Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No. NMNM113898

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No. ONYX 35 FED COM/756H

2. Name of Operator EOG RESOURCES INCORPORATED

9. API Well No. 30-025-51915

3a. Address 1111 BAGBY SKY LOBBY 2, HOUSTON, TX 77(

3b. Phone No. *(include area code)* (713) 651-7000

10. Field and Pool or Exploratory Area HARDIN TANK, BONESPRING

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* SEC 35/T24S/R34E/NMP

11. Country or Parish, State LEA/NM

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

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

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

Onyx 35 Fed Com 601H (FKA 756H) API #: 30-025-51915

EOG respectfully requests an amendment to our approved APD for this well to reflect the following changes:

Change name from Onyx 35 Fed Com 756H to Onyx 35 Fed Com 601H.

Change BHL from T-25-S, R-34-E, Sec 26, 100' FNL, 330' FWL, Lea Co., NM, to T-25-S, R-34-E, Sec 26, 100' FNL, 660' FWL, Lea Co., N.M.

Change target formation to Third Bone Spring Carbonate.

Continued on page 3 additional information

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)* CRAIG RICHARDSON / Ph: (432) 686-3600

Title Regulatory Specialist

Signature (Electronic Submission)

Date 08/31/2023

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by KEITH P IMMATTY / Ph: (575) 988-4722 / Approved

Title ENGINEER

Date 09/28/2023

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

Office CARLSBAD

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

(Instructions on page 2)

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) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 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	Pool Code	Pool Name
30-025- 51915	96661	HARDIN TANK, BONESPRING

Property Code	Property Name	Well Number
334676	ONYX 35 FED COM	601H

OGRID No.	Operator Name	Elevation
7377	EOG RESOURCES, INC.	3294'

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	35	25 S	34 E		658	SOUTH	2259	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	26	25 S	34 E		100	NORTH	660	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
1280			PENDING COM AGREEMENT

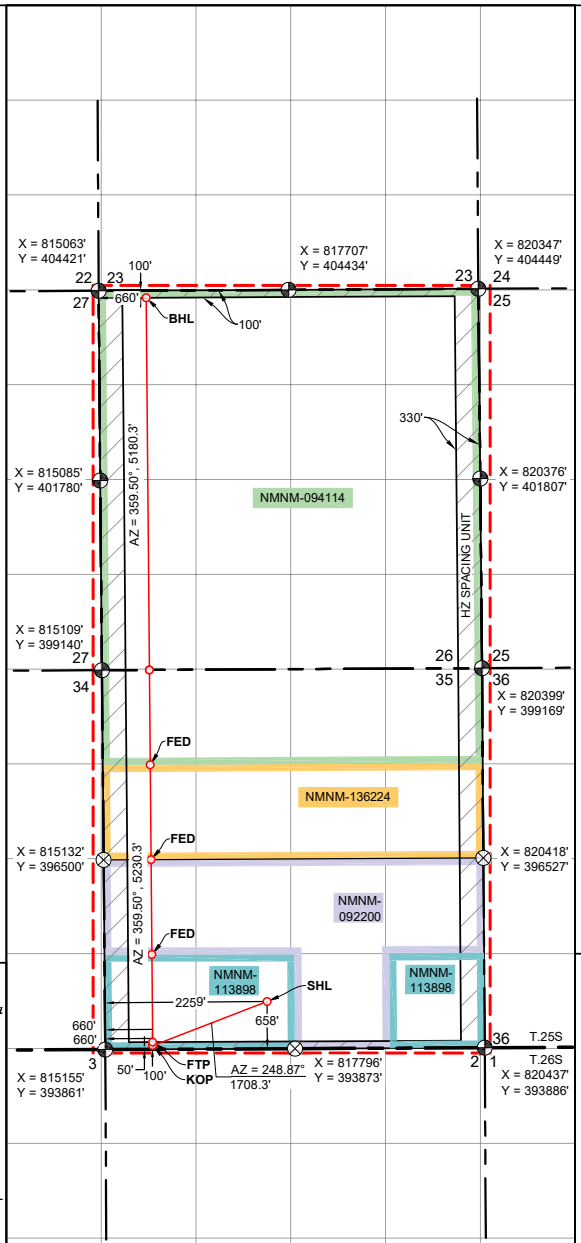
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

SURFACE LOCATION
NEW MEXICO EAST
NAD 1983
X=817408' Y=394530'
LAT=N32.081506°
LONG=W103.441976°
NAD 1927
X=776221' Y=394472'
LAT=N32.081380°
LONG=W103.441511°
658' FSL 2259' FWL

KOP LOCATION
NEW MEXICO EAST
NAD 1983
X=815814' Y=393914'
LAT=N32.079849°
LONG=W103.447137°
NAD 1927
X=774627' Y=393856'
LAT=N32.079724°
LONG=W103.446671°
50' FSL 660' FWL

FIRST TAKE POINT
NEW MEXICO EAST
NAD 1983
X=815814' Y=393964'
LAT=N32.079987°
LONG=W103.447137°
NAD 1927
X=774627' Y=393906'
LAT=N32.079861°
LONG=W103.446672°
100' FSL 660' FWL

FED PERF. POINT
NEW MEXICO EAST
NAD 1983
X=815803' Y=395184'
LAT=N32.083340°
LONG=W103.447139°
NAD 1927
X=774616' Y=395126'
LAT=N32.083215°
LONG=W103.446673°
660' FWL



FED PERF. POINT
NEW MEXICO EAST
NAD 1983
X=815792' Y=396504'
LAT=N32.086969°
LONG=W103.447141°
NAD 1927
X=774605' Y=396446'
LAT=N32.086843°
LONG=W103.446675°
660' FWL

FED PERF. POINT
NEW MEXICO EAST
NAD 1983
X=815780' Y=397824'
LAT=N32.090597°
LONG=W103.447143°
NAD 1927
X=774593' Y=397766'
LAT=N32.090472°
LONG=W103.446677°
660' FWL

LOWER MOST PERF./ BOTTOM HOLE LOCATION
NEW MEXICO EAST
NAD 1983
X=815723' Y=404324'
LAT=N32.108465°
LONG=W103.447154°
NAD 1927
X=774537' Y=404266'
LAT=N32.108340°
LONG=W103.446687°
100' FNL 660' FWL

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 voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Shea Keithley — Signature
8/31/23 — Date

Shea Keithley
Print Name

shea_keithley@eogresources.com
E-mail Address

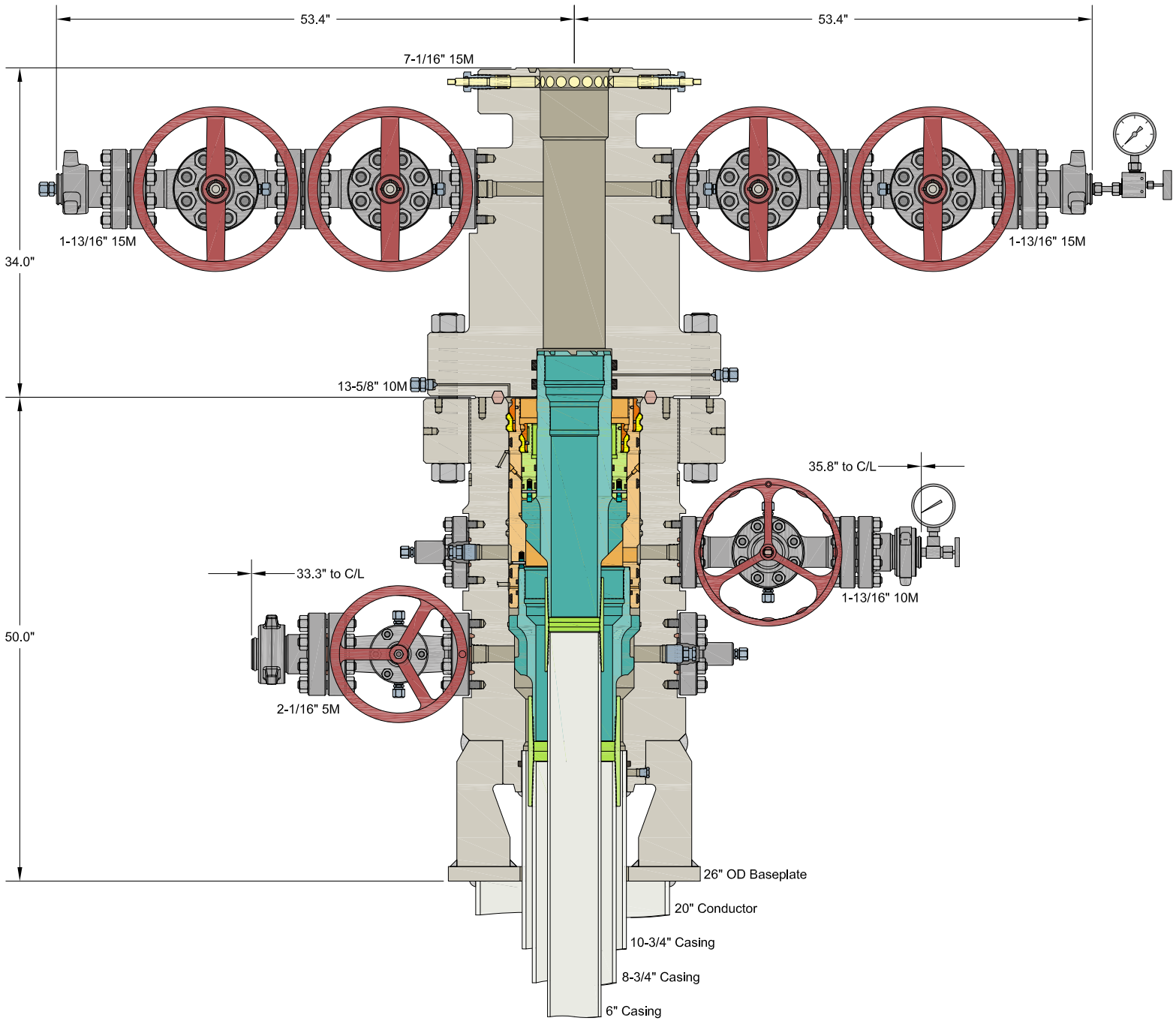
SURVEYORS CERTIFICATION

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.

AUGUST 28, 2023
Date of Survey
Signature and Seal of Professional Surveyor:

RALPH B. CHUSTZ, JR. NEW MEXICO 26264 PROFESSIONAL SURVEYOR
08/30/2023

Job No.: EOG B200023 RALPH B. CHUSTZ, JR. N.M.P.L.S. Certificate Number 26264



ALL DIMENSIONS APPROXIMATE

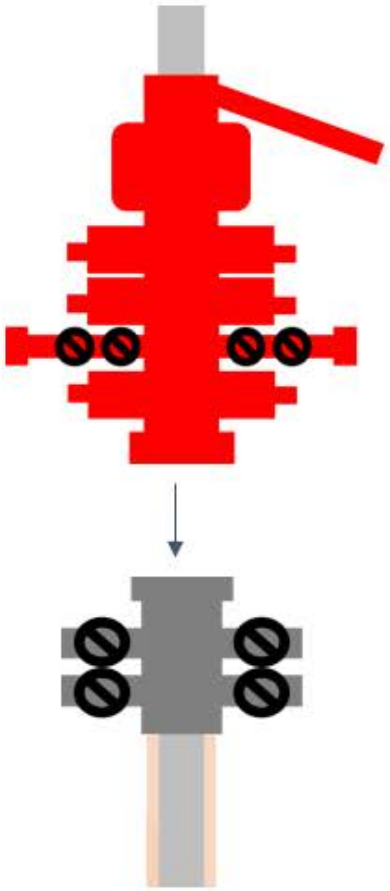
CACTUS WELLHEAD LLC	EOG RESOURCES		
10-3/4" x 8-3/4" x 6" MBU-3T-SF-SOW Wellhead System With 8-5/8" & 6" Pin Bottom Mandrel Casing Hangers And 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head	DRAWN	DLE	14APR21
	APPRV		
	DRAWING NO.	SDT-3141-1	

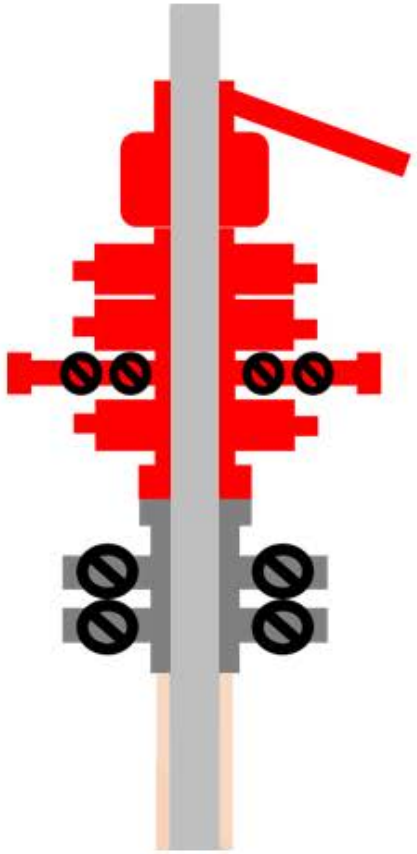
Break-test BOP & Offline Cementing:

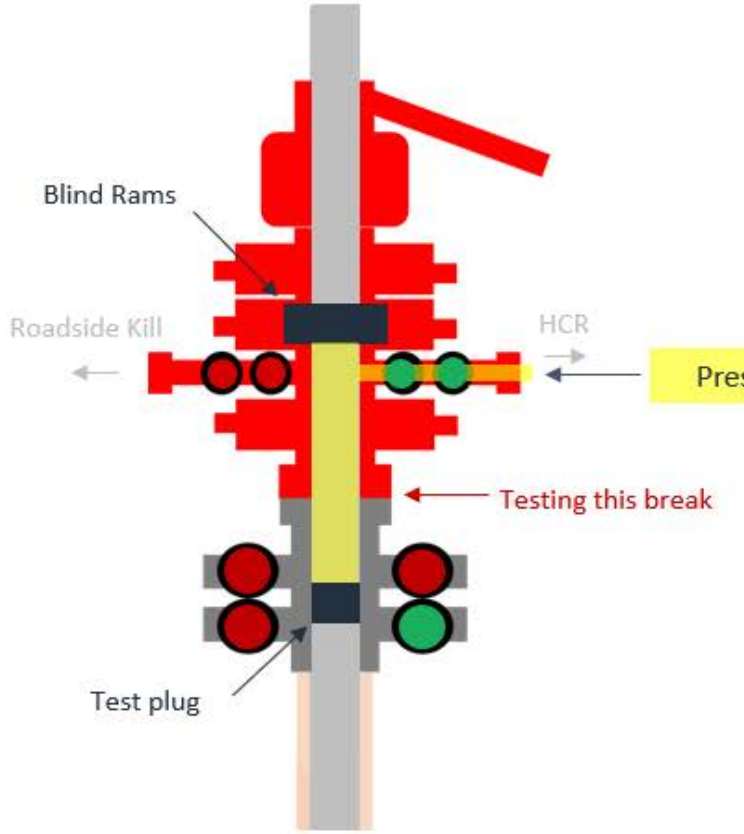
EOG Resources Inc. (EOG) respectfully requests a variance from the minimum standards for well control equipment testing of ECFR Title 43 Part 3172.6(b)(9)(iv) to allow a testing schedule of the blow out preventer (BOP) and blow out prevention equipment (BOPE) along with Batch Drilling & Offline cement operations to include the following:

- Full BOPE test at first installation on the pad.
- Full BOPE test every 21 days.
- This test will be conducted for 5M rated hole intervals only.
- Each rig requesting the break-test variance is capable of picking up the BOP without damaging components using winches, following API Standard 53, Well Control Equipment Systems for Drilling Wells (Fifth edition, December 2018, Annex C. Table C.4) which recognizes break testing as an acceptable practice.
- Function tests will be performed on the following BOP elements:
    - Annular à during each full BOPE test
    - Upper Pipe Rams à On trip ins where FIT required
    - Blind Rams à Every trip
    - Lower Pipe Rams à during each full BOPE test
- Break testing BOP and BOPE coupled with batch drilling operations and option to offline cement and/or remediate (if needed) any surface or intermediate sections, according to attached offline cementing support documentation.
- After the well section is secured, the BOP will be disconnected from the wellhead and walked with the rig to another well on the pad.
- TA cap will also be installed per Wellhead vendor procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

Break Test Diagram (HCR valve)



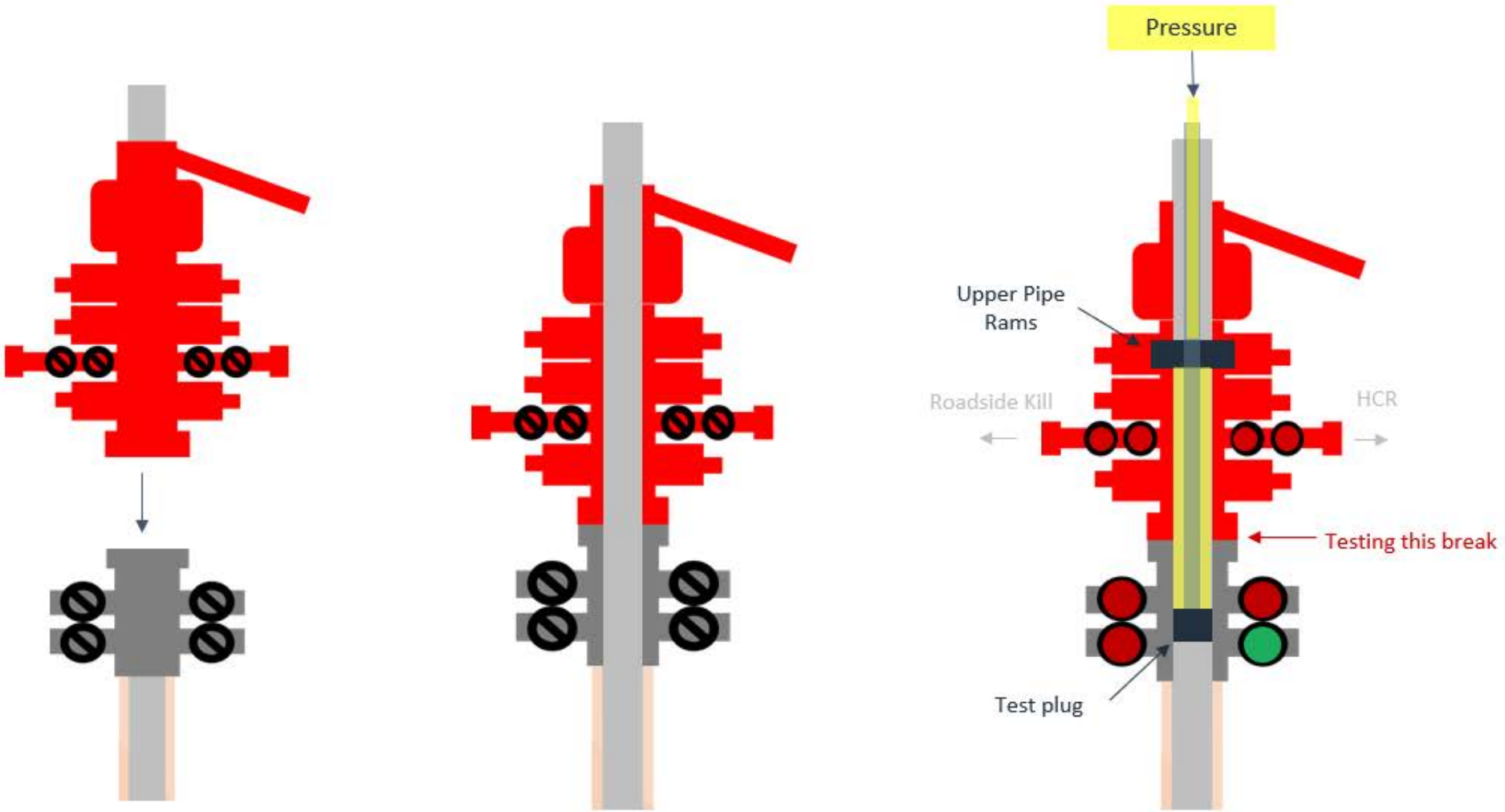




Steps

1. Set plug in wellhead (lower barrier)
2. Close Blind Rams (upper barrier)
3. Close roadside kill
4. Open HCR (pressure application)
5. Open wellhead valves below test plug to ensure if leak past test plug, pressure won't be applied to wellbore
6. Tie BOP testers high pressure line to main choke manifold crown valve
7. Pressure up to test break
8. Bleed test pressure from BOP testing unit

Break Test Diagram (Test Joint)



Steps

1. Set plug in with test joint wellhead (lower barrier)
2. Close Upper Pipe Rams (upper barrier)
3. Close roadside kill
4. Close HCR
5. Open wellhead valves below test plug to ensure if leak past test plug, pressure won't be applied to wellbore
6. Tie BOP testers high pressure line to top of test joint
7. Pressure up to test break
8. Bleed test pressure from BOP testing unit

eog resources

Offline Intermediate Cementing Procedure 2/24/2022

Cement Program

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

Summarized Operational Procedure for Intermediate Casing

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

e. Diagram for rig positioning relative to offline cementing can be seen in Figure 4.

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

Example Well Control Plan Content

A. Well Control Component Table

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

Intermediate hole section, 5M requirement

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

B. Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are the minimal high-level tasks prescribed to assure a proper shut-in while circulating and cementing through the Offline Cement Adapter.

General Procedure While Circulating

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

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

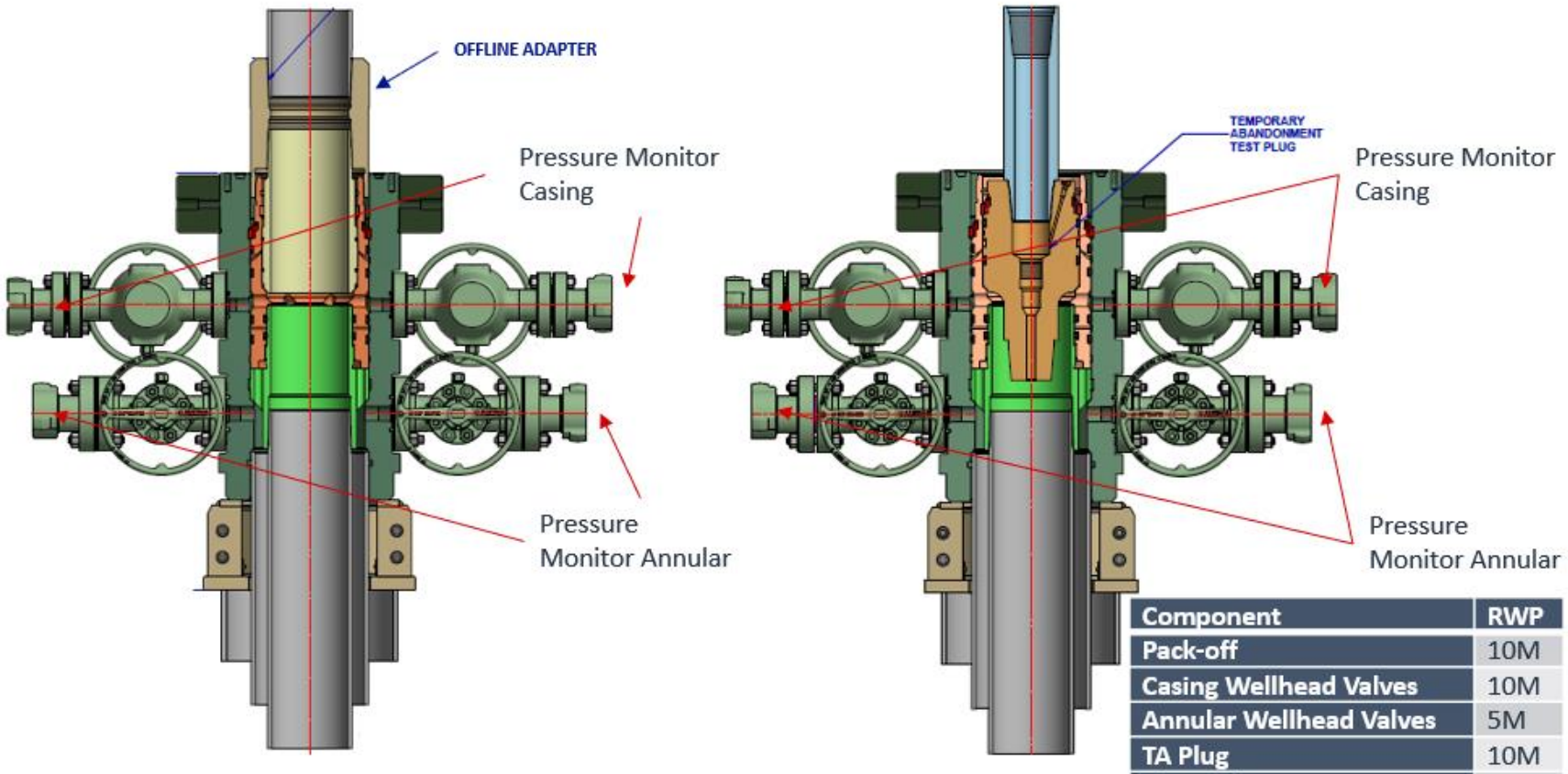
General Procedure While Cementing

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

General Procedure After Cementing

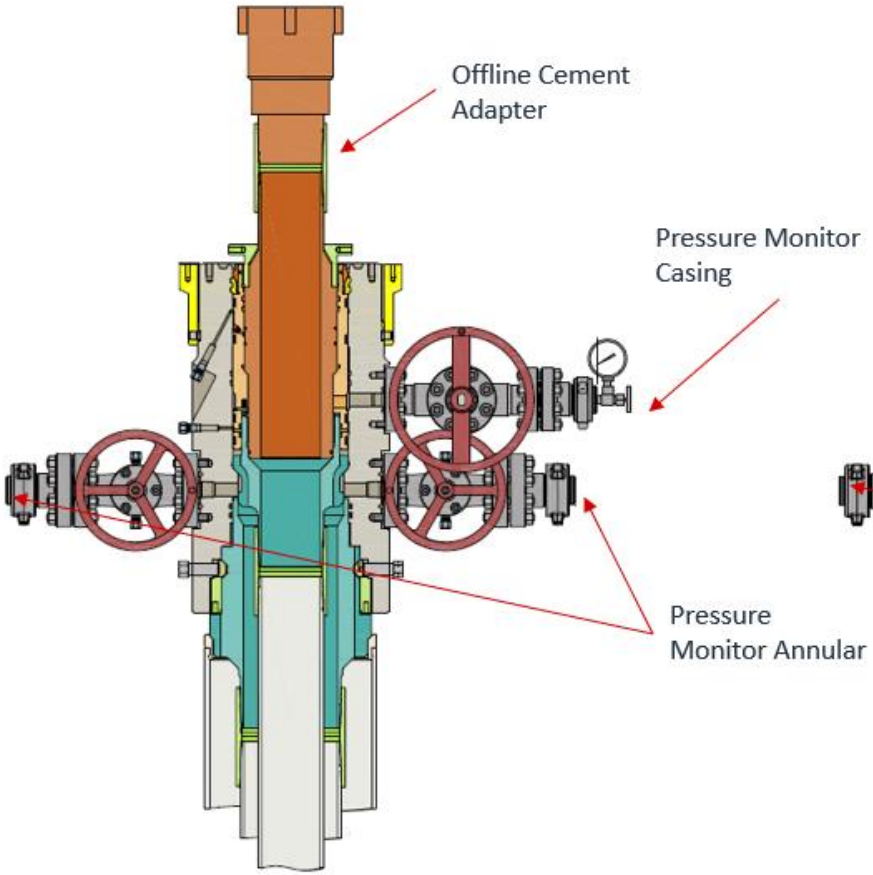
1. Sound alarm (alert crew).
2. Shut-in Well (close valves to rig pits and open valve to rig choke line. Rig choke will already be in the closed position).
3. Confirm shut-in.
4. Notify tool pusher/company representative.
5. Read and record the following:
    a. SICP and AP
    b. Pit gain
    c. Time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

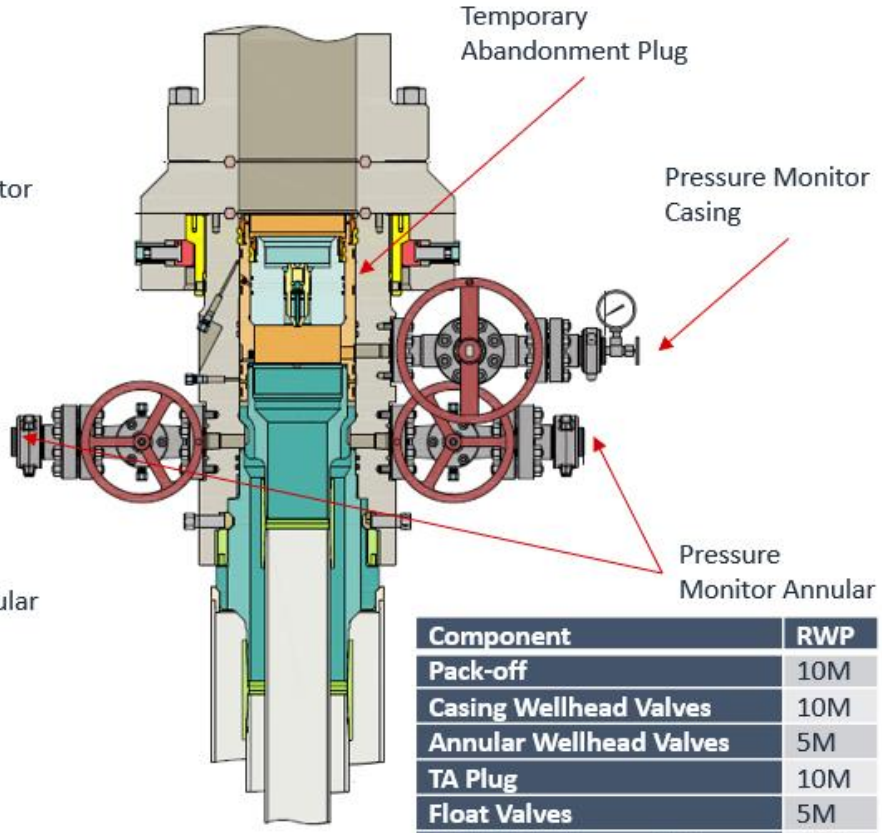
Figure 1: Cameron TA Plug and Offline Adapter Schematic



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

Figure 2: Cactus TA Plug and Offline Adapter Schematic





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

Figure 3: Back Yard Rig Up

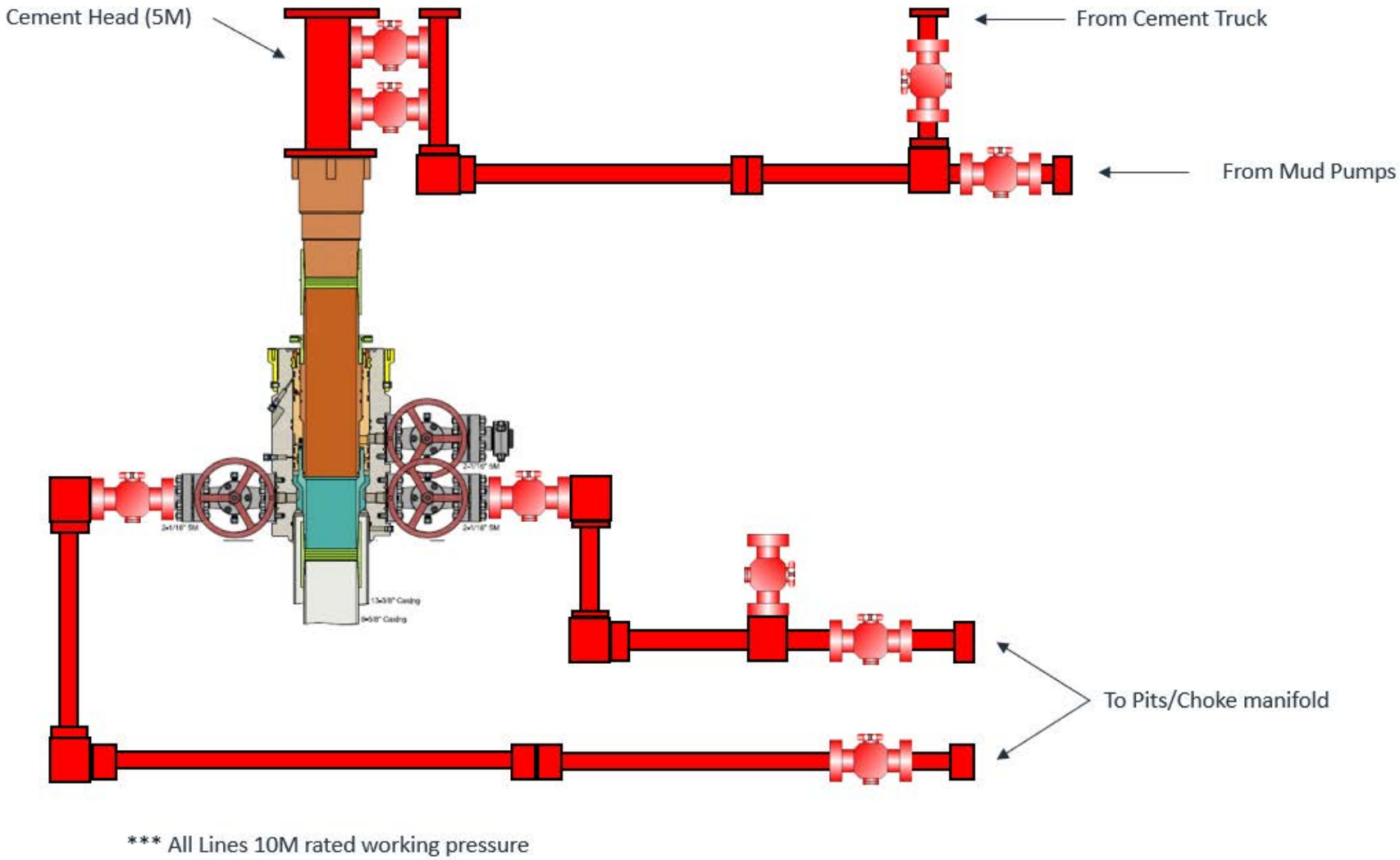
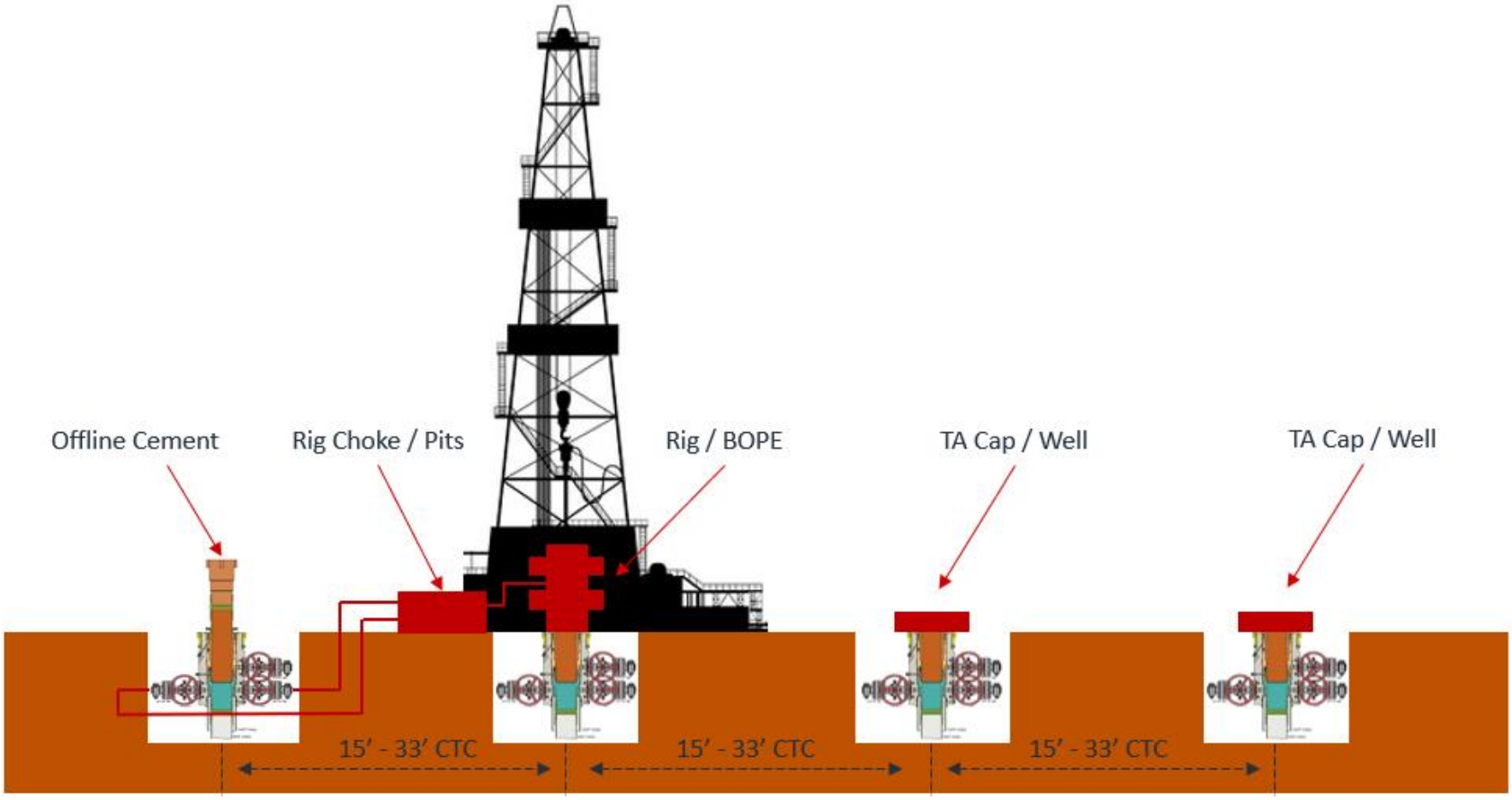
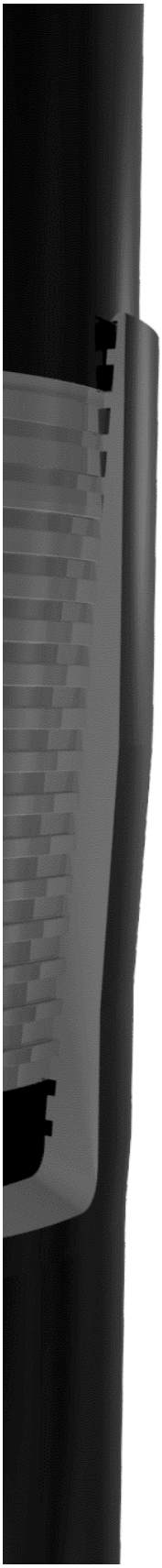


Figure 4: Rig Placement Diagram





Issued on: 09 Dec. 2020 by Wesley Ott

VAM® SPRINT-SF
Connection Data Sheet

OD	Weight (lb/ft)	Wall Th.	Grade	Spec. Drift:	Connection
8 3/4 in.	Nominal: 38.50 Plain End: 36.98	0.415 in.	P110EC	7.875 in.	VAM® SPRINT-SF

PIPE PROPERTIES		
Nominal OD	8.750	in.
Nominal ID	7.920	in.
Nominal Cross Section Area	10.867	sqin.
Grade Type	High Yield	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Ultimate Tensile Strength	135	ksi

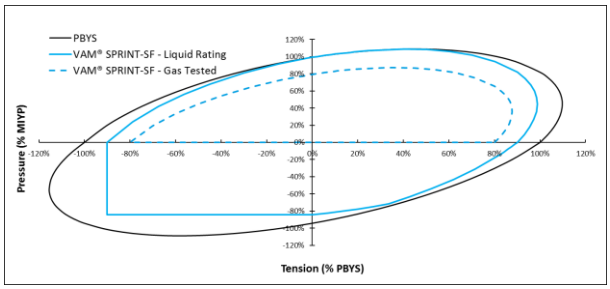
CONNECTION PROPERTIES		
Connection Type	Integral Semi-Flush	
Connection OD (nom):	9.009	in.
Connection ID (nom):	7.945	in.
Make-Up Loss	4.905	in.
Critical Cross Section	9.970	sqin.
Tension Efficiency	89.0	% of pipe
Compression Efficiency	80.0	% of pipe
Internal Pressure Efficiency	87	% of pipe
External Pressure Efficiency	100	% of pipe

CONNECTION PERFORMANCES		
Tensile Yield Strength	1,209	klb
Compression Resistance	1,086	klb
Internal Yield Pressure	9,030	psi
Collapse Resistance	5,210	psi
Max. Structural Bending	55	°/100ft
Max. Bending with ISO/API Sealability	30	°/100ft

* 87.5% RBW

TORQUE VALUES		
Min. Make-up torque	20,750	ft.lb
Opt. Make-up torque	23,250	ft.lb
Max. Make-up torque	25,750	ft.lb
Max. Torque with Sealability (MTS)	50,000	ft.lb

VAM® SPRINT-SF is a semi-flush connection innovatively designed for extreme shale applications. Its high tension rating and ultra high torque capacity make it ideal to run a fill string length as production casing in shale wells with extended horizontal sections and tight clearance requirements.



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

canada@vamfieldservice.com
usa@vamfieldservice.com
mexico@vamfieldservice.com
brazil@vamfieldservice.com

uk@vamfieldservice.com
dubai@vamfieldservice.com
nigeria@vamfieldservice.com
angola@vamfieldservice.com

china@vamfieldservice.com
baku@vamfieldservice.com
singapore@vamfieldservice.com
australia@vamfieldservice.com

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

VAM USA

eog resources

Onyx 35 Fed Com 601H

Revised Permit Information 08/24/2023:

Well Name: Onyx 35 Fed Com 601H

Location: SHL: 658' FSL & 2259' FWL, Section 35, T-25-S, R-34-E, Lea Co., N.M.
BHL: 100' FNL & 660' FWL, Section 26, T-25-S, R-34-E, Lea Co., N.M.

Casing Program:

Hole Size	Interval MD From (ft)	Interval MD To (ft)	Interval TVD From (ft)	Interval TVD To (ft)	Csg OD	Weight	Grade	Conn
11"	0	1,040	0	1,040	9-5/8"	36#	J-55	LTC
8-3/4"	0	11,882	0	11,620	7-5/8"	29.7#	HCP-110	FXL
6-3/4"	0	11,382	0	11,120	5-1/2"	20#	P110-EC	DWC/C IS MS
6-3/4"	11,382	11,882	11,120	11,620	5-1/2"	20#	P110-EC	Vam Sprint SF
6-3/4"	11,882	22,955	11,620	12,510	5-1/2"	20#	P110-EC	DWC/C IS MS

Variance is requested to waive the centralizer requirements for the 7-5/8" casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4" hole interval to maximize cement bond and zonal isolation.

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

Variance is also requested to waive the annular clearance requirements for the 5-1/2" casing by 7-5/8" casing annulus to the proposed top of cement.

EOG requests permission to allow deviation from the 0.422'' annulus clearance requirement from Onshore Order #2 under the following conditions:

- Annular clearance to meet or exceed 0.422'' between intermediate casing ID and production casing coupling only on the first 500' overlap between both casing strings.
- Annular clearance less than 0.422'' is acceptable for the production open hole section.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,040' 9-5/8''	210	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	50	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 840')
11,620' 7-5/8''	460	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,690')
	1310	14.8	1.5	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
22,955' 5-1/2''	1960	13.2	1.41	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 11,120')

eog resources

Onyx 35 Fed Com 601H

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

EOG requests variance from minimum standards to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (7,889') and the second stage performed as a 1000 sack bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of 310 sacks of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. Top will be verified by Echo-meter.

EOG will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

EOG will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

Mud Program:

Measured Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,040'	Fresh - Gel	8.6-8.8	28-34	N/c
1,040' – 11,620'	Brine	10.0-10.2	28-34	N/c
11,620’ – 12,272'	Oil Base	8.7-9.4	58-68	N/c - 6
12,272’ – 22,955’ Lateral	Oil Base	10.0-14.0	58-68	4 - 6

eog resources

Onyx 35 Fed Com 601H

TUBING REQUIREMENTS

EOG respectively requests an exception to the following NMOCD rule:

- 19.15.16.10 Casing AND TUBING RQUIREMENTS:
  J (3): "The operator shall set tubing as near the bottom as practical and tubing perforations shall not be more than 250 feet above top of pay zone."

With horizontal flowing and gas lifted wells an end of tubing depth placed at or slightly above KOP is a conservative way to ensure the tubing stays clean from debris, plugging, and allows for fewer well interventions post offset completion. The deeper the tubulars are run into the curve, the higher the probability is that the tubing will become stuck in sand and or well debris as the well produces over time. An additional consideration for EOT placement during artificial lift installations is avoiding the high dog leg severity and inclinations found in the curve section of the wellbore to help improve reliability and performance. Dog leg severity and inclinations tend not to hamper gas lifted or flowing wells, but they do effect other forms of artificial lift like rod pump or ESP (electric submersible pump). Keeping the EOT above KOP is an industry best practice for those respective forms of artificial lift.

eog resources

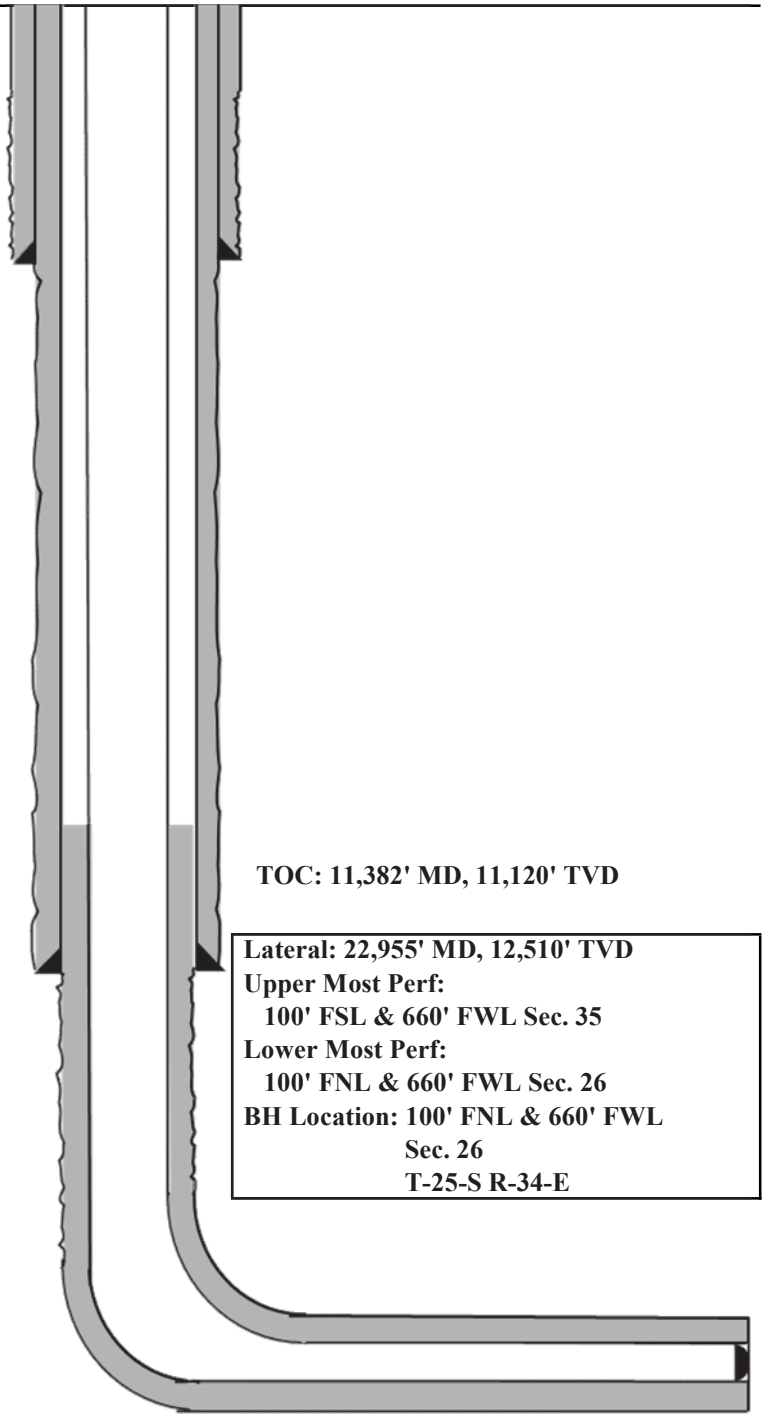
Onyx 35 Fed Com 601H

658' FSL
2259' FWL
Section 35
T-25-S, R-34-E

Revised Wellbore

API: 30-025-51915

KB: 3319'
GL: 3294'



Bit Size: 11"
9-5/8", 36#, J-55, LTC,
@ 0' - 1,040'

Bit Size: 8-3/4"
7-5/8", 29.7#, HCP-110, FXL,
@ 0' - 11,882'

Bit Size: 6-3/4"
5-1/2", 20.#, P110-EC, DWC/C IS MS
@ 0' - 11,120'
5-1/2", 20.#, P110-EC, Vam Sprint SF
@ 11,120' - 11,620'
5-1/2", 20.#, P110-EC, DWC/C IS MS
@ 11,620' - 22,955'

KOP: 12,272' MD, 12,032' TVD
EOC: 13,022' MD, 12,510' TVD

TOC: 11,382' MD, 11,120' TVD

Lateral: 22,955' MD, 12,510' TVD
Upper Most Perf:
100' FSL & 660' FWL Sec. 35
Lower Most Perf:
100' FNL & 660' FWL Sec. 26
BH Location: 100' FNL & 660' FWL
Sec. 26
T-25-S R-34-E

eog resources

Onyx 35 Fed Com 601H

Design B

4. CASING PROGRAM

Hole Size	Interval MD From (ft)	Interval MD To (ft)	Interval TVD From (ft)	Interval TVD To (ft)	Csg OD	Weight	Grade	Conn
13"	0	1,040	0	1,040	10-3/4"	40.5#	J-55	STC
9-7/8"	0	11,882	0	11,620	8-3/4"	38.5#	P110-EC	SLIJ II NA
7-7/8"	0	22,955	0	12,510	6"	22.3#	P110-EC	DWC/C IS

Variance is requested to waive the centralizer requirements for the 8-3/4" casing in the 9-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 9-7/8" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive any centralizer requirements for the 6" casing in the 7-7/8" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 7-7/8" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to waive the annular clearance requirements for the 6" casing by 8-3/4" casing annulus to the proposed top of cement.

EOG requests permission to allow deviation from the 0.422'' annulus clearance requirement from Onshore Order #2 under the following conditions:

- Annular clearance to meet or exceed 0.422'' between intermediate casing ID and production casing coupling only on the first 500' overlap between both casing strings.
- Annular clearance less than 0.422'' is acceptable for the production open hole section.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft3/sk	Slurry Description
1,040' 10-3/4"	270	13.5	1.73	Lead: Class C + 4.0% Bentonite Gel + 0.5% CaCl2 + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	70	14.8	1.34	Tail: Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate (TOC @ 840')
11,620' 8-3/4"	530	14.2	1.11	1st Stage (Tail): Class C + 0.6% Halad-9 + 0.45% HR-601 + 3% Microbond (TOC @ 7,690')
	1490	14.8	1.5	2nd Stage (Bradenhead squeeze): Class C + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (TOC @ surface)
22,955' 6"	1540	13.2	1.31	Lead: Class H + 0.4% Halad-344 + 0.35% HR-601 + 3% Microbond (TOC @ 11,120')

Onyx 35 Fed Com 601H

EOG requests variance from minimum standards to pump a two stage cement job on the 8-3/4" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (7,889') and the second stage performed as a 1000 sack bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of 490 sacks of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. Top will be verified by Echo-meter.

EOG will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

EOG will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

eog resources

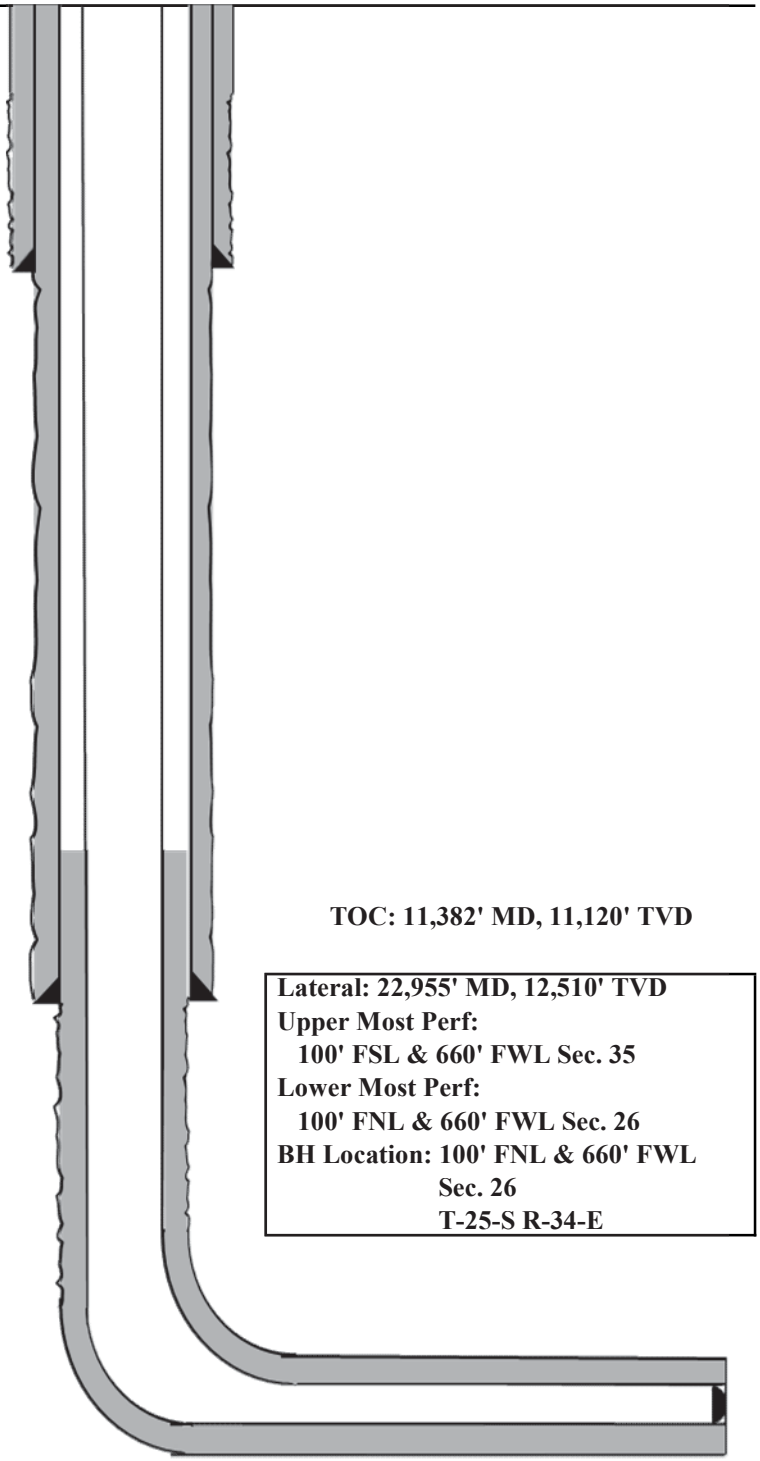
Onyx 35 Fed Com 601H

658' FSL
2259' FWL
Section 35
T-25-S, R-34-E

Proposed Wellbore

KB: 3319'
GL: 3294'

API: 30-025-51915



Bit Size: 13"
10-3/4", 40.5#, J-55, STC,
@ 0' - 1,040'

Bit Size: 9-7/8"
8-3/4" 38.5#, P110-EC, SLIJ II NA,
@ 0' - 11,882'

Bit Size: 7-7/8"
6", 22.3#, P110-EC, DWC/C IS,
@ 0' - 22,955'

TOC: 11,382' MD, 11,120' TVD

Lateral: 22,955' MD, 12,510' TVD
Upper Most Perf:
100' FSL & 660' FWL Sec. 35
Lower Most Perf:
100' FNL & 660' FWL Sec. 26
BH Location: 100' FNL & 660' FWL
Sec. 26
T-25-S R-34-E

KOP: 12,272' MD, 12,032' TVD
EOC: 13,022' MD, 12,510' TVD

eog resources

Onyx 35 Fed Com 601H

GEOLOGIC NAME OF SURFACE FORMATION:

Permian

ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	934'
Tamarisk Anhydrite	1,013'
Top of Salt	1,364'
Base of Salt	5,100'
Lamar	5,378'
Bell Canyon	5,409'
Cherry Canyon	6,334'
Brushy Canyon	7,889'
Bone Spring Lime	9,368'
Leonard (Avalon) Shale	9,392'
1st Bone Spring Sand	10,426'
2nd Bone Spring Shale	10,629'
2nd Bone Spring Sand	11,019'
3rd Bone Spring Carb	11,521'
3rd Bone Spring Sand	12,070'
Wolfcamp	12,520'
TD	12,510'

ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400’	Fresh Water
Bell Canyon	5,409'	Oil
Cherry Canyon	6,334'	Oil
Brushy Canyon	7,889'	Oil
Leonard (Avalon) Shale	9,392'	Oil
1st Bone Spring Sand	10,426'	Oil
2nd Bone Spring Shale	10,629'	Oil
2nd Bone Spring Sand	11,019'	Oil

Midland

Lea County, NM (NAD 83 NME)
Onyx 35 Fed Com
#601H

OH

Plan: Plan #0.1 RT

Standard Planning Report

31 August, 2023

eog resources

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well #601H
Company:	Midland	**TVD Reference:**	kb = 25' @ 3319.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	kb = 25' @ 3319.0usft
Site:	Onyx 35 Fed Com	**North Reference:**	Grid
Well:	#601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

Project Lea County, NM (NAD 83 NME)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Onyx 35 Fed Com

Site Position:		**Northing:**	394,238.00 usft	**Latitude:**	32° 4' 50.381 N
From:	Map	**Easting:**	819,302.00 usft	**Longitude:**	103° 26' 9.127 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "		

Well #601H

Well Position	**+N/-S**	0.0 usft	**Northing:**	394,530.00 usft	**Latitude:**	32° 4' 53.425 N
	+E/-W	0.0 usft	**Easting:**	817,408.00 usft	**Longitude:**	103° 26' 31.111 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,294.0 usft
Grid Convergence:		0.47 °				

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/31/2023	6.21	59.71	47,192.84980174

Design Plan #0.1 RT

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	350.24

Plan Survey Tool Program **Date** 8/31/2023

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	22,954.8	Plan #0.1 RT (OH)	EOG MWD+IFR1	
				MWD + IFR1	

eog resources

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well #601H
Company:	Midland	**TVD Reference:**	kb = 25' @ 3319.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	kb = 25' @ 3319.0usft
Site:	Onyx 35 Fed Com	**North Reference:**	Grid
Well:	#601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,364.0	0.00	0.00	1,364.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,200.9	16.74	248.87	2,189.1	-43.8	-113.2	2.00	2.00	0.00	248.87	
7,291.5	16.74	248.87	7,063.9	-572.2	-1,480.8	0.00	0.00	0.00	0.00	
8,128.4	0.00	0.00	7,889.0	-616.0	-1,594.0	2.00	-2.00	0.00	180.00	
12,271.9	0.00	0.00	12,032.5	-616.0	-1,594.0	0.00	0.00	0.00	0.00	KOP(Onyx 35 Fed Cc
12,492.4	26.46	0.00	12,245.2	-566.0	-1,594.0	12.00	12.00	0.00	0.00	FTP(Onyx 35 Fed Co
13,021.9	90.00	359.42	12,509.9	-138.6	-1,597.0	12.00	12.00	-0.11	-0.65	
13,814.5	90.00	359.42	12,510.0	654.0	-1,605.0	0.00	0.00	0.00	0.00	Fed Perf 1(Onyx 35 F
15,134.5	90.00	359.62	12,510.0	1,974.0	-1,616.0	0.02	0.00	0.02	87.93	Fed Perf 2(Onyx 35 F
16,454.6	90.00	359.33	12,510.0	3,294.0	-1,628.0	0.02	0.00	-0.02	-91.45	Fed Perf 3(Onyx 35 F
22,954.8	90.00	359.66	12,510.0	9,794.0	-1,685.0	0.01	0.00	0.01	88.71	PBHL(Onyx 35 Fed C

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1,364.0	0.00	0.00	1,364.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.9	16.74	248.87	2,189.1	-43.8	-113.2	-23.9	2.00	2.00	0.00
7,291.5	16.74	248.87	7,063.9	-572.2	-1,480.8	-312.9	0.00	0.00	0.00
8,128.4	0.00	0.00	7,889.0	-616.0	-1,594.0	-336.8	2.00	-2.00	0.00
12,271.9	0.00	0.00	12,032.5	-616.0	-1,594.0	-336.8	0.00	0.00	0.00
12,492.4	26.46	0.00	12,245.2	-566.0	-1,594.0	-287.5	12.00	12.00	0.00
13,021.9	90.00	359.42	12,509.9	-138.6	-1,597.0	134.2	12.00	12.00	-0.11
13,814.5	90.00	359.42	12,510.0	654.0	-1,605.0	916.7	0.00	0.00	0.00
15,134.5	90.00	359.62	12,510.0	1,974.0	-1,616.0	2,219.4	0.02	0.00	0.02
16,454.6	90.00	359.33	12,510.0	3,294.0	-1,628.0	3,522.3	0.02	0.00	-0.02
22,954.8	90.00	359.66	12,510.0	9,794.0	-1,685.0	9,937.9	0.01	0.00	0.01

eog resources

Planning Report

Database:	PEDM	**Local Co-ordinate Reference:**	Well #601H
Company:	Midland	**TVD Reference:**	kb = 25' @ 3319.0usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	kb = 25' @ 3319.0usft
Site:	Onyx 35 Fed Com	**North Reference:**	Grid
Well:	#601H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1 RT		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP(Onyx 35 Fed Com - plan hits target center - Point	0.00	0.00	12,032.5	-616.0	-1,594.0	393,914.00	815,814.00	32° 4' 47.460 N	103° 26' 49.696 W
FTP(Onyx 35 Fed Com - plan hits target center - Point	0.00	0.00	12,245.2	-566.0	-1,594.0	393,964.00	815,814.00	32° 4' 47.955 N	103° 26' 49.691 W
PBHL(Onyx 35 Fed Com - plan hits target center - Point	0.00	0.00	12,510.0	9,794.0	-1,685.0	404,324.00	815,723.00	32° 6' 30.475 N	103° 26' 49.759 W
Fed Perf 2(Onyx 35 Fed - plan hits target center - Point	0.00	0.00	12,510.0	1,974.0	-1,616.0	396,504.00	815,792.00	32° 5' 13.090 N	103° 26' 49.705 W
Fed Perf 1(Onyx 35 Fed - plan hits target center - Point	0.00	0.00	12,510.0	654.0	-1,605.0	395,184.00	815,803.00	32° 5' 0.028 N	103° 26' 49.703 W
Fed Perf 3(Onyx 35 Fed - plan hits target center - Point	0.00	0.00	12,510.0	3,294.0	-1,628.0	397,824.00	815,780.00	32° 5' 26.153 N	103° 26' 49.718 W

eog resources

Lea County, NM (NAD 83 NME)

Onyx 35 Fed Com #601H

Plan #0.1 RT

Azimuths to Grid North
True North: -0.47°
Magnetic North: 5.74°

Magnetic Field
Strength: 47192.8nT
Dip Angle: 59.71°
Date: 8/31/2023
Model: IGRF2020

To convert a Magnetic Direction to a Grid Direction, Add 5.74°
To convert a Magnetic Direction to a True Direction, Add 6.21° East
To convert a True Direction to a Grid Direction, Subtract 0.47°

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

Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

WELL DETAILS: #601H

3294.0
kb = 25' @ 3319.0usft

Northing	Easting	Latitude	Longitude
394530.00	817408.00	32° 4' 53.425 N	103° 26' 31.111 W

SECTION DETAILS

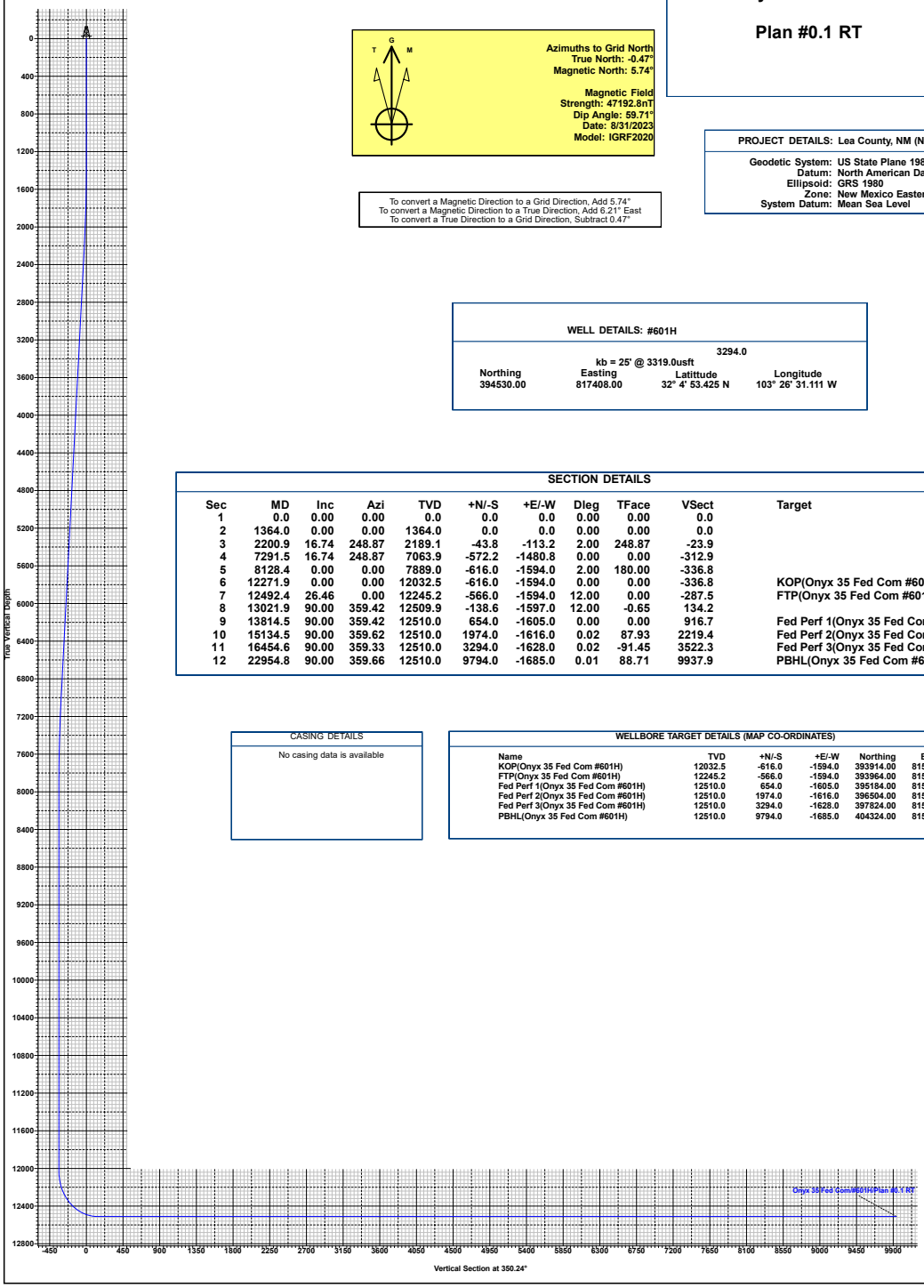
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1364.0	0.00	0.00	1364.0	0.0	0.0	0.00	0.00	0.0	
3	2200.9	16.74	248.87	2189.1	-43.8	-113.2	2.00	248.87	-23.9	
4	7291.5	16.74	248.87	7063.9	-572.2	-1480.8	0.00	0.00	-312.9	
5	8128.4	0.00	0.00	7889.0	-616.0	-1594.0	2.00	180.00	-336.8	
6	12271.9	0.00	0.00	12032.5	-616.0	-1594.0	0.00	0.00	-336.8	KOP(Onyx 35 Fed Com #601H)
7	12492.4	26.46	0.00	12245.2	-566.0	-1594.0	12.00	0.00	-287.5	FTP(Onyx 35 Fed Com #601H)
8	13021.9	90.00	359.42	12509.9	-138.6	-1597.0	12.00	-0.65	134.2	
9	13814.5	90.00	359.42	12510.0	654.0	-1605.0	0.00	0.00	916.7	Fed Perf 1(Onyx 35 Fed Com #601H)
10	15134.5	90.00	359.62	12510.0	1974.0	-1616.0	0.02	87.93	2219.4	Fed Perf 2(Onyx 35 Fed Com #601H)
11	16454.6	90.00	359.33	12510.0	3294.0	-1628.0	0.02	-91.45	3522.3	Fed Perf 3(Onyx 35 Fed Com #601H)
12	22954.8	90.00	359.66	12510.0	9794.0	-1685.0	0.01	88.71	9937.9	PBHL(Onyx 35 Fed Com #601H)

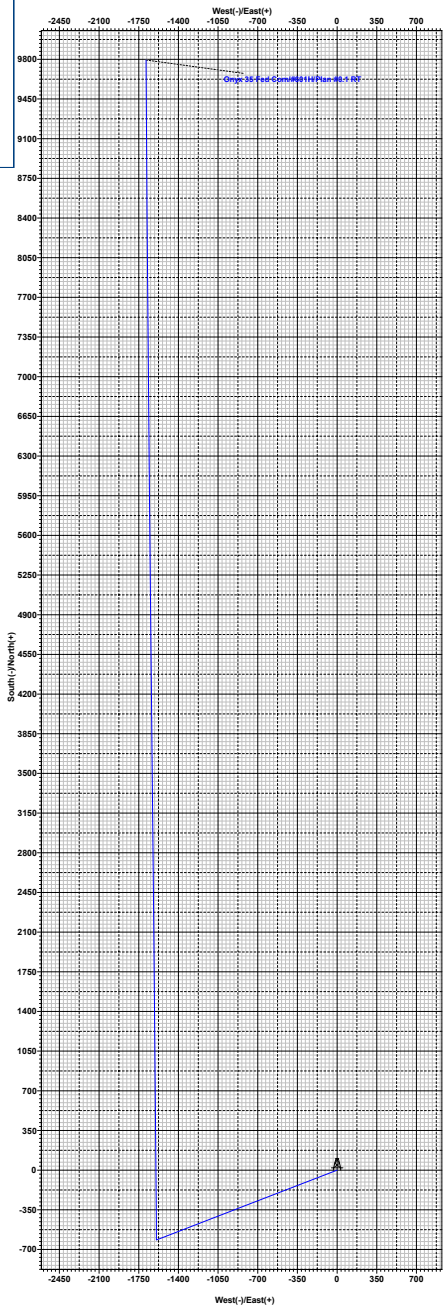
CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP(Onyx 35 Fed Com #601H)	12032.5	-616.0	-1594.0	393914.00	815814.00
FTP(Onyx 35 Fed Com #601H)	12245.2	-566.0	-1594.0	393964.00	815814.00
Fed Perf 1(Onyx 35 Fed Com #601H)	12510.0	654.0	-1605.0	395184.00	815803.00
Fed Perf 2(Onyx 35 Fed Com #601H)	12510.0	1974.0	-1616.0	396504.00	815792.00
Fed Perf 3(Onyx 35 Fed Com #601H)	12510.0	3294.0	-1628.0	397824.00	815780.00
PBHL(Onyx 35 Fed Com #601H)	12510.0	9794.0	-1685.0	404324.00	815723.00





PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG RESOURCES INCORPORATED
WELL NAME & NO.:	ONYX 35 FED COM 601H
SURFACE HOLE FOOTAGE:	658'/S & 2259'/W
BOTTOM HOLE FOOTAGE	100'/N & 660'/W
LOCATION:	Section 35, T.25 S., R.34 E.
COUNTY:	Lea County, New Mexico

ALL PREVIOUS COAs STILL APPLY

COA

H2S	(•) Yes	( ) No	
Potash	(•) None	( ) Secretary	( ) R-111-P
Cave/Karst Potential	(•) Low	( ) Medium	( ) High
Cave/Karst Potential	( ) Critical		
Variance	( ) None	(•) Flex Hose	( ) Other
Wellhead	( ) Conventional	(•) Multibowl	( ) Both
Wellhead Variance	( ) Diverter		
Other	[ ] 4 String	[ ] Capitan Reef	[ ] WIPP
Other	[x] Fluid Filled	[ ] Pilot Hole	[ ] Open Annulus
Cementing	[ ] Contingency Cement Squeeze	[x] EchoMeter	[x] Primary Cement Squeeze
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit
Special Requirements	[ ] Batch Sundry		
Special Requirements Variance	[x] Break Testing	[x] Offline Cementing	[x] Casing Clearance

A. CASING

Primary Casing Design:

1. The **9-5/8** inch surface casing shall be set at approximately **1,040** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. **The surface hole shall be 12-1/4 inch in diameter. The proposed program has 11 inch hole size listed, which does not meet the clearance requirement. Reached out to the operator to clarify that 12-1/4 inch hole size will be drilled for the 9-5/8 inch surface casing.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature

survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The **7-5/8** inch intermediate casing shall be set at approximately **11,882** feet. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Option 2:

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

a. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon**

b. Second stage:

- Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified.

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus. Operator must top out cement after the bradenhead squeeze and verify cement to surface. Operator can also check TOC with Echo-meter. CBL must be run from TD of the 7-5/8" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.

If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

Bradenhead squeeze in the production interval is only as an edge case remediation measure and is NOT approved in this COA. If production cement job experiences

losses and a bradenhead squeeze is needed for tie-back, BLM Engineering should be notified prior to job with volumes and planned wellbore schematic. CBL will be needed when this occurs.

If cement does not reach surface, the next casing string must come to surface.

Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.

3. The **5-1/2** inch surface casing shall be set at approximately **22,955** feet. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Option 1 (Single Stage):

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

Alternate Casing Design:

1. The **10-3/4** inch surface casing shall be set at approximately **1,040** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.

   a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
   b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
   c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
   d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The **8-3/4** inch intermediate casing shall be set at approximately **11,882** feet. **Keep casing full to stay within collapse SF requirement.** The minimum required fill of cement behind the **8-3/4** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Option 2:

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

c. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon**

d. Second stage:

- Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified.

Operator has proposed to pump down 10-3/4" X 8-3/4" annulus. Operator must top out cement after the bradenhead squeeze and verify cement to surface. Operator can also check TOC with Echo-meter. CBL must be run from TD of the 8-3/4" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.

If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

Bradenhead squeeze in the production interval is only as an edge case remediation measure and is NOT approved in this COA. If production cement job experiences losses and a bradenhead squeeze is needed for tie-back, BLM Engineering should be notified prior to job with volumes and planned wellbore schematic. CBL will be needed when this occurs.

If cement does not reach surface, the next casing string must come to surface.

Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.

3. The **6** inch surface casing shall be set at approximately **22,955** feet. **Keep casing full to stay within collapse SF requirement.** The minimum required fill of cement behind the **6** inch production casing is:

Option 1 (Single Stage):

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system) BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-689-5981 Lea County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per 43 CFR part 3170 Subpart 3172.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

Offline Cementing
OK for surface and intermediate cementing. Notify the BLM prior to the commencement of any offline cementing procedure.

Casing Clearance:

- 500' tie back OK in production interval. **Surface hole size will need to be 12-1/4" for passing clearance requirement.**

Operator shall clean up cycles until wellbore is clear of cuttings and any large debris, ensure cutting sizes are adequate "coffee ground or less" before cementing.

GENERAL REQUIREMENTS

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

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

☒ Eddy County
EMAIL or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
BLM_NM_CFO_DrillingNotifications@BLM.GOV
(575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive

strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

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

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal

or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in **43 CFR part 3170 Subpart 3172** must be followed.
    e. 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.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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 results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. 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 if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR part 3170 Subpart 3172**.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

KPI 9/28/2023

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 270125

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 270125
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	10/30/2023