.26	8.619		
10,800.00	10,780.47	10,798.56	10,761.84	38.03	44.31	-93.28	-295.03	-375.35	665.14	587.16	77.98	8.530		
10,900.00	10,880.47	10,896.50	10,859.78	38.38	44.61	-93.20	-293.98	-374.84	664.56	585.83	78.73	8.441		
10,993.47	10,973.93	10,987.17	10,950.43	38.71	44.88	-93.04	-292.13	-374.72	664.34	584.93	79.41	8.366		
11,000.00	10,980.47	10,993.47	10,956.73	38.73	44.90	-93.03	-292.04	-374.73	664.34	584.89	79.45	8.362		
11,100.00	11,080.47	11,089.84	11,053.09	39.08	45.19	-92.99	-291.54	-375.06	664.65	584.51	80.14	8.293		
11,200.00	11,180.47	11,190.96	11,154.21	39.44	45.49	-93.08	-292.68	-375.63	665.27	584.43	80.85	8.229		
11,300.00	11,280.47	11,294.67	11,257.88	39.79	45.80	-93.29	-295.08	-375.64	665.41	583.85	81.56	8.158		
11,400.00	11,380.47	11,395.70	11,358.84	40.14	46.10	-93.62	-298.89	-375.16	665.16	582.93	82.23	8.089		
11,500.00	11,480.47	11,505.27	11,468.34	40.49	46.44	-93.94	-302.55	-373.90	664.25	581.36	82.89	8.013		
11,600.00	11,580.47	11,602.29	11,565.31	40.84	46.74	-94.15	-304.83	-372.29	662.76	579.21	83.55	7.932		
11,684.83	11,665.29	11,678.83	11,641.79	41.14	46.96	-94.40	-307.77	-371.59	662.22	578.12	84.11	7.874		
11,700.00	11,680.47	11,692.57	11,655.52	41.19	47.00	-94.46	-308.41	-371.56	662.24	578.04	84.21	7.865		
11,800.00	11,780.47	11,793.00	11,755.85	41.55	47.29	-94.84	-312.85	-371.46	662.51	577.63	84.88	7.805		

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

1/14/2020 2:00:30PM

Page 4

COMPASS 5000.14 Build 85F



Anticollision Report

TITUS
OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Grevey Com - 211H - OH - Surveys													Offset Site Error:	1.00 usft
Survey Program: 171-MWD+HRGM													Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis			Distance				Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
11,900.00	11,880.47	11,907.71	11,870.53	41.90	47.65	-95.03	-314.89	-369.93	661.30	575.74	85.55	7.730		
12,000.00	11,980.47	12,008.70	11,971.49	42.25	47.96	-95.12	-315.74	-367.70	659.17	572.96	86.22	7.646		
12,100.00	12,080.47	12,109.15	12,071.91	42.60	48.25	-95.23	-316.77	-365.32	656.90	570.02	86.88	7.561		
12,200.00	12,180.47	12,214.39	12,177.09	42.96	48.57	-95.40	-318.49	-362.58	654.47	566.94	87.54	7.477		
12,300.00	12,280.10	12,324.25	12,286.16	43.30	49.01	-96.70	-328.67	-357.25	651.32	563.18	88.14	7.389		
12,341.59	12,320.90	12,357.00	12,317.93	43.43	49.17	-97.96	-336.19	-354.71	650.44	562.04	88.39	7.358		
12,400.00	12,377.00	12,392.64	12,351.97	43.62	49.39	-99.50	-346.39	-352.15	651.79	563.01	88.79	7.341 SF		
12,500.00	12,468.22	12,451.00	12,406.28	43.90	49.76	-101.93	-367.59	-350.19	664.84	575.47	89.37	7.439		
12,600.00	12,551.01	12,465.81	12,419.72	44.13	49.87	-100.37	-373.80	-350.03	691.19	601.81	89.38	7.733		
12,700.00	12,622.83	12,490.28	12,441.64	44.31	50.06	-97.99	-384.69	-349.69	731.70	642.22	89.48	8.178		
12,800.00	12,681.52	12,499.72	12,449.99	44.45	50.13	-92.63	-389.09	-349.55	784.33	694.95	89.39	8.775		
12,900.00	12,725.27	12,497.48	12,448.01	44.59	50.12	-84.59	-388.04	-349.58	846.06	756.82	89.24	9.481		
13,000.00	12,752.78	12,486.29	12,438.09	44.73	50.03	-74.72	-382.86	-349.75	913.26	824.14	89.12	10.247		
13,100.00	12,763.19	12,451.00	12,406.28	44.87	49.76	-63.30	-367.59	-350.19	982.79	894.28	88.51	11.103		
13,200.00	12,762.53	12,451.00	12,406.28	45.01	49.76	-62.07	-367.59	-350.19	1,053.03	963.81	89.22	11.803		
13,300.00	12,761.67	12,451.00	12,406.28	45.19	49.76	-62.07	-367.59	-350.19	1,127.71	1,037.87	89.84	12.552		
13,400.00	12,760.82	12,451.00	12,406.28	45.41	49.76	-62.07	-367.59	-350.19	1,206.06	1,115.67	90.39	13.343		
13,500.00	12,759.96	12,412.37	12,370.56	45.67	49.51	-59.67	-352.95	-351.18	1,285.43	1,195.37	90.06	14.273		
13,600.00	12,759.11	12,402.46	12,361.25	45.96	49.45	-59.07	-349.58	-351.63	1,368.16	1,277.83	90.33	15.146		
13,700.00	12,758.25	12,393.40	12,352.69	46.28	49.39	-58.53	-346.64	-352.11	1,452.83	1,362.25	90.58	16.040		
13,800.00	12,757.40	12,357.00	12,317.93	46.64	49.17	-56.44	-336.19	-354.71	1,540.17	1,449.89	90.28	17.061		
13,900.00	12,756.54	12,357.00	12,317.93	47.03	49.17	-56.44	-336.19	-354.71	1,627.43	1,536.78	90.65	17.953		
14,000.00	12,755.69	12,357.00	12,317.93	47.45	49.17	-56.44	-336.19	-354.71	1,716.09	1,625.11	90.98	18.862		
14,100.00	12,754.83	12,357.00	12,317.93	47.91	49.17	-56.44	-336.19	-354.71	1,805.93	1,714.65	91.28	19.785		
14,200.00	12,753.97	12,357.00	12,317.93	48.39	49.17	-56.44	-336.19	-354.71	1,896.79	1,805.25	91.54	20.721		
14,300.00	12,753.12	12,357.00	12,317.93	48.91	49.17	-56.44	-336.19	-354.71	1,988.52	1,896.75	91.77	21.668		
14,400.00	12,752.26	12,357.00	12,317.93	49.45	49.17	-56.44	-336.19	-354.71	2,081.02	1,989.04	91.98	22.624		
14,500.00	12,751.41	12,357.00	12,317.93	50.03	49.17	-56.44	-336.19	-354.71	2,174.18	2,082.01	92.17	23.588		
14,600.00	12,750.55	12,333.77	12,295.44	50.63	49.06	-55.15	-330.67	-356.57	2,267.40	2,175.26	92.14	24.608		
14,700.00	12,749.70	12,328.80	12,290.61	51.25	49.03	-54.88	-329.61	-356.93	2,361.41	2,269.15	92.27	25.593		
14,800.00	12,748.84	12,310.00	12,272.20	51.90	48.94	-53.85	-325.96	-358.19	2,456.05	2,363.79	92.27	26.619		
14,900.00	12,747.99	12,310.00	12,272.20	52.58	48.94	-53.85	-325.96	-358.19	2,550.78	2,458.36	92.42	27.600		
15,000.00	12,747.13	12,310.00	12,272.20	53.28	48.94	-53.85	-325.96	-358.19	2,645.90	2,553.34	92.56	28.586		
15,100.00	12,746.28	12,310.00	12,272.20	54.00	48.94	-53.85	-325.96	-358.19	2,741.36	2,648.67	92.69	29.575		
15,200.00	12,745.42	12,310.00	12,272.20	54.75	48.94	-53.85	-325.96	-358.19	2,837.14	2,744.32	92.81	30.568		
15,300.00	12,744.57	12,310.00	12,272.20	55.51	48.94	-53.85	-325.96	-358.19	2,933.20	2,840.27	92.93	31.563		
15,400.00	12,743.71	12,310.00	12,272.20	56.30	48.94	-53.85	-325.96	-358.19	3,029.51	2,936.47	93.04	32.561		
15,500.00	12,742.86	12,310.00	12,272.20	57.10	48.94	-53.85	-325.96	-358.19	3,126.06	3,032.91	93.15	33.561		
15,600.00	12,742.00	12,310.00	12,272.20	57.92	48.94	-53.85	-325.96	-358.19	3,222.81	3,129.57	93.25	34.563		
15,700.00	12,741.15	12,310.00	12,272.20	58.76	48.94	-53.85	-325.96	-358.19	3,319.76	3,226.42	93.34	35.566		
15,800.00	12,740.29	12,310.00	12,272.20	59.62	48.94	-53.85	-325.96	-358.19	3,416.88	3,323.45	93.43	36.570		
15,900.00	12,739.44	12,310.00	12,272.20	60.50	48.94	-53.85	-325.96	-358.19	3,514.17	3,420.65	93.52	37.576		
16,000.00	12,738.58	12,310.00	12,272.20	61.38	48.94	-53.85	-325.96	-358.19	3,611.60	3,517.99	93.61	38.582		
16,100.00	12,737.73	12,310.00	12,272.20	62.29	48.94	-53.85	-325.96	-358.19	3,709.17	3,615.48	93.69	39.589		
16,200.00	12,736.87	12,310.00	12,272.20	63.21	48.94	-53.85	-325.96	-358.19	3,806.87	3,713.09	93.77	40.596		
16,300.00	12,736.02	12,310.00	12,272.20	64.14	48.94	-53.85	-325.96	-358.19	3,904.68	3,810.83	93.85	41.604		
16,400.00	12,735.16	12,310.00	12,272.20	65.08	48.94	-53.85	-325.96	-358.19	4,002.60	3,908.67	93.93	42.611		
16,500.00	12,734.31	12,310.00	12,272.20	66.04	48.94	-53.85	-325.96	-358.19	4,100.62	4,006.62	94.01	43.619		
16,600.00	12,733.45	12,287.56	12,250.05	67.01	48.84	-52.65	-322.62	-359.49	4,198.02	4,104.04	93.98	44.670		
16,700.00	12,732.59	12,286.53	12,249.03	67.99	48.84	-52.60	-322.50	-359.54	4,296.15	4,202.10	94.05	45.679		
16,800.00	12,731.74	12,285.54	12,248.05	68.98	48.83	-52.54	-322.39	-359.59	4,394.37	4,300.24	94.12	46.688		
16,900.00	12,730.88	12,263.00	12,225.62	69.98	48.73	-51.36	-320.53	-360.69	4,493.33	4,399.23	94.09	47.753		

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

1/14/2020 2:00:30PM

Page 5

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Grevey Com - 211H - OH - Surveys													Offset Site Error:	1.00 usft
Survey Program: 171-MWD+HRGM													Offset Well Error:	1.00 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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
17,000.00	12,730.03	12,263.00	12,225.62	70.99	48.73	-51.36	-320.53	-360.69	4,591.63	4,497.46	94.17	48.759		
17,100.00	12,729.17	12,263.00	12,225.62	72.02	48.73	-51.36	-320.53	-360.69	4,690.01	4,595.77	94.25	49.764		
17,200.00	12,728.32	12,263.00	12,225.62	73.05	48.73	-51.36	-320.53	-360.69	4,788.46	4,694.14	94.32	50.768		
17,300.00	12,727.46	12,263.00	12,225.62	74.09	48.73	-51.36	-320.53	-360.69	4,886.97	4,792.57	94.40	51.771		
17,400.00	12,726.61	12,263.00	12,225.62	75.13	48.73	-51.36	-320.53	-360.69	4,985.54	4,891.07	94.47	52.774		
17,500.00	12,725.75	12,263.00	12,225.62	76.19	48.73	-51.36	-320.53	-360.69	5,084.16	4,989.62	94.54	53.776		
17,600.00	12,724.90	12,263.00	12,225.62	77.25	48.73	-51.36	-320.53	-360.69	5,182.84	5,088.22	94.62	54.777		
17,700.00	12,724.04	12,263.00	12,225.62	78.32	48.73	-51.36	-320.53	-360.69	5,281.57	5,186.88	94.69	55.777		
17,800.00	12,723.19	12,263.00	12,225.62	79.40	48.73	-51.36	-320.53	-360.69	5,380.34	5,285.58	94.76	56.776		
17,900.00	12,722.33	12,263.00	12,225.62	80.49	48.73	-51.36	-320.53	-360.69	5,479.16	5,384.32	94.84	57.773		
18,000.00	12,721.48	12,263.00	12,225.62	81.58	48.73	-51.36	-320.53	-360.69	5,578.02	5,483.11	94.91	58.770		
18,100.00	12,720.62	12,263.00	12,225.62	82.68	48.73	-51.36	-320.53	-360.69	5,676.92	5,581.93	94.99	59.765		
18,200.00	12,719.77	12,263.00	12,225.62	83.78	48.73	-51.36	-320.53	-360.69	5,775.86	5,680.80	95.06	60.759		
18,300.00	12,718.91	12,263.00	12,225.62	84.89	48.73	-51.36	-320.53	-360.69	5,874.83	5,779.70	95.14	61.752		
18,400.00	12,718.06	12,263.00	12,225.62	86.01	48.73	-51.36	-320.53	-360.69	5,973.84	5,878.63	95.21	62.744		
18,500.00	12,717.20	12,263.00	12,225.62	87.13	48.73	-51.36	-320.53	-360.69	6,072.88	5,977.60	95.29	63.733		
18,600.00	12,716.35	12,263.00	12,225.62	88.25	48.73	-51.36	-320.53	-360.69	6,171.96	6,076.59	95.36	64.722		
18,700.00	12,715.49	12,263.00	12,225.62	89.39	48.73	-51.36	-320.53	-360.69	6,271.06	6,175.62	95.44	65.709		
18,800.00	12,714.64	12,263.00	12,225.62	90.52	48.73	-51.36	-320.53	-360.69	6,370.19	6,274.67	95.51	66.694		
18,900.00	12,713.78	12,263.00	12,225.62	91.66	48.73	-51.36	-320.53	-360.69	6,469.34	6,373.75	95.59	67.678		
19,000.00	12,712.93	12,263.00	12,225.62	92.81	48.73	-51.36	-320.53	-360.69	6,568.52	6,472.86	95.67	68.660		
19,100.00	12,712.07	12,263.00	12,225.62	93.96	48.73	-51.36	-320.53	-360.69	6,667.73	6,571.99	95.75	69.640		
19,200.00	12,711.21	12,263.00	12,225.62	95.11	48.73	-51.36	-320.53	-360.69	6,766.96	6,671.14	95.82	70.619		
19,300.00	12,710.36	12,263.00	12,225.62	96.27	48.73	-51.36	-320.53	-360.69	6,866.21	6,770.31	95.90	71.596		
19,400.00	12,709.50	12,263.00	12,225.62	97.43	48.73	-51.36	-320.53	-360.69	6,965.49	6,869.50	95.98	72.571		
19,500.00	12,708.65	12,263.00	12,225.62	98.60	48.73	-51.36	-320.53	-360.69	7,064.78	6,968.72	96.06	73.544		
19,600.00	12,707.79	12,263.00	12,225.62	99.76	48.73	-51.36	-320.53	-360.69	7,164.09	7,067.95	96.14	74.516		
19,700.00	12,706.94	12,263.00	12,225.62	100.94	48.73	-51.36	-320.53	-360.69	7,263.43	7,167.20	96.22	75.485		
19,800.00	12,706.08	12,263.00	12,225.62	102.11	48.73	-51.36	-320.53	-360.69	7,362.78	7,266.47	96.30	76.453		
19,900.00	12,705.23	12,263.00	12,225.62	103.29	48.73	-51.36	-320.53	-360.69	7,462.14	7,365.76	96.39	77.419		
20,000.00	12,704.37	12,263.00	12,225.62	104.47	48.73	-51.36	-320.53	-360.69	7,561.53	7,465.06	96.47	78.382		
20,100.00	12,703.52	12,263.00	12,225.62	105.66	48.73	-51.36	-320.53	-360.69	7,660.93	7,564.38	96.55	79.344		
20,200.00	12,702.66	12,263.00	12,225.62	106.85	48.73	-51.36	-320.53	-360.69	7,760.35	7,663.71	96.64	80.304		
20,300.00	12,701.81	12,263.00	12,225.62	108.04	48.73	-51.36	-320.53	-360.69	7,859.78	7,763.05	96.72	81.262		
20,400.00	12,700.95	12,263.00	12,225.62	109.23	48.73	-51.36	-320.53	-360.69	7,959.22	7,862.41	96.81	82.217		
20,500.00	12,700.10	12,263.00	12,225.62	110.43	48.73	-51.36	-320.53	-360.69	8,058.68	7,961.79	96.89	83.171		
20,600.00	12,699.24	12,263.00	12,225.62	111.62	48.73	-51.36	-320.53	-360.69	8,158.15	8,061.17	96.98	84.122		
20,700.00	12,698.39	12,263.00	12,225.62	112.83	48.73	-51.36	-320.53	-360.69	8,257.64	8,160.57	97.07	85.071		
20,800.00	12,697.53	12,263.00	12,225.62	114.03	48.73	-51.36	-320.53	-360.69	8,357.13	8,259.98	97.16	86.018		
20,900.00	12,696.68	12,263.00	12,225.62	115.23	48.73	-51.36	-320.53	-360.69	8,456.64	8,359.40	97.24	86.963		
21,000.00	12,695.82	12,263.00	12,225.62	116.44	48.73	-51.36	-320.53	-360.69	8,556.16	8,458.83	97.33	87.906		
21,100.00	12,694.97	12,263.00	12,225.62	117.65	48.73	-51.36	-320.53	-360.69	8,655.70	8,558.27	97.42	88.846		
21,200.00	12,694.11	12,263.00	12,225.62	118.87	48.73	-51.36	-320.53	-360.69	8,755.24	8,657.72	97.51	89.785		
21,300.00	12,693.26	12,263.00	12,225.62	120.08	48.73	-51.36	-320.53	-360.69	8,854.79	8,757.18	97.61	90.721		
21,400.00	12,692.40	12,263.00	12,225.62	121.30	48.73	-51.36	-320.53	-360.69	8,954.35	8,856.66	97.70	91.654		
21,500.00	12,691.55	12,263.00	12,225.62	122.51	48.73	-51.36	-320.53	-360.69	9,053.92	8,956.13	97.79	92.586		
21,600.00	12,690.69	12,263.00	12,225.62	123.73	48.73	-51.36	-320.53	-360.69	9,153.51	9,055.62	97.88	93.515		
21,700.00	12,689.83	12,263.00	12,225.62	124.96	48.73	-51.36	-320.53	-360.69	9,253.10	9,155.12	97.98	94.441		
21,800.00	12,688.98	12,263.00	12,225.62	126.18	48.73	-51.36	-320.53	-360.69	9,352.70	9,254.62	98.07	95.366		
21,900.00	12,688.12	12,263.00	12,225.62	127.41	48.73	-51.36	-320.53	-360.69	9,452.30	9,354.14	98.17	96.288		
22,000.00	12,687.27	12,263.00	12,225.62	128.63	48.73	-51.36	-320.53	-360.69	9,551.92	9,453.66	98.26	97.207		
22,100.00	12,686.41	12,263.00	12,225.62	129.86	48.73	-51.36	-320.53	-360.69	9,651.54	9,553.18	98.36	98.125		

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



Anticollision Report

TITUS
OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Grevey Com - 211H - OH - Surveys												Offset Site Error:	1.00 usft
Survey Program: 171-MWD+HRGM												Offset Well Error:	1.00 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
22,200.00	12,685.56	12,263.00	12,225.62	131.09	48.73	-51.36	-320.53	-360.69	9,751.17	9,652.72	98.46	99.039	
22,300.00	12,684.70	12,263.00	12,225.62	132.32	48.73	-51.36	-320.53	-360.69	9,850.81	9,752.26	98.56	99.952	
22,400.00	12,683.85	12,263.00	12,225.62	133.56	48.73	-51.36	-320.53	-360.69	9,950.46	9,851.80	98.65	100.862	
22,500.00	12,682.99	12,263.00	12,225.62	134.79	48.73	-51.36	-320.53	-360.69	10,050.11	9,951.36	98.75	101.769	
22,600.00	12,682.14	12,263.00	12,225.62	136.03	48.73	-51.36	-320.53	-360.69	10,149.77	10,050.92	98.85	102.674	
22,700.00	12,681.28	12,263.00	12,225.62	137.27	48.73	-51.36	-320.53	-360.69	10,249.44	10,150.48	98.95	103.577	
22,800.00	12,680.43	12,263.00	12,225.62	138.50	48.73	-51.36	-320.53	-360.69	10,349.11	10,250.06	99.06	104.477	
22,900.00	12,679.57	12,263.00	12,225.62	139.74	48.73	-51.36	-320.53	-360.69	10,448.79	10,349.63	99.16	105.375	
23,000.00	12,678.72	12,263.00	12,225.62	140.99	48.73	-51.36	-320.53	-360.69	10,548.48	10,449.22	99.26	106.270	
23,084.26	12,678.00	12,263.00	12,225.62	142.03	48.73	-51.36	-320.53	-360.69	10,632.48	10,526.64	105.84	100.456	

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

1/14/2020 2:00:30PM

Page 7

COMPASS 5000.14 Build 85F



Anticollision Report

TITUS

OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 321H - OH - Plan 1 01-14-20														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS														Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)							
0.00	0.00	0.00	0.00	1.00	1.00	-90.37	-0.38	-59.88	59.91						
100.00	100.00	98.00	98.00	1.01	1.01	-90.37	-0.38	-59.88	59.88	57.86	2.02	29.689			
200.00	200.00	198.00	198.00	1.11	1.11	-90.37	-0.38	-59.88	59.88	57.66	2.22	26.922			
300.00	300.00	298.00	298.00	1.31	1.31	-90.37	-0.38	-59.88	59.88	57.26	2.62	22.868			
400.00	400.00	398.00	398.00	1.57	1.56	-90.37	-0.38	-59.88	59.88	56.75	3.13	19.134			
500.00	500.00	498.00	498.00	1.86	1.85	-90.37	-0.38	-59.88	59.88	56.17	3.71	16.143			
600.00	600.00	598.00	598.00	2.17	2.16	-90.37	-0.38	-59.88	59.88	55.55	4.33	13.828			
700.00	700.00	698.00	698.00	2.49	2.49	-90.37	-0.38	-59.88	59.88	54.90	4.98	12.030			
800.00	800.00	798.00	798.00	2.82	2.82	-90.37	-0.38	-59.88	59.88	54.24	5.64	10.615			
900.00	900.00	898.00	898.00	3.16	3.16	-90.37	-0.38	-59.88	59.88	53.56	6.32	9.480			
1,000.00	1,000.00	998.00	998.00	3.50	3.50	-90.37	-0.38	-59.88	59.88	52.88	7.00	8.554			
1,100.00	1,100.00	1,098.00	1,098.00	3.85	3.84	-90.37	-0.38	-59.88	59.88	52.19	7.69	7.787			
1,200.00	1,200.00	1,198.00	1,198.00	4.20	4.19	-90.37	-0.38	-59.88	59.88	51.50	8.38	7.142			
1,300.00	1,300.00	1,298.00	1,298.00	4.54	4.54	-90.37	-0.38	-59.88	59.88	50.80	9.08	6.593			
1,400.00	1,400.00	1,398.00	1,398.00	4.90	4.89	-90.37	-0.38	-59.88	59.88	50.10	9.78	6.121			
1,500.00	1,500.00	1,498.00	1,498.00	5.25	5.24	-90.37	-0.38	-59.88	59.88	49.40	10.49	5.711 CC, ES			
1,600.00	1,599.99	1,597.07	1,597.06	5.58	5.57	137.83	-1.38	-60.61	61.59	50.44	11.16	5.521			
1,700.00	1,699.91	1,695.93	1,695.85	5.91	5.89	137.41	-4.44	-62.84	66.79	54.99	11.80	5.661			
1,800.00	1,799.69	1,794.45	1,794.15	6.24	6.22	136.79	-9.54	-66.57	75.46	63.02	12.45	6.064			
1,900.00	1,899.27	1,892.42	1,891.73	6.58	6.54	136.11	-16.65	-71.75	87.60	74.51	13.09	6.690			
2,000.00	1,998.72	1,991.33	1,990.10	6.92	6.88	135.56	-24.99	-77.84	101.58	87.82	13.76	7.383			
2,100.00	2,098.17	2,090.34	2,088.57	7.27	7.22	135.14	-33.35	-83.94	115.58	101.15	14.43	8.008			
2,200.00	2,197.62	2,189.35	2,187.04	7.61	7.56	134.81	-41.71	-90.04	129.58	114.46	15.11	8.573			
2,300.00	2,297.08	2,288.37	2,285.51	7.97	7.91	134.55	-50.07	-96.14	143.58	127.78	15.80	9.087			
2,400.00	2,396.53	2,387.38	2,383.98	8.32	8.26	134.33	-58.43	-102.23	157.59	141.09	16.49	9.555			
2,500.00	2,495.98	2,486.39	2,482.45	8.68	8.61	134.15	-66.79	-108.33	171.60	154.41	17.19	9.982			
2,600.00	2,595.43	2,585.40	2,580.92	9.04	8.96	133.99	-75.15	-114.43	185.61	167.71	17.89	10.374			
2,700.00	2,694.88	2,684.42	2,679.39	9.40	9.32	133.86	-83.50	-120.53	199.62	181.02	18.60	10.735			
2,800.00	2,794.33	2,783.43	2,777.86	9.76	9.68	133.74	-91.86	-126.63	213.63	194.32	19.30	11.067			
2,900.00	2,893.78	2,882.44	2,876.33	10.13	10.04	133.64	-100.22	-132.73	227.64	207.62	20.01	11.374			
3,000.00	2,993.24	2,981.46	2,974.80	10.49	10.40	133.55	-108.58	-138.83	241.65	220.92	20.73	11.659			
3,100.00	3,092.69	3,080.47	3,073.27	10.86	10.76	133.47	-116.94	-144.93	255.66	234.22	21.44	11.923			
3,200.00	3,192.14	3,179.48	3,171.74	11.23	11.12	133.40	-125.30	-151.02	269.68	247.52	22.16	12.169			
3,300.00	3,291.59	3,278.49	3,270.21	11.60	11.49	133.34	-133.66	-157.12	283.69	260.81	22.88	12.399			
3,400.00	3,391.04	3,377.51	3,368.69	11.97	11.86	133.28	-142.01	-163.22	297.71	274.11	23.60	12.614			
3,500.00	3,490.49	3,476.52	3,467.16	12.34	12.22	133.23	-150.37	-169.32	311.72	287.40	24.32	12.815			
3,600.00	3,589.94	3,575.53	3,565.63	12.71	12.59	133.18	-158.73	-175.42	325.74	300.69	25.05	13.004			
3,700.00	3,689.40	3,674.54	3,664.10	13.08	12.96	133.13	-167.09	-181.52	339.75	313.98	25.77	13.182			
3,800.00	3,788.85	3,773.56	3,762.57	13.46	13.33	133.09	-175.45	-187.62	353.77	327.27	26.50	13.349			
3,900.00	3,888.30	3,872.57	3,861.04	13.83	13.70	133.05	-183.81	-193.72	367.78	340.55	27.23	13.507			
4,000.00	3,987.75	3,971.58	3,959.51	14.20	14.07	133.02	-192.17	-199.81	381.80	353.84	27.96	13.656			
4,100.00	4,087.20	4,070.59	4,057.98	14.58	14.44	132.99	-200.52	-205.91	395.81	367.12	28.69	13.797			
4,200.00	4,186.65	4,169.61	4,156.45	14.95	14.81	132.96	-208.88	-212.01	409.83	380.41	29.42	13.931			
4,300.00	4,286.10	4,268.62	4,254.92	15.33	15.18	132.93	-217.24	-218.11	423.84	393.69	30.15	14.058			
4,400.00	4,385.56	4,367.63	4,353.39	15.70	15.55	132.90	-225.60	-224.21	437.86	406.98	30.88	14.178			
4,500.00	4,485.01	4,466.65	4,451.86	16.08	15.93	132.88	-233.96	-230.31	451.88	420.26	31.62	14.293			
4,600.00	4,584.46	4,565.66	4,550.33	16.46	16.30	132.85	-242.32	-236.41	465.89	433.54	32.35	14.402			
4,700.00	4,683.91	4,671.93	4,656.12	16.83	16.70	132.92	-250.48	-242.36	479.30	446.17	33.13	14.465			
4,800.00	4,783.36	4,780.26	4,764.20	17.21	17.09	133.25	-256.39	-246.67	490.90	456.98	33.92	14.472			
4,900.00	4,882.81	4,888.87	4,872.72	17.59	17.48	133.83	-259.82	-249.18	500.67	465.98	34.69	14.432			
5,000.00	4,982.26	4,996.42	4,980.26	17.97	17.85	134.65	-260.78	-249.88	508.69	473.26	35.43	14.356			
5,100.00	5,081.72	5,095.87	5,079.72	18.34	18.18	135.47	-260.78	-249.88	516.12	479.98	36.14	14.283			

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

1/14/2020 2:00:30PM

Page 8

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
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Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 321H - OH - Plan 1 01-14-20													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS													Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis			Distance				Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
5,200.00	5,181.17	5,195.33	5,179.17	18.72	18.51	136.27	-260.78	-249.88	523.64	486.81	36.84	14.216		
5,300.00	5,280.76	5,294.92	5,278.76	19.10	18.84	137.01	-260.78	-249.88	530.20	492.67	37.53	14.126		
5,400.00	5,380.55	5,394.71	5,378.55	19.46	19.17	137.53	-260.78	-249.88	534.91	496.68	38.23	13.992		
5,500.00	5,480.48	5,494.63	5,478.48	19.82	19.51	137.83	-260.78	-249.88	537.71	498.78	38.92	13.815		
5,600.00	5,580.47	5,594.62	5,578.47	20.16	19.84	-90.41	-260.78	-249.88	538.57	498.97	39.60	13.600		
5,700.00	5,680.47	5,694.62	5,678.47	20.49	20.18	-90.41	-260.78	-249.88	538.57	498.30	40.27	13.373		
5,800.00	5,780.47	5,794.62	5,778.47	20.82	20.52	-90.41	-260.78	-249.88	538.57	497.63	40.94	13.154		
5,900.00	5,880.47	5,894.62	5,878.47	21.15	20.85	-90.41	-260.78	-249.88	538.57	496.96	41.62	12.941		
6,000.00	5,980.47	5,994.62	5,978.47	21.49	21.19	-90.41	-260.78	-249.88	538.57	496.28	42.29	12.734		
6,100.00	6,080.47	6,094.62	6,078.47	21.82	21.53	-90.41	-260.78	-249.88	538.57	495.60	42.97	12.534		
6,200.00	6,180.47	6,194.62	6,178.47	22.16	21.87	-90.41	-260.78	-249.88	538.57	494.93	43.65	12.339		
6,300.00	6,280.47	6,294.62	6,278.47	22.49	22.21	-90.41	-260.78	-249.88	538.57	494.25	44.33	12.150		
6,400.00	6,380.47	6,394.62	6,378.47	22.83	22.55	-90.41	-260.78	-249.88	538.57	493.57	45.01	11.966		
6,500.00	6,480.47	6,494.62	6,478.47	23.17	22.89	-90.41	-260.78	-249.88	538.57	492.88	45.69	11.788		
6,600.00	6,580.47	6,594.62	6,578.47	23.50	23.24	-90.41	-260.78	-249.88	538.57	492.20	46.37	11.614		
6,700.00	6,680.47	6,694.62	6,678.47	23.84	23.58	-90.41	-260.78	-249.88	538.57	491.52	47.06	11.445		
6,800.00	6,780.47	6,794.62	6,778.47	24.18	23.92	-90.41	-260.78	-249.88	538.57	490.83	47.74	11.281		
6,900.00	6,880.47	6,894.62	6,878.47	24.52	24.26	-90.41	-260.78	-249.88	538.57	490.15	48.43	11.122		
7,000.00	6,980.47	6,994.62	6,978.47	24.86	24.61	-90.41	-260.78	-249.88	538.57	489.46	49.11	10.966		
7,100.00	7,080.47	7,094.62	7,078.47	25.20	24.95	-90.41	-260.78	-249.88	538.57	488.77	49.80	10.815		
7,200.00	7,180.47	7,194.62	7,178.47	25.54	25.30	-90.41	-260.78	-249.88	538.57	488.09	50.49	10.668		
7,300.00	7,280.47	7,294.62	7,278.47	25.88	25.64	-90.41	-260.78	-249.88	538.57	487.40	51.18	10.524		
7,400.00	7,380.47	7,394.62	7,378.47	26.22	25.99	-90.41	-260.78	-249.88	538.57	486.71	51.87	10.384		
7,500.00	7,480.47	7,494.62	7,478.47	26.57	26.33	-90.41	-260.78	-249.88	538.57	486.02	52.56	10.248		
7,600.00	7,580.47	7,594.62	7,578.47	26.91	26.68	-90.41	-260.78	-249.88	538.57	485.33	53.25	10.115		
7,700.00	7,680.47	7,694.62	7,678.47	27.25	27.03	-90.41	-260.78	-249.88	538.57	484.63	53.94	9.985		
7,800.00	7,780.47	7,794.62	7,778.47	27.60	27.37	-90.41	-260.78	-249.88	538.57	483.94	54.63	9.858		
7,900.00	7,880.47	7,894.62	7,878.47	27.94	27.72	-90.41	-260.78	-249.88	538.57	483.25	55.32	9.735		
8,000.00	7,980.47	7,994.62	7,978.47	28.28	28.07	-90.41	-260.78	-249.88	538.57	482.56	56.02	9.614		
8,100.00	8,080.47	8,094.62	8,078.47	28.63	28.41	-90.41	-260.78	-249.88	538.57	481.86	56.71	9.497		
8,200.00	8,180.47	8,194.62	8,178.47	28.97	28.76	-90.41	-260.78	-249.88	538.57	481.17	57.41	9.382		
8,300.00	8,280.47	8,294.62	8,278.47	29.32	29.11	-90.41	-260.78	-249.88	538.57	480.47	58.10	9.269		
8,400.00	8,380.47	8,394.62	8,378.47	29.66	29.46	-90.41	-260.78	-249.88	538.57	479.78	58.80	9.160		
8,500.00	8,480.47	8,494.62	8,478.47	30.01	29.81	-90.41	-260.78	-249.88	538.57	479.08	59.49	9.053		
8,600.00	8,580.47	8,594.62	8,578.47	30.36	30.16	-90.41	-260.78	-249.88	538.57	478.38	60.19	8.948		
8,700.00	8,680.47	8,694.62	8,678.47	30.70	30.51	-90.41	-260.78	-249.88	538.57	477.69	60.89	8.845		
8,800.00	8,780.47	8,794.62	8,778.47	31.05	30.85	-90.41	-260.78	-249.88	538.57	476.99	61.59	8.745		
8,900.00	8,880.47	8,894.62	8,878.47	31.40	31.20	-90.41	-260.78	-249.88	538.57	476.29	62.28	8.647		
9,000.00	8,980.47	8,994.62	8,978.47	31.74	31.55	-90.41	-260.78	-249.88	538.57	475.59	62.98	8.551		
9,100.00	9,080.47	9,094.62	9,078.47	32.09	31.90	-90.41	-260.78	-249.88	538.57	474.89	63.68	8.457		
9,200.00	9,180.47	9,194.62	9,178.47	32.44	32.25	-90.41	-260.78	-249.88	538.57	474.19	64.38	8.365		
9,300.00	9,280.47	9,294.62	9,278.47	32.79	32.60	-90.41	-260.78	-249.88	538.57	473.49	65.08	8.275		
9,400.00	9,380.47	9,394.62	9,378.47	33.14	32.95	-90.41	-260.78	-249.88	538.57	472.79	65.78	8.187		
9,500.00	9,480.47	9,494.62	9,478.47	33.48	33.31	-90.41	-260.78	-249.88	538.57	472.09	66.48	8.101		
9,600.00	9,580.47	9,594.62	9,578.47	33.83	33.66	-90.41	-260.78	-249.88	538.57	471.39	67.18	8.017		
9,700.00	9,680.47	9,694.62	9,678.47	34.18	34.01	-90.41	-260.78	-249.88	538.57	470.69	67.88	7.934		
9,800.00	9,780.47	9,794.62	9,778.47	34.53	34.36	-90.41	-260.78	-249.88	538.57	469.99	68.58	7.853		
9,900.00	9,880.47	9,894.62	9,878.47	34.88	34.71	-90.41	-260.78	-249.88	538.57	469.29	69.29	7.773		
10,000.00	9,980.47	9,994.62	9,978.47	35.23	35.06	-90.41	-260.78	-249.88	538.57	468.58	69.99	7.695		
10,100.00	10,080.47	10,094.62	10,078.47	35.58	35.41	-90.41	-260.78	-249.88	538.57	467.88	70.69	7.619		
10,200.00	10,180.47	10,194.62	10,178.47	35.93	35.76	-90.41	-260.78	-249.88	538.57	467.18	71.39	7.544		
10,300.00	10,280.47	10,294.62	10,278.47	36.28	36.12	-90.41	-260.78	-249.88	538.57	466.48	72.10	7.470		

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

1/14/2020 2:00:30PM

Page 9

COMPASS 5000.14 Build 85F



Anticollision Report

TITUS

OIL GAS LLC

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Offset Design Love Shack Fed Com - 321H - OH - Plan 1 01-14-20													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS													Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis		Distance						Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	10,380.47	10,394.62	10,378.47	36.63	36.47	-90.41	-260.78	-249.88	538.57	465.77	72.80	7.398		
10,500.00	10,480.47	10,494.62	10,478.47	36.98	36.82	-90.41	-260.78	-249.88	538.57	465.07	73.50	7.327		
10,600.00	10,580.47	10,594.62	10,578.47	37.33	37.17	-90.41	-260.78	-249.88	538.57	464.37	74.21	7.258		
10,700.00	10,680.47	10,694.62	10,678.47	37.68	37.52	-90.41	-260.78	-249.88	538.57	463.66	74.91	7.189		
10,800.00	10,780.47	10,794.62	10,778.47	38.03	37.88	-90.41	-260.78	-249.88	538.57	462.96	75.62	7.122		
10,900.00	10,880.47	10,894.62	10,878.47	38.38	38.23	-90.41	-260.78	-249.88	538.57	462.25	76.32	7.057		
11,000.00	10,980.47	10,994.62	10,978.47	38.73	38.58	-90.41	-260.78	-249.88	538.57	461.55	77.03	6.992		
11,100.00	11,080.47	11,094.62	11,078.47	39.08	38.94	-90.41	-260.78	-249.88	538.57	460.84	77.73	6.929		
11,200.00	11,180.47	11,194.62	11,178.47	39.44	39.29	-90.41	-260.78	-249.88	538.57	460.14	78.44	6.866		
11,300.00	11,280.47	11,294.62	11,278.47	39.79	39.64	-90.41	-260.78	-249.88	538.57	459.43	79.14	6.805		
11,400.00	11,380.47	11,394.62	11,378.47	40.14	39.99	-90.41	-260.78	-249.88	538.57	458.73	79.85	6.745		
11,500.00	11,480.47	11,494.62	11,478.47	40.49	40.35	-90.41	-260.78	-249.88	538.57	458.02	80.55	6.686		
11,600.00	11,580.47	11,594.62	11,578.47	40.84	40.70	-90.41	-260.78	-249.88	538.57	457.32	81.26	6.628		
11,700.00	11,680.47	11,694.62	11,678.47	41.19	41.05	-90.41	-260.78	-249.88	538.57	456.61	81.96	6.571		
11,800.00	11,780.47	11,794.62	11,778.47	41.55	41.41	-90.41	-260.78	-249.88	538.57	455.90	82.67	6.515		
11,900.00	11,880.47	11,894.62	11,878.47	41.90	41.76	-90.41	-260.78	-249.88	538.57	455.20	83.38	6.459		
11,906.20	11,886.67	11,900.83	11,884.67	41.92	41.78	-90.41	-260.78	-249.88	538.57	455.15	83.42	6.456		
12,000.00	11,980.47	11,987.41	11,971.19	42.25	42.09	-90.20	-258.78	-250.21	538.94	454.90	84.05	6.412		
12,100.00	12,080.47	12,072.27	12,054.92	42.60	42.37	-88.80	-245.60	-252.39	541.70	457.08	84.63	6.401		
12,200.00	12,180.47	12,150.00	12,129.12	42.96	42.61	-86.43	-222.94	-256.14	548.11	463.07	85.04	6.446		
12,300.00	12,280.10	12,225.59	12,197.65	43.30	42.83	-82.15	-191.60	-261.33	558.83	473.60	85.24	6.556		
12,400.00	12,377.00	12,300.00	12,260.46	43.62	43.01	-78.59	-152.34	-267.83	572.58	487.36	85.21	6.719		
12,500.00	12,468.22	12,367.44	12,312.50	43.90	43.15	-75.52	-110.08	-274.83	588.18	503.29	84.88	6.929		
12,600.00	12,551.01	12,436.19	12,360.00	44.13	43.27	-72.79	-61.10	-282.94	604.65	520.16	84.49	7.157		
12,700.00	12,622.83	12,500.00	12,398.47	44.31	43.38	-70.56	-10.92	-291.24	621.12	537.10	84.01	7.393		
12,800.00	12,681.52	12,571.00	12,434.34	44.45	43.50	-68.77	49.48	-301.24	636.83	553.04	83.80	7.600		
12,900.00	12,725.27	12,637.64	12,460.88	44.59	43.63	-67.51	109.74	-311.22	651.31	567.60	83.71	7.781		
13,000.00	12,752.78	12,700.00	12,479.14	44.73	43.74	-66.71	168.54	-320.95	664.16	580.32	83.84	7.922		
13,100.00	12,763.19	12,770.69	12,491.87	44.87	43.85	-66.47	237.09	-332.30	675.09	590.79	84.31	8.008		
13,200.00	12,762.53	12,844.06	12,495.94	45.01	43.96	-67.06	309.32	-344.26	686.58	601.74	84.84	8.092		
13,300.00	12,761.67	12,960.12	12,494.94	45.19	44.16	-67.56	424.17	-360.89	698.99	613.67	85.32	8.193		
13,400.00	12,760.82	13,089.03	12,493.84	45.41	44.44	-67.92	552.41	-373.89	707.39	621.56	85.83	8.242		
13,500.00	12,759.96	13,218.74	12,492.73	45.67	44.77	-68.10	681.90	-381.14	711.62	625.24	86.38	8.239		
13,600.00	12,759.11	13,333.97	12,491.75	45.96	45.11	-68.12	797.10	-383.08	712.15	625.20	86.95	8.191		
13,700.00	12,758.25	13,433.97	12,490.90	46.28	45.44	-68.12	897.10	-384.10	712.14	624.57	87.56	8.133		
13,800.00	12,757.40	13,533.97	12,490.05	46.64	45.80	-68.12	997.09	-385.12	712.13	623.88	88.25	8.069		
13,900.00	12,756.54	13,633.97	12,489.20	47.03	46.20	-68.12	1,097.08	-386.14	712.12	623.12	89.00	8.001		
14,000.00	12,755.69	13,733.97	12,488.35	47.45	46.63	-68.12	1,197.07	-387.16	712.11	622.30	89.81	7.929		
14,100.00	12,754.83	13,833.97	12,487.50	47.91	47.09	-68.12	1,297.06	-388.18	712.10	621.41	90.69	7.852		
14,200.00	12,753.97	13,933.97	12,486.64	48.39	47.59	-68.12	1,397.05	-389.20	712.09	620.47	91.62	7.772		
14,300.00	12,753.12	14,033.97	12,485.79	48.91	48.11	-68.12	1,497.04	-390.23	712.08	619.46	92.62	7.688		
14,400.00	12,752.26	14,133.97	12,484.94	49.45	48.66	-68.12	1,597.03	-391.25	712.07	618.40	93.67	7.602		
14,500.00	12,751.41	14,233.97	12,484.09	50.03	49.25	-68.12	1,697.02	-392.27	712.06	617.29	94.77	7.514		
14,600.00	12,750.55	14,333.97	12,483.24	50.63	49.85	-68.12	1,797.02	-393.29	712.05	616.12	95.92	7.423		
14,700.00	12,749.70	14,433.97	12,482.39	51.25	50.49	-68.12	1,897.01	-394.31	712.04	614.91	97.13	7.331		
14,800.00	12,748.84	14,533.97	12,481.54	51.90	51.15	-68.12	1,997.00	-395.33	712.03	613.64	98.39	7.237		
14,900.00	12,747.99	14,633.97	12,480.69	52.58	51.84	-68.12	2,096.99	-396.35	712.02	612.33	99.69	7.142		
15,000.00	12,747.13	14,733.97	12,479.84	53.28	52.55	-68.12	2,196.98	-397.37	712.01	610.97	101.04	7.047		
15,100.00	12,746.28	14,833.97	12,478.99	54.00	53.28	-68.12	2,296.97	-398.40	712.00	609.57	102.43	6.951		
15,200.00	12,745.42	14,933.97	12,478.13	54.75	54.04	-68.12	2,396.96	-399.42	711.99	608.13	103.86	6.855		
15,300.00	12,744.57	15,033.97	12,477.28	55.51	54.81	-68.12	2,496.95	-400.44	711.98	606.65	105.33	6.760		
15,400.00	12,743.71	15,133.97	12,476.43	56.30	55.61	-68.12	2,596.95	-401.46	711.97	605.13	106.84	6.664		

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

1/14/2020 2:00:30PM

Page 10

COMPASS 5000.14 Build 85F



Anticollision Report

TITUS
OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 321H - OH - Plan 1 01-14-20												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS												Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
15,500.00	12,742.86	15,233.97	12,475.58	57.10	56.42	-68.12	2,696.94	-402.48	711.96	603.57	108.39	6.569	
15,600.00	12,742.00	15,333.97	12,474.73	57.92	57.26	-68.12	2,796.93	-403.50	711.95	601.98	109.97	6.474	
15,700.00	12,741.15	15,433.97	12,473.88	58.76	58.11	-68.12	2,896.92	-404.52	711.94	600.36	111.58	6.380	
15,800.00	12,740.29	15,533.97	12,473.03	59.62	58.97	-68.12	2,996.91	-405.54	711.93	598.70	113.23	6.287	
15,900.00	12,739.44	15,633.97	12,472.18	60.50	59.86	-68.12	3,096.90	-406.56	711.92	597.01	114.91	6.196	
16,000.00	12,738.58	15,733.97	12,471.33	61.38	60.76	-68.12	3,196.89	-407.59	711.91	595.29	116.62	6.105	
16,100.00	12,737.73	15,833.97	12,470.47	62.29	61.67	-68.12	3,296.88	-408.61	711.90	593.55	118.35	6.015	
16,200.00	12,736.87	15,933.97	12,469.62	63.21	62.60	-68.12	3,396.87	-409.63	711.89	591.78	120.11	5.927	
16,300.00	12,736.02	16,033.97	12,468.77	64.14	63.54	-68.12	3,496.87	-410.65	711.88	589.98	121.90	5.840	
16,400.00	12,735.16	16,133.97	12,467.92	65.08	64.49	-68.12	3,596.86	-411.67	711.87	588.15	123.72	5.754	
16,500.00	12,734.31	16,233.97	12,467.07	66.04	65.46	-68.12	3,696.85	-412.69	711.86	586.31	125.55	5.670	
16,600.00	12,733.45	16,333.97	12,466.22	67.01	66.44	-68.12	3,796.84	-413.71	711.85	584.44	127.41	5.587	
16,700.00	12,732.59	16,433.97	12,465.37	67.99	67.43	-68.12	3,896.83	-414.73	711.84	582.55	129.29	5.506	
16,800.00	12,731.74	16,533.97	12,464.52	68.98	68.43	-68.12	3,996.82	-415.76	711.83	580.64	131.19	5.426	
16,900.00	12,730.88	16,633.97	12,463.67	69.98	69.44	-68.12	4,096.81	-416.78	711.82	578.70	133.12	5.347	
17,000.00	12,730.03	16,733.97	12,462.82	70.99	70.46	-68.12	4,196.80	-417.80	711.81	576.75	135.06	5.270	
17,100.00	12,729.17	16,833.97	12,461.96	72.02	71.49	-68.12	4,296.79	-418.82	711.80	574.79	137.01	5.195	
17,200.00	12,728.32	16,933.97	12,461.11	73.05	72.52	-68.12	4,396.79	-419.84	711.79	572.80	138.99	5.121	
17,300.00	12,727.46	17,033.97	12,460.26	74.09	73.57	-68.12	4,496.78	-420.86	711.78	570.80	140.98	5.049	
17,400.00	12,726.61	17,133.97	12,459.41	75.13	74.63	-68.12	4,596.77	-421.88	711.77	568.78	142.99	4.978	
17,500.00	12,725.75	17,233.97	12,458.56	76.19	75.69	-68.12	4,696.76	-422.90	711.76	566.75	145.01	4.908	
17,600.00	12,724.90	17,333.97	12,457.71	77.25	76.76	-68.12	4,796.75	-423.93	711.75	564.70	147.05	4.840	
17,700.00	12,724.04	17,433.97	12,456.86	78.32	77.84	-68.12	4,896.74	-424.95	711.74	562.64	149.11	4.773	
17,800.00	12,723.19	17,533.97	12,456.01	79.40	78.93	-68.12	4,996.73	-425.97	711.73	560.56	151.17	4.708	
17,900.00	12,722.33	17,633.97	12,455.16	80.49	80.02	-68.12	5,096.72	-426.99	711.72	558.47	153.25	4.644	
18,000.00	12,721.48	17,733.97	12,454.30	81.58	81.12	-68.12	5,196.72	-428.01	711.71	556.37	155.34	4.582	
18,100.00	12,720.62	17,833.97	12,453.45	82.68	82.22	-68.12	5,296.71	-429.03	711.70	554.26	157.44	4.520	
18,200.00	12,719.77	17,933.97	12,452.60	83.78	83.33	-68.12	5,396.70	-430.05	711.69	552.13	159.56	4.460	
18,300.00	12,718.91	18,033.97	12,451.75	84.89	84.45	-68.12	5,496.69	-431.07	711.68	550.00	161.68	4.402	
18,400.00	12,718.06	18,133.97	12,450.90	86.01	85.57	-68.12	5,596.68	-432.10	711.67	547.85	163.82	4.344	
18,500.00	12,717.20	18,233.97	12,450.05	87.13	86.70	-68.12	5,696.67	-433.12	711.66	545.70	165.97	4.288	
18,600.00	12,716.35	18,333.97	12,449.20	88.25	87.83	-68.12	5,796.66	-434.14	711.65	543.53	168.12	4.233	
18,700.00	12,715.49	18,433.97	12,448.35	89.39	88.97	-68.12	5,896.65	-435.16	711.64	541.35	170.29	4.179	
18,800.00	12,714.64	18,533.97	12,447.50	90.52	90.11	-68.12	5,996.64	-436.18	711.63	539.17	172.46	4.126	
18,900.00	12,713.78	18,633.97	12,446.65	91.66	91.26	-68.12	6,096.64	-437.20	711.62	536.98	174.64	4.075	
19,000.00	12,712.93	18,733.97	12,445.79	92.81	92.41	-68.12	6,196.63	-438.22	711.61	534.78	176.84	4.024	
19,100.00	12,712.07	18,833.97	12,444.94	93.96	93.56	-68.12	6,296.62	-439.24	711.60	532.57	179.04	3.975	
19,200.00	12,711.21	18,933.97	12,444.09	95.11	94.72	-68.12	6,396.61	-440.26	711.59	530.35	181.24	3.926	
19,300.00	12,710.36	19,033.97	12,443.24	96.27	95.88	-68.12	6,496.60	-441.29	711.58	528.12	183.46	3.879	
19,400.00	12,709.50	19,133.97	12,442.39	97.43	97.05	-68.12	6,596.59	-442.31	711.57	525.89	185.68	3.832	
19,500.00	12,708.65	19,233.97	12,441.54	98.60	98.22	-68.12	6,696.58	-443.33	711.56	523.65	187.91	3.787	
19,600.00	12,707.79	19,333.97	12,440.69	99.76	99.40	-68.12	6,796.57	-444.35	711.55	521.41	190.14	3.742	
19,700.00	12,706.94	19,433.97	12,439.84	100.94	100.57	-68.12	6,896.57	-445.37	711.54	519.15	192.39	3.698	
19,800.00	12,706.08	19,533.97	12,438.99	102.11	101.75	-68.12	6,996.56	-446.39	711.53	516.90	194.64	3.656	
19,900.00	12,705.23	19,633.97	12,438.13	103.29	102.94	-68.12	7,096.55	-447.41	711.52	514.63	196.89	3.614	
20,000.00	12,704.37	19,733.97	12,437.28	104.47	104.12	-68.12	7,196.54	-448.43	711.51	512.36	199.15	3.573	
20,100.00	12,703.52	19,833.97	12,436.43	105.66	105.31	-68.12	7,296.53	-449.46	711.50	510.09	201.42	3.532	
20,200.00	12,702.66	19,933.97	12,435.58	106.85	106.50	-68.12	7,396.52	-450.48	711.49	507.80	203.69	3.493	
20,300.00	12,701.81	20,033.97	12,434.73	108.04	107.70	-68.12	7,496.51	-451.50	711.48	505.52	205.97	3.454	
20,400.00	12,700.95	20,133.97	12,433.88	109.23	108.90	-68.13	7,596.50	-452.52	711.47	503.23	208.25	3.416	
20,500.00	12,700.10	20,233.97	12,433.03	110.43	110.10	-68.13	7,696.49	-453.54	711.46	500.93	210.53	3.379	
20,600.00	12,699.24	20,333.97	12,432.18	111.62	111.30	-68.13	7,796.49	-454.56	711.45	498.63	212.83	3.343	

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

1/14/2020 2:00:30PM

Page 11

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 321H - OH - Plan 1 01-14-20													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM+MS													Offset Well Error: 1.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
20,700.00	12,698.39	20,433.97	12,431.33	112.83	112.50	-68.13	7,896.48	-455.58	711.44	496.32	215.12	3.307		
20,800.00	12,697.53	20,533.97	12,430.48	114.03	113.71	-68.13	7,996.47	-456.60	711.43	494.01	217.42	3.272		
20,900.00	12,696.68	20,633.97	12,429.62	115.23	114.92	-68.13	8,096.46	-457.63	711.42	491.69	219.73	3.238		
21,000.00	12,695.82	20,733.97	12,428.77	116.44	116.13	-68.13	8,196.45	-458.65	711.41	489.38	222.04	3.204		
21,100.00	12,694.97	20,833.97	12,427.92	117.65	117.35	-68.13	8,296.44	-459.67	711.40	487.05	224.35	3.171		
21,200.00	12,694.11	20,933.97	12,427.07	118.87	118.56	-68.13	8,396.43	-460.69	711.39	484.72	226.67	3.138		
21,300.00	12,693.26	21,033.97	12,426.22	120.08	119.78	-68.13	8,496.42	-461.71	711.38	482.39	228.99	3.107		
21,400.00	12,692.40	21,133.97	12,425.37	121.30	121.00	-68.13	8,596.42	-462.73	711.37	480.06	231.31	3.075		
21,500.00	12,691.55	21,233.97	12,424.52	122.51	122.22	-68.13	8,696.41	-463.75	711.36	477.72	233.64	3.045		
21,600.00	12,690.69	21,333.97	12,423.67	123.73	123.45	-68.13	8,796.40	-464.77	711.35	475.38	235.98	3.015		
21,700.00	12,689.83	21,433.97	12,422.82	124.96	124.67	-68.13	8,896.39	-465.80	711.34	473.03	238.31	2.985		
21,800.00	12,688.98	21,533.97	12,421.96	126.18	125.90	-68.13	8,996.38	-466.82	711.33	470.68	240.65	2.956		
21,900.00	12,688.12	21,633.97	12,421.11	127.41	127.13	-68.13	9,096.37	-467.84	711.32	468.33	242.99	2.927		
22,000.00	12,687.27	21,733.97	12,420.26	128.63	128.36	-68.13	9,196.36	-468.86	711.31	465.98	245.34	2.899		
22,100.00	12,686.41	21,833.97	12,419.41	129.86	129.59	-68.13	9,296.35	-469.88	711.30	463.62	247.68	2.872		
22,200.00	12,685.56	21,933.97	12,418.56	131.09	130.82	-68.13	9,396.34	-470.90	711.29	461.26	250.04	2.845		
22,300.00	12,684.70	22,033.97	12,417.71	132.32	132.06	-68.13	9,496.34	-471.92	711.28	458.89	252.39	2.818		
22,400.00	12,683.85	22,133.97	12,416.86	133.56	133.29	-68.13	9,596.33	-472.94	711.27	456.53	254.75	2.792		
22,500.00	12,682.99	22,233.97	12,416.01	134.79	134.53	-68.13	9,696.32	-473.97	711.26	454.16	257.11	2.766		
22,600.00	12,682.14	22,333.97	12,415.16	136.03	135.77	-68.13	9,796.31	-474.99	711.25	451.79	259.47	2.741		
22,700.00	12,681.28	22,433.97	12,414.31	137.27	137.01	-68.13	9,896.30	-476.01	711.24	449.41	261.83	2.716		
22,800.00	12,680.43	22,533.97	12,413.45	138.50	138.25	-68.13	9,996.29	-477.03	711.23	447.03	264.20	2.692		
22,900.00	12,679.57	22,633.97	12,412.60	139.74	139.49	-68.13	10,096.28	-478.05	711.22	444.65	266.57	2.668		
23,000.00	12,678.72	22,733.97	12,411.75	140.99	140.74	-68.13	10,196.27	-479.07	711.21	442.27	268.94	2.645		
23,084.26	12,678.00	22,818.23	12,411.03	142.03	141.77	-68.13	10,280.53	-479.93	711.21	440.29	270.92	2.625 SF		

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

1/14/2020 2:00:30PM

Page 12

COMPASS 5000.14 Build 85F



Anticollision Report

TITUS

OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 511H - OH - Plan 1 01-14-20													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM+MS													Offset Well Error: 1.00 usft	
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	1.00	1.00	-90.30	-0.15	-29.91	29.91					
100.00	100.00	100.00	100.00	1.01	1.01	-90.30	-0.15	-29.91	29.91	27.89	2.02	14.826		
200.00	200.00	200.00	200.00	1.11	1.11	-90.30	-0.15	-29.91	29.91	27.68	2.23	13.427		
300.00	300.00	300.00	300.00	1.31	1.31	-90.30	-0.15	-29.91	29.91	27.28	2.62	11.401		
400.00	400.00	400.00	400.00	1.57	1.57	-90.30	-0.15	-29.91	29.91	26.77	3.14	9.540		
500.00	500.00	500.00	500.00	1.86	1.86	-90.30	-0.15	-29.91	29.91	26.19	3.72	8.050		
600.00	600.00	600.00	600.00	2.17	2.17	-90.30	-0.15	-29.91	29.91	25.57	4.34	6.896		
700.00	700.00	700.00	700.00	2.49	2.49	-90.30	-0.15	-29.91	29.91	24.92	4.98	6.001		
800.00	800.00	800.00	800.00	2.82	2.82	-90.30	-0.15	-29.91	29.91	24.26	5.65	5.295		
900.00	900.00	900.00	900.00	3.16	3.16	-90.30	-0.15	-29.91	29.91	23.58	6.32	4.730		
1,000.00	1,000.00	1,000.00	1,000.00	3.50	3.50	-90.30	-0.15	-29.91	29.91	22.90	7.01	4.268		
1,100.00	1,100.00	1,100.00	1,100.00	3.85	3.85	-90.30	-0.15	-29.91	29.91	22.21	7.70	3.886		
1,200.00	1,200.00	1,200.00	1,200.00	4.20	4.20	-90.30	-0.15	-29.91	29.91	21.52	8.39	3.564		
1,300.00	1,300.00	1,300.00	1,300.00	4.54	4.54	-90.30	-0.15	-29.91	29.91	20.82	9.09	3.290		
1,400.00	1,400.00	1,400.00	1,400.00	4.90	4.90	-90.30	-0.15	-29.91	29.91	20.12	9.79	3.055		
1,500.00	1,500.00	1,500.00	1,500.00	5.25	5.25	-90.30	-0.15	-29.91	29.91	19.42	10.49	2.850 CC, ES		
1,600.00	1,599.99	1,599.71	1,599.70	5.58	5.58	137.38	-1.38	-30.34	31.33	20.16	11.16	2.806		
1,700.00	1,699.91	1,699.30	1,699.21	5.91	5.90	135.72	-5.05	-31.64	35.60	23.79	11.81	3.014		
1,800.00	1,799.69	1,798.64	1,798.33	6.24	6.23	133.68	-11.15	-33.80	42.75	30.29	12.46	3.431		
1,900.00	1,899.27	1,897.59	1,896.88	6.58	6.55	131.74	-19.64	-36.81	52.81	39.70	13.11	4.027		
2,000.00	1,998.72	1,996.90	1,995.63	6.92	6.88	130.30	-29.43	-40.28	64.37	50.59	13.78	4.671		
2,100.00	2,098.17	2,096.21	2,094.41	7.27	7.22	129.30	-39.23	-43.75	75.96	61.51	14.46	5.254		
2,200.00	2,197.62	2,195.53	2,193.18	7.61	7.56	128.56	-49.02	-47.22	87.57	72.43	15.14	5.784		
2,300.00	2,297.08	2,294.85	2,291.95	7.97	7.91	128.00	-58.81	-50.69	99.19	83.36	15.83	6.266		
2,400.00	2,396.53	2,394.17	2,390.73	8.32	8.26	127.56	-68.60	-54.16	110.82	94.29	16.53	6.706		
2,500.00	2,495.98	2,493.49	2,489.50	8.68	8.61	127.20	-78.40	-57.63	122.45	105.22	17.23	7.108		
2,600.00	2,595.43	2,592.81	2,588.28	9.04	8.97	126.90	-88.19	-61.10	134.08	116.15	17.93	7.478		
2,700.00	2,694.88	2,692.13	2,687.05	9.40	9.32	126.65	-97.98	-64.56	145.72	127.08	18.64	7.818		
2,800.00	2,794.33	2,791.44	2,785.82	9.76	9.68	126.44	-107.78	-68.03	157.36	138.01	19.35	8.131		
2,900.00	2,893.78	2,890.76	2,884.60	10.13	10.04	126.25	-117.57	-71.50	169.00	148.94	20.07	8.422		
3,000.00	2,993.24	2,990.08	2,983.37	10.49	10.40	126.09	-127.36	-74.97	180.65	159.86	20.79	8.691		
3,100.00	3,092.69	3,089.40	3,082.14	10.86	10.77	125.95	-137.16	-78.44	192.29	170.79	21.51	8.941		
3,200.00	3,192.14	3,188.72	3,180.92	11.23	11.13	125.83	-146.95	-81.91	203.94	181.71	22.23	9.175		
3,300.00	3,291.59	3,288.04	3,279.69	11.60	11.50	125.72	-156.74	-85.38	215.59	192.63	22.95	9.392		
3,400.00	3,391.04	3,387.36	3,378.46	11.97	11.86	125.62	-166.54	-88.85	227.24	203.56	23.68	9.596		
3,500.00	3,490.49	3,486.67	3,477.24	12.34	12.23	125.53	-176.33	-92.32	238.88	214.48	24.41	9.787		
3,600.00	3,589.94	3,585.99	3,576.01	12.71	12.60	125.44	-186.12	-95.79	250.53	225.40	25.14	9.966		
3,700.00	3,689.40	3,685.31	3,674.79	13.08	12.97	125.37	-195.92	-99.26	262.18	236.31	25.87	10.135		
3,800.00	3,788.85	3,784.63	3,773.56	13.46	13.34	125.30	-205.71	-102.73	273.83	247.23	26.60	10.294		
3,900.00	3,888.30	3,883.95	3,872.33	13.83	13.71	125.24	-215.50	-106.20	285.48	258.15	27.34	10.444		
4,000.00	3,987.75	3,983.27	3,971.11	14.20	14.08	125.18	-225.30	-109.67	297.13	269.06	28.07	10.585		
4,100.00	4,087.20	4,082.59	4,069.88	14.58	14.45	125.13	-235.09	-113.13	308.78	279.98	28.81	10.719		
4,200.00	4,186.65	4,184.19	4,170.96	14.95	14.83	125.13	-244.79	-116.57	320.26	290.70	29.56	10.834		
4,300.00	4,286.10	4,288.39	4,274.84	15.33	15.22	125.49	-252.43	-119.28	330.48	300.16	30.33	10.898		
4,400.00	4,385.56	4,392.72	4,379.04	15.70	15.59	126.24	-257.40	-121.04	339.30	308.21	31.08	10.917		
4,500.00	4,485.01	4,497.04	4,483.33	16.08	15.96	127.36	-259.69	-121.85	346.78	314.95	31.82	10.897		
4,600.00	4,584.46	4,598.18	4,584.46	16.46	16.30	128.70	-259.85	-121.91	353.33	320.79	32.53	10.860		
4,700.00	4,683.91	4,697.63	4,683.91	16.83	16.63	129.99	-259.85	-121.91	359.98	326.75	33.23	10.832		
4,800.00	4,783.36	4,797.08	4,783.36	17.21	16.96	131.24	-259.85	-121.91	366.81	332.88	33.93	10.810		
4,900.00	4,882.81	4,896.53	4,882.81	17.59	17.29	132.44	-259.85	-121.91	373.81	339.18	34.63	10.794		
5,000.00	4,982.26	4,995.98	4,982.26	17.97	17.62	133.60	-259.85	-121.91	380.97	345.64	35.33	10.782		
5,100.00	5,081.72	5,095.43	5,081.72	18.34	17.96	134.72	-259.85	-121.91	388.28	352.24	36.03	10.776		

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

1/14/2020 2:00:30PM

Page 13

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 511H - OH - Plan 1 01-14-20													Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+HDGM+MS													Offset Well Error: 1.00 usft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,181.17	5,194.88	5,181.17	18.72	18.29	135.79	-259.85	-121.91	395.72	358.99	36.73	10.773		
5,300.00	5,280.76	5,294.48	5,280.76	19.10	18.63	136.75	-259.85	-121.91	402.25	364.81	37.43	10.746		
5,400.00	5,380.55	5,394.27	5,380.55	19.46	18.97	137.42	-259.85	-121.91	406.94	368.81	38.13	10.673		
5,500.00	5,480.48	5,494.19	5,480.48	19.82	19.31	137.80	-259.85	-121.91	409.73	370.91	38.82	10.554		
5,600.00	5,580.47	5,594.18	5,580.47	20.16	19.65	-90.41	-259.85	-121.91	410.60	371.09	39.50	10.394		
5,700.00	5,680.47	5,694.18	5,680.47	20.49	19.99	-90.41	-259.85	-121.91	410.60	370.42	40.18	10.219		
5,800.00	5,780.47	5,794.18	5,780.47	20.82	20.33	-90.41	-259.85	-121.91	410.60	369.74	40.85	10.050		
5,900.00	5,880.47	5,894.18	5,880.47	21.15	20.67	-90.41	-259.85	-121.91	410.60	369.07	41.53	9.887		
6,000.00	5,980.47	5,994.18	5,980.47	21.49	21.01	-90.41	-259.85	-121.91	410.60	368.39	42.21	9.728		
6,100.00	6,080.47	6,094.18	6,080.47	21.82	21.35	-90.41	-259.85	-121.91	410.60	367.71	42.89	9.574		
6,200.00	6,180.47	6,194.18	6,180.47	22.16	21.70	-90.41	-259.85	-121.91	410.60	367.03	43.57	9.424		
6,300.00	6,280.47	6,294.18	6,280.47	22.49	22.04	-90.41	-259.85	-121.91	410.60	366.35	44.25	9.279		
6,400.00	6,380.47	6,394.18	6,380.47	22.83	22.39	-90.41	-259.85	-121.91	410.60	365.66	44.93	9.138		
6,500.00	6,480.47	6,494.18	6,480.47	23.17	22.73	-90.41	-259.85	-121.91	410.60	364.98	45.62	9.001		
6,600.00	6,580.47	6,594.18	6,580.47	23.50	23.07	-90.41	-259.85	-121.91	410.60	364.30	46.30	8.868		
6,700.00	6,680.47	6,694.18	6,680.47	23.84	23.42	-90.41	-259.85	-121.91	410.60	363.61	46.99	8.738		
6,800.00	6,780.47	6,794.18	6,780.47	24.18	23.77	-90.41	-259.85	-121.91	410.60	362.92	47.67	8.613		
6,900.00	6,880.47	6,894.18	6,880.47	24.52	24.11	-90.41	-259.85	-121.91	410.60	362.24	48.36	8.490		
7,000.00	6,980.47	6,994.18	6,980.47	24.86	24.46	-90.41	-259.85	-121.91	410.60	361.55	49.05	8.371		
7,100.00	7,080.47	7,094.18	7,080.47	25.20	24.81	-90.41	-259.85	-121.91	410.60	360.86	49.74	8.255		
7,200.00	7,180.47	7,194.18	7,180.47	25.54	25.15	-90.41	-259.85	-121.91	410.60	360.17	50.43	8.142		
7,300.00	7,280.47	7,294.18	7,280.47	25.88	25.50	-90.41	-259.85	-121.91	410.60	359.48	51.12	8.032		
7,400.00	7,380.47	7,394.18	7,380.47	26.22	25.85	-90.41	-259.85	-121.91	410.60	358.79	51.81	7.925		
7,500.00	7,480.47	7,494.18	7,480.47	26.57	26.20	-90.41	-259.85	-121.91	410.60	358.09	52.50	7.820		
7,600.00	7,580.47	7,594.18	7,580.47	26.91	26.55	-90.41	-259.85	-121.91	410.60	357.40	53.20	7.718		
7,700.00	7,680.47	7,694.18	7,680.47	27.25	26.89	-90.41	-259.85	-121.91	410.60	356.71	53.89	7.619		
7,800.00	7,780.47	7,794.18	7,780.47	27.60	27.24	-90.41	-259.85	-121.91	410.60	356.01	54.58	7.522		
7,900.00	7,880.47	7,894.18	7,880.47	27.94	27.59	-90.41	-259.85	-121.91	410.60	355.32	55.28	7.428		
8,000.00	7,980.47	7,994.18	7,980.47	28.28	27.94	-90.41	-259.85	-121.91	410.60	354.62	55.97	7.335		
8,100.00	8,080.47	8,094.18	8,080.47	28.63	28.29	-90.41	-259.85	-121.91	410.60	353.93	56.67	7.245		
8,200.00	8,180.47	8,194.18	8,180.47	28.97	28.64	-90.41	-259.85	-121.91	410.60	353.23	57.37	7.157		
8,300.00	8,280.47	8,294.18	8,280.47	29.32	28.99	-90.41	-259.85	-121.91	410.60	352.53	58.06	7.072		
8,400.00	8,380.47	8,394.18	8,380.47	29.66	29.34	-90.41	-259.85	-121.91	410.60	351.84	58.76	6.988		
8,500.00	8,480.47	8,494.18	8,480.47	30.01	29.69	-90.41	-259.85	-121.91	410.60	351.14	59.46	6.906		
8,600.00	8,580.47	8,594.18	8,580.47	30.36	30.04	-90.41	-259.85	-121.91	410.60	350.44	60.16	6.825		
8,700.00	8,680.47	8,694.18	8,680.47	30.70	30.39	-90.41	-259.85	-121.91	410.60	349.74	60.86	6.747		
8,800.00	8,780.47	8,794.18	8,780.47	31.05	30.74	-90.41	-259.85	-121.91	410.60	349.04	61.55	6.671		
8,900.00	8,880.47	8,894.18	8,880.47	31.40	31.10	-90.41	-259.85	-121.91	410.60	348.34	62.25	6.596		
9,000.00	8,980.47	8,994.18	8,980.47	31.74	31.45	-90.41	-259.85	-121.91	410.60	347.64	62.95	6.522		
9,100.00	9,080.47	9,094.18	9,080.47	32.09	31.80	-90.41	-259.85	-121.91	410.60	346.94	63.65	6.450		
9,200.00	9,180.47	9,194.18	9,180.47	32.44	32.15	-90.41	-259.85	-121.91	410.60	346.24	64.35	6.380		
9,300.00	9,280.47	9,294.18	9,280.47	32.79	32.50	-90.41	-259.85	-121.91	410.60	345.54	65.06	6.312		
9,400.00	9,380.47	9,394.18	9,380.47	33.14	32.85	-90.41	-259.85	-121.91	410.60	344.84	65.76	6.244		
9,500.00	9,480.47	9,494.18	9,480.47	33.48	33.21	-90.41	-259.85	-121.91	410.60	344.14	66.46	6.178		
9,600.00	9,580.47	9,594.18	9,580.47	33.83	33.56	-90.41	-259.85	-121.91	410.60	343.44	67.16	6.114		
9,700.00	9,680.47	9,694.18	9,680.47	34.18	33.91	-90.41	-259.85	-121.91	410.60	342.74	67.86	6.050		
9,800.00	9,780.47	9,794.18	9,780.47	34.53	34.26	-90.41	-259.85	-121.91	410.60	342.03	68.56	5.988		
9,900.00	9,880.47	9,894.18	9,880.47	34.88	34.62	-90.41	-259.85	-121.91	410.60	341.33	69.27	5.928		
10,000.00	9,980.47	9,994.18	9,980.47	35.23	34.97	-90.41	-259.85	-121.91	410.60	340.63	69.97	5.868		
10,100.00	10,080.47	10,094.18	10,080.47	35.58	35.32	-90.41	-259.85	-121.91	410.60	339.92	70.67	5.810		
10,200.00	10,180.47	10,194.18	10,180.47	35.93	35.67	-90.41	-259.85	-121.91	410.60	339.22	71.38	5.752		
10,300.00	10,280.47	10,294.18	10,280.47	36.28	36.03	-90.41	-259.85	-121.91	410.60	338.52	72.08	5.696		

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

1/14/2020 2:00:30PM

Page 14

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 511H - OH - Plan 1 01-14-20													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS													Offset Well Error:	1.00 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)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,400.00	10,380.47	10,394.18	10,380.47	36.63	36.38	-90.41	-259.85	-121.91	410.60	337.81	72.79	5.641		
10,500.00	10,480.47	10,494.18	10,480.47	36.98	36.73	-90.41	-259.85	-121.91	410.60	337.11	73.49	5.587		
10,600.00	10,580.47	10,594.18	10,580.47	37.33	37.09	-90.41	-259.85	-121.91	410.60	336.40	74.20	5.534		
10,700.00	10,680.47	10,694.18	10,680.47	37.68	37.44	-90.41	-259.85	-121.91	410.60	335.70	74.90	5.482		
10,800.00	10,780.47	10,794.18	10,780.47	38.03	37.79	-90.41	-259.85	-121.91	410.60	334.99	75.61	5.431		
10,900.00	10,880.47	10,894.18	10,880.47	38.38	38.15	-90.41	-259.85	-121.91	410.60	334.29	76.31	5.381		
11,000.00	10,980.47	10,994.18	10,980.47	38.73	38.50	-90.41	-259.85	-121.91	410.60	333.58	77.02	5.331		
11,100.00	11,080.47	11,094.18	11,080.47	39.08	38.86	-90.41	-259.85	-121.91	410.60	332.88	77.72	5.283		
11,200.00	11,180.47	11,194.18	11,180.47	39.44	39.21	-90.41	-259.85	-121.91	410.60	332.17	78.43	5.235		
11,300.00	11,280.47	11,294.18	11,280.47	39.79	39.56	-90.41	-259.85	-121.91	410.60	331.46	79.13	5.189		
11,400.00	11,380.47	11,394.18	11,380.47	40.14	39.92	-90.41	-259.85	-121.91	410.60	330.76	79.84	5.143		
11,500.00	11,480.47	11,494.18	11,480.47	40.49	40.27	-90.41	-259.85	-121.91	410.60	330.05	80.55	5.098		
11,600.00	11,580.47	11,594.18	11,580.47	40.84	40.63	-90.41	-259.85	-121.91	410.60	329.34	81.25	5.053		
11,700.00	11,680.47	11,694.18	11,680.47	41.19	40.98	-90.41	-259.85	-121.91	410.60	328.64	81.96	5.010		
11,800.00	11,780.47	11,794.18	11,780.47	41.55	41.34	-90.41	-259.85	-121.91	410.60	327.93	82.67	4.967		
11,900.00	11,880.47	11,894.18	11,880.47	41.90	41.69	-90.41	-259.85	-121.91	410.60	327.22	83.38	4.925		
12,000.00	11,980.47	11,994.18	11,980.47	42.25	42.04	-90.41	-259.85	-121.91	410.60	326.52	84.08	4.883		
12,100.00	12,080.47	12,094.18	12,080.47	42.60	42.40	-90.41	-259.85	-121.91	410.60	325.81	84.79	4.843		
12,200.00	12,180.47	12,194.18	12,180.47	42.96	42.75	-90.41	-259.85	-121.91	410.60	325.10	85.50	4.802		
12,240.60	12,221.04	12,234.76	12,221.04	43.10	42.90	-90.00	-259.85	-121.91	410.60	324.81	85.78	4.786		
12,300.00	12,280.10	12,293.81	12,280.10	43.30	43.11	-90.80	-259.85	-121.91	410.64	324.44	86.20	4.764		
12,400.00	12,377.00	12,390.71	12,377.00	43.62	43.45	-93.95	-259.85	-121.91	411.69	324.82	86.87	4.739		
12,500.00	12,468.22	12,481.94	12,468.22	43.90	43.77	-98.55	-259.85	-121.91	416.62	329.13	87.50	4.761		
12,600.00	12,551.01	12,564.72	12,551.01	44.13	44.07	-103.46	-259.85	-121.91	429.64	341.58	88.06	4.879		
12,700.00	12,622.83	12,662.60	12,648.49	44.31	44.41	-109.18	-252.53	-122.51	453.02	364.49	88.53	5.117		
12,800.00	12,681.52	12,779.53	12,761.22	44.45	44.78	-114.86	-222.35	-124.99	484.11	395.68	88.43	5.475		
12,900.00	12,725.27	12,924.64	12,888.84	44.59	45.17	-120.48	-154.33	-130.58	519.31	432.30	87.00	5.969		
13,000.00	12,752.78	13,090.97	13,008.40	44.73	45.54	-124.87	-39.99	-139.98	553.12	468.77	84.35	6.558		
13,100.00	12,763.19	13,355.54	13,118.42	44.87	45.99	-128.83	197.15	-159.48	577.71	497.33	80.38	7.187		
13,200.00	12,762.53	13,543.90	13,129.00	45.01	46.25	-128.77	384.16	-174.11	585.39	504.88	80.51	7.271		
13,300.00	12,761.67	13,662.87	13,127.37	45.19	46.45	-128.51	503.03	-178.68	587.27	506.25	81.02	7.248		
13,400.00	12,760.82	13,766.25	13,125.95	45.41	46.67	-128.47	606.39	-179.83	587.00	505.55	81.45	7.207		
13,500.00	12,759.96	13,866.25	13,124.57	45.67	46.92	-128.43	706.37	-180.87	586.68	504.76	81.92	7.161		
13,600.00	12,759.11	13,966.25	13,123.20	45.96	47.20	-128.39	806.36	-181.90	586.36	503.91	82.45	7.111		
13,700.00	12,758.25	14,066.25	13,121.83	46.28	47.51	-128.35	906.34	-182.94	586.05	503.00	83.05	7.057		
13,800.00	12,757.40	14,166.24	13,120.45	46.64	47.86	-128.31	1,006.32	-183.97	585.73	502.03	83.69	6.998		
13,900.00	12,756.54	14,266.24	13,119.08	47.03	48.24	-128.27	1,106.31	-185.00	585.41	501.01	84.40	6.936		
14,000.00	12,755.69	14,366.24	13,117.71	47.45	48.65	-128.23	1,206.29	-186.04	585.09	499.93	85.16	6.870		
14,100.00	12,754.83	14,466.24	13,116.33	47.91	49.10	-128.19	1,306.28	-187.07	584.77	498.80	85.98	6.801		
14,200.00	12,753.97	14,566.24	13,114.96	48.39	49.57	-128.15	1,406.26	-188.11	584.46	497.61	86.85	6.730		
14,300.00	12,753.12	14,666.24	13,113.59	48.91	50.08	-128.11	1,506.24	-189.14	584.14	496.37	87.77	6.655		
14,400.00	12,752.26	14,766.24	13,112.21	49.45	50.61	-128.07	1,606.23	-190.18	583.83	495.09	88.74	6.579		
14,500.00	12,751.41	14,866.24	13,110.84	50.03	51.17	-128.03	1,706.21	-191.21	583.51	493.75	89.76	6.501		
14,600.00	12,750.55	14,966.23	13,109.47	50.63	51.76	-127.99	1,806.20	-192.25	583.19	492.37	90.82	6.421		
14,700.00	12,749.70	15,066.23	13,108.09	51.25	52.38	-127.95	1,906.18	-193.28	582.88	490.94	91.93	6.340		
14,800.00	12,748.84	15,166.23	13,106.72	51.90	53.02	-127.91	2,006.16	-194.31	582.56	489.47	93.09	6.258		
14,900.00	12,747.99	15,266.23	13,105.35	52.58	53.68	-127.87	2,106.15	-195.35	582.25	487.96	94.29	6.175		
15,000.00	12,747.13	15,366.23	13,103.97	53.28	54.37	-127.82	2,206.13	-196.38	581.93	486.41	95.52	6.092		
15,100.00	12,746.28	15,466.23	13,102.60	54.00	55.08	-127.78	2,306.11	-197.42	581.62	484.82	96.80	6.008		
15,200.00	12,745.42	15,566.23	13,101.23	54.75	55.81	-127.74	2,406.10	-198.45	581.31	483.19	98.12	5.925		
15,300.00	12,744.57	15,666.22	13,099.85	55.51	56.57	-127.70	2,506.08	-199.49	580.99	481.52	99.47	5.841		
15,400.00	12,743.71	15,766.22	13,098.48	56.30	57.34	-127.66	2,606.07	-200.52	580.68	479.82	100.86	5.758		

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

1/14/2020 2:00:30PM

Page 15

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 511H - OH - Plan 1 01-14-20													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS													Offset Well Error:	1.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,500.00	12,742.86	15,866.22	13,097.11	57.10	58.13	-127.62	2,706.05	-201.56	580.37	478.09	102.28	5.674		
15,600.00	12,742.00	15,966.22	13,095.74	57.92	58.94	-127.58	2,806.03	-202.59	580.05	476.32	103.73	5.592		
15,700.00	12,741.15	16,066.22	13,094.36	58.76	59.77	-127.54	2,906.02	-203.62	579.74	474.53	105.21	5.510		
15,800.00	12,740.29	16,166.22	13,092.99	59.62	60.61	-127.50	3,006.00	-204.66	579.43	472.70	106.73	5.429		
15,900.00	12,739.44	16,266.22	13,091.62	60.50	61.48	-127.46	3,105.99	-205.69	579.12	470.84	108.27	5.349		
16,000.00	12,738.58	16,366.22	13,090.24	61.38	62.35	-127.42	3,205.97	-206.73	578.81	468.96	109.84	5.269		
16,100.00	12,737.73	16,466.21	13,088.87	62.29	63.25	-127.38	3,305.95	-207.76	578.49	467.05	111.44	5.191		
16,200.00	12,736.87	16,566.21	13,087.50	63.21	64.15	-127.34	3,405.94	-208.80	578.18	465.12	113.06	5.114		
16,300.00	12,736.02	16,666.21	13,086.12	64.14	65.07	-127.29	3,505.92	-209.83	577.87	463.16	114.71	5.038		
16,400.00	12,735.16	16,766.21	13,084.75	65.08	66.01	-127.25	3,605.91	-210.87	577.56	461.18	116.38	4.963		
16,500.00	12,734.31	16,866.21	13,083.38	66.04	66.95	-127.21	3,705.89	-211.90	577.25	459.18	118.08	4.889		
16,600.00	12,733.45	16,966.21	13,082.00	67.01	67.91	-127.17	3,805.87	-212.93	576.94	457.15	119.79	4.816		
16,700.00	12,732.59	17,066.21	13,080.63	67.99	68.88	-127.13	3,905.86	-213.97	576.63	455.10	121.53	4.745		
16,800.00	12,731.74	17,166.20	13,079.26	68.98	69.86	-127.09	4,005.84	-215.00	576.32	453.04	123.29	4.675		
16,900.00	12,730.88	17,266.20	13,077.88	69.98	70.85	-127.05	4,105.82	-216.04	576.01	450.95	125.06	4.606		
17,000.00	12,730.03	17,366.20	13,076.51	70.99	71.85	-127.01	4,205.81	-217.07	575.71	448.85	126.86	4.538		
17,100.00	12,729.17	17,466.20	13,075.14	72.02	72.87	-126.96	4,305.79	-218.11	575.40	446.73	128.67	4.472		
17,200.00	12,728.32	17,566.20	13,073.76	73.05	73.89	-126.92	4,405.78	-219.14	575.09	444.59	130.50	4.407		
17,300.00	12,727.46	17,666.20	13,072.39	74.09	74.92	-126.88	4,505.76	-220.18	574.78	442.44	132.35	4.343		
17,400.00	12,726.61	17,766.20	13,071.02	75.13	75.95	-126.84	4,605.74	-221.21	574.47	440.27	134.21	4.280		
17,500.00	12,725.75	17,866.20	13,069.64	76.19	77.00	-126.80	4,705.73	-222.24	574.17	438.08	136.09	4.219		
17,600.00	12,724.90	17,966.19	13,068.27	77.25	78.06	-126.76	4,805.71	-223.28	573.86	435.88	137.98	4.159		
17,700.00	12,724.04	18,066.19	13,066.90	78.32	79.12	-126.71	4,905.70	-224.31	573.55	433.67	139.89	4.100		
17,800.00	12,723.19	18,166.19	13,065.52	79.40	80.19	-126.67	5,005.68	-225.35	573.25	431.44	141.81	4.042		
17,900.00	12,722.33	18,266.19	13,064.15	80.49	81.26	-126.63	5,105.66	-226.38	572.94	429.20	143.74	3.986		
18,000.00	12,721.48	18,366.19	13,062.78	81.58	82.35	-126.59	5,205.65	-227.42	572.64	426.95	145.69	3.931		
18,100.00	12,720.62	18,466.19	13,061.40	82.68	83.44	-126.55	5,305.63	-228.45	572.33	424.68	147.65	3.876		
18,200.00	12,719.77	18,566.19	13,060.03	83.78	84.53	-126.50	5,405.62	-229.49	572.03	422.41	149.62	3.823		
18,300.00	12,718.91	18,666.18	13,058.66	84.89	85.64	-126.46	5,505.60	-230.52	571.72	420.12	151.60	3.771		
18,400.00	12,718.06	18,766.18	13,057.28	86.01	86.74	-126.42	5,605.58	-231.56	571.42	417.82	153.60	3.720		
18,500.00	12,717.20	18,866.18	13,055.91	87.13	87.86	-126.38	5,705.57	-232.59	571.11	415.51	155.60	3.670		
18,600.00	12,716.35	18,966.18	13,054.54	88.25	88.98	-126.34	5,805.55	-233.62	570.81	413.19	157.62	3.621		
18,700.00	12,715.49	19,066.18	13,053.16	89.39	90.10	-126.29	5,905.53	-234.66	570.51	410.86	159.64	3.574		
18,800.00	12,714.64	19,166.18	13,051.79	90.52	91.23	-126.25	6,005.52	-235.69	570.20	408.52	161.68	3.527		
18,900.00	12,713.78	19,266.18	13,050.42	91.66	92.36	-126.21	6,105.50	-236.73	569.90	406.18	163.72	3.481		
19,000.00	12,712.93	19,366.18	13,049.04	92.81	93.50	-126.17	6,205.49	-237.76	569.60	403.82	165.78	3.436		
19,100.00	12,712.07	19,466.17	13,047.67	93.96	94.64	-126.13	6,305.47	-238.80	569.30	401.45	167.84	3.392		
19,200.00	12,711.21	19,566.17	13,046.30	95.11	95.79	-126.08	6,405.45	-239.83	568.99	399.08	169.91	3.349		
19,300.00	12,710.36	19,666.17	13,044.92	96.27	96.94	-126.04	6,505.44	-240.87	568.69	396.70	171.99	3.306		
19,400.00	12,709.50	19,766.17	13,043.55	97.43	98.10	-126.00	6,605.42	-241.90	568.39	394.31	174.08	3.265		
19,500.00	12,708.65	19,866.17	13,042.18	98.60	99.26	-125.96	6,705.41	-242.93	568.09	391.91	176.18	3.225		
19,600.00	12,707.79	19,966.17	13,040.81	99.76	100.42	-125.91	6,805.39	-243.97	567.79	389.51	178.28	3.185		
19,700.00	12,706.94	20,066.17	13,039.43	100.94	101.59	-125.87	6,905.37	-245.00	567.49	387.10	180.39	3.146		
19,800.00	12,706.08	20,166.16	13,038.06	102.11	102.75	-125.83	7,005.36	-246.04	567.19	384.68	182.51	3.108		
19,900.00	12,705.23	20,266.16	13,036.69	103.29	103.93	-125.78	7,105.34	-247.07	566.89	382.25	184.64	3.070		
20,000.00	12,704.37	20,366.16	13,035.31	104.47	105.10	-125.74	7,205.33	-248.11	566.59	379.82	186.77	3.034		
20,100.00	12,703.52	20,466.16	13,033.94	105.66	106.28	-125.70	7,305.31	-249.14	566.29	377.38	188.91	2.998		
20,200.00	12,702.66	20,566.16	13,032.57	106.85	107.47	-125.66	7,405.29	-250.18	565.99	374.94	191.06	2.962		
20,300.00	12,701.81	20,666.16	13,031.19	108.04	108.65	-125.61	7,505.28	-251.21	565.69	372.49	193.21	2.928		
20,400.00	12,700.95	20,766.16	13,029.82	109.23	109.84	-125.57	7,605.26	-252.24	565.40	370.03	195.37	2.894		
20,500.00	12,700.10	20,866.16	13,028.45	110.43	111.03	-125.53	7,705.24	-253.28	565.10	367.57	197.53	2.861		
20,600.00	12,699.24	20,966.15	13,027.07	111.62	112.22	-125.48	7,805.23	-254.31	564.80	365.10	199.70	2.828		

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

1/14/2020 2:00:30PM

Page 16

COMPASS 5000.14 Build 85F



Anticollision Report



Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Offset Design Love Shack Fed Com - 511H - OH - Plan 1 01-14-20												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM+MS												Offset Well Error:	1.00 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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
20,700.00	12,698.39	21,066.15	13,025.70	112.83	113.42	-125.44	7,905.21	-255.35	564.50	362.63	201.88	2.796	
20,800.00	12,697.53	21,166.15	13,024.33	114.03	114.62	-125.40	8,005.20	-256.38	564.21	360.15	204.06	2.765	
20,900.00	12,696.68	21,266.15	13,022.95	115.23	115.82	-125.36	8,105.18	-257.42	563.91	357.67	206.25	2.734	
21,000.00	12,695.82	21,366.15	13,021.58	116.44	117.02	-125.31	8,205.16	-258.45	563.61	355.18	208.44	2.704	
21,100.00	12,694.97	21,466.15	13,020.21	117.65	118.23	-125.27	8,305.15	-259.49	563.32	352.68	210.64	2.674	
21,200.00	12,694.11	21,566.15	13,018.83	118.87	119.44	-125.23	8,405.13	-260.52	563.02	350.18	212.84	2.645	
21,300.00	12,693.26	21,666.14	13,017.46	120.08	120.65	-125.18	8,505.12	-261.55	562.73	347.68	215.05	2.617	
21,400.00	12,692.40	21,766.14	13,016.09	121.30	121.86	-125.14	8,605.10	-262.59	562.43	345.17	217.26	2.589	
21,500.00	12,691.55	21,866.14	13,014.71	122.51	123.07	-125.10	8,705.08	-263.62	562.14	342.66	219.48	2.561	
21,600.00	12,690.69	21,966.14	13,013.34	123.73	124.29	-125.05	8,805.07	-264.66	561.84	340.15	221.70	2.534	
21,700.00	12,689.83	22,066.14	13,011.97	124.96	125.51	-125.01	8,905.05	-265.69	561.55	337.62	223.93	2.508	
21,800.00	12,688.98	22,166.14	13,010.59	126.18	126.73	-124.96	9,005.03	-266.73	561.26	335.10	226.16	2.482	
21,900.00	12,688.12	22,266.14	13,009.22	127.41	127.95	-124.92	9,105.02	-267.76	560.96	332.57	228.39	2.456	
22,000.00	12,687.27	22,366.13	13,007.85	128.63	129.17	-124.88	9,205.00	-268.80	560.67	330.04	230.63	2.431	
22,100.00	12,686.41	22,466.13	13,006.47	129.86	130.40	-124.83	9,304.99	-269.83	560.38	327.50	232.88	2.406	
22,200.00	12,685.56	22,566.13	13,005.10	131.09	131.62	-124.79	9,404.97	-270.86	560.09	324.96	235.13	2.382	
22,300.00	12,684.70	22,666.13	13,003.73	132.32	132.85	-124.75	9,504.95	-271.90	559.79	322.42	237.38	2.358	
22,400.00	12,683.85	22,766.13	13,002.35	133.56	134.08	-124.70	9,604.94	-272.93	559.50	319.87	239.64	2.335	
22,500.00	12,682.99	22,866.13	13,000.98	134.79	135.31	-124.66	9,704.92	-273.97	559.21	317.32	241.90	2.312	
22,600.00	12,682.14	22,966.13	12,999.61	136.03	136.54	-124.61	9,804.91	-275.00	558.92	314.76	244.16	2.289	
22,700.00	12,681.28	23,066.13	12,998.23	137.27	137.78	-124.57	9,904.89	-276.04	558.63	312.20	246.43	2.267	
22,800.00	12,680.43	23,166.12	12,996.86	138.50	139.01	-124.53	10,004.87	-277.07	558.34	309.64	248.70	2.245	
22,900.00	12,679.57	23,266.12	12,995.49	139.74	140.25	-124.48	10,104.86	-278.11	558.05	307.07	250.98	2.224	
23,000.00	12,678.72	23,366.12	12,994.11	140.99	141.49	-124.44	10,204.84	-279.14	557.76	304.50	253.26	2.202	
23,072.53	12,678.10	23,438.65	12,993.12	141.89	142.39	-124.41	10,277.36	-279.89	557.55	302.64	254.91	2.187	
23,084.26	12,678.00	23,447.25	12,993.00	142.03	142.49	-124.40	10,285.96	-279.98	557.52	302.42	255.11	2.185 SF	

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

1/14/2020 2:00:30PM

Page 17

COMPASS 5000.14 Build 85F



Anticollision Report

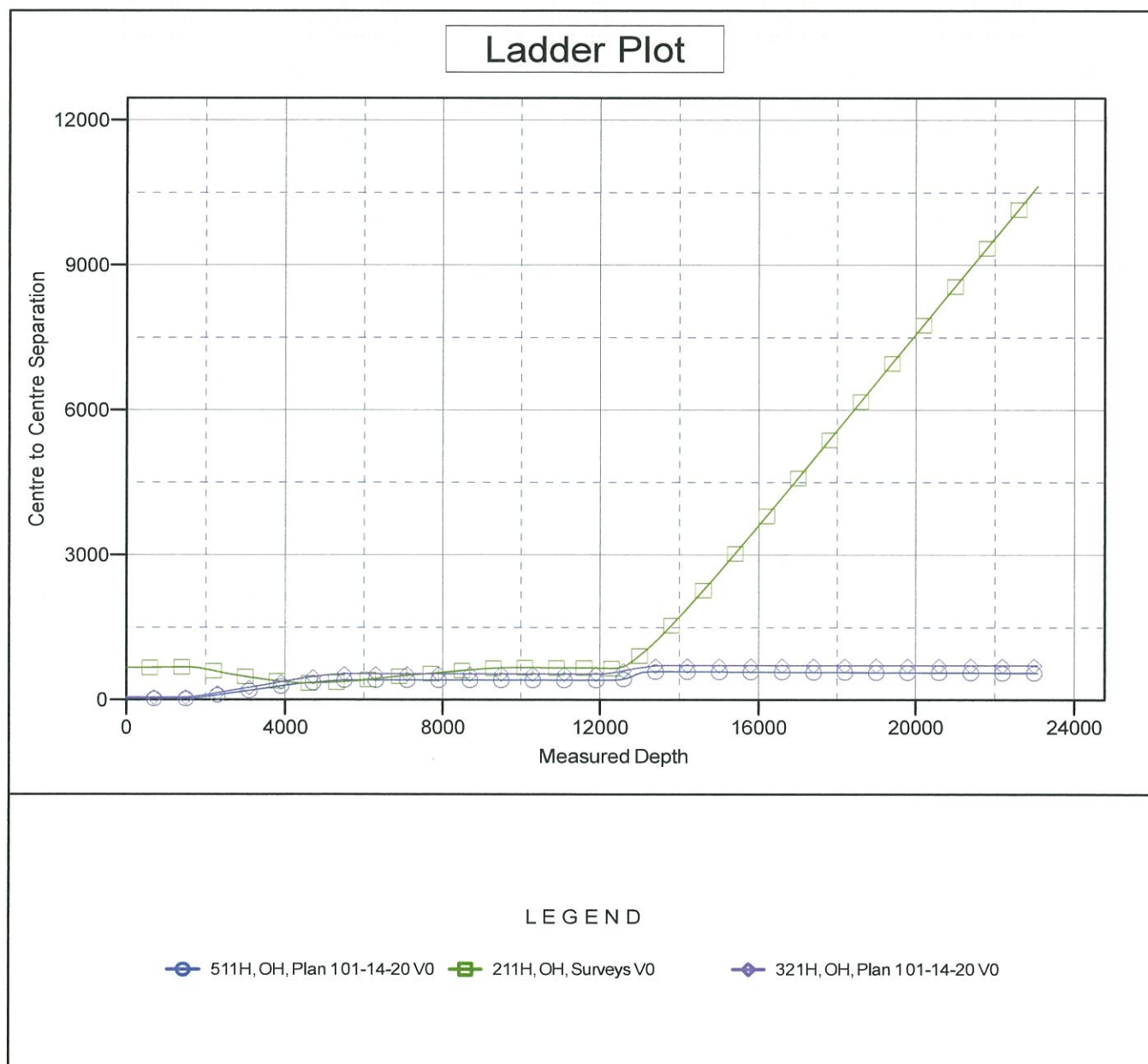
TITUS

OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
Reference Site:	Love Shack Fed Com	MD Reference:	RKB @ 3230.50usft (Est KB)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	431H	Survey Calculation Method:	Minimum Curvature
Well Error:	1.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3230.50usft (Est KB)
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 19' 60.000000 W

Coordinates are relative to: 431H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.50°



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

1/14/2020 2:00:30PM

Page 18

COMPASS 5000.14 Build 85F



Anticollision Report

TITUS
OIL GAS LLC

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well 431H
Project:	Lea County, NM - (NAD83 NME)	TVD Reference:	RKB @ 3230.50usft (Est KB)
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Reference Wellbore	OH	Database:	USA Compass
Reference Design:	Plan 1 01-14-20	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3230.50usft (Est KB)

Offset Depths are relative to Offset Datum

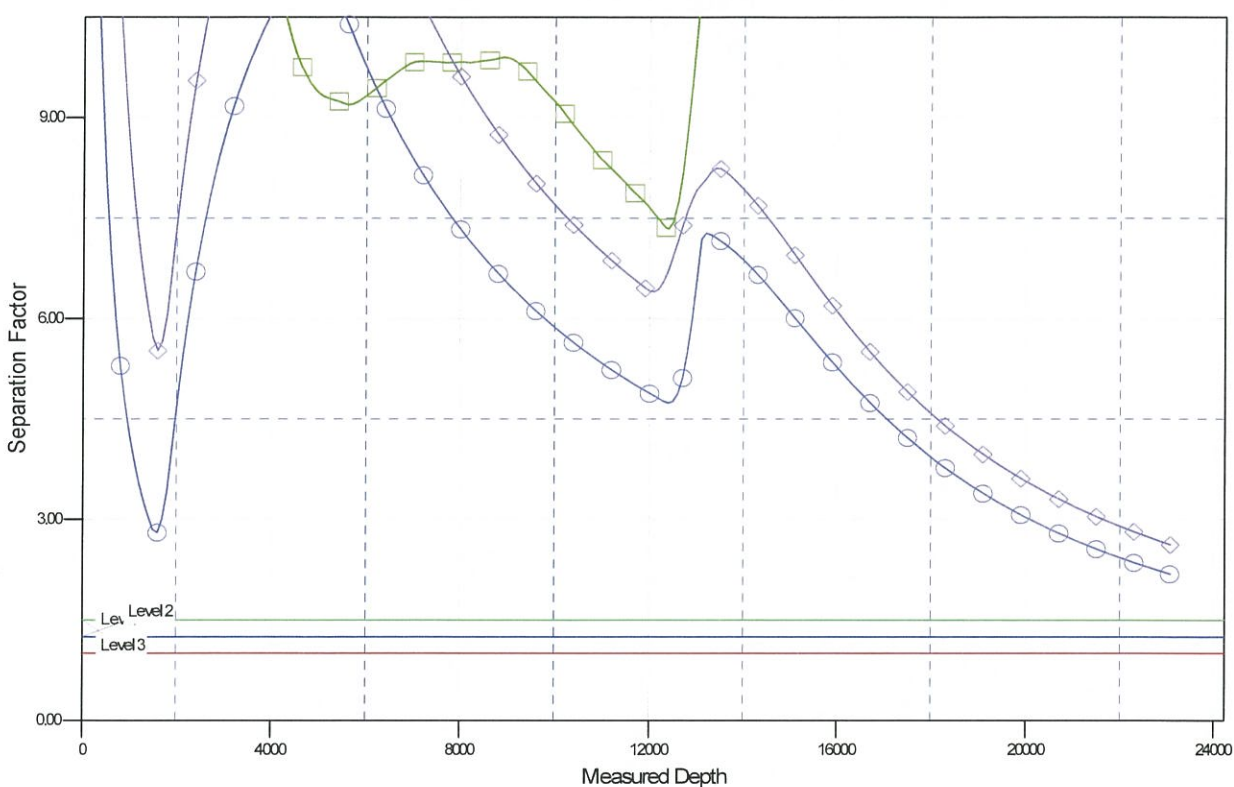
Central Meridian is 104° 19' 60.000000 W

Coordinates are relative to: 431H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.50°

Separation Factor Plot



LEGEND

—○— 511H, OH, Plan 101-14-20 V0
 —■— 211H, OH, Surveys V0
 —◇— 321H, OH, Plan 101-14-20 V0

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



Well Control Plan For 10M MASP Section of Wellbore

1. Component and Preventer Compatibility Table

The table below covers drilling and casing of the 10M MASP portion of the well and outlines the tubulars and the compatible preventers in use. Combined with the mud program, the below documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Component	OD	Preventer	RWP
Drill pipe	4.5"	Upper 4.5-7" VBR Lower 4.5-7" VBR	10M
HWDP	4.5"		
Jars	4.5"		
Drill collars and MWD tools	4.75-5.75"		
Mud Motor	4.75-5.75"		
Production casing	5.5" x 5"	Annular	5M
ALL	0 - 13-5/8"		
Open-hole	-		
		Blind Rams	10M

VBR = Variable Bore Ram with compatible range listed in chart.

2. Well Control and Shut-In Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are minimum tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. The maximum pressure at which well control is transferred from the annular to another compatible ram is 2500 psi.

Drilling:

1. Sound the alarm (alert rig crew)
2. Space out the drill string
3. Shut down pumps and stop the rotary
4. Shut-in the well with the annular with HCR and choke in closed position
5. Confirm the well is shut-in
6. Notify contractor and company representatives
7. Read and record the following data
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
8. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
9. Prepare for well kill operation.

Tripping:

1. Sound alarm (alert rig crew)
2. Stab full opening safety valve and close the valve
3. Space out the drill string
4. Shut-in the well with the annular with HCR and choke in closed position
5. Confirm shut-in
6. Notify contractor and company representatives
7. Read and record the following data:

**Well Control Plan For 10M MASP Section of Wellbore**

- Time of shut-in
 - SIDPP and SICP
 - Pit gain
8. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
 9. Prepare for well kill operation.

Running Casing

1. Sound alarm (alert rig crew)
2. Stab crossover and valve and close the valve
3. Shut-in the well with annular with HCR and choke in closed position
4. Confirm shut-in
5. Notify contractor and company representatives
6. Read and record the following data
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
7. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
8. Prepare for well kill operation

No Pipe in Hole (Open Hole)

1. Well will be shut in with blind rams and choke in closed position, while HCR is open at any point when pipe or BHA are not in BOP stack. If pressure increase is observed:
2. Sound alarm (alert crew)
3. Confirm shut-in
4. Notify contractor and company representatives
5. Read and record the following data
 - Time of shut-in
 - Time of pressure increase
 - SICP
6. Prepare for well kill operation

Pulling BHA through BOP Stack

1. Prior to pulling last joint/stand of drillpipe through the stack, perform a flow check. If well is flowing:
 - a. Sound alarm (alert crew)
 - b. Stab full opening safety valve and close the valve
 - c. Space out the drill string
 - d. Shut-in the well with the annular with HCR and choke in closed position
 - e. Confirm shut-in
 - f. Notify contractor and company representatives
 - g. Read and record the following data
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
 - h. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
 - i. Prepare for well kill operation.



Well Control Plan For 10M MASP Section of Wellbore

2. With BHA in the stack:
 - a. If possible to pick up high enough, pull BHA clear of the stack
 - i. Follow "Open Hole" procedure above
 - b. If impossible to pick up high enough to pull BHA clear of the stack:
 - i. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close
 - ii. Space out drill string with tooljoint just beneath the upper pipe ram.
 - iii. Shut-in the well with upper pipe ram with HCR and choke in closed position
 - iv. Confirm shut-in
 - v. Notify contractor and company representatives
 - vi. Read and record the following:
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
 - vii. Prepare for well kill operation.

3. Well Control Drills

Well control drills are specific to the rig equipment, personnel and operation at the time a kick occurs. Each crew will execute one drill weekly relevant to ongoing operations, but will make a reasonable attempt to vary the type of drills. The drills will be recorded in the daily drilling log. Below are minimum tasks for respective well control drills.

Drilling/Pit:

Action	Responsible Party
Initiate Drill • Lift Flow Sensor or Pit Float to indicate a kick • Immediately record start time	Company Representative / Rig Manager
Recognition • Driller and/or Crew recognizes indicator • Driller stop drilling, pick up off bottom and spaces out drill string, stop pumps and rotary • Conduct flow check	Driller
Initiate Action • Sound alarm, notify rig crew that the well is flowing	Company Representative / Rig Manager
Reaction • Driller moves BOP remote and stands by • Crew is at their assigned stations • Time is stopped • Record time and drill type in the Drilling Report	Driller / Crew



Well Control Plan For 10M MASP Section of Wellbore

Tripping Pit Drills (either in the hole or out of the hole)

Action	Responsible Party
Initiate Drill - Lift Flow Sensor or Pit Float to indicate a kick - Immediately record start time	Company Representative / Rig Manager
Recognition - Driller recognizes indicator - Suspends tripping operations - Conduct Flow Check	Driller
Initiate Action Sound alarm, notify rig crew that the well is flowing	Company Representative / Rig Manager
Reaction - Position tool joint above rotary and set slips - Stab FOSV and close valve - Driller moves to BOP remote and stands by - Crew is at their assigned stations - Time is stopped - Record time and drill type in the Drilling Report	Driller / Crew

Choke

Action	Responsible Party
- Have designated choke operator on station at the choke panel - Close annular preventer - Pressure annulus up 200-300 psi - Pump slowly to bump the float and obtain SIDPP - At choke operator instruction, slowly bring pumps online to slow pump rate while holding casing pressure constant at the SICP. - Allow time for the well to stabilize. Mark and record circulating drillpipe pressure. - Measure time lag on drillpipe gauge after choke adjustments. - Hold casing pressure constant as pumps are slowed down while choke is closed. - Record time and drill type in the Drilling Report	Company Man / Rig Manager & Rig Crew

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 15586

CONDITIONS OF APPROVAL

Operator: TITUS OIL & GAS PRODUCTION, LL 420 Throckmorton St, Ste 1150 Fort Worth, TX76012			OGRID: 373986	Action Number: 15586	Action Type: C-103A
OCD Reviewer			Condition		
pkautz			None		