

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.***SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM100568
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY		6. If Indian, Allottee or Tribe Name
3a. Address 6488 SEVEN RIVERS HIGHWAY ARTESIA, NM 88211		7. Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 405-228-8429		8. Well Name and No. MEAN GREEN 23-35 FED COM 1H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 23 T26S R34E NESE 2449FSL 890FEL 32.028339 N Lat, 103.435028 W Lon		9. API Well No. 30-025-44595-00-X1
10. Field and Pool or Exploratory Area JABALINA		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 APD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recompleat 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 recompleat 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.

Devon Energy Production Co. respectfully requests the following changes to the original APD and an update to the annular variance:

TVD/MD from 13,364'/23,440' to 12,725'/22,795'

Casing Design Change - see detailed drilling plan & spec sheets

Please see attached AC Report, Drilling and Directional Plan, Spec Sheets, Annular Variance Summary & Schematic.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct. Electronic Submission #419643 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION COM LP, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 05/21/2018 (18PP1046SE)	
Name (Printed/Typed) REBECCA DEAL	Title REGULATORY COMPLIANCE PROFESSI
Signature (Electronic Submission)	Date 05/10/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>05/29/2018</u>
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 Hobbs		

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*

Devon Energy, Mean Green 23-35 Fed Com 1H

1. Geologic Formations

TVD of target	12,725'	Pilot hole depth	N/A
MD at TD:	22,795'	Deepest expected fresh water:	N/A

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	993		
Top of Salt	1408		
Base of Salt	5051		
Delaware	5334		
Bone Spring	9346		
Wolfcamp	12627		
Wolfcamp 110	12765		
Wolfcamp 120	12859		

*H2S, water flows, loss of circulation, abnormal pressures, etc.

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2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1,050'	13.375"	54.548	H-40	STC	1.125	1.25	1.6
10.625"	0	5000'	8.625"	32	P110EC	BTC	1.125	1.25	1.6
9.875"	5,000'	12,200'	8.625"	32	P110EC	VAM FJL	1.125	1.25	1.6
7.875"	0	22,795'	5.5"	20	P110EC	Vam SG	1.125	1.25	1.6

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

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 8-5/8" flush casing in the 9-7/8" hole and the 5-1/2" SF/Flush casing in the 7-7/8" hole.

8-5/8" Intermediate casing will be kept fluid filled.

	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?	

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3. Cementing Program

Casing	# Sks	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	Slurry Description
13-3/8" Surface	823	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
8-5/8" Int	821	9	13.5	3.27	Lead: Tuned Light® Cement
	163	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
8-5/8" Intermediate Squeeze	1048	14.8	6.32	1.33	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	417	9	13.5	3.27	Tuned Light® Cement
	163	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Production	1300	13.2	6.32	1.33	Class H Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
10-3/4" Surface	0'	50%
7-5/8" Intermediate	0'	30%
5-1/2" Production Casing	12,200'	25%

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. Required WP	Type	✓	Tested to:
10-5/8" & 9-7/8"	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram	X	
			VBR Ram	X	
			Other*		
7-7/8"	13-5/8"	10M	Annular (5M)	X	50% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram	X	
			VBR Ram	X	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

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.
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	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.
Y	Are anchors required by manufacturer?
Y	A multibowl wellhead may be 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. Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi. - Wellhead will be installed by wellhead representatives. - If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. - Wellhead representative will install the test plug for the initial BOP test. - Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. - If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. - Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. - Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. 13-5/8" BOP/BOPE system will have been tested to 10M rating prior to drilling out 8 5/8" casing. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In

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	addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 5,000 psi WP. Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron. Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.
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5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1050'	FW Gel	8.6-8.8	28-34	N/C
1050'	12,200'	OBM/Cut Brine	9-10	34-65	N/C - 6
12,200'	22,795'	Oil Based Mud	10-11	45-65	N/C - 6

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

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.	
x	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.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7121 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

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

Is this a walking operation? Potentially

1. In the event the spudder rig is unable to drill the surface holes the drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections with either OBM or cut brine and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

1. Spudder rig will move in and drill surface hole.
 - a. Rig will utilize fresh water based mud to drill 14 3/4" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the 10-3/4" surface casing is cut off and the WOC time has been reached.

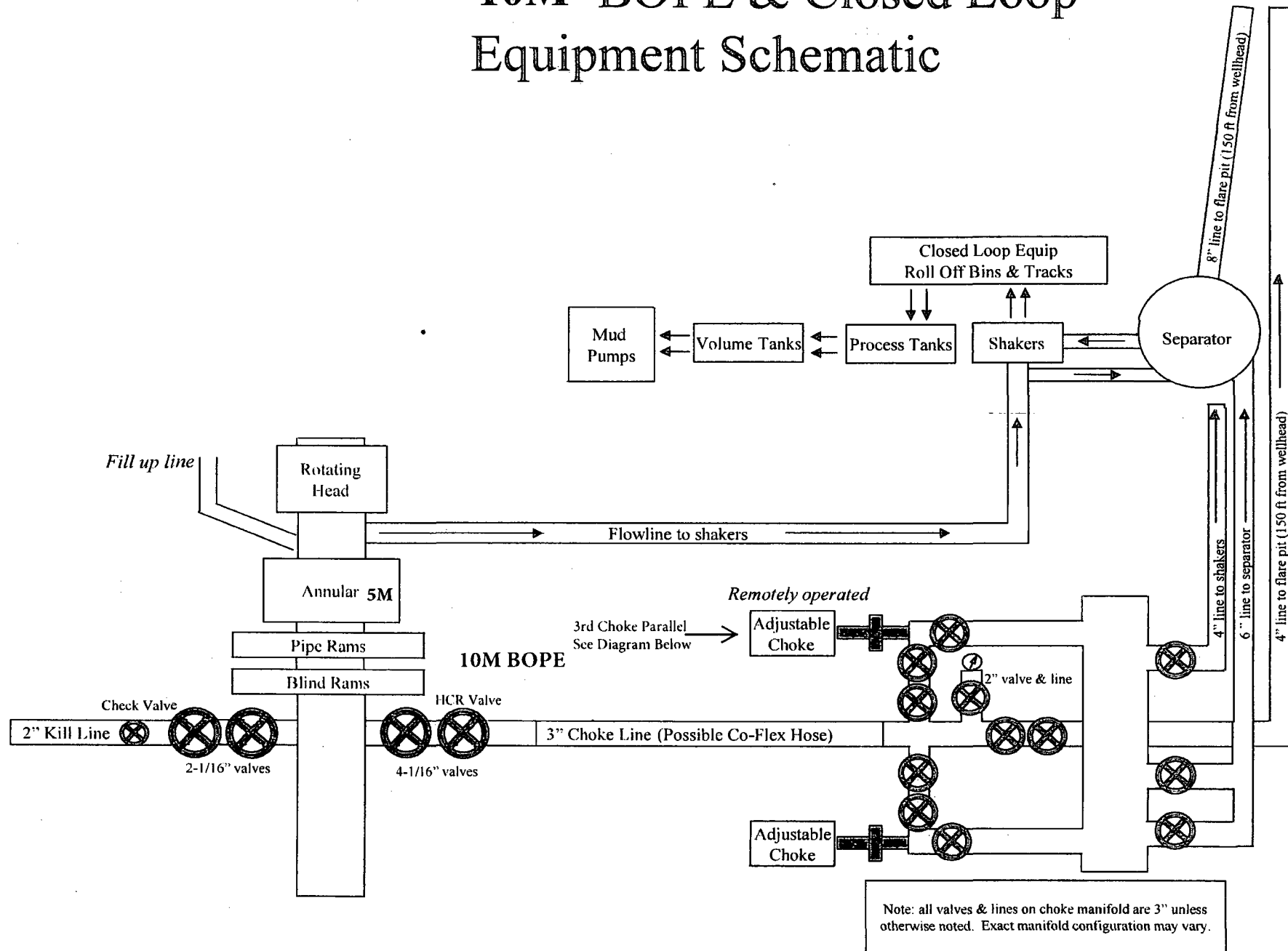
Devon Energy, Mean Green 23-35 Fed Com 1H

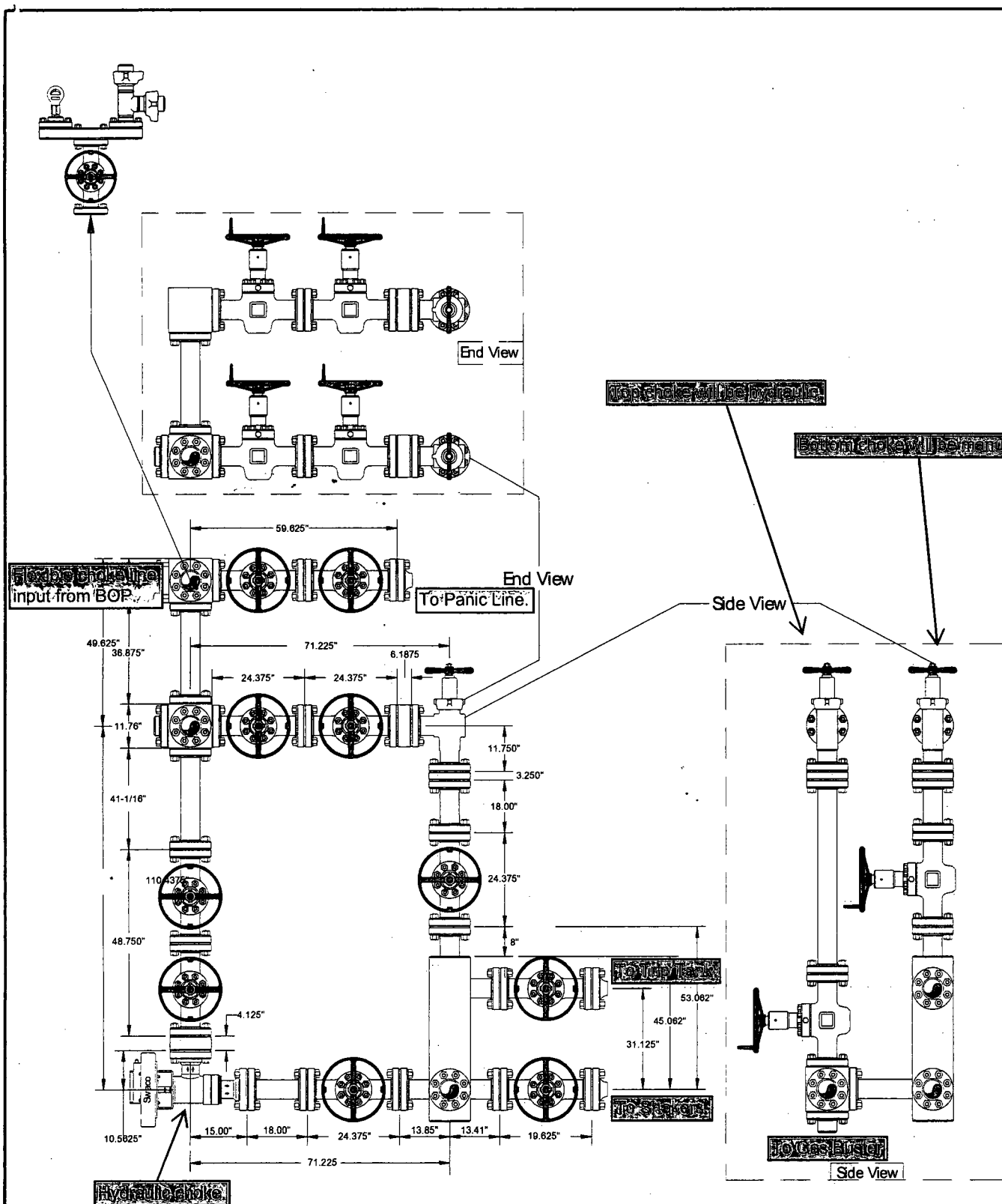
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
 - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

- ☒ Directional Plan
☐ Other, describe

10M BOPE & Closed Loop Equipment Schematic





Helmerich & Payne
Flex 3 Rig w/ 3 Chokes

devon

Name: Mike Potts

Date: 6-23-2010

Working Pressure: 10M

J-5132-E

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 23-T26S-R34E

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Wellbore #1

Permit Plan 1

Anticollision Report

30 April, 2018

CASING PERFORMANCE Data Sheet



O.D.	PE LB/FT	T&C LB/FT	GRADE
8.625	31.13	32.00	P110EC

Grade - Material Properties

Minimum Yield Strength:	125	ksi
Maximum Yield Strength:	140	ksi
Minimum Tensile Strength:	135	ksi

Pipe Body Data (PE)

Geometry

Nominal ID:	7.921	inch
Wall:	0.352	inch
Min. Wall % (API = 87.5%):	87.5	%
API Drift:	7.796	inch
Special Drift*:	7.875	inch

Performance

Pipe Body Yield Strength:	1,144	kips
Collapse Resistance:	3,470	psi
Internal Yield Pressure (API Historical):	8,930	psi

API Connection Data

SC Internal Pressure:	8,930	psi
SC Joint Strength:	793	kips
LC Internal Pressure:	8,930	psi
LC Joint Strength:	887	kips
BC Internal Pressure:	8,930	psi
BC Joint Strength:	1,121	kips

SC Torque (ft-lbs)

minimum: 5,950	optimum: 7,933	maximum: 9,916
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LC Torque (ft-lbs)

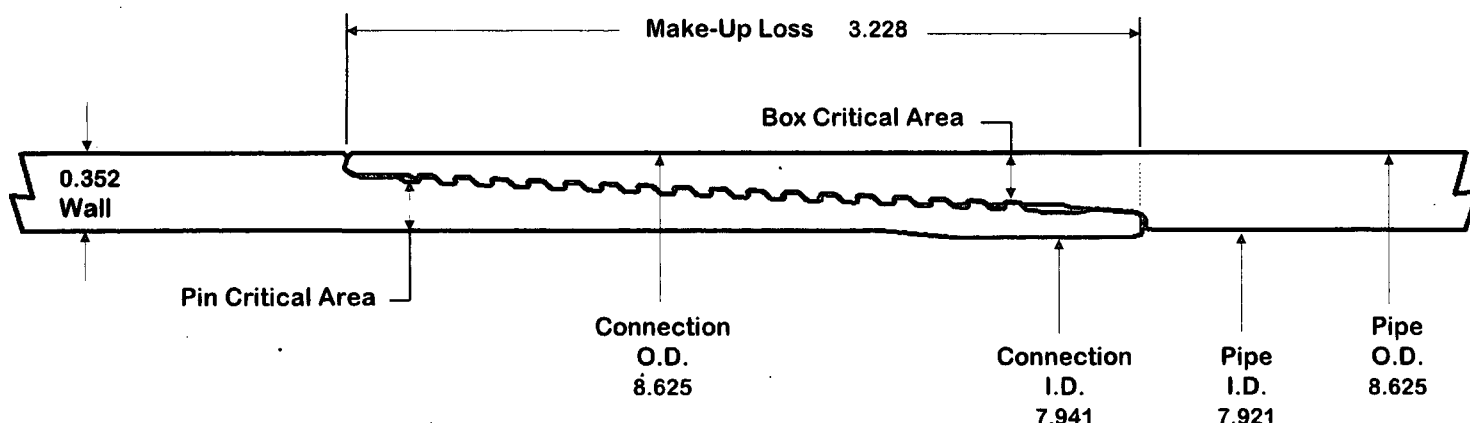
minimum: 6,651	optimum: 8,868	maximum: 11,085
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*Special drift must be ordered or API drift will be used for actual drifting of product.

**If above API connections do not suit your needs, VAM® premium connections are available up to 100% of pipe body ratings.

This data sheet is for informational purposes only. While every effort has been made to ensure the accuracy of all data and that the information contained herein is correct, this material is presented as a reference guide only. Vallourec assumes no responsibility for the results obtained through the use of this material.

VAM® FJL NA



O.D.
8.625

WEIGHT
32.00

WALL
0.352

GRADE
VST P110EC

SP DRIFT
7.875

PIPE BODY PROPERTIES

Material Grade	VST P110EC
Min. Yield Strength	125 ksi
Min. Tensile Strength	135 ksi
Outside Diameter	8.625 in
Inside Diameter	7.921 in
Nominal Area	9.149 sq.in.
Yield Strength	1,144 kips
Ultimate Strength	1,235 kips
Min Internal Yield	8,930 psi
Collapse	3,470 psi

Contact: tech.support@vam-usa.com
 Ref. Drawing: SI-PD 100239 Rev.A
 Date: 15-Dec-17
 Time: 4:44 PM

CONNECTION PROPERTIES

Connection OD	8.625 in
Connection ID	7.941 in
Make up Loss	3.228 in
Box Critical Area	4.945 sq.in.
%PB Section Area	54.0%
Pin Critical Area	5.235 sq.in.
%PB Section Area	57.2%
Yield Strength	618 kips
Parting Load	668 kips
Min Internal Yield	8,930 psi
Ext Pressure	3,470 psi
Wk Compression	247 kips
Max Pure Bending	10 °/100 ft

TORQUE DATA ft-lb

min	opt	max
10,850	11,950	13,050



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Devon Energy Annular Preventer Summary

1. Component and Preventer Compatibility Table

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

7-7/8" Production hole section, 10M requirement

Component	OD	Preventer	RWP
Drillpipe	5"	Fixed lower 5" Upper 4.5-7" VBR	10M
HWDP	5"	Fixed lower 5" Upper 4.5-7" VBR	10M
Drill collars and MWD tools	6.5"	Upper 4.5-7" VBR	10M
Mud Motor	6.5"	Upper 4.5-7" VBR	10M
Production casing	5.5"	Upper 4.5-7" VBR	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

VBR = Variable Bore Ram. Compatible range listed in chart.

2. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level 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 pressure at which control is swapped from the annular to another compatible ram is variable, but the operator will document in the submission their operating pressure limit. The operator may chose an operating pressure less than or equal to RWP, but in no case will it exceed the RWP of the annular preventer.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in Well (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram.

Devon Energy Annular Preventer Summary

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close
3. Space out drill string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to the upper pipe ram.

General Procedure While Running Casing

1. Sound alarm (alert crew)
2. Stab crossover and full opening safety valve and close
3. Space out string
4. Shut-in (uppermost applicable BOP, typically annular preventer first. HCR and choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
 - a. SIDPP and SICP
 - b. Pit gain
 - c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach the RWP of the annular preventer, confirm spacing and swap to compatible pipe ram.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
 - a. SICP
 - b. Pit gain
 - c. Time
6. Regroup and identify forward plan

Devon Energy Annular Preventer Summary

General Procedures While Pulling BHA thru Stack

1. PRIOR to pulling last joint of drillpipe thru the stack.
 - a. Perform flowcheck, if flowing:
 - b. Sound alarm (alert crew)
 - c. Stab full opening safety valve and close
 - d. Space out drill string with tool joint just beneath the upper pipe ram.
 - e. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
 - f. Confirm shut-in
 - g. Notify toolpusher/company representative
 - h. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combo immediately available.
 - a. Sound alarm (alert crew)
 - b. Stab crossover and full opening safety valve and close
 - c. Space out drill string with upset just beneath the compatible pipe ram.
 - d. Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
 - e. Confirm shut-in
 - f. Notify toolpusher/company representative
 - g. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - h. Regroup and identify forward plan
3. With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.
 - a. Sound alarm (alert crew)
 - b. If possible to pick up high enough, pull string clear of the stack and follow "Open Hole" scenario.
 - c. If impossible to pick up high enough to pull the string clear of the stack:
 - d. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close
 - e. Space out drill string with tooljoint just beneath the upper pipe ram.
 - f. Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
 - g. Confirm shut-in
 - h. Notify toolpusher/company representative
 - i. Read and record the following:
 - i. SIDPP and SICP
 - ii. Pit gain
 - iii. Time
 - j. Regroup and identify forward plan

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3224.80ft
Reference Site:	Sec 23-T26S-R34E	MD Reference:	RKB @ 3224.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Reference	Permit Plan 1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method	MD Interval 100.00ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,500.00 ft
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	4/30/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	22,795.93	Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

Summary						
Site Name	Reference Measure	Offset Measure	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation (ft)	Warning
Offset Well - Wellbore - Design						
Sec 23-T26S-R34E						
Mean Green 23 FED 1H - Original Hole - Actuals	9,121.59	11,807.55	624.12	529.67	6.608	CC, ES, SF
Mean Green 23 FED 1H - Original Hole - Plan 1	9,121.98	11,668.83	607.54	574.95	18.641	CC, ES, SF
Mean Green 23 FED 1H - Original Hole - T&D						Out of range
Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit PI	2,800.00	2,793.50	29.98	10.37	1.528	Minor Risk, CC
Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit PI	2,900.00	2,893.08	30.63	10.31	1.507	Minor Risk, ES, SF
Mean Green 23-35 Fed Com 3H - Wellbore #1 - Permit PI	2,500.00	2,500.00	60.03	42.55	3.434	Alert, CC, ES
Mean Green 23-35 Fed Com 3H - Wellbore #1 - Permit PI	2,600.00	2,598.74	61.07	42.88	3.359	Alert, SF
Mean Green 23-35 Fed Com 4H - Wellbore #1 - Permit PI	2,500.00	2,500.00	30.00	12.52	1.716	Minor Risk, CC
Mean Green 23-35 Fed Com 4H - Wellbore #1 - Permit PI	2,600.00	2,599.64	30.59	12.40	1.682	Minor Risk, ES, SF
Sec 26-26S-34E						
Hondo Federal 1 - Wellbore #1 - Wellbore #1						Out of range
Mean Green 26 FED 1H - Original Hole - Original Hole						Out of range
Mean Green 26 FED 1H - Original Hole - Plan 1 v3						Out of range
Mean Green 26 FED 1H - Original Hole - Plan 3v1						Out of range
Mean Green 26 FED 1H - Original Hole - PTL						Out of range
Mean Green 26 FED 1H - Original Hole - T&D						Out of range
Rattlesnake Federal Unit 1 - Wellbore #1 - Wellbore #1	16,343.37	12,721.52	980.19	627.28	2.777	Alert, CC, ES
Rattlesnake Federal Unit 1 - Wellbore #1 - Wellbore #1	16,400.00	12,721.52	981.83	628.32	2.777	Alert, SF
Sec 35-T26S-R34E						
Madera 35 Fed 1H - Original Hole - Scientific	20,914.07	16,176.85	247.33	135.66	2.215	Minor Risk, CC
Madera 35 Fed 1H - Original Hole - Scientific	21,000.00	16,173.42	261.81	133.18	2.035	Minor Risk, ES, SF

Offset Design													
Sec 23-T26S-R34E - Mean Green 23 FED 1H - Original Hole - Actuals													
Survey Program: 149-GYRO-NS, 8618-MWD+IGRF													
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre N-S (ft)	Offset Wellbore Centre E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,800.00	7,787.44	11,797.44	9,132.09	27.93	61.88	113.19	310.14	524.12	1,460.71	1,410.34	50.36	29.005	
7,900.00	7,887.35	11,801.58	9,132.10	28.29	61.95	110.08	314.28	523.99	1,371.55	1,319.22	52.33	26.209	
8,000.00	7,987.33	11,803.40	9,132.11	28.65	61.98	107.28	316.09	523.93	1,283.54	1,229.02	54.52	23.544	
8,100.00	8,087.33	11,803.76	9,132.11	29.00	61.99	88.49	316.45	523.92	1,197.15	1,140.18	56.97	21.013	
8,200.00	8,187.33	11,804.11	9,132.11	29.36	61.99	88.46	316.80	523.91	1,113.04	1,053.26	59.78	18.620	

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

Anticollision Report

Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 23-T26S-R34E
Site Error: 0.00 ft
Reference Well: Mean Green 23-35 Fed Com 1H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
TVD Reference: RKB @ 3224.80ft
MD Reference: RKB @ 3224.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23 FED 1H - Original Hole - Actuals													Offset Site Error:	0.00 ft
Survey Program: 149-GYRO-NS, 8618-MWD-HGRF													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
8,300.00	8,287.33	11,804.46	9,132.11	29.71	62.00	88.43	317.15	523.90	1,031.76	968.78	62.98	16.382		
8,400.00	8,387.33	11,804.81	9,132.11	30.07	62.01	88.39	317.51	523.88	954.05	887.43	66.62	14.320		
8,500.00	8,487.33	11,805.17	9,132.11	30.42	62.01	88.36	317.87	523.87	880.85	810.13	70.72	12.455		
8,600.00	8,587.33	11,805.54	9,132.11	30.77	62.02	88.33	318.23	523.86	813.38	738.14	75.24	10.811		
8,700.00	8,687.33	11,805.91	9,132.12	31.13	62.02	88.29	318.61	523.85	753.17	673.13	80.04	9.409		
8,800.00	8,787.33	11,806.29	9,132.12	31.48	62.03	88.26	318.98	523.84	702.10	617.24	84.87	8.273		
8,900.00	8,887.33	11,806.68	9,132.12	31.84	62.04	88.22	319.37	523.82	662.29	573.04	89.25	7.421		
9,000.00	8,987.33	11,807.07	9,132.12	32.19	62.04	88.19	319.76	523.81	635.86	543.26	92.60	6.867		
9,100.00	9,087.33	11,807.46	9,132.12	32.55	62.05	88.15	320.16	523.80	624.50	530.17	94.33	6.620		
9,121.59	9,108.92	11,807.55	9,132.12	32.63	62.05	88.14	320.24	523.80	624.12	529.67	94.45	6.608	CC, ES, SF	
9,200.00	9,187.33	11,807.87	9,132.12	32.90	62.06	88.11	320.56	523.79	629.03	534.91	94.12	6.683		
9,300.00	9,287.33	11,808.28	9,132.13	33.26	62.06	88.07	320.97	523.77	649.12	557.02	92.10	7.048		
9,400.00	9,387.33	11,808.69	9,132.13	33.61	62.07	88.04	321.38	523.76	683.41	594.66	88.75	7.701		
9,500.00	9,487.33	11,809.12	9,132.13	33.97	62.08	88.00	321.81	523.75	729.88	645.21	84.67	8.620		
9,600.00	9,587.33	11,809.55	9,132.13	34.33	62.09	87.96	322.24	523.73	786.39	705.98	80.40	9.781		
9,700.00	9,687.33	11,809.98	9,132.13	34.68	62.09	87.92	322.67	523.72	850.93	774.63	76.31	11.152		
9,800.00	9,787.33	11,810.43	9,132.13	35.04	62.10	87.88	323.12	523.70	921.83	849.25	72.57	12.702		
9,900.00	9,887.33	11,810.88	9,132.14	35.39	62.11	87.84	323.57	523.69	997.72	928.44	69.28	14.401		
10,000.00	9,987.33	11,811.34	9,132.14	35.75	62.12	87.79	324.03	523.67	1,077.55	1,011.12	66.44	16.219		
10,100.00	10,087.33	11,811.81	9,132.14	36.10	62.12	87.75	324.50	523.66	1,160.52	1,096.51	64.01	18.130		
10,200.00	10,187.33	11,812.29	9,132.14	36.46	62.13	87.71	324.98	523.64	1,245.99	1,184.03	61.96	20.111		
10,300.00	10,287.33	11,812.77	9,132.14	36.81	62.14	87.66	325.46	523.63	1,333.48	1,273.25	60.23	22.140		
10,400.00	10,387.33	11,813.26	9,132.15	37.17	62.15	87.62	325.95	523.61	1,422.62	1,363.83	58.78	24.202		

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference
 TVD Reference: RKB @ 3224.80ft
 MD Reference: RKB @ 3224.80ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23 FED 1H - Original Hole - Plan 1														Offset Site Error:	0.00 ft
Survey Program: 0-GYRO														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
7,800.00	7,787.44	11,667.58	9,132.52	27.93	0.00	113.87	304.05	507.53	1,454.05	1,437.36	16.69	87.100			
7,900.00	7,887.35	11,671.30	9,132.51	28.29	0.00	110.73	307.77	507.49	1,364.43	1,347.02	17.41	78.357			
8,000.00	7,987.33	11,672.53	9,132.50	28.65	0.00	107.92	309.00	507.48	1,275.90	1,257.70	18.20	70.094			
8,100.00	8,087.33	11,672.22	9,132.50	29.00	0.00	89.18	308.69	507.49	1,188.92	1,169.84	19.08	62.315			
8,200.00	8,187.33	11,671.89	9,132.50	29.36	0.00	89.21	308.36	507.49	1,104.15	1,084.08	20.07	55.026			
8,300.00	8,287.33	11,671.56	9,132.51	29.71	0.00	89.24	308.03	507.49	1,022.13	1,000.95	21.18	48.256			
8,400.00	8,387.33	11,671.23	9,132.51	30.07	0.00	89.27	307.70	507.49	943.59	921.14	22.44	42.045			
8,500.00	8,487.33	11,670.89	9,132.51	30.42	0.00	89.31	307.36	507.50	869.46	845.80	23.86	36.442			
8,600.00	8,587.33	11,670.56	9,132.51	30.77	0.00	89.34	307.03	507.50	800.98	775.55	25.43	31.502			
8,700.00	8,687.33	11,670.23	9,132.51	31.13	0.00	89.37	306.70	507.50	739.71	712.80	27.11	27.283			
8,800.00	8,787.33	11,669.90	9,132.51	31.48	0.00	89.40	306.37	507.51	687.59	658.75	28.83	23.848			
8,900.00	8,887.33	11,669.57	9,132.51	31.84	0.00	89.43	306.04	507.51	646.82	616.38	30.44	21.248			
9,000.00	8,987.33	11,669.24	9,132.51	32.19	0.00	89.46	305.71	507.51	619.66	587.93	31.73	19.527			
9,100.00	9,087.33	11,668.90	9,132.51	32.55	0.00	89.49	305.37	507.52	607.94	575.43	32.51	18.703			
9,121.98	9,109.31	11,668.83	9,132.51	32.63	0.00	89.50	305.30	507.52	607.54	574.95	32.59	18.641	CC, ES, SF		
9,200.00	9,187.33	11,668.57	9,132.52	32.90	0.00	89.52	305.04	507.52	612.53	579.89	32.64	18.767			
9,300.00	9,287.33	11,668.24	9,132.52	33.26	0.00	89.56	304.71	507.52	633.08	600.91	32.17	19.678			
9,400.00	9,387.33	11,667.91	9,132.52	33.61	0.00	89.59	304.38	507.52	668.13	636.86	31.27	21.367			
9,500.00	9,487.33	11,667.58	9,132.52	33.97	0.00	89.62	304.05	507.53	715.54	685.40	30.15	23.736			
9,600.00	9,587.33	11,667.25	9,132.52	34.33	0.00	89.65	303.72	507.53	773.05	744.07	28.98	26.673			
9,700.00	9,687.33	11,666.91	9,132.52	34.68	0.00	89.68	303.39	507.53	838.57	810.68	27.89	30.063			
9,800.00	9,787.33	11,666.58	9,132.52	35.04	0.00	89.71	303.05	507.54	910.39	883.45	26.94	33.791			
9,900.00	9,887.33	11,666.25	9,132.52	35.39	0.00	89.74	302.72	507.54	987.12	960.98	26.15	37.755			
10,000.00	9,987.33	11,665.92	9,132.52	35.75	0.00	89.77	302.39	507.54	1,067.71	1,042.21	25.50	41.867			
10,100.00	10,087.33	11,665.59	9,132.53	36.10	0.00	89.81	302.06	507.54	1,151.35	1,126.35	25.00	46.055			
10,200.00	10,187.33	11,665.26	9,132.53	36.46	0.00	89.84	301.73	507.55	1,237.42	1,212.80	24.62	50.261			
10,300.00	10,287.33	11,664.92	9,132.53	36.81	0.00	89.87	301.40	507.55	1,325.45	1,301.10	24.35	54.443			
10,400.00	10,387.33	11,664.59	9,132.53	37.17	0.00	89.90	301.06	507.55	1,415.07	1,390.91	24.16	58.567			

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
 TVD Reference: RKB @ 3224.80ft
 MD Reference: RKB @ 3224.80ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit Plan 2														Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error: 0.50 ft
Reference	Offset	Semi Major Axis		Distance		Between Centres		Minimum Separation	Separation Factor	Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	6.50	-6.50	0.50	0.50	89.92	0.04	29.98	29.98					
100.00	100.00	106.50	93.50	0.51	0.52	89.92	0.04	29.98	29.98	28.95	1.04	28.852		
200.00	200.00	206.50	193.50	0.69	0.72	89.92	0.04	29.98	29.98	28.57	1.41	21.221		
300.00	300.00	306.50	293.50	0.98	1.01	89.92	0.04	29.98	29.98	28.00	1.99	15.104		
400.00	400.00	406.50	393.50	1.30	1.33	89.92	0.04	29.98	29.98	27.36	2.63	11.403		
500.00	500.00	506.50	493.50	1.64	1.67	89.92	0.04	29.98	29.98	26.68	3.30	9.076		
600.00	600.00	606.50	593.50	1.98	2.01	89.92	0.04	29.98	29.98	25.99	3.99	7.509		
700.00	700.00	706.50	693.50	2.33	2.36	89.92	0.04	29.98	29.98	25.29	4.69	6.393		
800.00	800.00	806.50	793.50	2.68	2.71	89.92	0.04	29.98	29.98	24.59	5.39	5.580		
900.00	900.00	906.50	893.50	3.03	3.07	89.92	0.04	29.98	29.98	23.89	6.10	4.916	Alert	
1,000.00	1,000.00	1,006.50	993.50	3.39	3.42	89.92	0.04	29.98	29.98	23.18	6.81	4.405	Alert	
1,100.00	1,100.00	1,106.50	1,093.50	3.74	3.78	89.92	0.04	29.98	29.98	22.47	7.52	3.989	Alert	
1,200.00	1,200.00	1,206.50	1,193.50	4.10	4.13	89.92	0.04	29.98	29.98	21.76	8.23	3.644	Alert	
1,300.00	1,300.00	1,306.50	1,293.50	4.45	4.49	89.92	0.04	29.98	29.98	21.04	8.94	3.354	Alert	
1,400.00	1,400.00	1,406.50	1,393.50	4.81	4.84	89.92	0.04	29.98	29.98	20.33	9.65	3.106	Alert	
1,500.00	1,500.00	1,506.50	1,493.50	5.17	5.20	89.92	0.04	29.98	29.98	19.62	10.37	2.892	Alert	
1,600.00	1,600.00	1,606.50	1,593.50	5.52	5.56	89.92	0.04	29.98	29.98	18.90	11.08	2.706	Alert	
1,700.00	1,700.00	1,706.50	1,693.50	5.88	5.91	89.92	0.04	29.98	29.98	18.19	11.79	2.542	Alert	
1,800.00	1,800.00	1,806.50	1,793.50	6.24	6.27	89.92	0.04	29.98	29.98	17.48	12.51	2.397	Minor Risk	
1,900.00	1,900.00	1,906.50	1,893.50	6.59	6.63	89.92	0.04	29.98	29.98	16.76	13.22	2.267	Minor Risk	
2,000.00	2,000.00	2,006.50	1,993.50	6.95	6.99	89.92	0.04	29.98	29.98	16.05	13.94	2.151	Minor Risk	
2,100.00	2,100.00	2,106.50	2,093.50	7.31	7.34	89.92	0.04	29.98	29.98	15.33	14.65	2.046	Minor Risk	
2,200.00	2,200.00	2,206.50	2,193.50	7.67	7.70	89.92	0.04	29.98	29.98	14.62	15.37	1.951	Minor Risk	
2,300.00	2,300.00	2,306.50	2,293.50	8.03	8.06	89.92	0.04	29.98	29.98	13.90	16.08	1.864	Minor Risk	
2,400.00	2,400.00	2,406.50	2,393.50	8.38	8.42	89.92	0.04	29.98	29.98	13.18	16.80	1.785	Minor Risk	
2,500.00	2,500.00	2,506.50	2,493.50	8.74	8.78	89.92	0.04	29.98	29.98	12.47	17.52	1.712	Minor Risk	
2,600.00	2,600.00	2,606.50	2,593.50	9.10	9.13	89.92	0.04	29.98	29.98	11.75	18.23	1.645	Minor Risk	
2,700.00	2,700.00	2,706.50	2,693.50	9.46	9.49	89.92	0.04	29.98	29.98	11.04	18.95	1.582	Minor Risk	
2,800.00	2,800.00	2,793.50	2,783.50	9.81	9.80	89.92	0.04	29.98	29.98	10.37	19.62	1.528	Minor Risk, CC	
2,900.00	2,900.00	2,893.08	2,883.07	10.17	10.16	89.17	0.44	30.63	30.63	10.31	20.33	1.507	Minor Risk, ES, SF	
3,000.00	3,000.00	2,892.57	2,882.54	10.53	10.50	86.93	1.76	32.73	32.79	11.76	21.03	1.559	Minor Risk	
3,100.00	3,100.00	3,091.95	3,081.82	10.89	10.85	83.74	3.98	36.29	36.55	14.83	21.72	1.683	Minor Risk	
3,200.00	3,200.00	3,208.70	3,191.00	11.25	11.26	80.24	7.10	41.27	41.96	19.48	22.47	1.867	Minor Risk	
3,300.00	3,300.00	3,308.91	3,290.59	11.61	11.62	77.33	10.50	46.72	47.98	24.80	23.18	2.070	Minor Risk	
3,400.00	3,400.00	3,409.11	3,390.17	11.96	11.97	75.07	13.91	52.17	54.09	30.20	23.89	2.264	Minor Risk	
3,500.00	3,500.00	3,509.32	3,489.76	12.32	12.33	73.28	17.31	57.62	60.28	35.68	24.60	2.450	Minor Risk	
3,600.00	3,600.00	3,609.53	3,589.34	12.68	12.69	71.81	20.72	63.07	66.51	41.20	25.31	2.628	Alert	
3,700.00	3,700.00	3,709.74	3,688.93	13.04	13.04	70.60	24.12	68.51	72.78	46.76	26.02	2.797	Alert	
3,800.00	3,800.00	3,809.94	3,788.51	13.40	13.40	69.59	27.53	73.96	79.08	52.34	26.73	2.958	Alert	
3,900.00	3,900.00	3,889.86	3,868.11	13.75	13.69	67.68	30.93	79.41	85.35	57.98	27.37	3.118	Alert	
4,000.00	3,999.96	3,889.65	3,867.70	14.11	14.04	66.46	34.34	84.86	91.57	63.49	28.08	3.261	Alert	
4,100.00	4,099.86	4,089.42	4,067.25	14.47	14.40	60.17	37.74	90.30	97.80	69.00	28.79	3.396	Alert	
4,200.00	4,199.68	4,189.11	4,166.74	14.83	14.76	52.61	41.14	95.75	104.17	74.67	29.50	3.531	Alert	
4,300.00	4,299.37	4,288.72	4,266.14	15.18	15.12	45.65	44.54	101.18	110.88	80.67	30.21	3.670	Alert	
4,400.00	4,399.03	4,388.29	4,365.51	15.54	15.47	38.62	47.94	106.62	117.94	87.02	30.93	3.814	Alert	
4,500.00	4,498.68	4,487.87	4,464.88	15.90	15.83	31.24	51.34	112.06	125.29	93.65	31.64	3.960	Alert	
4,600.00	4,598.34	4,587.44	4,564.25	16.26	16.19	23.58	54.73	117.49	132.87	100.51	32.35	4.107	Alert	
4,700.00	4,698.00	4,687.02	4,663.61	16.61	16.55	15.65	58.13	122.93	140.64	107.57	33.07	4.253	Alert	
4,800.00	4,797.65	4,786.59	4,762.98	16.97	16.91	7.51	61.53	128.36	148.58	114.79	33.78	4.398	Alert	
4,900.00	4,897.31	4,886.17	4,862.35	17.33	17.27	109.18	64.93	133.80	156.65	122.15	34.50	4.541	Alert	
5,000.00	4,996.96	4,985.74	4,961.72	17.70	17.63	110.68	68.32	139.24	164.85	129.63	35.21	4.681	Alert	

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

Anticollision Report

Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 23-T26S-R34E
Site Error: 0.00 ft
Reference Well: Mean Green 23-35 Fed Com 1H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
TVD Reference: RKB @ 3224.80ft
MD Reference: RKB @ 3224.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit Plan 2													Offset Site Error:
Survey Program: 0-MWD+HDGM													Offset Well Error:
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)					
5,100.00	5,096.62	5,085.32	5,081.09	18.06	17.99	112.05	71.72	144.67	173.15	137.22	35.93	4.819 Alert	
5,200.00	5,196.28	5,184.89	5,180.45	18.42	18.35	113.28	75.12	150.11	181.54	144.89	36.65	4.953 Alert	
5,300.00	5,295.93	5,284.47	5,279.82	18.78	18.71	114.41	78.52	155.54	190.00	152.63	37.37	5.084	
5,400.00	5,395.59	5,384.04	5,379.19	19.14	19.07	115.44	81.91	160.98	198.53	160.44	38.09	5.212	
5,500.00	5,495.24	5,483.61	5,478.56	19.51	19.43	116.38	85.31	166.42	207.12	168.31	38.81	5.337	
5,600.00	5,594.90	5,583.19	5,577.93	19.87	19.79	117.25	88.71	171.85	215.76	176.23	39.53	5.459	
5,700.00	5,694.56	5,682.76	5,677.29	20.23	20.16	118.06	92.11	177.29	224.45	184.20	40.25	5.577	
5,800.00	5,794.21	5,782.34	5,776.66	20.60	20.52	118.80	95.50	182.72	233.17	192.20	40.97	5.692	
5,900.00	5,893.87	5,881.91	5,876.03	20.96	20.88	119.49	98.90	188.16	241.93	200.25	41.69	5.803	
6,000.00	5,993.53	5,981.49	5,975.40	21.33	21.24	120.13	102.30	193.60	250.73	208.32	42.41	5.912	
6,100.00	6,093.18	6,081.06	6,074.77	21.69	21.60	120.73	105.70	199.03	259.55	216.42	43.13	6.018	
6,200.00	6,192.84	6,180.64	6,174.13	22.06	21.97	121.29	109.09	204.47	268.40	224.55	43.85	6.121	
6,300.00	6,292.49	6,280.21	6,273.50	22.42	22.33	121.81	112.49	209.90	277.28	232.70	44.58	6.220	
6,400.00	6,392.15	6,379.79	6,372.87	22.79	22.69	122.30	115.89	215.34	286.17	240.88	45.30	6.318	
6,500.00	6,491.81	6,479.36	6,472.24	23.16	23.05	122.76	119.29	220.78	295.09	249.07	46.02	6.412	
6,600.00	6,591.46	6,578.94	6,571.61	23.52	23.42	123.19	122.68	226.21	304.02	257.28	46.74	6.504	
6,700.00	6,691.12	6,678.51	6,670.98	23.89	23.78	123.60	126.08	231.65	312.97	265.50	47.47	6.593	
6,800.00	6,790.78	6,778.08	6,770.34	24.26	24.14	123.99	129.48	237.08	321.94	273.75	48.19	6.681	
6,900.00	6,890.43	6,877.66	6,869.71	24.62	24.51	124.35	132.88	242.52	330.91	282.00	48.91	6.765	
7,000.00	6,990.09	6,977.23	6,969.08	24.99	24.87	124.70	136.27	247.96	339.90	290.27	49.64	6.848	
7,100.00	7,089.74	7,076.81	7,068.45	25.36	25.23	125.03	139.67	253.39	348.91	298.54	50.36	6.928	
7,200.00	7,189.40	7,176.38	7,167.82	25.72	25.60	125.34	143.07	258.83	357.92	306.83	51.09	7.006	
7,300.00	7,289.06	7,275.96	7,267.18	26.09	25.96	125.63	146.47	264.26	366.94	315.13	51.81	7.082	
7,400.00	7,388.71	7,375.53	7,366.55	26.46	26.32	125.92	149.86	269.70	375.97	323.44	52.54	7.157	
7,500.00	7,488.37	7,475.11	7,465.82	26.83	26.69	126.18	153.26	275.14	385.01	331.75	53.26	7.229	
7,600.00	7,588.02	7,574.68	7,565.29	27.20	27.05	126.44	156.66	280.57	394.06	340.08	53.99	7.299	
7,700.00	7,687.68	7,674.26	7,664.66	27.56	27.41	126.69	160.06	286.01	403.12	348.41	54.71	7.368	
7,800.00	7,787.44	7,773.91	7,764.11	27.93	27.78	126.86	163.46	291.45	411.33	355.90	55.43	7.420	
7,900.00	7,887.35	7,873.68	7,863.66	28.29	28.14	126.73	166.86	296.89	417.99	361.83	56.16	7.443	
8,000.00	7,987.33	7,973.48	7,963.26	28.65	28.51	126.30	170.26	302.34	423.09	366.22	56.87	7.439	
8,100.00	8,087.33	8,073.27	8,062.84	29.00	28.87	107.21	173.67	307.79	427.29	369.70	57.59	7.420	
8,200.00	8,187.33	8,173.06	8,162.43	29.36	29.24	106.57	177.07	313.24	431.53	373.22	58.30	7.401	
8,300.00	8,287.33	8,272.86	8,262.01	29.71	29.60	105.93	180.48	318.69	435.82	376.80	59.02	7.384	
8,400.00	8,387.33	8,372.65	8,361.60	30.07	29.97	105.31	183.88	324.13	440.16	380.43	59.73	7.369	
8,500.00	8,487.33	8,472.44	8,461.19	30.42	30.33	104.70	187.29	329.58	444.56	384.11	60.45	7.354	
8,600.00	8,587.33	8,572.23	8,560.77	30.77	30.70	104.10	190.69	335.03	449.00	387.84	61.16	7.341	
8,700.00	8,687.33	8,672.03	8,660.36	31.13	31.06	103.52	194.10	340.48	453.49	391.61	61.88	7.329	
8,800.00	8,787.33	8,771.82	8,759.94	31.48	31.43	102.94	197.50	345.92	458.03	395.44	62.59	7.318	
8,900.00	8,887.33	8,871.61	8,859.53	31.84	31.79	102.38	200.91	351.37	462.61	399.30	63.31	7.307	
9,000.00	8,987.33	8,971.40	8,959.11	32.19	32.16	101.83	204.31	356.82	467.24	403.22	64.02	7.298	
9,100.00	9,087.33	9,071.20	9,058.70	32.55	32.52	101.29	207.72	362.27	471.91	407.17	64.74	7.289	
9,200.00	9,187.33	9,170.99	9,158.28	32.90	32.89	100.76	211.12	367.72	476.62	411.17	65.45	7.282	
9,300.00	9,287.33	9,270.78	9,257.87	33.26	33.25	100.24	214.53	373.16	481.37	415.20	66.17	7.275	
9,400.00	9,387.33	9,370.57	9,357.46	33.61	33.62	99.73	217.93	378.61	486.16	419.27	66.88	7.269	
9,500.00	9,487.33	9,470.37	9,457.04	33.97	33.98	99.23	221.34	384.06	490.99	423.39	67.60	7.263	
9,600.00	9,587.33	9,570.16	9,556.63	34.33	34.35	98.74	224.74	389.51	495.85	427.54	68.31	7.258	
9,700.00	9,687.33	9,669.95	9,656.21	34.68	34.72	98.26	228.15	394.96	500.75	431.72	69.03	7.254	
9,800.00	9,787.33	9,769.75	9,755.80	35.04	35.08	97.79	231.55	400.40	505.68	435.94	69.75	7.250	
9,900.00	9,887.33	9,869.54	9,855.38	35.39	35.45	97.33	234.96	405.85	510.65	440.19	70.46	7.247	
10,000.00	9,987.33	9,969.33	9,954.97	35.75	35.81	96.87	238.36	411.30	515.65	444.47	71.18	7.245	
10,100.00	10,087.33	10,069.12	10,054.55	36.10	36.18	96.43	241.77	416.75	520.68	448.79	71.89	7.243	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3224.80ft
Reference Site:	Sec 23-T26S-R34E	MD Reference:	RKB @ 3224.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit Plan 2												Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM												Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface	Offset Wellbore Centre		Distance		Minimum Separation	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset		+N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,200.00	10,187.33	10,168.92	10,154.14	36.46	36.54	95.99	245.17	422.19	525.74	453.14	72.61	7.241	
10,300.00	10,287.33	10,268.71	10,253.73	36.81	36.91	95.57	248.58	427.64	530.83	457.51	73.32	7.240	
10,400.00	10,387.33	10,368.50	10,353.31	37.17	37.28	95.15	251.98	433.09	535.96	461.92	74.04	7.239	
10,500.00	10,487.33	10,468.29	10,452.90	37.53	37.64	94.74	255.39	438.54	541.10	466.35	74.75	7.239	
10,600.00	10,587.33	10,568.09	10,552.48	37.88	38.01	94.33	258.79	443.99	546.28	470.81	75.47	7.239	
10,700.00	10,687.33	10,667.88	10,652.07	38.24	38.37	93.94	262.20	449.43	551.48	475.30	76.18	7.239	
10,800.00	10,787.33	10,767.67	10,751.65	38.59	38.74	93.55	265.60	454.88	556.71	479.81	76.90	7.239	
10,900.00	10,887.33	10,867.46	10,851.24	38.95	39.10	93.17	269.01	460.33	561.97	484.35	77.61	7.240	
11,000.00	10,987.33	10,967.26	10,950.82	39.31	39.47	92.79	272.41	465.78	567.24	488.91	78.33	7.242	
11,100.00	11,087.33	11,067.05	11,050.41	39.66	39.84	92.42	275.82	471.23	572.55	493.50	79.05	7.243	
11,200.00	11,187.33	11,166.84	11,150.00	40.02	40.20	92.06	279.22	476.67	577.87	498.11	79.76	7.245	
11,300.00	11,287.33	11,266.63	11,249.58	40.38	40.57	91.71	282.63	482.12	583.22	502.74	80.48	7.247	
11,400.00	11,387.33	11,366.43	11,349.17	40.73	40.93	91.36	286.03	487.57	588.59	507.39	81.19	7.249	
11,500.00	11,487.33	11,466.22	11,448.75	41.09	41.30	91.02	289.44	493.02	593.98	512.07	81.91	7.252	
11,600.00	11,587.33	11,566.01	11,548.34	41.44	41.67	90.69	292.84	498.46	599.39	516.76	82.62	7.254	
11,700.00	11,687.33	11,667.63	11,649.75	41.80	42.04	90.35	296.30	503.99	604.80	521.45	83.35	7.256	
11,800.00	11,787.33	11,767.05	11,765.04	42.16	42.46	90.09	299.09	508.47	608.67	524.51	84.16	7.232	
11,900.00	11,887.33	11,868.68	11,880.65	42.51	42.87	90.00	300.04	509.98	609.98	525.06	84.92	7.183	
12,000.00	11,987.33	12,001.14	11,980.83	42.87	43.22	90.00	300.04	509.98	609.98	524.35	85.64	7.123	
12,100.00	12,087.33	12,101.14	12,080.83	43.23	43.57	90.00	300.04	509.98	609.98	523.64	86.35	7.064	
12,200.00	12,187.31	12,201.16	12,180.81	43.58	43.92	-89.82	300.04	509.98	609.98	522.94	87.04	7.008	
12,223.37	12,210.60	12,222.12	12,204.10	43.65	43.99	-90.00	300.04	509.98	609.98	522.79	87.19	6.996	
12,300.00	12,286.08	12,298.40	12,280.32	43.88	44.25	-91.01	298.00	510.00	610.08	522.41	87.67	6.959	
12,400.00	12,380.77	12,400.17	12,380.43	44.15	44.56	-92.39	280.49	510.15	610.59	522.35	88.24	6.920	
12,500.00	12,468.52	12,504.79	12,478.46	44.39	44.84	-93.72	244.35	510.46	611.49	522.75	88.74	6.891	
12,600.00	12,546.65	12,612.35	12,570.66	44.60	45.07	-94.94	189.27	510.92	612.69	523.54	89.16	6.872	
12,700.00	12,612.79	12,722.77	12,652.91	44.78	45.25	-96.02	115.87	511.55	614.06	524.58	89.48	6.862	
12,800.00	12,664.93	12,835.81	12,720.96	44.96	45.37	-96.90	25.82	512.31	615.45	525.71	89.74	6.858	
12,900.00	12,701.49	12,951.07	12,770.79	45.13	45.48	-97.55	-77.88	513.19	616.69	526.72	89.97	6.854	
13,000.00	12,721.35	13,067.91	12,799.12	45.29	45.67	-97.94	-191.02	514.15	617.64	527.42	90.22	6.846	
13,100.00	12,725.00	13,180.22	12,805.00	45.45	45.88	-98.04	-303.05	515.10	618.17	527.66	90.52	6.829	
13,200.00	12,725.00	13,280.22	12,805.00	45.64	46.10	-98.04	-403.05	515.95	618.52	527.63	90.89	6.805	
13,300.00	12,725.00	13,380.22	12,805.00	45.88	46.35	-98.03	-503.04	516.80	618.86	527.51	91.36	6.774	
13,400.00	12,725.00	13,480.22	12,805.00	46.16	46.64	-98.03	-603.04	517.65	619.21	527.30	91.91	6.737	
13,500.00	12,725.00	13,580.22	12,805.00	46.48	46.98	-98.03	-703.03	518.49	619.56	527.01	92.55	6.695	
13,600.00	12,725.00	13,680.22	12,805.00	46.85	47.35	-98.02	-803.03	519.34	619.90	526.63	93.27	6.646	
13,700.00	12,725.00	13,780.22	12,805.00	47.26	47.77	-98.02	-903.02	520.19	620.25	526.17	94.08	6.593	
13,800.00	12,725.00	13,880.22	12,805.00	47.71	48.22	-98.01	-1,003.02	521.04	620.60	525.63	94.96	6.535	
13,900.00	12,725.00	13,980.22	12,805.00	48.20	48.71	-98.01	-1,103.02	521.89	620.94	525.01	95.93	6.473	
14,000.00	12,725.00	14,080.22	12,805.00	48.73	49.24	-98.00	-1,203.01	522.74	621.29	524.32	96.97	6.407	
14,100.00	12,725.00	14,180.22	12,805.00	49.29	49.81	-98.00	-1,303.01	523.58	621.64	523.55	98.09	6.337	
14,200.00	12,725.00	14,280.21	12,805.00	49.89	50.41	-97.99	-1,403.00	524.43	621.98	522.70	99.28	6.265	
14,300.00	12,725.00	14,380.21	12,805.00	50.53	51.04	-97.99	-1,503.00	525.28	622.33	521.79	100.53	6.190	
14,400.00	12,725.00	14,480.21	12,805.00	51.20	51.71	-97.99	-1,602.99	526.13	622.67	520.82	101.86	6.113	
14,500.00	12,725.00	14,580.21	12,805.00	51.90	52.40	-97.98	-1,702.99	526.98	623.02	519.78	103.24	6.035	
14,600.00	12,725.00	14,680.21	12,805.00	52.63	53.13	-97.98	-1,802.99	527.83	623.37	518.68	104.69	5.954	
14,700.00	12,725.00	14,780.21	12,805.00	53.39	53.89	-97.97	-1,902.98	528.67	623.71	517.52	106.20	5.873	
14,800.00	12,725.00	14,880.21	12,805.00	54.18	54.68	-97.97	-2,002.98	529.52	624.06	516.30	107.76	5.791	
14,900.00	12,725.00	14,980.21	12,805.00	55.00	55.49	-97.96	-2,102.97	530.37	624.41	515.03	109.38	5.709	
15,000.00	12,725.00	15,080.21	12,805.00	55.84	56.33	-97.96	-2,202.97	531.22	624.75	513.71	111.04	5.626	
15,100.00	12,725.00	15,180.21	12,805.00	56.71	57.19	-97.95	-2,302.97	532.07	625.10	512.34	112.76	5.544	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3224.80ft
Reference Site:	Sec 23-T26S-R34E	MD Reference:	RKB @ 3224.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit Plan 2													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface	Distance		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre N-S (ft)	Offset Wellbore Centre E-W (ft)					
15,200.00	12,725.00	15,280.21	12,805.00	57.80	58.08	-97.95	-2,402.96	532.91	625.44	510.92	114.53	5.461	
15,300.00	12,725.00	15,380.21	12,805.00	58.51	58.98	-97.95	-2,502.96	533.76	625.79	509.46	116.33	5.379	
15,400.00	12,725.00	15,480.21	12,805.00	59.44	59.91	-97.94	-2,602.95	534.61	626.14	507.95	118.19	5.298	
15,500.00	12,725.00	15,580.21	12,805.00	60.40	60.87	-97.94	-2,702.95	535.46	626.48	506.40	120.08	5.217	
15,600.00	12,725.00	15,680.21	12,805.00	61.37	61.84	-97.93	-2,802.94	536.31	626.83	504.82	122.01	5.137	
15,700.00	12,725.00	15,780.21	12,805.00	62.36	62.82	-97.93	-2,902.94	537.16	627.18	503.20	123.98	5.059	
15,800.00	12,725.00	15,880.21	12,805.00	63.37	63.83	-97.92	-3,002.94	538.00	627.52	501.54	125.98	4.981	Alert
15,900.00	12,725.00	15,980.20	12,805.00	64.40	64.85	-97.92	-3,102.93	538.85	627.87	499.85	128.02	4.904	Alert
16,000.00	12,725.00	16,080.20	12,805.00	65.44	65.89	-97.91	-3,202.93	539.70	628.22	498.12	130.09	4.829	Alert
16,100.00	12,725.00	16,180.20	12,805.00	66.50	66.95	-97.91	-3,302.92	540.55	628.56	496.37	132.19	4.755	Alert
16,200.00	12,725.00	16,280.20	12,805.00	67.57	68.02	-97.91	-3,402.92	541.40	628.91	494.59	134.32	4.682	Alert
16,300.00	12,725.00	16,380.20	12,805.00	68.66	69.10	-97.90	-3,502.91	542.25	629.25	492.77	136.48	4.611	Alert
16,400.00	12,725.00	16,480.20	12,805.00	69.76	70.20	-97.90	-3,602.91	543.09	629.60	490.94	138.66	4.540	Alert
16,500.00	12,725.00	16,580.20	12,805.00	70.88	71.31	-97.89	-3,702.91	543.94	629.95	489.07	140.87	4.472	Alert
16,600.00	12,725.00	16,680.20	12,805.00	72.00	72.43	-97.89	-3,802.90	544.79	630.29	487.19	143.11	4.404	Alert
16,700.00	12,725.00	16,780.20	12,805.00	73.14	73.56	-97.88	-3,902.90	545.64	630.64	485.28	145.36	4.338	Alert
16,800.00	12,725.00	16,880.20	12,805.00	74.28	74.71	-97.88	-4,002.89	546.49	630.99	483.34	147.64	4.274	Alert
16,900.00	12,725.00	16,980.20	12,805.00	75.44	75.86	-97.88	-4,102.89	547.34	631.33	481.39	149.94	4.210	Alert
17,000.00	12,725.00	17,080.20	12,805.00	76.61	77.03	-97.87	-4,202.89	548.18	631.68	479.42	152.26	4.149	Alert
17,100.00	12,725.00	17,180.20	12,805.00	77.79	78.20	-97.87	-4,302.88	549.03	632.03	477.42	154.60	4.088	Alert
17,200.00	12,725.00	17,280.20	12,805.00	78.97	79.39	-97.86	-4,402.88	549.88	632.37	475.41	156.96	4.029	Alert
17,300.00	12,725.00	17,380.20	12,805.00	80.17	80.58	-97.86	-4,502.87	550.73	632.72	473.39	159.33	3.971	Alert
17,400.00	12,725.00	17,480.20	12,805.00	81.37	81.78	-97.85	-4,602.87	551.58	633.07	471.34	161.72	3.914	Alert
17,500.00	12,725.00	17,580.19	12,805.00	82.59	82.99	-97.85	-4,702.86	552.43	633.41	469.28	164.13	3.859	Alert
17,600.00	12,725.00	17,680.19	12,805.00	83.80	84.21	-97.84	-4,802.86	553.27	633.76	467.20	166.55	3.805	Alert
17,700.00	12,725.00	17,780.19	12,805.00	85.03	85.43	-97.84	-4,902.86	554.12	634.10	465.11	168.99	3.752	Alert
17,800.00	12,725.00	17,880.19	12,805.00	86.27	86.66	-97.84	-5,002.85	554.97	634.45	463.01	171.44	3.701	Alert
17,900.00	12,725.00	17,980.19	12,805.00	87.51	87.90	-97.83	-5,102.85	555.82	634.80	460.89	173.91	3.650	Alert
18,000.00	12,725.00	18,080.19	12,805.00	88.75	89.15	-97.83	-5,202.84	556.67	635.14	458.76	176.38	3.601	Alert
18,100.00	12,725.00	18,180.19	12,805.00	90.01	90.40	-97.82	-5,302.84	557.52	635.49	456.62	178.87	3.553	Alert
18,200.00	12,725.00	18,280.19	12,805.00	91.26	91.65	-97.82	-5,402.83	558.36	635.84	454.46	181.38	3.506	Alert
18,300.00	12,725.00	18,380.19	12,805.00	92.53	92.92	-97.81	-5,502.83	559.21	636.18	452.30	183.89	3.460	Alert
18,400.00	12,725.00	18,480.19	12,805.00	93.80	94.19	-97.81	-5,602.83	560.06	636.53	450.12	186.41	3.415	Alert
18,500.00	12,725.00	18,580.19	12,805.00	95.07	95.46	-97.81	-5,702.82	560.91	636.88	447.93	188.95	3.371	Alert
18,600.00	12,725.00	18,680.19	12,805.00	96.35	96.74	-97.80	-5,802.82	561.76	637.22	445.73	191.49	3.328	Alert
18,700.00	12,725.00	18,780.19	12,805.00	97.64	98.02	-97.80	-5,902.81	562.60	637.57	443.52	194.04	3.286	Alert
18,800.00	12,725.00	18,880.19	12,805.00	98.93	99.31	-97.79	-6,002.81	563.45	637.92	441.31	196.61	3.245	Alert
18,900.00	12,725.00	18,980.19	12,805.00	100.22	100.60	-97.79	-6,102.81	564.30	638.26	439.08	199.18	3.204	Alert
19,000.00	12,725.00	19,080.19	12,805.00	101.52	101.90	-97.78	-6,202.80	565.15	638.61	436.85	201.76	3.165	Alert
19,100.00	12,725.00	19,180.18	12,805.00	102.82	103.20	-97.78	-6,302.80	566.00	638.96	434.61	204.35	3.127	Alert
19,200.00	12,725.00	19,280.18	12,805.00	104.13	104.51	-97.78	-6,402.79	566.85	639.30	432.36	206.95	3.089	Alert
19,300.00	12,725.00	19,380.18	12,805.00	105.44	105.81	-97.77	-6,502.79	567.69	639.65	430.10	209.55	3.052	Alert
19,400.00	12,725.00	19,480.18	12,805.00	106.75	107.13	-97.77	-6,602.78	568.54	640.00	427.83	212.16	3.017	Alert
19,500.00	12,725.00	19,580.18	12,805.00	108.07	108.44	-97.76	-6,702.78	569.39	640.34	425.56	214.78	2.981	Alert
19,600.00	12,725.00	19,680.18	12,805.00	109.39	109.76	-97.76	-6,802.78	570.24	640.69	423.28	217.41	2.947	Alert
19,700.00	12,725.00	19,780.18	12,805.00	110.71	111.09	-97.76	-6,902.77	571.09	641.03	421.00	220.04	2.913	Alert
19,800.00	12,725.00	19,880.18	12,805.00	112.04	112.41	-97.75	-7,002.77	571.94	641.38	418.70	222.68	2.880	Alert
19,900.00	12,725.00	19,980.18	12,805.00	113.37	113.74	-97.75	-7,102.76	572.78	641.73	416.40	225.32	2.848	Alert
20,000.00	12,725.00	20,080.18	12,805.00	114.70	115.07	-97.74	-7,202.76	573.63	642.07	414.10	227.97	2.816	Alert
20,100.00	12,725.00	20,180.18	12,805.00	116.04	116.41	-97.74	-7,302.75	574.48	642.42	411.79	230.63	2.786	Alert
20,200.00	12,725.00	20,280.18	12,805.00	117.38	117.75	-97.73	-7,402.75	575.33	642.77	409.48	233.29	2.755	Alert

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3224.80ft
Reference Site:	Sec 23-T26S-R34E	MD Reference:	RKB @ 3224.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 2H - Wellbore #1 - Permit Plan 2													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (')	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
20,300.00	12,725.00	20,380.18	12,805.00	118.72	119.09	-97.73	-7,502.75	576.18	643.11	407.15	235.96	2.726	Alert	
20,400.00	12,725.00	20,480.18	12,805.00	120.06	120.43	-97.73	-7,602.74	577.03	643.46	404.83	238.63	2.696	Alert	
20,500.00	12,725.00	20,580.18	12,805.00	121.41	121.78	-97.72	-7,702.74	577.87	643.81	402.50	241.31	2.668	Alert	
20,600.00	12,725.00	20,680.18	12,805.00	122.76	123.13	-97.72	-7,802.73	578.72	644.15	400.16	243.99	2.640	Alert	
20,700.00	12,725.00	20,780.18	12,805.00	124.11	124.48	-97.71	-7,902.73	579.57	644.50	397.82	246.68	2.613	Alert	
20,800.00	12,725.00	20,880.17	12,805.00	125.46	125.83	-97.71	-8,002.73	580.42	644.85	395.48	249.37	2.586	Alert	
20,900.00	12,725.00	20,980.17	12,805.00	126.82	127.19	-97.70	-8,102.72	581.27	645.19	393.13	252.07	2.560	Alert	
21,000.00	12,725.00	21,080.17	12,805.00	128.18	128.54	-97.70	-8,202.72	582.12	645.54	390.77	254.77	2.534	Alert	
21,100.00	12,725.00	21,180.17	12,805.00	129.54	129.90	-97.70	-8,302.71	582.96	645.89	388.42	257.47	2.509	Alert	
21,200.00	12,725.00	21,280.17	12,805.00	130.90	131.26	-97.69	-8,402.71	583.81	646.23	386.05	260.18	2.484	Minor Risk	
21,300.00	12,725.00	21,380.17	12,805.00	132.26	132.63	-97.69	-8,502.70	584.66	646.58	383.69	262.89	2.459	Minor Risk	
21,400.00	12,725.00	21,480.17	12,805.00	133.63	133.99	-97.68	-8,602.70	585.51	646.93	381.32	265.61	2.436	Minor Risk	
21,500.00	12,725.00	21,580.17	12,805.00	135.00	135.36	-97.68	-8,702.70	586.36	647.27	378.95	268.33	2.412	Minor Risk	
21,600.00	12,725.00	21,680.17	12,805.00	136.36	136.73	-97.68	-8,802.69	587.21	647.62	376.57	271.05	2.389	Minor Risk	
21,700.00	12,725.00	21,780.17	12,805.00	137.73	138.10	-97.67	-8,902.69	588.05	647.97	374.19	273.78	2.367	Minor Risk	
21,800.00	12,725.00	21,880.17	12,805.00	139.11	139.47	-97.67	-9,002.68	588.90	648.31	371.81	276.51	2.345	Minor Risk	
21,900.00	12,725.00	21,980.17	12,805.00	140.48	140.85	-97.66	-9,102.68	589.75	648.66	369.42	279.24	2.323	Minor Risk	
22,000.00	12,725.00	22,080.17	12,805.00	141.86	142.22	-97.66	-9,202.67	590.60	649.01	367.03	281.98	2.302	Minor Risk	
22,100.00	12,725.00	22,180.17	12,805.00	143.23	143.60	-97.66	-9,302.67	591.45	649.35	364.64	284.72	2.281	Minor Risk	
22,200.00	12,725.00	22,280.17	12,805.00	144.61	144.98	-97.65	-9,402.67	592.29	649.70	362.24	287.46	2.260	Minor Risk	
22,300.00	12,725.00	22,380.17	12,805.00	145.99	146.36	-97.65	-9,502.66	593.14	650.05	359.84	290.20	2.240	Minor Risk	
22,400.00	12,725.00	22,480.16	12,805.00	147.37	147.74	-97.64	-9,602.66	593.99	650.39	357.44	292.95	2.220	Minor Risk	
22,500.00	12,725.00	22,580.16	12,805.00	148.76	149.12	-97.64	-9,702.65	594.84	650.74	355.04	295.70	2.201	Minor Risk	
22,600.00	12,725.00	22,680.16	12,805.00	150.14	150.51	-97.63	-9,802.65	595.69	651.09	352.63	298.45	2.182	Minor Risk	
22,700.00	12,725.00	22,780.16	12,805.00	151.52	151.89	-97.63	-9,902.65	596.54	651.43	350.22	301.21	2.163	Minor Risk	
22,795.93	12,725.00	22,876.09	12,805.00	152.85	153.22	-97.63	-9,998.57	597.35	651.76	347.91	303.86	2.145	Minor Risk	

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
 TVD Reference: RKB @ 3224.80ft
 MD Reference: RKB @ 3224.80ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error: 0.00 ft	
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.00	0.00	0.00	0.00	0.50	0.50	89.72	0.29	60.03	60.03					
100.00	100.00	100.00	100.00	0.51	0.51	89.72	0.29	60.03	60.03	59.00	1.03	58.307		
200.00	200.00	200.00	200.00	0.69	0.69	89.72	0.29	60.03	60.03	58.64	1.39	43.264		
300.00	300.00	300.00	300.00	0.98	0.98	89.72	0.29	60.03	60.03	58.08	1.95	30.720		
400.00	400.00	400.00	400.00	1.30	1.30	89.72	0.29	60.03	60.03	57.44	2.60	23.123		
500.00	500.00	500.00	500.00	1.64	1.63	89.72	0.29	60.03	60.03	56.76	3.27	18.361		
600.00	600.00	600.00	600.00	1.98	1.98	89.72	0.29	60.03	60.03	56.07	3.96	15.167		
700.00	700.00	700.00	700.00	2.33	2.33	89.72	0.29	60.03	60.03	55.38	4.66	12.895		
800.00	800.00	800.00	800.00	2.68	2.68	89.72	0.29	60.03	60.03	54.67	5.36	11.205		
900.00	900.00	900.00	900.00	3.03	3.03	89.72	0.29	60.03	60.03	53.97	6.06	9.900		
1,000.00	1,000.00	1,000.00	1,000.00	3.39	3.39	89.72	0.29	60.03	60.03	53.26	6.77	8.865		
1,100.00	1,100.00	1,100.00	1,100.00	3.74	3.74	89.72	0.29	60.03	60.03	52.55	7.48	8.024		
1,200.00	1,200.00	1,200.00	1,200.00	4.10	4.10	89.72	0.29	60.03	60.03	51.84	8.19	7.328		
1,300.00	1,300.00	1,300.00	1,300.00	4.45	4.45	89.72	0.29	60.03	60.03	51.13	8.90	6.742		
1,400.00	1,400.00	1,400.00	1,400.00	4.81	4.81	89.72	0.29	60.03	60.03	50.41	9.62	6.242		
1,500.00	1,500.00	1,500.00	1,500.00	5.17	5.16	89.72	0.29	60.03	60.03	49.70	10.33	5.811		
1,600.00	1,600.00	1,600.00	1,600.00	5.52	5.52	89.72	0.29	60.03	60.03	48.99	11.04	5.435		
1,700.00	1,700.00	1,700.00	1,700.00	5.88	5.88	89.72	0.29	60.03	60.03	48.27	11.76	5.105		
1,800.00	1,800.00	1,800.00	1,800.00	6.24	6.24	89.72	0.29	60.03	60.03	47.56	12.47	4.813 Alert		
1,900.00	1,900.00	1,900.00	1,900.00	6.59	6.59	89.72	0.29	60.03	60.03	46.84	13.19	4.552 Alert		
2,000.00	2,000.00	2,000.00	2,000.00	6.95	6.95	89.72	0.29	60.03	60.03	46.13	13.90	4.318 Alert		
2,100.00	2,100.00	2,100.00	2,100.00	7.31	7.31	89.72	0.29	60.03	60.03	45.41	14.62	4.107 Alert		
2,200.00	2,200.00	2,200.00	2,200.00	7.67	7.67	89.72	0.29	60.03	60.03	44.70	15.33	3.915 Alert		
2,300.00	2,300.00	2,300.00	2,300.00	8.03	8.02	89.72	0.29	60.03	60.03	43.98	16.05	3.741 Alert		
2,400.00	2,400.00	2,400.00	2,400.00	8.38	8.38	89.72	0.29	60.03	60.03	43.27	16.76	3.581 Alert		
2,500.00	2,500.00	2,500.00	2,500.00	8.74	8.74	89.72	0.29	60.03	60.03	42.55	17.48	3.434 Alert, CC, ES		
2,600.00	2,600.00	2,598.74	2,598.74	9.10	9.09	89.44	0.60	61.05	61.07	42.88	18.18	3.359 Alert, SF		
2,700.00	2,700.00	2,697.40	2,697.34	9.46	9.43	88.65	1.51	64.10	64.18	43.30	18.87	3.401 Alert		
2,800.00	2,800.00	2,803.80	2,796.00	9.81	9.80	87.50	3.02	69.14	69.32	49.74	19.58	3.540 Alert		
2,900.00	2,900.00	2,903.98	2,895.64	10.17	10.15	86.38	4.73	74.83	75.11	54.82	20.29	3.702 Alert		
3,000.00	3,000.00	3,004.16	2,995.29	10.53	10.50	85.43	6.44	80.53	80.92	59.93	20.99	3.854 Alert		
3,100.00	3,100.00	3,104.33	3,094.93	10.89	10.85	84.60	8.15	86.22	86.76	65.05	21.70	3.998 Alert		
3,200.00	3,200.00	3,204.51	3,194.58	11.25	11.21	83.88	9.86	91.92	92.60	70.19	22.41	4.132 Alert		
3,300.00	3,300.00	3,304.69	3,294.22	11.61	11.56	83.24	11.57	97.61	98.46	75.35	23.12	4.259 Alert		
3,400.00	3,400.00	3,395.13	3,393.87	11.96	11.88	82.68	13.27	103.31	104.34	80.54	23.79	4.385 Alert		
3,500.00	3,500.00	3,505.04	3,493.51	12.32	12.27	82.17	14.98	109.00	110.22	85.68	24.54	4.492 Alert		
3,600.00	3,600.00	3,605.22	3,593.16	12.68	12.63	81.72	16.69	114.70	116.11	90.86	25.25	4.599 Alert		
3,700.00	3,700.00	3,705.40	3,692.80	13.04	12.99	81.31	18.40	120.39	122.00	96.04	25.96	4.700 Alert		
3,800.00	3,800.00	3,794.42	3,792.45	13.40	13.30	80.94	20.11	126.08	127.90	101.27	26.63	4.803 Alert		
3,900.00	3,900.00	3,905.76	3,892.09	13.75	13.70	99.34	21.82	131.78	133.95	106.57	27.38	4.892 Alert		
4,000.00	3,999.96	4,005.98	3,991.69	14.11	14.06	100.01	23.52	137.47	140.28	112.19	28.09	4.994 Alert		
4,100.00	4,099.86	4,106.26	4,091.24	14.47	14.42	101.29	25.23	143.16	146.98	118.18	28.80	5.103		
4,200.00	4,199.68	4,193.36	4,190.68	14.83	14.73	103.07	26.93	148.84	154.13	124.66	29.47	5.231		
4,300.00	4,299.37	4,307.13	4,290.01	15.18	15.14	105.28	28.64	154.52	161.87	131.64	30.22	5.355		
4,400.00	4,399.03	4,407.67	4,389.30	15.54	15.50	107.49	30.34	160.19	169.98	139.04	30.94	5.494		
4,500.00	4,498.68	4,491.80	4,488.59	15.90	15.81	109.51	32.04	165.87	178.32	146.73	31.59	5.644		
4,600.00	4,598.34	4,608.74	4,587.87	16.26	16.23	111.34	33.74	171.54	186.87	154.50	32.37	5.773		
4,700.00	4,698.00	4,709.27	4,687.16	16.61	16.59	113.00	35.45	177.22	195.58	162.50	33.08	5.912		
4,800.00	4,797.65	4,809.81	4,786.45	16.97	16.95	114.53	37.15	182.89	204.45	170.65	33.80	6.049		
4,900.00	4,897.31	4,889.65	4,885.74	17.33	17.24	115.93	38.85	188.56	213.45	179.01	34.44	6.197		
5,000.00	4,996.96	4,989.12	4,985.02	17.70	17.60	117.21	40.55	194.24	222.56	187.41	35.16	6.330		

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
 TVD Reference: RKB @ 3224.80ft
 MD Reference: RKB @ 3224.80ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Corn 3H - Wellbore #1 - Permit Plan 1													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference		Offset		Semi Major Axis		Highside TooFace (")	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/S (ft)	+E/W (ft)				Between Centres (ft)	Between Ellipses (ft)
5,100.00	5,096.62	5,088.58	5,084.31	18.06	17.96	118.40	42.26	199.91	231.78	195.91	35.87	6.461	
5,200.00	5,196.28	5,188.05	5,183.60	18.42	18.32	119.48	43.96	205.59	241.09	204.50	36.59	6.589	
5,300.00	5,295.93	5,287.51	5,282.89	18.78	18.68	120.50	45.66	211.26	250.48	213.18	37.31	6.714	
5,400.00	5,395.59	5,386.98	5,382.18	19.14	19.04	121.44	47.36	216.93	259.94	221.92	38.02	6.837	
5,500.00	5,495.24	5,486.44	5,481.46	19.51	19.40	122.31	49.06	222.61	269.47	230.73	38.74	6.956	
5,600.00	5,594.90	5,585.91	5,580.75	19.87	19.76	123.12	50.77	228.28	279.05	239.60	39.46	7.073	
5,700.00	5,694.56	5,685.37	5,680.04	20.23	20.12	123.88	52.47	233.96	288.69	248.51	40.17	7.186	
5,800.00	5,794.21	5,784.83	5,779.33	20.60	20.48	124.59	54.17	239.63	298.37	257.48	40.89	7.297	
5,900.00	5,893.87	5,884.30	5,878.61	20.96	20.84	125.26	55.87	245.30	308.09	266.48	41.61	7.404	
6,000.00	5,993.53	5,983.76	5,977.90	21.33	21.20	125.88	57.58	250.98	317.86	275.53	42.33	7.509	
6,100.00	6,093.18	6,083.23	6,077.19	21.69	21.57	126.47	59.28	256.65	327.66	284.61	43.05	7.611	
6,200.00	6,192.84	6,182.69	6,176.48	22.06	21.93	127.02	60.98	262.33	337.49	293.72	43.77	7.711	
6,300.00	6,292.49	6,282.16	6,275.77	22.42	22.29	127.54	62.68	268.00	347.35	302.86	44.49	7.808	
6,400.00	6,392.15	6,381.62	6,375.05	22.79	22.65	128.03	64.38	273.68	357.23	312.03	45.21	7.902	
6,500.00	6,491.81	6,481.08	6,474.34	23.16	23.01	128.50	66.09	279.35	367.15	321.22	45.93	7.994	
6,600.00	6,591.46	6,580.55	6,573.63	23.52	23.37	128.94	67.79	285.02	377.08	330.43	46.65	8.084	
6,700.00	6,691.12	6,680.01	6,672.92	23.89	23.74	129.36	69.49	290.70	387.04	339.67	47.37	8.171	
6,800.00	6,790.78	6,779.48	6,772.20	24.26	24.10	129.76	71.19	296.37	397.01	348.92	48.09	8.256	
6,900.00	6,890.43	6,878.94	6,871.49	24.62	24.46	130.14	72.90	302.05	407.00	358.19	48.81	8.339	
7,000.00	6,990.09	6,978.41	6,970.78	24.99	24.82	130.50	74.60	307.72	417.01	367.48	49.53	8.419	
7,100.00	7,089.74	7,077.87	7,070.07	25.36	25.18	130.84	76.30	313.39	427.04	376.79	50.25	8.498	
7,200.00	7,189.40	7,177.34	7,169.36	25.72	25.55	131.17	78.00	319.07	437.08	386.11	50.97	8.575	
7,300.00	7,289.06	7,276.80	7,268.64	26.09	25.91	131.48	79.70	324.74	447.13	395.44	51.69	8.649	
7,400.00	7,388.71	7,376.26	7,367.93	26.46	26.27	131.78	81.41	330.42	457.20	404.78	52.42	8.722	
7,500.00	7,488.37	7,475.73	7,467.22	26.83	26.63	132.07	83.11	336.09	467.28	414.14	53.14	8.794	
7,600.00	7,588.02	7,575.19	7,566.51	27.20	27.00	132.34	84.81	341.76	477.37	423.50	53.86	8.863	
7,700.00	7,687.68	7,674.66	7,665.79	27.56	27.36	132.61	86.51	347.44	487.46	432.88	54.58	8.931	
7,800.00	7,787.44	7,774.23	7,765.19	27.93	27.72	132.84	88.22	353.12	496.61	441.31	55.30	8.980	
7,900.00	7,887.35	7,884.12	7,874.96	28.29	28.12	132.91	89.70	358.07	503.06	446.97	56.09	8.969	
8,000.00	7,987.33	7,995.12	7,985.93	28.65	28.51	132.94	90.28	360.01	505.54	448.69	56.85	8.892	
8,100.00	8,087.33	8,103.48	8,087.33	29.00	28.89	114.51	90.29	360.03	505.58	447.99	57.59	8.780	
8,200.00	8,187.33	8,203.48	8,187.33	29.36	29.24	114.51	90.29	360.03	505.58	447.28	58.29	8.673	
8,300.00	8,287.33	8,303.48	8,287.33	29.71	29.59	114.51	90.29	360.03	505.58	446.58	59.00	8.569	
8,400.00	8,387.33	8,403.48	8,387.33	30.07	29.94	114.51	90.29	360.03	505.58	445.87	59.70	8.468	
8,500.00	8,487.33	8,503.48	8,487.33	30.42	30.29	114.51	90.29	360.03	505.58	445.17	60.41	8.369	
8,600.00	8,587.33	8,603.48	8,587.33	30.77	30.64	114.51	90.29	360.03	505.58	444.46	61.12	8.272	
8,700.00	8,687.33	8,703.48	8,687.33	31.13	30.99	114.51	90.29	360.03	505.58	443.75	61.82	8.178	
8,800.00	8,787.33	8,803.48	8,787.33	31.48	31.34	114.51	90.29	360.03	505.58	443.04	62.53	8.085	
8,900.00	8,887.33	8,903.48	8,887.33	31.84	31.69	114.51	90.29	360.03	505.58	442.34	63.24	7.995	
9,000.00	8,987.33	9,003.48	8,987.33	32.19	32.04	114.51	90.29	360.03	505.58	441.63	63.95	7.906	
9,100.00	9,087.33	9,103.48	9,087.33	32.55	32.40	114.51	90.29	360.03	505.58	440.92	64.65	7.820	
9,200.00	9,187.33	9,203.48	9,187.33	32.90	32.75	114.51	90.29	360.03	505.58	440.21	65.36	7.735	
9,300.00	9,287.33	9,303.48	9,287.33	33.26	33.10	114.51	90.29	360.03	505.58	439.51	66.07	7.652	
9,400.00	9,387.33	9,403.48	9,387.33	33.61	33.45	114.51	90.29	360.03	505.58	438.80	66.78	7.571	
9,500.00	9,487.33	9,503.48	9,487.33	33.97	33.80	114.51	90.29	360.03	505.58	438.09	67.49	7.491	
9,600.00	9,587.33	9,603.48	9,587.33	34.33	34.15	114.51	90.29	360.03	505.58	437.38	68.20	7.414	
9,700.00	9,687.33	9,703.48	9,687.33	34.68	34.51	114.51	90.29	360.03	505.58	436.67	68.90	7.337	
9,800.00	9,787.33	9,803.48	9,787.33	35.04	34.86	114.51	90.29	360.03	505.58	435.96	69.61	7.263	
9,900.00	9,887.33	9,903.48	9,887.33	35.39	35.21	114.51	90.29	360.03	505.58	435.25	70.32	7.189	
10,000.00	9,987.33	10,003.48	9,987.33	35.75	35.56	114.51	90.29	360.03	505.58	434.54	71.03	7.118	
10,100.00	10,087.33	10,096.52	10,087.33	36.10	35.89	114.51	90.29	360.03	505.58	433.86	71.72	7.050	

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3224.80ft
Reference Site:	Sec 23-T26S-R34E	MD Reference:	RKB @ 3224.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 3H - Wellbore #1 - Permit Plan 1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
10,200.00	10,187.33	10,183.83	10,174.45	36.46	36.20	113.99	94.03	362.73	506.66	434.29	72.37	7.001			
10,300.00	10,287.33	10,266.46	10,255.49	36.81	36.51	112.26	106.83	371.95	510.95	438.00	72.95	7.004			
10,400.00	10,387.33	10,341.33	10,327.80	37.17	36.79	110.23	121.50	384.50	519.75	446.40	73.35	7.086			
10,500.00	10,487.33	10,416.91	10,401.94	37.53	37.08	109.12	127.50	397.62	533.55	459.88	73.67	7.243			
10,600.00	10,587.33	10,492.78	10,476.51	37.88	37.36	109.01	124.01	410.90	551.61	477.70	73.91	7.463			
10,700.00	10,687.33	10,566.60	10,548.09	38.24	37.62	109.79	111.52	423.73	573.76	499.74	74.02	7.751			
10,800.00	10,787.33	10,636.40	10,613.88	38.59	37.85	111.26	91.64	435.59	600.30	526.36	73.94	8.119			
10,900.00	10,887.33	10,700.00	10,671.51	38.95	38.04	113.12	66.90	446.05	631.73	558.15	73.58	8.586			
11,000.00	10,987.33	10,759.12	10,722.49	39.31	38.21	115.21	38.50	455.35	668.54	595.56	72.98	9.161			
11,100.00	11,087.33	10,811.26	10,764.98	39.66	38.35	117.30	9.34	463.16	711.01	638.92	72.09	9.862			
11,200.00	11,187.33	10,850.00	10,794.86	40.02	38.45	118.96	-14.68	468.68	759.24	688.48	70.76	10.729			
11,300.00	11,287.33	10,900.00	10,831.07	40.38	38.58	121.20	-48.47	475.41	812.83	743.03	69.81	11.644			
11,400.00	11,387.33	10,934.25	10,854.22	40.73	38.66	122.78	-73.33	479.74	871.59	803.15	68.44	12.735			
11,500.00	11,487.33	10,965.98	10,874.40	41.09	38.74	124.26	-97.52	483.53	934.99	867.87	67.12	13.929			
11,600.00	11,587.33	11,000.00	10,894.61	41.44	38.82	125.86	-124.61	487.36	1,002.57	936.56	66.02	15.187			
11,700.00	11,687.33	11,018.91	10,905.19	41.80	38.87	126.75	-140.16	489.38	1,073.71	1,009.05	64.66	16.604			
11,800.00	11,787.33	11,050.00	10,921.50	42.16	38.94	128.21	-166.43	492.50	1,148.16	1,084.37	63.79	17.998			
11,900.00	11,887.33	11,050.00	10,921.50	42.51	38.94	128.21	-166.43	492.50	1,225.33	1,162.98	62.36	19.651			
12,000.00	11,987.33	11,078.58	10,935.31	42.87	39.02	129.54	-191.31	495.18	1,304.75	1,243.01	61.74	21.133			
12,100.00	12,087.33	11,100.00	10,944.89	43.23	39.07	130.53	-210.37	497.04	1,386.40	1,325.30	61.10	22.691			
12,200.00	12,187.31	11,100.00	10,944.89	43.58	39.07	-45.33	-210.37	497.04	1,469.50	1,409.33	60.17	24.424			

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

Anticollision Report

Company:	WCDSC Permian NM	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Project:	Lea County (NAD83 New Mexico East)	TVD Reference:	RKB @ 3224.80ft
Reference Site:	Sec 23-T26S-R34E	MD Reference:	RKB @ 3224.80ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM r5000.141_Prod US
Reference Design:	Permit Plan 1	Offset TVD Reference:	Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 4H - Wellbore #1 - Permit Plan 1														Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM														Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.00	0.00	0.00	0.00	0.50	0.50	-89.78	0.11	-30.00	30.00						
100.00	100.00	100.00	100.00	0.51	0.51	-89.78	0.11	-30.00	30.00	28.97	1.03	29.133			
200.00	200.00	200.00	200.00	0.69	0.69	-89.78	0.11	-30.00	30.00	28.61	1.39	21.611			
300.00	300.00	300.00	300.00	0.98	0.98	-89.78	0.11	-30.00	30.00	28.05	1.96	15.346			
400.00	400.00	400.00	400.00	1.30	1.30	-89.78	0.11	-30.00	30.00	27.41	2.60	11.552			
500.00	500.00	500.00	500.00	1.64	1.63	-89.78	0.11	-30.00	30.00	26.73	3.27	9.174			
600.00	600.00	600.00	600.00	1.98	1.98	-89.78	0.11	-30.00	30.00	26.04	3.96	7.578			
700.00	700.00	700.00	700.00	2.33	2.33	-89.78	0.11	-30.00	30.00	25.35	4.66	6.443			
800.00	800.00	800.00	800.00	2.68	2.68	-89.78	0.11	-30.00	30.00	24.64	5.36	5.599			
900.00	900.00	900.00	900.00	3.03	3.03	-89.78	0.11	-30.00	30.00	23.94	6.06	4.947 Alert			
1,000.00	1,000.00	1,000.00	1,000.00	3.39	3.39	-89.78	0.11	-30.00	30.00	23.23	6.77	4.430 Alert			
1,100.00	1,100.00	1,100.00	1,100.00	3.74	3.74	-89.78	0.11	-30.00	30.00	22.52	7.48	4.010 Alert			
1,200.00	1,200.00	1,200.00	1,200.00	4.10	4.10	-89.78	0.11	-30.00	30.00	21.81	8.19	3.662 Alert			
1,300.00	1,300.00	1,300.00	1,300.00	4.45	4.45	-89.78	0.11	-30.00	30.00	21.10	8.91	3.369 Alert			
1,400.00	1,400.00	1,400.00	1,400.00	4.81	4.81	-89.78	0.11	-30.00	30.00	20.38	9.62	3.119 Alert			
1,500.00	1,500.00	1,500.00	1,500.00	5.17	5.17	-89.78	0.11	-30.00	30.00	19.67	10.33	2.904 Alert			
1,600.00	1,600.00	1,600.00	1,600.00	5.52	5.52	-89.78	0.11	-30.00	30.00	18.96	11.05	2.716 Alert			
1,700.00	1,700.00	1,700.00	1,700.00	5.88	5.88	-89.78	0.11	-30.00	30.00	18.24	11.76	2.551 Alert			
1,800.00	1,800.00	1,800.00	1,800.00	6.24	6.24	-89.78	0.11	-30.00	30.00	17.53	12.47	2.405 Minor Risk			
1,900.00	1,900.00	1,900.00	1,900.00	6.59	6.59	-89.78	0.11	-30.00	30.00	16.81	13.19	2.275 Minor Risk			
2,000.00	2,000.00	2,000.00	2,000.00	6.95	6.95	-89.78	0.11	-30.00	30.00	16.10	13.90	2.158 Minor Risk			
2,100.00	2,100.00	2,100.00	2,100.00	7.31	7.31	-89.78	0.11	-30.00	30.00	15.38	14.62	2.052 Minor Risk			
2,200.00	2,200.00	2,200.00	2,200.00	7.67	7.67	-89.78	0.11	-30.00	30.00	14.67	15.33	1.957 Minor Risk			
2,300.00	2,300.00	2,300.00	2,300.00	8.03	8.02	-89.78	0.11	-30.00	30.00	13.95	16.05	1.869 Minor Risk			
2,400.00	2,400.00	2,400.00	2,400.00	8.38	8.38	-89.78	0.11	-30.00	30.00	13.24	16.77	1.790 Minor Risk			
2,500.00	2,500.00	2,500.00	2,500.00	8.74	8.74	-89.78	0.11	-30.00	30.00	12.52	17.48	1.716 Minor Risk, CC			
2,600.00	2,600.00	2,599.64	2,599.63	9.10	9.10	-88.49	0.81	-30.58	30.59	12.40	18.19	1.682 Minor Risk, ES, SF			
2,700.00	2,700.00	2,699.21	2,699.17	9.46	9.45	-84.91	2.88	-32.32	32.45	13.56	18.90	1.717 Minor Risk			
2,800.00	2,800.00	2,798.66	2,798.51	9.81	9.80	-79.82	6.32	-35.20	35.80	16.20	19.60	1.826 Minor Risk			
2,900.00	2,900.00	2,909.63	2,897.52	10.17	10.20	-74.16	11.13	-39.23	40.85	20.52	20.33	2.009 Minor Risk			
3,000.00	3,000.00	3,002.40	2,996.99	10.53	10.53	-69.15	16.73	-43.92	47.09	26.08	21.02	2.241 Minor Risk			
3,100.00	3,100.00	3,102.67	3,096.45	10.89	10.88	-65.33	22.33	-48.61	53.61	31.88	21.73	2.468 Minor Risk			
3,200.00	3,200.00	3,202.94	3,195.91	11.25	11.24	-62.34	27.93	-53.30	60.31	37.88	22.44	2.688 Alert			
3,300.00	3,300.00	3,303.21	3,295.38	11.61	11.60	-59.96	33.53	-57.99	67.15	44.00	23.15	2.901 Alert			
3,400.00	3,400.00	3,403.47	3,394.84	11.96	11.96	-58.02	39.14	-62.68	74.08	50.21	23.86	3.104 Alert			
3,500.00	3,500.00	3,503.74	3,494.30	12.32	12.32	-56.41	44.74	-67.37	81.07	56.50	24.58	3.299 Alert			
3,600.00	3,600.00	3,595.99	3,593.77	12.68	12.66	-55.06	50.34	-72.06	88.13	62.86	25.26	3.488 Alert			
3,700.00	3,700.00	3,704.28	3,693.23	13.04	13.05	-53.91	55.94	-76.76	95.22	69.21	26.01	3.661 Alert			
3,800.00	3,800.00	3,804.55	3,792.69	13.40	13.41	-52.92	61.54	-81.45	102.35	75.62	26.72	3.830 Alert			
3,900.00	3,900.00	3,904.76	3,892.21	13.75	13.77	-53.85	67.15	-86.14	108.77	81.34	27.44	3.964 Alert			
4,000.00	3,999.96	4,004.89	3,991.82	14.11	14.14	-53.76	72.76	-90.84	113.76	85.61	28.15	4.041 Alert			
4,100.00	4,099.86	4,104.96	4,091.48	14.47	14.50	-54.17	78.37	-95.54	117.30	88.43	28.87	4.063 Alert			
4,200.00	4,199.68	4,205.00	4,191.17	14.83	14.86	-55.03	83.99	-100.24	119.42	89.83	29.58	4.037 Alert			
4,300.00	4,299.37	4,305.04	4,290.86	15.18	15.23	-56.34	89.60	-104.94	120.19	89.89	30.30	3.967 Alert			
4,400.00	4,399.03	4,405.09	4,390.55	15.54	15.59	-57.78	95.21	-109.64	120.64	89.52	31.01	3.890 Alert			
4,500.00	4,498.68	4,505.13	4,490.23	15.90	15.96	-59.21	100.83	-114.35	121.16	89.43	31.73	3.819 Alert			
4,600.00	4,598.34	4,594.82	4,589.91	16.26	16.28	-60.63	106.44	-119.05	121.75	89.35	32.41	3.757 Alert			
4,700.00	4,698.00	4,705.23	4,689.60	16.61	16.69	-62.03	112.06	-123.75	122.42	89.26	33.16	3.692 Alert			
4,800.00	4,797.65	4,805.27	4,789.28	16.97	17.05	-63.42	117.67	-128.45	123.17	89.29	33.88	3.635 Alert			
4,900.00	4,897.31	4,905.32	4,888.97	17.33	17.42	-64.78	123.28	-133.15	123.98	89.38	34.60	3.583 Alert			
5,000.00	4,996.96	5,005.37	4,988.65	17.70	17.78	-66.13	128.90	-137.85	124.87	89.54	35.32	3.535 Alert			

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

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Output errors are at:
 Database:
 Offset TVD Reference:

Well Mean Green 23-35 Fed Com 1H
 RKB @ 3224.80ft
 RKB @ 3224.80ft
 Grid
 Minimum Curvature
 2.00 sigma
 EDM r5000.141_Prod US
 Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 4H - Wellbore #1 - Permit Plan 1													Offset Site Error: 0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error: 0.50 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)				Between Centres (ft)	Between Ellipses (ft)
5,100.00	5,096.62	5,105.41	5,088.34	18.06	18.15	-47.46	134.51	-142.56	125.82	89.77	3.491 Alert		
5,200.00	5,196.28	5,194.54	5,182.02	18.42	18.48	-48.77	140.13	-147.26	126.84	90.11	3.453 Alert		
5,300.00	5,295.93	5,296.28	5,289.52	18.78	18.85	-50.18	145.48	-151.74	127.52	90.05	3.403 Alert		
5,400.00	5,395.59	5,399.27	5,392.41	19.14	19.22	-52.19	148.91	-154.61	126.09	87.87	3.299 Alert		
5,500.00	5,495.24	5,501.98	5,495.11	19.51	19.59	-54.97	150.11	-155.62	122.46	83.51	3.144 Alert		
5,600.00	5,594.90	5,601.78	5,594.90	19.87	19.94	-58.26	150.11	-155.62	117.89	78.22	2.972 Alert		
5,700.00	5,694.56	5,701.43	5,694.56	20.23	20.29	-61.80	150.11	-155.62	113.74	73.34	2.816 Alert		
5,800.00	5,794.21	5,801.09	5,794.21	20.60	20.64	-65.60	150.11	-155.62	110.06	68.93	2.676 Alert		
5,900.00	5,893.87	5,900.74	5,893.87	20.96	21.00	-69.63	150.11	-155.62	106.89	65.04	2.554 Alert		
6,000.00	5,993.53	6,000.40	5,993.53	21.33	21.35	-73.89	150.11	-155.62	104.29	61.70	2.449 Minor Risk		
6,100.00	6,093.18	6,100.06	6,093.18	21.69	21.71	-78.34	150.11	-155.62	102.29	58.97	2.361 Minor Risk		
6,200.00	6,192.84	6,200.29	6,192.84	22.06	22.06	-82.93	150.11	-155.62	100.94	56.88	2.291 Minor Risk		
6,300.00	6,292.49	6,300.63	6,292.49	22.42	22.42	-87.62	150.11	-155.62	100.25	55.46	2.238 Minor Risk		
6,350.37	6,342.69	6,349.57	6,342.69	22.61	22.59	-90.00	150.11	-155.62	100.17	55.01	2.218 Minor Risk		
6,400.00	6,392.15	6,400.97	6,392.15	22.79	22.77	-92.34	150.11	-155.62	100.25	54.72	2.202 Minor Risk		
6,500.00	6,491.81	6,501.32	6,491.81	23.16	23.13	-97.03	150.11	-155.62	100.93	54.57	2.182 Minor Risk		
6,600.00	6,591.46	6,601.66	6,591.46	23.52	23.49	-101.63	150.11	-155.62	102.28	55.29	2.177 Minor Risk		
6,700.00	6,691.12	6,702.01	6,691.12	23.89	23.84	-106.08	150.11	-155.62	104.27	56.55	2.185 Minor Risk		
6,800.00	6,790.78	6,802.35	6,790.78	24.26	24.20	-110.34	150.11	-155.62	106.87	58.42	2.205 Minor Risk		
6,900.00	6,890.43	6,902.69	6,890.43	24.62	24.56	-114.37	150.11	-155.62	110.03	60.86	2.238 Minor Risk		
7,000.00	6,990.09	7,003.04	6,990.09	24.99	24.91	-118.17	150.11	-155.62	113.71	63.82	2.279 Minor Risk		
7,100.00	7,089.74	7,103.38	7,089.74	25.36	25.27	-121.71	150.11	-155.62	117.86	67.25	2.329 Minor Risk		
7,200.00	7,189.40	7,203.73	7,189.40	25.72	25.63	-125.01	150.11	-155.62	122.43	71.10	2.385 Minor Risk		
7,300.00	7,289.06	7,304.07	7,289.06	26.09	25.99	-128.05	150.11	-155.62	127.37	75.33	2.448 Minor Risk		
7,400.00	7,388.71	7,404.41	7,388.71	26.46	26.34	-130.87	150.11	-155.62	132.65	79.89	2.514 Alert		
7,500.00	7,488.37	7,504.76	7,488.37	26.83	26.70	-133.46	150.11	-155.62	138.22	84.75	2.585 Alert		
7,600.00	7,588.02	7,605.10	7,588.02	27.20	27.06	-135.85	150.11	-155.62	144.06	89.87	2.659 Alert		
7,700.00	7,687.68	7,705.44	7,687.68	27.56	27.41	-138.05	150.11	-155.62	150.12	95.22	2.735 Alert		
7,800.00	7,787.44	7,805.68	7,787.44	27.93	27.77	-139.79	150.11	-155.62	155.30	99.69	2.793 Alert		
7,900.00	7,887.35	7,905.78	7,887.35	28.29	28.13	-140.82	150.11	-155.62	158.58	102.26	2.816 Alert		
8,000.00	7,987.33	8,005.79	7,987.33	28.65	28.49	-141.20	150.11	-155.62	159.86	102.82	2.803 Alert		
8,100.00	8,087.33	8,105.79	8,087.33	29.00	28.84	-159.64	150.11	-155.62	159.87	102.13	2.768 Alert		
8,200.00	8,187.33	8,205.79	8,187.33	29.36	29.20	-159.64	150.11	-155.62	159.87	101.41	2.735 Alert		
8,300.00	8,287.33	8,305.79	8,287.33	29.71	29.55	-159.64	150.11	-155.62	159.87	100.70	2.702 Alert		
8,400.00	8,387.33	8,405.79	8,387.33	30.07	29.91	-159.64	150.11	-155.62	159.87	99.99	2.670 Alert		
8,500.00	8,487.33	8,505.79	8,487.33	30.42	30.27	-159.64	150.11	-155.62	159.87	99.28	2.638 Alert		
8,600.00	8,587.33	8,605.79	8,587.33	30.77	30.62	-159.64	150.11	-155.62	159.87	98.56	2.608 Alert		
8,700.00	8,687.33	8,705.79	8,687.33	31.13	30.98	-159.64	150.11	-155.62	159.87	97.85	2.578 Alert		
8,800.00	8,787.33	8,805.79	8,787.33	31.48	31.34	-159.64	150.11	-155.62	159.87	97.14	2.548 Alert		
8,900.00	8,887.33	8,905.79	8,887.33	31.84	31.69	-159.64	150.11	-155.62	159.87	96.42	2.520 Alert		
9,000.00	8,987.33	9,005.79	8,987.33	32.19	32.05	-159.64	150.11	-155.62	159.87	95.71	2.492 Minor Risk		
9,100.00	9,087.33	9,105.79	9,087.33	32.55	32.41	-159.64	150.11	-155.62	159.87	95.00	2.464 Minor Risk		
9,200.00	9,187.33	9,205.79	9,187.33	32.90	32.77	-159.64	150.11	-155.62	159.87	94.28	2.437 Minor Risk		
9,300.00	9,287.33	9,305.79	9,287.33	33.26	33.12	-159.64	150.11	-155.62	159.87	93.57	2.411 Minor Risk		
9,400.00	9,387.33	9,405.79	9,387.33	33.61	33.48	-159.64	150.11	-155.62	159.87	92.86	2.386 Minor Risk		
9,500.00	9,487.33	9,505.79	9,487.33	33.97	33.84	-159.64	150.11	-155.62	159.87	92.14	2.360 Minor Risk		
9,600.00	9,587.33	9,605.79	9,587.33	34.33	34.19	-159.64	150.11	-155.62	159.87	91.43	2.336 Minor Risk		
9,700.00	9,687.33	9,705.79	9,687.33	34.68	34.55	-159.64	150.11	-155.62	159.87	90.72	2.312 Minor Risk		
9,800.00	9,787.33	9,805.79	9,787.33	35.04	34.91	-159.64	150.11	-155.62	159.87	90.00	2.288 Minor Risk		
9,900.00	9,887.33	9,905.79	9,887.33	35.39	35.26	-159.64	150.11	-155.62	159.87	89.29	2.265 Minor Risk		
10,000.00	9,987.33	10,005.79	9,987.33	35.75	35.62	-159.64	150.11	-155.62	159.87	88.57	2.242 Minor Risk		

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

Anticollision Report

Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 23-T26S-R34E
Site Error: 0.00 ft
Reference Well: Mean Green 23-35 Fed Com 1H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
TVD Reference: RKB @ 3224.80ft
MD Reference: RKB @ 3224.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Offset Design Sec 23-T26S-R34E - Mean Green 23-35 Fed Com 4H - Wellbore #1 - Permit Plan 1													Offset Site Error:	0.00 ft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.50 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre N-S (ft)	Offset Wellbore Centre E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,100.00	10,087.33	10,105.79	10,087.33	36.10	35.98	-159.64	150.11	-155.62	159.87	87.86	72.01	2.220	Minor Risk	
10,200.00	10,187.33	10,194.21	10,187.33	36.46	36.30	-159.64	150.11	-155.62	159.87	87.19	72.69	2.199	Minor Risk	
10,300.00	10,287.33	10,279.46	10,272.50	36.81	36.58	-159.97	147.42	-155.62	163.07	90.04	73.03	2.233	Minor Risk	
10,400.00	10,387.33	10,356.48	10,348.42	37.17	36.82	-161.39	134.85	-155.62	178.56	106.07	72.48	2.463	Minor Risk	
10,500.00	10,487.33	10,428.94	10,417.72	37.53	37.03	-163.37	113.82	-155.62	206.40	135.24	71.16	2.901	Alert	
10,600.00	10,587.33	10,495.16	10,478.27	37.88	37.21	-165.36	87.10	-155.62	245.59	176.30	69.29	3.544	Alert	
10,700.00	10,687.33	10,550.00	10,525.80	38.24	37.35	-166.96	59.80	-155.62	294.76	228.03	66.73	4.417	Alert	
10,800.00	10,787.33	10,606.63	10,571.93	38.59	37.47	-168.48	26.97	-155.62	352.19	287.24	64.95	5.422		
10,900.00	10,887.33	10,650.00	10,604.92	38.95	37.56	-169.54	-1.15	-155.62	416.58	353.89	62.69	6.645		
11,000.00	10,987.33	10,700.00	10,640.20	39.31	37.66	-170.62	-36.56	-155.62	486.69	425.16	61.53	7.909		
11,100.00	11,087.33	10,726.79	10,657.80	39.66	37.72	-171.14	-56.76	-155.62	561.14	501.80	59.34	9.456		
11,200.00	11,187.33	10,750.00	10,672.26	40.02	37.77	-171.56	-74.91	-155.62	639.49	581.94	57.55	11.112		
11,300.00	11,287.33	10,783.58	10,691.85	40.38	37.85	-172.13	-102.17	-155.62	720.71	663.97	56.74	12.702		
11,400.00	11,387.33	10,800.00	10,700.85	40.73	37.89	-172.38	-115.91	-155.62	804.57	749.10	55.47	14.505		
11,500.00	11,487.33	10,827.50	10,715.02	41.09	37.95	-172.79	-139.48	-155.62	890.34	835.38	54.95	16.202		
11,600.00	11,587.33	10,850.00	10,725.76	41.44	38.00	-173.09	-159.24	-155.62	977.91	923.47	54.44	17.962		
11,700.00	11,687.33	10,850.00	10,725.76	41.80	38.00	-173.09	-159.24	-155.62	1,067.06	1,013.63	53.43	19.971		
11,800.00	11,787.33	10,876.74	10,737.50	42.16	38.07	-173.43	-183.26	-155.62	1,157.06	1,103.67	53.39	21.673		
11,900.00	11,887.33	10,900.00	10,746.80	42.51	38.12	-173.71	-204.58	-155.62	1,248.41	1,195.07	53.33	23.407		
12,000.00	11,987.33	10,900.00	10,746.80	42.87	38.12	-173.71	-204.58	-155.62	1,340.38	1,287.54	52.84	25.368		
12,100.00	12,087.33	10,900.00	10,746.80	43.23	38.12	-173.71	-204.58	-155.62	1,433.43	1,380.94	52.49	27.309		

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference
 TVD Reference: RKB @ 3224.80ft
 MD Reference: RKB @ 3224.80ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 26-26S-34E - Rattlesnake Federal Unit 1 - Wellbore #1 - Wellbore #1													Offset Site Error: 5.00 ft
Survey Program: 250-INC-ONLY													Offset Well Error: 5.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
15,300.00	12,725.00	12,721.48	12,718.17	58.51	283.78	90.00	-3,556.45	-1,060.98	1,431.57	1,096.20	335.37	4.269 Alert	
15,400.00	12,725.00	12,721.49	12,718.17	59.44	283.78	90.00	-3,556.45	-1,060.98	1,360.41	1,023.83	336.58	4.042 Alert	
15,500.00	12,725.00	12,721.49	12,718.17	60.40	283.78	90.00	-3,556.45	-1,060.98	1,293.07	955.11	337.97	3.826 Alert	
15,600.00	12,725.00	12,721.49	12,718.18	61.37	283.78	90.00	-3,556.45	-1,060.98	1,230.19	890.66	339.53	3.623 Alert	
15,700.00	12,725.00	12,721.50	12,718.18	62.36	283.78	90.00	-3,556.45	-1,060.98	1,172.47	831.21	341.27	3.436 Alert	
15,800.00	12,725.00	12,721.50	12,718.18	63.37	283.78	90.00	-3,556.45	-1,060.98	1,120.72	777.57	343.15	3.266 Alert	
15,900.00	12,725.00	12,721.50	12,718.18	64.40	283.78	90.00	-3,556.45	-1,060.98	1,075.80	730.67	345.14	3.117 Alert	
16,000.00	12,725.00	12,721.51	12,718.19	65.44	283.78	90.00	-3,556.45	-1,060.98	1,038.59	691.44	347.15	2.992 Alert	
16,100.00	12,725.00	12,721.51	12,718.19	66.50	283.78	90.00	-3,556.45	-1,060.98	1,009.95	660.85	349.10	2.893 Alert	
16,200.00	12,725.00	12,721.51	12,718.19	67.57	283.78	90.00	-3,556.45	-1,060.98	990.62	639.75	350.87	2.823 Alert	
16,300.00	12,725.00	12,721.51	12,718.20	68.66	283.78	90.00	-3,556.45	-1,060.98	981.15	628.78	352.37	2.784 Alert	
16,343.37	12,725.00	12,721.52	12,718.20	69.14	283.78	90.00	-3,556.45	-1,060.98	980.19	627.28	352.92	2.777 Alert, CC, ES	
16,400.00	12,725.00	12,721.52	12,718.20	69.76	283.78	90.00	-3,556.45	-1,060.98	981.83	628.32	353.51	2.777 Alert, SF	
16,500.00	12,725.00	12,721.52	12,718.20	70.88	283.78	90.00	-3,556.45	-1,060.98	992.63	638.39	354.24	2.802 Alert	
16,600.00	12,725.00	12,721.52	12,718.21	72.00	283.78	90.00	-3,556.45	-1,060.98	1,013.23	658.68	354.55	2.858 Alert	
16,700.00	12,725.00	12,721.53	12,718.21	73.14	283.78	90.00	-3,556.45	-1,060.98	1,043.05	688.57	354.49	2.942 Alert	
16,800.00	12,725.00	12,721.53	12,718.21	74.28	283.78	90.00	-3,556.45	-1,060.98	1,081.34	727.23	354.11	3.054 Alert	
16,900.00	12,725.00	12,721.53	12,718.22	75.44	283.78	90.00	-3,556.45	-1,060.98	1,127.22	773.72	353.50	3.189 Alert	
17,000.00	12,725.00	12,721.54	12,718.22	76.61	283.78	90.00	-3,556.45	-1,060.98	1,179.81	827.09	352.72	3.345 Alert	
17,100.00	12,725.00	12,721.54	12,718.22	77.79	283.78	90.00	-3,556.45	-1,060.98	1,238.25	886.41	351.84	3.519 Alert	
17,200.00	12,725.00	12,721.54	12,718.23	78.97	283.78	90.00	-3,556.45	-1,060.98	1,301.77	950.85	350.92	3.710 Alert	
17,300.00	12,725.00	12,721.55	12,718.23	80.17	283.78	90.00	-3,556.45	-1,060.98	1,369.64	1,019.66	349.99	3.913 Alert	
17,400.00	12,725.00	12,721.55	12,718.23	81.37	283.78	90.00	-3,556.45	-1,060.98	1,441.27	1,092.19	349.07	4.129 Alert	

Anticollision Report

Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Reference Site: Sec 23-T26S-R34E
 Site Error: 0.00 ft
 Reference Well: Mean Green 23-35 Fed Com 1H
 Well Error: 0.50 ft
 Reference Wellbore: Wellbore #1
 Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
 TVD Reference: RKB @ 3224.80ft
 MD Reference: RKB @ 3224.80ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM r5000.141_Prod US
 Offset TVD Reference: Offset Datum

Offset Design Sec 35-T26S-R34E - Madera 35 Fed 1H - Original Hole - Scientific													Offset Site Error: 0.00 ft
Survey Program: 128-MWD+IGRF													Offset Well Error: 0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
19,500.00	12,725.00	16,221.98	12,503.17	108.07	128.45	-10.54	-8,120.43	-12.05	1,434.69	1,261.56	173.13	8.287	
19,600.00	12,725.00	16,219.36	12,503.14	109.39	128.37	-9.95	-8,120.52	-14.67	1,336.35	1,163.52	172.83	7.732	
19,700.00	12,725.00	16,216.66	12,503.12	110.71	128.29	-9.34	-8,120.62	-17.36	1,238.26	1,065.79	172.47	7.180	
19,800.00	12,725.00	16,213.89	12,503.09	112.04	128.21	-8.72	-8,120.73	-20.13	1,140.51	968.47	172.04	6.629	
19,900.00	12,725.00	16,211.04	12,503.07	113.37	128.13	-8.07	-8,120.83	-22.97	1,043.16	871.67	171.50	6.083	
20,000.00	12,725.00	16,208.12	12,503.05	114.70	128.04	-7.40	-8,120.94	-25.90	946.37	775.54	170.82	5.540	
20,100.00	12,725.00	16,205.10	12,503.03	116.04	127.95	-6.71	-8,121.06	-28.91	850.30	680.35	169.95	5.003	
20,200.00	12,725.00	16,202.00	12,503.00	117.38	127.86	-6.00	-8,121.18	-32.01	755.24	586.44	168.79	4.474	Alert
20,300.00	12,725.00	16,198.80	12,502.98	118.72	127.77	-5.27	-8,121.30	-35.21	661.62	494.41	167.21	3.957	Alert
20,400.00	12,725.00	16,195.51	12,502.96	120.06	127.67	-4.51	-8,121.44	-38.50	570.15	405.22	164.93	3.457	Alert
20,500.00	12,725.00	16,192.11	12,502.94	121.41	127.58	-3.73	-8,121.57	-41.89	482.06	320.60	161.46	2.986	Alert
20,600.00	12,725.00	16,188.61	12,502.93	122.76	127.47	-2.92	-8,121.72	-45.39	399.59	243.77	155.82	2.564	Alert
20,700.00	12,725.00	16,184.99	12,502.91	124.11	127.37	-2.09	-8,121.87	-49.01	327.00	181.08	145.92	2.241	Minor Risk
20,800.00	12,725.00	16,181.26	12,502.89	125.46	127.26	-1.22	-8,122.02	-52.73	272.33	143.61	128.72	2.116	Minor Risk
20,900.00	12,725.00	16,177.40	12,502.88	126.82	127.15	-0.33	-8,122.19	-56.59	247.72	136.07	111.65	2.219	Minor Risk
20,914.07	12,725.00	16,176.85	12,502.88	127.01	127.13	-0.20	-8,122.21	-57.14	247.33	135.66	111.67	2.215	Minor Risk, CC
21,000.00	12,725.00	16,173.42	12,502.86	128.18	127.03	0.59	-8,122.36	-60.57	261.81	133.18	128.63	2.035	Minor Risk, ES, SF
21,100.00	12,725.00	16,169.30	12,502.85	129.54	126.91	1.55	-8,122.54	-64.68	309.33	157.54	151.79	2.038	Minor Risk
21,200.00	12,725.00	16,165.04	12,502.84	130.90	126.79	2.53	-8,122.73	-68.94	377.88	213.40	164.48	2.297	Minor Risk
21,300.00	12,725.00	16,160.63	12,502.84	132.26	126.66	3.55	-8,122.93	-73.35	458.12	287.45	170.67	2.684	Alert
21,400.00	12,725.00	16,156.05	12,502.83	133.63	126.52	4.60	-8,123.14	-77.91	544.90	371.15	173.75	3.136	Alert
21,500.00	12,725.00	16,152.01	12,502.83	135.00	126.41	5.53	-8,123.33	-81.96	635.54	460.18	175.36	3.624	Alert
21,600.00	12,725.00	16,148.23	12,502.83	136.36	126.30	6.40	-8,123.50	-85.73	728.62	552.37	176.24	4.134	Alert
21,700.00	12,725.00	16,144.55	12,502.82	137.73	126.19	7.24	-8,123.67	-89.41	823.30	646.56	176.74	4.658	Alert
21,800.00	12,725.00	16,140.96	12,502.82	139.11	126.09	8.05	-8,123.83	-92.99	919.10	742.07	177.02	5.192	
21,900.00	12,725.00	16,137.46	12,502.82	140.48	125.98	8.84	-8,123.99	-96.49	1,015.69	838.50	177.18	5.732	
22,000.00	12,725.00	16,134.05	12,502.82	141.86	125.89	9.61	-8,124.14	-99.90	1,112.87	935.60	177.27	6.278	
22,100.00	12,725.00	16,130.72	12,502.82	143.23	125.79	10.36	-8,124.28	-103.22	1,210.50	1,033.18	177.32	6.827	
22,200.00	12,725.00	16,127.48	12,502.82	144.61	125.69	11.09	-8,124.42	-106.46	1,308.48	1,131.14	177.33	7.379	
22,300.00	12,725.00	16,124.31	12,502.82	145.99	125.60	11.79	-8,124.55	-109.63	1,406.73	1,229.39	177.34	7.932	

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

Anticollision Report

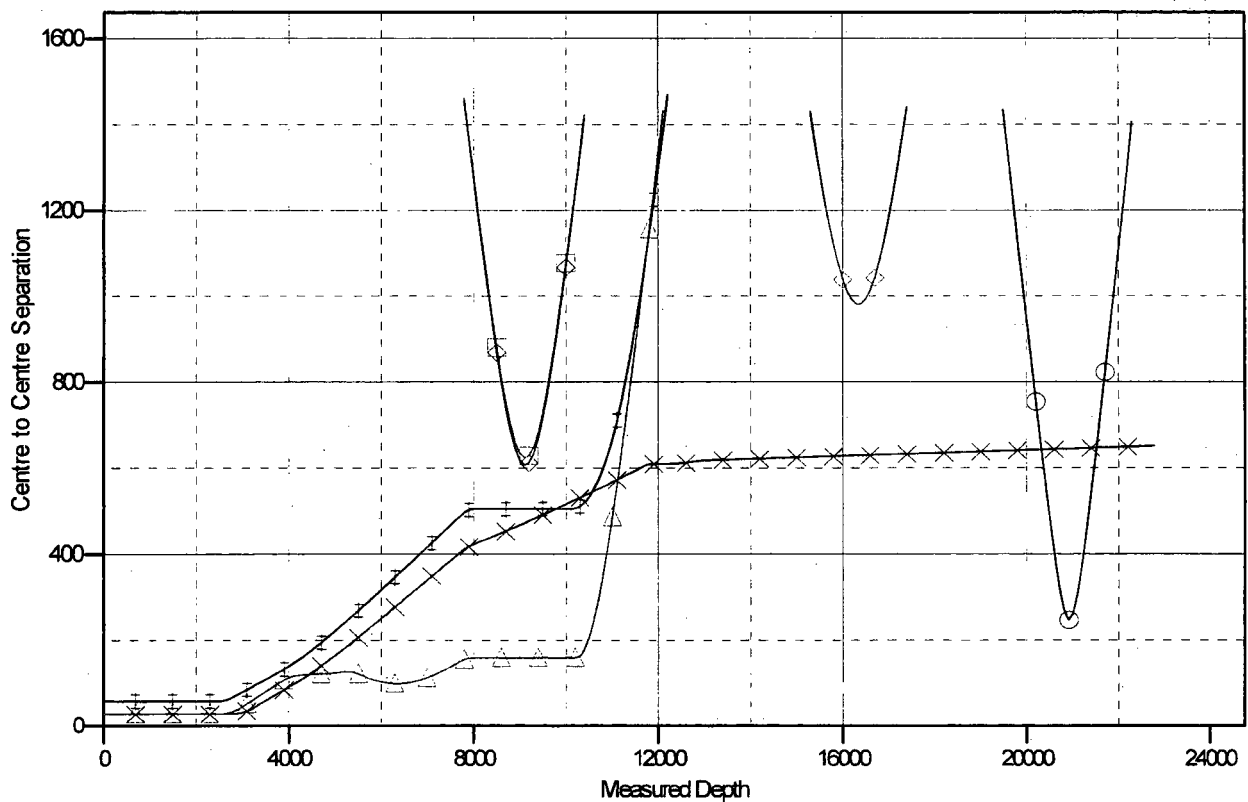
Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 23-T26S-R34E
Site Error: 0.00 ft
Reference Well: Mean Green 23-35 Fed Com 1H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
TVD Reference: RKB @ 3224.80ft
MD Reference: RKB @ 3224.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 3224.80ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Mean Green 23-35 Fed Com 1H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.48°

Ladder Plot



LEGEND

Rattlesnake Federal Unit 1, Wellbore #1, Wellbore #1 VO
 Mean Green 23-35 Fed Com 2H, Wellbore #1, Permit Plan 2 VO
 Mean Green 23 FED 1H, Original Hole, Actuals VO
 Mean Green 23 FED 1H, Original Hole, Plan 1 VO
 Mean Green 23-35 Fed Com 4H, Wellbore #1, Permit Plan 1 VO
 Mean Green 23-35 Fed Com 3H, Wellbore #1, Permit Plan 1 VO
 Madena 35 Fed 1H, Original Hole, Score ntic VO

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

Anticollision Report

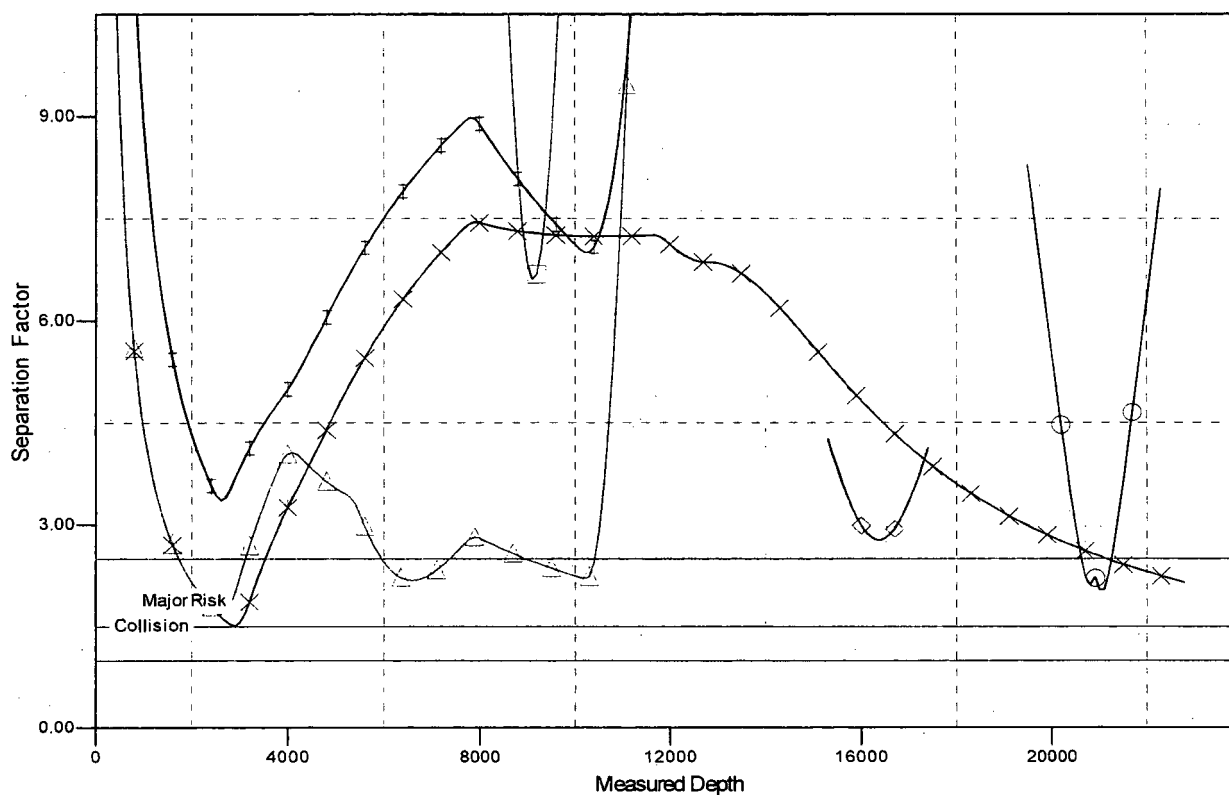
Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Reference Site: Sec 23-T26S-R34E
Site Error: 0.00 ft
Reference Well: Mean Green 23-35 Fed Com 1H
Well Error: 0.50 ft
Reference Wellbore: Wellbore #1
Reference Design: Permit Plan 1

Local Co-ordinate Reference: Well Mean Green 23-35 Fed Com 1H
TVD Reference: RKB @ 3224.80ft
MD Reference: RKB @ 3224.80ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM r5000.141_Prod US
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 3224.80ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Mean Green 23-35 Fed Com 1H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.48°

Separation Factor Plot



LEGEND

Rattlesnake Federal Unit 1, Wellbore #1, Wellbore #1 V0
 Mean Green 23-35 Fed Com 2H, Wellbore #1, Permit Plan 2 V0
 Mean Green 23 FE D 1H, Original Hole, Actuals V0
 Mean Green 23 FE D 1H, Original Hole, Plan 1 V0
 Mean Green 23-35 Fed Com 4H, Wellbore #1, Permit Plan 1 V0
 Mean Green 23-35 Fed Com 3H, Wellbore #1, Permit Plan 1 V0
 Madera 35 Fed 1H, Original Hole, Scientific V0

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 23-T26S-R34E

Mean Green 23-35 Fed Com 1H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

30 April, 2018

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3224.80ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3224.80ft
Site:	Sec 23-T26S-R34E	North Reference:	Grid
Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Project	Lea County (NAD83 New Mexico East)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 23-T26S-R34E				
Site Position:		Northing:	372,742.50 usft	Latitude:	32.021552
From:	Lat/Long	Easting:	820,445.44 usft	Longitude:	-103.432756
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16"	Grid Convergence:	0.48 °

Well	Mean Green 23-35 Fed Com 1H					
Well Position	+N-S	0.00 ft	Northing:	375,205.43 usft	Latitude:	32.028338
	+E-W	0.00 ft	Easting:	819,720.56 usft	Longitude:	-103.435029
Position Uncertainty		0.50 ft	Wellhead Elevation:		Ground Level:	3,193.60 ft

Wellbore	Wellbore #1					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength	
	IGRF2015	4/18/2018	(°)	(°)	(nT)	
			6.79	59.89	47,751.88092646	

Design	Permit Plan 1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.00	0.00	0.00	180.28	

Plan Survey Tool Program	Date	4/30/2018			
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks	
(ft)	(ft)				
1	0.00	22,795.93 Permit Plan 1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N-S	+E-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,275.24	4.75	341.57	4,274.70	18.69	-6.23	1.00	1.00	0.00	341.57	
7,695.84	4.75	341.57	7,683.53	287.54	-95.85	0.00	0.00	0.00	0.00	
8,012.67	0.00	0.00	8,000.00	300.00	-100.00	1.50	-1.50	0.00	180.00	VP - Mean Green 23-
12,164.71	0.00	0.00	12,152.04	300.00	-100.00	0.00	0.00	0.00	0.00	
13,064.71	90.00	179.71	12,725.00	-272.95	-97.14	10.00	10.00	0.00	179.71	PBHL - Mean Green 2
22,795.93	90.00	179.71	12,725.00	-10,004.05	-48.63	0.00	0.00	0.00	0.00	PBHL - Mean Green 2

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3224.80ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3224.80ft
Site:	Sec 23-T26S-R34E	North Reference:	Grid
Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
100.00	0.00	0.00	100.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
200.00	0.00	0.00	200.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
300.00	0.00	0.00	300.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
400.00	0.00	0.00	400.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
500.00	0.00	0.00	500.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
600.00	0.00	0.00	600.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
700.00	0.00	0.00	700.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
800.00	0.00	0.00	800.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
900.00	0.00	0.00	900.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,000.00	0.00	0.00	1,000.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,100.00	0.00	0.00	1,100.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,200.00	0.00	0.00	1,200.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,300.00	0.00	0.00	1,300.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,400.00	0.00	0.00	1,400.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,500.00	0.00	0.00	1,500.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,600.00	0.00	0.00	1,600.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,700.00	0.00	0.00	1,700.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,800.00	0.00	0.00	1,800.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
1,900.00	0.00	0.00	1,900.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,000.00	0.00	0.00	2,000.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,100.00	0.00	0.00	2,100.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,200.00	0.00	0.00	2,200.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,300.00	0.00	0.00	2,300.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,400.00	0.00	0.00	2,400.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,500.00	0.00	0.00	2,500.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,600.00	0.00	0.00	2,600.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,700.00	0.00	0.00	2,700.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,800.00	0.00	0.00	2,800.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
2,900.00	0.00	0.00	2,900.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,000.00	0.00	0.00	3,000.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,100.00	0.00	0.00	3,100.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,200.00	0.00	0.00	3,200.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,300.00	0.00	0.00	3,300.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,400.00	0.00	0.00	3,400.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,500.00	0.00	0.00	3,500.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,600.00	0.00	0.00	3,600.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,700.00	0.00	0.00	3,700.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
3,800.00	0.00	0.00	3,800.00	0.00	0.00	375,205.43	819,720.56	32.028338	-103.435029
Begin Nudge									
3,900.00	1.00	341.57	3,900.00	0.83	-0.28	375,206.25	819,720.29	32.028340	-103.435030
4,000.00	2.00	341.57	3,999.96	3.31	-1.10	375,208.74	819,719.46	32.028347	-103.435032
4,100.00	3.00	341.57	4,099.86	7.45	-2.48	375,212.88	819,718.08	32.028359	-103.435037
4,200.00	4.00	341.57	4,199.68	13.24	-4.41	375,218.67	819,716.15	32.028375	-103.435043
4,275.24	4.75	341.57	4,274.70	18.69	-6.23	375,224.11	819,714.33	32.028390	-103.435049
EOB									
4,300.00	4.75	341.57	4,299.37	20.63	-6.88	375,226.06	819,713.69	32.028395	-103.435051
4,400.00	4.75	341.57	4,399.03	28.49	-9.50	375,233.92	819,711.07	32.028417	-103.435059
4,500.00	4.75	341.57	4,498.68	36.35	-12.12	375,241.78	819,708.45	32.028438	-103.435067
4,600.00	4.75	341.57	4,598.34	44.21	-14.74	375,249.64	819,705.83	32.028460	-103.435075
4,700.00	4.75	341.57	4,698.00	52.07	-17.36	375,257.50	819,703.21	32.028482	-103.435084
4,800.00	4.75	341.57	4,797.65	59.93	-19.98	375,265.36	819,700.59	32.028503	-103.435092
4,900.00	4.75	341.57	4,897.31	67.79	-22.60	375,273.22	819,697.97	32.028525	-103.435100

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3224.80ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3224.80ft
Site:	Sec 23-T26S-R34E	North Reference:	Grid
Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,000.00	4.75	341.57	4,996.96	75.65	-25.22	375,281.08	819,695.35	32.028547	-103.435108
5,100.00	4.75	341.57	5,096.62	83.51	-27.84	375,288.94	819,692.73	32.028568	-103.435117
5,200.00	4.75	341.57	5,196.28	91.37	-30.46	375,296.80	819,690.11	32.028590	-103.435125
5,300.00	4.75	341.57	5,295.93	99.23	-33.08	375,304.66	819,687.49	32.028612	-103.435133
5,400.00	4.75	341.57	5,395.59	107.09	-35.70	375,312.52	819,684.87	32.028633	-103.435141
5,500.00	4.75	341.57	5,495.24	114.95	-38.32	375,320.38	819,682.25	32.028655	-103.435150
5,600.00	4.75	341.57	5,594.90	122.81	-40.94	375,328.24	819,679.63	32.028677	-103.435158
5,700.00	4.75	341.57	5,694.56	130.67	-43.56	375,336.10	819,677.01	32.028698	-103.435166
5,800.00	4.75	341.57	5,794.21	138.53	-46.18	375,343.96	819,674.39	32.028720	-103.435174
5,900.00	4.75	341.57	5,893.87	146.39	-48.80	375,351.82	819,671.77	32.028742	-103.435182
6,000.00	4.75	341.57	5,993.53	154.25	-51.42	375,359.68	819,669.15	32.028763	-103.435191
6,100.00	4.75	341.57	6,093.18	162.11	-54.04	375,367.54	819,666.53	32.028785	-103.435199
6,200.00	4.75	341.57	6,192.84	169.97	-56.66	375,375.40	819,663.91	32.028807	-103.435207
6,300.00	4.75	341.57	6,292.49	177.83	-59.28	375,383.26	819,661.29	32.028828	-103.435215
6,400.00	4.75	341.57	6,392.15	185.69	-61.90	375,391.12	819,658.67	32.028850	-103.435224
6,500.00	4.75	341.57	6,491.81	193.55	-64.52	375,398.98	819,656.05	32.028872	-103.435232
6,600.00	4.75	341.57	6,591.46	201.41	-67.14	375,406.84	819,653.43	32.028893	-103.435240
6,700.00	4.75	341.57	6,691.12	209.27	-69.76	375,414.70	819,650.81	32.028915	-103.435248
6,800.00	4.75	341.57	6,790.78	217.13	-72.38	375,422.56	819,648.19	32.028937	-103.435257
6,900.00	4.75	341.57	6,890.43	224.99	-75.00	375,430.42	819,645.57	32.028958	-103.435265
7,000.00	4.75	341.57	6,990.09	232.85	-77.62	375,438.28	819,642.95	32.028980	-103.435273
7,100.00	4.75	341.57	7,089.74	240.71	-80.24	375,446.14	819,640.33	32.029002	-103.435281
7,200.00	4.75	341.57	7,189.40	248.57	-82.86	375,454.00	819,637.71	32.029023	-103.435290
7,300.00	4.75	341.57	7,289.06	256.43	-85.48	375,461.86	819,635.09	32.029045	-103.435298
7,400.00	4.75	341.57	7,388.71	264.29	-88.10	375,469.72	819,632.47	32.029067	-103.435306
7,500.00	4.75	341.57	7,488.37	272.15	-90.72	375,477.58	819,629.85	32.029088	-103.435314
7,600.00	4.75	341.57	7,588.02	280.01	-93.34	375,485.44	819,627.23	32.029110	-103.435323
7,695.84	4.75	341.57	7,683.54	287.54	-95.85	375,492.97	819,624.72	32.029131	-103.435331
EOH									
7,700.00	4.69	341.57	7,687.68	287.87	-95.96	375,493.29	819,624.61	32.029132	-103.435331
7,800.00	3.19	341.57	7,787.44	294.38	-98.13	375,499.81	819,622.44	32.029149	-103.435338
7,900.00	1.69	341.57	7,887.35	298.42	-99.47	375,503.85	819,621.09	32.029161	-103.435342
8,000.00	0.19	341.57	7,987.33	299.98	-99.99	375,505.41	819,620.57	32.029165	-103.435344
8,012.67	0.00	0.00	8,000.00	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
Drop to Vertical									
8,100.00	0.00	0.00	8,087.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,200.00	0.00	0.00	8,187.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,300.00	0.00	0.00	8,287.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,400.00	0.00	0.00	8,387.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,500.00	0.00	0.00	8,487.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,600.00	0.00	0.00	8,587.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,700.00	0.00	0.00	8,687.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,800.00	0.00	0.00	8,787.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
8,900.00	0.00	0.00	8,887.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,000.00	0.00	0.00	8,987.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,100.00	0.00	0.00	9,087.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,200.00	0.00	0.00	9,187.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,300.00	0.00	0.00	9,287.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,400.00	0.00	0.00	9,387.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,500.00	0.00	0.00	9,487.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,600.00	0.00	0.00	9,587.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,700.00	0.00	0.00	9,687.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
9,800.00	0.00	0.00	9,787.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3224.80ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3224.80ft
Site:	Sec 23-T26S-R34E	North Reference:	Grid
Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,900.00	0.00	0.00	9,887.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,000.00	0.00	0.00	9,987.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,100.00	0.00	0.00	10,087.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,200.00	0.00	0.00	10,187.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,300.00	0.00	0.00	10,287.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,400.00	0.00	0.00	10,387.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,500.00	0.00	0.00	10,487.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,600.00	0.00	0.00	10,587.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,700.00	0.00	0.00	10,687.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,800.00	0.00	0.00	10,787.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
10,900.00	0.00	0.00	10,887.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,000.00	0.00	0.00	10,987.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,100.00	0.00	0.00	11,087.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,200.00	0.00	0.00	11,187.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,300.00	0.00	0.00	11,287.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,400.00	0.00	0.00	11,387.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,500.00	0.00	0.00	11,487.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,600.00	0.00	0.00	11,587.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,700.00	0.00	0.00	11,687.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,800.00	0.00	0.00	11,787.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
11,900.00	0.00	0.00	11,887.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
12,000.00	0.00	0.00	11,987.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
12,100.00	0.00	0.00	12,087.33	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
12,164.71	0.00	0.00	12,152.04	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
KOP @ 12165' MD, 2749' FSL, 990' FEL									
12,200.00	3.53	179.71	12,187.31	298.91	-99.99	375,504.34	819,620.57	32.029162	-103.435344
12,300.00	13.53	179.71	12,286.08	284.10	-99.92	375,489.53	819,620.64	32.029121	-103.435344
12,400.00	23.53	179.71	12,380.77	252.36	-99.76	375,457.79	819,620.80	32.029034	-103.435344
12,500.00	33.53	179.71	12,468.52	204.66	-99.52	375,410.09	819,621.04	32.028903	-103.435345
12,600.00	43.53	179.71	12,546.65	142.45	-99.21	375,347.88	819,621.35	32.028732	-103.435345
12,700.00	53.53	179.71	12,612.79	67.62	-98.84	375,273.05	819,621.72	32.028526	-103.435346
12,780.21	61.55	179.71	12,655.81	0.00	-98.50	375,205.42	819,622.06	32.028340	-103.435347
1st Take Point @ 12781' MD, 2449' FSL, 990' FEL									
12,800.00	63.53	179.71	12,664.93	-17.56	-98.42	375,187.86	819,622.15	32.028292	-103.435347
12,900.00	73.53	179.71	12,701.49	-110.50	-97.95	375,094.92	819,622.61	32.028037	-103.435348
13,000.00	83.53	179.71	12,721.35	-208.38	-97.47	374,997.05	819,623.10	32.027768	-103.435349
13,064.71	90.00	179.71	12,725.00	-272.95	-97.14	374,932.48	819,623.42	32.027590	-103.435350
Land Point									
13,100.00	90.00	179.71	12,725.00	-308.24	-96.97	374,897.19	819,623.60	32.027493	-103.435350
13,200.00	90.00	179.71	12,725.00	-408.24	-96.47	374,797.19	819,624.10	32.027218	-103.435351
13,300.00	90.00	179.71	12,725.00	-508.24	-95.97	374,697.19	819,624.59	32.026943	-103.435352
13,400.00	90.00	179.71	12,725.00	-608.24	-95.47	374,597.19	819,625.09	32.026668	-103.435353
13,500.00	90.00	179.71	12,725.00	-708.24	-94.97	374,497.19	819,625.59	32.026394	-103.435354
13,600.00	90.00	179.71	12,725.00	-808.24	-94.47	374,397.19	819,626.09	32.026119	-103.435355
13,700.00	90.00	179.71	12,725.00	-908.23	-93.98	374,297.19	819,626.59	32.025844	-103.435357
13,800.00	90.00	179.71	12,725.00	-1,008.23	-93.48	374,197.20	819,627.09	32.025569	-103.435358
13,900.00	90.00	179.71	12,725.00	-1,108.23	-92.98	374,097.20	819,627.59	32.025294	-103.435359
14,000.00	90.00	179.71	12,725.00	-1,208.23	-92.48	373,997.20	819,628.08	32.025019	-103.435360
14,100.00	90.00	179.71	12,725.00	-1,308.23	-91.98	373,897.20	819,628.58	32.024744	-103.435361
14,200.00	90.00	179.71	12,725.00	-1,408.23	-91.48	373,797.20	819,629.08	32.024469	-103.435362
14,300.00	90.00	179.71	12,725.00	-1,508.23	-90.98	373,697.20	819,629.58	32.024195	-103.435363
14,400.00	90.00	179.71	12,725.00	-1,608.23	-90.49	373,597.20	819,630.08	32.023920	-103.435364
14,500.00	90.00	179.71	12,725.00	-1,708.22	-89.99	373,497.21	819,630.58	32.023645	-103.435365

Planning Report - Geographic

Database: EDM r5000.141_Prod US
 Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Site: Sec 23-T26S-R34E
 Well: Mean Green 23-35 Fed Com 1H
 Wellbore: Wellbore #1
 Design: Permit Plan 1

Local Co-ordinate Reference
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:

Well Mean Green 23-35 Fed Com 1H
 RKB @ 3224.80ft
 RKB @ 3224.80ft
 Grid
 Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,600.00	90.00	179.71	12,725.00	-1,808.22	-89.49	373,397.21	819,631.08	32.023370	-103.435366
14,700.00	90.00	179.71	12,725.00	-1,908.22	-88.99	373,297.21	819,631.57	32.023095	-103.435367
14,800.00	90.00	179.71	12,725.00	-2,008.22	-88.49	373,197.21	819,632.07	32.022820	-103.435368
14,900.00	90.00	179.71	12,725.00	-2,108.22	-87.99	373,097.21	819,632.57	32.022545	-103.435369
15,000.00	90.00	179.71	12,725.00	-2,208.22	-87.49	372,997.21	819,633.07	32.022270	-103.435370
15,100.00	90.00	179.71	12,725.00	-2,308.22	-87.00	372,897.21	819,633.57	32.021996	-103.435372
15,200.00	90.00	179.71	12,725.00	-2,408.22	-86.50	372,797.22	819,634.07	32.021721	-103.435373
15,300.00	90.00	179.71	12,725.00	-2,508.21	-86.00	372,697.22	819,634.57	32.021446	-103.435374
15,400.00	90.00	179.71	12,725.00	-2,608.21	-85.50	372,597.22	819,635.06	32.021171	-103.435375
15,500.00	90.00	179.71	12,725.00	-2,708.21	-85.00	372,497.22	819,635.56	32.020896	-103.435376
15,600.00	90.00	179.71	12,725.00	-2,808.21	-84.50	372,397.22	819,636.06	32.020621	-103.435377
15,700.00	90.00	179.71	12,725.00	-2,908.21	-84.00	372,297.22	819,636.56	32.020346	-103.435378
15,800.00	90.00	179.71	12,725.00	-3,008.21	-83.51	372,197.22	819,637.06	32.020071	-103.435379
15,900.00	90.00	179.71	12,725.00	-3,108.21	-83.01	372,097.23	819,637.56	32.019797	-103.435380
16,000.00	90.00	179.71	12,725.00	-3,208.21	-82.51	371,997.23	819,638.06	32.019522	-103.435381
16,100.00	90.00	179.71	12,725.00	-3,308.20	-82.01	371,897.23	819,638.55	32.019247	-103.435382
16,200.00	90.00	179.71	12,725.00	-3,408.20	-81.51	371,797.23	819,639.05	32.018972	-103.435383
16,300.00	90.00	179.71	12,725.00	-3,508.20	-81.01	371,697.23	819,639.55	32.018697	-103.435384
16,400.00	90.00	179.71	12,725.00	-3,608.20	-80.51	371,597.23	819,640.05	32.018422	-103.435385
16,500.00	90.00	179.71	12,725.00	-3,708.20	-80.02	371,497.24	819,640.55	32.018147	-103.435387
16,600.00	90.00	179.71	12,725.00	-3,808.20	-79.52	371,397.24	819,641.05	32.017872	-103.435388
16,700.00	90.00	179.71	12,725.00	-3,908.20	-79.02	371,297.24	819,641.55	32.017598	-103.435389
16,800.00	90.00	179.71	12,725.00	-4,008.20	-78.52	371,197.24	819,642.04	32.017323	-103.435390
16,900.00	90.00	179.71	12,725.00	-4,108.19	-78.02	371,097.24	819,642.54	32.017048	-103.435391
17,000.00	90.00	179.71	12,725.00	-4,208.19	-77.52	370,997.24	819,643.04	32.016773	-103.435392
17,100.00	90.00	179.71	12,725.00	-4,308.19	-77.02	370,897.24	819,643.54	32.016498	-103.435393
17,200.00	90.00	179.71	12,725.00	-4,408.19	-76.53	370,797.25	819,644.04	32.016223	-103.435394
17,300.00	90.00	179.71	12,725.00	-4,508.19	-76.03	370,697.25	819,644.54	32.015948	-103.435395
17,400.00	90.00	179.71	12,725.00	-4,608.19	-75.53	370,597.25	819,645.04	32.015674	-103.435396
17,500.00	90.00	179.71	12,725.00	-4,708.19	-75.03	370,497.25	819,645.53	32.015399	-103.435397
17,600.00	90.00	179.71	12,725.00	-4,808.19	-74.53	370,397.25	819,646.03	32.015124	-103.435398
17,700.00	90.00	179.71	12,725.00	-4,908.18	-74.03	370,297.25	819,646.53	32.014849	-103.435399
17,800.00	90.00	179.71	12,725.00	-5,008.18	-73.53	370,197.25	819,647.03	32.014574	-103.435401
17,900.00	90.00	179.71	12,725.00	-5,108.18	-73.04	370,097.26	819,647.53	32.014299	-103.435402
18,000.00	90.00	179.71	12,725.00	-5,208.18	-72.54	369,997.26	819,648.03	32.014024	-103.435403
18,100.00	90.00	179.71	12,725.00	-5,308.18	-72.04	369,897.26	819,648.53	32.013749	-103.435404
18,200.00	90.00	179.71	12,725.00	-5,408.18	-71.54	369,797.26	819,649.02	32.013475	-103.435405
18,300.00	90.00	179.71	12,725.00	-5,508.18	-71.04	369,697.26	819,649.52	32.013200	-103.435406
18,400.00	90.00	179.71	12,725.00	-5,608.18	-70.54	369,597.26	819,650.02	32.012925	-103.435407
18,500.00	90.00	179.71	12,725.00	-5,708.17	-70.04	369,497.26	819,650.52	32.012650	-103.435408
18,600.00	90.00	179.71	12,725.00	-5,808.17	-69.55	369,397.27	819,651.02	32.012375	-103.435409
18,700.00	90.00	179.71	12,725.00	-5,908.17	-69.05	369,297.27	819,651.52	32.012100	-103.435410
18,800.00	90.00	179.71	12,725.00	-6,008.17	-68.55	369,197.27	819,652.02	32.011825	-103.435411
18,900.00	90.00	179.71	12,725.00	-6,108.17	-68.05	369,097.27	819,652.51	32.011550	-103.435412
19,000.00	90.00	179.71	12,725.00	-6,208.17	-67.55	368,997.27	819,653.01	32.011276	-103.435413
19,100.00	90.00	179.71	12,725.00	-6,308.17	-67.05	368,897.27	819,653.51	32.011001	-103.435414
19,200.00	90.00	179.71	12,725.00	-6,408.17	-66.55	368,797.27	819,654.01	32.010726	-103.435416
19,300.00	90.00	179.71	12,725.00	-6,508.16	-66.06	368,697.28	819,654.51	32.010451	-103.435417
19,400.00	90.00	179.71	12,725.00	-6,608.16	-65.56	368,597.28	819,655.01	32.010176	-103.435418
19,500.00	90.00	179.71	12,725.00	-6,708.16	-65.06	368,497.28	819,655.51	32.009901	-103.435419
19,600.00	90.00	179.71	12,725.00	-6,808.16	-64.56	368,397.28	819,656.00	32.009626	-103.435420
19,700.00	90.00	179.71	12,725.00	-6,908.16	-64.06	368,297.28	819,656.50	32.009351	-103.435421
19,800.00	90.00	179.71	12,725.00	-7,008.16	-63.56	368,197.28	819,657.00	32.009077	-103.435422
19,900.00	90.00	179.71	12,725.00	-7,108.16	-63.06	368,097.28	819,657.50	32.008802	-103.435423

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference	Well Mean Green 23-35 Fed Com 1H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3224.80ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3224.80ft
Site:	Sec 23-T26S-R34E	North Reference:	Grid
Well:	Mean Green 23-35 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,000.00	90.00	179.71	12,725.00	-7,208.16	-62.57	367,997.29	819,658.00	32.008527	-103.435424
20,100.00	90.00	179.71	12,725.00	-7,308.15	-62.07	367,897.29	819,658.50	32.008252	-103.435425
20,200.00	90.00	179.71	12,725.00	-7,408.15	-61.57	367,797.29	819,659.00	32.007977	-103.435426
20,300.00	90.00	179.71	12,725.00	-7,508.15	-61.07	367,697.29	819,659.49	32.007702	-103.435427
20,400.00	90.00	179.71	12,725.00	-7,608.15	-60.57	367,597.29	819,659.99	32.007427	-103.435428
20,500.00	90.00	179.71	12,725.00	-7,708.15	-60.07	367,497.29	819,660.49	32.007152	-103.435429
20,600.00	90.00	179.71	12,725.00	-7,808.15	-59.57	367,397.29	819,660.99	32.006878	-103.435431
20,700.00	90.00	179.71	12,725.00	-7,908.15	-59.08	367,297.30	819,661.49	32.006603	-103.435432
20,800.00	90.00	179.71	12,725.00	-8,008.15	-58.58	367,197.30	819,661.99	32.006328	-103.435433
20,900.00	90.00	179.71	12,725.00	-8,108.14	-58.08	367,097.30	819,662.49	32.006053	-103.435434
21,000.00	90.00	179.71	12,725.00	-8,208.14	-57.58	366,997.30	819,662.98	32.005778	-103.435435
21,100.00	90.00	179.71	12,725.00	-8,308.14	-57.08	366,897.30	819,663.48	32.005503	-103.435436
21,200.00	90.00	179.71	12,725.00	-8,408.14	-56.58	366,797.30	819,663.98	32.005228	-103.435437
21,300.00	90.00	179.71	12,725.00	-8,508.14	-56.08	366,697.30	819,664.48	32.004953	-103.435438
21,400.00	90.00	179.71	12,725.00	-8,608.14	-55.59	366,597.31	819,664.98	32.004679	-103.435439
21,500.00	90.00	179.71	12,725.00	-8,708.14	-55.09	366,497.31	819,665.48	32.004404	-103.435440
21,600.00	90.00	179.71	12,725.00	-8,808.14	-54.59	366,397.31	819,665.98	32.004129	-103.435441
21,700.00	90.00	179.71	12,725.00	-8,908.13	-54.09	366,297.31	819,666.47	32.003854	-103.435442
21,800.00	90.00	179.71	12,725.00	-9,008.13	-53.59	366,197.31	819,666.97	32.003579	-103.435443
21,900.00	90.00	179.71	12,725.00	-9,108.13	-53.09	366,097.31	819,667.47	32.003304	-103.435444
22,000.00	90.00	179.71	12,725.00	-9,208.13	-52.59	365,997.31	819,667.97	32.003029	-103.435446
22,100.00	90.00	179.71	12,725.00	-9,308.13	-52.10	365,897.32	819,668.47	32.002754	-103.435447
22,200.00	90.00	179.71	12,725.00	-9,408.13	-51.60	365,797.32	819,668.97	32.002480	-103.435448
22,300.00	90.00	179.71	12,725.00	-9,508.13	-51.10	365,697.32	819,669.47	32.002205	-103.435449
22,400.00	90.00	179.71	12,725.00	-9,608.13	-50.60	365,597.32	819,669.96	32.001930	-103.435450
22,500.00	90.00	179.71	12,725.00	-9,708.13	-50.10	365,497.32	819,670.46	32.001655	-103.435451
22,600.00	90.00	179.71	12,725.00	-9,808.12	-49.60	365,397.32	819,670.96	32.001380	-103.435452
22,665.93	90.00	179.71	12,725.00	-9,874.05	-49.27	365,331.39	819,671.29	32.001199	-103.435453
Last Take Point @ 22666' MD, 330' FSL, 1026' FEL									
22,700.00	90.00	179.71	12,725.00	-9,908.12	-49.10	365,297.32	819,671.46	32.001105	-103.435453
22,795.93	90.00	179.71	12,725.00	-10,004.05	-48.63	365,201.40	819,671.94	32.000842	-103.435454
PBHL; 200' FSL, 1026' FEL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - Mean Green 23-	0.00	0.00	0.00	-10,004.05	-48.63	365,201.40	819,671.94	32.000842	-103.435454
- plan misses target center by 10004.17ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Vertical Point - Mean Gr	0.00	0.00	8,000.00	150.29	360.03	375,355.72	820,080.59	32.028743	-103.433863
- plan misses target center by 483.78ft at 8012.19ft MD (7999.52 TVD, 300.00 N, -100.00 E)									
- Point									
VP - Mean Green 23-35	0.00	0.00	8,000.00	300.00	-100.00	375,505.43	819,620.56	32.029165	-103.435344
- plan hits target center									
- Point									

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Site: Sec 23-T26S-R34E
Well: Mean Green 23-35 Fed Com 1H
Wellbore: Wellbore #1
Design: Permit Plan 1

Local Co-ordinate Reference
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Mean Green 23-35 Fed Com 1H
 RKB @ 3224.80ft
 RKB @ 3224.80ft
 Grid
 Minimum Curvature

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,800.00	3,800.00	0.00	0.00	Begin Nudge
4,275.24	4,274.70	18.69	-6.23	EOB
7,695.84	7,683.54	287.54	-95.85	EOH
8,012.67	8,000.00	300.00	-100.00	Drop to Vertical
12,164.71	12,152.04	300.00	-100.00	KOP @ 12165' MD, 2749' FSL, 990' FEL
12,780.21	12,655.81	0.00	-98.50	1st Take Point @ 12781' MD, 2449' FSL, 990' FEL
13,064.71	12,725.00	-272.95	-97.14	Land Point
22,665.93	12,725.00	-9,874.05	-49.27	Last Take Point @ 22666' MD, 330' FSL, 1026' FEL
22,795.93	12,725.00	-10,004.05	-48.63	PBHL, 200' FSL, 1026' FEL

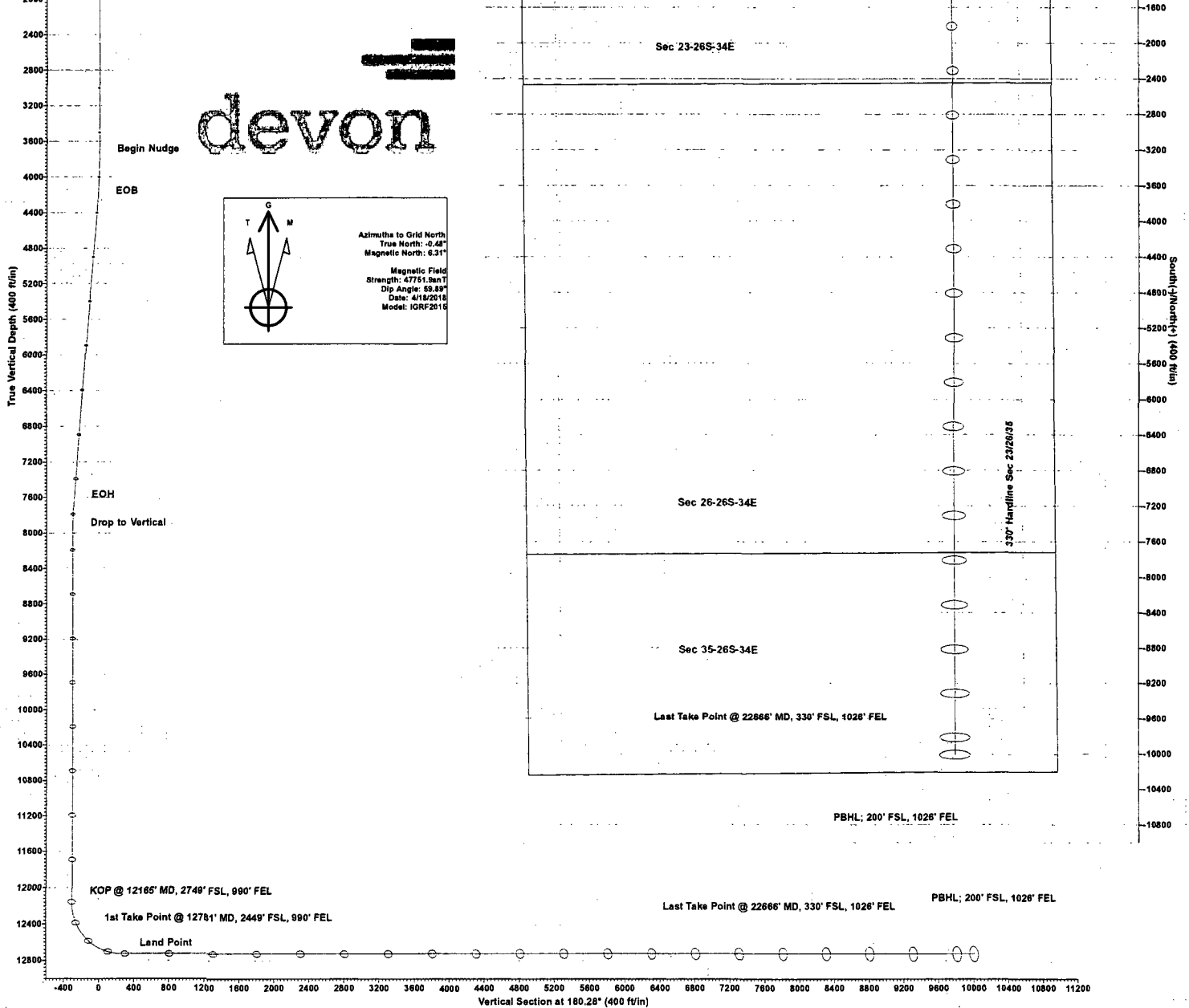
WCDSC Permian NM

WELL DETAILS: Mean Green 23-35 Fed Com 1H

RKB @ 3224.80ft
3193.60
Northing 375205.43 Easting 819720.57 Latitude 32.028338 Longitude -103.435029

SECTION DETAILS Permit Plan 1

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dip	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3800.00	0.00	0.00	3800.00	0.00	0.00	0.00	0.00	Begin Nudge
4275.24	4.75	341.57	4274.70	18.89	-6.23	1.00	-18.66	EOB
7695.84	4.75	341.57	7683.53	287.54	-95.85	0.00	-287.07	EOH
5 8012.67	0.00	0.00	8000.00	300.00	-100.00	1.50	-299.51	Drop to Vertical
6 12164.71	0.00	0.00	12152.04	300.00	-100.00	0.00	-299.51	KOP @ 12165' MD, 2749' FSL, 990' FEL
7 13064.71	90.00	179.71	12725.00	-272.95	-97.14	10.00	273.42	Land Point
8 22795.93	90.00	179.71	12725.00	-10004.05	-48.63	0.00	10004.17	PBHL: 200' FSL, 1026' FEL



PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company
LEASE NO.:	NMNM100568
WELL NAME & NO.:	Mean Green 23-35 Fed Com 1H
SURFACE HOLE FOOTAGE:	2449'/S & 890'/E
BOTTOM HOLE FOOTAGE:	200'/S & 380'/E
LOCATION:	Section 23, T.26 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

COA

All previous COA still apply expect the following:

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately 1050 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of 8 hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Operator shall filled 100% casing with fluid while running intermediate casing to maintain collapse safety factor.

- 2. The minimum required fill of cement behind the 8 5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement maybe requiried. Excess calculates to 3%.**

If Operator is to used DV tool the cement will be adjusted proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall contact BLM before running DV Tool and submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

In case of lost circulation, operator proposed to pump cement down the 8 5/5" x 13 3/8 " annulus. Operator must run a CBL from TD of the 8 5/8" casing to surface and submit results to BLM.

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement maybe requiried. Excess calculates to -8%.**

C. PRESSURE CONTROL

- 1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
- 2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi.**
- 3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 7-5/8 intermediate casing shoe shall be **10,000 (10M) psi.**
- 4. **Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)**

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,

(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)

393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall

be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a

larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 052918

263423I SUNDRY MEAN GREEN 23-25 FED COM 1H 30015 NMNM100568 DEVON
ENERGY 12-55 419643 05292018 ZS

13 3/8	surface csg in a	17 1/2	inch hole.			Design Factors		SURFACE	
Segment	#/ft	Grade	Coupling	Joint		Collapse	Burst	Length	Weight
"A"	48.00	H 40	ST&C	6.39		1.6	0.27	1,050	50,400
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 753				Tail Cmt	does	circ to sfc.	Totals:	1,050	50,400
Comparison of Proposed to Minimum Required Cement Volumes									
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	823	1103	784	41	8.80	3650	5M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

8 5/8	casing inside the	13 3/8				Design Factors		INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint		Collapse	Burst	Length	Weight
"A"	32.00	P 110	BUTT	2.87		1.34	1.04	5,000	160,000
"B"	32.00	P 110	VAM FJL	2.69		0.55	1.04	7,200	230,400
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	12,200	390,400
B s would be:				2.68	0.55	if it were a vertical wellbore.			
No Pilot Hole Planned				MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°
				12200	12187	12187	12165	3	0
				The cement volume(s) are intended to achieve a top of				0	ft from surface or a
								1050	overlap.
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
10 5/8	0.2100	984	2945	2856	3	10.00	5794	10M	1.00
Class 'H' tail cmt yld > 1.20				MASP is within 10% of 5000psig, need					

OPERATOR WILL FILL FLUID 100% WHILE RUNNING CASING.

5 1/2	casing inside the	8 5/8				Design Factors		PRODUCTION	
Segment	#/ft	Grade	Coupling	Joint		Collapse	Burst	Length	Weight
"A"	20.00	P 110	VAM SG	2.49		1.47	1.67	12,165	243,300
"B"	20.00	P 110	VAM SG	7.88		1.31	1.67	10,630	212,600
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,676							Totals:	22,795	455,900
B would be:				56.61	1.41	if it were a vertical wellbore.			
No Pilot Hole Planned				MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°
				22795	12725	12725	12165	90	10
				The cement volume(s) are intended to achieve a top of				12000	ft from surface or a
								200	overlap.
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
7 7/8	0.1733	1300	1729	1876	-8	13.00			1.09
Class 'H' tail cmt yld > 1.20									