Form 3160-5 (June 2019)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 202

BURI	EAU OF LAND MANAGEMENT	5. Lease Serial No.	5. Lease Serial No. NMNM110838		
Do not use this f	NOTICES AND REPORTS ON N form for proposals to drill or t Use Form 3160-3 (APD) for su	6. If Indian, Allottee of	or Tribe Name		
	TRIPLICATE - Other instructions on pag	7. If Unit of CA/Agre	7. If Unit of CA/Agreement, Name and/or No.		
1. Type of Well ✓ Oil Well Gas W	Well Other		8. Well Name and No	ICV 18 FED/501H	
2. Name of Operator EOG RESOURCE	_		9. API Well No. 3002		
		(:	10. Field and Pool or		
oa. Address 1111 BAGBY SKY LOB	BBY 2, HOUSTON, TX 770 3b. Phone No (713) 651-70			235G; LOWER BONE SPRING	
4. Location of Well (Footage, Sec., T.,R SEC 18/T25S/R33E/NMP	R.,M., or Survey Description)		11. Country or Parish	State	
12. CHE	ECK THE APPROPRIATE BOX(ES) TO IN	NDICATE NATURE OF NO	TICE, REPORT OR OTI	HER DATA	
TYPE OF SUBMISSION		TYPE OF A	CTION		
Notice of Intent Subsequent Report	Casing Repair Nev	draulic Fracturing Re v Construction Re	oduction (Start/Resume) clamation complete	Water Shut-Off Well Integrity Other	
Final Abandonment Notice			mporarily Abandon ater Disposal		
the Bond under which the work will completion of the involved operation completed. Final Abandonment Not is ready for final inspection.) EOG respectfully requests and the following changes: Change name from Icy 18 Fed Change BHL from T-25-S, R-3 to T-25-S, R-33-E, Sec 24, 254 Change target formation to Thi Update casing and cement processing the continued on page 3 additional	ogram to current design.	file with BLM/BIA. Require impletion or recompletion in ints, including reclamation, has been well to reflect	ed subsequent reports mu a new interval, a Form 3	st be filed within 30 days following 160-4 must be filed once testing has been	
 I hereby certify that the foregoing is STAR HARRELL / Ph: (432) 848-9 	s true and correct. Name (Printed/Typed)	Regulatory Specia	alist		
51AR HARRELL / PII. (432) 646-9		Title			
Signature		Date	11/08/2	022	
	THE SPACE FOR FED	DERAL OR STATE O	FICE USE		
Approved by				21/	
KEITH P IMMATTY / Ph: (575) 988	8-4722 / Approved	ENGINEER Title		01/17/2023 Date	
	thed. Approval of this notice does not warra equitable title to those rights in the subject I aduct operations thereon.		D		

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.

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

(Form 3160-5, page 2)

Additional Information

Additional Remarks

Update HSU to 480 acres.

EOG requests execution of Variance 3a (attached) to offline cement the intermediate sections.

Location of Well

 $0. \ SHL: \ NWNW / \ 210 \ FNL / \ 534 \ FWL / \ TWSP: \ 25S / \ RANGE: \ 33E / \ SECTION: \ 18 / \ LAT: \ 32.1372817 / \ LONG: \ -103.6181645 (\ TVD: \ 0 \ feet, \ MD: \ 0 \ feet)$ $PPP: \ NWNW / \ 100 \ FNL / \ 330 \ FWL / \ TWSP: \ 25S / \ RANGE: \ 33E / \ SECTION: \ 18 / \ LAT: \ 32.137584 / \ LONG: \ -103.6188236 (\ TVD: \ 10735 \ feet, \ MD: \ 10751 \ feet)$ $BHL: \ SWNW / \ 2540 \ FNL / \ 330 \ FWL / \ TWSP: \ 25S / \ RANGE: \ 33E / \ SECTION: \ 19 / \ LAT: \ 32.1163631 / \ LONG: \ -103.618844 (\ TVD: \ 11000 \ feet, \ MD: \ 19102 \ feet)$

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District II 811 S. First St., Artesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9720 1000 Rio Brazos Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

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

FORM C-102 Revised August 1, 2011 Submit one copy to appropriate **District Office**

AMENDED REPORT

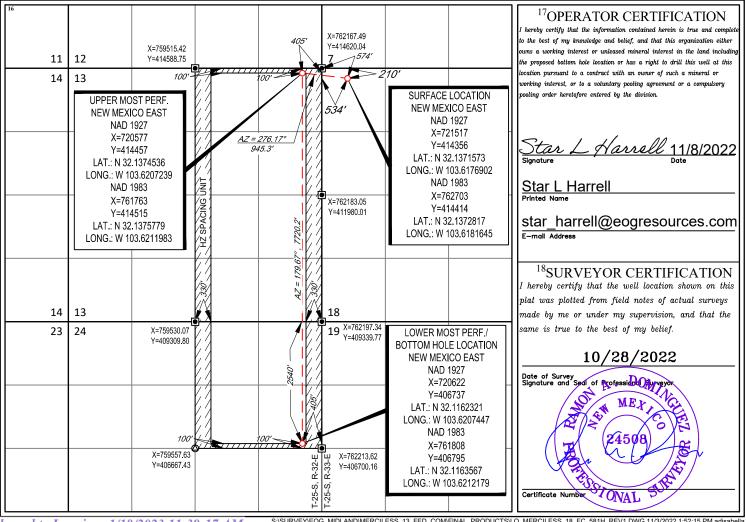
WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-46688		² Pool Code 97903	³ Pool Name WC-025 G-08 S253235G; Lov	wer Bone Spring
⁴ Property Code 328894			S 18 FED COM	⁶ Well Number 581H
⁷ OGRID No. 7377		•	perator Name SOURCES, INC.	⁹ Elevation 3488'

¹⁰Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	18	25-S	33-E	-	210'	NORTH	534'	WEST	LEA
¹¹ Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	24	25-S	33-E	-	2540'	NORTH	405'	EAST	LEA
¹² Dedicated Acres 480.28	¹³ Joint or 1	Infill 14Co	nsolidation Cod	de ¹⁵ Ord	er No.				

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



Revised Permit Information 10/17/2022:

Well Name: Merciless 13 Fed Com 581H

Location: SHL: 210' FNL & 534' FWL, Section 18, T-25-S, R-33-E, Lea Co., N.M.

BHL: 2540' FNL & 405' FEL, Section 24, T-25-S, R-33-E, Lea Co., N.M.

Casing Program A:

Hole	Interva	al MD	Interval TVD		Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
16"	0	1,040	0	1,040	13-3/8"	54.5#	J-55	STC
11"	0	4,073	0	4,000	9-5/8"	40#	J-55	LTC
11"	4,073	4,803	4,000	4,730	9-5/8"	40#	HCK-55	LTC
6-3/4"	0	18,898	0	11,257	5-1/2"	17#	HCP-110	LTC

Variance is requested to waive the centralizer requirements for the 9-5/8" casing in the 11" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 11" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 5-1/2" casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

EOG requests permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Onshore Order #2 under the following conditions:

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues.

Cementing Program:

		Wt.	Yld	Clauma Danasiatian	
Depth	No. Sacks	ppg	Ft3/sk	Slurry Description	
1,040'	310	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-Flake (TOC @ Surface)	
15 3/6	100	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 840')	
4,730' 9-5/8"	450	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @ Surface)	
	160	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,780')	
18,898' 5-1/2"	380	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 4,230')	
	570	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 + 0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241 (TOC @ 10860')	



Merciless 13 Fed Com 581H

Additive	Purpose
Bentonite Gel	Lightweight/Lost circulation prevention
Calcium Chloride	Accelerator
Cello-flake	Lost circulation prevention
Sodium Metasilicate	Accelerator
MagOx	Expansive agent
Pre-Mag-M	Expansive agent
Sodium Chloride	Accelerator
FL-62	Fluid loss control
Halad-344	Fluid loss control
Halad-9	Fluid loss control
HR-601	Retarder
Microbond	Expansive Agent

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

Mud Program:

Depth (TVD)	Туре	Weight (ppg)	Viscosity	Water Loss
0 - 1,040	Fresh - Gel	8.6-8.8	28-34	N/c
1,040' - 4,730'	Brine	8.6-8.8	28-34	N/c
4,730' – 18,898'	Oil Base	8.8-9.5	58-68	N/c - 6

Wellhead & Offline Cementing:

EOG Resources Inc. (EOG) respectfully requests a variance from the minimum standards for well control equipment testing of Onshore Order No. 2 (item III.A.2.a.i) to allow a testing schedule of the blow out preventer (BOP) and blow out prevention equipment (BOPE) along with Batch Drilling & Offline cement operations to include the following:

- Full BOPE test at first installation on the pad.
- Full BOPE test every 21 days per Onshore Order No. 2.
- Function test BOP elements per Onshore Order No. 2.
- Break testing BOP and BOPE coupled with batch drilling operations and option to offline cement and/or remediate (if needed) any surface or intermediate sections, according to attached offline cementing support documentation.
- After the well section is secured, the BOP will be disconnected from the wellhead and walked with the rig to another well on the pad.
- TA cap will also be installed per Wellhead vendor procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.
- See attached "EOG BLM Variance 3a -Offline Cement Intermediate Operational Procedure"

eog resources Merciless 13 Fed Com 581H

210' FNL

Revised Wellbore A:

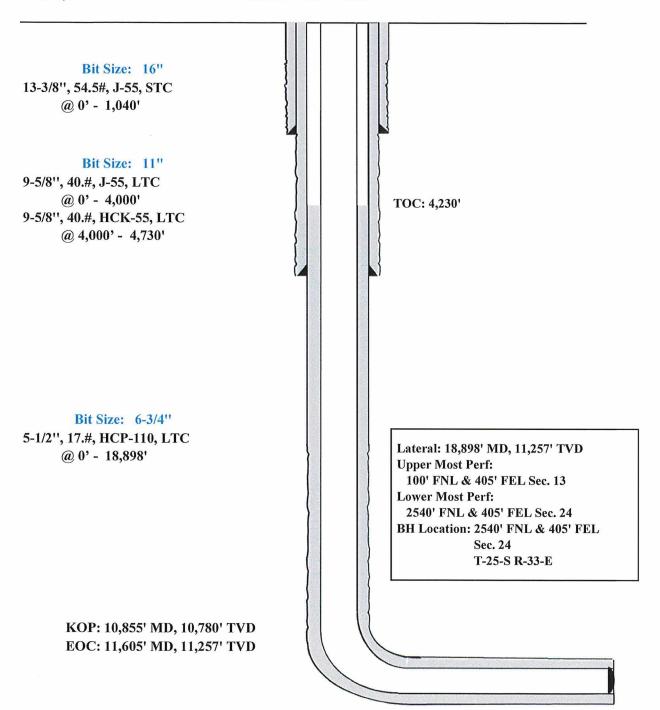
KB: 3513'

534' FWL Section 18

T-25-S, R-33-E

GL: 3488'

API: 30-025-46688



Page 3 of 6



Revised Permit Information 10/17/2022:

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BHL: 2540' FNL & 405' FEL, Section 24, T-25-S, R-33-E, Lea Co., N.M.

Casing Program B:

Hole	Interv	al MD	Interva	l TVD	Csg			
Size	From (ft)	To (ft)	From (ft)	To (ft)	OD	Weight	Grade	Conn
13-1/2"	0	1,040	0	1,040	10-3/4"	40.5#	J-55	STC
9-7/8"	0	4,803	0	4,000	8-5/8"	32#	J-55	BTC-SC
9-7/8"	4,073	4,803	4,000	4,730	8-5/8"	32#	P110-EC	BTC-SC
6-3/4"	0	18,898	0	11,257	5-1/2"	17#	HCP-110	LTC

Cementing Program:

		ogram.			
		Wt.	Yld	Slurry Description	
Depth	No. Sacks	ppg	Ft3/sk		
1,040'	350	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-	
10-3/4"				Flake (TOC @ Surface)	
	110	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium	
				Metasilicate (TOC @ 840')	
4,730'	320	12.7	2.22	Lead: Class C + 10% NaCl + 6% Bentonite Gel + 3% MagOx (TOC @	
8-5/8''				Surface)	
	150	14.8	1.32	Tail: Class C + 10% NaCL + 3% MagOx (TOC @ 3,780')	
18,898'	650	11.0	3.21	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond	
5-1/2"				(TOC @ 4,230')	
	590	13.2	1.52	Tail: Class H + 5% NEX-020 + 0.2% NAC-102 + 0.15% NAS-725 +	
				0.5% NFL-549 + 0.2% NFP-703 + 1% NBE-737 + 0.3% NRT-241 (TOC	
				@ 10860')	

Additive	Purpose
Bentonite Gel	Lightweight/Lost circulation prevention
Calcium Chloride	Accelerator
Cello-flake	Lost circulation prevention
Sodium Metasilicate	Accelerator
MagOx	Expansive agent
Pre-Mag-M	Expansive agent
Sodium Chloride	Accelerator
FL-62	Fluid loss control
Halad-344	Fluid loss control
Halad-9	Fluid loss control
HR-601	Retarder
Microbond	Expansive Agent

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- Full BOPE test every 21 days per Onshore Order No. 2.
- Function test BOP elements per Onshore Order No. 2.
- Break testing BOP and BOPE coupled with batch drilling operations and option to offline cement and/or remediate (if needed) any surface or intermediate sections, according to attached offline cementing support documentation.
- After the well section is secured, the BOP will be disconnected from the wellhead and walked with the rig to another well on the pad.
- TA cap will also be installed per Wellhead vendor procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.
- See attached "EOG BLM Variance 3a -Offline Cement Intermediate Operational Procedure"

eog resources Merciless 13 Fed Com 581H

210'

Revised Wellbore B:

KB: 3513'

GL: 3488'

534' Section 18

T-25-S, R-33-E

API: 30-025-46688

Bit Size: 13-1/2" 10-3/4", 40.5#, J-55, STC @ 0' - 1,040' Bit Size: 9-7/8" 8-5/8", 32.#, J-55, BTC-SC @ 0' - 4,000' 8-5/8", 32.#, P110-EC, BTC-SC TOC: 4,230' @ 4,000' - 4,730' Lateral: 18,898' MD, 11,257' TVD Bit Size: 6-3/4" **Upper Most Perf:** 5-1/2", 17.#, HCP-110, LTC 100' FNL & 405' FEL Sec. 13 @ 0' - 18,898' **Lower Most Perf:** 2540' FNL & 405' FEL Sec. 24 BH Location: 2540' FNL & 405' FEL Sec. 24 T-25-S R-33-E KOP: 10,855' MD, 10,780' TVD EOC: 11,605' MD, 11,257' TVD

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Merciless 13 Fed Com Package

Wells in package:	Tgt TVD
Merciless 13 Fed Com #510H	10,923
Merciless 13 Fed Com #511H	10,617
Merciless 13 Fed Com #512H	10,923
Merciless 13 Fed Com #513H	10,617
Merciless 18 Fed Com #581H	11,257



Midland

Lea County, NM (NAD 83 NME) Merciless 18 Fed Com #581H

OH

Plan: Plan #0.1

Standard Planning Report

07 November, 2022





Planning Report



PEDM Database: Company: Midland

Project: Lea County, NM (NAD 83 NME) Merciless 18 Fed Com Site:

Well: #581H Wellbore: OH Plan #0.1 Design:

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well #581H

KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft

Grid

Minimum Curvature

Project Lea County, NM (NAD 83 NME)

US State Plane 1983 Map System: North American Datum 1983 Geo Datum: New Mexico Eastern Zone Map Zone:

System Datum:

Mean Sea Level

Merciless 18 Fed Com Site

Northing: 414,414.00 usft Site Position: Latitude: 32.1372825°N From: Мар Easting: 762,703.00 usft Longitude: 103.6181640°W

Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 "

Well #581H

Well Position +N/-S 0.0 usft Northing: 414,414.00 usft Latitude: 32.1372825°N +E/-W 0.0 usft Easting: 762,703.00 usft Longitude: 103.6181640°W

Position Uncertainty 0.0 usft Wellhead Elevation: usft **Ground Level:** 3,488.0 usft

0.38 **Grid Convergence:**

ОН Wellbore

Declination Magnetics **Model Name** Sample Date Dip Angle Field Strength (°) (°) (nT) 47,291.86837017 IGRF2020 11/7/2022 6.40 59.77

Plan #0.1 Design

Audit Notes:

PLAN Tie On Depth: 0.0 Version: Phase:

Vertical Section: Depth From (TVD) +N/-S +E/-W Direction (usft) (usft) (usft) (°) 186.70 0.0 0.0 0.0

Plan Survey Tool Program Date 11/7/2022

Depth From Depth To

(usft) (usft) Survey (Wellbore) **Tool Name** Remarks

18,897.9 EOG MWD+IFR1 0.0 Plan #0.1 (OH)

MWD + IFR1



Planning Report



Database: Company:

Project:

Site:

PEDM Midland

Lea County, NM (NAD 83 NME)

Merciless 18 Fed Com

 Well:
 #581H

 Wellbore:
 OH

 Design:
 Plan #0.1

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #581H

KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft

Grid

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,667.4	9.35	279.13	1,665.3	6.0	-37.6	2.00	2.00	0.00	279.13	
7,060.4	9.35	279.13	6,986.7	145.0	-902.4	0.00	0.00	0.00	0.00	
7,527.8	0.00	0.00	7,452.0	151.0	-940.0	2.00	-2.00	0.00	180.00	
10,855.3	0.00	0.00	10,779.5	151.0	-940.0	0.00	0.00	0.00	0.00	KOP(Merciless 18 Fe
11,075.7	26.46	180.00	10,992.2	101.0	-940.0	12.00	12.00	81.65	180.00	FTP(Merciless 18 Fed
11,605.2	90.00	179.66	11,256.9	-326.5	-938.2	12.00	12.00	-0.06	-0.38	
18,897.9	90.00	179.66	11,257.0	-7,619.0	-895.0	0.00	0.00	0.00	0.00	PBHL(Merciless 18 Fe

Planning Report



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Merciless 18 Fed Com

 Well:
 #581H

 Wellbore:
 OH

 Design:
 Plan #0.1

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #581H

KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft

Grid

esigii.									
Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
4 000 0	0.00		4 000 0				2.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	2.00	279.13	1,300.0	0.3	-1.7	-0.1	2.00	2.00	0.00
1,400.0	4.00	279.13	1,399.8	1.1	-6.9	-0.3	2.00	2.00	0.00
1,500.0	6.00	279.13	1,499.5	2.5	-15.5	-0.7	2.00	2.00	0.00
1,600.0	8.00	279.13	1,598.7	4.4	-27.5	-1.2	2.00	2.00	0.00
1,667.4	9.35	279.13	1,665.3	6.0	-37.6	-1.6	2.00	2.00	0.00
1,700.0	9.35	279.13	1,697.5	6.9	-42.8	-1.8	0.00	0.00	0.00
1,800.0	9.35	279.13	1,796.2	9.5	-58.8	-2.5	0.00	0.00	0.00
4 000 0	0.05				74.0	2.0	0.00	0.00	0.00
1,900.0	9.35	279.13	1,894.8	12.0	-74.9	-3.2	0.00	0.00	0.00
2,000.0	9.35	279.13	1,993.5	14.6	-90.9	-3.9	0.00	0.00	0.00
2,100.0	9.35	279.13	2,092.2	17.2	-106.9	-4.6	0.00	0.00	0.00
2,200.0	9.35	279.13	2,190.9	19.8	-123.0	-5.3	0.00	0.00	0.00
2,300.0	9.35	279.13	2,289.5	22.3	-139.0	-6.0	0.00	0.00	0.00
2,400.0	9.35	279.13	2,388.2	24.9	-155.1	-6.6	0.00	0.00	0.00
2,500.0	9.35	279.13	2,486.9	27.5	-171.1	-7.3	0.00	0.00	0.00
		279.13					0.00		
2,600.0	9.35		2,585.5	30.1	-187.1	-8.0		0.00	0.00
2,700.0	9.35	279.13	2,684.2	32.6	-203.2	-8.7	0.00	0.00	0.00
2,800.0	9.35	279.13	2,782.9	35.2	-219.2	-9.4	0.00	0.00	0.00
2,900.0	9.35	279.13	2,881.6	37.8	-235.2	-10.1	0.00	0.00	0.00
3,000.0	9.35	279.13	2,980.2	40.4	-251.3	-10.8	0.00	0.00	0.00
	9.35	279.13	3,078.9	42.9	-267.3	-11.5	0.00	0.00	0.00
3,100.0									
3,200.0	9.35	279.13	3,177.6	45.5	-283.3	-12.1	0.00	0.00	0.00
3,300.0	9.35	279.13	3,276.2	48.1	-299.4	-12.8	0.00	0.00	0.00
3,400.0	9.35	279.13	3,374.9	50.7	-315.4	-13.5	0.00	0.00	0.00
3,500.0	9.35	279.13	3,473.6	53.2	-331.5	-14.2	0.00	0.00	0.00
3,600.0	9.35	279.13	3,572.3	55.8	-347.5	-14.9	0.00	0.00	0.00
3,700.0	9.35	279.13	3,670.9	58.4	-363.5	-14.9	0.00	0.00	0.00
3,800.0	9.35	279.13	3,769.6	61.0	-303.5 -379.6	-16.3	0.00	0.00	0.00
3,900.0	9.35	279.13	3,868.3	63.5	-395.6	-17.0	0.00	0.00	0.00
4,000.0	9.35	279.13	3,967.0	66.1	-411.6	-17.6	0.00	0.00	0.00
4,100.0	9.35	279.13	4,065.6	68.7	-427.7	-18.3	0.00	0.00	0.00
4,200.0	9.35	279.13	4,164.3	71.3	-443.7	-19.0	0.00	0.00	0.00
4,300.0	9.35	279.13	4,263.0	73.9	-459.8	-19.7	0.00	0.00	0.00
4,400.0	9.35	279.13	4,361.6	76.4	-475.8	-20.4	0.00	0.00	0.00
4,500.0	9.35	279.13	4,460.3	79.0	-491.8	-21.1	0.00	0.00	0.00
4,600.0	9.35	279.13	4,559.0	81.6	-507.9	-21.8	0.00	0.00	0.00
4,700.0	9.35	279.13	4,657.7	84.2	-523.9	-22.5	0.00	0.00	0.00
4,800.0	9.35	279.13	4,756.3	86.7	-539.9	-23.1	0.00	0.00	0.00
4,900.0	9.35	279.13	4,855.0	89.3	-556.0	-23.8	0.00	0.00	0.00
5,000.0	9.35	279.13	4,953.7	91.9	-572.0	-24.5	0.00	0.00	0.00
5,100.0	9.35	279.13	5,052.3	94.5	-588.1	-25.2	0.00	0.00	0.00
5,200.0	9.35	279.13	5,151.0	97.0	-604.1	-25.9	0.00	0.00	0.00

Planning Report



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)
Site: Merciless 18 Fed Com

 Well:
 #581H

 Wellbore:
 OH

 Design:
 Plan #0.1

Local Co-ordinate Reference:

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MD Reference:
North Reference:
Survey Calculation Method:

Well #581H KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft Grid

Design:	Plan #0.1								
Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	9.35	279.13	5,249.7	99.6	-620.1	-26.6	0.00	0.00	0.00
5,400.0	9.35	279.13	5,348.4	102.2	-636.2	-27.3	0.00	0.00	0.00
5,500.0	9.35	279.13	5,447.0	104.8	-652.2	-28.0	0.00	0.00	0.00
5,600.0	9.35	279.13	5,545.7	107.3	-668.2	-28.7	0.00	0.00	0.00
5,700.0	9.35	279.13	5,644.4	109.9	-684.3	-29.3	0.00	0.00	0.00
5,800.0	9.35	279.13	5,743.1	112.5	-700.3	-30.0	0.00	0.00	0.00
5,900.0	9.35	279.13	5,841.7	115.1	-716.3	-30.7	0.00	0.00	0.00
6,000.0	9.35	279.13	5,940.4	117.6	-732.4	-31.4	0.00	0.00	0.00
6,100.0	9.35	279.13	6,039.1	120.2	-748.4	-32.1	0.00	0.00	0.00
6,200.0	9.35	279.13	6,137.7	122.8	-764.5	-32.8	0.00	0.00	0.00
6,300.0	9.35	279.13	6,236.4	125.4	-780.5	-33.5	0.00	0.00	0.00
6,400.0	9.35	279.13	6,335.1	128.0	-796.5	-34.2	0.00	0.00	0.00
6,500.0	9.35	279.13	6,433.8	130.5	-812.6	-34.8	0.00	0.00	0.00
6,600.0	9.35	279.13	6,532.4	133.1	-828.6	-35.5	0.00	0.00	0.00
6,700.0 6,800.0	9.35 9.35	279.13 279.13	6,631.1 6,729.8	135.7 138.3	-844.6 -860.7	-36.2 -36.9	0.00 0.00	0.00 0.00	0.00 0.00
6,900.0	9.35	279.13	6,828.4	140.8	-876.7	-37.6	0.00	0.00	0.00
7,000.0	9.35	279.13	6,927.1	143.4	-892.8	-38.3	0.00	0.00	0.00
7,060.4 7,100.0	9.35 8.56	279.13 279.13	6,986.7 7,025.8	145.0 145.9	-902.4 -908.5	-38.7 -39.0	0.00 2.00	0.00 -2.00	0.00 0.00
7,100.0	6.56	279.13	7,025.6 7,125.0	148.0	-906.5 -921.5	-39.0 -39.5	2.00	-2.00	0.00
7,300.0	4.56	279.13	7,224.5	149.6	-931.1	-39.9	2.00	-2.00	0.00
7,400.0 7,500.0	2.56 0.56	279.13 279.13	7,324.3 7,424.2	150.5 151.0	-937.2 -939.9	-40.2 -40.3	2.00 2.00	-2.00 -2.00	0.00 0.00
7,527.8	0.00	0.00	7,452.0	151.0	-940.0	-40.3	2.00	-2.00	0.00
7,600.0	0.00	0.00	7,524.2	151.0	-940.0	-40.3	0.00	0.00	0.00
7,700.0	0.00	0.00	7,624.2	151.0	-940.0	-40.3	0.00	0.00	0.00
7,800.0	0.00	0.00	7,724.2	151.0	-940.0	-40.3	0.00	0.00	0.00
7,900.0	0.00	0.00	7,824.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,000.0	0.00	0.00	7,924.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,100.0	0.00	0.00	8,024.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,200.0	0.00	0.00	8,124.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,300.0	0.00	0.00	8,224.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,400.0	0.00	0.00	8,324.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,500.0 8,600.0	0.00 0.00	0.00 0.00	8,424.2 8,524.2	151.0 151.0	-940.0 -940.0	-40.3 -40.3	0.00 0.00	0.00 0.00	0.00 0.00
8,700.0	0.00	0.00	8,624.2	151.0	-940.0	-40.3	0.00	0.00	0.00
8,800.0 8,900.0	0.00 0.00	0.00 0.00	8,724.2 8,824.2	151.0 151.0	-940.0 -940.0	-40.3 -40.3	0.00 0.00	0.00 0.00	0.00 0.00
9,000.0	0.00	0.00	8,924.2	151.0	-940.0 -940.0	-40.3 -40.3	0.00	0.00	0.00
9,100.0	0.00	0.00	9,024.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,200.0	0.00	0.00	9,124.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,200.0	0.00	0.00	9,124.2 9,224.2	151.0	-940.0 -940.0	-40.3 -40.3	0.00	0.00	0.00
9,400.0	0.00	0.00	9,324.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,500.0	0.00	0.00	9,424.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,600.0	0.00	0.00	9,524.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,700.0	0.00	0.00	9,624.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,800.0	0.00	0.00	9,724.2	151.0	-940.0	-40.3	0.00	0.00	0.00
9,900.0	0.00	0.00	9,824.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,000.0	0.00	0.00	9,924.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,100.0	0.00	0.00	10,024.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,200.0	0.00	0.00	10,124.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,300.0	0.00	0.00	10,224.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,400.0	0.00	0.00	10,324.2	151.0	-940.0	-40.3	0.00	0.00	0.00

Planning Report



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Merciless 18 Fed Com

 Well:
 #581H

 Wellbore:
 OH

 Design:
 Plan #0.1

Local Co-ordinate Reference:

TVD Reference:
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North Reference:

Survey Calculation Method:

Well #581H

KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft

Grid

esign:	Plan #0.1								
lanned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,500.0	0.00	0.00	10,424.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,600.0	0.00	0.00	10,524.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,700.0	0.00	0.00	10,624.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,800.0	0.00	0.00	10,724.2	151.0	-940.0	-40.3	0.00	0.00	0.00
10,855.3	0.00	0.00	10,779.5	151.0	-940.0	-40.3	0.00	0.00	0.00
10,875.0	2.37	180.00	10,799.2	150.6	-940.0	-39.9	12.00	12.00	0.00
10,900.0	5.37	180.00	10,824.2	148.9	-940.0	-38.2	12.00	12.00	0.00
10,925.0	8.37	180.00	10,849.0	145.9	-940.0	-35.3	12.00	12.00	0.00
10,950.0	11.37	180.00	10,873.6	141.6	-940.0	-31.0	12.00	12.00	0.00
10,975.0	14.37	180.00	10,898.0	136.1	-940.0	-25.5	12.00	12.00	0.00
11,000.0	17.37	180.00	10,922.0	129.2	-940.0	-18.7	12.00	12.00	0.00
11,025.0	20.37	180.00	10,945.7	121.1	-940.0	-10.6	12.00	12.00	0.00
11,050.0	23.37	180.00	10,968.9	111.8	-940.0	-1.4	12.00	12.00	0.00
11,075.7	26.46	180.00	10,992.2	101.0	-940.0	9.4	12.00	12.00	0.00
11,100.0	29.37	179.96	11,013.7	89.6	-940.0	20.6	12.00	12.00	-0.16
11,125.0	32.37	179.93	11,035.1	76.8	-940.0	33.4	12.00	12.00	-0.13
11,150.0	35.37	179.90	11,055.9	62.9	-940.0	47.2	12.00	12.00	-0.11
11,175.0	38.37	179.87	11,075.9	47.9	-939.9	62.1	12.00	12.00	-0.10
11,200.0	41.37	179.85	11,095.1	31.8	-939.9	78.0	12.00	12.00	-0.09
11,225.0	44.37	179.83	11,113.4	14.8	-939.8	94.9	12.00	12.00	-0.08
11,250.0	47.37	179.82	11,130.8	-3.1	-939.8	112.7	12.00	12.00	-0.07
11,275.0	50.37	179.80	11,147.2	-21.9	-939.7	131.4	12.00	12.00	-0.06
11,300.0	53.37	179.79	11,162.7	-41.6	-939.7	150.9	12.00	12.00	-0.06
11,325.0	56.37	179.77	11,177.0	-62.0	-939.6	171.2	12.00	12.00	-0.05
11,350.0	59.37	179.76	11,190.3	-83.2	-939.5	192.2	12.00	12.00	-0.05
11,375.0	62.37	179.75	11,202.5	-105.0	-939.4	213.9	12.00	12.00	-0.05
11,400.0	65.37	179.74	11,213.5	-127.5	-939.3	236.2	12.00	12.00	-0.04
11,425.0	68.37	179.73	11,223.3	-150.5	-939.2	259.0	12.00	12.00	-0.04
11,450.0	71.37	179.72	11,231.9	-173.9	-939.1	282.3	12.00	12.00	-0.04
11,475.0	74.37	179.71	11,239.3	-197.8	-939.0	306.0	12.00	12.00	-0.04
11,500.0	77.37	179.70	11,245.4	-222.1	-938.8	330.1	12.00	12.00	-0.04
11,525.0	80.37	179.69	11,250.2	-246.6	-938.7	354.4	12.00	12.00	-0.04
11,550.0	83.37	179.68	11,253.8	-271.3	-938.6	379.0	12.00	12.00	-0.04
11,575.0	86.37	179.67	11,256.0	-296.2	-938.4	403.7	12.00	12.00	-0.04
11,600.0	89.37	179.66	11,256.9	-321.2	-938.3	428.5	12.00	12.00	-0.04
11,605.2	90.00	179.66	11,256.9	-326.5	-938.2	433.7	12.00	12.00	-0.04
11,700.0	90.00	179.66	11,256.9	-421.2	-937.7	527.7	0.00	0.00	0.00
11,800.0	90.00	179.66	11,256.9	-521.2	-937.1	627.0	0.00	0.00	0.00
11,900.0	90.00	179.66	11,256.9	-621.2	-936.5	726.2	0.00	0.00	0.00
12,000.0	90.00	179.66	11,256.9	-721.2	-935.9	825.5	0.00	0.00	0.00
12,100.0	90.00	179.66	11,256.9	-821.2	-935.3	924.7	0.00	0.00	0.00
12,200.0	90.00	179.66	11,256.9	-921.2	-934.7	1,024.0	0.00	0.00	0.00
12,300.0	90.00	179.66	11,256.9	-1,021.2	-934.1	1,123.2	0.00	0.00	0.00
12,400.0	90.00	179.66	11,257.0	-1,121.2	-933.5	1,222.5	0.00	0.00	0.00
12,500.0	90.00	179.66	11,257.0	-1,221.2	-932.9	1,321.7	0.00	0.00	0.00
12,600.0	90.00	179.66	11,257.0	-1,321.2	-932.3	1,421.0	0.00	0.00	0.00
12,700.0	90.00	179.66	11,257.0	-1,421.2	-931.8	1,520.2	0.00	0.00	0.00
12,800.0	90.00	179.66	11,257.0	-1,521.2	-931.2	1,619.4	0.00	0.00	0.00
12,900.0	90.00	179.66	11,257.0	-1,621.2	-930.6	1,718.7	0.00	0.00	0.00
13,000.0	90.00	179.66	11,257.0	-1,721.2	-930.0	1,817.9	0.00	0.00	0.00
13,100.0	90.00	179.66	11,257.0	-1,821.2	-929.4	1,917.2	0.00	0.00	0.00
13,200.0	90.00	179.66	11,257.0	-1,921.2	-928.8	2,016.4	0.00	0.00	0.00
13,300.0	90.00	179.66	11,257.0	-2,021.2	-928.2	2,115.7	0.00	0.00	0.00
13,400.0	90.00	179.66	11,257.0	-2,121.2	-927.6	2,214.9	0.00	0.00	0.00

Planning Report



Database: PEDM Company: Midland

Project: Lea County, NM (NAD 83 NME)

Site: Merciless 18 Fed Com

 Well:
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 Design:
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Survey Calculation Method:

Well #581H

KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft

Grid

sign:	1 1011 // 0.1								
anned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,500.0	90.00	179.66	11,257.0	-2,221.2	-927.0	2,314.2	0.00	0.00	0.00
13,600.0	90.00	179.66	11,257.0	-2,321.2	-926.4	2,413.4	0.00	0.00	0.00
13,700.0	90.00	179.66	11,257.0	-2,421.2	-925.8	2,512.7	0.00	0.00	0.00
13,800.0	90.00	179.66	11,257.0	-2,521.2	-925.2	2,611.9	0.00	0.00	0.00
13,900.0	90.00	179.66	11,257.0	-2,621.2	-924.6	2,711.2	0.00	0.00	0.00
14,000.0	90.00	179.66	11,257.0	-2,721.2	-924.0	2,810.4	0.00	0.00	0.00
14,100.0	90.00	179.66	11,257.0	-2,821.2	-923.5	2,909.6	0.00	0.00	0.00
14,200.0	90.00	179.66	11,257.0	-2,921.2	-922.9	3,008.9	0.00	0.00	0.00
				•					
14,300.0	90.00	179.66	11,257.0	-3,021.2	-922.3	3,108.1	0.00	0.00	0.00
14,400.0	90.00	179.66	11,257.0	-3,121.2	-921.7	3,207.4	0.00	0.00	0.00
14,500.0	90.00	179.66	11,257.0	-3,221.2	-921.1	3,306.6	0.00	0.00	0.00
14,600.0	90.00	179.66	11,257.0	-3,321.2	-920.5	3,405.9	0.00	0.00	0.00
14,700.0	90.00	179.66	11,257.0	-3,421.2	-919.9	3,505.1	0.00	0.00	0.00
14,800.0	90.00	179.66	11,257.0	-3,521.2	-919.3	3,604.4	0.00	0.00	0.00
14,900.0	90.00	179.66	11,257.0	-3,621.2	-918.7	3,703.6	0.00	0.00	0.00
15,000.0	90.00	179.66	11,257.0	-3,721.2	-918.1	3,802.9	0.00	0.00	0.00
15,100.0	90.00	179.66	11,257.0	-3,821.2	-917.5	3,902.1	0.00	0.00	0.00
15,200.0	90.00	179.66	11,257.0	-3,921.2	-916.9	4,001.4	0.00	0.00	0.00
15 200 0	00.00	170.66	11 057 0	4.004.0	016.2	4 100 6	0.00	0.00	0.00
15,300.0	90.00	179.66	11,257.0	-4,021.2	-916.3	4,100.6	0.00	0.00	0.00
15,400.0	90.00	179.66	11,257.0	-4,121.2	-915.7	4,199.8	0.00	0.00	0.00
15,500.0	90.00	179.66	11,257.0	-4,221.2	-915.1	4,299.1	0.00	0.00	0.00
15,600.0	90.00	179.66	11,257.0	-4,321.2	-914.6	4,398.3	0.00	0.00	0.00
15,700.0	90.00	179.66	11,257.0	-4,421.1	-914.0	4,497.6	0.00	0.00	0.00
15,800.0	90.00	179.66	11,257.0	-4,521.1	-913.4	4,596.8	0.00	0.00	0.00
15,900.0	90.00	179.66	11,257.0	-4,621.1	-912.8	4,696.1	0.00	0.00	0.00
16,000.0	90.00	179.66	11,257.0	-4,721.1	-912.2	4,795.3	0.00	0.00	0.00
16,100.0	90.00	179.66	11,257.0	-4,821.1	-912.2 -911.6	4,793.3	0.00	0.00	0.00
16,200.0	90.00	179.66	11,257.0	-4,921.1	-911.0	4,993.8	0.00	0.00	0.00
16,300.0	90.00	179.66	11,257.0	-5,021.1	-910.4	5,093.1	0.00	0.00	0.00
16,400.0	90.00	179.66	11,257.0	-5,121.1	-909.8	5,192.3	0.00	0.00	0.00
16,500.0	90.00	179.66	11,257.0	-5,221.1	-909.2	5,291.6	0.00	0.00	0.00
16,600.0	90.00	179.66	11,257.0	-5,321.1	-908.6	5,390.8	0.00	0.00	0.00
16,700.0	90.00	179.66	11,257.0	-5,421.1	-908.0	5,490.0	0.00	0.00	0.00
16,800.0	90.00	179.66	11,257.0	-5,521.1	-907.4	5,589.3	0.00	0.00	0.00
16,900.0	90.00	179.66	11,257.0	-5,621.1	-906.8	5,688.5	0.00	0.00	0.00
17,000.0	90.00	179.66	11,257.0	-5,721.1	-906.3	5,787.8	0.00	0.00	0.00
17,100.0	90.00	179.66	11,257.0	-5,821.1	-905.7	5,887.0	0.00	0.00	0.00
17,200.0	90.00	179.66	11,257.0	-5,921.1	-905.1	5,986.3	0.00	0.00	0.00
	00.00						0.00		
17,300.0	90.00	179.66	11,257.0	-6,021.1	-904.5	6,085.5	0.00	0.00	0.00
17,400.0	90.00	179.66	11,257.0	-6,121.1	-903.9	6,184.8	0.00	0.00	0.00
17,500.0	90.00	179.66	11,257.0	-6,221.1	-903.3	6,284.0	0.00	0.00	0.00
17,600.0	90.00	179.66	11,257.0	-6,321.1	-902.7	6,383.3	0.00	0.00	0.00
17,700.0	90.00	179.66	11,257.0	-6,421.1	-902.1	6,482.5	0.00	0.00	0.00
17,800.0	90.00	179.66	11,257.0	-6,521.1	-901.5	6,581.8	0.00	0.00	0.00
17,800.0	90.00	179.66	11,257.0	-6,621.1	-901.5	6,681.0	0.00	0.00	0.00
18,000.0	90.00	179.66	11,257.0	-6,721.1	-900.3	6,780.2	0.00	0.00	0.00
18,100.0	90.00	179.66	11,257.0	-6,821.1	-899.7	6,879.5	0.00	0.00	0.00
18,200.0	90.00	179.66	11,257.0	-6,921.1	-899.1	6,978.7	0.00	0.00	0.00
18,300.0	90.00	179.66	11,257.0	-7,021.1	-898.5	7,078.0	0.00	0.00	0.00
18,400.0	90.00	179.66	11,257.0	-7,121.1	-898.0	7,177.2	0.00	0.00	0.00
18,500.0	90.00	179.66	11,257.0	-7,221.1	-897.4	7,276.5	0.00	0.00	0.00
18,600.0	90.00	179.66	11,257.0	-7,321.1	-896.8	7,276.3	0.00	0.00	0.00
18,700.0	90.00	179.66	11,257.0	-7,321.1 -7,421.1	-090.0 -896.2	7,375.7 7,475.0	0.00	0.00	0.00
10,700.0	90.00	179.00	11,237.0	-1,421.1	-090.2	1,415.0	0.00	0.00	0.00
18,800.0	90.00	179.66	11,257.0	-7,521.1	-895.6	7,574.2	0.00	0.00	0.00



Planning Report



Database: Company:

Project:

Site:

PEDM Midland

Lea County, NM (NAD 83 NME)
Merciless 18 Fed Com

 Well:
 #581H

 Wellbore:
 OH

 Design:
 Plan #0.1

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well #581H

KB = 26' @ 3514.0usft KB = 26' @ 3514.0usft

Grid

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
18,897.9	90.00	179.66	11,257.0	-7,619.0	-895.0	7,671.4	0.00	0.00	0.00	

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP(Merciless 18 Fed C - plan hits target cen - Point	0.00 ter	0.00	10,779.5	151.0	-940.0	414,565.00	761,763.00	32.1377147°N	103.6211975°W
FTP(Merciless 18 Fed C - plan hits target cen - Point	0.00 ter	0.00	10,992.2	101.0	-940.0	414,515.00	761,763.00	32.1375773°N	103.6211986°W
PBHL(Merciless 18 Fed - plan hits target cen - Point	0.00 ter	0.00	11,257.0	-7,619.0	-895.0	406,795.00	761,808.00	32.1163562°N	103.6212180°W



1400

2450

2800

3500-

4550

5250-

5600

7000-

8400

9100

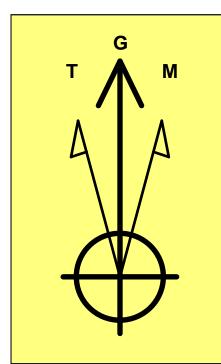
9450

10150

10500

10850-

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Azimuths to Grid North
True North: -0.38°
Magnetic North: 6.02°

Magnetic Field Strength: 47291.9nT Dip Angle: 59.77° Date: 11/7/2022 Model: IGRF2020

To convert a Magnetic Direction to a Grid Direction, Add 6.02° To convert a Magnetic Direction to a True Direction, Add 6.40° East To convert a True Direction to a Grid Direction, Subtract 0.38°

Lea County, NM (NAD 83 NME)

Merciless 18 Fed Com #581H

Plan #0.1

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980

Zone: New Mexico Eastern Zone System Datum: Mean Sea Level

WELL DETAILS: #581H

3488.0

KB = 26' @ 3514.0usft

Northing Easting Latittude
414414.00 762703.00 32.1372825°N

Longitude 103.6181641°W

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0		
3	1667.4	9.35	279.13	1665.3	6.0	-37.6	2.00	279.13	-1.6		
4	7060.4	9.35	279.13	6986.7	145.0	-902.4	0.00	0.00	-38.7		
5	7527.8	0.00	0.00	7452.0	151.0	-940.0	2.00	180.00	-40.3		
6	10855.3	0.00	0.00	10779.5	151.0	-940.0	0.00	0.00	-40.3	KOP(Merciless 18 Fed Com #581H)	
7	11075.7	26.46	180.00	10992.2	101.0	-940.0	12.00	180.00	9.4	FTP(Merciless 18 Fed Com #581H)	
8	11605.2	90.00	179.66	11256.9	-326.5	-938.2	12.00	-0.38	433.7		
9	18897.9	90.00	179.66	11257.0	-7619.0	-895.0	0.00	0.00	7671.4	PBHL(Merciless 18 Fed Com #581H)	

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES) TVD Northing **Easting** KOP(Merciless 18 Fed Com #581H) 10779.5 151.0 414565.00 761763.00 FTP(Merciless 18 Fed Com #581H) 414515.00 10992.2 101.0 761763.00 PBHL(Merciless 18 Fed Com #581H) -7619.0 406795.00 11257.0 761808.00

West(-)/East(+) 1050--700 -1400 -1750 -2100 -2450 -2800 <u> -3850</u> ن -4200 -4550 -4900 -5250 -5600 -6300 -6650 -7000 **-7350** -7700 -8050 -8400 -2450 West(-)/East(+)

18 Fed Com/#581H/Plan #0.1

Lea County, NM (NAD 83 NME) Merciless 18 Fed Com #581H OH Plan #0.1 10:34, November 07 2022

Vertical Section at 186.70°

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Salt Section Annular Clearance Variance Request

Daniel Moose

Current Design (Salt Strings)

0.422" Annular clearance requirement

- Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.
- 12.25" Hole x 9.625"40# J55/HCK55 LTC Casing
 - 1.3125" Clearance to casing OD
 - 0.8125" Clearance to coupling OD
- 9.875" Hole x 8.75" 38.5# P110 Sprint-SF Casing
 - 0.5625" Clearance to casing OD
 - 0.433" Clearance to coupling OD

Annular Clearance Variance Request

EOG request permission to allow deviation from the 0.422" annulus clearance requirement for the intermediate (salt) section from Onshore Order #2 under the following conditions:

- The variance is not applicable within the Potash Boundaries or Capitan Reef areas.
- Operator takes responsibility to get casing to set point in the event that the clearance causes stuck pipe issues

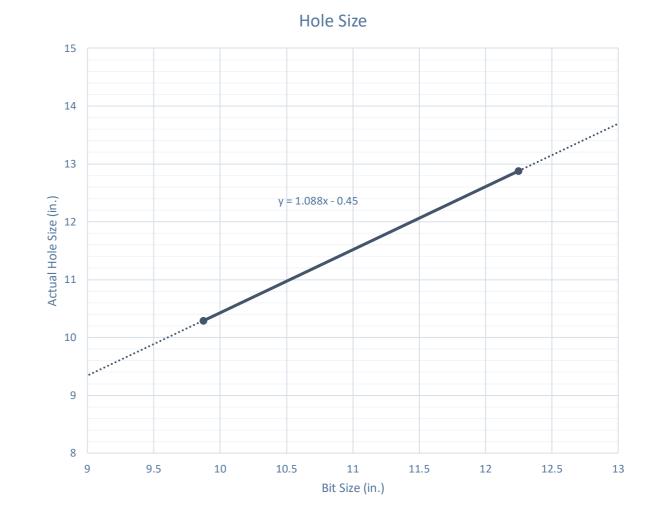
Volumetric Hole Size Calculation

Hole Size Calculations Off Cement Volumes

- Known volume of cement pumped
- Known volume of cement returned to surface
- Must not have had any losses
- Must have bumped plug

Average Hole Size

- 12.25" Hole
 - 12.88" Hole
 - 5.13% diameter increase
 - 10.52% area increase
 - 0.63" Average enlargement
 - 0.58" Median enlargement
 - 179 Well Count
- 9.875" Hole
 - 10.30" Hole
 - 4.24% diameter increase
 - 9.64% area increase
 - 0.42" Average enlargement
 - 0.46" Median enlargement
 - 11 Well Count



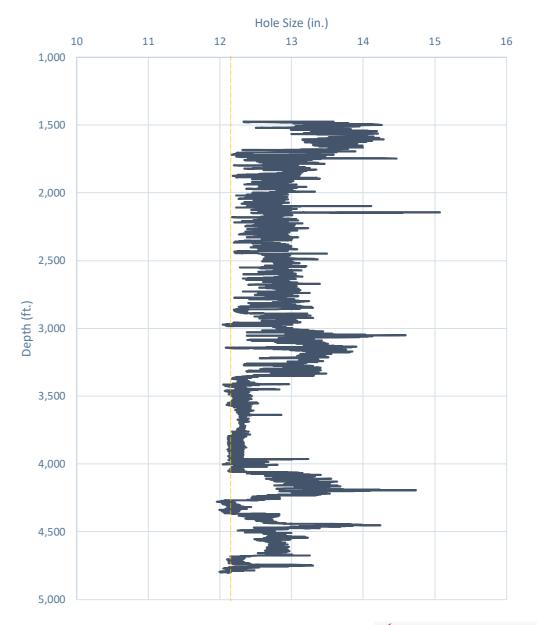
Page 24 of 40

Modelo 10 Fed Com #501H

Caliper Hole Size (12.25")

Average Hole Size

- 12.25" Bit
 - 12.76" Hole
 - 4.14% diameter increase
 - 8.44% area increase
 - 0.51" Average enlargement
 - 0.52" Median enlargement
 - Brine

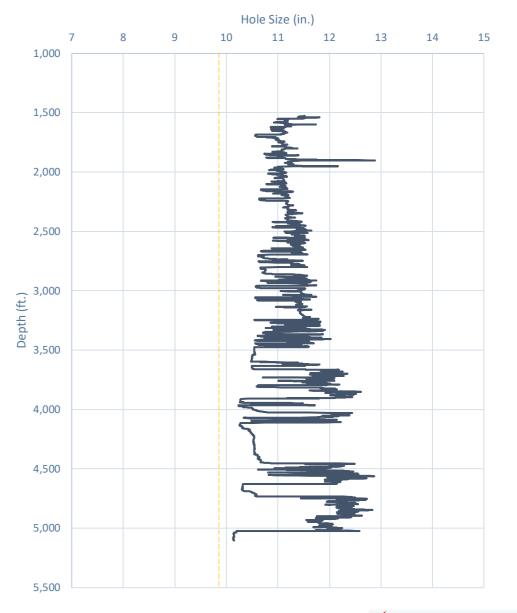


Caliper Hole Size (9.875")

Average Hole Size

- 9.875" Hole
 - 11.21" Hole
 - 13.54% diameter increase
 - 28.92% area increase
 - 1.33" Average enlargement
 - 1.30" Median enlargement
 - EnerLite

Whirling Wind 11 Fed Com #744H



Design A

Proposed 11" Hole with 9.625" 40# J55/HCK55 LTC Casing

- 11" Bit + 0.52" Average hole enlargement = 11.52" Hole Size
 - 0.9475" Clearance to casing OD

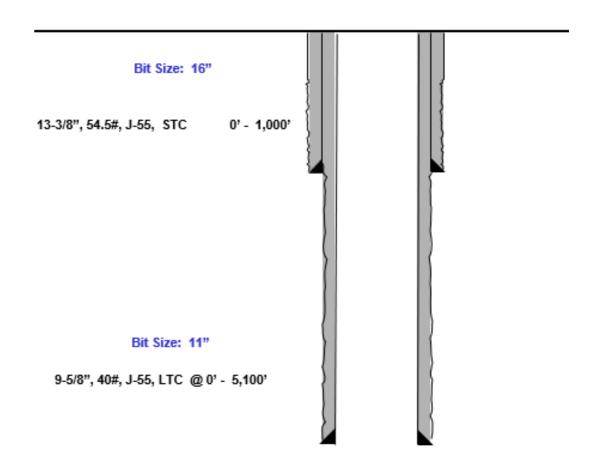
$$=\frac{11.52-9.625}{2}$$

• 0.4475" Clearance to coupling OD

$$=\frac{11.52-10.625}{2}$$

- Previous Shoe 13.375" 54.5# J55 STC
 - 0.995" Clearance to coupling OD (~1,200' overlap)

$$=\frac{12.615-10.625}{2}$$



Design B

Proposed 9.875" Hole with 8.625" 32# J55/P110 BTC-SC Casing

- 9.875" Bit + 0.42" Average hole enlargement = 10.295" Hole Size
 - 0.835" Clearance to casing OD

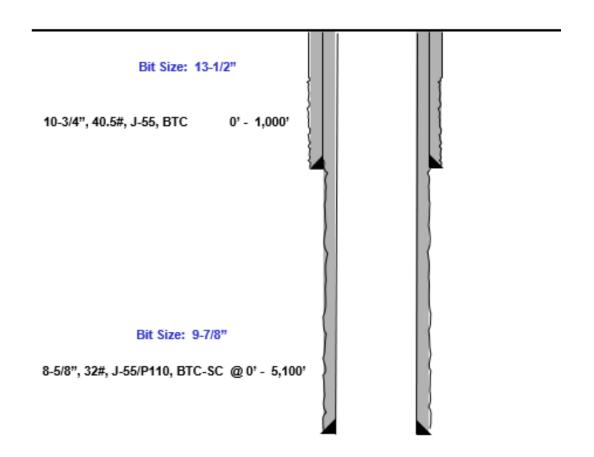
$$=\frac{10.295-8.625}{2}$$

• 0.585" Clearance to coupling OD

$$=\frac{10.295-9.125}{2}$$

- Previous Shoe 10.75" 40.5# J55 STC
 - 0.4625" Clearance to coupling OD (~1,200' overlap)

$$=\frac{10.05-9.125}{2}$$



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Casing Spec Sheets

PERFORMANCE DATA

API LTC 9.625 in 40.00 lbs/ft K55 HC **Technical Data Sheet**

Tubular Parameters					
Size	9.625	in	Minimum Yield	55	ksi
Nominal Weight	40.00	lbs/ft	Minimum Tensile	95	ksi
Grade	K55 HC		Yield Load	629	kips
PE Weight	38.94	lbs/ft	Tensile Load	1088	kips
Wall Thickness	0.395	in	Min. Internal Yield Pressure	3,950	psi
Nominal ID	8.835	in	Collapse Pressure	3600	psi
Drift Diameter	8.750	in		•	1

Connection Parameters										
Connection OD	10.625	in								
Coupling Length	10.500	in								
Threads Per Inch	8	tpi								
Standoff Thread Turns	3.50	turns								
Make-Up Loss	4.750	in								
Min. Internal Yield Pressure	3,950	psi								

11.454

Pipe Body and API Connections Performance Data

13.375 54.50/0.380 J55 PDF

New Search »

6/8/2015 10:04:37 AM

« Back to Previous List

USC	Metr	
		_

Mechanical Properties	Ptpe	втс	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	P1pe	втс	LTC	STC	
Outside Diameter	13.375	14.375	-	14.375	in.
Wall Thickness	0.380	-	-	-	in.
Inside Diameter	12.615	12.615	-	12.615	in.
Standard Drift	12.459	12.459	-	12.459	in.
Alternate Drift	_	-	-	-	in.
Nominal Linear Weight, T&C	54.50	-	-	-	lbs/ft
Plain End Weight	52.79	-	-	-	lbs/ft
Performance	P1pe	втс	LTC	STC	
Minimum Collapse Pressure	1,130	1,130	-	1,130	psi
Minimum Internal Yield Pressure	2,740	2,740	-	2,740	psi
Minimum Pipe Body Yield Strength	853.00	-	-	-	1000 lbs
Joint Strength		909	-	514	1000 lbs
Reference Length	-	11,125	-	6,290	ft
Make-Up Data	Ptpe	втс	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque	-	-	-	3,860	ft-lbs
Maximum Make-Up Torque	-	-	-	6,430	ft-lbs

Nom. Pipe Body Area

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Casing Spec Sheets

Pipe Body and API Connections Performance Data

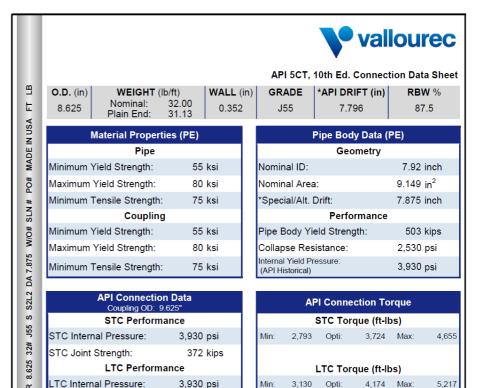
10.750 40.50/0.350 J55 PDF

New Search »

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USC Metric

6/8/2015 10:14:05 AM					
Mechanical Properties	Ptpe	втс	LTC	STC	
Minimum Yield Strength	55,000	-	-	-	psi
Maximum Yield Strength	80,000	-	-	-	psi
Minimum Tensile Strength	75,000	-	-	-	psi
Dimensions	Ptpe	втс	LTC	STC	
Outside Diameter	10.750	11.750	-	11.750	in.
Wall Thickness	0.350	-	-	-	in.
Inside Diameter	10.050	10.050	-	10.050	in.
Standard Drift	9.894	9.894	-	9.894	in.
Alternate Drift	-	-	-	-	in.
Nominal Linear Weight, T&C	40.50		-		lbs/ft
Plain End Weight	38.91	-	-	-	lbs/ft
Performance	Ptpe	втс	LTC	STC	
Minimum Collapse Pressure	1,580	1,580	-	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	-	3,130	psi
Minimum Pipe Body Yield Strength	629.00	-	-	-	1000 lbs
Joint Strength		700	-	420	1000 lbs
Reference Length	-	11,522	-	6,915	ft
Make-Up Data	Pipe	втс	LTC	STC	
Make-Up Loss	-	4.81	-	3.50	in.
Minimum Make-Up Torque				3,150	ft-lbs
Maximum Make-Up Torque		-	-	5,250	ft-lbs



*Alt. Drift will be used unless API Drift is specified on order.

417 kips

3,930 psi

503 kips

LTC Joint Strength:

BTC Internal Pressure:

BTC Joint Strength:

SC-BTC Performance - Cplg OD = 9.125"

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

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BTC Torque (ft-lbs)
follow API guidelines regarding positional make up



2/24/2022

Cement Program

1. No changes to the cement program will take place for offline cementing.

Summarized Operational Procedure for Intermediate Casing

- 1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment back pressure valves.
 - a. Float equipment is equipped with two back pressure valves rated to a minimum of 5,000 psi.
- 2. Land production casing on mandrel hanger through BOP.
 - a. If casing is unable to be landed with a mandrel hanger, then the casing will be cemented online.
- 3. Break circulation and confirm no restrictions.
 - a. Ensure no blockage of float equipment and appropriate annular returns.
 - b. Perform flow check to confirm well is static.
- 4. Set pack-off
 - a. If utilizing a fluted/ported mandrel hanger, ensure well is static on the annulus and inside the casing by filling the pipe with kill weight fluid, remove landing joint, and set annular packoff through BOP. Pressure test to 5,000 psi for 10 min.
 - b. If utilizing a solid mandrel hanger, ensure well is static on the annulus and inside the casing by filling the pipe with kill weight fluid. Pressure test seals to 5,000 psi for 10 min. Remove landing joint through BOP.
- 5. After confirmation of both annular barriers and the two casing barriers, install TA plug and pressure test to 5,000 psi for 10 min. Notify the BLM with intent to proceed with nipple down and offline cementing.
 - a. Minimum 4 hrs notice.
- 6. With the well secured and BLM notified, nipple down BOP and secure on hydraulic carrier or cradle.
 - a. Note, if any of the barriers fail to test, the BOP stack will not be nippled down until after the cement job has concluded and both lead and tail slurry have reached 500 psi.
- 7. Skid/Walk rig off current well.
- 8. Confirm well is static before removing TA Plug.
 - a. Cementing operations will not proceed until well is under control. (If well is not static, notify BLM and proceed to kill)
 - b. Casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing.
 - c. Well control plan can be seen in Section B, Well Control Procedures.
 - d. If need be, rig can be moved back over well and BOP nippled back up for any further remediation.



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- e. Diagram for rig positioning relative to offline cementing can be seen in Figure 4.
- 9. Rig up return lines to take returns from wellhead to pits and rig choke.
 - a. Test all connections and lines from wellhead to choke manifold to 5,000 psi high for 10 min.
 - b. If either test fails, perform corrections and retest before proceeding.
 - c. Return line schematics can be seen in Figure 3.
- 10. Remove TA Plug from the casing.
- 11. Install offline cement tool.
 - a. Current offline cement tool schematics can be seen in Figure 1 (Cameron) and Figure 2 (Cactus).
- 12. Rig up cement head and cementing lines.
 - a. Pressure test cement lines against cement head to 80% of casing burst for 10 min.
- 13. Break circulation on well to confirm no restrictions.
 - a. If gas is present on circulation, well will be shut in and returns rerouted through gas buster.
 - b. Max anticipated time before circulating with cement truck is 6 hrs.
- 14. Pump cement job as per plan.
 - a. At plug bump, test casing to 0.22 psi/ft or 1500 psi, whichever is greater.
 - b. If plug does not bump on calculated, shut down and wait 8 hrs or 500 psi compressive strength, whichever is greater before testing casing.
- 15. Confirm well is static and floats are holding after cement job.
 - a. With floats holding and backside static:
 - i. Remove cement head.
 - b. If floats are leaking:
 - i. Shut-in well and WOC (Wait on Cement) until tail slurry reaches 500 psi compressive strength and the casing is static prior to removing cement head.
 - c. If there is flow on the backside:
 - i. Shut in well and WOC until tail slurry reaches 500 psi compressive strength. Ensure that the casing is static prior to removing cement head.
- 16. Remove offline cement tool.
- 17. Install night cap with pressure gauge for monitoring.
- 18. Test night cap to 5,000 psi for 10 min.



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Example Well Control Plan Content

A. Well Control Component Table

The table below, which covers the cementing of the <u>5M MASP (Maximum Allowable Surface Pressure) portion of the well</u>, outlines the well control component rating in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the BOP nippled up to the wellhead.

Intermediate hole section, 5M requirement

Component	RWP
Pack-off	10M
Casing Wellhead Valves	10M
Annular Wellhead Valves	5M
TA Plug	10M
Float Valves	5M
2" 1502 Lo-Torque Valves	15M

B. 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 circulating and cementing through the Offline Cement Adapter.

General Procedure While Circulating

- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.

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- 6. Read and record the following:
 - a. SICP (Shut in Casing Pressure) and AP (Annular Pressure)
 - b. Pit gain
 - c. Time
 - d. Regroup and identify forward plan to continue circulating out kick via rig choke and mud/gas separator. Circulate and adjust mud density as needed to control well.

General Procedure While Cementing

- 1. Sound alarm (alert crew).
- 2. Shut down pumps.
- 3. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 4. Confirm shut-in.
- 5. Notify tool pusher/company representative.
- 6. Open rig choke and begin pumping again taking returns through choke manifold and mud/gas separator.
- 7. Continue to place cement until plug bumps.
- 8. At plug bump close rig choke and cement head.
- 9. Read and record the following
 - a. SICP and AP
 - b. Pit gain
 - c. Time
 - d. Shut-in annulus valves on wellhead

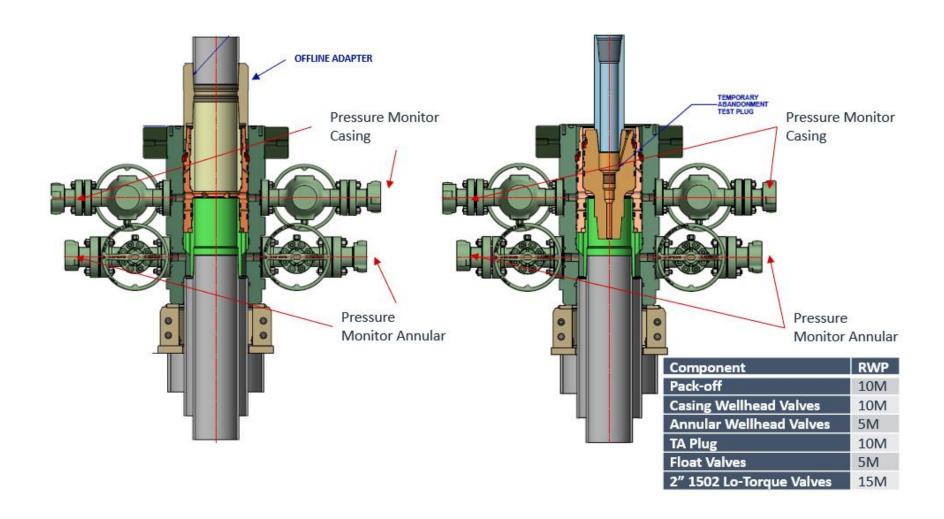
General Procedure After Cementing

- 1. Sound alarm (alert crew).
- 2. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
- 3. Confirm shut-in.
- 4. Notify tool pusher/company representative.
- 5. Read and record the following:
 - a. SICP and AP
 - b. Pit gain
 - c. Time
 - d. Shut-in annulus valves on wellhead



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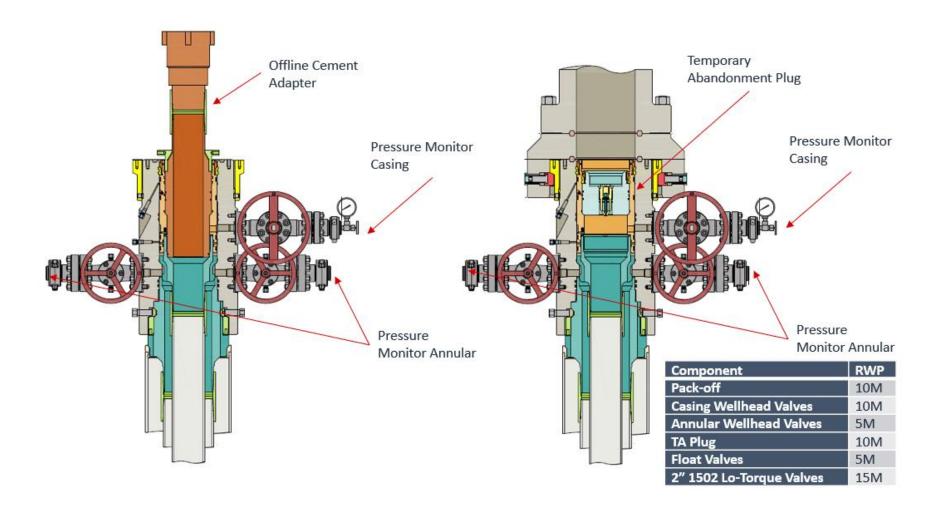
Figure 1: Cameron TA Plug and Offline Adapter Schematic





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Figure 2: Cactus TA Plug and Offline Adapter Schematic

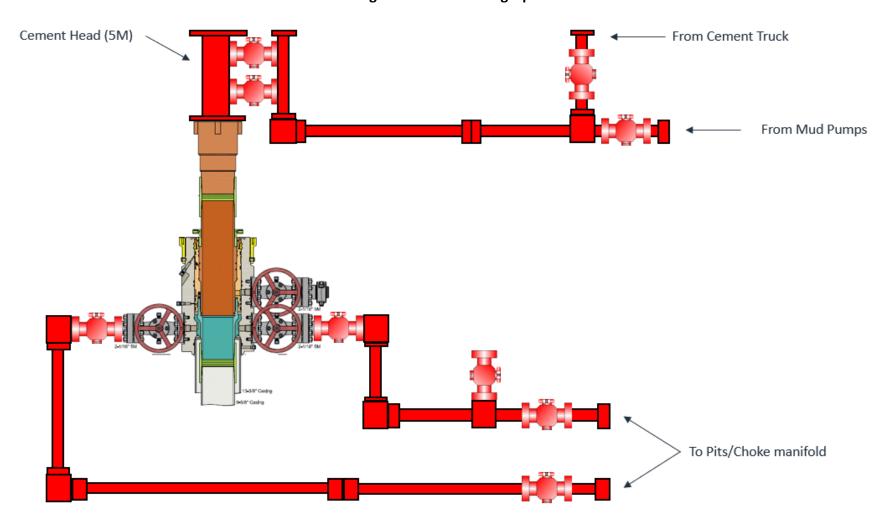


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Figure 3: Back Yard Rig Up



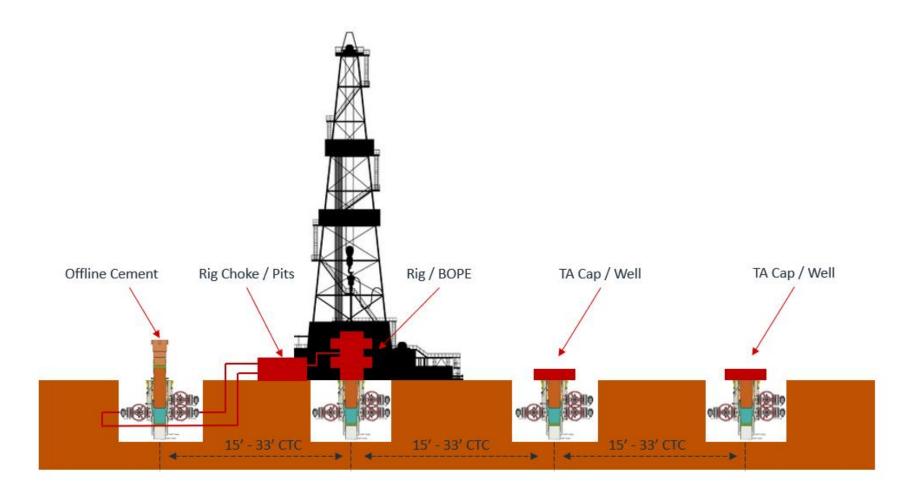
*** All Lines 10M rated working pressure

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Figure 4: Rig Placement Diagram



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

CONDITIONS

Action 176821

CONDITIONS

Operator:	OGRID:
EOG RESOURCES INC	7377
P.O. Box 2267	Action Number:
Midland, TX 79702	176821
	Action Type:
	[C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By		Condition Date
pkautz	None	1/18/2023