

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">[331328]</div>
2. Name of Operator <div style="text-align: center; font-weight: bold; font-size: 1.2em;">[372224]</div>		9. API Well No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">30-025-49275</div>
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory <div style="text-align: center; font-weight: bold; font-size: 1.2em;">[98234]</div>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- | | |
|---|---|
| 1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

Application approval 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.
 Conditions of approval, if any, are attached.

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.

NGMP Rec 07/30/2021

SL

(Continued on page 2)



08/03/2021

*(Instructions on page 2)

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws 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, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: 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 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., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

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

The BLM connects this information to a new evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: SESW / 250 FSL / 1360 FWL / TWSP: 26S / RANGE: 36E / SECTION: 19 / LAT: 32.0221541 / LONG: -103.3083019 (TVD: 0 feet, MD: 0 feet)
PPP: LOT L4 / 100 FSL / 1090 FWL / TWSP: 26S / RANGE: 36E / SECTION: 19 / LAT: 32.0217402 / LONG: -103.30917 (TVD: 11985 feet, MD: 12008 feet)
BHL: NWNW / 100 FNL / 1090 FWL / TWSP: 26S / RANGE: 36E / SECTION: 18 / LAT: 32.05025 / LONG: -103.3091897 (TVD: 12250 feet, MD: 22500 feet)

BLM Point of Contact

Name: CIJI METHOLA

Title: GIS Support - Adjudicator

Phone: 5752345924

Email: cmethola@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

CONFIDENTIAL

DISTRICT I

1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6181 Fax: (575) 393-0720

DISTRICT II

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

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone: (505) 334-6176 Fax: (505) 334-8170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Frances 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

API Number 30-025-49275	Pool Code 98234	Pool Name WC-025 G-09 S263619C; WOLFCAMP
Property Code 331328	Property Name PRIZEHOG A FEDERAL STATE COM	Well Number 1H
OGRID No. 372224	Operator Name AMEREDEV OPERATING, LLC	Elevation 2931'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	19	26 S	36 E		250	SOUTH	1360	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	18	26 S	36 E		100	NORTH	1090	WEST	LEA
Dedicated Acres 640	Joint or Infill	Consolidation Code	Order 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

NOTE: Plane Coordinates shown hereon are Transverse Mercator Grid and Conform to the "New Mexico Coordinate System", New Mexico East Zone, North American Datum of 1983. Distances shown hereon are mean horizontal surface values.

OPERATOR CERTIFICATION

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

Floyd Hammond 7/1/2021
Signature Date
Printed Name
fhammond@amereDEV.com
E-mail Address

SURVEYOR CERTIFICATION

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

October 30, 2018
Date of Survey
Signature & Seal of Professional Surveyor
LINDSAY GYGAX
NEW MEXICO
23263
PROFESSIONAL SURVEYOR
11-27-16
W.O. Num. 2018-0890
Certificate No. LINDSAY GYGAX 23263

BOTTOM HOLE LOCATION & LAST TAKE POINT LOCATION
(100' FNL 1090' FWL)
Plane Coordinate (NAD '83)
X = 858,643.99
Y = 383,523.23
Geodetic Coordinate (NAD '83)
Latitude = 32.05024805' N
Longitude = 103.30918969' W

FIRST TAKE POINT LOCATION
(100' FSL 1090' FWL)
Plane Coordinate (NAD '83)
X = 858,748.11
Y = 373,152.24
Geodetic Coordinate (NAD '83)
Latitude = 32.02174016' N
Longitude = 103.30917104' W

SURFACE LOCATION
(250' FSL 1360' FWL)
Plane Coordinate (NAD '83)
X = 859,016.07
Y = 373,305.39
Geodetic Coordinate (NAD '83)
Latitude = 32.02215412' N
Longitude = 103.30830186' W

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Electronically
Via E-permitting

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description Effective May 25, 2021

I. Operator: AMEREDEV OPERATING, LLC **OGRID:** 372224 **Date:** 7/8/2021

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
PRIZEHOG A FEDERAL STATE COM 1H	30-025- 49275	N-19-26S-36E	250'FSL & 1360'FWL	+/- 1150	+/- 1900	+/- 1800

IV. Central Delivery Point Name: AMEN CORNER CTB [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
PRIZEHOG A FEDERAL STATE COM 1H	30-025- 49275	12/5/2021	1/5/2022	7/4/2022	8/18/2022	8/20/2022

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☐ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

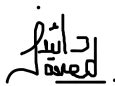
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	
Printed Name:	Dayeed Khan
Title:	Engineer
E-mail Address:	dkhan@ameredev.com
Date:	7/8/2021
Phone:	737-300-4735
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)	
Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

Natural Gas Management Plan

VI. Separation Equipment: Attach a complete description of how Operator will size separation equipment to optimize gas capture.

- Separation equipment is sized to allow for retention time and velocity to adequately separate oil, gas, and water at anticipated peak rates.
- All central tank battery equipment is designed to efficiently capture the remaining gas from the liquid phase.
- Valves and meters are designed to service without flow interruption or venting of gas.

VII. Operational Practices: Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F 19.15.27.8 NMAC.

19.15.27.8 (A)

Ameredev's field operations are designed with the goal of minimizing flaring and preventing venting of natural gas. If capturing the gas is not possible then the gas is combusted/flared using properly sized flares or combustors in accordance with state air permit rules.

19.15.27.8 (B) Venting and Flaring during drilling operations

- A properly-sized flare stack will be located at a minimum 100' from the nearest surface hole location on the pad.
- All natural gas produced during drilling operations will be flared. Venting will only occur if there is an equipment malfunction and/or to avoid risk of an immediate and substantial adverse impact on safety, public health, or the environment.

19.15.27.8 (C) Venting and Flaring during completions or recompletions operations.

- During all phases of flowback, wells will flow through a sand separator, or other appropriate flowback separation equipment, and the well stream will be directed to a central tank battery (CTB) through properly sized flowlines
- The CTB will have properly sized separation equipment for maximum anticipated flowrates
- Multiple stages of separation will be used to separate gas from liquids. All gas will be routed to a sales outlet. Fluids will be routed to tanks equipped with a closed loop system that will recover any residual gas from the tanks and route such gas to a sales outlet.

19.15.27.8 (D) Venting and Flaring during production operations.

- During production, the well stream will be routed to the CTB where multiple stages of separation will separate gas from liquids. All gas will be routed to a sales outlet. Fluids will be routed to tanks with a closed

loop system that will recover any residual gas from the tanks and route such gas to a sales outlet, minimizing tank emissions.

- Flares are equipped with auto-ignition systems and continuous pilot operations.
- Automatic gauging equipment is installed on all tanks.

19.15.27.8 (E) Performance Standards

- Production equipment will be designed to handle maximum anticipated rates and pressure.
- Automatic gauging equipment is installed on all tanks to minimize venting
- All flared gas will be combusted in a flare stack that is properly sized and designed to ensure proper combustion.
- Flares are equipped with continuous pilots and auto-ignitors along with remote monitoring of the pilot status
- Weekly AVOs and monthly LDAR inspections will be performed on all wells and facilities that produce more than 60 Mcfd.
- Gas/H₂S detectors will be installed throughout the facilities and wellheads to detect leaks and enable timely repairs.

19.15.27.8 (F) Measurement or estimation of vented and flared natural gas

- All high pressure flared gas is measured by equipment conforming to API 14.10.
- No meter bypasses are installed.
- When metering is not practical due to low pressure/low rate, the vented or flared volume will be estimated through flare flow curves with the assistance of air emissions consultants, as necessary.

VIII. Best Management Practices: Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

- Ameredev will use best management practices to vent as minimally as possible during well intervention operations and downhole well maintenance
- All natural gas is routed into the gas gathering system and directed to one of Ameredev's multiple gas sales outlets.
- All venting events will be recorded and all start-up, shutdown, maintenance logs will be kept for control equipment
- All control equipment will be maintained to provide highest run-time possible
- All procedures are drafted to keep venting and flaring to the absolute minimum



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

02/10/2021

APD ID: 10400037174

Submission Date: 02/01/2019

Highlighted data
reflects the most
recent changes

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
376644	RUSTLER	2931	1900	1900	ANHYDRITE	USEABLE WATER	N
451628	CAPITAN REEF	441	2490	2490	LIMESTONE	NONE	N
451627	BELL CANYON	-1989	4920	4920	SANDSTONE	NONE	N
376645	CHERRY CANYON	-3020	5951	5951	SANDSTONE	NONE	N
376673	BRUSHY CANYON	-4540	7471	7471	SANDSTONE	NONE	N
503506	AVALON SAND	-5819	8750	8750	SANDSTONE	NONE	N
376674	BONE SPRING 1ST	-6030	8961	8961	LIMESTONE	NONE	N
503504	BONE SPRING 2ND	-7119	10050	10050	SANDSTONE	NONE	N
503505	BONE SPRING 3RD	-7969	10900	10900	SANDSTONE	NONE	N
376675	WOLFCAMP	-9078	12009	12009	SHALE	OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M

Rating Depth: 15000

Equipment: AS PER BLM REQUIREMENTS

Requesting Variance? NO

Variance request:

Testing Procedure: AS PER BLM REQUIREMENTS

Choke Diagram Attachment:

Lilis_Choke_Diagram_20190117105024.pdf

Lilis_Choke_Diagram__2_20190514142441.pdf

Lilis_Choke_Diagram__3_v4_20190724123020.pdf

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H

Lilis_Choke_Diagram_20190117105024.pdf

Lilis_Choke_Diagram__2_20190514142441.pdf

Lilis_Choke_Diagram__3_v4_20190724123020.pdf

BOP Diagram Attachment:

Lilis_BOP_Drawing_Rev2_20190604130221.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	CONDUCTOR	26	20.0	NEW	API	N	0	100	0	100			100	OTHER	53	BUTT						
2	SURFACE	17.5	13.375	NEW	API	N	0	1925	0	1925			1925	J-55	54.5	BUTT	1	1.1	DRY	1.8	DRY	1.8
3	INTERMEDIATE	12.25	10.75	NEW	API	Y	0	5100	0	5100			5100	J-55	45.5	BUTT	1	1.1	DRY	1.8	DRY	1.8
4	INTERMEDIATE	9.875	7.625	NEW	API	Y	0	12300	0	12200			12300	P-110	29.7	LT&C	1	1.1	DRY	1.8	DRY	1.8
5	PRODUCTION	6.75	5.5	NEW	API	Y	0	22550	0	12250			22550	P-110	23	OTHER - ULTRA FLUSH JOINT	1	1.1	DRY	1.8	DRY	1.8

Casing Attachments

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Casing Attachments**

Casing ID: 1 **String Type:** CONDUCTOR**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing ID: 2 **String Type:** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Prizehog_A_Fed_State_Com_1H_Casing_Diagram_v2_7_24_2019_20190725085603.pdf

Casing ID: 3 **String Type:** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:**

1st_int_A_Casing_Design_20190507135232.pdf

1st_int_B_Casing_Design_20190507135239.pdf

Casing Design Assumptions and Worksheet(s):

1st_int_A_Casing_Design_20190125135143.pdf

1st_int_B_Casing_Design_20190125135150.pdf

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Casing Attachments

Casing ID: 4 String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

2nd_int_B_Casing_Design_20190507135348.pdf

2nd_int_A_Casing_Design_20190507135340.pdf

Casing Design Assumptions and Worksheet(s):

2nd_int_A_Casing_Design_20190125135200.pdf

2nd_int_B_Casing_Design_20190125135207.pdf

Casing ID: 5 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Prod_A_Casing_Design_20190507135408.pdf

Prod_B_Casing_Design_20190507135414.pdf

Casing Design Assumptions and Worksheet(s):

Prod_A_Casing_Design_20190125135232.pdf

Prod_B_Casing_Design_20190125135239.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
CONDUCTOR	Lead		0	100	36	4.5	0	162		Class C	Sand, Aggregate

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1925	743	1.87	12.8	1389.4	100	Premium Plus 65/35 Poz	6% Gel, 3% Salt, 2# Kolseal
SURFACE	Tail		1000	602	966.3	1.33	14.8	1285.2	100	Premium Plus	2% CaCl2
INTERMEDIATE	Lead		0	4600	638.6	2.49	11.8	1590.2	125	Premium Plus 50/50	10% Gel, 5% Salt, 3# Kolseal, 1/4# Celloflake, 0.5% CAS-1, 0.4% CR-1, 2#/sk XPC-1
INTERMEDIATE	Tail		4600	5100	88.4	1.33	14.8	117.6	25	Premium Plus	0.3% CD-1, 0.4% CFL-3
INTERMEDIATE	Lead		0	11800	1470	2.49	11.8	3660.4	75	Premium 50/50	10% Gel, 5% Salt, 3# Kolseal, 1/4# Celloflake, 0.5% CAS-1, 0.4% CR-1, 2#/sk XPC-1
INTERMEDIATE	Tail		11800	12300	113.8	1.18	15.6	134.2	25	Premium	0.3% CD-1, 0.1% CR-1, 0.4% CFL-2
PRODUCTION	Lead		11800	22550	932.4	1.3	14.2	1212.1	35	Premium 50/50	2% Gel, 3% Salt, 3# Kolseal, 1/4# Celloflake, 0.1% CAS-2, 0.7% CD-1, 0.3% CFL-3, 0.2% CFL-19, 0.4% CR-1

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: BOPS, ANNULAR, CHOKE PER BLM REQUIREMENTS

Describe the mud monitoring system utilized: MUD ENGINEERS, MUD LOGGING, PVT

Circulating Medium Table

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1300	SPUD MUD	8.5	9							
1220 0	1225 0	OIL-BASED MUD	12	12							
5100	1220 0	WATER-BASED MUD	8.5	10							
1300	5100	OTHER : BRINE-BASED	9.5	10.4							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

N/A

List of open and cased hole logs run in the well:

DS,GR,MWD,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7644

Anticipated Surface Pressure: 4949

Anticipated Bottom Hole Temperature(F): 165

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Impetro_Operating_LLC_H2S_Contingency_Plan_20190118082818.pdf

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Prizehog_A_Fed_Com__1H_Plan__1_20190122145311.pdf

Prizehog_A_Fed_Com__1H_Plot_Plan__1_20190122145319.pdf

Other proposed operations facets description:

RUSTLER AND CAPITAN REEF INCLUDED IN GEOLOGIC FORMATIONS.

Other proposed operations facets attachment:

Other Variance attachment:

Drilling_Plan_Variance_Requests_20190725084449.pdf

Well_Control_20190725085337.docx

Wolfcamp Casing Design

TAPERED STRING (0'-4,100')

FIRST INTERMEDIATE 10-3/4"

WEIGHT:	45.5 #/ft	COLLAPSE RATING:	2,090 PSI
GRADE:	J-55	BURST RATING:	3,580 PSI
CONNECTION:	BTC	JOINT STRENGTH:	796,000 LBS
SHOE MD	4,100 ' MD	MW @ INTERMEDIATE TD	10.5 ppg
SHOE TVD	4,100 ' TVD	FG @ INTERMEDIATE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.9 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	12200 ' TVD	MWT FOR NEXT HOLE SECT	9.7000 ppg
MASP CONSIDERATION	MUD%GAS DENS	OPEN HOLE MAX PORE PSI	9.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.22132 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.1
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 4.3
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 1.7
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE

BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	2,148 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE)	2,148 PSI
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MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI)	3,327 PSI
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MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 1,045 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	2648 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))

2165

10.5 TEST MWT

MASP + 500 PSI

2648

CASING SLIP WEIGHT	= 157,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD =

186,550 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8397

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

156,645 LBS

Wolfcamp Casing Design

TAPERED STRING (4,100'-5,100')

FIRST INTERMEDIATE 10-3/4"

WEIGHT:	45.5 #/ft	COLLAPSE RATING:	3,130 PSI
GRADE:	HCK-55	BURST RATING:	3,580 PSI
CONNECTION:	BTC	JOINT STRENGTH:	1,037,000 LBS
SHOE MD	5,100 ' MD	MW @ INTERMEDIATE TD	10.5 ppg
SHOE TVD	5,100 ' TVD	FG @ INTERMEDIATE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.9 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	12200 ' TVD	MWT FOR NEXT HOLE SECT	9.7000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	9.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.22132 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.4
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 4.5
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 1.3
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	2,672 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 2,672 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,327 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 1,565 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	3172 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD)	2082	10.5 TEST MWT
MASP + 500 PSI	3172	

CASING SLIP WEIGHT	= 195,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 232,050 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8397
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 194,851 LBS

Wolfcamp Casing Design

TAPERED STRING (0'-11,800')

SECOND INTERMEDIATE 7-5/8"

WEIGHT:	29.7 #/ft	COLLAPSE RATING:	4,790 PSI
GRADE:	N-80	BURST RATING:	6,890 PSI
CONNECTION:	LTC	JOINT STRENGTH:	575,000 LBS
SHOE MD	11,800 ' MD	MW @ INTERMEDIATE TD	9.7 ppg
SHOE TVD	11,800 ' TVD	FG @ INTERMEDIATE SHOE:	17.3 PPG EMW
BACK-UP GRADIENT	9.5 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
TVD NEXT HOLE SECTION	12250 ' TVD	MWT FOR NEXT HOLE SECT	13.0000 ppg
MASP CONSIDERATION	MUD%GAS DENS	OPEN HOLE MAX PORE PSI	13.0000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.4000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.3604 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.1
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 1.6
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 1.8
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	3,866 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 9,152 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,866 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 2,395 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	4366 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))	4700	9.7 TEST MWT
MASP + 500 PSI	4366	

CASING SLIP WEIGHT	= 299,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 350,460 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8519
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 298,560 LBS

Wolfcamp Casing Design

TAPERED STRING (11,800'-12,200' TVD/12,300' MD)

SECOND INTERMEDIATE 7-5/8"

WEIGHT:	29.7 #/ft	COLLAPSE RATING:	5,340 PSI
GRADE:	P-110	BURST RATING:	9,470 PSI
CONNECTION:	LTC	JOINT STRENGTH:	769,000 LBS
SHOE MD	12,300 ' MD	MW @ INTERMEDIATE TD	9.7 ppg
SHOE TVD	12,200 ' TVD	FG @ INTERMEDIATE SHOE:	17.3 PPG EMW
BACK-UP GRADIENT	9.5 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
TVD NEXT HOLE SECTION	12250 ' TVD	MWT FOR NEXT HOLE SECT	13.0000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	13.0000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.5000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.413 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.2
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 2.1
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 1.0
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD +0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT* TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	3,222 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 9,462 PSI
 MASP = ((FRAC GRAD +0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,222 PSI
 MASP = (TD PP * 0.052* TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 2,670 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	3722 PSI
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70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))	6502	9.7 TEST MWT
MASP + 500 PSI	3722	

CASING SLIP WEIGHT	= 311,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 365,310 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8519
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 311,211 LBS

Wolfcamp Casing Design**TAPERED STRING (0'-11,800')*****STILL INSIDE SECOND INTERMEDIATE CASING @ RUNNING DEPTH****PRODUCTION CASING 5-1/2"**

WEIGHT:	23.0 #/ft	COLLAPSE RATING:	15,990 PSI
GRADE:	P-110	BURST RATING:	14,530 PSI
CONNECTION:	ULTRA QX	JOINT STRENGTH:	729,000 LBS
CSG TOP MD	0 ' MD		
CSG TOP TVD	0 ' TVD	RESERVOIR PORE PRESSURE	12.3 PPG
SHOE MD	11,800 ' MD	MW @ TD	13.0 PPG EMW
SHOE TVD	11,800 ' TVD	FG @ TD	17.3 PPG EMW
BACK-UP GRADIENT	9.7 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
PREVIOUS SHOE MD	12300	ABANDONMENT RESERVOIR PSI	1770.0000 PSI
PREVIOUS SHOE TVD	12200	COMPLETION FLUID DENSITY	8.3300 PPG
PREVIOUS SHOE FRAC	17.3		

COLLAPSE SAFETY FACTOR**= 2.6**

COLLAPSE SAFETY FACTOR = ABANDONMENT RESERVOIR PRESSURE WITH MWT ON BACKSIDE

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - RESERVOIR ABANDON PSI)

TENSION SAFETY FACTOR**= 2.7**

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR**= 2.9**

BURST SAFETY FACTOR = BURST RATING / (MASP + (CMP FLUID PPG - BACKUP PPG) * 0.052 * TD TVD)

MAXIMUM ANTICIPATED SURFACE PRESSURE**5,777 PSI****MAXIMUM ANTICIPATED SURFACE PRESSURE (PERFORATED RESERVOIR WITH GAS TO SURFACE)****5,777 PSI**

MASP = (TVD*0.052*PORE PSI) - (GAS GRADIENT*TVD)

CASING TEST PRESSURE (70% OF CASING BURST, OR MASP + 500 PSI, PREV LOT + 500)**6277 PSI**

70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))

8146

13.0 TEST MWT

MASP + 500 PSI

6277

PREVIOUS SHOE LOT + 500 PSI TO INSURE LAP ISOLATION

3228

CASING SLIP WEIGHT**= 218,000 LBS**

STRING WEIGHT IN AIR = CASING WT * MD @ TD =

271,400 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8024

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

217,771 LBS

Wolfcamp Casing Design

TAPERED STRING (11,800'-12,250' TVD/22,550' MD)

PRODUCTION CASING 5-1/2"

WEIGHT:	23.0 #/ft	COLLAPSE RATING:	14,540 PSI
GRADE:	P-110	BURST RATING:	14,530 PSI
CONNECTION:	ULTRA FJ	JOINT STRENGTH:	724,000 LBS
CSG TOP MD	11800 ' MD		
CSG TOP TVD	11800 ' TVD	RESERVOIR PORE PRESSURE	12.3 PPG
SHOE MD	22,500 ' MD	MW @ TD	13.0 PPG EMW
SHOE TVD	12,250 ' TVD	FG @ TD	17.3 PPG EMW
BACK-UP GRADIENT	9.7 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
PREVIOUS SHOE MD	12300	ABANDONMENT RESERVOIR PSI	1837.5000 PSI
PREVIOUS SHOE TVD	12200.0	COMPLETION FLUID DENSITY	8.3300 PPG
PREVIOUS SHOE FRAC	17.3		

COLLAPSE SAFETY FACTOR

= 2.3

COLLAPSE SAFETY FACTOR = ABANDONMENT RESERVOIR PRESSURE WITH MWT ON BACKSIDE

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - RESERVOIR ABANDON PSI)

TENSION SAFETY FACTOR

= 2.9

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR

= 2.8

BURST SAFETY FACTOR = BURST RATING / (MASP + (CMP FLUID PPG - BACKUP PPG) * 0.052 * TD TVD)

MAXIMUM ANTICIPATED SURFACE PRESSURE

5,998 PSI

MAXIMUM ANTICIPATED SURFACE PRESSURE (PERFORATED RESERVOIR WITH GAS TO SURFACE)

5,998 PSI

MASP = (TVD*.052*PORE PSI) - (GAS GRADIENT*TVD)

CASING TEST PRESSURE (70% OF CASING BURST, OR MASP + 500 PSI, PREV LOT + 500)

6498 PSI

70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))

8069

13.0 TEST MWT

MASP + 500 PSI

6498

PREVIOUS SHOE LOT + 500 PSI TO INSURE LAP ISOLATION

3228

CASING SLIP WEIGHT

= 197,000 LBS

STRING WEIGHT IN AIR = CASING WT * MD @ TD =

246,100 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8024

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

197,471 LBS

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SURFACE	13-3/8"		
WEIGHT:	54.5 #/ft	COLLAPSE RATING:	1,130 PSI
GRADE:	J-55	BURST RATING:	2,730 PSI
CONNECTION:	BTC	JOINT STRENGTH:	909,000 LBS
SHOE MD	1,925 ' MD	MW @ SURFACE TD	9.3 ppg
SHOE TVD	1,925 ' TVD	FG @ SURFACE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.5 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	5100 ' TVD	MWT FOR NEXT HOLE SECT	10.0000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	8.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.226 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.5
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 8.7
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 2.7
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	1,009 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 1,009 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 1102 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 565 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	1831 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))	1831	9.3 TEST MWT
MASP + 500 PSI	1509	

CASING SLIP WEIGHT	= 90,000 Pounds
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 104,913 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8580
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 90,017 LBS

Wolfcamp Casing Design

TAPERED STRING (0'-4,100')

FIRST INTERMEDIATE 10-3/4"

WEIGHT:	45.5 #/ft	COLLAPSE RATING:	2,090 PSI
GRADE:	J-55	BURST RATING:	3,580 PSI
CONNECTION:	BTC	JOINT STRENGTH:	796,000 LBS
SHOE MD	4,100 ' MD	MW @ INTERMEDIATE TD	10.5 ppg
SHOE TVD	4,100 ' TVD	FG @ INTERMEDIATE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.9 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	12200 ' TVD	MWT FOR NEXT HOLE SECT	9.7000 ppg
MASP CONSIDERATION	MUD%GAS DENS	OPEN HOLE MAX PORE PSI	9.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.22132 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.1
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 4.3
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 1.7
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE

BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	2,148 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE)	2,148 PSI
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MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI)	3,327 PSI
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MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 1,045 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	2648 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))

2165

10.5 TEST MWT

MASP + 500 PSI

2648

CASING SLIP WEIGHT	= 157,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD =

186,550 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8397

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

156,645 LBS

Wolfcamp Casing Design

TAPERED STRING (4,100'-5,100')

FIRST INTERMEDIATE 10-3/4"

WEIGHT:	45.5 #/ft	COLLAPSE RATING:	3,130 PSI
GRADE:	HCK-55	BURST RATING:	3,580 PSI
CONNECTION:	BTC	JOINT STRENGTH:	1,037,000 LBS
SHOE MD	5,100 ' MD	MW @ INTERMEDIATE TD	10.5 ppg
SHOE TVD	5,100 ' TVD	FG @ INTERMEDIATE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.9 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	12200 ' TVD	MWT FOR NEXT HOLE SECT	9.7000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	9.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.22132 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.4
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 4.5
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 1.3
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	2,672 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 2,672 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,327 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 1,565 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	3172 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))	2082	10.5 TEST MWT
MASP + 500 PSI	3172	

CASING SLIP WEIGHT	= 195,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 232,050 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8397
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 194,851 LBS

Wolfcamp Casing Design

TAPERED STRING (0'-11,800')

SECOND INTERMEDIATE 7-5/8"

WEIGHT:	29.7 #/ft	COLLAPSE RATING:	4,790 PSI
GRADE:	N-80	BURST RATING:	6,890 PSI
CONNECTION:	LTC	JOINT STRENGTH:	575,000 LBS
SHOE MD	11,800 ' MD	MW @ INTERMEDIATE TD	9.7 ppg
SHOE TVD	11,800 ' TVD	FG @ INTERMEDIATE SHOE:	17.3 PPG EMW
BACK-UP GRADIENT	9.5 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
TVD NEXT HOLE SECTION	12250 ' TVD	MWT FOR NEXT HOLE SECT	13.0000 ppg
MASP CONSIDERATION	MUD%GAS DENS	OPEN HOLE MAX PORE PSI	13.0000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.4000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.3604 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.1
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 1.6
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 1.8
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	3,866 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 9,152 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,866 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 2,395 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	4366 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))	4700	9.7 TEST MWT
MASP + 500 PSI	4366	

CASING SLIP WEIGHT	= 299,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 350,460 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8519
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 298,560 LBS

Wolfcamp Casing Design

TAPERED STRING (11,800'-12,200' TVD/12,300' MD)

SECOND INTERMEDIATE 7-5/8"

WEIGHT:	29.7 #/ft	COLLAPSE RATING:	5,340 PSI
GRADE:	P-110	BURST RATING:	9,470 PSI
CONNECTION:	LTC	JOINT STRENGTH:	769,000 LBS
SHOE MD	12,300 ' MD	MW @ INTERMEDIATE TD	9.7 ppg
SHOE TVD	12,200 ' TVD	FG @ INTERMEDIATE SHOE:	17.3 PPG EMW
BACK-UP GRADIENT	9.5 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
TVD NEXT HOLE SECTION	12250 ' TVD	MWT FOR NEXT HOLE SECT	13.0000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	13.0000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.5000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.413 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.2
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 2.1
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 1.0
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD +0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT* TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	3,222 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 9,462 PSI
 MASP = ((FRAC GRAD +0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,222 PSI
 MASP = (TD PP * 0.052* TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 2,670 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	3722 PSI
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70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))	6502	9.7 TEST MWT
MASP + 500 PSI	3722	

CASING SLIP WEIGHT	= 311,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 365,310 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8519
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 311,211 LBS

Wolfcamp Casing Design**TAPERED STRING (0'-11,800')*****STILL INSIDE SECOND INTERMEDIATE CASING @ RUNNING DEPTH****PRODUCTION CASING 5-1/2"**

WEIGHT:	23.0 #/ft	COLLAPSE RATING:	15,990 PSI
GRADE:	P-110	BURST RATING:	14,530 PSI
CONNECTION:	ULTRA QX	JOINT STRENGTH:	729,000 LBS
CSG TOP MD	0 ' MD		
CSG TOP TVD	0 ' TVD	RESERVOIR PORE PRESSURE	12.3 PPG
SHOE MD	11,800 ' MD	MW @ TD	13.0 PPG EMW
SHOE TVD	11,800 ' TVD	FG @ TD	17.3 PPG EMW
BACK-UP GRADIENT	9.7 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
PREVIOUS SHOE MD	12300	ABANDONMENT RESERVOIR PSI	1770.0000 PSI
PREVIOUS SHOE TVD	12200	COMPLETION FLUID DENSITY	8.3300 PPG
PREVIOUS SHOE FRAC	17.3		

COLLAPSE SAFETY FACTOR	= 2.6
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COLLAPSE SAFETY FACTOR = ABANDONMENT RESERVOIR PRESSURE WITH MWT ON BACKSIDE

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - RESERVOIR ABANDON PSI)

TENSION SAFETY FACTOR	= 2.7
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 2.9
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BURST SAFETY FACTOR = BURST RATING / (MASP + (CMP FLUID PPG - BACKUP PPG) * 0.052 * TD TVD)

MAXIMUM ANTICIPATED SURFACE PRESSURE	5,777 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (PERFORATED RESERVOIR WITH GAS TO SURFACE) 5,777 PSI

MASP = (TVD*0.052*PORE PSI) - (GAS GRADIENT*TVD)

CASING TEST PRESSURE (70% OF CASING BURST, OR MASP + 500 PSI, PREV LOT + 500)	6277 PSI
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70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD) 8146 **13.0 TEST MWT**

MASP + 500 PSI 6277

PREVIOUS SHOE LOT + 500 PSI TO INSURE LAP ISOLATION 3228

CASING SLIP WEIGHT	= 218,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 271,400 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8024

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 217,771 LBS

Wolfcamp Casing Design

TAPERED STRING (11,800'-12,250' TVD/22,550' MD)

PRODUCTION CASING 5-1/2"

WEIGHT:	23.0 #/ft	COLLAPSE RATING:	14,540 PSI
GRADE:	P-110	BURST RATING:	14,530 PSI
CONNECTION:	ULTRA FJ	JOINT STRENGTH:	724,000 LBS
CSG TOP MD	11800 ' MD		
CSG TOP TVD	11800 ' TVD	RESERVOIR PORE PRESSURE	12.3 PPG
SHOE MD	22,500 ' MD	MW @ TD	13.0 PPG EMW
SHOE TVD	12,250 ' TVD	FG @ TD	17.3 PPG EMW
BACK-UP GRADIENT	9.7 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
PREVIOUS SHOE MD	12300	ABANDONMENT RESERVOIR PSI	1837.5000 PSI
PREVIOUS SHOE TVD	12200.0	COMPLETION FLUID DENSITY	8.3300 PPG
PREVIOUS SHOE FRAC	17.3		

COLLAPSE SAFETY FACTOR**= 2.3**

COLLAPSE SAFETY FACTOR = ABANDONMENT RESERVOIR PRESSURE WITH MWT ON BACKSIDE
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - RESERVOIR ABANDON PSI)

TENSION SAFETY FACTOR**= 2.9**

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR**= 2.8**

BURST SAFETY FACTOR = BURST RATING / (MASP + (CMP FLUID PPG - BACKUP PPG) * 0.052 * TD TVD)

MAXIMUM ANTICIPATED SURFACE PRESSURE**5,998 PSI****MAXIMUM ANTICIPATED SURFACE PRESSURE (PERFORATED RESERVOIR WITH GAS TO SURFACE)****5,998 PSI**

MASP = (TVD*.052*PORE PSI) - (GAS GRADIENT*TVD)

CASING TEST PRESSURE (70% OF CASING BURST, OR MASP + 500 PSI, PREV LOT + 500)**6498 PSI**

70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))

8069

13.0 TEST MWT

MASP + 500 PSI

6498

PREVIOUS SHOE LOT + 500 PSI TO INSURE LAP ISOLATION

3228

CASING SLIP WEIGHT**= 197,000 LBS**

STRING WEIGHT IN AIR = CASING WT * MD @ TD =

246,100 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8024

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

197,471 LBS

Wolfcamp Casing Design

TAPERED STRING (0'-4,100')

FIRST INTERMEDIATE 10-3/4"

WEIGHT:	45.5 #/ft	COLLAPSE RATING:	2,090 PSI
GRADE:	J-55	BURST RATING:	3,580 PSI
CONNECTION:	BTC	JOINT STRENGTH:	796,000 LBS
SHOE MD	4,100 ' MD	MW @ INTERMEDIATE TD	10.5 ppg
SHOE TVD	4,100 ' TVD	FG @ INTERMEDIATE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.9 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	12200 ' TVD	MWT FOR NEXT HOLE SECT	9.7000 ppg
MASP CONSIDERATION	MUD%GAS DENS	OPEN HOLE MAX PORE PSI	9.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.22132 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.1
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 4.3
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 1.7
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE

BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	2,148 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE)	2,148	PSI
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MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI)	3,327	PSI
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MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 1,045 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	2648 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))

2165

10.5 TEST MWT

MASP + 500 PSI

2648

CASING SLIP WEIGHT	= 157,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD =

186,550 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8397

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

156,645 LBS

Wolfcamp Casing Design

TAPERED STRING (4,100'-5,100')

FIRST INTERMEDIATE 10-3/4"

WEIGHT:	45.5 #/ft	COLLAPSE RATING:	3,130 PSI
GRADE:	HCK-55	BURST RATING:	3,580 PSI
CONNECTION:	BTC	JOINT STRENGTH:	1,037,000 LBS
SHOE MD	5,100 ' MD	MW @ INTERMEDIATE TD	10.5 ppg
SHOE TVD	5,100 ' TVD	FG @ INTERMEDIATE SHOE:	11.5 PPG EMW
BACK-UP GRADIENT	8.9 PPG EMW	GAS GRADIENT:	0.1000 psi/ft
TVD NEXT HOLE SECTION	12200 ' TVD	MWT FOR NEXT HOLE SECT	9.7000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	9.5000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.3000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.22132 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.4
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 4.5
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 1.3
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	2,672 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 2,672 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,327 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 1,565 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	3172 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))	2082	10.5 TEST MWT
MASP + 500 PSI	3172	

CASING SLIP WEIGHT	= 195,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 232,050 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8397
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 194,851 LBS

Wolfcamp Casing Design

TAPERED STRING (0'-11,800')

SECOND INTERMEDIATE 7-5/8"

WEIGHT:	29.7 #/ft	COLLAPSE RATING:	4,790 PSI
GRADE:	N-80	BURST RATING:	6,890 PSI
CONNECTION:	LTC	JOINT STRENGTH:	575,000 LBS
SHOE MD	11,800 ' MD	MW @ INTERMEDIATE TD	9.7 ppg
SHOE TVD	11,800 ' TVD	FG @ INTERMEDIATE SHOE:	17.3 PPG EMW
BACK-UP GRADIENT	9.5 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
TVD NEXT HOLE SECTION	12250 ' TVD	MWT FOR NEXT HOLE SECT	13.0000 ppg
MASP CONSIDERATION	MUD%GAS DENS	OPEN HOLE MAX PORE PSI	13.0000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.4000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.3604 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.1
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 1.6
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @ TD)

BURST SAFETY FACTOR	= 1.8
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT * TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	3,866 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 9,152 PSI
 MASP = ((FRAC GRAD + 0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,866 PSI
 MASP = (TD PP * 0.052 * TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 2,395 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	4366 PSI
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70% OF CASING BURST = (0.7 * BURST RATING) - ((TEST MWT - BACKUP) * .052 * SHOE TVD))	4700	9.7 TEST MWT
MASP + 500 PSI	4366	

CASING SLIP WEIGHT	= 299,000 LBS
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STRING WEIGHT IN AIR = CASING WT * MD @ TD = 350,460 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8519
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 298,560 LBS

Wolfcamp Casing Design

TAPERED STRING (11,800'-12,200' TVD/12,300' MD)

SECOND INTERMEDIATE 7-5/8"

WEIGHT:	29.7 #/ft	COLLAPSE RATING:	5,340 PSI
GRADE:	P-110	BURST RATING:	9,470 PSI
CONNECTION:	LTC	JOINT STRENGTH:	769,000 LBS
SHOE MD	12,300 ' MD	MW @ INTERMEDIATE TD	9.7 ppg
SHOE TVD	12,200 ' TVD	FG @ INTERMEDIATE SHOE:	17.3 PPG EMW
BACK-UP GRADIENT	9.5 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
TVD NEXT HOLE SECTION	12250 ' TVD	MWT FOR NEXT HOLE SECT	13.0000 ppg
MASP CONSIDERATION	MUD% GAS DENS	OPEN HOLE MAX PORE PSI	13.0000 ppg
LESS THAN 10,000'	30 0.10	MUD % FOR MASP CALC	0.5000 %
BETWEEN 10,000' - 12,000'	40 0.15	GAS CUT MUD EQ DENSITY	0.413 PSI/FT
MORE THAN 12,000'	50 0.15		

COLLAPSE SAFETY FACTOR	= 1.2
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COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (HYDROSTATIC PRESS @ SHOE - GAS BACKUP)
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - GAS GRAD * TVD @ TD)

TENSION SAFETY FACTOR	= 2.1
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TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR	= 1.0
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BURST SAFETY FACTOR = CASING BURST RATING / MAXIMUM ANTICIPATED SURFACE PRESSURE
 BURST SAFETY FACTOR = CASING BURST / (((FRAC GRAD +0.5) * 0.052 * TVD @ SHOE) - (GAS GRADIENT* TVD @ SHOE))

MAXIMUM ANTICIPATED SURFACE PRESSURE (LESSER OF SHOE FRAC, OR GAS CUT MUD)	3,222 PSI
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MAXIMUM ANTICIPATED SURFACE PRESSURE (SHOE FRACTURE WITH GAS TO SURFACE) 9,462 PSI
 MASP = ((FRAC GRAD +0.5) * 0.052 * TVD @ SHOE) - (GAS GRAD * TVD @ SHOE)

MASP = MAXIMUM SURFACE PRESSURE (GAS CUT MUD TO BALANCE MAX OPEN HOLE PORE PSI) 3,222 PSI
 MASP = (TD PP * 0.052* TD TVD) - (TD TVD * EQUIV GAS MUD PSI/FT)

WELL HEAD TEST PRESSURE	= 2,670 PSI
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WELL HEAD TEST PRESSURE = 50% OF CASING COLLAPSE RATING

CASING TEST PRESSURE (70% OF CASING BURST OR MASP + 500 PSI - LESSER OF)	3722 PSI
--	-----------------

70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))	6502	9.7 TEST MWT
MASP + 500 PSI	3722	

CASING SLIP WEIGHT	= 311,000 LBS
---------------------------	----------------------

STRING WEIGHT IN AIR = CASING WT * MD @ TD = 365,310 LBS
 BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL = 0.8519
 BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR = 311,211 LBS

Wolfcamp Casing Design**TAPERED STRING (0'-11,800')*****STILL INSIDE SECOND INTERMEDIATE CASING @ RUNNING DEPTH****PRODUCTION CASING 5-1/2"**

WEIGHT:	23.0 #/ft	COLLAPSE RATING:	15,990 PSI
GRADE:	P-110	BURST RATING:	14,530 PSI
CONNECTION:	ULTRA QX	JOINT STRENGTH:	729,000 LBS
CSG TOP MD	0 ' MD		
CSG TOP TVD	0 ' TVD	RESERVOIR PORE PRESSURE	12.3 PPG
SHOE MD	11,800 ' MD	MW @ TD	13.0 PPG EMW
SHOE TVD	11,800 ' TVD	FG @ TD	17.3 PPG EMW
BACK-UP GRADIENT	9.7 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
PREVIOUS SHOE MD	12300	ABANDONMENT RESERVOIR PSI	1770.0000 PSI
PREVIOUS SHOE TVD	12200	COMPLETION FLUID DENSITY	8.3300 PPG
PREVIOUS SHOE FRAC	17.3		

COLLAPSE SAFETY FACTOR**= 2.6**

COLLAPSE SAFETY FACTOR = ABANDONMENT RESERVOIR PRESSURE WITH MWT ON BACKSIDE

COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - RESERVOIR ABANDON PSI)

TENSION SAFETY FACTOR**= 2.7**

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR**= 2.9**

BURST SAFETY FACTOR = BURST RATING / (MASP + (CMP FLUID PPG - BACKUP PPG) * 0.052 * TD TVD)

MAXIMUM ANTICIPATED SURFACE PRESSURE**5,777 PSI****MAXIMUM ANTICIPATED SURFACE PRESSURE (PERFORATED RESERVOIR WITH GAS TO SURFACE)****5,777 PSI**

MASP = (TVD*0.052*PORE PSI) - (GAS GRADIENT*TVDD)

CASING TEST PRESSURE (70% OF CASING BURST, OR MASP + 500 PSI, PREV LOT + 500)**6277 PSI**

70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))

8146

13.0 TEST MWT

MASP + 500 PSI

6277

PREVIOUS SHOE LOT + 500 PSI TO INSURE LAP ISOLATION

3228

CASING SLIP WEIGHT**= 218,000 LBS**

STRING WEIGHT IN AIR = CASING WT * MD @ TD =

271,400 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8024

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

217,771 LBS

Wolfcamp Casing Design

TAPERED STRING (11,800'-12,250' TVD/22,550' MD)

PRODUCTION CASING 5-1/2"

WEIGHT:	23.0 #/ft	COLLAPSE RATING:	14,540 PSI
GRADE:	P-110	BURST RATING:	14,530 PSI
CONNECTION:	ULTRA FJ	JOINT STRENGTH:	724,000 LBS
CSG TOP MD	11800 ' MD		
CSG TOP TVD	11800 ' TVD	RESERVOIR PORE PRESSURE	12.3 PPG
SHOE MD	22,500 ' MD	MW @ TD	13.0 PPG EMW
SHOE TVD	12,250 ' TVD	FG @ TD	17.3 PPG EMW
BACK-UP GRADIENT	9.7 PPG EMW	GAS GRADIENT:	0.1500 psi/ft
PREVIOUS SHOE MD	12300	ABANDONMENT RESERVOIR PSI	1837.5000 PSI
PREVIOUS SHOE TVD	12200.0	COMPLETION FLUID DENSITY	8.3300 PPG
PREVIOUS SHOE FRAC	17.3		

COLLAPSE SAFETY FACTOR**= 2.3**

COLLAPSE SAFETY FACTOR = ABANDONMENT RESERVOIR PRESSURE WITH MWT ON BACKSIDE
 COLLAPSE SAFETY FACTOR = COLLAPSE RATING / (MW@TD * 0.052 * TVD - RESERVOIR ABANDON PSI)

TENSION SAFETY FACTOR**= 2.9**

TENSION SAFETY FACTOR = CASING JOINT STRENGTH / CASING WEIGHT IN AIR
 TENSION SAFETY FACTOR = CASING JOINT STRENGTH / (CASING WEIGHT * MD @TD)

BURST SAFETY FACTOR**= 2.8**

BURST SAFETY FACTOR = BURST RATING / (MASP + (CMP FLUID PPG - BACKUP PPG) * 0.052 * TD TVD)

MAXIMUM ANTICIPATED SURFACE PRESSURE**5,998 PSI****MAXIMUM ANTICIPATED SURFACE PRESSURE (PERFORATED RESERVOIR WITH GAS TO SURFACE)****5,998 PSI**

MASP = (TVD*.052*PORE PSI) - (GAS GRADIENT*TVD)

CASING TEST PRESSURE (70% OF CASING BURST, OR MASP + 500 PSI, PREV LOT + 500)**6498 PSI**

70% OF CASING BURST = (0.7* BURST RATING) - ((TEST MWT - BACKUP) * .052*SHOE TVD))

8069

13.0 TEST MWT

MASP + 500 PSI

6498

PREVIOUS SHOE LOT + 500 PSI TO INSURE LAP ISOLATION

3228

CASING SLIP WEIGHT**= 197,000 LBS**

STRING WEIGHT IN AIR = CASING WT * MD @ TD =

246,100 LBS

BOUYANCY FACTOR = (PPG STEEL - MW) / PPG STEEL =

0.8024

BOUYED WEIGHT = STRING WEIGHT * BOUYANCY FACTOR =

197,471 LBS



API 5CT 10.750" 45.50lb/ft HCL80 Casing Performance Data Sheet

Manufactured to specifications of API 5CT 9th edition and bears the API monogram.

Grade	HCL80
-------	-------

Pipe Body Mechanical Properties

Minimum Yield Strength	80,000 psi
Maximum Yield Strength	95,000 psi
Minimum Tensile Strength	95,000 psi
Maximum Hardness	23.0 HRC

Sizes

OD	10 3/4
Nominal Wall Thickness	.400 in
Nominal Weight, T&C	45.50 lb/ft
Nominal Weight, PE	44.26 lb/ft
Nominal ID	9.950 in
Standard Drift	9.794 in
Alternate Drift	9.875 in

Coupling Special Clearance

Size

OD	11.25 in
Min. Length	10.625 in
Diameter of Counter Bore	10.890 in
Width of bearing face	.375 in

Minimum Performance

Collapse Pressure	2,940 psi
Internal Pressure Yield	5,210 psi
Pipe body Tension Yield	1,040,000 lbs
Joint Strength STC	692,000 lbs
Joint Strength LTC	N/A
Joint Strength BTC	1,063,000 lbs

Inspection and Testing

Visual	OD Longitudinal and independent 3rd party SEA
NDT	Independent 3rd party full body EMI and End Area Inspection after hydrotest Calibration notch sensitivity: 10% of specified wall thickness

Color code

Pipe ends	One red, one brown and one blue band
Couplings	Red with one brown band

Issued on : 12 Dec. 2017



OD	Weight	Wall Th.	Grade	API Drift	Connection
5 1/2 in.	23.00 lb/ft	0.415 in.	P110 EC	4.545 in.	VAM TOP ® HT™

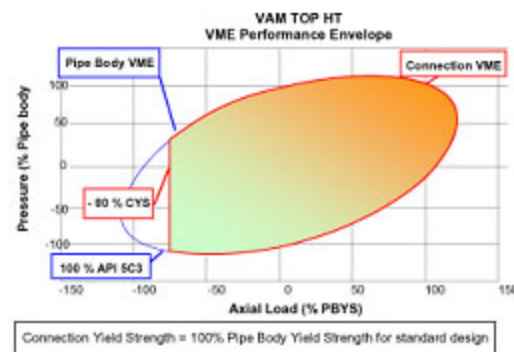
PIPE PROPERTIES		
Nominal OD	5.500	in.
Nominal ID	4.670	in.
Nominal Cross Section Area	6.630	sqin.
Grade Type	High Yield	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Ultimate Tensile Strength	135	ksi

CONNECTION PROPERTIES		
Connection Type	VAM TOP ® HT™	
Connection OD (nom)	6.156	in.
Connection ID (nom)	4.607	in.
Make-up Loss	4.382	in.
Coupling Length	10.748	in.
Critical Cross Section	6.630	sqin.
Tension Efficiency	100	% of pipe
Compression Efficiency with ISO/API sealability	80	% of pipe
Internal Pressure Efficiency	100	% of pipe
External Pressure Efficiency	100	% of pipe

CONNECTION PERFORMANCES		
Tensile Yield Strength	829	klb
Compression resistance with ISO/API Sealability	663	klb
Internal Yield Pressure	16510	psi
External Pressure Resistance	16220	psi
Max. Structural Bending	94	°/100 ft
Max Bending with ISO/API Sealability	20	°/100 ft
Max. Load on Coupling Face	469	klb

FIELD TORQUE VALUES		
Min. Make-up torque	13700	ft.lb
Opti. Make-up torque	15200	ft.lb
Max. Make-up torque	16700	ft.lb
Field Liner MAX	20000	ft.lb

VAM® TOP HT (High Torque) is a T&C connection based on the main features of the VAM® TOP connection. This connection provides reinforced torque capability for liners and where High Torque is anticipated due to string rotation during running operations (torque rotating liner while running, rotating casing when cementing). It has been tested as per ISO13679 CAL IV requirements. VAM® TOP HT is interchangeable with VAM® TOP product line with the exception of 4 1/2" size.



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Do you need help on this product? - Remember no one knows VAM® like VAM®

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Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance



Issued on : 01 Oct. 2019



Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
5 1/2 in.	23.00 lb/ft	0.415 in.	P110 EC	4.545 in.	VAM® EDGE SF

PIPE PROPERTIES		
Nominal OD	5.500	in.
Nominal ID	4.670	in.
Nominal Cross Section Area	6.630	sqin.
Grade Type	High Yield	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Ultimate Tensile Strength	135	ksi

CONNECTION PROPERTIES		
Connection Type	Premium integral flush	
Connection OD (nom)	5.765	in.
Connection ID (nom)	4.598	in.
Make-up Loss	5.213	in.
Critical Cross Section	5.427	sqin.
Tension Efficiency	82	% of pipe
Compression Efficiency	82	% of pipe
Internal Pressure Efficiency	100	% of pipe
Internal Gas Pressure Efficiency with shale protocol	70	% of pipe
External Pressure Efficiency	70	% of pipe

CONNECTION PERFORMANCES		
Tensile Yield Strength	680	klb
Compression Resistance	680	klb
Internal Yield Pressure	16510	psi
External Pressure Resistance	11354	psi
Max. Structural Bending	40	°/100 ft

FIELD TORQUE VALUES		
Min. Make-up torque	17700	ft.lb
Opti. Make-up torque	18450	ft.lb
Max. Make-up torque	19200	ft.lb
Max. Torque with Sealability	30250	ft.lb

The solution for High Torque, High Tension Shale play needs

VAM® EDGE SF is a gas-tight semi-flush premium connection with increased tension and torque capacity, making it ideal for production casing in the Shale plays. The tapered two-step thread design technology means that it stabs deep with no risk of cross-threading. The gas-tight metal seal is located between the two thread steps, thus protecting it from handling damage.

VAM® EDGE SF's high tension rating plus extremely high torque capacity make it ideal to run a full string length as production casing in Shale wells with extended horizontal sections.

Do you need help on this product? - Remember no one knows VAM® like VAM®

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Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance



Impetro Operating, LLC

Lea County, NM (NAD83)

Sec 19-T26S-R36E

Prizehog A Fed Com #1H

Wellbore #1

Plan: Plan #1

Standard Planning Report

21 January, 2019

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project	Lea County, NM (NAD83)		
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 19-T26S-R36E				
Site Position:		Northing:	373,305.39 usft	Latitude:	32.02215
From:	Map	Easting:	859,016.07 usft	Longitude:	-103.30830
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54

Well	Prizehog A Fed Com #1H					
Well Position	+N/-S	0.00 usft	Northing:	373,305.39 usft	Latitude:	32.02215
	+E/-W	0.00 usft	Easting:	859,016.07 usft	Longitude:	-103.30830
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,931.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/31/2018	6.60	59.68	47,674

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	12,250.00	0.00	0.00	357.93

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,250.00	5.00	232.82	2,249.68	-6.59	-8.69	2.00	2.00	0.00	232.82	
5,858.75	5.00	232.82	5,844.70	-196.66	-259.28	0.00	0.00	0.00	0.00	
6,108.75	0.00	0.00	6,094.38	-203.25	-267.96	2.00	-2.00	0.00	180.00	
11,786.90	0.00	0.00	11,772.53	-203.25	-267.96	0.00	0.00	0.00	0.00	
12,536.90	90.00	359.43	12,250.00	274.19	-272.73	12.00	12.00	-0.08	359.43	
22,561.05	90.00	359.43	12,250.00	10,297.84	-372.88	0.00	0.00	0.00	0.00	PBHL Prizehog A Fed

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Nudge 2°/100'									
2,100.00	2.00	232.82	2,099.98	-1.05	-1.39	-1.00	2.00	2.00	0.00
2,200.00	4.00	232.82	2,199.84	-4.22	-5.56	-4.01	2.00	2.00	0.00
2,250.00	5.00	232.82	2,249.68	-6.59	-8.69	-6.27	2.00	2.00	0.00
EON HLD 5° Inc.									
2,300.00	5.00	232.82	2,299.49	-9.22	-12.16	-8.78	0.00	0.00	0.00
2,400.00	5.00	232.82	2,399.11	-14.49	-19.10	-13.79	0.00	0.00	0.00
2,500.00	5.00	232.82	2,498.73	-19.76	-26.05	-18.80	0.00	0.00	0.00
2,600.00	5.00	232.82	2,598.35	-25.02	-32.99	-23.81	0.00	0.00	0.00
2,700.00	5.00	232.82	2,697.97	-30.29	-39.93	-28.82	0.00	0.00	0.00
2,800.00	5.00	232.82	2,797.59	-35.56	-46.88	-33.84	0.00	0.00	0.00
2,900.00	5.00	232.82	2,897.21	-40.82	-53.82	-38.85	0.00	0.00	0.00
3,000.00	5.00	232.82	2,996.83	-46.09	-60.77	-43.86	0.00	0.00	0.00
3,100.00	5.00	232.82	3,096.45	-51.36	-67.71	-48.87	0.00	0.00	0.00
3,200.00	5.00	232.82	3,196.07	-56.62	-74.65	-53.89	0.00	0.00	0.00
3,300.00	5.00	232.82	3,295.69	-61.89	-81.60	-58.90	0.00	0.00	0.00
3,400.00	5.00	232.82	3,395.31	-67.16	-88.54	-63.91	0.00	0.00	0.00
3,500.00	5.00	232.82	3,494.93	-72.43	-95.49	-68.92	0.00	0.00	0.00
3,600.00	5.00	232.82	3,594.55	-77.69	-102.43	-73.94	0.00	0.00	0.00
3,700.00	5.00	232.82	3,694.17	-82.96	-109.37	-78.95	0.00	0.00	0.00
3,800.00	5.00	232.82	3,793.78	-88.23	-116.32	-83.96	0.00	0.00	0.00
3,900.00	5.00	232.82	3,893.40	-93.49	-123.26	-88.97	0.00	0.00	0.00
4,000.00	5.00	232.82	3,993.02	-98.76	-130.21	-93.98	0.00	0.00	0.00
4,100.00	5.00	232.82	4,092.64	-104.03	-137.15	-99.00	0.00	0.00	0.00
4,200.00	5.00	232.82	4,192.26	-109.29	-144.09	-104.01	0.00	0.00	0.00
4,300.00	5.00	232.82	4,291.88	-114.56	-151.04	-109.02	0.00	0.00	0.00
4,400.00	5.00	232.82	4,391.50	-119.83	-157.98	-114.03	0.00	0.00	0.00
4,500.00	5.00	232.82	4,491.12	-125.10	-164.93	-119.05	0.00	0.00	0.00
4,600.00	5.00	232.82	4,590.74	-130.36	-171.87	-124.06	0.00	0.00	0.00
4,700.00	5.00	232.82	4,690.36	-135.63	-178.81	-129.07	0.00	0.00	0.00
4,800.00	5.00	232.82	4,789.98	-140.90	-185.76	-134.08	0.00	0.00	0.00
4,900.00	5.00	232.82	4,889.60	-146.16	-192.70	-139.09	0.00	0.00	0.00
5,000.00	5.00	232.82	4,989.22	-151.43	-199.65	-144.11	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #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)	
5,100.00	5.00	232.82	5,088.84	-156.70	-206.59	-149.12	0.00	0.00	0.00	
5,200.00	5.00	232.82	5,188.46	-161.96	-213.54	-154.13	0.00	0.00	0.00	
5,300.00	5.00	232.82	5,288.08	-167.23	-220.48	-159.14	0.00	0.00	0.00	
5,400.00	5.00	232.82	5,387.70	-172.50	-227.42	-164.16	0.00	0.00	0.00	
5,500.00	5.00	232.82	5,487.32	-177.77	-234.37	-169.17	0.00	0.00	0.00	
5,600.00	5.00	232.82	5,586.94	-183.03	-241.31	-174.18	0.00	0.00	0.00	
5,700.00	5.00	232.82	5,686.55	-188.30	-248.26	-179.19	0.00	0.00	0.00	
5,800.00	5.00	232.82	5,786.17	-193.57	-255.20	-184.21	0.00	0.00	0.00	
5,858.75	5.00	232.82	5,844.70	-196.66	-259.28	-187.15	0.00	0.00	0.00	
DROP 2°/100'										
5,900.00	4.18	232.82	5,885.82	-198.65	-261.91	-189.05	2.00	-2.00	0.00	
6,000.00	2.18	232.82	5,985.66	-202.00	-266.32	-192.23	2.00	-2.00	0.00	
6,108.75	0.00	0.00	6,094.38	-203.25	-267.96	-193.42	2.00	-2.00	0.00	
EOD HLD 0° Inc.										
6,200.00	0.00	0.00	6,185.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,285.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,385.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,485.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,585.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,685.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,785.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,885.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,985.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,100.00	0.00	0.00	7,085.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,185.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,285.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,385.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,485.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,585.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,685.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,785.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,885.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,985.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,100.00	0.00	0.00	8,085.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,200.00	0.00	0.00	8,185.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,285.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,385.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,485.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,585.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,700.00	0.00	0.00	8,685.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,785.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,885.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,000.00	0.00	0.00	8,985.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,100.00	0.00	0.00	9,085.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,185.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,285.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,400.00	0.00	0.00	9,385.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,485.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,600.00	0.00	0.00	9,585.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,685.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,800.00	0.00	0.00	9,785.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
9,900.00	0.00	0.00	9,885.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,000.00	0.00	0.00	9,985.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,100.00	0.00	0.00	10,085.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,200.00	0.00	0.00	10,185.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,300.00	0.00	0.00	10,285.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,400.00	0.00	0.00	10,385.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,500.00	0.00	0.00	10,485.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,600.00	0.00	0.00	10,585.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,700.00	0.00	0.00	10,685.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,800.00	0.00	0.00	10,785.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
10,900.00	0.00	0.00	10,885.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,000.00	0.00	0.00	10,985.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,100.00	0.00	0.00	11,085.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,200.00	0.00	0.00	11,185.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,300.00	0.00	0.00	11,285.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,400.00	0.00	0.00	11,385.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,500.00	0.00	0.00	11,485.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,600.00	0.00	0.00	11,585.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,700.00	0.00	0.00	11,685.63	-203.25	-267.96	-193.42	0.00	0.00	0.00	
11,786.90	0.00	0.00	11,772.53	-203.25	-267.96	-193.42	0.00	0.00	0.00	
KOP BLD 12°/100'										
11,800.00	1.57	359.43	11,785.63	-203.07	-267.97	-193.24	12.00	12.00	0.00	
11,825.00	4.57	359.43	11,810.59	-201.73	-267.98	-191.90	12.00	12.00	0.00	
11,850.00	7.57	359.43	11,835.45	-199.09	-268.01	-189.26	12.00	12.00	0.00	
11,875.00	10.57	359.43	11,860.13	-195.14	-268.05	-185.32	12.00	12.00	0.00	
11,900.00	13.57	359.43	11,884.58	-189.92	-268.10	-180.09	12.00	12.00	0.00	
11,925.00	16.57	359.43	11,908.72	-183.42	-268.16	-173.59	12.00	12.00	0.00	
11,950.00	19.57	359.43	11,932.48	-175.66	-268.24	-165.84	12.00	12.00	0.00	
11,975.00	22.57	359.43	11,955.81	-166.68	-268.33	-156.86	12.00	12.00	0.00	
12,000.00	25.57	359.43	11,978.63	-156.48	-268.43	-146.66	12.00	12.00	0.00	
12,007.59	26.48	359.43	11,985.45	-153.15	-268.47	-143.33	12.00	12.00	0.00	
FTP Prizehog A Fed Com #1H										
12,025.00	28.57	359.43	12,000.89	-145.10	-268.55	-135.29	12.00	12.00	0.00	
12,050.00	31.57	359.43	12,022.52	-132.58	-268.67	-122.77	12.00	12.00	0.00	
12,075.00	34.57	359.43	12,043.47	-118.94	-268.81	-109.13	12.00	12.00	0.00	
12,100.00	37.57	359.43	12,063.67	-104.22	-268.95	-94.42	12.00	12.00	0.00	
12,125.00	40.57	359.43	12,083.08	-88.47	-269.11	-78.67	12.00	12.00	0.00	
12,150.00	43.57	359.43	12,101.63	-71.72	-269.28	-61.93	12.00	12.00	0.00	
12,175.00	46.57	359.43	12,119.29	-54.02	-269.46	-44.24	12.00	12.00	0.00	
12,200.00	49.57	359.43	12,135.99	-35.42	-269.64	-25.64	12.00	12.00	0.00	
12,225.00	52.57	359.43	12,151.70	-15.98	-269.84	-6.20	12.00	12.00	0.00	
12,250.00	55.57	359.43	12,166.36	4.26	-270.04	14.03	12.00	12.00	0.00	
12,275.00	58.57	359.43	12,179.95	25.24	-270.25	35.00	12.00	12.00	0.00	
12,300.00	61.57	359.43	12,192.42	46.90	-270.46	56.66	12.00	12.00	0.00	
12,325.00	64.57	359.43	12,203.74	69.19	-270.69	78.94	12.00	12.00	0.00	
12,350.00	67.57	359.43	12,213.88	92.04	-270.91	101.78	12.00	12.00	0.00	
12,375.00	70.57	359.43	12,222.81	115.38	-271.15	125.12	12.00	12.00	0.00	
12,400.00	73.57	359.43	12,230.51	139.17	-271.39	148.90	12.00	12.00	0.00	
12,425.00	76.57	359.43	12,236.95	163.32	-271.63	173.04	12.00	12.00	0.00	
12,450.00	79.57	359.43	12,242.11	187.78	-271.87	197.49	12.00	12.00	0.00	
12,475.00	82.57	359.43	12,245.99	212.47	-272.12	222.18	12.00	12.00	0.00	
12,500.00	85.57	359.43	12,248.57	237.33	-272.37	247.03	12.00	12.00	0.00	
12,525.00	88.57	359.43	12,249.85	262.29	-272.62	271.99	12.00	12.00	0.00	
12,536.90	90.00	359.43	12,250.00	274.19	-272.73	283.88	12.00	12.00	0.00	
EOB HLD 90° Inc.										
12,600.00	90.00	359.43	12,250.00	337.29	-273.37	346.96	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #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)	
12,700.00	90.00	359.43	12,250.00	437.28	-274.36	446.93	0.00	0.00	0.00	
12,800.00	90.00	359.43	12,250.00	537.28	-275.36	546.89	0.00	0.00	0.00	
12,900.00	90.00	359.43	12,250.00	637.27	-276.36	646.86	0.00	0.00	0.00	
13,000.00	90.00	359.43	12,250.00	737.27	-277.36	746.82	0.00	0.00	0.00	
13,100.00	90.00	359.43	12,250.00	837.26	-278.36	846.79	0.00	0.00	0.00	
13,200.00	90.00	359.43	12,250.00	937.26	-279.36	946.75	0.00	0.00	0.00	
13,300.00	90.00	359.43	12,250.00	1,037.25	-280.36	1,046.72	0.00	0.00	0.00	
13,400.00	90.00	359.43	12,250.00	1,137.25	-281.36	1,146.69	0.00	0.00	0.00	
13,500.00	90.00	359.43	12,250.00	1,237.24	-282.36	1,246.65	0.00	0.00	0.00	
13,600.00	90.00	359.43	12,250.00	1,337.24	-283.36	1,346.62	0.00	0.00	0.00	
13,700.00	90.00	359.43	12,250.00	1,437.23	-284.35	1,446.58	0.00	0.00	0.00	
13,800.00	90.00	359.43	12,250.00	1,537.23	-285.35	1,546.55	0.00	0.00	0.00	
13,900.00	90.00	359.43	12,250.00	1,637.22	-286.35	1,646.51	0.00	0.00	0.00	
14,000.00	90.00	359.43	12,250.00	1,737.22	-287.35	1,746.48	0.00	0.00	0.00	
14,100.00	90.00	359.43	12,250.00	1,837.21	-288.35	1,846.45	0.00	0.00	0.00	
14,200.00	90.00	359.43	12,250.00	1,937.21	-289.35	1,946.41	0.00	0.00	0.00	
14,300.00	90.00	359.43	12,250.00	2,037.20	-290.35	2,046.38	0.00	0.00	0.00	
14,400.00	90.00	359.43	12,250.00	2,137.20	-291.35	2,146.34	0.00	0.00	0.00	
14,500.00	90.00	359.43	12,250.00	2,237.19	-292.35	2,246.31	0.00	0.00	0.00	
14,600.00	90.00	359.43	12,250.00	2,337.19	-293.35	2,346.27	0.00	0.00	0.00	
14,700.00	90.00	359.43	12,250.00	2,437.18	-294.35	2,446.24	0.00	0.00	0.00	
14,800.00	90.00	359.43	12,250.00	2,537.18	-295.34	2,546.20	0.00	0.00	0.00	
14,900.00	90.00	359.43	12,250.00	2,637.17	-296.34	2,646.17	0.00	0.00	0.00	
15,000.00	90.00	359.43	12,250.00	2,737.17	-297.34	2,746.14	0.00	0.00	0.00	
15,100.00	90.00	359.43	12,250.00	2,837.16	-298.34	2,846.10	0.00	0.00	0.00	
15,200.00	90.00	359.43	12,250.00	2,937.16	-299.34	2,946.07	0.00	0.00	0.00	
15,300.00	90.00	359.43	12,250.00	3,037.15	-300.34	3,046.03	0.00	0.00	0.00	
15,400.00	90.00	359.43	12,250.00	3,137.15	-301.34	3,146.00	0.00	0.00	0.00	
15,500.00	90.00	359.43	12,250.00	3,237.14	-302.34	3,245.96	0.00	0.00	0.00	
15,600.00	90.00	359.43	12,250.00	3,337.14	-303.34	3,345.93	0.00	0.00	0.00	
15,700.00	90.00	359.43	12,250.00	3,437.13	-304.34	3,445.90	0.00	0.00	0.00	
15,800.00	90.00	359.43	12,250.00	3,537.13	-305.33	3,545.86	0.00	0.00	0.00	
15,900.00	90.00	359.43	12,250.00	3,637.12	-306.33	3,645.83	0.00	0.00	0.00	
16,000.00	90.00	359.43	12,250.00	3,737.12	-307.33	3,745.79	0.00	0.00	0.00	
16,100.00	90.00	359.43	12,250.00	3,837.11	-308.33	3,845.76	0.00	0.00	0.00	
16,200.00	90.00	359.43	12,250.00	3,937.11	-309.33	3,945.72	0.00	0.00	0.00	
16,300.00	90.00	359.43	12,250.00	4,037.10	-310.33	4,045.69	0.00	0.00	0.00	
16,400.00	90.00	359.43	12,250.00	4,137.10	-311.33	4,145.66	0.00	0.00	0.00	
16,500.00	90.00	359.43	12,250.00	4,237.09	-312.33	4,245.62	0.00	0.00	0.00	
16,600.00	90.00	359.43	12,250.00	4,337.09	-313.33	4,345.59	0.00	0.00	0.00	
16,700.00	90.00	359.43	12,250.00	4,437.08	-314.33	4,445.55	0.00	0.00	0.00	
16,800.00	90.00	359.43	12,250.00	4,537.08	-315.32	4,545.52	0.00	0.00	0.00	
16,900.00	90.00	359.43	12,250.00	4,637.07	-316.32	4,645.48	0.00	0.00	0.00	
17,000.00	90.00	359.43	12,250.00	4,737.07	-317.32	4,745.45	0.00	0.00	0.00	
17,100.00	90.00	359.43	12,250.00	4,837.06	-318.32	4,845.42	0.00	0.00	0.00	
17,200.00	90.00	359.43	12,250.00	4,937.06	-319.32	4,945.38	0.00	0.00	0.00	
17,300.00	90.00	359.43	12,250.00	5,037.05	-320.32	5,045.35	0.00	0.00	0.00	
17,400.00	90.00	359.43	12,250.00	5,137.05	-321.32	5,145.31	0.00	0.00	0.00	
17,500.00	90.00	359.43	12,250.00	5,237.04	-322.32	5,245.28	0.00	0.00	0.00	
17,600.00	90.00	359.43	12,250.00	5,337.04	-323.32	5,345.24	0.00	0.00	0.00	
17,700.00	90.00	359.43	12,250.00	5,437.03	-324.32	5,445.21	0.00	0.00	0.00	
17,800.00	90.00	359.43	12,250.00	5,537.03	-325.32	5,545.18	0.00	0.00	0.00	
17,900.00	90.00	359.43	12,250.00	5,637.02	-326.31	5,645.14	0.00	0.00	0.00	
18,000.00	90.00	359.43	12,250.00	5,737.02	-327.31	5,745.11	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #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)
18,100.00	90.00	359.43	12,250.00	5,837.01	-328.31	5,845.07	0.00	0.00	0.00
18,200.00	90.00	359.43	12,250.00	5,937.01	-329.31	5,945.04	0.00	0.00	0.00
18,300.00	90.00	359.43	12,250.00	6,037.00	-330.31	6,045.00	0.00	0.00	0.00
18,400.00	90.00	359.43	12,250.00	6,137.00	-331.31	6,144.97	0.00	0.00	0.00
18,500.00	90.00	359.43	12,250.00	6,236.99	-332.31	6,244.93	0.00	0.00	0.00
18,600.00	90.00	359.43	12,250.00	6,336.99	-333.31	6,344.90	0.00	0.00	0.00
18,700.00	90.00	359.43	12,250.00	6,436.98	-334.31	6,444.87	0.00	0.00	0.00
18,800.00	90.00	359.43	12,250.00	6,536.98	-335.31	6,544.83	0.00	0.00	0.00
18,900.00	90.00	359.43	12,250.00	6,636.97	-336.30	6,644.80	0.00	0.00	0.00
19,000.00	90.00	359.43	12,250.00	6,736.97	-337.30	6,744.76	0.00	0.00	0.00
19,100.00	90.00	359.43	12,250.00	6,836.96	-338.30	6,844.73	0.00	0.00	0.00
19,200.00	90.00	359.43	12,250.00	6,936.96	-339.30	6,944.69	0.00	0.00	0.00
19,300.00	90.00	359.43	12,250.00	7,036.95	-340.30	7,044.66	0.00	0.00	0.00
19,400.00	90.00	359.43	12,250.00	7,136.95	-341.30	7,144.63	0.00	0.00	0.00
19,500.00	90.00	359.43	12,250.00	7,236.94	-342.30	7,244.59	0.00	0.00	0.00
19,600.00	90.00	359.43	12,250.00	7,336.94	-343.30	7,344.56	0.00	0.00	0.00
19,700.00	90.00	359.43	12,250.00	7,436.93	-344.30	7,444.52	0.00	0.00	0.00
19,800.00	90.00	359.43	12,250.00	7,536.93	-345.30	7,544.49	0.00	0.00	0.00
19,900.00	90.00	359.43	12,250.00	7,636.92	-346.30	7,644.45	0.00	0.00	0.00
20,000.00	90.00	359.43	12,250.00	7,736.92	-347.29	7,744.42	0.00	0.00	0.00
20,100.00	90.00	359.43	12,250.00	7,836.91	-348.29	7,844.39	0.00	0.00	0.00
20,200.00	90.00	359.43	12,250.00	7,936.91	-349.29	7,944.35	0.00	0.00	0.00
20,300.00	90.00	359.43	12,250.00	8,036.90	-350.29	8,044.32	0.00	0.00	0.00
20,400.00	90.00	359.43	12,250.00	8,136.90	-351.29	8,144.28	0.00	0.00	0.00
20,500.00	90.00	359.43	12,250.00	8,236.89	-352.29	8,244.25	0.00	0.00	0.00
20,600.00	90.00	359.43	12,250.00	8,336.89	-353.29	8,344.21	0.00	0.00	0.00
20,700.00	90.00	359.43	12,250.00	8,436.88	-354.29	8,444.18	0.00	0.00	0.00
20,800.00	90.00	359.43	12,250.00	8,536.88	-355.29	8,544.15	0.00	0.00	0.00
20,900.00	90.00	359.43	12,250.00	8,636.87	-356.29	8,644.11	0.00	0.00	0.00
21,000.00	90.00	359.43	12,250.00	8,736.87	-357.28	8,744.08	0.00	0.00	0.00
21,100.00	90.00	359.43	12,250.00	8,836.86	-358.28	8,844.04	0.00	0.00	0.00
21,200.00	90.00	359.43	12,250.00	8,936.86	-359.28	8,944.01	0.00	0.00	0.00
21,300.00	90.00	359.43	12,250.00	9,036.85	-360.28	9,043.97	0.00	0.00	0.00
21,400.00	90.00	359.43	12,250.00	9,136.85	-361.28	9,143.94	0.00	0.00	0.00
21,500.00	90.00	359.43	12,250.00	9,236.84	-362.28	9,243.90	0.00	0.00	0.00
21,600.00	90.00	359.43	12,250.00	9,336.84	-363.28	9,343.87	0.00	0.00	0.00
21,700.00	90.00	359.43	12,250.00	9,436.84	-364.28	9,443.84	0.00	0.00	0.00
21,800.00	90.00	359.43	12,250.00	9,536.83	-365.28	9,543.80	0.00	0.00	0.00
21,900.00	90.00	359.43	12,250.00	9,636.83	-366.28	9,643.77	0.00	0.00	0.00
22,000.00	90.00	359.43	12,250.00	9,736.82	-367.27	9,743.73	0.00	0.00	0.00
22,100.00	90.00	359.43	12,250.00	9,836.82	-368.27	9,843.70	0.00	0.00	0.00
22,200.00	90.00	359.43	12,250.00	9,936.81	-369.27	9,943.66	0.00	0.00	0.00
22,300.00	90.00	359.43	12,250.00	10,036.81	-370.27	10,043.63	0.00	0.00	0.00
22,400.00	90.00	359.43	12,250.00	10,136.80	-371.27	10,143.60	0.00	0.00	0.00
22,481.04	90.00	359.43	12,250.00	10,217.84	-372.08	10,224.61	0.00	0.00	0.00
LTP Prizehog A Fed Com #1H									
22,500.00	90.00	359.43	12,250.00	10,236.80	-372.27	10,243.56	0.00	0.00	0.00
22,561.05	90.00	359.43	12,250.00	10,297.84	-372.88	10,304.59	0.00	0.00	0.00
TD at 22561.05 - PBHL Prizehog A Fed Com #1H 20' FSL									

Planning Report

Database:	EDM 5000.1	Local Co-ordinate Reference:	Well Prizehog A Fed Com #1H
Company:	Impetro Operating, LLC	TVD Reference:	GL @ 2931.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	GL @ 2931.00usft
Site:	Sec 19-T26S-R36E	North Reference:	Grid
Well:	Prizehog A Fed Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
FTP Prizehog A Fed Cor	0.00	0.00	11,985.45	-153.15	-268.47	373,152.24	858,747.60	32.02174	-103.30918
- plan hits target center									
- Point									
PBHL Prizehog A Fed Cor	0.00	0.00	12,250.00	10,297.84	-372.88	383,603.23	858,643.19	32.05047	-103.30919
- plan hits target center									
- Point									
LTP Prizehog A Fed Cor	0.00	0.00	12,250.00	10,217.84	-372.08	383,523.23	858,643.99	32.05025	-103.30919
- plan hits target center									
- Point									

Plan Annotations					
Measured	Vertical	Local Coordinates			
Depth	Depth	+N/-S	+E/-W		
(usft)	(usft)	(usft)	(usft)	Comment	
2,000.00	2,000.00	0.00	0.00	Nudge 2°/100'	
2,250.00	2,249.68	-6.59	-8.69	EON HLD 5° Inc.	
5,858.75	5,844.70	-196.66	-259.28	DROP 2°/100'	
6,108.75	6,094.38	-203.25	-267.96	EOD HLD 0° Inc.	
11,786.90	11,772.53	-203.25	-267.96	KOP BLD 12°/100'	
12,536.90	12,250.00	274.19	-272.73	EOB HLD 90° Inc.	
22,561.05	12,250.00	10,297.84	-372.88	TD at 22561.05	



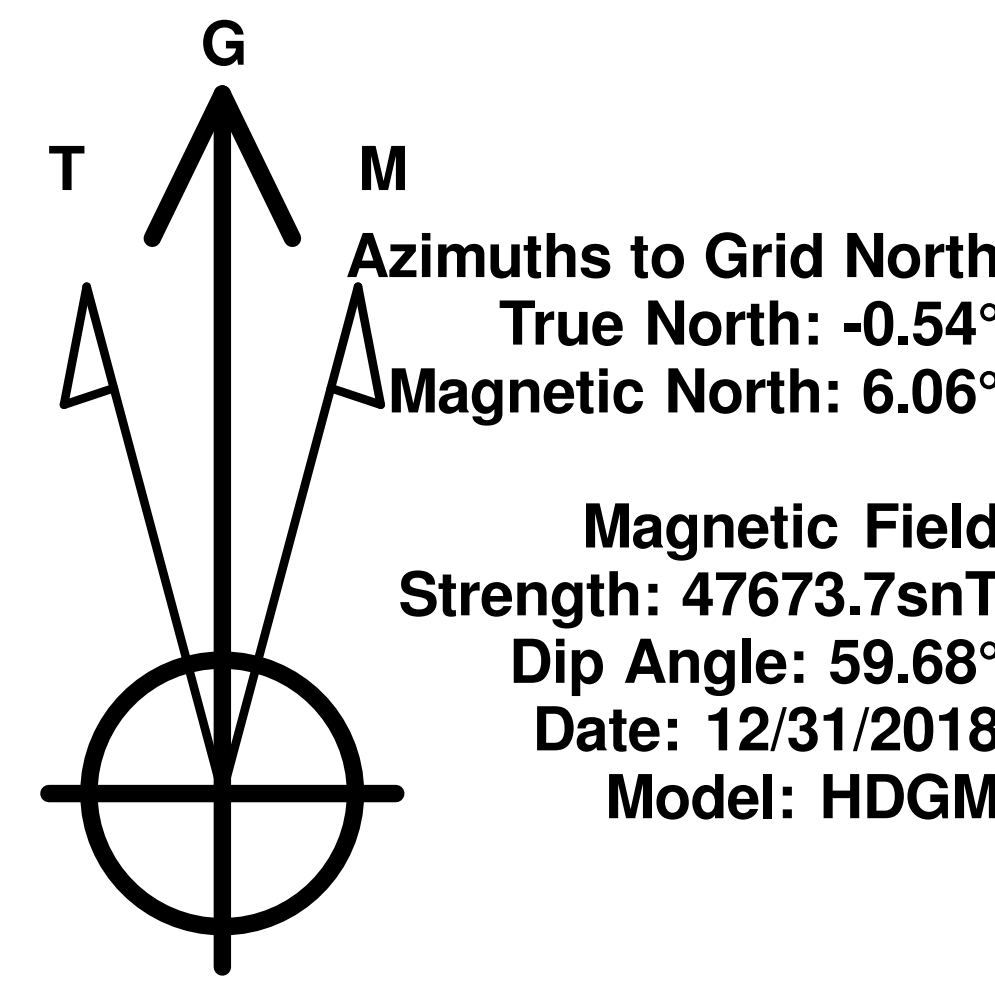
Pla

1)

WELL DETAILS: Prizehog A Fed Com #1H

Ground Elevation:: 2931.00
RKB Elevation: GL @ 2931.00usft
Rig Name:

Northing 373305.39 Easting 859016.07 Latitude Longitude 32.02215 -103.30830



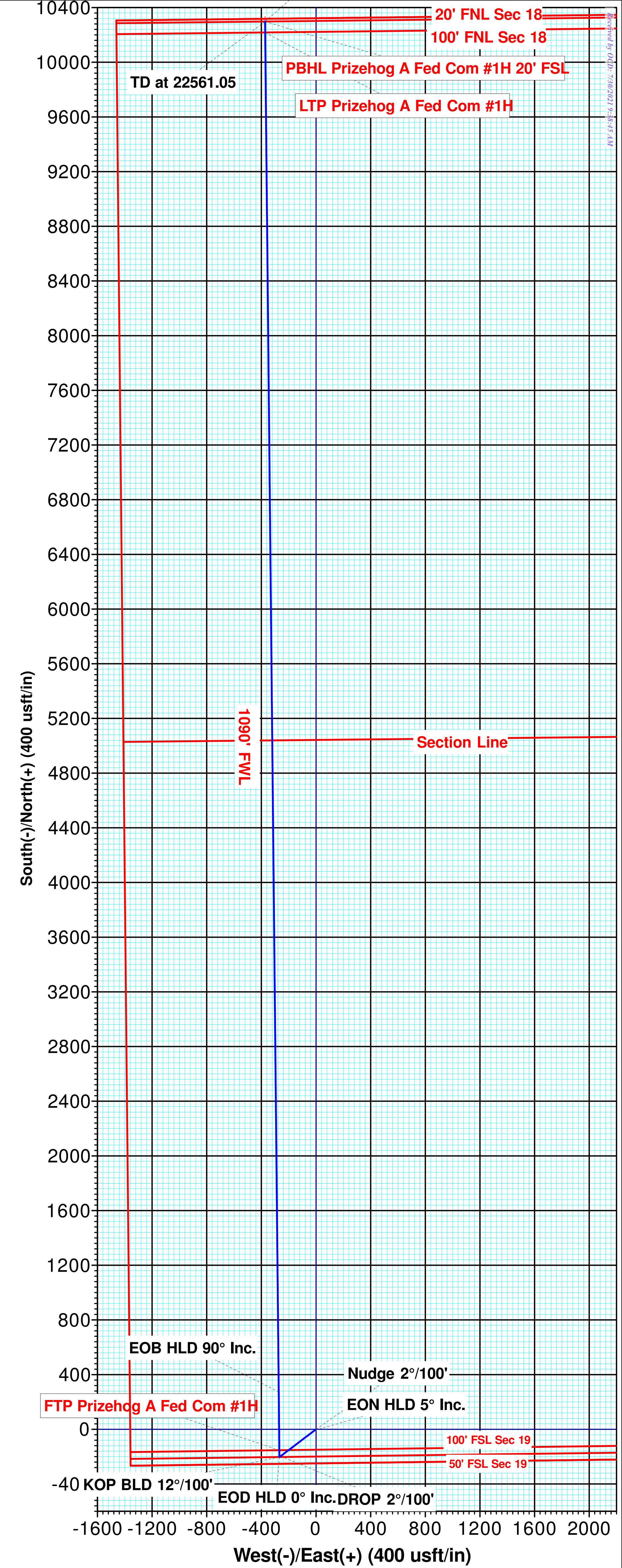
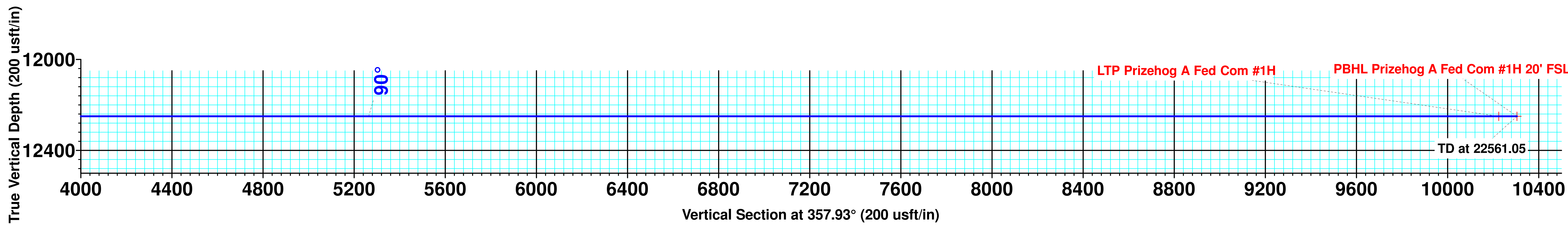
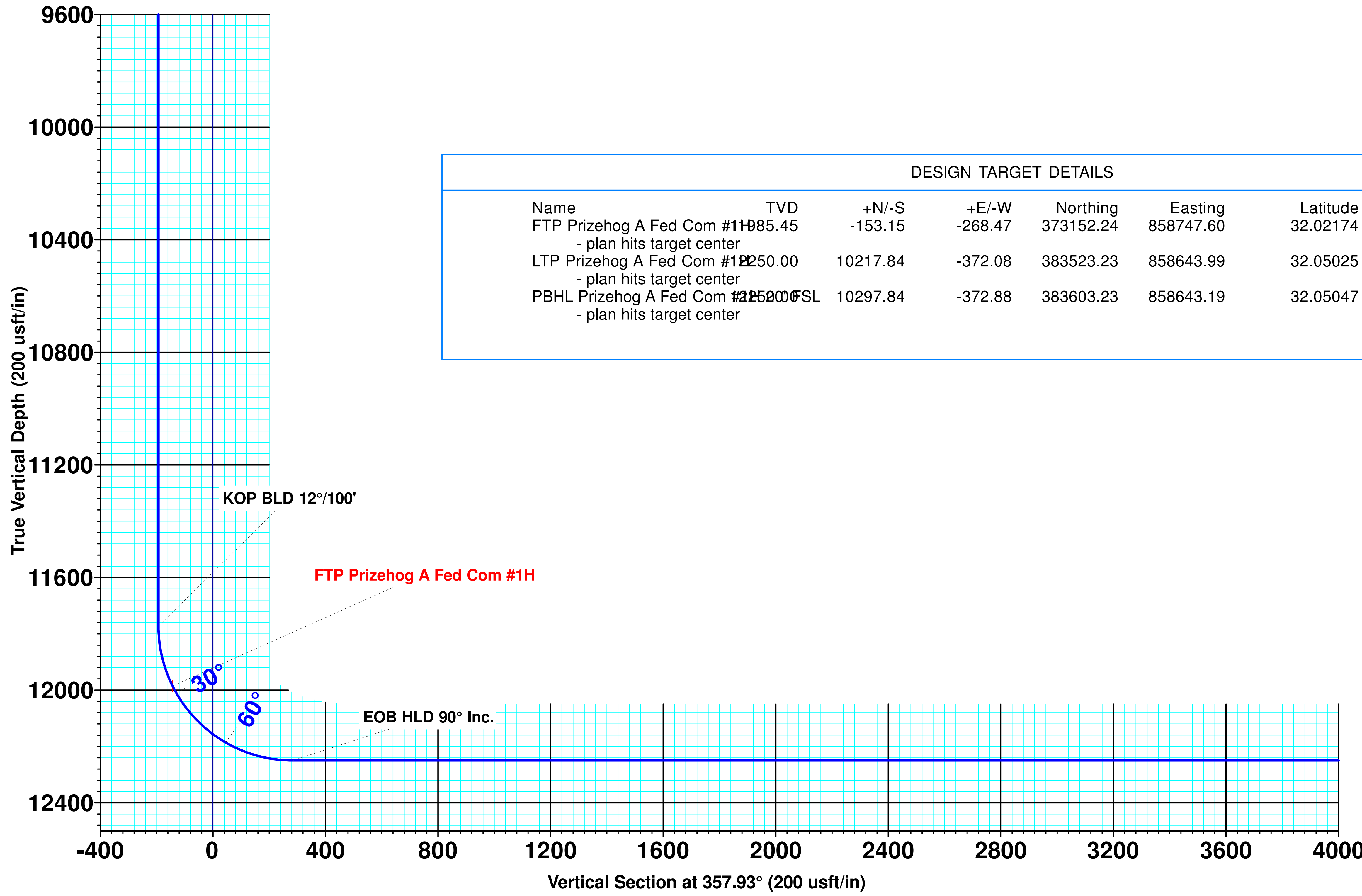
Section Details

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Nudge 2°/100'
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	EON HLD 5° Inc.
2250.00	5.00	232.82	2249.68	-6.59	-8.69	2.00	232.82	-6.27	DROP 2°/100'
5858.75	5.00	232.82	5844.70	-196.66	-259.28	0.00	0.00	-187.15	EOD HLD 0° Inc.
6108.75	0.00	0.00	6094.38	-203.25	-267.96	2.00	180.00	-193.42	KOP BLD 12°/100'
11786.90	0.00	0.00	11772.53	-203.25	-267.96	0.00	0.00	-193.42	EOB HLD 90° Inc.
12536.90	90.00	359.43	12250.00	274.19	-272.73	12.00	359.43	283.88	TD at 22561.05
22561.05	90.00	359.43	12250.00	10297.84	-372.88	0.00	0.00	10304.59	

PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP Prizehog A Fed Com #1H	11785.45	-153.15	-268.47	373152.24	858747.60	32.02174	-103.30917
- plan hits target center							
LTP Prizehog A Fed Com #1H	12250.00	10217.84	-372.08	383523.23	858643.99	32.05025	-103.30919
- plan hits target center							
PBHL Prizehog A Fed Com #1H 20' FSL	12250.00	10297.84	-372.88	383603.23	858643.19	32.05047	-103.30919
- plan hits target center							



PECOS DISTRICT DRILLING OPERATIONS CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Impetro Operating LLC / Lilis Energy, Inc.
LEASE NO.:	NMNM018644
WELL NAME & NO.:	Prizehog A Federal State Com 1H
SURFACE HOLE FOOTAGE:	250' FSL & 1360' FWL
BOTTOM HOLE FOOTAGE:	100' FNL & 1090' FWL
LOCATION:	Section 19, T 26S, R 36E, NMPM
COUNTY:	Lea County, New Mexico

H2S	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Potash	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Secretary	<input type="checkbox"/> R-111-P
Cave/Karst Potential	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Medium	<input type="checkbox"/> High
Variance	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Flex Hose	<input checked="" type="checkbox"/> Other
Wellhead	<input checked="" type="checkbox"/> Conventional	<input type="checkbox"/> Multibowl	<input type="checkbox"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit

A. HYDROGEN SULFIDE

1. 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

The casing design was changed during the COA stage, the approved design (casing, cement and mud) is attached to the end of these conditions.

1. The **13-3/8"** surface casing shall be set at approximately **1950'** and cemented to surface. If salt is encountered, this casing shall be set at least **25' above the salt**.
 - a. **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after.
 - b. WOC time for a primary cement job will be a minimum of **8 hours** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.
 - c. If cement falls back, remedial cementing will be done prior to drilling out the shoe.
 - d. WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

2. The **10-3/4"** intermediate casing shall be cemented to surface.
 - a. **If cement does not circulate to surface**, see B.1.a, c & d.
3. The **7-5/8"** intermediate casing shall be cemented with at least **200' tie-back** into the previous casing. Operator shall provide method of verification.
 - a. **If cement does not circulate to surface**, see B.1.a, c & d.
4. The **5-1/2"** production casing shall be cemented with at least **200' tie-back** into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. BOP and BOPE shall be installed and tested per Onshore Order #2 requirements prior to drilling below the surface casing and will be rated to the pressures below. Required safety valves, with appropriate wrenches and subs for the drill string being utilized, will be in the open position and accessible on the rig floor.
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 second intermediate casing shoe shall be **10,000 (10M) psi. Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi)**.
 - a. The Wolfcamp formation in this area is known for being overpressured, thus BOP pressure requirements were calculated using a 12.5ppg drilling fluid.

D. SPECIAL REQUIREMENTS

1. Submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
 - a. The well sign on location shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

DR 1/7/2020

GENERAL REQUIREMENTS

1. The BLM is to be notified in advance for a representative to witness:
 - a. Spudding the well (minimum of 24 hours)
 - b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
 - c. BOP/BOPE tests (minimum of 4 hours)
 - ☒ Eddy County: Call the Carlsbad Field Office, (575) 361-2822
 - ☒ Lea County: Call the Hobbs Field Station, (575) 393-3612
2. 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:
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. 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.
 - iii. BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
3. 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.
4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be available upon request. 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 the portion of 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. 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 Onshore Order 2 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 BOP/BOPE 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 which 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 made available upon request.
 - 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. 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.
 - f. BOP/BOPE must be tested 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

1. 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

1. 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.
2. Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

PECOS DISTRICT SURFACE USE CONDITIONS OF APPROVAL

Prizehog A Federal State Com 1H	250 FSL, 1,360 FWL	Township 26 South, Range 36 East, Sections 19 and 20 Township 26 South, Range 36 East, Sections 19 and 20	SLO and private
Prizehog A Federal State Com 2H	250 FSL, 1,330 FWL		
Prizehog A Federal State Com 3H	250 FSL, 1,300 FWL		
Prizehog A Federal State Com 4H	250 FSL, 1270 FWL		SLO and private
Prizehog B Federal State Com 1H	322 FSL, 944 FEL		
Prizehog B Federal State Com 2H	322 FSL, 1,034 FEL		
Prizehog B Federal State Com 3H	322 FSL, 974 FEL		
Prizehog B Federal State Com 4H	322 FSL, 1,004 FEL		
Wildhog A Federal Com 1H	298 FSL, 1,304 FWL		
Wildhog A Federal Com 2H	298 FSL, 1,364 FWL		
Wildhog A Federal Com 3H	298 FSL, 1,334 FWL		
Wildhog A Federal Com 4H	298 FSL, 1,274 FWL		
Wildhog B Federal Com 1H	288 FSL, 1,323 FEL		
Wildhog B Federal Com 2H	288 FSL, 1,293 FEL		
Wildhog B Federal Com 3H	288 FSL, 1,263 FEL		
Wildhog B Federal Com 4H	288 FSL, 1,353 FEL		

FEL = feet from east line; FSL = feet from south line; FWL = feet from west line

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
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 - No Reserve Pits
- ☐ **Construction**
 - Notification
 - Topsoil
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 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**

☐ **Production (Post Drilling)**
Well Structures & Facilities

☐ **Interim Reclamation**

☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

No Reserve pits!!!!!!!!!!!!!!

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS**Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

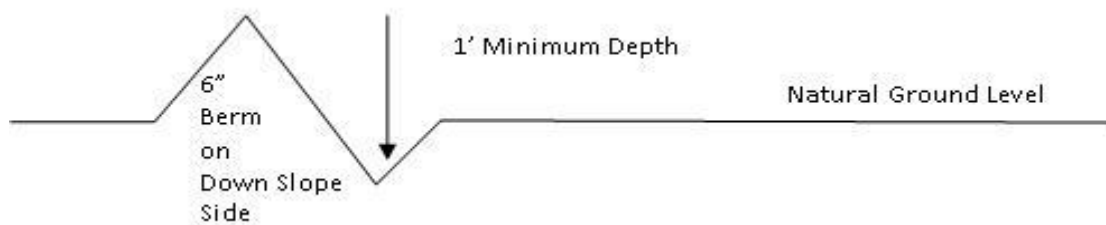
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and inslaping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

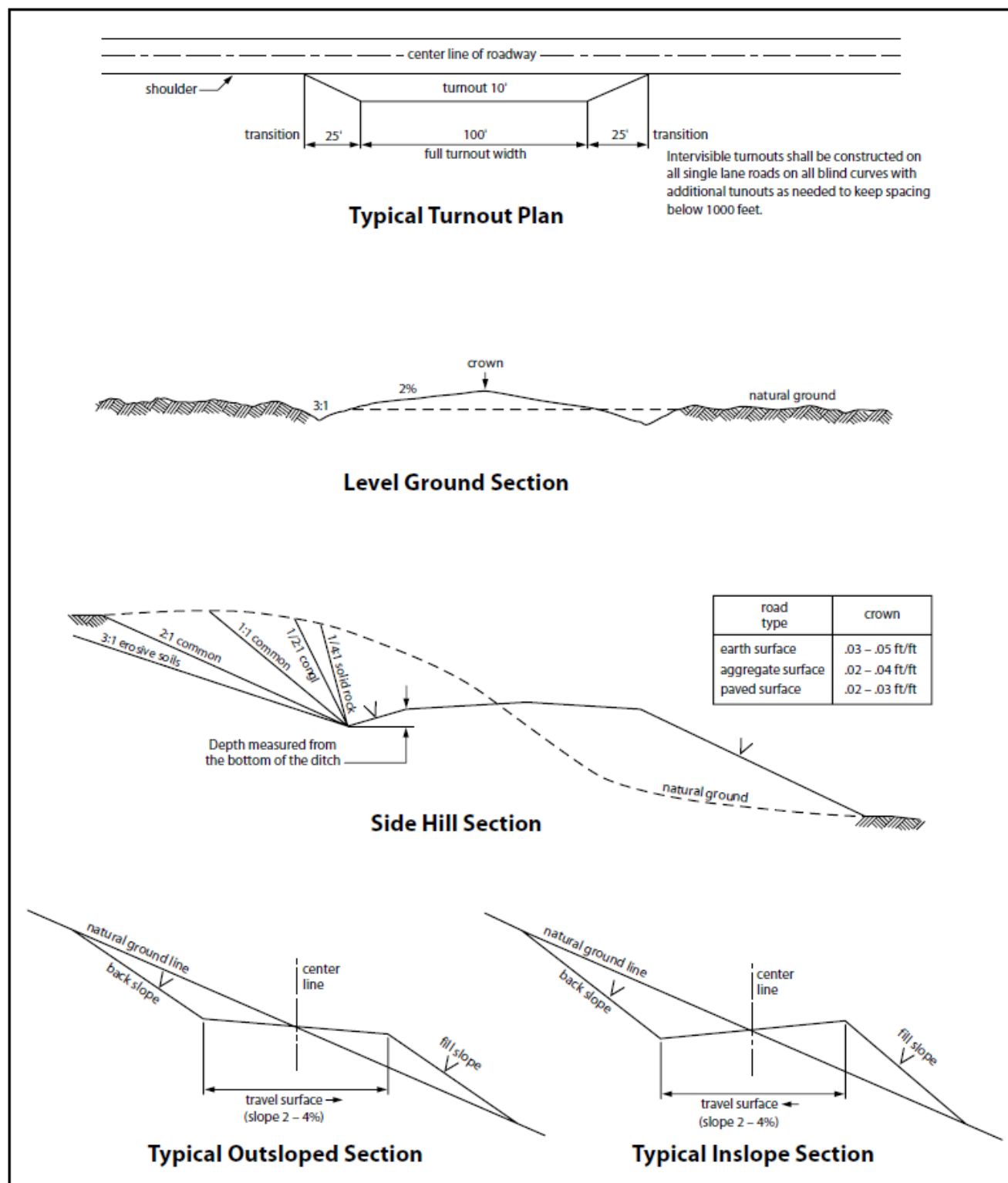


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

(Insert Seed Mixture Here)



Well Description:

PATTERSON 762

Antelope 1H

Latitude: 31.98453

Longitude: -103.25875

TRRC Permit #: 834879

H₂S Contingency Plan



Marsz Safety

(210) 560-6705

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I. EMERGENCY ASSISTANCE TELEPHONE LIST

PUBLIC SAFETY:		911 or
Winkler County Sheriff's Department		(432) 586-3461
Fire Department:		
	Kermit, TX	(432) 586-2577
	Wink, TX	(432) 527-3333
EMS:		
	Kermit EMS	(432) 547-2240
	Wink EMS	(432) 586-2055
Hospitals:		
	Reeves Co. Hospital (Pecos)	(432) 447-3551
	Ward Memorial Hospital (Monahans)	(432) 943-2511
	Winkler Co. Hospital (Kermit)	(432) 586-5864
Texas Dept. of Transportation:		
	Kermit	(432) 586-3134
	Pecos	(432) 445-4737
	Joel Griner	
Texas Railroad Commission:		
	Main Line	(887) 228-5740
	24hr. Accident Reporting	(512) 463-6788
OSHA 24 Hr. Reporting		(800) 321-6742

(8 hrs after death or 24 hrs after in-patient, amputation, loss of an eye)

Lilis Energy Offices

- Kermit Office	(432) 248-3816
- San Antonio Office	(210) 999-5400

Drilling General Manager

Office
Cell

Patterson UTI Rig Manager

Bobby Burngardner	(361) 793-8330
Clay Bennett	(601) 467-3117

Lilis Drilling and Completion Superintendent

David A. Jordan

Office (805) 890-4492

Cell (505) 357-8895

Field Superintendent:

Trae Laird

(575) 441-4006

Randy Bridges

(806) 891-4760

Production Operations Manager

George M. Placke

Office (210) 999-5400

Cell (210) 865-1239

Drilling Rig Name:

Patterson 762

Drilling Consultant:

Brent New

(361) 235-9611

Emergency Accommodations

Pecos Lodge (Pecos)

(855) 582-7438

Southern Inn & Suites (Kermit)

(432) 586-2540

Safety Consultants

Marsz Safety

Sean Farnsworth

Cell (210) 560-6705

II. H₂S CONTINGENCY PLAN SECTION

Scope:

This contingency plan provides an organized plan of action for alerting and protecting the public within an area of exposure prior to an intentional release, or following the accidental release of a potentially hazardous volume of hydrogen sulfide. The plan establishes guidelines for all personnel whose work activity may involve exposure to Hydrogen Sulfide Gas (H₂S).

Objective:

Prevent any and all accidents, and prevent the uncontrolled release of H₂S into the atmosphere.

Provide proper evacuation procedures to cope with emergencies.

Provide immediate and adequate medical attention should an injury occur.

Purpose, Distribution and Updating of Contingency Plan:

The Purpose of this contingency plan is to protect the general public from the harmful effects of H₂S accidentally escaping from the subject producing well. This plan is designed to accomplish its purpose by assuring the preparedness necessary to:

1. Minimize the possibility of releasing H₂S into the atmosphere during related operations.
2. Provide for the logical, efficient, and safe emergency actions required to protect the general public in the event of an accidental release of a potentially hazardous quantity of H₂S.

Supplemental information is included with this plan and is intended as reference material for anyone needing a more detailed understanding of the many factors pertinent to H₂S drilling operations safety. The release of a potentially hazardous quantity of H₂S is highly unlikely. If such a release should occur however, obviously the exact time, rate, duration, and other pertinent facts will be known in advance thus, this contingency plan must necessarily be somewhat general. The plan does review in detail, as is reasonably possible, the type of accidental release that could possibly endanger the general public, the probable extent of such danger, and the emergency actions generally appropriate. In the event of such an accidental release, the specific actions to be taken will have to be determined at the time of release by the responsible personnel at the drilling location. Complete familiarity with this plan will help such personnel make the proper decisions rapidly. Familiarity with this plan is so required of all operators, operator representatives, and drilling contractor supervisory personnel who could possibly be on duty at the drilling location at the time of an H₂S emergency.

IT IS THE RESPONSIBILITY OF THE OPERATOR TO ASSURE SUCH FAMILIARITY BEFORE DRILLING WITHIN 1000' OR THREE DAYS PRIOR TO PENETRATION OF THE SHALLOWEST FORMATION KNOWN OR SUSPECTED TO CONTAIN H₂S IN POTENTIALLY HAZARDOUS QUANTITIES, AND ALSO TO ASSURE THE TIMELY ACCOMPLISHMENT OF ALL THE OTHER ACTION SPECIFIED HERE IN.

As this contingency plan was prepared considerably in advance of the anticipated H₂S operation, the plan must be kept current if it is to effectively serve its purpose. The operators will be responsible for seeing that all copies are updated. Updating the plan is required when any changes to the personnel Call List (Section) including telephone numbers occur or when any pertinent data or plans for the well are altered. The plan must also be updated when any changes in the general public likely to be within the exposure area in the event of an

accidental release from the well bore of a potentially hazardous quantity of H₂S. Two copies of this plan shall be retained at the office of Anadarko Petroleum Corporation. Two copies shall be retained at the drilling location.

Discussion of Plan:

Suspected Problem Zones:

Implementation: This plan, with all details, is to be fully implemented 1000' before drilling into the first sour zone.

Emergency Response Procedure: This section outlines the conditions and denotes steps to be taken in the event of an emergency.

Emergency Equipment and Procedure: This section outlines the safety and emergency equipment that will be required for the drilling of this well.

Training Provisions: This section outlines the training provisions that must be adhered to 1000' before drilling into the first sour zone.

Emergency call list: Included are the telephone numbers of all persons that would need to be contacted, should an H₂S emergency occur.

Briefing: This section deals with the briefing of all persons involved with the drilling of this well.

Public Safety: Public Safety Personnel will be made aware of the drilling of this well.

Check Lists: Status check lists and procedural check lists have been included to ensure adherence to the plan.

General Information: A general information section has been included to supply support information.

III. OPERATING PROCEDURES

A. Blowout Preventer Drills

Due to the special piping and manifolding necessary to handle poisonous gas, particular care will be taken to insure that all rig personnel are completely familiar with their jobs during the drills. The Drilling Consultant and Tool Pusher (Rig Superintendent) in particular are thoroughly familiar with the additional controls and piping necessary.

B. H₂S Alarm Drills

The Company Man and/ or designee will conduct frequent H₂S alarm drills for each crew by injecting a trace of H₂S where the detector will give an alarm. Under these conditions all personnel on location will put on air equipment and remain masked until all clear is announced.

C. Surface Annular Preventer/ Diverter System Testing

After installation of the surface annular preventer, Hydraulic Control Valve and diverter system, both of these are to be function tested. They also should be function tested frequently while drilling surface hole.

D. Blowout Preventer

After installation of the Blowout Preventer Stack, the stack will be pressure tested. The Choke manifold is also to be pressure tested at this time. This procedure will be repeated as required by the TRRC or if any of the stack is nipped down. Also at this time, the Blind and Pipe Rams are checked for correct operation.

E. Well Control Practice Drills and Safety Meeting for Crew Members

Pit drills are for the purpose of acquainting each member of the drilling crew with his duties in the event of an emergency. Drills will be held with each crew as frequently as required to thoroughly familiarize each man with his duties. Drills are to be held at least weekly from that time forward.

1. BOP Drill while on Bottom Drilling:

A. Signal will be three or more long blast given by driller on the horn.

B. Procedure will be as follows:

1. Tool Pusher: Supervises entire operation.

2. Driller

a. Gives signal.

b. Picks up Kelly.

c. Stops pumps.

d. Observes flow.

e. Signal to close (pipe rams if necessary).

f. Check that Choke Manifold is closed.

g. Record drill pipe pressure, casing pressure and determine mud volume gain.

3. Motorman

a. Go to closing unit and standby for signal to close BOP.

b. Close BOP in signal.

c. Check on BOP closing.

- d. Go to floor to assist driller. (NOTE: During test drills the BOP need not be completely closed at the discretion of the supervisor. Supervisor should make it very clear that it is a test drill only!)
- 4. Derrickman
 - a. Check pumps.
 - b. Go to floor for directions from the driller.
- 5. Floorman
 - a. Go to manifold.
 - b. Observe and record pressure.
 - c. Check manifold and BOP for leaks.
 - d. Check with driller for additional instructions.
- 2. BOP Drill While Making Trip:
 - A. During trip driller will fill hole every five (5) stands and check the pits to be sure hole is taking mud.
 - B. Drill Procedure is as follows:
 - 1. Driller
 - a. Order Safety valve installed.
 - b. Alert those not on the floor.
 - c. Go to stations as described in above drill.
- 3. Safety Meetings
 - A. Every person involved in the operating will be informed of the characteristics of H₂S, its danger and safety procedures to be used when it is encountered, and recommended first-aid procedure for regular rig personnel. This will be done through a series of talks made before spud.
 - B. The Safety Advisor or Drilling Supervisor will conduct these training sessions and will repeat them as deemed necessary by him. Talks may include the following subjects:
 - 1. Dangers of Hydrogen Sulfide (H₂S).
 - 2. Use and limitations of air equipment.
 - 3. Use of resuscitator.
 - 4. Organize Buddy System.
 - 5. First Aid procedures.
 - 6. Use of H₂S detection devices.
 - 7. Designate responsible people.
 - 8. Explain rig layout and policy to visitors.
 - a. Designate smoking and safety or Muster area.
 - b. Emphasize the importance of wind directions.
 - 9. Describe and explain operation of BOP stack, manifold, separator, and pit piping. Include maximum allowable pressure for casing procedure.
 - 10. Explain functions of Safety Supervisor.
 - 11. Explain organize H₂S Drills.
 - 12. Explain the overall emergency plan with emphasis given to the evacuation phase of the plans.

- Note: The above talks will be attended by every person involved in the operation. When drilling has reached a depth where H₂S is anticipated, temporary service personnel and visitors will be directed to the Drilling Consultant, who will designate the air equipment to be used by them in case of emergency, acquaint them with the dangers involved and be sure of their safety while they are in the area. He will point out the Briefing Areas, Wind Socks, and Smoking Areas. He may refuse entrance to anyone, who in his opinion should not be admitted because of lack of safety equipment, special operations in progress or for other reasons involving personnel safety.

F. Outside Service Personnel

All service people such as cementing crews, logging crews, specialist, mechanics, and welders will furnish their own safety equipment. The Company Man/ or designee will be sure that the number of people on location does not exceed the number of masks on location, and they have been briefed in regard to safety procedures. He will also be sure each of these people know about smoking and "Briefing Areas", and know what to do in case of an emergency alert or drill. Visitors will be restricted, except with special permission from the Drilling Consultant, when H₂S might be encountered. They will be briefed as to what to do in case of an alert or drill.

G. Onsite/ off shift workers

All workers that are staying on site must be identified as to where they are staying while off tour. If a drill/ or emergency takes place related to an H₂S release, each crew must have a designated person(s) that will wake them up and ensure that they are cleared to the appropriate muster area immediately.

H. Simultaneous Operations (SIMOPS)

If work is going on adjacent to the location is the responsibility of the Drilling Consultant or designee to communicate any applicable risks that may affect personnel working on that adjacent location. In the case of an H₂S drill or event, there should be a designated crew member that is responsible for making contact with personnel on adjacent locations. This could include just communication on potential events or in case of an event, notification to evacuate location. Drilling Consultant or designee are the Point of Contact and are in charge of all activities at such point of an H₂S event occurrence.

I. Area Residences/ Occupied Locations/ Public Roads

Any occupied residences/ businesses that are within a reasonable perimeter of the location (attached map will identify a 3000' radius around location) should be identified as part of this contingency and a reasonable effort will be made to gain contact information for them. As part of the briefing of the contingency plan, the team reviewing should identify where these potential receptors are and make a plan on who will contact them in case of a release that may impact that area.

J. Drilling Fluids

Drilling Fluid Monitoring – On Any Hazardous H₂S gas well, the earlier the warning of danger the better chance to control operations. Mud Company will be in daily contact with Anadarko Petroleum Corporation Consultant. The Mud Engineer will take samples of the mud, analyze these samples, and make necessary recommendations to prevent H₂S gas from the formation, the pH will be increased as necessary for corrosion control.

pH Control – For normal drilling, pH of 10.5 – 11.5. Would be sufficient for corrosion protection. If there is an influx of H₂S gas from the formation, the pH will be increased as necessary for corrosion control.

H₂S Scavengers – If necessary H₂S scavengers will be added to the drilling mud.

IV. OPERATING CONDITIONS

A. Posting Well Condition Flags

Post the green, yellow or red well condition flag, as appropriate, on the well condition sign at the location entrance, and take necessary precautions as indicated below:

1. **Green Flag:** Potential Danger- When Drilling in known H₂S zones or when H₂S has been detected in the drilling fluid atmosphere. Protective breathing equipment shall be inspected, and all personnel on duty shall be alerted to be ready to use this equipment.
2. **Yellow Flag:** Potential Danger- When the threshold limit value of H₂S (10 PPM) or of SO₂ (5 PPM) is reached. If the concentration of H₂S or SO₂ reaches 10 PPM, protective breathing equipment shall be worn by all working personnel, and non-working personnel shall go to the upwind Safe Briefing Area.
3. **Red Flag:** Extreme danger*- When the ambient concentration of H₂S or SO₂ is reasonably believed or determined to have exceeded the potentially hazardous level. All non-essential personnel shall leave the drilling location taking the route most likely to exposure to escaping gas.

B. Requiring Air Masks Conditions

1. Whenever air masks are used, the person must be clean shaven as shown in the APC Guidelines
2. When breaking out any line where H₂S can reasonably be expected.
3. When sampling air in areas to determine if toxic concentrations of H₂S exist.
4. When working in areas where 10 PPM or more of H₂S has been detected.
5. At any time there is doubt as to the H₂S level in the area to be entered.

C. Kick Procedure

1. It is very important that the driller be continuously alert, especially when approaching a gas formation.
2. Should gas come into the well bore, it is very important to be aware of a kick at the earliest time.
3. If a kick is identified, follow appropriate diverter or shut in procedures according to the situation that is presented utilizing appropriate kick procedures.

V. EMERGENCY PROCEDURES

- I. In the event of any evidence of H₂S level above 10ppm, take the following steps immediately:
 - a. Secure breathing apparatus.
 - b. Order non-essential personnel out of the danger zone.
 - c. Take steps to determine if the H₂S level can be corrected or suppressed, and if so, proceed with normal operations.
- II. If uncontrollable conditions occur, proceed with the following:
 - a. Take steps to protect and/or remove any public downwind of the rig, including partial evacuation or isolation. Notify necessary public safety personnel.
 - b. Remove all personnel to the Safe Briefing Area.
 - c. Notify public safety personnel for help with maintaining roadblocks, thus limiting traffic and implementing evacuation.
 - d. Determine and proceed with the best possible plan to regain control of the well. Maintain tight security and safety measures.
- III. Responsibility
 - a. The Company Approved Supervisor shall be responsible for the total implementation of the plan.
 - b. The Company Approved Supervisor shall be in complete command during any emergency.
 - c. The Company Approved Supervisor shall designate a backup Supervisor in the event that he/she is not available.
- IV. Actions to be taken
 - a. Assign specific tasks to drilling location personnel
 - b. Evacuate the general public from the exposure area
 - c. Cordon off the exposure area to prevent entry by unauthorized persons
 - d. Request assistance if and as needed and initiate emergency notifications
 - e. Stop the dispersion of H₂S
 - f. Complete emergency notifications as required
 - g. Return the situation to normal

EMERGENCY PROCEDURE IMPLEMENTATION**I. Drilling or Tripping****a. All Personnel**

- i. When alarm sounds, don escape unit and report to upwind Safe Briefing Area.
- ii. Check status of other personnel (buddy system).
- iii. Secure breathing apparatus.
- iv. Wait for orders from supervisor.

b. Drilling Foreman

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Tool Pusher or Driller (buddy system).
- iii. Determine the concentration of H₂S.
- iv. Assess the situation and take appropriate control measures.

c. Tool Pusher

- i. Report to the upwind Safe Briefing Area.
- ii. Don Breathing Apparatus and return to the point of release with the Drilling Foreman or the Driller (buddy system).
- iii. Determine the concentration of H₂S.
- iv. Assess the situation and take appropriate control measures.

d. Driller

- i. Check the status of other personnel (in a rescue attempt, always use the buddy system).
- ii. Assign the least essential person to notify the Drilling Consultant and Tool Pusher, in the event of their absence.
- iii. Assume the responsibility of the Drilling Consultant and the Tool Pusher until they arrive, in the event of their absence.

e. Derrick Man and Floor Hands

- i. Remain in the upwind Safe Briefing Area until otherwise instructed by a supervisor.

f. Mud Engineer

- i. Report to the upwind Safe Briefing Area.
- ii. When instructed, begin check of mud for pH level and H₂S level.

g. Safety Personnel

- i. Don Breathing Apparatus.
- ii. Check status of personnel.
- iii. Wait for instructions from Drilling Consultant or Tool Pusher.

II. Taking a Kick

- a. All Personnel report to the upwind Safe Briefing Area.
- b. Follow standard BOP/ diverter procedures.

III. Open Hole Logging

- a. All unnecessary personnel should leave the rig floor.
- b. Drilling Consultant and Safety Personnel should monitor the conditions and make necessary safety equipment recommendations.

IV. Running Casing or Plugging

- a. Follow "Drilling or Tripping" procedures.
- b. Assure that all personnel have access to protective equipment.

VI. POST EMERGENCY ACTIONS

In the event this plan is activated, the following post emergency actions shall be taken in an effort to reduce the possibility of a reoccurrence of the type of problem that required its activation, and/or assure that any future activation of a similar plan will be as effective as possible.

- A. Review the factors that caused or permitted the emergency occur, and if the need is indicated, modify operating, maintenance and/or surveillance procedures.
- B. If the need is indicated, retrain employees in blowout prevention, H₂S emergency procedures and etc.
- C. Clean up, recharge, restock, repair, and/ or replace H₂S emergency equipment as necessary, and return it to its proper place. (For whatever rental equipment is used, this will be the responsibility of Rental Company).
- D. See that future H₂S drilling contingency plans are modified accordingly, if the need is indicated.

VII. IGNITION PROCEDURES

Responsibilities:

The decision to ignite the well is the responsibility of the DRILLING Consultant in concurrence with the STATE POLICE. In the event the Drilling Consultant is incapacitated, it becomes the responsibility of the RIG TOOL PUSHER. This decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope of controlling the blowout under the prevailing conditions.

If time permits, notify the main office, but do not delay if human life is in danger. Initiate the first phase of the evacuation plan.

Instructions for Igniting the Well:

1. Two people are required for the actual igniting operation. Both men must wear self-contained breathing apparatus and must use a full body harness and attach a retrievable safety line to the D-Ring in the back. One man must monitor the atmosphere for explosive gases with the LEL monitor, while the Drilling Consultant is responsible for igniting the well.
2. The primary method to ignite is a 25mm flare gun with a range of approximately 500 feet.
3. Ignite from upwind and do not approach any closer than is warranted.
4. Select the ignition site best suited for protection and which offers an easy escape route.
5. Before igniting, check for the presence of combustible gases.
6. After igniting, continue emergency actions and procedures as before.
7. All unassigned personnel will limit their actions to those directed by the Drilling Consultant.

Note: After the well is ignited, burning Hydrogen Sulfide will convert to Sulfur Dioxide, which is also highly toxic. Also both are heavier than air. Do not assume the area is safe even after the well is ignited.

VII. TRAINING ROGRAM

When working in an area where Hydrogen Sulfide (H₂S) might be encountered, definite training requirements must be carried out. The Company Supervisor will ensure that all personnel, at the well site, have had adequate training in the following:

1. Hazards and characteristics of Hydrogen Sulfide (H₂S).
2. Physicals effects of Hydrogen Sulfide on the human body.
3. Toxicity of Hydrogen Sulfide and Sulfur Dioxide.
4. H₂S detection, Emergency alarm and sensor location.
5. Don and Doff of SCBA and be clean shaven.
6. Emergency rescue.
7. Resuscitators.
8. First aid and artificial resuscitation.
9. The effects of Hydrogen Sulfide on metals.
10. Location safety.

Service company personnel and visiting personnel must be notified if the zone contains H₂S, and each service company must provide adequate training and equipment for their employees before they arrive at the well site.

IX. EMERGENCY EQUIPMENT

Lease Entrance Sign:

Should be located at the lease entrance with the following information:

CAUTION – POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

Respiratory Equipment:

- ☐ Fresh air breathing equipment should be placed at the safe briefing areas and should include the following:
 - Two SCBA's at each briefing area.
- ☐ Enough airline units to operate safely, anytime the H₂S concentration reaches the IDLH level (100ppm).
- ☐ Cascade system with enough breathing air hose and manifolds to reach the rig floor, the derrickman and the other operation areas.

Windsocks or Wind Streamers:

- A minimum of two 10" windsocks located at strategic locations so that they may be seen from any point on location.
- ☐ Wind streamers (if preferred) should be placed at various locations on the well site to ensure wind consciousness at all times. (Corners of location).

Hydrogen Sulfide Detector and Alarms:

- ☐ 1 - Four channel H₂S monitor with alarms.
- Three (3) sensors located as follows: #1 – Rig Floor, #2 – Shale Shaker, #3 – Cellar.
- ☐ Gastec or Draeger pump with tubes.
- ☐ Sensor test gas.

Well Condition Sign and Flags:

The Well Condition Sign w/flags should be placed a minimum of 150' before you enter the location. It should have three (3) color coded flags (green, yellow and red) that will be used to denote the following location conditions:

GREEN – Normal Operating Conditions
YELLOW – Potential Danger
RED – Danger, H₂S Gas Present

Auxiliary Rescue Equipment:

- ☐ Stretcher
- 2 – 100' Rescue lines.
- ☐ First Aid kit properly stocked.

Mud Inspection Equipment:

Garret Gas Train or Hach Tester for inspection of Hydrogen Sulfide in the drilling mud system.

Fire Extinguishers:

Adequate fire extinguishers shall be located at strategic locations.

Blowout Preventer:

- ☐ The well shall have hydraulic BOP equipment for the anticipated bottom hole pressure (BHP).
- ☐ The BOP should be tested upon installation.
- ☐ BOP, Choke Line and Kill Line will be tested as specified by Operator.

Confined Space Monitor:

There should be a portable multi-gas monitor with at least 3 sensors (O₂, LEL H₂S), preferably 4 (O₂, LEL, H₂S, CO). This instrument should be used to test the atmosphere of any confined space before entering. It should also be used for atmospheric testing for LEL gas before beginning any type of Hot Work. Proper calibration documentation will need to be provided.

Communication Equipment:

- ☐ Proper communication equipment such as cell phones or 2-way radios should be available at the rig.

- Radio communication shall be available for communication between the company man's trailer, rig floor and the tool pusher's trailer.
- ☐ Communication equipment shall be available on the vehicles.

Special Control Equipment:

- ☐ Hydraulic BOP equipment with remote control on the ground.
- ☐ Rotating head at the surface casing point.

Evacuation Plan:

- ☐ Evacuation routes should be established prior to spudding the well.
- ☐ Should be discussed with all rig personnel.

Designated Areas:***Parking and Visitor area:***

- ☐ All vehicles are to be parked at a pre-determined safe distance from the wellhead.
- ☐ Designated smoking area.

Safe Briefing Areas:

- ☐ Two Safe Briefing Areas shall be designated on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds or they are at a 180 degree angle if wind directions tend to shift in the area.
- ☐ Personal protective equipment should be stored at both briefing areas or if a moveable cascade trailer is used, it should be kept upwind of existing winds. When wind is from the prevailing direction, both briefing areas should be accessible.

Note:

- ☐ Additional equipment will be available at the H2S Provider Safety office.
- ☐ Additional personal H₂S monitors are available for all employees on location.
- ☐ Automatic Flare Igniters are recommended for installation on the rig.

X. PROCEDURAL CHECKLIST

Perform the following on each tour:

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to ensure that they have not been tampered with.
3. Check pressure on the supply air bottles to make sure they are capable of recharging.
4. Make sure all of the Hydrogen Sulfide detection systems are operative.
5. Ensure that all BOP/ Surface Annular/ Diverter systems are functioning and operational.

Perform the following each week:

1. Check each piece of breathing equipment to make sure that they are fully charged and operational. This requires that the air cylinder be opened and the mask assembly be put on and tested to make sure that the regulators and masks are properly working. Negative and Positive pressure should be conducted on all masks.
2. BOP skills.
3. Check supply pressure on BOP accumulator stand-by source.
4. Check all breathing air mask assemblies to see that straps are loosened and turned back, ready for use.
5. Check pressure on cascade air cylinders to make sure they are fully charged and ready to use for refill purposes if necessary.
6. Check all cascade system regulators to make sure they work properly.
7. Perform breathing drills with on-site personnel.
8. Check the following supplies for availability (may be with H2S Techs On-call):
 - Stretcher
 - Safety Belts and Ropes
 - Spare air Bottles
 - Spare Oxygen Bottles (if resuscitator required)
 - Gas Detector Pump and Tubes
 - Emergency telephone lists
 - Test the Confined Space Monitor to verify the batteries are good.

XI. BRIEFING PROCEDURES

The following scheduled briefings will be held to ensure the effective drilling and operation of this project:

Pre-Spud Meeting

Date: Prior to spudding the well.

Attendance: Drilling Supervisor
 Drilling Engineer
 Drilling Consultant
 Rig Tool Pushers
 Rig Drillers
 Mud Engineer
 All Safety Personnel
 Key Service Company Personnel

Purpose: Review and discuss the well program, step-by-step, to insure complete understanding of assignments and responsibilities.

XII. EVACUATION PLAN

General Plan

The direct lines of action prepared by Anadarko Petroleum Corporation to protect the public from hazardous gas situations are as follows:

1. When the company approved supervisor (Drilling Consultant, Tool Pusher or Driller) determine that Hydrogen Sulfide gas cannot be limited to the well location, and the public will be involved, he will activate the evacuation plan. Escape routes are noted on the area map.
2. Company safety personnel or designee will notify the appropriate local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company approved safety personnel that have been trained in the use of the proper emergency equipment will be utilized.
4. Law enforcement personnel (State Police, Local Police Department, Fire Department, and the Sheriff's Department) will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

NOTE: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

5. After the discharge of gas has been controlled, "Company" personnel will determine when the area is safe for re-entry.
6. If a major release is secured, all exposed housing, vehicles, rig buildings, and low lying areas and other structures downwind must be tested and clear with SCBAs donned to ensure that all residual H₂S is cleared. Fans, or opening of doors is recommended to ensure that areas are cleared out as part of this process.

XIII. PERMITS AND PLATS

RAILROAD COMMISSION OF TEXAS
OIL & GAS DIVISION

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

PERMIT NUMBER 834879	DATE PERMIT ISSUED OR AMENDED Jan 12, 2018	DISTRICT * 08
API NUMBER 42-495-34034	FORM W-1 RECEIVED Jan 05, 2018	COUNTY WINKLER
TYPE OF OPERATION NEW DRILL	WELLBORE PROFILE(S) Horizontal	ACRES 713
OPERATOR IMPETRO OPERATING LLC 300 E SONTERRA BLVD SUITE 1220 SAN ANTONIO, TX 78258-0000		NOTICE This permit and any allowable assigned may be revoked if payment for fee(s) submitted to the Commission is not honored. District Office Telephone No: (432) 684-5581
LEASE NAME ANTELOPE		WELL NUMBER 1H
LOCATION 13 miles NW direction from KERMIT		TOTAL DEPTH 11200
Section, Block and/or Survey SECTION ◀ 13 BLOCK ◀ C23 ABSTRACT ◀ 1386 SURVEY ◀ PSL / COWDEN, C C		
DISTANCE TO SURVEY LINES 250 ft. S 1267 ft. W		DISTANCE TO NEAREST LEASE LINE 200 ft.
DISTANCE TO LEASE LINES 250 ft. S 1267 ft. W		DISTANCE TO NEAREST WELL ON LEASE See FIELD(s) Below
FIELD(s) and LIMITATIONS: * SEE FIELD DISTRICT FOR REPORTING PURPOSES *		
FIELD NAME LEASE NAME	ACRES NEAREST LEASE	DEPTH NEAREST WE
SANDBAR (BONE SPRING)	713.00	11,200
ANTELOPE	200	0
WELLBORE PROFILE(S) FOR FIELD: Horizontal		
RESTRICTIONS: Permitted for oil only. Lateral: TH1 Penetration Point Location Lease Lines: 250.0 F S L 1267.0 F W L Terminus Location BH County: WINKLER Section: 13 Block: C23 Abstract: 1386 Survey: PSL Lease Lines: 200.0 F N L 990.0 F W L Survey Lines: 200.0 F N L 990.0 F W L		
PHANTOM (WOLFCAMP)	713.00	11,200
ANTELOPE	200	0
WELLBORE PROFILE(S) FOR FIELD: Horizontal		
RESTRICTIONS: Permitted for oil only. <u>This is a hydrogen sulfide field. Hydrogen Sulfide Fields with perforations must be</u>		

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**RAILROAD COMMISSION OF TEXAS
OIL & GAS DIVISION**

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DISTANCE TO LEASE LINES 250 ft. S 1267 ft. W		DISTANCE TO NEAREST WELL ON LEASE See FIELD(s) Below
FIELD(s) and LIMITATIONS: * SEE FIELD DISTRICT FOR REPORTING PURPOSES *		
FIELD NAME LEASE NAME	ACRES NEAREST LEASE	DEPTH NEAREST WE
<p>isolated and tested per State Wide Rule 36 and a Form H-9 filed with the district office. Fields with SWR 10 authority to downhole commingle must be isolated and tested individually prior to commingling production.</p> <p>Lateral: TH1 Penetration Point Location Lease Lines: 250.0 F S L 1267.0 F W L</p> <p>Terminus Location Lease Lines: 200.0 F N L 990.0 F W L Survey Lines: 200.0 F N L 990.0 F W L</p>		
<p align="center">THE FOLLOWING RESTRICTIONS APPLY TO ALL FIELDS</p> <p>This well shall be completed and produced in compliance with applicable special field or statewide spacing and density rules. If this well is to be used for brine mining, underground storage of liquid hydrocarbons in salt formations, or underground storage of gas in salt formations, a permit for that specific purpose must be obtained from Environmental Services prior to construction, including drilling, of the well in accordance with Statewide Rules 81, 95, and 97.</p> <p>This well must comply to the new SWR 3.13 requirements concerning the isolation of any potential flow zones and zones with corrosive formation fluids. See approved permit for those formations that have been identified for the county in which you are drilling the well in.</p>		

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**RAILROAD COMMISSION OF TEXAS
OIL & GAS DIVISION**

PERMIT TO DRILL, DEEPEN, PLUG BACK, OR RE-ENTER ON A REGULAR OR ADMINISTRATIVE EXCEPTION LOCATION

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FIELD(s) and LIMITATIONS: * SEE FIELD DISTRICT FOR REPORTING PURPOSES *		
FIELD NAME LEASE NAME	ACRES NEAREST LEASE	DEPTH NEAREST WE
WELL # NEAREST WE		
DIST		
<p>The designated interval for one or more of the fields approved in this permit appears to overlap with the designated interval of another field or fields in this district. In the case of conflicting designated intervals you will be required to be consistent in field designation on this lease. Further, if the designated interval overlap of wells on this lease results in an actual or potential double assignment of reservoir and the applicant cannot conclusively demonstrate that there is no double assignment, the permitted well may not be assigned an allowable until the conflict is resolved. Because of the overlapping designated intervals in this area, issuance of this permit does not guarantee that the completion of the well will be approved or that the well will receive an allowable in any given field, even if that field is listed on the approved permit application.</p>		

Data Validation Time Stamp: Jan 15, 2018 8:28 AM(Current Version)

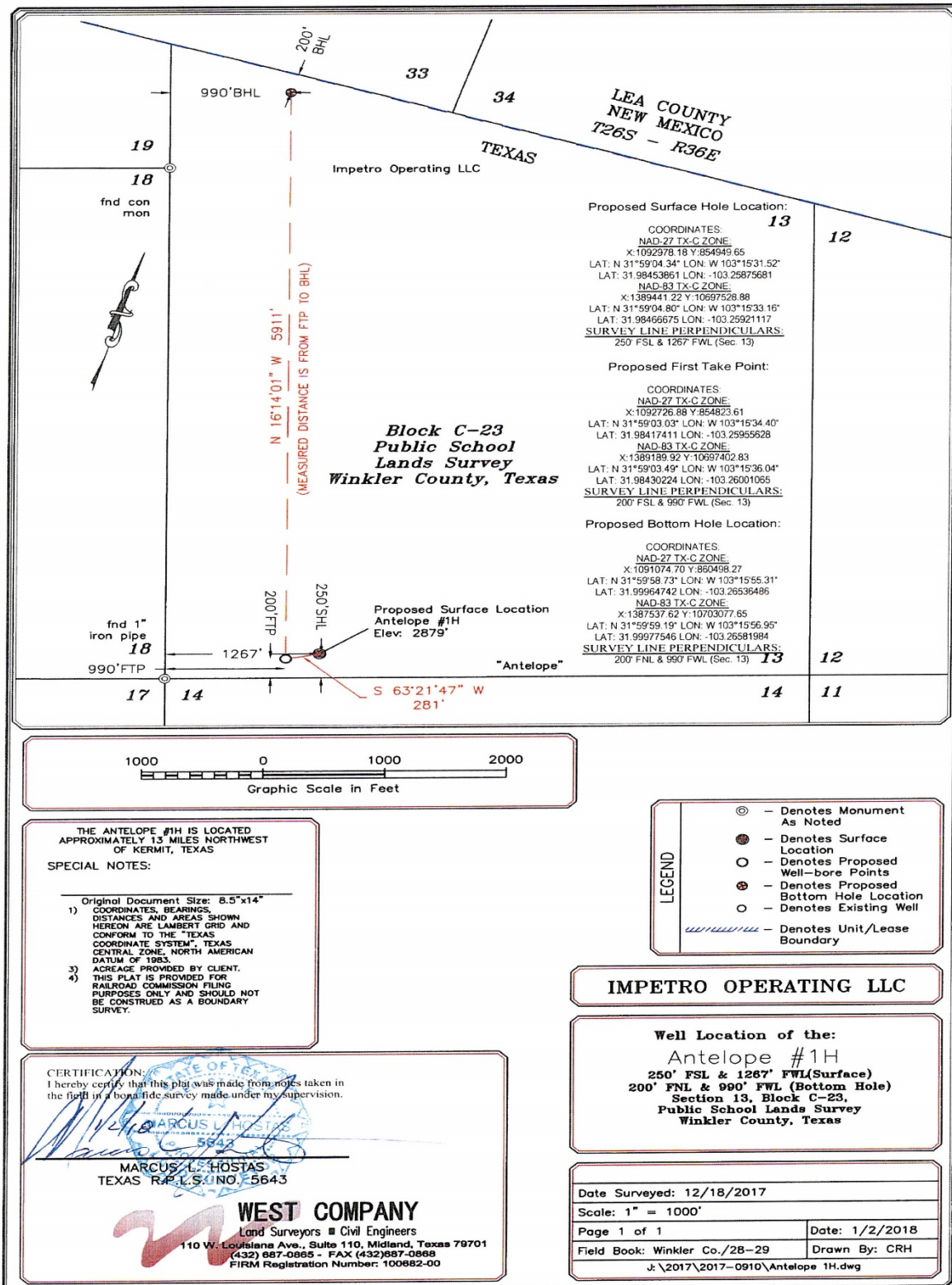
Page 5 of 6

**RAILROAD COMMISSION OF TEXAS
OIL & GAS DIVISION
SWR #13 Formation Data**

WINKLER (495) County

Formation	Shallow Top	Deep Top	Remarks	Geological Order	Effective Date
RUSTLER	725	725	possible flow; possible usable quality water	1	12/17/2013
COLBY-QUEEN	2,900	3,200		2	12/17/2013
YATES	2,280	3,200		3	12/17/2013
QUEEN-SEVEN RIVERS	2,700	3,400		4	12/17/2013
SAN ANDRES	3,600	4,400	high flows, H2S, corrosive	5	12/17/2013
HOLT	4,500	4,800		6	12/17/2013
DELAWARE	4,300	5,000		7	12/17/2013
GLORIETA	4,900	5,600		8	12/17/2013
CLEARFORK	4,750	6,200		9	12/17/2013
WICHITA ALBANY	6,600	6,850		10	12/17/2013
BRUSHY CANYON	7,300	7,300		11	12/17/2013
CHERRY CANYON	6,000	7,800		12	12/17/2013
CANYON	8,400	8,400		13	12/17/2013
BONE SPRINGS	9,000	9,800		14	12/17/2013
MONTOYA	10,300	10,300		15	12/17/2013
WADDELL	11,000	11,000		16	12/17/2013
WOLFCAMP	7,600	12,400		17	12/17/2013
ATOKA	12,900	12,900		18	12/17/2013
STRAWN	8,100	14,800		19	12/17/2013
PENNSYLVANIAN	8,000	15,500		20	12/17/2013
MISSISSIPPIAN	10,200	17,300		21	12/17/2013
DEVONIAN	7,900	17,800		22	12/17/2013
SILURIAN	8,500	18,000		23	12/17/2013
FUSSELMAN	9,700	18,800		24	12/17/2013
ELLENBURGER	9,500	21,400		25	12/17/2013

The above list may not be all inclusive, and may also include formations that do not intersect all wellbores. Formation "TOP" information listed reflects an estimated range based on geologic variances across the county. To clarify, the "Deep Top" is not the bottom of the formation; it is the deepest depth at which the "TOP" of the formation has been or might be encountered. This is a dynamic list subject to updates and revisions. It is the operator's responsibility to make sure that at the time of spudding the well the most current list is being referenced. Refer to the RRC website at the following address for the most recent information.
<http://www.rrc.texas.gov/oil-gas/compliance-enforcement/rule-13-geologic-formation-info>

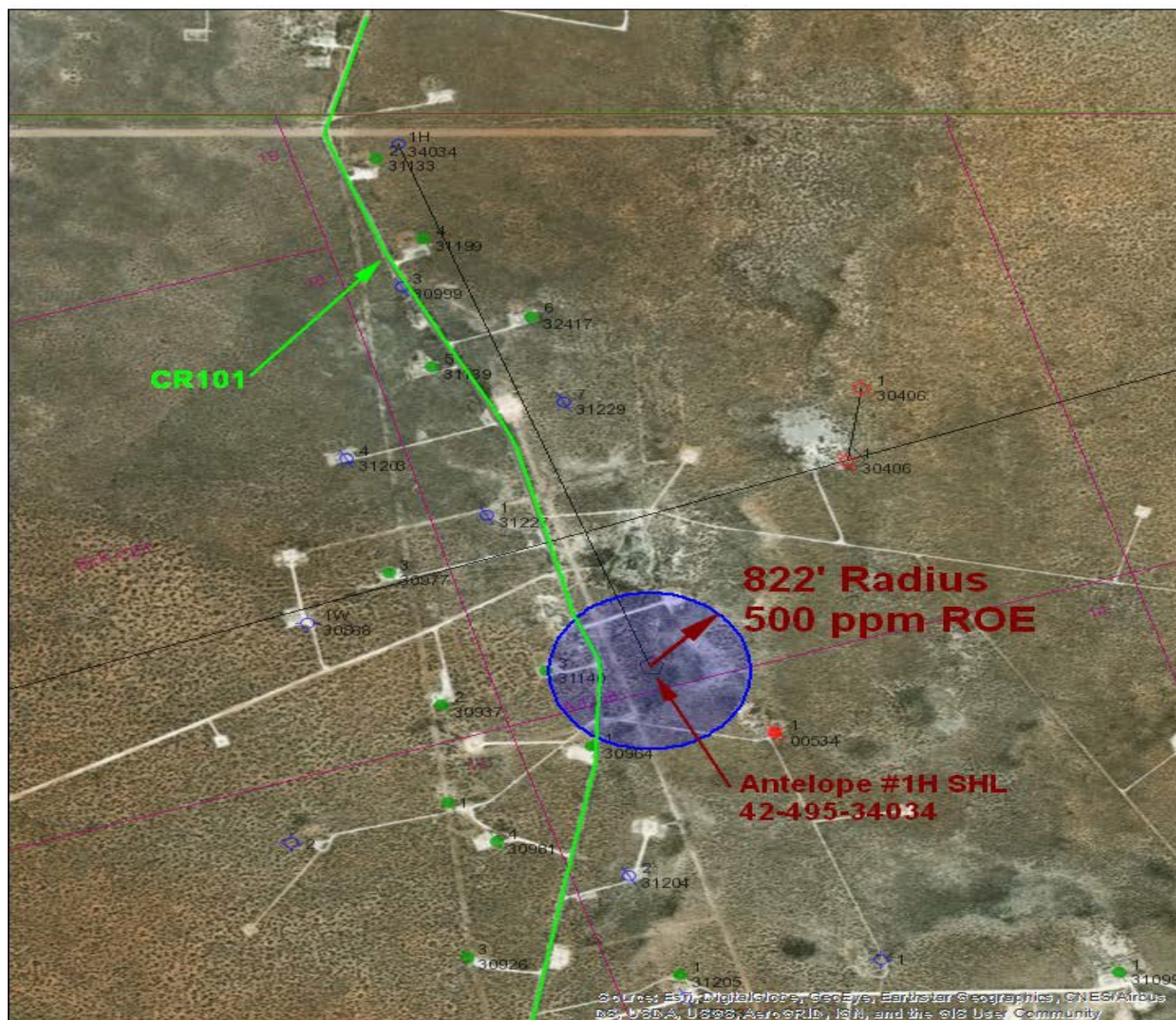


XIV. DIRECTIONS / 3,000' RADIUS MAP

Antelope 1H (N31.98453/W-103.25875)

Winkler Co.

Directions: From the intersection of State Hwy 302 and CR 101 go north 12.5 miles .
Well is located 417' off to the east side of CR 101.



XV. APPENDICES AND GENERAL INFORMATION

Radius of Exposure Affected Notification List

(within a 65' radius of exposure @100ppm)

The geologic zones that will be encountered during drilling are known to contain hazardous quantities of H₂S. The accompanying map illustrates the affected areas of the community. The residents within this radius will be notified via a hand delivered written notice describing the activities, potential hazards, conditions of evacuation, evacuation drill siren alarms and other precautionary measures.

Evacuee Description: Residents:

Notification Process:

A continuous siren audible to all residence will be activated, signaling evacuation of previously notified and informed residents.

Evacuation Plan:

All evacuees will migrate lateral to the wind direction.

The Operating Company will identify all home bound or highly susceptible individuals and make special evacuation preparations, interfacing with the local and emergency medical service as necessary.

Toxic Effects of H₂S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity – 1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen Sulfide and other gases are compared below in Table 1. Toxicity table for H₂S and physical effects are shown in Table 2.

Table 1
Permissible Exposure Limits of Various Gases

<u>Common Name</u>	<u>Symbol</u>	<u>Sp. Gravity</u>	<u>TLV</u>	<u>STEL</u>	<u>IDLH</u>
Hydrogen Cyanide	HCN	.94	4.7 ppm	4.7 ppm	50 ppm
Hydrogen Sulfide	H ₂ S	1.192	10 ppm	15 ppm	100 ppm

Sulfide Dioxide	SO ₂	2.21	2 ppm	5 ppm	100 ppm
Chlorine	CL	2.45	.5 ppm	1 ppm	10 ppm
Carbon Monoxide	CO	.97	25 ppm	200 ppm	1200 ppm
Carbon Dioxide	CO ₂	1.52	5000 ppm	30,000 ppm	40,000 ppm
Methane	CH ₄	.55	5% LEL	15% UEL	

Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists) and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H₂S is 20 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H₂S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed based on a TWA.

Toxicity Table of H₂S

<u>Percent %</u>	<u>PPM</u>	<u>Physical Effects</u>
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure.
.0015	15	STEL for 15 minutes of exposure.
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes .
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H₂S

The properties of all gases are usually described in the context of seven major categories:

- COLOR
- ODOR
- VAPOR DENSITY
- EXPLOSIVE LIMITS
- FLAMMABILITY
- SOLUBILITY (IN WATER)
- BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence. In fact that makes this gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H₂S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H₂S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.0% TO 44%

Mixed with the right proportion of air or oxygen, H₂S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO₂), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S may release the gas into the air.

BOILING POINT – (-77° Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

RESPIRATOR USE

The Occupational Safety and Health Administration (OSHA) regulate the use of respiratory protection to protect the health of employees. OSHA's requirements are written in the Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection. This regulation requires that all employees who might be required to wear respirators, shall complete an OSHA mandated medical evaluation questionnaire. The employee then should be fit tested prior to wearing any respirator while being exposed to hazardous gases.

Written procedures shall be prepared covering safe use of respirators in dangerous atmospheric situations, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available respirators.

Respirators shall be inspected prior to and after each use to make sure that the respirator has been properly cleaned, disinfected and that the respirator works properly. The unit should be fully charged prior to being used.

Anyone who may use respirators shall be properly trained in how to properly seal the face piece. They shall wear respirators in normal air and then in a test atmosphere. (Note: Such items as facial hair (beard or sideburns) and eyeglass temple pieces will not allow a proper seal.) Anyone who may be expected to wear respirators should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses. Contact lenses should not be allowed.

Respirators shall be worn during the following conditions:

- A. Any employee who works near the top or on the top of any tank unless tests reveal less than 20 ppm of H₂S.
- B. When breaking out any line where H₂S can reasonably be expected.
- C. When sampling air in areas where H₂S may be present.
- D. When working in areas where the concentration of H₂S exceeds the Threshold Limit Value for H₂S (10 ppm).
- E. At any time where there is a doubt as to the H₂S level in the area to be entered.

EMERGENCY RESCUE PROCEDURES

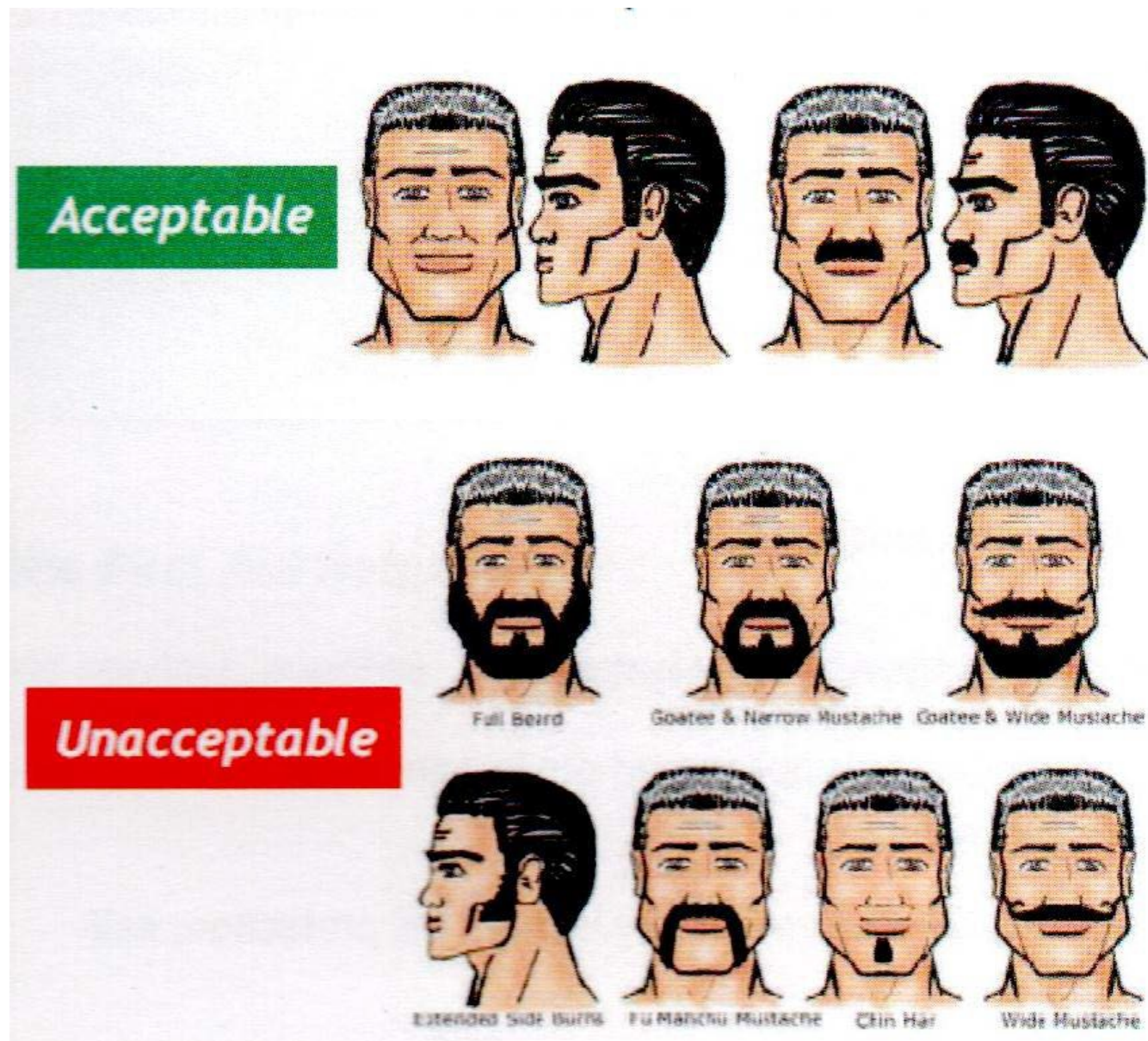
DO NOT PANIC!!!

Remain Calm – Think

1. Before attempting any rescue you must first get out of the hazardous area yourself. Go to a safe briefing area.
2. Sound alarm and activate the 911 system.
3. Put on breathing apparatus. At least two persons should do this, when available use the buddy system.
4. Rescue the victim and return them to a safe briefing area.
5. Perform an initial assessment and begin proper First Aid/CPR procedures.
6. Keep victim lying down with a blanket or coat, etc., under the shoulders to keep airway open. Conserve body heat and do not leave unattended.
7. If the eyes are affected by H₂S, wash them thoroughly with potable water. For slight irritation, cold compresses are helpful.
8. In case a person has only minor exposure and does not lose consciousness totally, it's best if he doesn't return to work until the following day.
9. Any personnel overcome by H₂S should always be examined by medical personnel. They should always be transported to a hospital or doctor.

Facial Hair – Clean Shaven Examples

Purpose: To define clean shaven expectations in the field for: 1) Respirator Use, if applicable and 2) First Aid Administration, if situation occurs related to H2S exposure, having no facial hair can greatly benefit response time and treatment ability.





U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

SUPO Data Report

02/10/2021

APD ID: 10400037174

Submission Date: 02/01/2019

Highlighted data
reflects the most
recent changes

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Lilis_PrizehogA1HFed_ExistingAccessRoads_20190510095130.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Lilis_PrizehogA1HFed_NewAccessRoads_20190510095308.pdf

New road type: LOCAL

Length: 12287

Feet

Width (ft.): 24

Max slope (%): 3

Max grade (%): 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: PER BLM ONSITE: NO SPECIAL REQUIREMENTS OTHER THAN THOSE OUTLINED IN THE GOLD BOOK AND BLM 9113 - ROADS MANUAL. ROADSIDE DITCHES WILL CONFORM TO THE SLOPE, GRADE, AND SHAPE OF THE RELEVANT CROSS SECTIONS AS SHOWN IN BLM GOLD BOOK FIGURE 3. SIDE DITCHES WILL BE EXCAVATED TO A MINIMUM OF 1-FOOT BELOW THE FINISHED ROAD SURFACE. ROAD ROUTE WAS CAREFULLY SELECTED TO FIT THE GRADIENT AS CLOSE AS POSSIBLE TO THE NATURAL TERRAIN AND TO MINIMIZE EFFECTS ON NATURAL DRAINAGE IN ORDER TO REDUCE POTENTIAL EROSION. CALICHE WILL BE UTILIZED IN ROAD CONSTRUCTION TO REDUCE EROSION.

New road access plan or profile prepared? NO

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**New road access plan attachment:****Access road engineering design?** NO**Access road engineering design attachment:****Turnout?** N**Access surfacing type:** OTHER**Access topsoil source:** ONSITE**Access surfacing type description:** CALICHE**Access onsite topsoil source depth:** 6**Offsite topsoil source description:**

Onsite topsoil removal process: Top soil will be removed and kept separate from other material. The stockpile of top soil will be kept near removal and reclamation points on the edge of the pad. Topsoil storage piles will not exceed 3 feet in height wherever possible.

Access other construction information:**Access miscellaneous information:****Number of access turnouts:****Access turnout map:**

Drainage Control

New road drainage crossing: LOW WATER, WATERDIP

Drainage Control comments: PER BLM ONSITE: NO SPECIAL REQUIREMENTS OTHER THAN THOSE OUTLINED IN THE GOLD BOOK AND BLM 9113 - ROADS MANUAL. ROADSIDE DITCHES WILL CONFORM TO THE SLOPE, GRADE, AND SHAPE OF THE RELEVANT CROSS SECTIONS AS SHOWN IN BLM GOLD BOOK FIGURE 3. SIDE DITCHES WILL BE EXCAVATED TO A MINIMUM OF 1-FOOT BELOW THE FINISHED ROAD SURFACE. ROAD ROUTE WAS CAREFULLY SELECTED TO FIT THE GRADIENT AS CLOSE AS POSSIBLE TO THE NATURAL TERRAIN AND TO MINIMIZE EFFECTS ON NATURAL DRAINAGE IN ORDER TO REDUCE POTENTIAL EROSION. CALICHE WILL BE UTILIZED IN ROAD CONSTRUCTION TO REDUCE EROSION.

Road Drainage Control Structures (DCS) description: none**Road Drainage Control Structures (DCS) attachment:**

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES**Attach Well map:**

Prizehog_FED_COM_1H_1_Mile_Radius_Map_20190513093457.pdf

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT**Production Facilities description:** Facilities will be located in the northeastern corner of the same pad as the Prizehog A wells.**Production Facilities map:**

Prizehog_A_Fed_Com_1H_Production_Facilities_v3_5_10_19_20190510094115.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL**Water source use type:**
SURFACE CASING
STIMULATION
INTERMEDIATE/PRODUCTION
CASING**Source latitude:** 31.95461**Source longitude:** -103.25077**Source datum:** NAD83**Water source permit type:** WATER WELL**Water source transport method:**
PIPELINE
TRUCKING**Source land ownership:** PRIVATE**Source transportation land ownership:** PRIVATE**Water source volume (barrels):** 500000**Source volume (acre-feet):** 64.44655**Source volume (gal):** 21000000**Water source and transportation map:**

Lilis_PrizehogA1HFed_FreshWaterWellLocation_20190510122918.pdf

Water source comments:**New water well?** NO

New Water Well Info

Well latitude:**Well Longitude:****Well datum:**

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Well target aquifer:****Est. depth to top of aquifer(ft):****Est thickness of aquifer:****Aquifer comments:****Aquifer documentation:****Well depth (ft):****Well casing type:****Well casing outside diameter (in.):****Well casing inside diameter (in.):****New water well casing?****Used casing source:****Drilling method:****Drill material:****Grout material:****Grout depth:****Casing length (ft.):****Casing top depth (ft.):****Well Production type:****Completion Method:****Water well additional information:****State appropriation permit:****Additional information attachment:**

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: FOR THIS LOCATION, CALICHE WILL BE OBTAINED FROM THE BECKHAM RANCH PIT, A PRIVATELY OWNED LOCATION IN T 26 S R 35 E SECTION 19 LEA COUNTY, NM. WHERE MORE EFFICIENT OR RECOMMENDED, CALICHE MAY BE OBTAINED BY "TURNING OVER" THE LOCATION IN AN APPROVED MANNER AFTER A CALICHE PERMIT IS GRANTED BY THE BLM.

Construction Materials source location attachment:

Lilis_PrizehogA1HFed_CalichePitLocation_20190510101125.pdf

Section 7 - Methods for Handling Waste

Waste type: FLOWBACK**Waste content description:** PRODUCED WATER**Amount of waste:** 100000 barrels**Waste disposal frequency :** Daily

Safe containment description: PRODUCED WATER WILL INITIALLY BE STORED IN TEMPORARY STEEL FRAC TANKS THEN PERMANENT FIBERGLASS TANKS RANGING IN SIZE FROM 400 BBL - 500 BBL. WATER WILL INITIALLY BE HAULED TO AN OFF-LEASE SALTWATER DISPOSAL WELL.

Safe containmant attachment:**Waste disposal type:** OFF-LEASE INJECTION **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** WINKLER COUNTY, TX

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Waste type:** SEWAGE**Waste content description:** SEWAGE FROM TEMPORARY RESTROOM FACILITIES**Amount of waste:** 100 gallons**Waste disposal frequency :** Weekly**Safe containment description:** TEMPORARY RESTROOM FACILITY WITH LINED BOTTOM CONTAINER AND SPRING ACTIVATED DOOR TO KEEP UNWANTED SPECIES FROM ENTERING.**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** AFFORDABLE VACUUM SERVICE IN MIDLAND, TX**Waste type:** GARBAGE**Waste content description:** GENERAL TRASH FROM OPERATIONS, CAMP GARBAGE**Amount of waste:** 1000 pounds**Waste disposal frequency :** Weekly**Safe containment description:** TRAILER WITH METAL ENCLOSURE**Safe containmant attachment:****Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE**Disposal type description:****Disposal location description:** AFFORDABLE VACUUM SERVICE IN MIDLAND, TX

Reserve Pit

Reserve Pit being used? NO**Temporary disposal of produced water into reserve pit?****Reserve pit length (ft.)** **Reserve pit width (ft.)****Reserve pit depth (ft.)** **Reserve pit volume (cu. yd.)****Is at least 50% of the reserve pit in cut?****Reserve pit liner****Reserve pit liner specifications and installation description**

Cuttings Area

Cuttings Area being used? NO**Are you storing cuttings on location?** YES

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H

Description of cuttings location CUTTINGS WILL BE COLLECTED IN STEEL BINS AND HAULED OFF LEASE BY A THIRD PARTY TO BE DISPOSED OF AT AN APPROVED FACILITY.

Cuttings area length (ft.)**Cuttings area width (ft.)****Cuttings area depth (ft.)****Cuttings area volume (cu. yd.)****Is at least 50% of the cuttings area in cut?****WCuttings area liner****Cuttings area liner specifications and installation description**

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO**Ancillary Facilities attachment:****Comments:**

Section 9 - Well Site Layout

Well Site Layout Diagram:

Prizehog_A_Fed_Com_1H_Performance__28_Layout_v2_5_10_2019_20190510101139.pdf

Comments: No reserve pit.

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance**Multiple Well Pad Name:** PRIZEHOG A FEDERAL STATE COM**Multiple Well Pad Number:** 1**Recontouring attachment:**

Drainage/Erosion control construction: PER ON-SITE, NO SPECIAL DRAINAGE/EROSION CONTROL MECHANISMS ARE REQUIRED FOR THIS LOCATION. PAD AND ROADS WILL BE BUILT ACCORDING TO BLM GOLD BOOK AND REPRESENTATIVE RECOMMENDATIONS.

Drainage/Erosion control reclamation: PER ON-SITE, NO SPECIAL DRAINAGE/EROSION CONTROL MECHANISMS ARE REQUIRED FOR THIS LOCATION. RECLAMATION WILL BE PERFORMED ACCORDING TO BLM GOLD BOOK AND REPRESENTATIVE RECOMMENDATIONS. AREAS PLANNED FOR RECLAMATION WILL BE RECONTOURED TO THE ORIGINAL CONTOUR IF FEASIBLE, OR TO A CONTOUR WHICH BLENDS WITH THE SURROUNDING TOPOGRAPHY AS MUCH AS POSSIBLE. WHERE APPLICABLE, THE FILL MATERIAL OF THE AREA WILL BE BACKFILLED INTO THE CUT TO BRING THE AREA BACK TO THE ORIGINAL CONTOUR. THE INTERIM CUT AND FILL SLOPES PRIOR TO RE-SEEDING WILL NOT BE STEEPER THAN A 3:1 RATIO UNLESS ADJACENT NATIVE TOPOGRAPHY IS STEEPER. CONSTRUCTED SLOPES MAY BE STEEPER DURING DRILLING, BUT WILL BE RECONTOURED TO THE ABOVE RATIOS DURING RECLAMATION.

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Well pad proposed disturbance (acres): 5.2	Well pad interim reclamation (acres): 0.86	Well pad long term disturbance (acres): 4.34
Road proposed disturbance (acres): 0	Road interim reclamation (acres): 0	Road long term disturbance (acres): 0
Powerline proposed disturbance (acres): 1.69	Powerline interim reclamation (acres): 0	Powerline long term disturbance (acres): 1.69
Pipeline proposed disturbance (acres): 0	Pipeline interim reclamation (acres): 0	Pipeline long term disturbance (acres): 0
Other proposed disturbance (acres): 19.58	Other interim reclamation (acres): 11.47	Other long term disturbance (acres): 8.11
Total proposed disturbance: 26.47	Total interim reclamation: 12.33	Total long term disturbance: 14.14

Disturbance Comments:

Reconstruction method: PRIOR TO FINAL RECLAMATION PROCEDURES, THE WELL PAD, ROAD, AND SURROUNDING AREA WILL BE CLEARED OF MATERIAL, TRASH, AND EQUIPMENT. ALL SURFACING MATERIAL WILL BE REMOVED AND RETURNED TO THE ORIGINAL MINERAL PIT OR RECYCLED TO REPAIR OR BUILD ROADS AND WELL PADS. ALL DISTURBED AREA WILL BE RECONTOURED TO THE CONTOUR EXISTING PRIOR TO INITIAL CONSTRUCTION OR A CONTOUR THAT BLENDS INDISTINGUISHABLY WITH THE SURROUNDING LANDSCAPE. TOPSOIL WILL BE REDISTRIBUTED EVENLY OVER THE ENTIRE DISTURBED SITE TO ENSURE SUCCESSFUL REVEGETATION. AFTER ALL DISTURBED AREAS HAVE BEEN PROPERLY PREPARED, THE AREAS WILL BE SEEDED WITH THE PROPER BLM SEED MIXTURE, FREE OF NOXIOUS WEEDS. FINAL SEEDBED PREPARATION WILL CONSIST OF CONTOUR CULTIVATING TO A DEPTH OF 4-6 INCHES WITHIN 24 HOURS PRIOR TO SEEDING, DOZER TRACKING, OR OTHER IMPRINTING IN ORDER TO BREAK THE SOIL CRUST AND CREATE GERMINATION MICRO-SITES.

Topsoil redistribution: TOP SOIL WILL BE EVENLY RESPREAD AND AGGRESSIVELY VEGETATED OVER THE ENTIRE DISTURBED AREA NOT NEED FOR ALL-WEATHER OPERATION INCLUDING CUTS AND FILLS.

Soil treatment: FINAL SEEDBED PREPARATION WILL CONSIST OF CONTOUR CULTIVATING TO A DEPTH OF 4-6 INCHES WITHIN 24 HOURS PRIOR TO SEEDING, DOZER TRACKING, OR OTHER IMPRINTING IN ORDER TO BREAK THE SOIL CRUST AND CREATE GERMINATION MICRO-SITES.

Existing Vegetation at the well pad: mesquite, croton, snakeweed, narrow-leaf yucca, sand sage, shinnery oak, prickly pear, horse creeper, four-wing saltbush

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: mesquite, croton, snakeweed, narrow-leaf yucca, sand sage, shinnery oak, prickly pear, horse creeper, four-wing saltbush

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: mesquite, croton, snakeweed, narrow-leaf yucca, sand sage, shinnery oak, prickly pear, horse creeper, four-wing saltbush

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: mesquite, croton, snakeweed, narrow-leaf yucca, sand sage, shinnery oak, prickly pear, horse creeper, four-wing saltbush

Existing Vegetation Community at other disturbances attachment:

Non native seed used?

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? YES

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Seedling transplant description attachment:****Will seed be harvested for use in site reclamation?****Seed harvest description:****Seed harvest description attachment:****Seed Management****Seed Table****Seed Summary****Total pounds/Acre:****Seed Type****Pounds/Acre****Seed reclamation attachment:****Operator Contact/Responsible Official Contact Info****First Name:****Last Name:****Phone:****Email:****Seedbed prep:****Seed BMP:****Seed method:****Existing invasive species? NO****Existing invasive species treatment description:****Existing invasive species treatment attachment:****Weed treatment plan description:** INVASIVE/NOXIOUS WEEDS WILL BE MONITORED PERIODICALLY AND CONTROLLED THROUGH INTERIM RECLAMATION AS DICTATED BY THE BLM SOIL RESOURCES COA AND BLM REPRESENTATIVE.**Weed treatment plan attachment:****Monitoring plan description:** SITES ARE MONITORED DAILY BY IMPETRO GAUGERS, WHO WILL ALSO PERIODICALLY MONITOR ANY INTERIM RECLAMATION.**Monitoring plan attachment:****Success standards:** FINAL RECLAMATION WILL BE DEEMED A SUCCESS IF THE LANDSCAPE APPEARS, TO A REASONABLE DEGREE, TO HAVE BEEN MINIMALLY ALTERED PERMANENTLY BY OIL AND GAS ACTIVITY. SUCCESS STANDARDS MAY BE ALTERED AT THE TIME OF FINAL RECLAMATION BY THE LAND OWNER'S REQUIREMENTS OR RECOMMENDATIONS, SUCH AS LEAVING A FRAC POND TO AGRICULTURAL USE.**Pit closure description:** RESERVE PIT WILL NOT BE USED FOR THIS WELL.**Pit closure attachment:**

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Section 11 - Surface Ownership****Disturbance type:** WELL PAD**Describe:****Surface Owner:** PRIVATE OWNERSHIP**Other surface owner description:****BIA Local Office:****BOR Local Office:****COE Local Office:****DOD Local Office:****NPS Local Office:****State Local Office:****Military Local Office:****USFWS Local Office:****Other Local Office:****USFS Region:****USFS Forest/Grassland:****USFS Ranger District:****Fee Owner:** City of Jal**Fee Owner Address:****Phone:** (575)441-6926**Email:** vanmyrick@cityofjal.us**Surface use plan certification:** YES**Surface use plan certification document:**

E_signed_SUA_City_of_Jal_20190507143107.pdf

Surface access agreement or bond: Agreement**Surface Access Agreement Need description:** Executed SUA included**Surface Access Bond BLM or Forest Service:****BLM Surface Access Bond number:****USFS Surface access bond number:**

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP,STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: SANTA FE, NM

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Disturbance type: OTHER

Describe: Multi Use ROW

Surface Owner: BUREAU OF LAND MANAGEMENT,PRIVATE OWNERSHIP,STATE GOVERNMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office: SANTA FE, NM

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Disturbance type:** TRANSMISSION LINE**Describe:****Surface Owner:** PRIVATE OWNERSHIP,STATE GOVERNMENT**Other surface owner description:****BIA Local Office:****BOR Local Office:****COE Local Office:****DOD Local Office:****NPS Local Office:****State Local Office:** SANTA FE, NM**Military Local Office:****USFWS Local Office:****Other Local Office:****USFS Region:****USFS Forest/Grassland:****USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? YES**Use APD as ROW?** YES**ROW Type(s):** 281001 ROW - ROADS,288100 ROW – O&G Pipeline,288101 ROW – O&G Facility Sites,288103 ROW – Salt Water Disposal Pipeline/Facility,289001 ROW- O&G Well Pad,FLPMA (Powerline)

ROW Applications

SUPO Additional Information: MULTIUSE 70' CORRIDOR MAY INCLUDE ROADS, POWERLINES, AND OIL, GAS, PRODUCED WATER, AND FRESHWATER PIPELINES. ANY ROADS CROSSING STATE BOUNDARIES WILL INCLUDE A CATTLEGUARD AND A GATE TO BE LOCKED AT ALL THE TIMES WITH ACCESS KEYS PROVIDED TO BLM, IMPETRO, AND GRAZING TENANT.**Use a previously conducted onsite?** YES**Previous Onsite information:** PRIZEHOG A FED COM 1H ON-SITE CONDUCTED 12/10/2018 BY BLM REP JESSE BASSETT

Other SUPO Attachment

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Prizehog_A_Fed_Com_SUPO_FINAL_Plats_v2_20190516115512.pdf

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U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

PWD Data Report

02/10/2021

APD ID: 10400037174**Submission Date:** 02/01/2019**Operator Name:** AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Well Type:** OIL WELL**Well Work Type:** Drill

Section 1 - General

Would you like to address long-term produced water disposal? YES**Water quality analysis:****PWD Map:**

Beckham__1_SWD_As_Drilled_Signed_07_18_18_20190114153427.pdf

PRIZEHOG_A_FED_COM_1H_PWD_ROUTE_20190114162223.pdf

Average monthly evaporation (in.): 70**Average monthly precipitation (in.):** 13.89**Do you have a Produced Water Management Plan?** NEW**New PWD Plan Name:** PRIZEHOG A FED COM 1H PWD PLAN

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO**Produced Water Disposal (PWD) Location:****PWD surface owner:****PWD disturbance (acres):****Lined pit PWD on or off channel:****Lined pit PWD discharge volume (bbl/day):****Lined pit specifications:****Pit liner description:****Pit liner manufacturers information:****Precipitated solids disposal:****Describe precipitated solids disposal:****Precipitated solids disposal permit:****Lined pit precipitated solids disposal schedule:****Lined pit precipitated solids disposal schedule attachment:****Lined pit reclamation description:****Lined pit reclamation attachment:**

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD disturbance (acres):

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Operator Name: AMEREDEV OPERATING LLC**Well Name:** PRIZEHOG A FEDERAL STATE COM**Well Number:** 1H**Unlined pit: do you have a reclamation bond for the pit?****Is the reclamation bond a rider under the BLM bond?****Unlined pit bond number:****Unlined pit bond amount:****Additional bond information attachment:**

Section 4 - Injection

Would you like to utilize Injection PWD options? YES**Produced Water Disposal (PWD) Location:** OFFLEASE**PWD surface owner:** FEE**PWD disturbance (acres):** 5**Injection PWD discharge volume (bbl/day):** 15000**Injection well mineral owner:** FEE**Injection well type:** EXISTING**Injection well number:** #1**Injection well name:** BECKHAM**Assigned injection well API number?** Y**Injection well API number:** 4249533728**Injection well new surface disturbance (acres):** 0**Minerals protection information:****Mineral protection attachment:****Underground Injection Control (UIC) Permit?** YES**UIC Permit attachment:**

Beckham__1_SWD__W1__Approved_20190111154418.pdf

TRRC_Form_H_1A_Complete__Revised_20190111154437.pdf

TRRC_Form_H_1_Complete_Signed_20190111154448.pdf

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO**Produced Water Disposal (PWD) Location:****PWD surface owner:****PWD disturbance (acres):****Surface discharge PWD discharge volume (bbl/day):****Surface Discharge NPDES Permit?****Surface Discharge NPDES Permit attachment:****Surface Discharge site facilities information:****Surface discharge site facilities map:**

Section 6 - Other

Would you like to utilize Other PWD options? NO

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

02/10/2021

APD ID: 10400037174

Submission Date: 02/01/2019

Highlighted data
reflects the most
recent changes

Operator Name: AMEREDEV OPERATING LLC

Well Name: PRIZEHOG A FEDERAL STATE COM

Well Number: 1H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
376644	RUSTLER	2931	1900	1900	ANHYDRITE	USEABLE WATER	N
451628	CAPITAN REEF	441	2490	2490	LIMESTONE	NONE	N
451627	BELL CANYON	-1989	4920	4920	SANDSTONE	NONE	N
376645	CHERRY CANYON	-3020	5951	5951	SANDSTONE	NONE	N
376673	BRUSHY CANYON	-4540	7471	7471	SANDSTONE	NONE	N
503506	AVALON SAND	-5819	8750	8750	SANDSTONE	NONE	N
376674	BONE SPRING 1ST	-6030	8961	8961	LIMESTONE	NONE	N
503504	BONE SPRING 2ND	-7119	10050	10050	SANDSTONE	NONE	N
503505	BONE SPRING 3RD	-7969	10900	10900	SANDSTONE	NONE	N
376675	WOLFCAMP	-9078	12009	12009	SHALE	OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M

Rating Depth: 15000

Equipment: AS PER BLM REQUIREMENTS

Requesting Variance? NO

Variance request:

Testing Procedure: AS PER BLM REQUIREMENTS

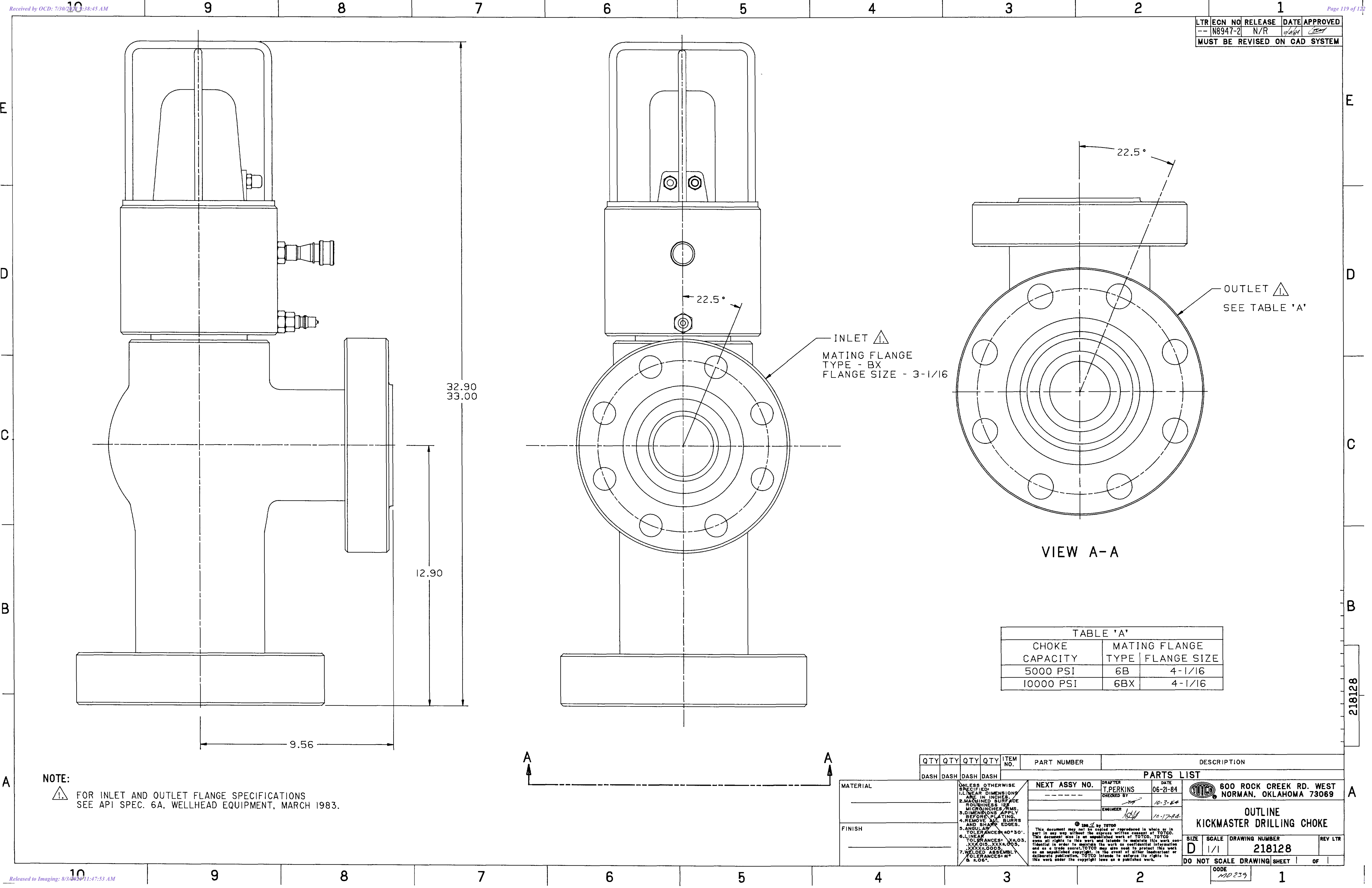
Choke Diagram Attachment:

Lilis_Choke_Diagram_20190117105024.pdf


Lilis_Choke_Diagram__2_20190514142441.pdf


Lilis_Choke_Diagram__3_v4_20190724123020.pdf





LTR	ECN	NO	RELEASE	DATE	APPROVED
--	N8947-2		N/R	9/16/84	CSM
MUST BE REVISED ON CAD SYSTEM					



INLET 
MATING FLANGE
TYPE - BX
FLANGE SIZE - 3-1/16

OUTLET 
SEE TABLE 'A'

VIEW A-A

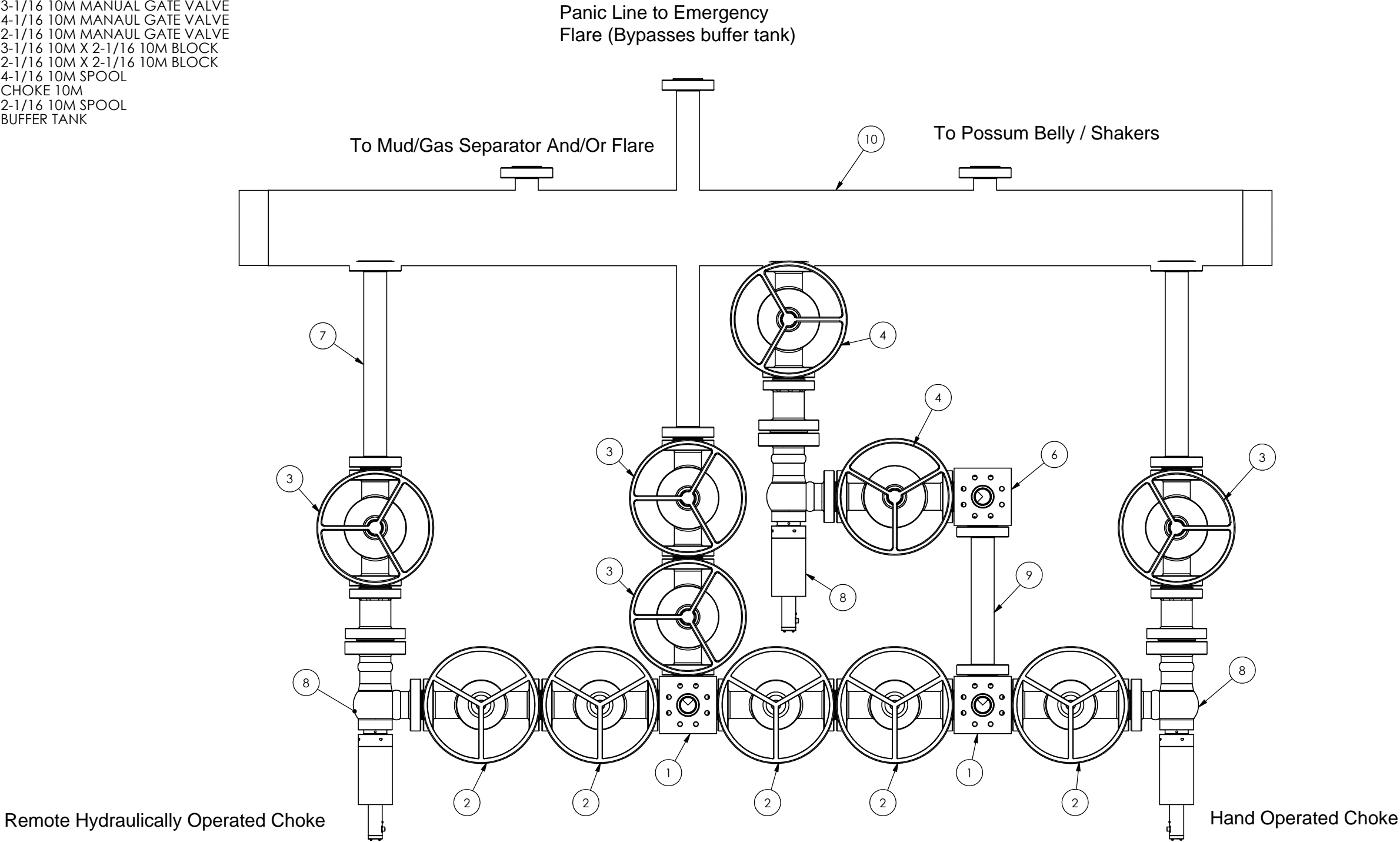
TABLE 'A'		
CHOKE CAPACITY	MATING FLANGE TYPE	FLANGE SIZE
5000 PSI	6B	4-1/16
10000 PSI	6BX	4-1/16

NOTE:
 FOR INLET AND OUTLET FLANGE SPECIFICATIONS
SEE API SPEC. 6A, WELLHEAD EQUIPMENT, MARCH 1983.

QTY	QTY	QTY	QTY	ITEM NO.	PART NUMBER	DESCRIPTION
DASH	DASH	DASH	DASH			
PARTS LIST						
MATERIAL			NEXT ASSY NO.		DRAFTER T PERKINS	DATE 06-21-84
FINISH					CHECKED BY 	ENGINEER 
					600 ROCK CREEK RD. WEST NORMAN, OKLAHOMA 73069	
					OUTLINE KICKMASTER DRILLING CHOKE	
					SIZE D	SCALE 1/1
					DRAWING NUMBER 218128	REV LTR
					DO NOT SCALE DRAWING	SHEET OF
					CODE ND 239	1

NOTES:

- 1. 3-1/16 10M (2) X 4-1/16 10M (2) X 2-1/16 10M BLOCK
- 2. 3-1/16 10M MANUAL GATE VALVE
- 3. 4-1/16 10M MANAUL GATE VALVE
- 4. 2-1/16 10M MANAUL GATE VALVE
- 5. 3-1/16 10M X 2-1/16 10M BLOCK
- 6. 2-1/16 10M X 2-1/16 10M BLOCK
- 7. 4-1/16 10M SPOOL
- 8. CHOKE 10M
- 9. 2-1/16 10M SPOOL
- 10. BUFFER TANK



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THIS DRAWING AND/OR SPECIFICATION EMBODIES CONFIDENTIAL INFORMATION OF CANNON OILFIELD SERVICES. IN THE ABSENCE OF EXPRESS WRITTEN PERMISSION, CANNON OILFIELD SERVICES HAS LOANED THIS COPY WITH THE UNDERSTANDING THAT (A) IT WILL NOT BE REPRODUCED (B) IT WILL NOT BE USED FOR ANY PURPOSE EXCEPT THAT FOR WHICH IT WAS LOANED AND (C) IT WILL BE RETURNED ON DEMAND OR UPON COMPLETION OF THE CONTRACTED WORK, WHICH EVER COMES FIRST.
ACKNOWLEDGED: _____
DATE: _____

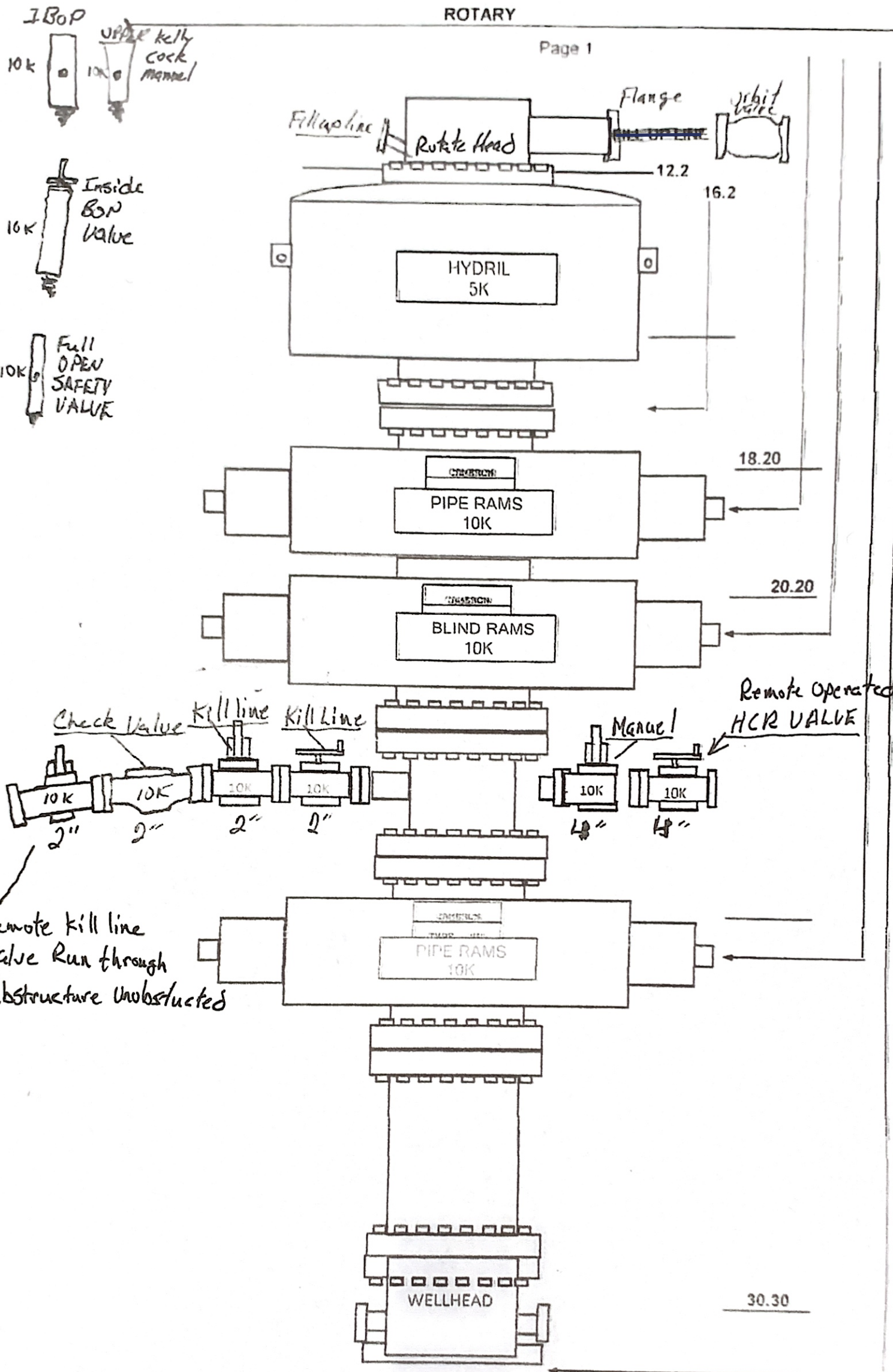
SIGNATURES	DATE
DRAWN:	
CHECKED:	
REVIEWED:	
APPROVED:	
CAD FILE NAME:	
PRIZEHOG	

CANNON OILFIELD SERVICES 10815 HUFFMEISTER HOUSTON, TEXAS 77065				
SCALE	SHEET	SIZE	DRAWING NO.	REV
1:32	1 OF 1	C		

ROTARY

Page 1

"13.625" b section



District I

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

District II

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

District III

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

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 38902

CONDITIONS

Operator: AMEREDEV OPERATING, LLC 2901 Via Fortuna Austin, TX 78746	OGRID: 372224
	Action Number: 38902
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	8/3/2021
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	8/3/2021