Form 3160-3
(June 2015)

HOBBS OCD
MAY 21 2019
RECEIVED

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

5. Lease Serial No.
NMLC0068281B

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
ZIA HILLS 20 FEDERAL COM
106H (325136)

2. Name of Operator
CONOCOPHILLIPS COMPANY (217817)

9. API Well No.
30-025-44989

3a. Address
PO Box 2197 Houston TX 77252

3b. Phone No. *(include area code)*
(281)293-1748

10. Field and Pool, or Exploratory
ZIA HILLS; WOLFCAMP / ~~WOLFCAMP~~ (98081)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWSE / 2570 FSL / 2067 FEL / LAT 32.027908 / LONG -103.695261
At proposed prod. zone LOT 2 / 50 FSL / 1980 FEL / LAT 32.000358 / LONG -103.694989

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 20 / T26S / R32E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
44.1 miles	LEA	NM

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
2067 feet	1841.48	0

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
33 feet	12002 feet / 21833 feet	FED: ES0085

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3154 feet	08/20/2019	90 days

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
(Electronic Submission)	Jeremy Lee / Ph: (832)486-2510	09/25/2017
Title: Regulatory Coordinator		
Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Christopher Walls / Ph: (575)234-2234	05/15/2019
Title: Petroleum Engineer	Office: CARLSBAD	

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.

GCP Rec 05/20/19

APPROVED WITH CONDITIONS

Approval Date: 05/15/2019

KZ 05/21/19

(Continued on page 2)

*(Instructions on page 2)

Double Sided

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

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Additional cement maybe required. Excess calculates to 13%.**

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator shall filled 1/3rd casing with fluid while running intermediate casing to maintain collapse safety factor. Casing string for 2nd intermediate casing connection is TXP.

3. The minimum required fill of cement behind the **7 5/8** inch production casing is:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Variance is approved for annualar spacing between 7 5/8" x 5 ½" casing.

4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
   - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi. **Variance is approved to use a** Choose an item. **Annular which shall be tested to** Choose an item. **psi.**

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

Pilot Hole
The pilot hole plugging procedure is approved as written. Note plug tops on subsequent drilling report.
Pilot hole is required to have a plug at the bottom of the hole. If two plugs are set, the BLM is to be contacted (575-361-2822) prior to tag of bottom plug, which must be a minimum of 200' in length. Operator can set one plug from bottom of pilot hole to kick-off point and save the WOC time for tagging the first plug. Note plug tops on subsequent drilling report.
During drilling of intermediate hole from 250-1900 feet fresh water will be used unless lost circulation is encountered then air may be used concurrently to lighten the hydrostatic pressure.

GENERAL REQUIREMENTS

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

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

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

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

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

3. The record of the drilling rate along with the GR/N well log 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.

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.

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: 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 OOGO2.III.A.2.i 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 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.

    c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 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 Onshore Order No. 2.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

ZS 051319

WELL PLAN SUMMARY

ConocoPhillips

Date: Feb 13, 2019
Version: 2
Prepared by: J. Voss

WELL: Zia Hills 20 106H
SURFACE LOC: NWSE 20 T26S R32E — 2570' FSL 2067' FEL
BH LOC: SWNE 32 T26S R32E — 53' FSL 1948' FEL
COUNTY,STATE: Lea, Co, NM
API No.:
TRRC Permit:
BLM Permit:
WH Coord.: (NAD-83) LAT 32° 1' 40.47" N, LON 103° 41' 42.94" W

ELEVATIONS: GL 3,157.1', KB +27.0'

AFE:
Drilling Network No.:
Invoice Handler ID:
COST ESTIMATE
DRILLING
COMPLETION
FACILITIES
TOTAL

17-1/2" X 13-3/8"
12-1/4" X 10-3/4"
9-7/8" X 7-5/8"
6-3/4" X 5-1/2 x 4-1/2"
Toe Sleeve MD: 0, "FSL

FORMATION TOP:	TVD	SUBSEA	
Quaternary Fill	30	3,154	
Base of Fresh Water	328	2,856	Fresh Water
Rustler	1,162	2,022	Fresh Water
Surface Casing	1,212	1,972	Fresh Water
Top of Salt/Salado	1,584	1,600	Salt
Castile	2,322	862	Salt
Delaware Base of Salt	4,319	(1,135)	Salt
Intermediate 1 Casing	5,032	(1,848)	Gas / Oil
Cherry Canyon	5,243	(2,059)	Gas / Oil
Brushy Canyon	6,773	(3,589)	Gas / Oil
Bone Spring 1st Carb	8,393	(5,209)	Gas / Oil
Avalon A	8,661	(5,477)	Gas / Oil
Bone Spring 1st SS	9,320	(6,136)	Gas / Oil
FBS Shale	9,608	(6,424)	Gas / Oil
Bone Spring 2nd Carb	9,689	(6,505)	Gas / Oil
Bone Spring 2nd Sand	10,045	(6,861)	Gas / Oil
Bone Spring 3rd Carb	11,131	(7,947)	Gas / Oil
Bone Spring 3rd Sand	11,131	(7,947)	Gas / Oil
Wolfcamp	11,544	(8,360)	Gas / Oil
Wolfcamp A	11,766	(8,582)	Gas / Oil
Intermediate 2 Casing Point / LP	12,023	(8,839)	Gas / Oil
TD	12,023	(8,839)	

9 5/8 in. shoe 22196' MD 383'FSL

TARGET	12,023	(8,582)	Gas / Oil
PBTD	12,023	(8,582)	Gas / Oil

Estimated BH Static Temperature (°F): 205
Max. Anticipated BH Pressure: 0.700 psi/ft 8,416 psi 13.5 ppg
Max Anticipated Surface Pressure: 5,771 psi *0.22 psi/ft gradient

DRILLING RIG *PTEN 256* TARGET FORMATION *Wolfcamp A*

LOCATION DIRECTIONS

From the intersection of U.S. Hwy 285 and State Hwy 652 in Orla, Texas, go North on Hwy 285 toward Carlsbad, NM, for 10.5 miles. Turn left (W) onto County Road 454, and travel 4/10 of a mile to CR 449. Turn left (SW) onto CR 449 and travel for 1 mile, and turn right (W) onto lease road. Follow the lease road 7/10 of a mile to the location.

Lat: 31-56-36.55 Long: 104-01-29.91

POTENTIAL HAZARDS -> MITIGATIONS

Shallow flow hazard in surface -> Diverter rigged up and ready
Shallow karst features resulting in full losses -> LIDAR Mapping shows little to no risks. Use cement plug
Salt Water Disposal Pressure/Flow & H2S -> MPD to SI on connections, 4th casing string, Reserve pit for flow
Losses in the Canyon groups; flow in the Bone Springs -> Reserve pits full with cut brine, LCM
Elevated pressure / gas in the Wolfcamp prior to INT setpoint -> Set at minimum depth of 9,460' TVD
Wellbore instability in the PROD hole -> Ready to elevate MW, watching gas on connections
Strong formation push in lateral -> Maintain within 30' L/R of line, putting in quick maintenance slides

SPECIAL NOTES (see well steps for additional info)

1.) Refer to drilling procedure for additional detail and information.
2.) Offset well () located of surface location.
3.) The primary regulatory agency is the BLM.
4.) Surface: 2° max., 1°/ 100' DLS; svy every 500'
5.) Int: 11.54° max., 1.5°/ 100'; svy every 90' (svy every 30' in build and drop, 30' in curve)
6.) Lateral will be bed in to 106 Pilot Hole

CONTACTS

		Office	Cell
Drilling Engineer:	Jake Voss	832-486-2041	832-499-9085
Geologist:	Josh Day	281-206-5820	423-512-0347
Onsite Drilling Rep.:	Greg Rivera	432-848-5238	
	Dennis Hously		
Field Drilling Supt.:	James Taylor	830-583-4828	956-229-1393
	Patrick Wellman		432-215-7079
Drilling Supt.:	Scott Nicholson	281-206-5392	432-230-8010

DRILLING FLUID:

	Type	Interval (MD)	Density ppg	Vis sec/qt	PV cP	YP #/100ft2	pH	FL mL	LGS % by vol	Alkalinity	NaCl ppb sol	Remarks
Surface:	Spud Mud	Surface - 1,212'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks	Rig Tanks
Intermediate 1:	Brine	1212' - 5032'	9.2	28-49	1-4	2-5	7.5-8.4	NC	< 5.1	180,001	Rig Tanks	Rig Tanks
Intermediate 2:	Brine	5032' - 12502'	9.5	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks	Rig Tanks
Production:	OBM	12502' - 22526'	13.5	50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks	Potential for 14ppg Mud Cap

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	17.5	27'	1,212'	1,185'	13 3/8	54.50	J-55	BTC
Contingency	ACP/DV Tool run 100' below water board depth if necessary							
Intermediate:	12.25	27'	5,032'	5,005'	10 3/4	40.50	J-55	BTC
Intermediate:	9.875	27'	11,302'	11,275'	7 5/8	29.70	P-110	BTC
Int2 ACP/DV Tool		6500						
Intermediate:	9.875	11,302'	12,502'	1,200'	7 5/8	29.70	P-110	H513
Production:	6.75	27'	22,526'	22,499'	5-1/2	23.00	P-110	TXP & 513 FJ

CENTRALIZATION:

Surface Casing: 1 per 3 joints from 1,700' to FC. 1 per 3 joints from 1,700' to surface
Intermediate 1 Casing: Shoe joint. 1 per 3 joints From FC' to 2,500'. 1 per 4 joints 2,500' to surface.
Intermediate 2 Casing: Shoe joint. 1 per joint from FC to 7,800'. 1 per 2 joints 7,800' to 2,300'. 1 per 4 joints 2,300' to surface.
Production Casing: Rigid body 1 per 2 joints TD to Int Shoe. Bow Spring 1 per 2 joints Int shoe to 100' above KOP. 1 per 4 joints to surface

BOP:

Minimum - COP Class 3 Well Control Requirements
Rig - 13-5/8"x10M psi Rams / 4-1/16"x10M psi Manifold
Stackup - Rotating Head, 5M Annular Preventer,
Pipe Ram, Blind Ram,
Mud Cross (Choke & Kill Valves),
Pipe Ram

Mud Pit: Float Based Electronic PVT with Flow Sensor and Gravity Trip Tank, Alarms +/- 10 BBLS

Wellhead: 13-5/8" x 5M psi Cameron Multibowl (4 String)

CEMENT:

	Hole	MD	TVD	Spacer	Lead	Tail	COMMENTS
Surface:	17-1/2"X13-3/8"	1,212'	1,212'	20 bbls FW	560 sx Class C + adds 12.8 ppg 2.05ft3/sk	450 sx Class C+ adds 14.8 ppg 1.32 ft3/sk	Cemented to surface w/ 100%XS Add FiberBlock
Intermediate:	12-1/4"X 10-3/4"	5,032'	5,032	40 bbl Invert Spacer	320 sx WBL + adds 11 ppg 2.97ft3/sk	190 sx Thermal 35+ adds 13.8 ppg 1.18 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 12.25" hole
Intermediate:	9-7/8" x 7-5/8"	12,502'	12,023	20 bbls 10.5 ppg spacer	560 sx Poz/Class C + adds 11 ppg 2.57ft3/sk	680 sx Class H+ adds 13.8 ppg 1.18 ft3/sk	TOC 500' into previous casing shoe w/ 70%L / 30%T XS
Stage 2		6500	6,500'	20 bbls 10.5 ppg spacer	175 sx Poz/Class C + adds 10.8 ppg 2.57ft3/sk		
Production:	6-3/4"X 5-1/2"	22,526'	12,023'	20 bbls 14.5 ppg spacer		953 sx Class H + adds 15.6 ppg 1.19ft3/sk	Cemented 100' above KOP 10% XS calc'd on 6.75" hole

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Int 1 Casing	5,032'	11	179	5,032'	0	0	0.0	0	20 T26S R32E	2570' FSL	2067' FEL
Tangent KOP , Build @ 1.5°/100'	6,500'	0	0	6,500'	0	0	0	0	20 T26S R32E	2570' FSL	2067' FEL
End Build @ 12°	7,269'	11.54	6.6	7,264'	77	9	1.5	-77	20 T26S R32E	2647' FSL	2058' FEL
Drop @ 0°/100'	10,107'	11.54	6.6	10,045'	641'	74	0.0	-716	20 T26S R32E	3211' FSL	1993' FEL
KOP , Build @ 8°/100'	11,378'	0	0	11,309'	718	83	0	-716	20 T26S R32E	3288' FSL	1984' FEL
LP	12,502'	90	355	12,023'	1	87	8	-332	20 T26S R32E	2571' FSL	1984' FEL
Toe Sleeve 2	22,196'	90	2	12,023'	9517	301	0	9,521	32 T26S R32E	383' FSL	1948' FEL
FTP / Toe Sleeve 1	22,246'	90	2	12,023'	9567	301	0	9,571	32 T26S R32E	333' FSL	1948' FEL
PBHL/TD	22,526'	90	2	12,023'	9847	301	0	9,851	32 T26S R32E	53' FSL	1948' FEL

Reference Directional Plan MWD Surveys will be taken at 90' interval below surface casing, 30' while building curve, and every 90' while drilling lateral.

FORMATION EVALUATION:

Mud Logging - One-Man: First surface hole to TD. First intermediate hole to TD
Mud Logging - Two-Man: Intermediate Casing Point to TD
Open Hole - PEX None
Cased Hole - GR/CBL/USIT NA
MWD - GR 200' above KOP to TD

OUR WORK IS NEVER SO URGENT OR IMPORTANT THAT WE CANNOT TAKE THE TIME TO DO IT SAFELY!

Approval Date: 05/15/2019

ConocoPhillips

WELL PLAN SUMMARY

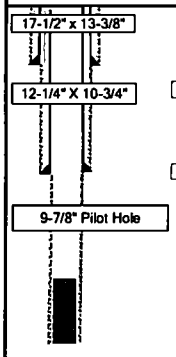
1280 Extended Reach Single Lateral

Date: Feb 28, 2019
Version: 4
Prepared by: M. Callahan

WELL: Zia Hills 20 106H
SURFACE LOC: NWSE 20 T26S R32E 2570' FSL 2067' FEL
BH LOC: NWSE 20 T26S R32E 3288' FSL 1984' FEL
ELEVATIONS: GL 3,157.1' KB +27.0'

COUNTY,STATE: Lea, Co, NM
API No.:
TRRC Permit:
BLM Permit:
WH Coord.: (NAD-83) LAT 32° 1' 40.47" N LON 103° 41' 42.94" W

AFE:
Drilling Network No.:
Invoice Handler ID:
COST ESTIMATE
DRILLING
COMPLETION
FACILITIES
TOTAL



FORMATION TOP:	TVD	SUBSEA	
Quaternary Fill	30	3,154	
Base of Fresh Water	328	2,856	Fresh Water
Rustler	1,162	2,022	Fresh Water
Surface Casing	1,212	1,972	Salt
Top of Salt	1,584	1,600	Salt
Castille	2,322	862	Salt
Delaware Base of Salt	4,319	(1,135)	Gas / Oil
Intermediate 1 Casing	5,032	(1,848)	Gas / Oil
Cherry Canyon	5,243	(2,059)	Gas / Oil
Brushy Canyon	6,773	(3,589)	Gas / Oil
Bone Springs	8,163	(4,979)	Gas / Oil
Bone Springs 1st Sand	9,320	(6,136)	Gas / Oil
Bone Springs 2nd Sand	10,045	(6,861)	Gas / Oil
Bone Springs 3rd Sand	11,131	(7,947)	Gas / Oil
Wolfcamp	11,544	(8,360)	Gas / Oil
Wolfcamp A	11,766	(8,582)	Gas / Oil
Total Depth	12,281	(9,096.9)	Gas / Oil
TARGET	12,281	(9,097)	Gas / Oil
Formation Dip Rate:	est 90.1° (up dip)		
PBTD	12,281	(9,097)	Gas / Oil

Estimated BH Static Temperature (°F): 220
Max. Anticipated BH Pressure: 0.7 psi/ft 8,474 psi 13.3 ppg
Max Anticipated Surface Pressure: 4,596 psi

Objective

This well is to be drilled with safety and protection of the environment as the primary objectives.

The objective is to drill a 1280 single lateral well in the Wolfcamp formation and completed with 5-1/2"cemented casing.

Notes

1.) This well will be drilled with Patterson 256.
2.) Refer to drilling procedure for additional detail and information.
3.) Offset well () located of surface location.
4.) The primary regulatory agency is the BLM.
5.) Surface: 2° max., 1°/ 100' DLS; svy every 500'
6.) Int: 11.54° max., 1.5°/ 100'; svy every 90' (svy every 30' in build and drop, 30' in curve)
7.) 10-3/4" Casing will be set across the salt zone to allow for WBM to be used for Pilot Hole
8.) 9-7/8" Pilot hole will be drilled to TD of 12,145' MD. WBM needs to be used for cuttings analysis
9.) A cement plug will be pumped at TD and brought up to KOP for landing the 9-7/8" curve into the Wolfcamp A.

Goals

Have no lost time or recordable accidents.
Have no spills or adverse environmental impact.
Have no stuck pipe incidents.
Avoid lost circulation incidents.
Maintain well control and follow ConocoPhillips well control policy.
Obtain good mud log data.
Deliver usable wellbore to production department.

CONTACTS

		Office	Cell
Drilling Engineer:	Mike Callahan	832-486-2480	907-231-2176
Geologist:	Josh Day	281-206-5620	423-512-0347
Onsite Drilling Rep.:	Greg Rivera	432-848-5238	
	Dennis Hously		
Field Drilling Supt.:	James Taylor	830-583-4828	956-229-1393
	Patrick Wellman		432-215-7079
Drilling Supt.:	Scott Nicholson	281-206-5392	432-230-8010

DRILLING FLUID:

	Type	Interval (MD)	Density ppg	Vis sec/qt	PV cP	YP #/100ft2	pH	FL mL	LGS % by vol	NaCl ppb sol	Remarks
Surface:	Fresh Water	Surface - 1,212'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks
Intermediate 1:	Emulsified Brine	1212' - 5032'	9.2	28-49	1-4	2-5	7.5-8.5	NC	< 5.0	180,000	Rig Tanks
Intermediate 2:	WBM	5032' - 12349'	9.5	28-50	1-5	2-6	7.5-8.5	NC	< 7.0	10,000	Rig Tanks

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	17-1/2"	27'	1,212'	1,185'	13 3/8	54.50	J-55	BTC
	ACP/DV Tool run 100' below water board depth if necessary							
Intermediate 1:	12-1/4"	27'	5,032'	5,005'	10 3/4	45.50	L-80	Wedge 511

CENTRALIZATION:
Surface Casing: 1 per 2 joints from 1,700' to FC. 1 per 4 joints from 1,200' to surface
Intermediate Casing: Shoe joint. 1 per joint from FC to 7,800'. 1 per 2 joints 7,800' to 2,300'. 1 per 4 joints 2,300' to surface.

BOP:
Minimum - COP Class 3 Well Control Requirements
Rig - 13-5/8"x10M psi Rams / 4-1/16"x10M psi Manifold
Stackup - Rotating Head, 5M Annular Preventer, Pipe Ram, Blind Ram, Mud Cross (Choke & Kill Valves), Pipe Ram
Waste Handling: Closed loop cuttings disposal system with haul off to approved facility.
Mud Pit: Float Based Electronic PVT with Flow Sensor and Gravity Trip Tank, Alarms +/- 10 BBLS

Wellhead: 13-5/8" x 10M psi (Casing Head - "A" Section)

CEMENT:

	Hole	MD	TVD	Spacer	Lead	Tail	COMMENTS
Surface:	17-1/2"X13-3/8"	1,212'	1,212'	20 bbl FW	580 sx Control Set 'C' + adds 12.8 ppg 2.05 ft3/sk	450 sx Type 'III' + adds 14.8 ppg 1.32 ft3/sk	Cemented to surface w/ 100%XS Add FiberBlock
Intermediate:	12-1/4"X10-3/4"	5,032'	5,032	40 bbl Invert Spacer	320 sx WBL + adds 11 ppg 2.97 ft3/sk	190 sx Class H + adds 13.8 ppg 1.18 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 12.25" hole Add FiberBlock
Pilot Hole Cement	9-7/8"	12,349'	12,281'	40 bbl Visweep	534 sx Class 'H' + adds 17.0 ppg 0.99 ft3/sk		Plug back to 200' above KOP for lateral. 1.20% CD-32 + 0.10% R03 + 0.005 lb/sk Static Free

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	6,500'	0	0	6,500'	0	0	0	0	20 T26S R32E	2570' FSL	2067' FEL
End Build @ 12°	7,269'	11.54	6.6	7,264'	77	9	1.5	-77	20 T26S R32E	2647' FSL	2058' FEL
Drop @ 1.5°/100'	10,107'	11.54	6.6	10,045'	641'	74	0.0	-716	20 T26S R32E	3211' FSL	1993' FEL
Complete Drop, Hold to Pilot Hole	10,877'	0	0	10,809'	718	83	1.5	-716	20 T26S R32E	3288' FSL	1984' FEL
KOP (Post Pilot Hole Cement Plug)	11,377'	0	0	11,309	718	83	0	-716	20 T26S R32E	3288' FSL	1984' FEL
Pilot Hole TD	12,349'	0	0	12,281'	718	83	0	-716	20 T26S R32E	3288' FSL	1984' FEL

Reference Directional Plan MWD Surveys will be taken at 90' interval below surface casing, 30' while building curve, and every 90' while drilling lateral.

FORMATION EVALUATION:
Mud Logging - One-Man: First surface hole to TD.
Mud Logging - Two-Man: Intermediate Casing Point to TD
Open Hole - GR/RES/DEN/NEUTRON (Quad Combo and NMR run through pilot hole)
Cased Hole - NA
MWD - GR 200' above KOP to TD

OUR WORK IS NEVER SO URGENT OR IMPORTANT THAT WE CANNOT TAKE THE TIME TO DO IT SAFELY!

Approval Date: 05/15/2019

Zia Hills 20 106H
NWSE 20 T26S R32E

13-3/8" Surface Casing:	
Surface Casing Depth (Ft)	1,212
Surface Casing O.D. (In.)	13 3/8
Surface Casing ID (In)	12.612
Hole O.D. (In)	17 1/2
Excess (%)	100%
Volume Tail (Sx)	450
Yield Tail (Cu. Ft./Sx)	1.32
Yield Lead (Cu. Ft./Sx)	2.05
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	34.7
Tail feet of cement	400
Calculated Total Volume (Cu. Ft.)	1,719
Calc. Tail Volume (Cu. Ft.)	590
Calc. Lead Volume (Cu. Ft.)	1,128
Calc. Lead Volume (Sx)	560
Lead Volume (bbls)	200.9
Tail volume (bbls)	105.2
Displacement Volume (bbls)	181.1

Stage 1

10-3/4" Intermediate Casing (Lead):	
Intermediate Casing O.D. (In.)	10.750
Intermediate Casing ID (In)	9.950
Hole O.D. (In)	12.25
Excess (%)	70%
Surface Casing Depth (Ft)	1,212
Surface Casing ID (In)	12.612
Yield Lead (Cu. Ft./Sx)	2.97
Calculated Total Lead (Cu. Ft.)	927
Calc. Lead Volume (Sx)	320
Lead Volume (bbls)	165

10-3/4" Intermediate Casing (Tail):	
Intermediate Casing Depth (Ft)	5,032'
Intermediate Casing O.D. (In.)	10.750
Intermediate Casing ID (In)	9.950
Hole O.D. (In)	12.25
Excess (%)	30%
Tail Footage	500'
Top Tail (Ft)	4,532'
Yield Tail (Cu. Ft./Sx)	1.18
Shoe Joint (Ft)	90
Shoe Volume (Cu. Ft)	48.6
Calc. Tail Volume (Cu. Ft.)	224
Required Tail Volume (Sx)	190
Tail Volume (bbls)	40
Displacement Volume (bbls)	475

Pilot Hole Kick Off Cement

9-7/8" Open Hole Plug:	
Pilot Hole Depth Depth (Ft)	12,349'
Top of KOP (Ft)	11150
5" Drill Pipe ID (In)	4.276
Hole O.D. (In)	12.25
Excess (%)	10%
Top Cement (Surface)	11,150'
Yield Tail (Cu. Ft./Sx)	0.99
Calc. Tail Volume (Cu. Ft.)	529
Required KO Plug Volume (Sx)	534
Plug volume (bbls)	94
Displacement Volume (bbls)	198

Lead Cement Description:
Mix Weight 12.8 ppg
Control Set 'C'
1.0% $CaCl_2$
1.0% SMS
1.0% OGC-60
¼ lb/sk Polyflake
½ ppb FiberBlock

Tail Cement Description:
Mix Weight 14.8 ppg
0:1:0 'Type III'
0.5% $CaCl_2$
¼ lb/sk Polyflake
½ ppb FiberBlock

Intermediate Lead Cement Description:
Mix Weight 11 ppg
WBL
0.5% CFL-4
0.6% LTR
0.2% SPC-II
0.4% CDF-4P
¼ lb/sk Polyflake
½ ppb FiberBlock

Intermediate Tail Cement Description:
Mix Weight 13.8 ppg
Thermal 35
10% NaCl
0.9% CFR
0.7% CFL-4
0.1% LTR
0.2% SPC-II
0.4% CDF-4P
¼ lb/sk Polyflake
½ ppb FiberBlock

17 ppg Kick off Plug Cement Description:
Mix Weight 17 ppg
Class H
1.2% CD-32
0.10% R-3
.005 lb/sk Static Free

Approval Date: 05/15/2019

Zia Hills 20 106H
NWSE 20 T26S R32E

13-3/8" Surface Casing:

Surface Casing Depth (Ft)	1,212
Surface Casing O.D. (In.)	13 3/8
Surface Casing ID (In)	12.615
Hole O.D. (In)	17 1/2
Excess (%)	100%
Volume Tail (Bbl)	459
Yield Tail (Cu. Ft./Sk)	1.32
Yield Lead (Cu. Ft./Sk)	2.05
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	34.7
Tail feet of cement	400
Calculated Total Volume (Cu. Ft.)	1,719
Calc. Tail Volume (Cu. Ft.)	590
Calc. Lead Volume (Cu. Ft.)	1,128
Calc. Lead Volume (Sx)	550
Lead Volume (bbls)	200.9
Tail volume (bbls)	105.2
Displacement Volume (bbls)	181.2

Stage 1

10-3/4" Intermediate 1 Casing (Lead):

Int 1 Casing O.D. (In.)	10.750
Int 1 Casing ID (In)	9.950
Hole O.D. (In)	12.25
Excess (%)	70%
DV Tool Depth	1,212
	12,615
Yield Lead (Cu. Ft./Sk)	2.97
Calculated Total Lead (Cu. Ft.)	927
Calc. Lead Volume (Sx)	320
Lead Volume (bbls)	165

10-3/4" Intermediate 1 Casing (Tail):

Int 1 Casing Depth (Ft)	5,037
Int 1 Casing O.D. (In.)	10.750
Int 1 Casing ID (In)	9.950
Hole O.D. (In)	12.25
Excess (%)	30%
KOP	500'
Top Tail (Ft) - 1000' above KOP	4,532'
Yield Tail (Cu. Ft./Sk)	1.18
Shoe Joint (Ft)	80
Shoe Volume (Cu. Ft)	46.6
Calc. Tail Volume (Cu. Ft.)	224
Required Tail Volume (Sx)	190
Tail Volume (bbls)	40
Displacement Volume (bbls)	476

Stage 1

7-5/8" Intermediate 2 Casing (Lead):

Int 2 Casing O.D. (In.)	7.625
Int 2 Casing ID (In)	6.875
Hole O.D. (In)	9.88
Excess (%)	70%
DV Tool Depth	6,500'
Yield Lead (Cu. Ft./Sk)	2.57
Calculated Total Lead (Cu. Ft.)	1,415
Calc. Lead Volume (Sx)	550
Lead Volume (bbls)	252

7-5/8" Intermediate 2 Casing (Tail):

Int 2 Casing Depth (Ft)	12,502'
Int 2 Casing O.D. (In.)	7.625
Int 2 Casing ID (In)	6.875
Hole O.D. (In)	9.88
Excess (%)	70%
KOP	11,378'
Top Tail (Ft) - 1000' above KOP	10,378'
Yield Tail (Cu. Ft./Sk)	1.18
Shoe Joint (Ft)	80
Shoe Volume (Cu. Ft)	23.2
Calc. Tail Volume (Cu. Ft.)	799
Required Tail Volume (Sx)	680
Tail Volume (bbls)	142
Displacement Volume (bbls)	570

5-1/2" Production Liner (Tail):

Intermediate Casing Depth (Ft)	12,502'
Intermediate Casing O.D. (In.)	7.625
Intermediate Casing ID (In)	6.875
Production CasingTop Depth (Ft)	27'
Production Casing Depth (Ft)	22,529'
Production Casing O.D. (In.)	5.500
Production Casing ID (In)	4.670
Hole O.D. (In)	6.75
Excess (%)	10%
Yield Tail (Cu. Ft./Sk)	1.19
Shoe Joint (Ft)	120
Shoe Volume (Cu. Ft)	14.3
TOC (1000' above KOP)	10,378'
Calc. Tail Volume (Cu. Ft.)	1,134
Required Tail Volume (Sx)	953
Tail Volume (bbls)	202
Displacement Volume (bbls)	476

Lead Cement Description:
Mix Weight 12.6 ppg
Class C
5% BWOW NaCl
1.9% bwoc SMS
0.004 gal/sk Defoamer
¼ lb/sk Polyflake
3 lb/sk Gilsonite

Tail Cement Description:
Mix Weight 14.8 ppg
Class C
2% bwoc CaCl2
¼ lb/sk Polyflake
0.004 gal/sk Defoamer

Intermediate Lead Cement Description:
Mix Weight 11 ppg
WBL
0.5% CFL-4
0.6% LTR
0.2% SPC-8
0.4% CDF-4P
¼ lb/sk Polyflake
¼ ppb FiberBlock

Intermediate Tail Cement Description:
Mix Weight 13.8 ppg
Thermal 35
10% NaCl
0.9% CFR
0.7% CFL-4
0.1% LTR
0.2% SPC-8
0.4% CDF-4P
¼ lb/sk Polyflake
¼ ppb FiberBlock

Intermediate Lead Cement Description:
Mix Weight 11 ppg
Poz/Class C
5% bwow NaCl
10% bwob Gel
0.3% bwob Retarder
0.004 gal/sk Defoamer
¼ lb/sk Polyflake
3 lb/sk Gilsonite

Stage 2

7-5/8" Intermediate 2 Casing (Lead):

Int 1Casing Depth (ft)	5,037
Int 1 Casing I.D. (In)	9.950
DV Tool Depth (Ft)	6,500'
Int 2 Casing O.D. (In.)	7.625
Int 2 Casing ID (In)	6.875
Hole O.D. (In)	9.88
Excess (%)	70%
Top Cement (Surface)	4,500'
Yield Tail (Cu. Ft./Sk)	2.57
Calc. Tail Volume (Cu. Ft.)	449
Required Tail Volume (Sx)	175
Tail Volume (bbls)	80
Displacement Volume (bbls)	296

Intermediate Tail Cement Description:
Mix Weight 15.6 ppg
Poz/Class C
5% bwow NaCl
10% bwob Gel
0.3% bwob Retarder
0.004 gal/sk Defoamer
¼ lb/sk Polyflake
3 lb/sk Gilsonite

Intermediate Lead Cement Description:
Mix Weight 11 ppg
Poz/Class C
5% bwow NaCl
10% bwob Gel
0.3% bwob Retarder
0.004 gal/sk Defoamer
¼ lb/sk Polyflake
3 lb/sk Gilsonite

Intermediate Tail Cement Description:
Mix Weight 13.8 ppg
Class H
0.3% bwoc Fluid Loss
0.1% bwoc Retarder
0.004 gal/sk Defoamer
¼ lb/sk Polyflake

Production Casing Tail Cement Description:
Mix Weight 15.6 ppg
Class H
0.5% bwoc Fluid Loss
0.05% bwoc Anti-Settling Agent
0.35% bwoc Retarder
0.004 gal/sk Defoamer

Production Displacement

Volume to Latch down collar +/- 15 BBLS (Heel shoe track)

Component	Capacity	Length	Volume
Drill Pipe	0.0505 bbl/ft	27	0
Liner (Liner top to Float Collar)	0.0149 bbl/ft	22469	336
Total			336

Approval Date: 05/15/2019

Zia Hills 20 106H | **NWSE 20 T26S R32E** | **Lea, Co, NM** | **2/28/2019**

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.612	12.459	1,130 / 960	2,730 / 2,320	909 / 772

Surface Casing Test Pressure = 1,500 psi

Pressure Test Prior to Drill Out

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.612	12.459	BTC	1,130 / 960	2,730 / 2,320	909 / 772

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)
5.04	3.62	11.69
		13.45

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,032' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	45.5	L-80	Wedge 511	9.95	9.794	2,470 / 2,352	5,210 / 4,530	1040 / 743

Intermediate Casing Test Pressure = 4550 psi

Pressure Test Prior to Drill Out

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.75	9.922	9.974	Wedge 511	2,470 / 2,352	4,887 / 4,250	613 / 438

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)
6.05	3.35	2.68
		5.09

Cement clearance around coupling: 0.75 inches

Approval Date: 05/15/2019

Zia Hills 20 106H | NWSE 20 T26S R32E | Lea, Co, NM | 2/13/2019

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730 / 2373	853 / 809

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1076	2730 / 2373	909 / 849

Surface Casing Test Pressure = 1,500 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
5.04	2.08	11.69	Dry
		13.45	Bouyed

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,243' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	40.5	J-55	BTC	10.05	9.894	1580 / 1504	3130 / 2721	629 / 449

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	10.05	9.894	BTC	1580 / 1504	3130 / 2721	700 / 500

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.46	2.25	2.92	Dry
		5.72	Bouyed

INTERMEDIATE 2 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,032' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
7.625	29.7	P-110	BTC	6.875	6.75	5340/ 5095	9470 / 8234	940 / 671

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
8.625	6.84	6.75	BTC	5340 / 5095	9470 / 8234	950 / 685

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.69	2.64	2.63	Dry
		3.08	Bouyed

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: ' MD ' TVD
Hanger: 11,302' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP x 513	4.670	4.545	16,220 / 15,447	14,530 / 12,635	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA: TXP (From 500' Inside Intermediate shoe to surf)

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.670	4.545	TXP	16,220 / 15,447	14,530 / 12,635	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA: 513 (From TD to 500' Inside Intermediate shoe)

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	4.670	4.545	513 (Flush Joint)	16,220 / 15,447	14,530 / 12,635	540 / 386

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
1.48	1.72	2.64	Dry
		3.32	Bouyed

Approval Date: 05/15/2019

For the latest performance data, always visit our website: www.tenaris.com

Wedge 513®

Printed on: 14/02/2019

		Min. Wall Thickness	87.5%	(*)GradeP110-IC	
Outside Diameter	5.500 in.	Connection OD Option	REGULAR	Coupling	Pipe Body
Wall Thickness	0.415 in.	Drift	API Standard	Body: White	1st Band: White
Grade	P110-IC*	Type	Casing	1st Band: -	2nd Band: Pale Green
				2nd Band: -	3rd Band: -
				3rd Band: -	4th Band: -

PIPE BODY DATA

Geometry

Nominal OD	5.500 in.	Nominal Weight	23.00 lbs/ft	Drift	4.545 in.
Nominal ID	4.670 in.	Wall Thickness	0.415 in.	Plain End Weight	22.56 lbs/ft
OD Tolerance	API				

Performance

Body Yield Strength	729 x1000 lbs	Internal Yield	14530 psi	SMYS	110000 psi
Collapse	16220 psi				

CONNECTION DATA

Geometry

Connection OD	5.500 in.	Connection ID	4.590 in.	Make-up Loss	4.420 in.
Threads per in	3.29	Connection OD Option	REGULAR		

Performance

Tension Efficiency	63.5 %	Joint Yield Strength	462.915 x1000 lbs	Internal Pressure Capacity	14530.000 psi
Compression Efficiency	74.1 %	Compression Strength	540.189 x1000 lbs	Max. Allowable Bending	58.4 °/100 ft
External Pressure Capacity	16220.000 psi				

Make-Up Torques

Minimum	8400 ft-lbs	Optimum	10100 ft-lbs	Maximum	14700 ft-lbs

Operation Limit Torques

Operating Torque	27000 ft-lbs	Yield Torque	41000 ft-lbs		

Notes

For further information on concepts indicated in this datasheet, download the Datasheet Manual from www.tenaris.com

Approval Date: 05/15/2019

For the latest performance data, always visit our website: www.tenaris.com

Wedge 513®

Printed on: 14/02/2019

		Min. Wall Thickness	87.5%	(*)GradeP110-IC	
Outside Diameter	5.500 in.	Connection OD Option	REGULAR	Coupling	Pipe Body
Wall Thickness	0.415 in.	Drift	API Standard	Body: White	1st Band: White
Grade	P110-IC*	Type	Casing	1st Band: -	2nd Band: Pale Green
				2nd Band: -	3rd Band: -
				3rd Band: -	4th Band: -

PIPE BODY DATA

Geometry

Nominal OD	5.500 in.	Nominal Weight	23.00 lbs/ft	Drift	4.545 in.
Nominal ID	4.670 in.	Wall Thickness	0.415 in.	Plain End Weight	22.56 lbs/ft
OD Tolerance	API				

Performance

Body Yield Strength	729 x1000 lbs	Internal Yield	14530 psi	SMYS	110000 psi
Collapse	16220 psi				

CONNECTION DATA

Geometry

Connection OD	5.500 in.	Connection ID	4.590 in.	Make-up Loss	4.420 in.
Threads per in	3.29	Connection OD Option	REGULAR		

Performance

Tension Efficiency	63.5 %	Joint Yield Strength	462.915 x1000 lbs	Internal Pressure Capacity	14530.000 psi
Compression Efficiency	74.1 %	Compression Strength	540.189 x1000 lbs	Max. Allowable Bending	58.4 °/100 ft
External Pressure Capacity	16220.000 psi				

Make-Up Torques

Minimum	8400 ft-lbs	Optimum	10100 ft-lbs	Maximum	14700 ft-lbs

Operation Limit Torques

Operating Torque	27000 ft-lbs	Yield Torque	41000 ft-lbs		

Notes

For further information on concepts indicated in this datasheet, download the Datasheet Manual from www.tenaris.com

Approval Date: 05/15/2019

For the latest performance data, always visit our website: www.tenaris.com

TXP® BTC

Printed on: 03/05/2019

		Min. Wall Thickness	87.5%	(*)GradeP110	
Outside Diameter	5.500 in.	Connection OD Option	REGULAR	Coupling	Pipe Body
Wall Thickness	0.415 in.	Drift	API Standard	Body: White	1st Band: White
Grade	P110*	Type	Casing	1st Band: -	2nd Band: -
				2nd Band: -	3rd Band: -
				3rd Band: -	4th Band: -

PIPE BODY DATA

Geometry

Nominal OD	5.500 in.	Nominal Weight	23 lbs/ft	Drift	4.545 in.
Nominal ID	4.670 in.	Wall Thickness	0.415 in.	Plain End Weight	22.56 lbs/ft
OD Tolerance	API				

Performance

Body Yield Strength	729 x1000 lbs	Internal Yield	14530 psi	SMYS	110000 psi
Collapse	14540 psi				

CONNECTION DATA

Geometry

Connection OD	6.200 in.	Coupling Length	9.450 in.	Connection ID	4.658 in.
Make-up Loss	4.204 in.	Threads per in	5	Connection OD Option	REGULAR

Performance

Tension Efficiency	100.0 %	Joint Yield Strength	729.000 x1000 lbs	Internal Pressure Capacity [1]	14530.000 psi
Compression Efficiency	100 %	Compression Strength	729.000 x1000 lbs	Max. Allowable Bending	92 °/100 ft
External Pressure Capacity	14540.000 psi				

Make-Up Torques

Minimum	12980 ft-lbs	Optimum	14420 ft-lbs	Maximum	15860 ft-lbs

Operation Limit Torques

Operating Torque	24200 ft-lbs	Yield Torque	26900 ft-lbs		

Notes

This connection is fully interchangeable with:

TXP® BTC - 5.5 in. - 15.5 / 17 / 20 / 26 lbs/ft

Approval Date: 05/15/2019

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CONOCO PHILLIPS CO
LEASE NO.:	NMLC68281B
WELL NAME & NO.:	ZIA HILLS 20 FED COM 106H
SURFACE HOLE FOOTAGE:	2570'/S & 2067'/E
BOTTOM HOLE FOOTAGE	50'/S & 2310'/E
LOCATION:	SECTION 20, T26S, R32E, NMPM
COUNTY:	LEA

TABLE OF CONTENTS

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.

Approval Date: 05/15/2019

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)

Hydrology:

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production:

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Liners and Berms:
Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation
The following stipulations will be applied to protect cave/karst and ground water concerns:
Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.
Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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 twenty (20) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) 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.

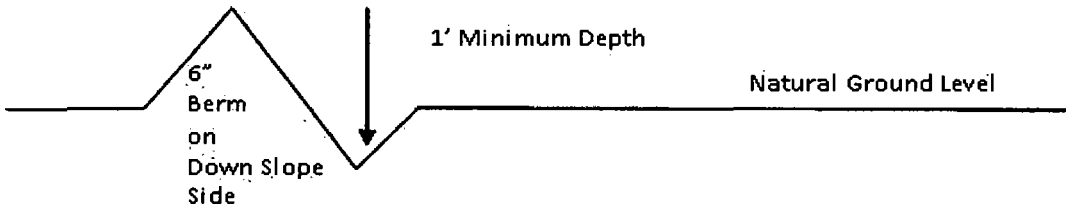
Ditching
Ditching shall be required on both sides of the road.

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 outsloping and insloping, 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:

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

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

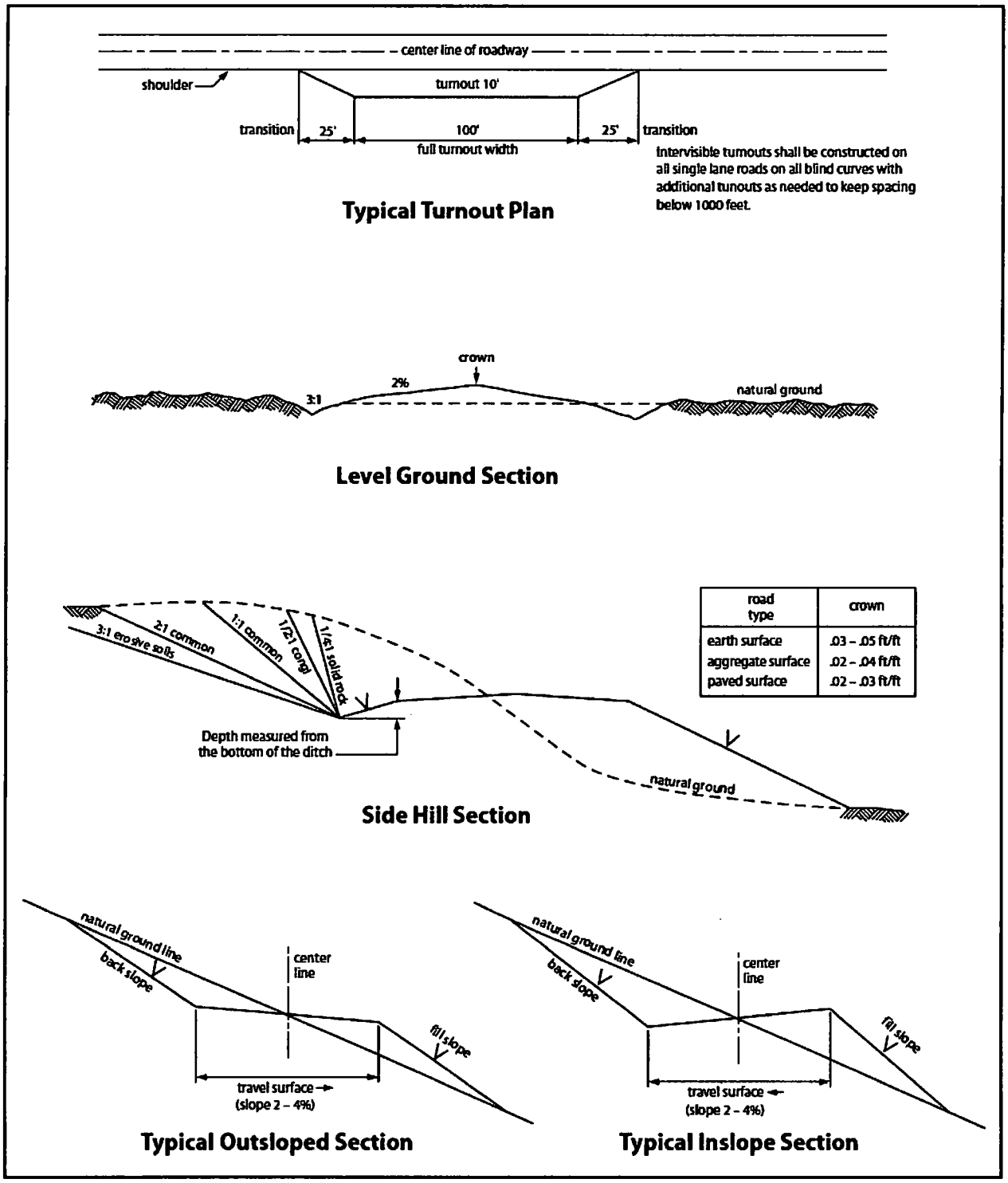


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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).

B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to

repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
(X) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder 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 will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. 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 associated roads, 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.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Karst:

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

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).

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

AFMSS

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

Operator Certification Data Report

05/16/2019

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Jeremy Lee **Signed on:** 09/27/2018

Title: Regulatory Coordinator

Street Address: PO Box 2197

City: Houston **State:** TX **Zip:** 77252

Phone: (832)486-2510

Email address: Jeremy.L.Lee@cop.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

AFMSS

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

Application Data Report

05/16/2019

APD ID: 10400018650 **Submission Date:** 09/25/2017

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400018650 **Tie to previous NOS?** **Submission Date:** 09/25/2017

BLM Office: CARLSBAD **User:** Jeremy Lee **Title:** Regulatory Coordinator

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMLC0068281B **Lease Acres:** 1841.48

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? NO **APD Operator:** CONOCOPHILLIPS COMPANY

Operator letter of designation:

Operator Info

Operator Organization Name: CONOCOPHILLIPS COMPANY

Operator Address: PO Box 2197

Zip: 77252

Operator PO Box:

Operator City: Houston **State:** TX

Operator Phone: (281)293-1748

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Master Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WOLFCAMP **Pool Name:** WOLFCAMP

Is the proposed well in an area containing other mineral resources? NONE

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** ZIA HILLS 20 FEDERAL PAD **Number:** 1

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 44.1 Miles **Distance to nearest well:** 33 FT **Distance to lease line:** 2067 FT

Reservoir well spacing assigned acres Measurement: 0 Acres

Well plat: ZIA_HILLS_20_106H_C_102_20180927144755.pdf

Well work start Date: 08/20/2019 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2570	FSL	2067	FEL	26S	32E	20	Aliquot NWSE	32.027908	-103.695261	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0068281B	3154	0	0
KOP Leg #1	2652	FSL	1948	FEL	26S	32E	20	Aliquot NWSE	32.028133 6	-103.6948747	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0068281B	-8161	11323	11315
PPP Leg #1	2570	FSL	1980	FEL	26S	32E	20	Aliquot NWSE	32.027911	-103.694981	LEA	NEW MEXICO	NEW MEXICO	F	NMLC0068281B	-8486	11750	11640

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
PPP Leg #1	0	FNL	1976	FEL	26S	32E	29	Aliquot NWNE	32.020846	-103.694984	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 027508	-8561	14100	11715
PPP Leg #1	0	FNL	1978	FEL	26S	32E	32	Lot 2	32.006156	-103.694988	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8561	17450	11715
EXIT Leg #1	100	FSL	1980	FEL	26S	32E	32	Lot 2	32.000494	-103.694988	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8561	21245	11715
BHL Leg #1	50	FSL	1980	FEL	26S	32E	32	Lot 2	32.000358	-103.694989	LEA	NEW MEXICO	NEW MEXICO	S	STATE	-8848	21833	12002

APD ID: 10400018650 **Submission Date:** 09/25/2017

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	3154	0	0		NONE	No
2	RUSTLER	2160	994	994	DOLOMITE,ANHYDRITE	NONE	No
3	SALADO	1600	1554	1554	SALT	NONE	No
4	CASTILE	1000	2154	2154	SALT	NONE	No
5	DELAWARE	-1180	4334	4334	SANDSTONE	NATURAL GAS,OIL	No
6	CHERRY CANYON	-2100	5254	5254	SANDSTONE	NATURAL GAS,OIL	No
7	BRUSHY CANYON	-3680	6834	6834	SANDSTONE	NATURAL GAS,OIL	No
8	BONE SPRING	-5000	8154	8154	SANDSTONE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-6180	9334	9334	SANDSTONE	NATURAL GAS,OIL	No
10	BONE SPRING 2ND	-6825	9979	9979	SANDSTONE	NATURAL GAS,OIL	No
11	BONE SPRING 3RD	-7300	10454	10454	LIMESTONE	NATURAL GAS,OIL	No
12	WOLFCAMP	-8360	11514	11514	LIMESTONE,SHALE,SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M **Rating Depth:** 11315

Equipment: Rotating Head, Annular Preventer, Pipe/Blind Rams, Kill Lines, Choke Lines, Adapter Spool

Requesting Variance? YES

Variance request: A variance to use flexible choke line(s) from the BOP to Choke Manifold. Testing certificate is attached in "Flexhose Variance data" document. A variance to use a mulitbowl wellhead system. Please see attached in section 8 of drilling plan. A variance is requested to use a 5M annular and test the annular to 100% of its working pressure. This variance is requested in conjunction with the attached well control plan.

Testing Procedure: BOP/BOPE will be isolated from the casing and tested by an independent service company to 250 psi

low and the high pressure indicated above per Onshore Order 2 requirements. BOPE controls will be installed prior to drilling under the surface casing and will be used until the completion of drilling operations. The intermediate interval and the production interval will be tested per 10M working system requirements. See attached "Drill Plan" document.

Choke Diagram Attachment:

Zia_Hills_20_Fed_Com_106H_Choke_20190204063419.pdf

BOP Diagram Attachment:

Zia_Hills_20_Fed_Com_106H_BOPE_20190204063428.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	SURFACE	17.5	13.375	NEW	API	N	0	1212	0	1212			1212	J-55	54.5	OTHER - BTC	2.08	5.04	DRY	11.69	DRY	11.69
2	INTERMEDIATE	12.25	10.75	NEW	API	N	0	5032	0	5032			5032	J-55	40.5	OTHER - BTC	2.25	4.46	DRY	2.92	DRY	2.92
3	INTERMEDIATE	9.875	7.625	NEW	API	N	0	11302	0	11302			11302	P-110	29.7	OTHER - BTC	2.64	4.69	DRY	2.63	DRY	2.63
4	INTERMEDIATE	9.875	7.625	NEW	API	N	11302	12502	11302	12023			1200	P-110	29.7	OTHER - H513	2.64	4.69	DRY	2.63	DRY	2.63
5	PRODUCTION	6.75	5.5	NEW	API	N	0	22526	0	12023			22526	P-110	23	OTHER - TXP	1.72	1.46	DRY	2.64	DRY	2.64

Casing Attachments

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Fed_Com_106H_Csg_Design_20190204074406.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Fed_Com_106H_Csg_Design_20190204074414.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Fed_Com_106H_Csg_Design_20190204074422.pdf

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

Casing Attachments

Casing ID: 4 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Fed_Com_106H_Csg_Design_20190204074430.pdf

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_20_Pad_1__Production_csg_specification_20190204065656.pdf

Zia_Hills_20_Fed_Com_106H_Csg_Design_20190204074438.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
SURFACE	Lead		0	812	560	2.05	12.8	1128	100	CLASS C + adds	+ 5% BWOW NaCl + 1.9% bwoc SMS + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake + 3 lb/sk Gilsonite
SURFACE	Tail		812	1212	450	1.32	14.8	590	100	CLASS C + adds	+ 2% bwoc CaCl2 + ¼ lb/sk Polyflake + 0.004 gal/sk Defoamer
INTERMEDIATE	Lead		0	4532	320	2.97	11	927	70	WBL + adds	+ 0.5% CFL-4 + 0.6% LTR + 0.2% SPC-II +

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
INTERMEDIATE	Tail		4532	5032	190	1.18	13.8	224	30	Thermal 35 + adds	+ 10% NaCl + 0.9% CFR + 0.7% CFL-4 + 0.1% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
INTERMEDIATE	Lead		4500	6500	175	2.57	10.8	449	70	Poz/Class C + adds	+ 5% bwow NaCl +10% bwob Gel + 0.3% bwob Retarder + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake + 3 lb/sk Gilsonite
INTERMEDIATE	Lead	6500	6300	10376	560	2.57	11	2.57	70	Poz/Class C + adds	+ 5% bwow NaCl +10% bwob Gel + 0.3% bwob Retarder + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake + 3 lb/sk Gilsonite
INTERMEDIATE	Tail		10376	12502	680	1.18	13.8	799	70	Class H + adds	+ 0.3% bwoc Fluid Loss + 0.1% bwoc Retarder + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake
PRODUCTION	Lead		10376	22526	953	1.19	15.6	1134	10	Class H + adds	+ 0.5% bwoc Fluid Loss + 0.05% bwoc Anti-Settling Agent + 0.35% bwoc Retarder + 0.004 gal/sk Defoamer

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

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: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. See attached "Drill Plan" for additional information.

Describe the mud monitoring system utilized: Closed-loop mud system using steel mud containers will be on location. Mud monitoring of any changes in levels (gains or losses) will use Pressure Volume Temperature, Pason, Visual Observations. See attached "Drill Plan" for additional information.

Circulating Medium Table

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	1124	OTHER : FRESH WATER	8.34	8.6							
0	12451	OIL-BASED MUD	8.6	9.2							
0	21833	OIL-BASED MUD	9.5	13.5							

Section 6 - Test, Logging, Coring

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

Production tests will be conducted multiple times per week, through a test separator, during first months following completion. Thereafter, tests will be less frequently. See attached "Drill Plan" for additional information.

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

GR

Coring operation description for the well:

No coring operation is planned, at this time. The following logs will be run in the pilot hole: Quad combo log, Image log FMI, and Water base cuttings.

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 20 FEDERAL COM **Well Number:** 106H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 8416 **Anticipated Surface Pressure:** 5775.56

Anticipated Bottom Hole Temperature(F): 285

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

ZIA_HILLS_20_PAD_1_H2S_C_Plan_08-04-2017.pdf
Zia_Hills_20_Pad_1_Rig_Layout_20180927152201.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Wellplan_Report_Zia_Hills_20_Federal_Com_106H_Design_A_20180927152243.pdf
Wellplan_Report_Zia_Hills_20_Federal_Com_106H_Pilot_Hole_20180927152310.pdf
Zia_Hills_20_Fed_Com_106H_Wellbore_Schematic_20190204073120.pdf
Zia_Hills_20_Fed_Com_106H_Pilot_Hole_Wellbore_Schematic_20190204073133.pdf

Other proposed operations facets description:

This well will have a pilot hole.

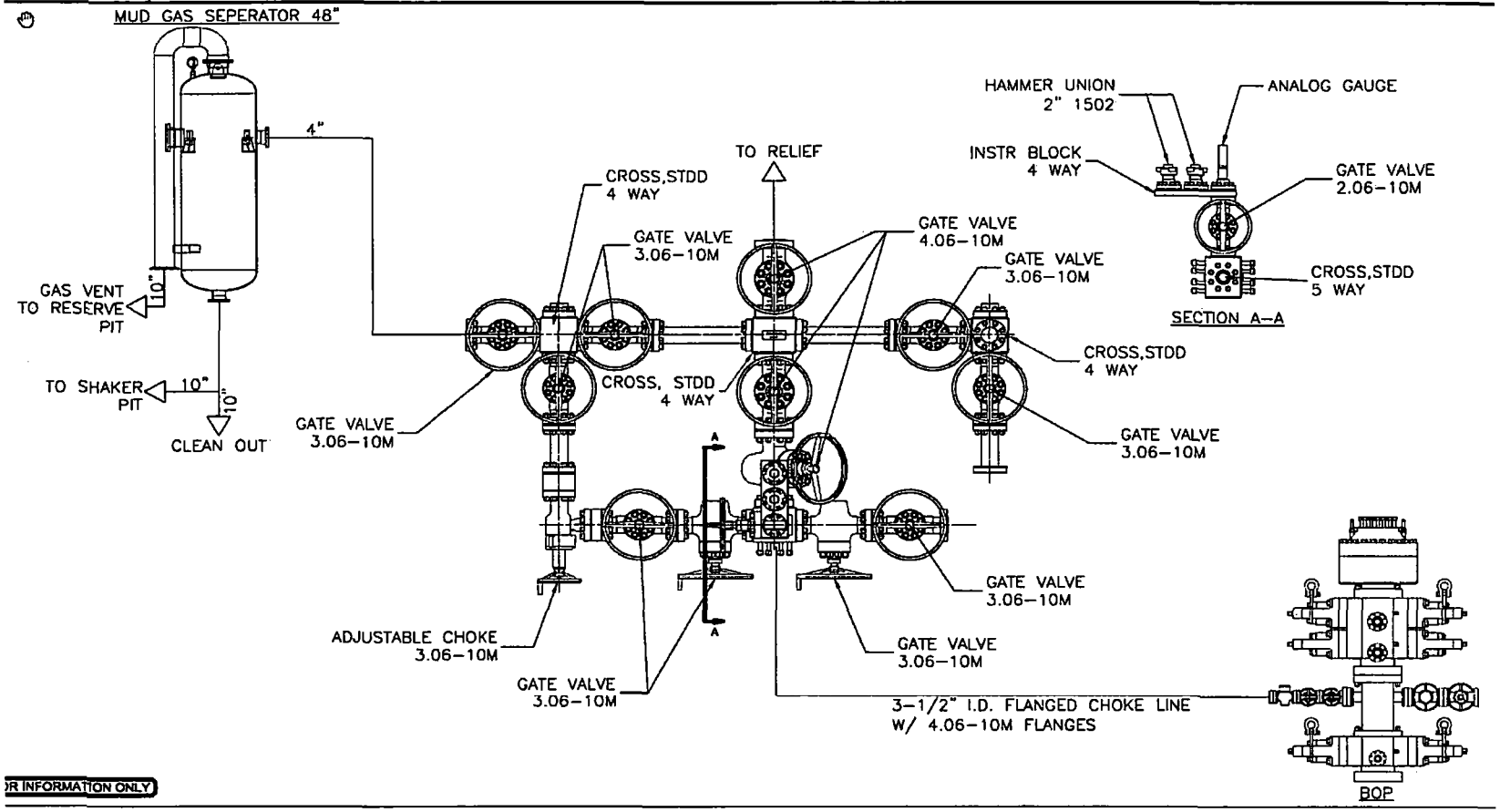
Other proposed operations facets attachment:

Zia_Hills_20_Pad_1_Drill_Waste_Containment_08-04-2017.pdf
Zia_Hills_20_Pad_1_Gas_Capture_Plan_08-04-2017.pdf
ZIA_HILLS_20_106H_Drilling_Plan_revised_2_1_19_20190204073307.pdf

Other Variance attachment:

Zia_Hills_20_Pad_1_Flexhose_Variance_08-04-2017.pdf
Zia_Hills_20_Pad_1_Generic_WH_08-04-2017.pdf
Zia_Hills_20_Pad_1_Running_Procedure_2_20170918131117.pdf
Wild_Well_Control_Plan_20190204073317.pdf

Choke Manifold 10M psi



OR INFORMATION ONLY

BOPE Configuration & Specifications
13-5/8" x 10,000 psi System

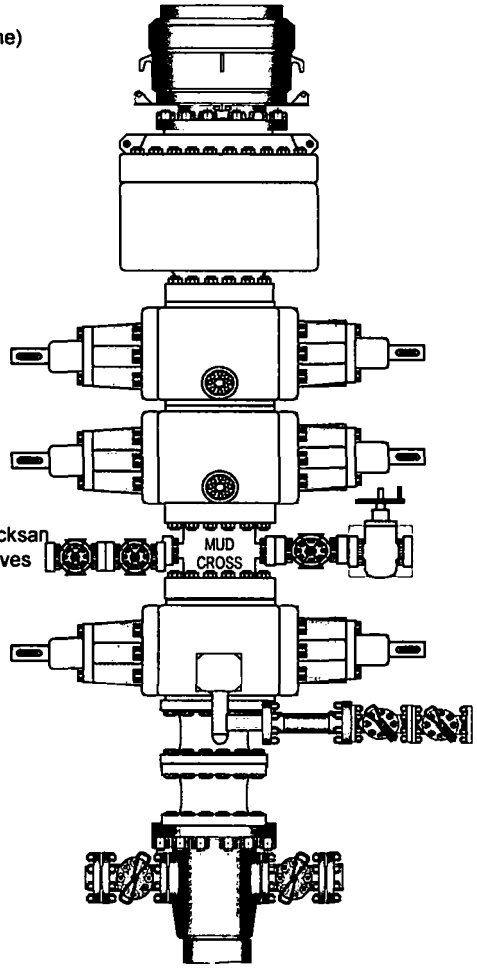
Rotating Head (w/ fill up line)
13-5/8" x 10k psi

Annular Preventer
13-5/8" x 5k psi

Pipe Ram
13-5/8" x 10k psi

Blind Ram
13-5/8" x 10k psi

Kill Line 2-1/16" x 10k Chicksan
(2) 2-1/16" x 10k Gate Valves
Outer Check Valve



Choke Line 6" x 3" x 10k psi
4-1/16" x 10k psi Inner Manual Valve
4 - 1/16" x 10k psi Outer Remote HCR

Pipe Ram
13-5/8" x 10k psi

2" x 5k psi Gate Valves
Pressure Testing Lines

Spacer Spool
13-5/8" x 10k psi

Casing Head
13-5/8" x 10k psi

Zia Hills 20 106H | NWSE 20 T26S R32E | Lea, Co, NM | 2/4/2019

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730 / 2373	853 / 809

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1076	2730 / 2373	909 / 649

Surface Casing Test Pressure = 1,500 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
5.04	2.08	11.69	Dry
		13.45	Bouyed

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,243' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	40.5	J-55	BTC	10.05	9.894	1580 / 1504	3130 / 2721	629 / 449

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	10.05	9.894	BTC	1580 / 1504	3130 / 2721	700 / 500

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.46	2.25	2.92	Dry
		5.72	Bouyed

INTERMEDIATE 2 CASING DESIGN INFORMATION

Setting Depth: 12,502' MD 12,023' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
7.625	29.7	P-110	BTC	6.875	6.75	5340/ 5095	9470 / 8234	940 / 671

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	8.84	8.75	BTC	5340 / 5085	9470 / 8234	960 / 685

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.69	2.64	2.63	Dry
		3.08	Bouyed

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: 22,526' MD 12,023' TVD
Hanger: 11,302' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,520 / 13,628	12,360 / 10,747	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.670	4.545	TXP	14,520 / 13,628	12,360 / 10,747	724 / 517

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
1.46	1.72	2.64	Dry
		3.32	Bouyed

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SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730 / 2373	853 / 809

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1076	2730 / 2373	909 / 649

Surface Casing Test Pressure = 1,500 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
5.04	2.08	11.69	Dry
		13.45	Bouyed

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,243' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	40.5	J-55	BTC	10.05	9.894	1580 / 1504	3130 / 2721	629 / 449

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	10.05	9.894	BTC	1580 / 1504	3130 / 2721	700 / 500

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.46	2.25	2.92	Dry
		5.72	Bouyed

INTERMEDIATE 2 CASING DESIGN INFORMATION

Setting Depth: 12,502' MD 12,023' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
7.625	29.7	P-110	BTC	6.875	6.75	5340/ 5085	9470 / 8234	940 / 671

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	8.84	8.75	BTC	5340 / 5085	9470 / 8234	960 / 686

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.69	2.64	2.63	Dry
		3.08	Bouyed

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: 22,626' MD 12,023' TVD
Hanger: 11,302' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,520 / 13,826	12,360 / 10,747	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.670	4.545	TXP	14,520 / 13,826	12,360 / 10,747	724 / 517

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
1.46	1.72	2.64	Dry
		3.32	Bouyed

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SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730 / 2373	853 / 809

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1076	2730 / 2373	909 / 849

Surface Casing Test Pressure = 1,500 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
5.04	2.08	11.69	Dry
		13.45	Bouyed

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,243' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	40.5	J-55	BTC	10.05	9.894	1580 / 1504	3130 / 2721	629 / 449

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	10.05	9.894	BTC	1580 / 1504	3130 / 2721	700 / 500

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.46	2.25	2.92	Dry
		5.72	Bouyed

INTERMEDIATE 2 CASING DESIGN INFORMATION

Setting Depth: 12,502' MD 12,023' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
7.625	29.7	P-110	BTC	6.875	6.75	5340/ 5085	9470 / 8234	940 / 671

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
8.625	8.84	8.75	BTC	5340 / 5085	9470 / 8234	980 / 685

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.69	2.64	2.63	Dry
		3.08	Bouyed

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: 22,526' MD 12,023' TVD
Hanger: 11,302' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,520 / 13,828	12,360 / 10,747	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.670	4.545	TXP	14,520 / 13,828	12,360 / 10,747	724 / 517

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
1.46	1.72	2.64	Dry
		3.32	Bouyed

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SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730 / 2373	853 / 809

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1076	2730 / 2373	909 / 649

Surface Casing Test Pressure = 1,500 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
5.04	2.08	11.69	Dry
		13.45	Bouyed

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,243' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	40.5	J-55	BTC	10.05	9.894	1580 / 1504	3130 / 2721	629 / 449

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	10.05	9.894	BTC	1580 / 1504	3130 / 2721	700 / 500

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.46	2.25	2.92	Dry
		5.72	Bouyed

INTERMEDIATE 2 CASING DESIGN INFORMATION

Setting Depth: 12,502' MD 12,023' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
7.625	29.7	P-110	BTC	6.875	6.75	5340/ 5085	9470 / 8234	940 / 671

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	8.84	8.75	BTC	5340 / 5085	9470 / 8234	960 / 685

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.69	2.64	2.63	Dry
		3.08	Bouyed

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: 22,526' MD 12,023' TVD
Hanger: 11,302' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,520 / 13,826	12,360 / 10,747	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.670	4.545	TXP	14,520 / 13,826	12,360 / 10,747	724 / 517

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
1.46	1.72	2.64	Dry
		3.32	Bouyed

Zia Hills 20 Federal Pad #1

Production Casing Specification Sheet

For the latest performance data, always visit our website: www.tenaris.com

August 29 2016

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110
Min. Wall Thickness: 87.5 %

Connection: TenarisXP® BTC
Casing/Tubing: CAS
Coupling Option: REGULAR

PIPE BODY DATA

GEOMETRY

Nominal OD	**5.500** in.	Nominal Weight	**20.00** lbs/ft	Standard Drift Diameter	**4.653** in.
Nominal ID	**4.778** in.	Wall Thickness	**0.361** in.	Special Drift Diameter	**N/A**
Plain End Weight	**19.83** lbs/ft				

PERFORMANCE

Body Yield Strength	**641** x 1000 lbs	Internal Yield	**12630** psi	SMYS	**110000** psi
Collapse	**11100** psi				

TENARISXP® BTC CONNECTION DATA

GEOMETRY

Connection OD	**6.100** in.	Coupling Length	**9.450** in.	Connection ID	**4.766** in.
Critical Section Area	**5.828** sq. in.	Threads per in.	**5.00**	Make-Up Loss	**4.204** in.

PERFORMANCE

Tension Efficiency	**100** %	Joint Yield Strength	**641** x 1000 lbs	Internal Pressure Capacity[1]	**12630** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**641** x 1000 lbs	Structural Bending[2]	**92** °/100 ft
External Pressure Capacity	**11100** psi				

ESTIMATED MAKE-UP TORQUES[3]

Minimum	**11270** ft-lbs	Optimum	**12520** ft-lbs	Maximum	**13770** ft-lbs

OPERATIONAL LIMIT TORQUES

Operating Torque	**21500** ft-lbs	Yield Torque	**23900** ft-lbs		

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SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,212' MD 1,212' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730 / 2373	853 / 609

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1076	2730 / 2373	909 / 649

Surface Casing Test Pressure = 1,500 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COP

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
5.04	2.08	11.69	Dry
		13.45	Bouyed

INTERMEDIATE 1 CASING DESIGN INFORMATION

Setting Depth: 5,032' MD 5,243' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.750	40.5	J-55	BTC	10.05	9.894	1580 / 1504	3130 / 2721	629 / 449

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	10.05	9.894	BTC	1580 / 1504	3130 / 2721	700 / 500

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.46	2.25	2.92	Dry
		5.72	Bouyed

INTERMEDIATE 2 CASING DESIGN INFORMATION

Setting Depth: 12,502' MD 12,023' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
7.625	29.7	P-110	BTC	6.875	6.75	5340/ 5085	9470 / 8234	940 / 671

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	8.84	8.75	BTC	5340 / 5085	9470 / 8234	980 / 695

Intermediate Casing Test Pressure = 4550 psi
Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body &
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
4.69	2.64	2.63	Dry
		3.08	Bouyed

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: 22,526' MD 12,023' TVD
Hanger: 11,302' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.670	4.545	14,520 / 13,828	12,360 / 10,747	729 / 520

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.670	4.545	TXP	14,520 / 13,828	12,360 / 10,747	724 / 517

Production Casing Test Pressure = TBD

Minimum Design / Safety Factors

Burst	Collapse	Tension (Body & Connection)
1.15	1.05	1.40

Actual Design / Safety Factors

Burst	Collapse	Tension (Body)	
1.46	1.72	2.64	Dry
		3.32	Bouyed

ConocoPhillips

H_2S Contingency Plan
November 2016

H_2S Contingency Plan Holders:

Attached is an H_2S Contingency Plan for COPC Permian Drilling working in the West Texas and Southeastern New Mexico areas operated by ConocoPhillips Company.

If you have any question regarding this plan, please call Matt Oster (830) 583-1297, or Ryan Vacarella (985) 217-7594.

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ConocoPhillips

HYDROGEN SULFIDE (H_2S) OPERATIONS

Contingency Plan
For
Permian Drilling Operations

ConocoPhillips Company

Mid-Continent Business Unit
Permian Asset Area

I. PURPOSE

The purpose of this Contingency Plan is to provide an organized plan of action for alerting and protecting the public following the release of a potentially hazardous volume of hydrogen sulfide. This plan prescribes mandatory safety procedures to be followed in the event of a release of H_2S into the atmosphere from exploration and production operations included in the scope of this plan. The extent of action taken will be determined by the supervisor and will depend on the severity and extent of H_2S release. Release of H_2S must be reported to the Drilling Superintendent and documented on the IADC and in Wellview.

II. SCOPE

This Contingency plan shall cover the West Texas and Southeastern New Mexico areas, which contain H2S gas and could result in a release where the R.O.E. is greater than 100 ppm at 50' and less than 3000' and does not include a public area and 500 ppm R.O.E. does not include a public road. Radius of exposure is defined as the maximum distance from the source of release that a specified calculated average concentration of H_2S could exist under specific weather conditions.

III. PROCEDURES

First Employee on Scene

____Assess the incident and ensure your own safety.

Note the following:

—— Location of the incident.
____Nature of the incident.
—— Wind direction and weather conditions.
____Other assistance that may be needed.

____ Call local supervisory personnel (refer to Section V: Emergency Call List) until personal contact is made with a person on the list.

____ Perform emergency assessment and response as needed. The response may include rescue and/or evacuation of personnel, shutting in a system and/or notification of nearby residents/public (refer to Section VII: Public Notification/Evacuation).

____ Secure the site.

____ Follow the direction of the On-scene Incident Commander (first ConocoPhillips supervisor arriving on-scene).

First Supervisor on Scene (ConocoPhillips On-scene Incident Commander)

—— Becomes ConocoPhillips' On-scene Incident Commander upon arrival to location.

—— Follow the principles of the **D.E.C.I.D.E.** process below to assess the incident. (Note wind direction and weather conditions and ensure everyone's safety).

DETECT the problem
ESTIMATE likely harm without intervention
CHOOSE response objectives
IDENTIFY action options
DO the best option
EVALUATE the progress

____Complete the Preliminary Emergency Information Sheet (refer to Section VIII: Forms/Reports).

____Call your supervisor (refer to Section V: Emergency Call List).

____Perform emergency response as necessary. (This may include notification & evacuation of all personnel and/or nearby residents/public (refer to Section VII: Public Notification/Evacuation), requesting assistance from ConocoPhillips personnel or outside agencies (refer to Section V: Emergency Call List) and obtaining any safety equipment that may be required (refer to Section IV: Emergency Equipment and Maintenance).

—— Notify appropriate local emergency response agencies of the incident as needed. Also notify the appropriate regulatory agencies. (refer to Section V: Emergency Call List).

—— Ensure site security.

— Set barricades and /or warning signs at or beyond the calculated 100 ppm H_2S radius of exposure (ROE). All manned barricades must be equipped with an H_2S monitor and a 2-way radio.

— Set roadblocks and staging area as determined.

—— Establish the Incident Command Structure by designating appropriate on-scene response personnel as follows:

Recording Secretary _____
Public Information Officer _____
Safety/Medical Officer _____
Decontamination Officer _____

—— Have the "Recording Secretary" begin documenting the incident on the "Incident Log" (refer to Section VIII: Forms/Reports).

—— If needed, request radio silence on all channels that use your radio tower stating that, until further notice, the channels should be used for emergency communications only.

—— Perform a Site Characterization and designate the following:

Hot Zone – Hazardous Area
Warm Zone – Preparation & Decontamination Area
Cold Zone – Safe Area

AND

On-Scene Incident Command Post	(Cold Zone)
Public Relations Briefing Area	(Cold Zone)
Staging Area	(Cold Zone)
Triage Area	(Cold Zone)
Decontamination Area	(Warm Zone)

____Refer all media personnel to ConocoPhillips' On-Scene Public Information Officer (refer to Section VI: Public Media Relations).

____Coordinate the attempt to stop the release of H_2S. You should consider closing upstream and downstream valves to shut-off gas supply sources, and/or plugging or clamping leaks. Igniting escaping gas to reduce the toxicity hazard should be used **ONLY AS A LAST RESORT**. (It must first be determined if the gas can be safely ignited, taking into consideration if there is a possibility of a widespread flammable atmosphere.)

____Once the emergency is over, return the situation to normal by:

Confirming the absence of H_2S and combustible gas throughout the area,

Discontinuing the radio silence on all channels, stating that the emergency incident is over,

Removing all barricades and warning signs,

Allowing evacuees to return to the area, and

Advising all parties previously notified that the emergency has ended.

____ Ensure the proper regulatory authorities/agencies are notified of the incident (refer to Section V: Emergency Call List).

____ Clean up the site. (Be sure all contractor crews have had appropriate HAZWOPER training.)

____ Report completion of the cleanup to the Asset Environmentalist. (Environmentalist will report this to the proper State and/or Federal agencies.)

____ Fill out all required incident reports and send originals to the Safety Department. (Keep a copy for your records.)

- Company employee receiving occupational injury or illnesses.

- Company employee involved in a vehicle accident while driving a company vehicle.

- Company property that is damaged or lost.

- Accident involving the public or a contractor; includes personal injuries, vehicle accidents, and property damage. Also includes any situation, which could result in a claim against the Company.

- Hazardous Material Spill/Release Report Form

- Emergency Drill Report

____ Assist the Safety Department in the investigation of the incident. Review the factors that caused or allowed the incident to occur, and modify operating, maintenance, and/or surveillance procedures as needed. Make appropriate repairs and train or retrain employees in the use and operation of the system.

____ If this incident was simulated for practice in emergency response, complete the Emergency Drill Report found in Section VIII: Forms/Reports and submit a copy to the Drilling Manager. (Keep one copy in area files to document exercising of the plan.)

Emergency Procedures
Responsibility

In the event of a release of potentially hazardous amounts of H2S, all personnel will immediately proceed upwind/ crosswind to the nearest designated briefing area. The COPC Drilling Rep. will immediately, upon assessing the situation, set this into action by taking the proper procedures to contain the gas and notify appropriate people and agencies.

1. In an emergency situation, the Drilling Rep. on duty will have complete responsibility and will take whatever action is deemed necessary in an emergency situation to insure the personnel's safety, to protect the well and to prevent property damage.

2. The Toolpusher will assume all responsibilities of the Drilling Rep. in an emergency situation in the event the Drilling Rep. becomes incapacitated.

3. Advise each contractor, service company, and all others entering the site that H2S may be encountered and the potential hazards that may exist.

4. Authorize the evacuation of local residents if H2S threatens their safety.

5. Keep the number of persons on location to a minimum during hazardous operations.

6. Direct corrective actions to control the flow of gas.

7. Has full responsibility for igniting escaping gas to reduce the toxicity hazard.

   This should be used **ONLY AS A LAST RESORT**.

IV. EMERGENCY EQUIPMENT and MAINTENANCE

Emergency Equipment Suppliers

DXP/ Safety International – Odessa, Tx. 432.580.3770
H_2S monitors
Breathing air includes cascade systems
First aid and medical supplies
Safety equipment
H2S Specialist

Total Safety US Odessa, Tx/ Hobs, NM 432.561.5049 Odessa
H_2S monitors 575.392.2973 Hobbs
Breathing air includes cascade systems
First aid and medical supplies
Safety equipment

DXP/ Indian Fire & Safety – Hobbs, NM 575.393.3093
H_2S monitors
Breathing air including cascade systems trailer mounted
30 minute air packs
Safety Equipment

TC Safety – Odessa, Tx. 432.413.8240
H_2S monitors
Cascade systems trailer mounted
30 minute air packs
Safety Equipment
H2S Specialist

Secorp Industries – Odessa, Tx. 432.614.2565
H2S Monitor Systems
Cascade Systems
H2S Specialist
H2S, CPR, First Aid Training

Emergency Equipment and Maintenance (continued)

General Information

Materials used for repair should be suitable for use where H_2S concentrations exceed 100 ppm. In general, carbon steels having low-yield strengths and a hardness below RC-22 are suitable. The engineering staff should be consulted if any doubt exists on material specifications.

Appropriate signs should be maintained in good condition at location entrance and other locations as specified in Texas Rule 36 and NMOCD Rule 118.

All notification lists should be kept current with changes in names, telephone numbers, etc.

All shutdown devices, alarms, monitors, breathing air systems, etc., should be maintained in accordance with applicable regulations.

All personnel working in H_2S areas shall have received training on the hazards, characteristics, and properties of H_2S, and on procedures and safety equipment applicable for use in H_2S areas.

H2S Safety Equipment and Monitoring Systems

An H2S emergency response package will be maintained at locations requiring H2S monitoring. The package will contain at a minimum the following:

3 – Fixed H2S sensors located as follows:
- 1 – on the rig floor
- 1 – at the Bell Nipple
- 1 – at the Shale Shaker or Flowline

1 – Entrance Warning Sign located at the main entrance to the location, with warning signs and colored flags to determine the current status for entry into the location.

2 – Windsocks that are clearly visible.

1 – Audible warning system located on rig floor

2 – Visual warning systems (Beacon Lights)
- 1 – Located at the rig floor
- 1 – Located in the mud mixing room

Note: All alarms (audible and visual) should be set to alarm at 10 ppm.

2 - Briefing areas clearly marked
- 2 - SCBA's at each briefing area
- 1- SCBA located at the Drilling Reps office

Note:
1. **All SCBA's must be positive pressure type only!!!**
2. **All SCBA's must either be Scott or Drager brand.**
3. **All SCBA's face pieces should be size large, unless otherwise specified by the Drilling Supervisor.**

5 – Emergency Escape Paks located at Top Doghouse.
Note: Ensure provisions are included for any personnel working above rig floor in derrick.

1 – Tri or Quad gas monitor located at the Drilling Reps office. This will be used to determine if the work area if safe to re-enter prior to returning to work following any alarm.

V. EMERGENCY CALL LIST:

The following is a priority list of personnel to contact in an emergency situation:

Supervisory Personnel	Office No.		Cellphone
Drilling Supt. (Unconventional) **Scott Nicholson**	432.688.9065		432.230.8010
Field Superintendents: **Clint Case**.	432.688.6878		940.231.2839
Safety Support: **Matt Oster** **Ryan Vaccarella**	830.583.1245 985.217.7594		601.540.6988 NA
Supt Operations-SEMN/Shale Mike Neuschafer	432.688.6834		713.419.9919
MCBU Safety Coordinator **James Buzan**	432.688.6860		832.630.4320
Manger GCBU/MCBU D & C **Seth Crissman**	832.486.6191		832.513.9308

EMERGENCY CALL LIST: State Officials

Regulatory Agencies

Texas Railroad Commission (District 8) Office: 432.684.5581
Midland, Texas

New Mexico Oil Conservation Commission Office: 575.393.6161
P. O. Box 1980
Hobbs, New Mexico 88240-1980

Bureau of Land Mngt.
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220

Office: 575.234.5972
Fax: 575.885.9264

EMERGENCY CALL LIST: Local Officials

Refer to the Location Information Sheet
Note: The LIS should include any area residents (i.e. rancher's house, etc)

VI. Public Media Relations

The **Public Information Officer** becomes the ConocoPhillips on-scene contact (once designated by the Phillips On-Scene Incident Commander).

Confers with Houston Office's Human Relations Representative, who is responsible for assisting in the coordination of local public relations duties.

Answer media questions honestly and **only with facts**, do not speculate about the cause, amount of damage, or the potential impact of the incident of the community, company, employees, or environment. (This information will be formally determined in the incident investigation.)

If you are comfortable answering a question or if you are unsure of the answer, use terms such as the following:

- "I do not know. I will try to find out."
- I am not qualified to answer that question, but I will try to find someone who can."
- "It is under investigation."

Note:
Do Not Say "No Comment." (This implies a cover-up.)

Do Not Disclose Names of Injured or Dead! Confer with the Houston Office's Human Relations Representative, who is responsible for providing that information.

VII. Public Notification/Evacuation

Alert and/or Evacuate People within the Exposure Area

1. Public Notification – If the escape of gas could result in a hazard to area residents, the general public, or employees, the person **first** observing the leak should take **immediate** steps to cause notification of any nearby residents. The avoidance of injury or loss of life should be of prime consideration and given top priority in all cases. If the incident is of such magnitude, or at such location as to create a hazardous situation, local authorities will be requested to assist in the evacuation and roadblocks of the designated area until the situation can be returned to normal.

   Note: Bilingual employees may be needed to assist in notification of residents.

2. Evacuation Procedures – Evacuation will proceed upwind from the source of the release of H_2S. Extreme caution should be exercised in order to avoid any depressions or low-lying areas in the terrain. The public area within the radius of exposure should be evacuated in a southwesterly and southeasterly direction so as to avoid the prevailing southern wind direction.

   Roadblocks and the staging area should be established as necessary for current wind conditions.

Note: In all situations, consideration should be given to wind direction and weather conditions. H_2S is heavier than air and can settle in low spots. Shifts in wind direction can also change the location of possible hazardous areas.

VIII. FORMS & REPORTS

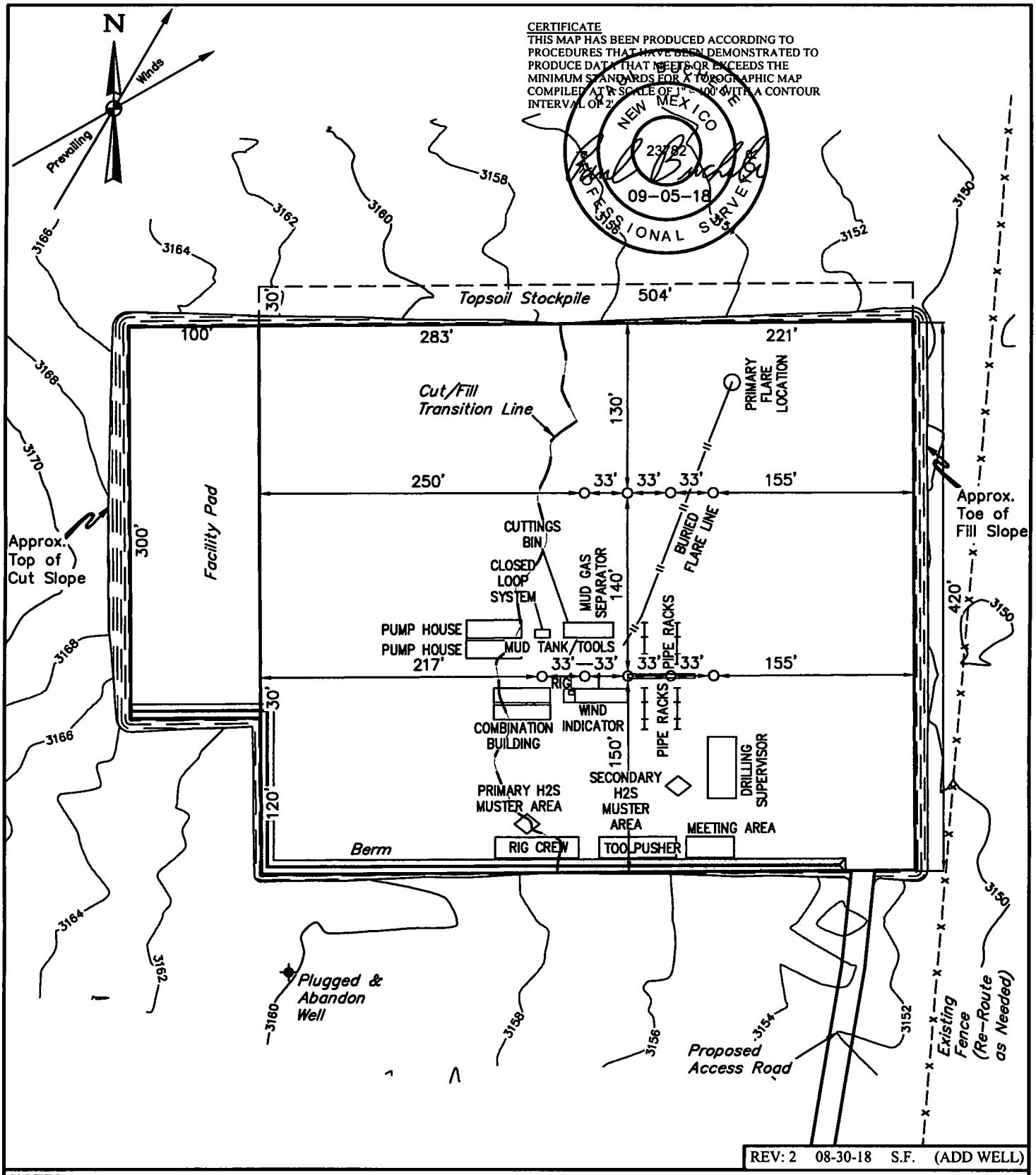
I. Incident Log

II. Preliminary Emergency Information Sheet

III. Emergency Drill Report

IV. Onshore Hazardous Material Spill/Release Report Form

V. Immediate Report of Occupational Injury or Illness
Report of Accident-Public Contractor
Report of Loss or Damage to Company Property
Report of Automotive Incident



REV: 2 08-30-18 S.F. (ADD WELL)

NOTES:

- Contours shown at 2' intervals.
- May have different number of Pump Houses and Combination Buildings.

ConocoPhillips Company

ZIA HILLS 20 FEDERAL PAD 1
W 1/2 E 1/2, SECTION 20, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.A.V., R.D.	05-16-17	SCALE
DRAWN BY	S.S.	06-23-17	1" = 100'

TYPICAL RIG LAYOUT FIGURE #3

UINTAH ENGINEERING & LAND SURVEYING

UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

ConocoPhillips MCBU - Permian-Panhandle Gold Data

Planning - NM East State Zone - 3001
ZIA HILLS 20 FEDERAL COM 106H
ZIA HILLS 20 FEDERAL COM 106H

ZIA HILLS 20 FEDERAL COM 106H

Plan: Design A

Standard Planning Report

18 September, 2018

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

Project	Planning - NM East State Zone - 3001, Permian Basin - New Mexico - East/South East, Planning Project for Permian wells in NM Zone 3001		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site	ZIA HILLS 20 FEDERAL COM 106H				
Site Position:		**Northing:**	374,418.67 usft	**Latitude:**	32° 1' 40.02 N
From:	Map	**Easting:**	697,886.94 usft	**Longitude:**	103° 41' 41.246 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.34 °

Well	ZIA HILLS 20 FEDERAL COM 106H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	374,418.67 usft	**Latitude:**	32° 1' 40.02 N
	+E/-W	0.00 usft	**Easting:**	697,886.94 usft	**Longitude:**	103° 41' 41.246 W
Position Uncertainty		2.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,154.20 usft

Wellbore	ZIA HILLS 20 FEDERAL COM 106H				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2018	12/1/2018	6.93	59.79	47,691.91596743

Design	Design A				
Audit Notes:					
Version:	0	**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	178.99	

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

Plan Survey Tool Program **Date** 9/18/2018

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,500.00	Design A (ZIA HILLS 20 FEDERA	GOOD GYRO	
				GOOD GYRO	
2	2,500.00	2,600.00	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
3	2,600.00	3,099.76	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
4	3,099.76	3,711.32	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
5	3,711.32	4,211.08	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
6	4,211.08	11,323.36	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
7	11,323.36	12,450.61	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	
8	12,450.61	21,833.21	Design A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
				Fixed:v2:Eagleford, crustal dec	

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	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,099.76	7.50	55.36	3,098.33	18.56	26.86	1.50	1.50	0.00	55.36	
3,711.32	7.50	55.36	3,704.67	63.91	92.50	0.00	0.00	0.00	0.00	
4,211.08	0.00	0.00	4,203.00	82.47	119.36	1.50	-1.50	0.00	180.00	ZIA HILLS 20 FEDER
11,323.36	0.00	0.00	11,315.28	82.47	119.36	0.00	0.00	0.00	0.00	
12,450.61	90.18	179.68	12,031.48	-635.97	123.38	8.00	8.00	0.00	179.68	
21,833.21	90.18	179.68	12,002.00	-10,018.37	175.82	0.00	0.00	0.00	0.00	ZIA HILLS 20 FEDER

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

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
SHL: 2570' FSL, 2067' FEL									
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
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
11 3/4" Casing									
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	1.50	55.36	2,699.99	0.74	1.08	-0.73	1.50	1.50	0.00
2,800.00	3.00	55.36	2,799.91	2.98	4.31	-2.90	1.50	1.50	0.00
2,900.00	4.50	55.36	2,899.69	6.69	9.69	-6.52	1.50	1.50	0.00
3,000.00	6.00	55.36	2,999.27	11.89	17.22	-11.59	1.50	1.50	0.00
3,099.76	7.50	55.36	3,098.34	18.56	26.86	-18.08	1.50	1.50	0.00
EOB: 2589' FSL, 2040' FEL									
3,200.00	7.50	55.36	3,197.72	25.99	37.62	-25.33	0.00	0.00	0.00
3,300.00	7.50	55.36	3,296.86	33.41	48.35	-32.55	0.00	0.00	0.00
3,400.00	7.50	55.36	3,396.01	40.82	59.09	-39.78	0.00	0.00	0.00
3,500.00	7.50	55.36	3,495.15	48.24	69.82	-47.01	0.00	0.00	0.00
3,600.00	7.50	55.36	3,594.30	55.66	80.55	-54.23	0.00	0.00	0.00
3,700.00	7.50	55.36	3,693.45	63.07	91.29	-61.46	0.00	0.00	0.00
3,711.32	7.50	55.36	3,704.67	63.91	92.50	-62.28	0.00	0.00	0.00
SOD: 2634' FSL, 1974' FEL									
3,800.00	6.17	55.36	3,792.72	69.91	101.18	-68.12	1.50	-1.50	0.00
3,900.00	4.67	55.36	3,892.27	75.27	108.94	-73.35	1.50	-1.50	0.00
4,000.00	3.17	55.36	3,992.03	79.16	114.56	-77.13	1.50	-1.50	0.00
4,100.00	1.67	55.36	4,091.94	81.55	118.03	-79.47	1.50	-1.50	0.00
4,200.00	0.17	55.36	4,191.92	82.46	119.35	-80.35	1.50	-1.50	0.00
4,211.08	0.00	0.00	4,203.00	82.47	119.36	-80.36	1.50	-1.50	0.00
4,300.00	0.00	0.00	4,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
4,400.00	0.00	0.00	4,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
4,500.00	0.00	0.00	4,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
4,600.00	0.00	0.00	4,591.92	82.47	119.36	-80.36	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

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)
4,700.00	0.00	0.00	4,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
4,800.00	0.00	0.00	4,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
4,900.00	0.00	0.00	4,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,000.00	0.00	0.00	4,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,100.00	0.00	0.00	5,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,200.00	0.00	0.00	5,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,300.00	0.00	0.00	5,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,400.00	0.00	0.00	5,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,500.00	0.00	0.00	5,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,600.00	0.00	0.00	5,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,700.00	0.00	0.00	5,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,800.00	0.00	0.00	5,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
5,900.00	0.00	0.00	5,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,000.00	0.00	0.00	5,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,100.00	0.00	0.00	6,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,200.00	0.00	0.00	6,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,300.00	0.00	0.00	6,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,400.00	0.00	0.00	6,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,500.00	0.00	0.00	6,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,600.00	0.00	0.00	6,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,700.00	0.00	0.00	6,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,800.00	0.00	0.00	6,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
6,900.00	0.00	0.00	6,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,000.00	0.00	0.00	6,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,100.00	0.00	0.00	7,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,200.00	0.00	0.00	7,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,300.00	0.00	0.00	7,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,400.00	0.00	0.00	7,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,500.00	0.00	0.00	7,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,600.00	0.00	0.00	7,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,700.00	0.00	0.00	7,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,800.00	0.00	0.00	7,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
7,900.00	0.00	0.00	7,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,000.00	0.00	0.00	7,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,100.00	0.00	0.00	8,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,200.00	0.00	0.00	8,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,300.00	0.00	0.00	8,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,400.00	0.00	0.00	8,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,500.00	0.00	0.00	8,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,600.00	0.00	0.00	8,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,700.00	0.00	0.00	8,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,800.00	0.00	0.00	8,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
8,900.00	0.00	0.00	8,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,000.00	0.00	0.00	8,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,100.00	0.00	0.00	9,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,200.00	0.00	0.00	9,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,300.00	0.00	0.00	9,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,400.00	0.00	0.00	9,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,500.00	0.00	0.00	9,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,600.00	0.00	0.00	9,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,700.00	0.00	0.00	9,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,800.00	0.00	0.00	9,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
9,900.00	0.00	0.00	9,891.92	82.47	119.36	-80.36	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

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)
10,000.00	0.00	0.00	9,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,100.00	0.00	0.00	10,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,200.00	0.00	0.00	10,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,300.00	0.00	0.00	10,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,400.00	0.00	0.00	10,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,500.00	0.00	0.00	10,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,600.00	0.00	0.00	10,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,700.00	0.00	0.00	10,691.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,800.00	0.00	0.00	10,791.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,900.00	0.00	0.00	10,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,000.00	0.00	0.00	10,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,100.00	0.00	0.00	11,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,200.00	0.00	0.00	11,191.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,300.00	0.00	0.00	11,291.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,323.36	0.00	0.00	11,315.28	82.47	119.36	-80.36	0.00	0.00	0.00
KOP: 2652' FSL, 1915' FEL									
11,350.00	2.13	179.68	11,341.92	81.97	119.36	-79.87	8.00	8.00	0.00
11,400.00	6.13	179.68	11,391.78	78.37	119.38	-76.27	8.00	8.00	0.00
11,450.00	10.13	179.68	11,441.27	71.30	119.42	-69.20	8.00	8.00	0.00
11,500.00	14.13	179.68	11,490.14	60.80	119.48	-58.69	8.00	8.00	0.00
11,550.00	18.13	179.68	11,538.16	46.91	119.56	-44.80	8.00	8.00	0.00
11,600.00	22.13	179.68	11,585.10	29.70	119.65	-27.60	8.00	8.00	0.00
11,650.00	26.13	179.68	11,630.72	9.27	119.77	-7.16	8.00	8.00	0.00
11,700.00	30.13	179.68	11,674.80	-14.30	119.90	16.40	8.00	8.00	0.00
11,750.00	34.13	179.68	11,717.13	-40.89	120.05	42.99	8.00	8.00	0.00
11,800.00	38.13	179.68	11,757.51	-70.37	120.21	72.46	8.00	8.00	0.00
11,850.00	42.13	179.68	11,795.73	-102.59	120.39	104.68	8.00	8.00	0.00
11,900.00	46.13	179.68	11,831.61	-137.39	120.59	139.49	8.00	8.00	0.00
11,950.00	50.13	179.68	11,864.98	-174.62	120.80	176.71	8.00	8.00	0.00
12,000.00	54.13	179.68	11,895.66	-214.08	121.02	216.17	8.00	8.00	0.00
12,050.00	58.13	179.68	11,923.52	-255.59	121.25	257.68	8.00	8.00	0.00
12,100.00	62.13	179.68	11,948.42	-298.94	121.49	301.02	8.00	8.00	0.00
12,150.00	66.13	179.68	11,970.23	-343.92	121.74	346.00	8.00	8.00	0.00
12,200.00	70.13	179.68	11,988.85	-390.31	122.00	392.39	8.00	8.00	0.00
12,250.00	74.13	179.68	12,004.19	-437.89	122.27	439.96	8.00	8.00	0.00
12,300.00	78.13	179.68	12,016.17	-486.42	122.54	488.49	8.00	8.00	0.00
12,350.00	82.13	179.68	12,024.74	-535.67	122.82	537.74	8.00	8.00	0.00
12,400.00	86.13	179.68	12,029.85	-585.39	123.09	587.46	8.00	8.00	0.00
12,450.61	90.18	179.68	12,031.48	-635.97	123.38	638.03	8.00	8.00	0.00
LP: 1934' FSL, 1915' FEL - 8 5/8" Casing									
12,500.00	90.18	179.68	12,031.32	-685.36	123.65	687.42	0.00	0.00	0.00
12,600.00	90.18	179.68	12,031.01	-785.35	124.21	787.41	0.00	0.00	0.00
12,700.00	90.18	179.68	12,030.69	-885.35	124.77	887.41	0.00	0.00	0.00
12,800.00	90.18	179.68	12,030.38	-985.35	125.33	987.40	0.00	0.00	0.00
12,900.00	90.18	179.68	12,030.06	-1,085.35	125.89	1,087.39	0.00	0.00	0.00
13,000.00	90.18	179.68	12,029.75	-1,185.35	126.45	1,187.38	0.00	0.00	0.00
13,100.00	90.18	179.68	12,029.44	-1,285.34	127.01	1,287.37	0.00	0.00	0.00
13,200.00	90.18	179.68	12,029.12	-1,385.34	127.56	1,387.37	0.00	0.00	0.00
13,300.00	90.18	179.68	12,028.81	-1,485.34	128.12	1,487.36	0.00	0.00	0.00
13,400.00	90.18	179.68	12,028.49	-1,585.34	128.68	1,587.35	0.00	0.00	0.00
13,500.00	90.18	179.68	12,028.18	-1,685.34	129.24	1,687.34	0.00	0.00	0.00
13,600.00	90.18	179.68	12,027.87	-1,785.33	129.80	1,787.34	0.00	0.00	0.00
13,700.00	90.18	179.68	12,027.55	-1,885.33	130.36	1,887.33	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

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)
13,800.00	90.18	179.68	12,027.24	-1,985.33	130.92	1,987.32	0.00	0.00	0.00
13,900.00	90.18	179.68	12,026.92	-2,085.33	131.48	2,087.31	0.00	0.00	0.00
14,000.00	90.18	179.68	12,026.61	-2,185.33	132.04	2,187.31	0.00	0.00	0.00
14,100.00	90.18	179.68	12,026.29	-2,285.32	132.60	2,287.30	0.00	0.00	0.00
14,200.00	90.18	179.68	12,025.98	-2,385.32	133.15	2,387.29	0.00	0.00	0.00
14,300.00	90.18	179.68	12,025.67	-2,485.32	133.71	2,487.28	0.00	0.00	0.00
14,400.00	90.18	179.68	12,025.35	-2,585.32	134.27	2,587.28	0.00	0.00	0.00
14,500.00	90.18	179.68	12,025.04	-2,685.32	134.83	2,687.27	0.00	0.00	0.00
14,600.00	90.18	179.68	12,024.72	-2,785.31	135.39	2,787.26	0.00	0.00	0.00
14,700.00	90.18	179.68	12,024.41	-2,885.31	135.95	2,887.25	0.00	0.00	0.00
14,800.00	90.18	179.68	12,024.10	-2,985.31	136.51	2,987.24	0.00	0.00	0.00
14,900.00	90.18	179.68	12,023.78	-3,085.31	137.07	3,087.24	0.00	0.00	0.00
15,000.00	90.18	179.68	12,023.47	-3,185.30	137.63	3,187.23	0.00	0.00	0.00
15,100.00	90.18	179.68	12,023.15	-3,285.30	138.18	3,287.22	0.00	0.00	0.00
15,200.00	90.18	179.68	12,022.84	-3,385.30	138.74	3,387.21	0.00	0.00	0.00
15,300.00	90.18	179.68	12,022.52	-3,485.30	139.30	3,487.21	0.00	0.00	0.00
15,400.00	90.18	179.68	12,022.21	-3,585.30	139.86	3,587.20	0.00	0.00	0.00
15,500.00	90.18	179.68	12,021.90	-3,685.29	140.42	3,687.19	0.00	0.00	0.00
15,600.00	90.18	179.68	12,021.58	-3,785.29	140.98	3,787.18	0.00	0.00	0.00
15,700.00	90.18	179.68	12,021.27	-3,885.29	141.54	3,887.18	0.00	0.00	0.00
15,800.00	90.18	179.68	12,020.95	-3,985.29	142.10	3,987.17	0.00	0.00	0.00
15,900.00	90.18	179.68	12,020.64	-4,085.29	142.66	4,087.16	0.00	0.00	0.00
16,000.00	90.18	179.68	12,020.33	-4,185.28	143.22	4,187.15	0.00	0.00	0.00
16,100.00	90.18	179.68	12,020.01	-4,285.28	143.77	4,287.15	0.00	0.00	0.00
16,200.00	90.18	179.68	12,019.70	-4,385.28	144.33	4,387.14	0.00	0.00	0.00
16,300.00	90.18	179.68	12,019.38	-4,485.28	144.89	4,487.13	0.00	0.00	0.00
16,400.00	90.18	179.68	12,019.07	-4,585.28	145.45	4,587.12	0.00	0.00	0.00
16,500.00	90.18	179.68	12,018.76	-4,685.27	146.01	4,687.11	0.00	0.00	0.00
16,600.00	90.18	179.68	12,018.44	-4,785.27	146.57	4,787.11	0.00	0.00	0.00
16,700.00	90.18	179.68	12,018.13	-4,885.27	147.13	4,887.10	0.00	0.00	0.00
16,800.00	90.18	179.68	12,017.81	-4,985.27	147.69	4,987.09	0.00	0.00	0.00
16,900.00	90.18	179.68	12,017.50	-5,085.27	148.25	5,087.08	0.00	0.00	0.00
17,000.00	90.18	179.68	12,017.18	-5,185.26	148.80	5,187.08	0.00	0.00	0.00
17,100.00	90.18	179.68	12,016.87	-5,285.26	149.36	5,287.07	0.00	0.00	0.00
17,200.00	90.18	179.68	12,016.56	-5,385.26	149.92	5,387.06	0.00	0.00	0.00
17,300.00	90.18	179.68	12,016.24	-5,485.26	150.48	5,487.05	0.00	0.00	0.00
17,400.00	90.18	179.68	12,015.93	-5,585.26	151.04	5,587.05	0.00	0.00	0.00
17,500.00	90.18	179.68	12,015.61	-5,685.25	151.60	5,687.04	0.00	0.00	0.00
17,600.00	90.18	179.68	12,015.30	-5,785.25	152.16	5,787.03	0.00	0.00	0.00
17,700.00	90.18	179.68	12,014.99	-5,885.25	152.72	5,887.02	0.00	0.00	0.00
17,800.00	90.18	179.68	12,014.67	-5,985.25	153.28	5,987.02	0.00	0.00	0.00
17,900.00	90.18	179.68	12,014.36	-6,085.25	153.84	6,087.01	0.00	0.00	0.00
18,000.00	90.18	179.68	12,014.04	-6,185.24	154.39	6,187.00	0.00	0.00	0.00
18,100.00	90.18	179.68	12,013.73	-6,285.24	154.95	6,286.99	0.00	0.00	0.00
18,200.00	90.18	179.68	12,013.41	-6,385.24	155.51	6,386.98	0.00	0.00	0.00
18,300.00	90.18	179.68	12,013.10	-6,485.24	156.07	6,486.98	0.00	0.00	0.00
18,400.00	90.18	179.68	12,012.79	-6,585.24	156.63	6,586.97	0.00	0.00	0.00
18,500.00	90.18	179.68	12,012.47	-6,685.23	157.19	6,686.96	0.00	0.00	0.00
18,600.00	90.18	179.68	12,012.16	-6,785.23	157.75	6,786.95	0.00	0.00	0.00
18,700.00	90.18	179.68	12,011.84	-6,885.23	158.31	6,886.95	0.00	0.00	0.00
18,800.00	90.18	179.68	12,011.53	-6,985.23	158.87	6,986.94	0.00	0.00	0.00
18,900.00	90.18	179.68	12,011.22	-7,085.22	159.42	7,086.93	0.00	0.00	0.00
19,000.00	90.18	179.68	12,010.90	-7,185.22	159.98	7,186.92	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

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)
19,100.00	90.18	179.68	12,010.59	-7,285.22	160.54	7,286.92	0.00	0.00	0.00
19,200.00	90.18	179.68	12,010.27	-7,385.22	161.10	7,386.91	0.00	0.00	0.00
19,300.00	90.18	179.68	12,009.96	-7,485.22	161.66	7,486.90	0.00	0.00	0.00
19,400.00	90.18	179.68	12,009.64	-7,585.21	162.22	7,586.89	0.00	0.00	0.00
19,500.00	90.18	179.68	12,009.33	-7,685.21	162.78	7,686.89	0.00	0.00	0.00
19,600.00	90.18	179.68	12,009.02	-7,785.21	163.34	7,786.88	0.00	0.00	0.00
19,700.00	90.18	179.68	12,008.70	-7,885.21	163.90	7,886.87	0.00	0.00	0.00
19,800.00	90.18	179.68	12,008.39	-7,985.21	164.46	7,986.86	0.00	0.00	0.00
19,900.00	90.18	179.68	12,008.07	-8,085.20	165.01	8,086.85	0.00	0.00	0.00
20,000.00	90.18	179.68	12,007.76	-8,185.20	165.57	8,186.85	0.00	0.00	0.00
20,100.00	90.18	179.68	12,007.45	-8,285.20	166.13	8,286.84	0.00	0.00	0.00
20,200.00	90.18	179.68	12,007.13	-8,385.20	166.69	8,386.83	0.00	0.00	0.00
20,300.00	90.18	179.68	12,006.82	-8,485.20	167.25	8,486.82	0.00	0.00	0.00
20,400.00	90.18	179.68	12,006.50	-8,585.19	167.81	8,586.82	0.00	0.00	0.00
20,500.00	90.18	179.68	12,006.19	-8,685.19	168.37	8,686.81	0.00	0.00	0.00
20,600.00	90.18	179.68	12,005.87	-8,785.19	168.93	8,786.80	0.00	0.00	0.00
20,700.00	90.18	179.68	12,005.56	-8,885.19	169.49	8,886.79	0.00	0.00	0.00
20,800.00	90.18	179.68	12,005.25	-8,985.19	170.04	8,986.79	0.00	0.00	0.00
20,900.00	90.18	179.68	12,004.93	-9,085.18	170.60	9,086.78	0.00	0.00	0.00
21,000.00	90.18	179.68	12,004.62	-9,185.18	171.16	9,186.77	0.00	0.00	0.00
21,100.00	90.18	179.68	12,004.30	-9,285.18	171.72	9,286.76	0.00	0.00	0.00
21,200.00	90.18	179.68	12,003.99	-9,385.18	172.28	9,386.76	0.00	0.00	0.00
21,300.00	90.18	179.68	12,003.68	-9,485.18	172.84	9,486.75	0.00	0.00	0.00
21,400.00	90.18	179.68	12,003.36	-9,585.17	173.40	9,586.74	0.00	0.00	0.00
21,500.00	90.18	179.68	12,003.05	-9,685.17	173.96	9,686.73	0.00	0.00	0.00
21,600.00	90.18	179.68	12,002.73	-9,785.17	174.52	9,786.73	0.00	0.00	0.00
21,700.00	90.18	179.68	12,002.42	-9,885.17	175.08	9,886.72	0.00	0.00	0.00
21,800.00	90.18	179.68	12,002.10	-9,985.17	175.63	9,986.71	0.00	0.00	0.00
21,833.21	90.18	179.68	12,002.00	-10,018.37	175.82	10,019.91	0.00	0.00	0.00
BHL: 50' FSL, 1915' FEL									

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
ZIA HILLS 20 FEDERAL - plan hits target center - Point	0.00	0.00	4,203.00	82.47	119.36	374,501.13	698,006.29	32° 1' 40.83 N	103° 41' 39.854 W
ZIA HILLS 20 FEDERAL - plan hits target center - Point	0.00	0.00	12,002.00	-10,018.37	175.82	364,400.76	698,062.75	32° 0' 0.87 N	103° 41' 39.892 W
ZIA HILLS 20 FEDERAL - plan misses target center by 0.01usft at 12450.61usft MD (12031.48 TVD, -635.97 N, 123.38 E) - Point	0.00	0.00	12,031.48	-635.97	123.38	373,782.73	698,010.31	32° 1' 33.72 N	103° 41' 39.857 W

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106H		
Design:	Design A		

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.00	2,500.00	11 3/4" Casing	11-3/4	14-3/4
12,450.61	12,031.48	8 5/8" Casing	8-5/8	10-3/4
21,833.21	12,002.00	5 1/2" Casing	5-1/2	7-7/8

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
100.00	100.00	0.00	0.00	SHL: 2570' FSL, 2067' FEL
3,099.76	3,098.34	18.56	26.86	EOB: 2589' FSL, 2040' FEL
3,711.32	3,704.67	63.91	92.50	SOD: 2634' FSL, 1974' FEL
11,323.36	11,315.28	82.47	119.36	KOP: 2652' FSL, 1915' FEL
12,450.61	12,031.48	-635.97	123.38	LP: 1934' FSL, 1915' FEL
21,833.21	12,002.00	-10,018.37	175.82	BHL: 50' FSL, 1915' FEL

ConocoPhillips MCBU - Permian-Panhandle Gold Data

Planning - NM East State Zone - 3001
ZIA HILLS 20 FEDERAL COM 106H
ZIA HILLS 20 FEDERAL COM 106H

ZIA HILLS 20 FEDERAL COM 106 [PILOT]

Plan: Pilot Hole

Standard Planning Report

18 September, 2018

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106 [PILOT]		
Design:	Pilot Hole		

Project	Planning - NM East State Zone - 3001, Permian Basin - New Mexico - East/South East, Planning Project for Permian wells in NM Zone 3001		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		Using geodetic scale factor

Site	ZIA HILLS 20 FEDERAL COM 106H				
Site Position:		**Northing:**	374,418.67 usft	**Latitude:**	32° 1' 40.02 N
From:	Map	**Easting:**	697,886.94 usft	**Longitude:**	103° 41' 41.246 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.34 °

Well	ZIA HILLS 20 FEDERAL COM 106H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	374,418.67 usft	**Latitude:**	32° 1' 40.02 N
	+E/-W	0.00 usft	**Easting:**	697,886.94 usft	**Longitude:**	103° 41' 41.246 W
Position Uncertainty		2.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,154.20 usft

Wellbore	ZIA HILLS 20 FEDERAL COM 106 [PILOT]				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2018	12/1/2018	6.93	59.79	47,691.91596743

Design	Pilot Hole				
Audit Notes:					
Version:	0	**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	55.36	

Plan Survey Tool Program **Date** 9/18/2018

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,500.00	Pilot Hole (ZIA HILLS 20 FEDER	GOOD GYRO GOOD GYRO	
2	2,500.00	2,600.00	Pilot Hole (ZIA HILLS 20 FEDER	MWD+IFR1+MS_CoP Fixed:v2:Eagleford, crustal dec	
3	2,600.00	3,099.76	Pilot Hole (ZIA HILLS 20 FEDER	MWD+IFR1+MS_CoP Fixed:v2:Eagleford, crustal dec	
4	3,099.76	3,711.32	Pilot Hole (ZIA HILLS 20 FEDER	MWD+IFR1+MS_CoP Fixed:v2:Eagleford, crustal dec	
5	3,711.32	4,211.08	Pilot Hole (ZIA HILLS 20 FEDER	MWD+IFR1+MS_CoP Fixed:v2:Eagleford, crustal dec	
6	4,211.08	12,239.08	Pilot Hole (ZIA HILLS 20 FEDER	MWD+IFR1+MS_CoP Fixed:v2:Eagleford, crustal dec	

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106 [PILOT]		
Design:	Pilot Hole		

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	
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,099.76	7.50	55.36	3,098.33	18.56	26.86	1.50	1.50	0.00	55.36	
3,711.32	7.50	55.36	3,704.67	63.91	92.50	0.00	0.00	0.00	0.00	
4,211.08	0.00	0.00	4,203.00	82.47	119.36	1.50	-1.50	0.00	180.00	ZIA HILLS 20 FEDER
12,239.08	0.00	0.00	12,231.00	82.47	119.36	0.00	0.00	0.00	0.00	

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106 [PILOT]		
Design:	Pilot Hole		

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
SHL: 2570' FSL, 2067' FEL									
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
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
11 3/4" Casing									
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	1.50	55.36	2,699.99	0.74	1.08	1.31	1.50	1.50	0.00
2,800.00	3.00	55.36	2,799.91	2.98	4.31	5.23	1.50	1.50	0.00
2,900.00	4.50	55.36	2,899.69	6.69	9.69	11.77	1.50	1.50	0.00
3,000.00	6.00	55.36	2,999.27	11.89	17.22	20.92	1.50	1.50	0.00
3,099.76	7.50	55.36	3,098.34	18.56	26.86	32.65	1.50	1.50	0.00
EOB: 2589' FSL, 2040' FEL									
3,200.00	7.50	55.36	3,197.72	25.99	37.62	45.72	0.00	0.00	0.00
3,300.00	7.50	55.36	3,296.86	33.41	48.35	58.77	0.00	0.00	0.00
3,400.00	7.50	55.36	3,396.01	40.82	59.09	71.82	0.00	0.00	0.00
3,500.00	7.50	55.36	3,495.15	48.24	69.82	84.86	0.00	0.00	0.00
3,600.00	7.50	55.36	3,594.30	55.66	80.55	97.91	0.00	0.00	0.00
3,700.00	7.50	55.36	3,693.45	63.07	91.29	110.96	0.00	0.00	0.00
3,711.32	7.50	55.36	3,704.67	63.91	92.50	112.43	0.00	0.00	0.00
SOD: 2634' FSL, 1974' FEL									
3,800.00	6.17	55.36	3,792.72	69.91	101.18	122.98	1.50	-1.50	0.00
3,900.00	4.67	55.36	3,892.27	75.27	108.94	132.42	1.50	-1.50	0.00
4,000.00	3.17	55.36	3,992.03	79.16	114.56	139.25	1.50	-1.50	0.00
4,100.00	1.67	55.36	4,091.94	81.55	118.03	143.46	1.50	-1.50	0.00
4,200.00	0.17	55.36	4,191.92	82.46	119.35	145.06	1.50	-1.50	0.00
4,211.08	0.00	0.00	4,203.00	82.47	119.36	145.08	1.50	-1.50	-499.79
8 5/8" Casing									
4,300.00	0.00	0.00	4,291.92	82.47	119.36	145.08	0.00	0.00	0.00
4,400.00	0.00	0.00	4,391.92	82.47	119.36	145.08	0.00	0.00	0.00
4,500.00	0.00	0.00	4,491.92	82.47	119.36	145.08	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106 [PILOT]		
Design:	Pilot Hole		

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)
4,600.00	0.00	0.00	4,591.92	82.47	119.36	145.08	0.00	0.00	0.00
4,700.00	0.00	0.00	4,691.92	82.47	119.36	145.08	0.00	0.00	0.00
4,800.00	0.00	0.00	4,791.92	82.47	119.36	145.08	0.00	0.00	0.00
4,900.00	0.00	0.00	4,891.92	82.47	119.36	145.08	0.00	0.00	0.00
5,000.00	0.00	0.00	4,991.92	82.47	119.36	145.08	0.00	0.00	0.00
5,100.00	0.00	0.00	5,091.92	82.47	119.36	145.08	0.00	0.00	0.00
5,200.00	0.00	0.00	5,191.92	82.47	119.36	145.08	0.00	0.00	0.00
5,300.00	0.00	0.00	5,291.92	82.47	119.36	145.08	0.00	0.00	0.00
5,400.00	0.00	0.00	5,391.92	82.47	119.36	145.08	0.00	0.00	0.00
5,500.00	0.00	0.00	5,491.92	82.47	119.36	145.08	0.00	0.00	0.00
5,600.00	0.00	0.00	5,591.92	82.47	119.36	145.08	0.00	0.00	0.00
5,700.00	0.00	0.00	5,691.92	82.47	119.36	145.08	0.00	0.00	0.00
5,800.00	0.00	0.00	5,791.92	82.47	119.36	145.08	0.00	0.00	0.00
5,900.00	0.00	0.00	5,891.92	82.47	119.36	145.08	0.00	0.00	0.00
6,000.00	0.00	0.00	5,991.92	82.47	119.36	145.08	0.00	0.00	0.00
6,100.00	0.00	0.00	6,091.92	82.47	119.36	145.08	0.00	0.00	0.00
6,200.00	0.00	0.00	6,191.92	82.47	119.36	145.08	0.00	0.00	0.00
6,300.00	0.00	0.00	6,291.92	82.47	119.36	145.08	0.00	0.00	0.00
6,400.00	0.00	0.00	6,391.92	82.47	119.36	145.08	0.00	0.00	0.00
6,500.00	0.00	0.00	6,491.92	82.47	119.36	145.08	0.00	0.00	0.00
6,600.00	0.00	0.00	6,591.92	82.47	119.36	145.08	0.00	0.00	0.00
6,700.00	0.00	0.00	6,691.92	82.47	119.36	145.08	0.00	0.00	0.00
6,800.00	0.00	0.00	6,791.92	82.47	119.36	145.08	0.00	0.00	0.00
6,900.00	0.00	0.00	6,891.92	82.47	119.36	145.08	0.00	0.00	0.00
7,000.00	0.00	0.00	6,991.92	82.47	119.36	145.08	0.00	0.00	0.00
7,100.00	0.00	0.00	7,091.92	82.47	119.36	145.08	0.00	0.00	0.00
7,200.00	0.00	0.00	7,191.92	82.47	119.36	145.08	0.00	0.00	0.00
7,300.00	0.00	0.00	7,291.92	82.47	119.36	145.08	0.00	0.00	0.00
7,400.00	0.00	0.00	7,391.92	82.47	119.36	145.08	0.00	0.00	0.00
7,500.00	0.00	0.00	7,491.92	82.47	119.36	145.08	0.00	0.00	0.00
7,600.00	0.00	0.00	7,591.92	82.47	119.36	145.08	0.00	0.00	0.00
7,700.00	0.00	0.00	7,691.92	82.47	119.36	145.08	0.00	0.00	0.00
7,800.00	0.00	0.00	7,791.92	82.47	119.36	145.08	0.00	0.00	0.00
7,900.00	0.00	0.00	7,891.92	82.47	119.36	145.08	0.00	0.00	0.00
8,000.00	0.00	0.00	7,991.92	82.47	119.36	145.08	0.00	0.00	0.00
8,100.00	0.00	0.00	8,091.92	82.47	119.36	145.08	0.00	0.00	0.00
8,200.00	0.00	0.00	8,191.92	82.47	119.36	145.08	0.00	0.00	0.00
8,300.00	0.00	0.00	8,291.92	82.47	119.36	145.08	0.00	0.00	0.00
8,400.00	0.00	0.00	8,391.92	82.47	119.36	145.08	0.00	0.00	0.00
8,500.00	0.00	0.00	8,491.92	82.47	119.36	145.08	0.00	0.00	0.00
8,600.00	0.00	0.00	8,591.92	82.47	119.36	145.08	0.00	0.00	0.00
8,700.00	0.00	0.00	8,691.92	82.47	119.36	145.08	0.00	0.00	0.00
8,800.00	0.00	0.00	8,791.92	82.47	119.36	145.08	0.00	0.00	0.00
8,900.00	0.00	0.00	8,891.92	82.47	119.36	145.08	0.00	0.00	0.00
9,000.00	0.00	0.00	8,991.92	82.47	119.36	145.08	0.00	0.00	0.00
9,100.00	0.00	0.00	9,091.92	82.47	119.36	145.08	0.00	0.00	0.00
9,200.00	0.00	0.00	9,191.92	82.47	119.36	145.08	0.00	0.00	0.00
9,300.00	0.00	0.00	9,291.92	82.47	119.36	145.08	0.00	0.00	0.00
9,400.00	0.00	0.00	9,391.92	82.47	119.36	145.08	0.00	0.00	0.00
9,500.00	0.00	0.00	9,491.92	82.47	119.36	145.08	0.00	0.00	0.00
9,600.00	0.00	0.00	9,591.92	82.47	119.36	145.08	0.00	0.00	0.00
9,700.00	0.00	0.00	9,691.92	82.47	119.36	145.08	0.00	0.00	0.00
9,800.00	0.00	0.00	9,791.92	82.47	119.36	145.08	0.00	0.00	0.00

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106 [PILOT]		
Design:	Pilot Hole		

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)
9,900.00	0.00	0.00	9,891.92	82.47	119.36	145.08	0.00	0.00	0.00
10,000.00	0.00	0.00	9,991.92	82.47	119.36	145.08	0.00	0.00	0.00
10,100.00	0.00	0.00	10,091.92	82.47	119.36	145.08	0.00	0.00	0.00
10,200.00	0.00	0.00	10,191.92	82.47	119.36	145.08	0.00	0.00	0.00
10,300.00	0.00	0.00	10,291.92	82.47	119.36	145.08	0.00	0.00	0.00
10,400.00	0.00	0.00	10,391.92	82.47	119.36	145.08	0.00	0.00	0.00
10,500.00	0.00	0.00	10,491.92	82.47	119.36	145.08	0.00	0.00	0.00
10,600.00	0.00	0.00	10,591.92	82.47	119.36	145.08	0.00	0.00	0.00
10,700.00	0.00	0.00	10,691.92	82.47	119.36	145.08	0.00	0.00	0.00
10,800.00	0.00	0.00	10,791.92	82.47	119.36	145.08	0.00	0.00	0.00
10,900.00	0.00	0.00	10,891.92	82.47	119.36	145.08	0.00	0.00	0.00
11,000.00	0.00	0.00	10,991.92	82.47	119.36	145.08	0.00	0.00	0.00
11,100.00	0.00	0.00	11,091.92	82.47	119.36	145.08	0.00	0.00	0.00
11,200.00	0.00	0.00	11,191.92	82.47	119.36	145.08	0.00	0.00	0.00
11,300.00	0.00	0.00	11,291.92	82.47	119.36	145.08	0.00	0.00	0.00
11,400.00	0.00	0.00	11,391.92	82.47	119.36	145.08	0.00	0.00	0.00
11,500.00	0.00	0.00	11,491.92	82.47	119.36	145.08	0.00	0.00	0.00
11,600.00	0.00	0.00	11,591.92	82.47	119.36	145.08	0.00	0.00	0.00
11,700.00	0.00	0.00	11,691.92	82.47	119.36	145.08	0.00	0.00	0.00
11,800.00	0.00	0.00	11,791.92	82.47	119.36	145.08	0.00	0.00	0.00
11,900.00	0.00	0.00	11,891.92	82.47	119.36	145.08	0.00	0.00	0.00
12,000.00	0.00	0.00	11,991.92	82.47	119.36	145.08	0.00	0.00	0.00
12,100.00	0.00	0.00	12,091.92	82.47	119.36	145.08	0.00	0.00	0.00
12,200.00	0.00	0.00	12,191.92	82.47	119.36	145.08	0.00	0.00	0.00
12,239.08	0.00	0.00	12,231.00	82.47	119.36	145.08	0.00	0.00	0.00
BHL: 2652' FSL, 1915' FEL - 5 1/2" Casing									

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
ZIA HILLS 20 FEDERAL - plan hits target center - Point	0.00	0.00	4,203.00	82.47	119.36	374,501.13	698,006.29	32° 1' 40.83 N	103° 41' 39.854 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,500.00	2,500.00	11 3/4" Casing	11-3/4	14-3/4
4,211.08	4,203.00	8 5/8" Casing	8-5/8	10-3/4
12,239.08	12,231.00	5 1/2" Casing	5-1/2	7-7/8

Database:	EDT 14 Central Planning	**Local Co-ordinate Reference:**	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle Gold Data	**TVD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Project:	Planning - NM East State Zone - 3001	**MD Reference:**	WELL @ 3180.70usft (Original Well Elev)
Site:	ZIA HILLS 20 FEDERAL COM 106H	**North Reference:**	Grid
Well:	ZIA HILLS 20 FEDERAL COM 106H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ZIA HILLS 20 FEDERAL COM 106 [PILOT]		
Design:	Pilot Hole		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
100.00	100.00	0.00	0.00	SHL: 2570' FSL, 2067' FEL
3,099.76	3,098.34	18.56	26.86	EOB: 2589' FSL, 2040' FEL
3,711.32	3,704.67	63.91	92.50	SOD: 2634' FSL, 1974' FEL
12,239.08	12,231.00	82.47	119.36	BHL: 2652' FSL, 1915' FEL

WELL PLAN SUMMARY

ConocoPhillips

Date: Feb 04, 2019
Version: 2
Prepared by: J. Voss

WELL: Zia Hills 20 106H

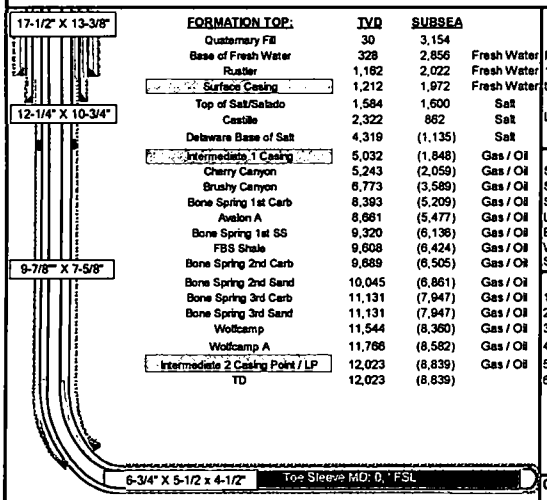
SURFACE LOC: NWSE 20 T26S R32E — 2570' FSL 2067' FEL
BH LOC: SWNE 32 T26S R32E — 53' FSL 1948' FEL

ELEVATIONS: GL 3,157.1' / KB +27.0'

COUNTY,STATE: Lea, Co, NM
API No.:
TRRC Permit:
BLM Permit:
WH Coord.: (NAD-83) LAT 32° 1' 40.47" N / LON 103° 41' 42.94" W

AFE:
Drilling Network No.:
Invoice Handler ID:

COST ESTIMATE
DRILLING
COMPLETION
FACILITIES
TOTAL



FORMATION TOP:	TVD	SUBSEA	
Quaternary Fill	30	3,154	
Base of Fresh Water	328	2,856	Fresh Water
Rustler	1,162	2,022	Fresh Water
Surface Casing	1,212	1,972	Fresh Water
Top of Salt/Salado	1,584	1,600	Salt
Castile	2,322	862	Salt
Delaware Base of Salt	4,319	(1,135)	Salt
Intermediate 1 Casing	5,032	(1,848)	Gas / Oil
Cherry Canyon	5,243	(2,059)	Gas / Oil
Brushy Canyon	6,773	(3,589)	Gas / Oil
Bone Spring 1st Carb	8,393	(5,209)	Gas / Oil
Avalon A	8,661	(5,477)	Gas / Oil
Bone Spring 1st SS	9,320	(6,136)	Gas / Oil
FBS Shale	9,608	(6,424)	Gas / Oil
Bone Spring 2nd Carb	9,689	(6,505)	Gas / Oil
Bone Spring 2nd Sand	10,045	(6,861)	Gas / Oil
Bone Spring 3rd Carb	11,131	(7,947)	Gas / Oil
Bone Spring 3rd Sand	11,131	(7,947)	Gas / Oil
Wolfcamp	11,544	(8,360)	Gas / Oil
Wolfcamp A	11,766	(8,582)	Gas / Oil
Intermediate 2 Casing Point / LP	12,023	(8,839)	Gas / Oil
TD	12,023	(8,839)	
9 5/8 in. shoe 22196' MD 383'FSL			
TARGET	12,023	(8,582)	Gas / Oil
PBTD	12,023	(8,582)	Gas / Oil

Estimated BH Static Temperature (°F): 205
Max. Anticipated BH Pressure: 0.700 psi/ft 8,416 psi 13.5 ppg
Max Anticipated Surface Pressure: 5,771 psi "0.22 psi/ft gradient

DRILLING RIG *PTEN 256* **TARGET FORMATION** *Wolfcamp A*

LOCATION DIRECTIONS

From the intersection of U.S. Hwy 285 and State Hwy 652 in Orla, Texas, go North on Hwy 285 toward Carlsbad, NM, for 10.5 miles. Turn left (W) onto County Road 454, and travel 4/10 of a mile to CR 449. Turn left (SW) onto CR 449 and travel for 1 mile, and turn right (W) onto lease road. Follow the lease road 7/10 of a mile to the location.

Lat: 31-56-36.55 Long: 104-01-29.91

POTENTIAL HAZARDS -> MITIGATIONS

Shallow flow hazard in surface -> Diverter rigged up and ready
Shallow karst features resulting in full losses -> LIDAR Mapping shows little to no risks. Use cement plug
Salt Water Disposal Pressure/Flow & H2S -> MPD to SI on connections, 4th casing string, Reserve pit for flow
Losses in the Canyon groups; flow in the Bone Springs -> Reserve pits full with cut brine, LCM
Elevated pressure / gas in the Wolfcamp prior to INT setpoint -> Set at minimum depth of 9,460' TVD
Wellbore instability in the PROD hole -> Ready to elevate MW, watching gas on connections
Strong formation push in lateral -> Maintain within 30' L/R of line, putting in quick maintenance slides

SPECIAL NOTES (see well steps for additional info)

1.) Refer to drilling procedure for additional detail and information.
2.) Offset well () located of surface location.
3.) The primary regulatory agency is the BLM.
4.) Surface: 2° max., 1°/ 100' DLS; svy every 500'
5.) Int: 11.54° max., 1.5°/ 100'; svy every 90' (svy every 30' in build and drop, 30' in curve)
6.) Lateral will be tied in to 106 Pilot Hole

CONTACTS

		Office	Cell
Drilling Engineer:	Jake Voss	832-488-2041	832-499-9085
Geologist:	Josh Day	281-206-5620	423-512-0347
Onsite Drilling Rep.:	Greg Rivera	432-848-5238	
	Dennis Hously		
Field Drilling Supt.:	James Taylor	830-583-4828	956-229-1393
	Patrick Wellman		432-215-7079
Drilling Supt.:	Scott Nicholson	281-206-5392	432-230-8010

DRILLING FLUID:	Type	Interval (MD)	Density ppg	Vis sec/qt	PV cP	YP #/100ft2	pH	FL mL	LGS % by vol	Alkalinity	NaCl ppb sol	Remarks
Surface:	Spud Mud	Surface - 1,212'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks	Rig Tanks
Intermediate 1:	Brine	1212' - 5032'	9.2	28-49	1-4	2-5	7.5-8.4	NC	< 5.1	180,001	Rig Tanks	Rig Tanks
Intermediate 2:	Brine	5032' - 12502'	9.5	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks	Rig Tanks
Production:	OBM	12502' - 22526'	13.5	50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks	Potential for 14ppg Mud Cap

Reference Drilling Fluids Program

CASING:	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	17.5	27'	1,212'	1,185'	13 3/8	54.50	J-55	BTC
Contingency		ACP/DV Tool run 100' below water board depth if necessary						
Intermediate:	12.25	27'	5,032'	5,005'	10 3/4	40.50	J-55	BTC
Intermediate:	9.875	27'	11,302'	11,275'	7 5/8	29.70	P-110	BTC
	Int2 ACP/DV Tool	6500						
Intermediate:	9.875	11,302'	12,502'	1,200'	7 5/8	29.70	P-110	H513
Production:	6.75	27'	22,526'	22,499'	5-1/2	23.00	P-110	TXP

CENTRALIZATION:
Surface Casing: 1 per 3 joints from 1,700' to FC. 1 per 3 joints from 1,700' to surface
Intermediate 1 Casing: Shoe joint. 1 per 3 joints From FC' to 2,500'. 1 per 4 joints 2,500' to surface.
Intermediate 2 Casing: Shoe joint. 1 per joint from FC to 7,800'. 1 per 2 joints 7,800' to 2,300'. 1 per 4 joints 2,300' to surface.
Production Casing: Rigid body 1 per 2 joints TD to Int Shoe. Bow Spring 1 per 2 joints Int shoe to 100' above KOP. 1 per 4 joints to surface

BOP:
Minimum - Rig - Stackup - COP Class 3 Well Control Requirements
13-5/8"x10M psi Rams / 4-1/16"x10M psi Manifold
Rotating Head, 5M Annular Preventer,
Pipe Ram, Blind Ram,
Mud Cross (Choke & Kill Valves),
Pipe Ram

Mud Pit: Float Based Electronic PVT with Flow Sensor and Gravity Trip Tank, Alarms +/- 10 BBLS

Wellhead: 13-5/8" x 5M psi Cameron Multibowl (4 String)

CEMENT:	Hole	MD	TVD	Spacer	Lead	Tail	COMMENTS
Surface:	17-1/2"X13-3/8"	1,212'	1,212'	20 bbls FW	560 sx Class C + adds 12.8 ppg 2.05ft3/sk	450 sx Class C+ adds 14.8 ppg 1.32 ft3/sk	Cemented to surface w/ 100%XS Add FiberBlock
Intermediate:	12-1/4"X 10-3/4"	5,032'	5,032	40 bbl Invert Spacer	320 sx WBL + adds 11 ppg 2.97ft3/sk	190 sx Thermal 35+ adds 13.8 ppg 1.18 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 12.25" hole
Intermediate:	9-7/8" x 7-5/8"	12,502'	12,023	20 bbls 10.5 ppg spacer	560 sx Poz/Class C + adds 11 ppg 2.57ft3/sk	680 sx Class H+ adds 13.8 ppg 1.18 ft3/sk	TOC 500' into previous casing shoe w/ 70%L / 30%T XS
	Stage 2	6500	6,500'	20 bbls 10.5 ppg spacer	175 sx Poz/Class C + adds 10.8 ppg 2.57ft3/sk		
Production:	6-3/4"X 5-1/2"	22,526'	12,023'	20 bbls 14.5 ppg spacer		953 sx Class H + adds 15.6 ppg 1.19ft3/sk	Cemented 100' above KOP 10% XS calc'd on 6.75" hole

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Int 1 Casing	5,032'	11	179	5,032'	0	0	0.0	0	20 T26S R32E	2570' FSL	2067' FEL
Tangent KOP , Build @ 1.5°/100'	6,500'	0	0	6,500'	0	0	0	0	20 T26S R32E	2570' FSL	2067' FEL
End Build @ 12°	7,269'	11.54	6.6	7,264'	77	9	1.5	-77	20 T26S R32E	2647' FSL	2058' FEL
Drop @ 0°/100'	10,107'	11.54	6.6	10,045'	641'	74	0.0	-716	20 T26S R32E	3211' FSL	1993' FEL
KOP , Build @ 8°/100'	11,376'	0	0	11,309'	718	83	0	-716	20 T26S R32E	3288' FSL	1984' FEL
LP	12,502'	90	355	12,023'	1	87	8	-332	20 T26S R32E	2571' FSL	1984' FEL
Toe Sleeve 2	22,196'	90	2	12,023'	9517	301	0	9,521	32 T26S R32E	383' FSL	1948' FEL
FTP / Toe Sleeve 1	22,246'	90	2	12,023'	9567	301	0	9,571	32 T26S R32E	333' FSL	1948' FEL
PBHL/TD	22,526'	90	2	12,023'	9847	301	0	9,851	32 T26S R32E	53' FSL	1948' FEL

Reference Directional Plan MWD Surveys will be taken at 90' interval below surface casing, 30' while building curve, and every 90' while drilling lateral.

FORMATION EVALUATION:
Mud Logging - One-Man: First surface hole to TD. First intermediate hole to TD
Mud Logging - Two-Man: Intermediate Casing Point to TD
Open Hole - PEX None
Cased Hole - GR/CBL/USIT NA
MWD - GR 200' above KOP to TD

OUR WORK IS NEVER SO URGENT OR IMPORTANT THAT WE CANNOT TAKE THE TIME TO DO IT SAFELY!

ConocoPhillips

WELL PLAN SUMMARY

1280 Extended Reach Single Lateral

Date: Feb 04, 2019
Version: 2
Prepared by: J. Voss

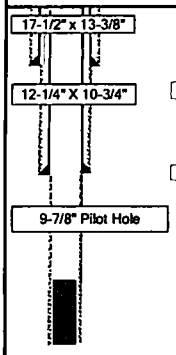
WELL: Zia Hills 20 106H
SURFACE LOC: NWSE 20 T26S R32E 2570' FSL 2067' FEL
BH LOC: NWSE 20 T26S R32E 3288' FSL 1984' FEL

COUNTY,STATE: Lea, Co, NM
API No.:
TRRC Permit:
BLM Permit:

ELEVATIONS: GL 3,157.1' KB +27.0'

WH Coord.: (NAD-83) LAT 32° 1' 40.47" N LON 103° 41' 42.94" W

AFE:
Drilling Network No.:
Invoice Handler ID:
COST ESTIMATE
DRILLING
COMPLETION
FACILITIES
TOTAL



FORMATION TOP:	TVD	SUBSEA	
Quaternary Fill	30	3,154	
Base of Fresh Water	328	2,856	Fresh Water
Rustler	1,162	2,022	Fresh Water
Surface Casing	1,212	1,972	Salt
Top of Salt	1,584	1,600	Salt
Castile	2,322	862	Salt
Delaware Base of Salt	4,319	(1,135)	Gas / Oil
Intermediate 1 Casing	5,032	(1,848)	Gas / Oil
Cherry Canyon	5,243	(2,059)	Gas / Oil
Brushy Canyon	6,773	(3,589)	Gas / Oil
Bone Springs	8,163	(4,979)	Gas / Oil
Bone Springs 1st Sand	9,320	(6,136)	Gas / Oil
Bone Springs 2nd Sand	10,045	(6,861)	Gas / Oil
Bone Springs 3rd Sand	11,131	(7,947)	Gas / Oil
Wolfcamp	11,544	(8,360)	Gas / Oil
Wolfcamp A	11,766	(8,582)	Gas / Oil
Total Depth	12,281	(9,096.9)	Gas / Oil
TARGET	12,281	(9,097)	Gas / Oil
Formation Dip Rate:	est 90.1° (up dip)		
PBTD	12,281	(9,097)	Gas / Oil

Estimated BH Static Temperature (°F): 220
Max. Anticipated BH Pressure: 0.7 psi/ft 8,474 psi 13.3 ppg
Max Anticipated Surface Pressure: 4,596 psi

Objective

This well is to be drilled with safety and protection of the environment as the primary objectives.

The objective is to drill a 1280 single lateral well in the Wolfcamp formation and completed with 5-1/2"cemented casing.

Notes

1.) This well will be drilled with Patterson 256.
2.) Refer to drilling procedure for additional detail and information.
3.) Offset well () located of surface location.
4.) The primary regulatory agency is the BLM.
5.) Surface: 2° max., 1°/ 100' DLS; svy every 500'
6.) Int: 11.54° max., 1.5°/ 100'; svy every 90' (svy every 30' in build and drop, 30' in curve)
7.) 10-3/4" Casing will be set across the salt zone to allow for WBM to be used for Pilot Hole
8.) 9-7/8" Pilot hole will be drilled to TD of 12,145' MD. WBM needs to be used for cuttings analysis
9.) A cement plug will be pumped at TD and brought up to KOP for landing the 9-7/8" curve into the Wolfcamp A.

Goals

Have no lost time or recordable accidents.
Have no spills or adverse environmental impact.
Have no stuck pipe incidents.
Avoid lost circulation incidents.
Maintain well control and follow ConocoPhillips well control policy.
Obtain good mud log data.
Deliver usable wellbore to production department.

CONTACTS

		Office	Cell
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Geologist:	Josh Day	281-206-5620	423-512-0347
Onsite Drilling Rep.:	Greg Rivera	432-848-5238	
	Dennis Hously		
Field Drilling Supt.:	James Taylor	830-583-4828	956-229-1393
	Patrick Wellman		432-215-7079
Drilling Supt.:	Scott Nicholson	281-206-5392	432-230-8010

DRILLING FLUID:

	Type	Interval (MD)	Density ppg	Vis sec/qt	PV cP	YP #/100ft2	pH	FL mL	LGS % by vol	NaCl ppb sol	Remarks
Surface:	Fresh Water	Surface - 1,212'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks
Intermediate 1:	Emulsified Brine	1212' - 5032'	9.2	28-49	1-4	2-5	7.5-8.5	NC	< 5.0	180,000	Rig Tanks
Intermediate 2:	WBM	5032' - 12349'	9.5	28-50	1-5	2-6	7.5-8.5	NC	< 7.0	10,000	Rig Tanks

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	17-1/2"	27'	1,212'	1,185'	13 3/8	54.50	J-55	BTC
	ACP/DV Tool run 100' below water board depth if necessary							
Intermediate 1:	12-1/4"	27'	5,032'	5,005'	10 3/4	40.50	J-55	BTC

CENTRALIZATION:
Surface Casing: 1 per 2 joints from 1,700' to FC. 1 per 4 joints from 1,200' to surface
Intermediate Casing: Shoe joint. 1 per joint from FC to 7,800'. 1 per 2 joints 7,800' to 2,300'. 1 per 4 joints 2,300' to surface.

BOP:
Minimum - COP Class 3 Well Control Requirements
Rig - 13-5/8"x10M psi Rams / 4-1/16"x10M psi Manifold
Stackup - Rotating Head, 5M Annular Preventer, Pipe Ram, Blind Ram, Mud Cross (Choke & Kill Valves), Pipe Ram
Waste Handling: Closed loop cuttings disposal system with haul off to approved facility.
Mud Pit: Float Based Electronic PVT with Flow Sensor and Gravity Trip Tank, Alarms +/- 10 BBLS
Wellhead: 13-5/8" x 10M psi (Casing Head - "A" Section)

CEMENT:

	Hole	MD	TVD	Spacer	Lead	Tail	COMMENTS
Surface:	17-1/2"X13-3/8"	1,212'	1,212'	20 bbl FW	560 sx Control Set 'C' + adds 12.8 ppg 2.05 ft3/sk	450 sx Type 'III' + adds 14.8 ppg 1.32 ft3/sk	Cemented to surface w/ 100%XS Add FiberBlock
Intermediate:	12-1/4"X10-3/4"	5,032'	5,032	40 bbl Invert Spacer	320 sx WBL + adds 11 ppg 2.97 ft3/sk	190 sx Class H + adds 13.8 ppg 1.18 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 12.25" hole Add FiberBlock
Pilot Hole Cement	9-7/8"	12,349'	12,281'	40 bbl Visweep	534 sx Class 'H' + adds 17.0 ppg 0.99 ft3/sk		Plug back to 200' above KOP for lateral. 1.20% CD-32 + 0.10% R03 + 0.005 lb/sk Static Free

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	6,500'	0	0	6,500'	0	0	0	0	20 T26S R32E	2570' FSL	2067' FEL
End Build @ 12°	7,269'	11.54	6.6	7,264'	77	9	1.5	-77	20 T26S R32E	2647' FSL	2058' FEL
Drop @ 1.5°/100'	10,107'	11.54	6.6	10,045'	641'	74	0.0	-716	20 T26S R32E	3211' FSL	1993' FEL
Complete Drop, Hold to Pilot Hole	10,877'	0	0	10,809'	718	83	1.5	-716	20 T26S R32E	3288' FSL	1984' FEL
KOP (Post Pilot Hole Cement Plug)	11,377'	0	0	11,309	718	83	0	-716	20 T26S R32E	3288' FSL	1984' FEL
Pilot Hole TD	12,349'	0	0	12,281'	718	83	0	-716	20 T26S R32E	3288' FSL	1984' FEL

Reference Directional Plan MWD Surveys will be taken at 90' interval below surface casing, 30' while building curve, and every 90' while drilling lateral.

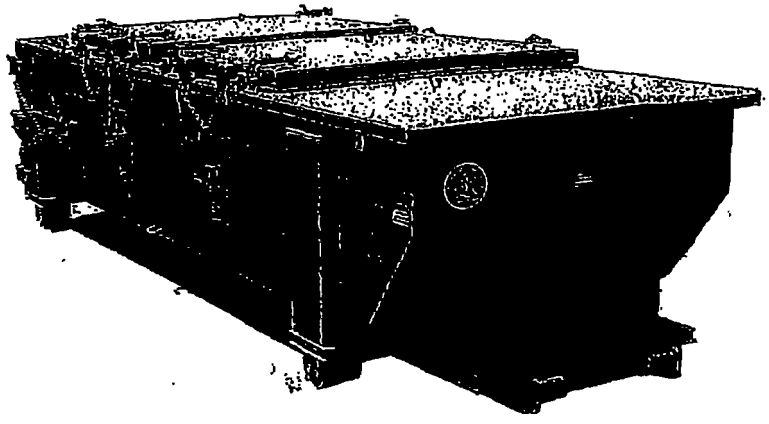
FORMATION EVALUATION:
Mud Logging - One-Man: First surface hole to TD.
Mud Logging - Two-Man: Intermediate Casing Point to TD
Open Hole - GR/RES/DEN/NEUTRON (Quad Combo and NMR run through pilot hole)
Cased Hole - NA
MWD - GR 200' above KOP to TD

OUR WORK IS NEVER SO URGENT OR IMPORTANT THAT WE CANNOT TAKE THE TIME TO DO IT SAFELY!

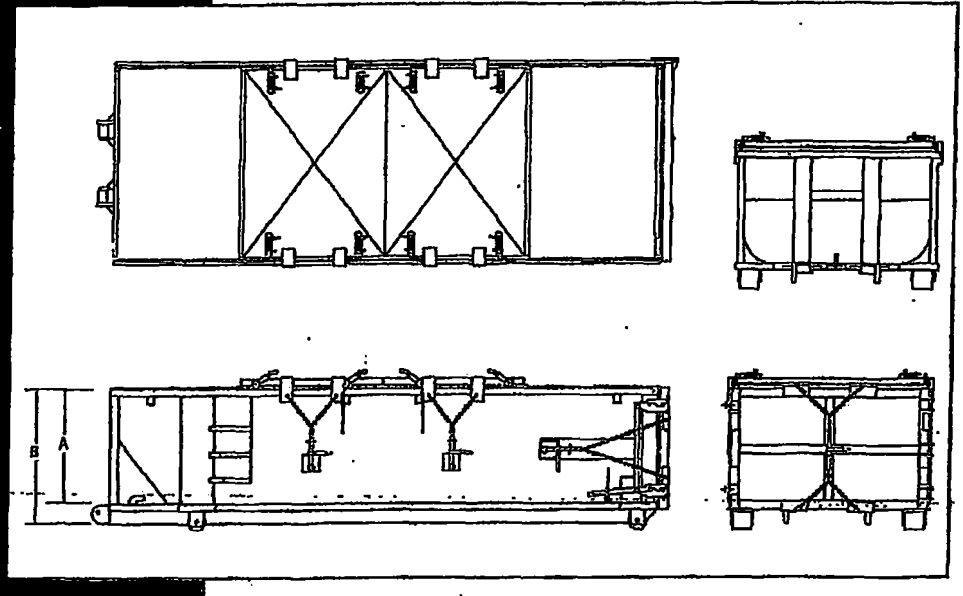
SPECIFICATIONS

FLOOR: 3/16" PL one piece
CROSS MEMBER: 3 x 4.1 channel 16" on center
WALLS: 3/16" PL solid welded with tubing top, inside liner hooks
DOOR: 3/16" PL with tubing frame
FRONT: 3/16" PL slant formed
PICK UP: Standard cable with 2" x 6" x 1/4" rails, gusset at each crossmember
WHEELS: 10 DIA x 9 long with rease fittings
DOOR LATCH: 3 Independent ratchet binders with chains, vertical second latch
GASKETS: Extruded rubber seal with metal retainers
WELDS: All welds continuous except sub-structure crossmembers
FINISH: Coated inside and out with direct to metal, rust inhibiting acrylic enamel color coat
HYDROTESTING: Full capacity static test
DIMENSIONS: 22'-11" long (21'-8" inside), 99" wide (88" inside), see drawing for height
OPTIONS: Steel grit blast and special paint, Ampliroll, Heil and Dino pickup
ROOF: 3/16" PL roof panels with tubing and channel support frame
LIDS: (2) 68" x 90" metal rolling lids spring loaded, self raising
ROLLERS: 4" V-groove rollers with delrin bearings and grease fittings
OPENING: (2) 60" x 82" openings with 8" divider centered on container
LATCH: (2) independent ratchet binders with chains per lid
GASKETS: Extruded rubber seal with metal retainers

Heavy Duty Split Metal Rolling Lid



CONT.	A	B
20 YD	41	53
25 YD	53	65
30 YD	65	77



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1. Geologic Formations

TVD of target	**12,023'**	Pilot hole depth	12,281
MD at TD:	**22,526'**	Deepest expected fresh water:	300

Basin

Formation	Depth (TVD) from KB	SSTVD (ft.)	Water/Mineral Bearing/Target Zone	Hazards *
Quaternary Fill	Surface	3,156	Water	
Base of Fresh Water	328	2,856	Water	
Rustler	1,162	2,022	Water	
Top of Salt / Salado	1,584	1,600	Mineral	
Castile	2,322	862	Mineral	
Delaware Top / Base Salt	4,364	-1,180	O & G	
Ford Shale	4,464	-1,280	O & G	
Cherry Canyon	5,243	-2,059	O & G	Losses
Brushy Canyon	6,773	-3,589	O & G	Losses
Bone Springs	8,393	-5,209	O & G	Abnormal pressure
Bone Springs 1st Carb	9,320	-6,136	O & G	Abnormal pressure
Bone Springs 2nd Carb	9,689	-6,505	O & G	Abnormal pressure
Bone Springs 3rd Carb	11,131	-7,947	O & G	Abnormal pressure
WolfCamp	11,544	-8,360	O & G	Abnormal pressure /Hole Instability
WolfCamp 1	11,766	-8,582	O & G	Abnormal pressure /Hole Instability

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

2. Casing Program

ConocoPhillips Company respectfully requests to approve the following 3-string casing and cementing program with the 7-5/8" casing set in the Wolfcamp. The intent for the casing and cementing program:

- Drill 17-1/2" surface hole to Rustler.
- Drill 12-1/4" hole from Rustler to below the base of the salt with the same density mud (OBM or Saturated Brine).
- Case and cement the well with 13-3/8" surface, 10-3/4" intermediate #1, 7-5/8" intermediate #2 and 5-1/2" production casing (4-strings).
- Isolate the Salt & Delaware utilizing Annulus Casing Packer and Stage Tool with 2-Stage Cement or Remediate with Bradenhead Squeeze if necessary.
- Bring cement for 13-3/8" casing and 10-3/4" casing to surface. Cement 7-5/8" casing 500' in lap inside 10-3/4" casing shoe. Cement 5-1/2" casing to lap inside 7-5/8" casing shoe.
- 5-1/2" TXP buttress Casing Connection in 6-3/4" OH for minimum of 0.422 in clearance per Onshore Oil and Gas Order #2 III.B.

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Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Burst	SF Collapse	SF Tension
17.5"	0	1,212	13.375"	54.5	J55	BTC	5.04	2.08	11.69 (13.45)
12.25"	0	5,032	10.75"	40.5	J55	BTC	4.46	2.25	2.92 (5.72)
9.875"	0	11,302	7.625	29.70	P-110	BTC	4.69	2.64	2.63(3.08)
9.875	11,302	12,502	7.625	29.70	P-110	H513	4.69	2.64	2.63(3.08)
6.75"	0	22,526	5.5"	23.0	P110	TXP	1.46	1.72	2.64 (3.32)
				BLM Minimum Safety Factor			1.00	1.125	1.6 Dry (1.8 Wet)

**COP Collapse Design: 1/3 Partial Evacuation to the next casing depth (TVD).

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

Must have table for contingency casing

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

Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Cementing Program

Option 1:

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (Estimated hours)	Slurry Description
Surf.	560	12.8	2.05	11.43	8	**Lead:** Class C + 5% BWOW NaCl + 1.9% bwoc SMS + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake + 3 lb/sk Gilsonite
	450	14.8	1.32	6.3	7	**Tail:** Class C + 2% bwoc CaCl2 + ¼ lb/sk Polyflake + 0.004 gal/sk Defoamer
Inter.	320	11.0	2.97	13.5	18	**Lead:** WBL + 0.5% CFL-4 + 0.6% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
	190	13.8	1.18	7.9	7	**Tail:** Thermal 35 + 10% NaCl + 0.9% CFR + 0.7% CFL-4 + 0.1% LTR + 0.2% SPC-II + 0.4% CDF-4P + ¼ lb/sk Polyflake + ½ ppb FiberBlock
	560	11.0	2.57	15.73		**Lead:** Poz/Class C + 5% bwow NaCl +10% bwob Gel + 0.3% bwob Retarder + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake + 3 lb/sk Gilsonite
	680	13.8	1.18	5.59		**Tail:** Class H + 0.3% bwoc Fluid Loss + 0.1% bwoc Retarder + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake
	175	10.8	2.57	15.73		**Lead:** Poz/Class C + 5% bwow NaCl +10% bwob Gel + 0.3% bwob Retarder + 0.004 gal/sk Defoamer + ¼ lb/sk Polyflake + 3 lb/sk Gilsonite
Prod.	953	15.6	1.19	5.21	10	**Tail:** Class H + 0.5% bwoc Fluid Loss + 0.05% bwoc Anti-Settling Agent + 0.35% bwoc Retarder + 0.004 gal/sk Defoamer
	DV/ACP Tool: NO					

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

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

Casing String	TOC	% Excess in OH
Surface	0'	>100%
Intermediate #1	0'	>30%
Intermediate #2	4,500	>70%
Production	10,376'	>10%

Include Pilot Hole Cementing specs: NO PILOT HOLE.
Pilot hole depth 12,281
KOP

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type
11,150	12,281	10	534	17.0	0.99	3.72	17 ppg Class H kick off plug

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	11" or 13-5/8"	10M	Annular	x	100% of annular
			Blind Ram	x	75% of remaining equipment
			Pipe Ram	x	
			Double Ram	x	
			Other*		
9-7/8"	11" or 13-5/8"	10M	Annular	x	50% of working pressure
			Blind Ram	x	100% of working pressure
			Pipe Ram	x	
			Double Ram	x	
			Other*		
6-3/4"	11" or 13-5/8"	10M	Annular	x	50% of working pressure
			Blind Ram	x	100% of working pressure
			Pipe Ram	x	
			Double Ram	x	
			Other*		

*Specify if additional ram is utilized.

Note: A 11" or 13-5/8" BOPE will be utilize depending on availability and Rig Substructure Clearance.

BOP/BOPE will be isolated from the casing and tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. BOPE controls will be installed prior to drilling under the surface casing and will be used until the completion of drilling operations. The intermediate interval and the production interval will be tested per 10M working system requirements. A variance is requested to use a 5M annular and test the annular to 100% of its working pressure. This variance is requested in conjunction with the attached well control plan.

Pipe rams will be operationally checked each 24-hour period. Choke manifold will have one remotely operated valve and a manual adjustable valve in front of the choke manifold, as detailed in the Onshore Order 2. It currently contains one 10M hydraulic choke for a total of three choke branches (two manual and one hydraulic).Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

A Spudder Rig may be used to drill the surface and/or intermediate hole for economical reason depending on availability.

The wellhead will be installed and tested as soon as the surface casing is cemented. Prior to drilling out the surface casing, ConocoPhillips shall nipple up a 10M BOPE & choke arrangement with 10M components and test to the rated working pressure of a 10M BOPE system as it is subjected to the maximum anticipated surface pressure 5647 psi. The pressure test to MASP and 100% for annular shall be performed with a test plug after installing the casing head and nippling up the 10M BOPE system prior to drilling out the surface casing.

However, ConocoPhillips shall nipple up a 10M BOPE with 10M Annular Preventer if drilling out surface casing with Primary Rig.

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

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,212	Spud Mud	8.34 - 8.6	28-50	N/C
1,212	5,032	Brine	8.6-9.2	28-49	N/C
5,032	12,502	Brine	9.5	28-50	N/C
0	21,377	Oil Base Mud	9.5-13.5	50-70	≤8

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

What will be used to monitor the loss or gain of fluid?	PVT/MDTotco/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	GR from 200' above KOP to TD (GR as part of the BHA while drilling).
x	Quad combo through the pilot hole
	Drill stem test? If yes, explain
	Coring? If yes, explain
x	Dry samples taken 30' from intermediate 1 casing point to TD.

Additional logs planned		Interval
	Resistivity	
	Density	
	CBL	
x	Mud log	
	PEX	
x	Quad Combo Log(pilot hole)	
x	Image Log FMI (pilot hole)	
x	Water base cuttings (pilot hole)	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8,416 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the

provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? If yes, describe. Yes, please see below.
Will be pre-setting casing? If yes, describe. Yes, please see below.

Spudder Rig and Batch Drilling Operations:

A blind flange cap of the same pressure rating as the wellhead will be secured to seal the wellbore on all casing strings. Pressure will be monitored via flanged port tied to a needle valve and pressure gauge to monitor pressures on each wellhead section and a means for intervention will be maintained while the drilling rig is not over the well.

Attachments:

Attachment#1:	Directional Plan.
Attachment#2:	Wellbore Casing & Cementing Schematic.
Attachment #3:	Special (Premium) Connections.
Attachment#4:	Wellhead Schematic.
Attachment #5:	BOP Schematic.
Attachment #6:	Choke Schematic.
Attachment #7:	Flex Hose Documentation.
Attachment #8:	Rig Layout.
Attachment #9:	Wild Well Control Plan

CONTITECH RUBBER Industrial Kft.	No: QC-DB- 45 / 2012
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Continental CONTITECH

Hose Data Sheet

CRI Order No.	516273
Customer	ContiTech Beattie Co.
Customer Order No	PO5438 STOCK
Item No.	3
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSIBX155 RING GROOVE
Type of coupling other end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSI BX155 RING GROOVE
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL RESISTANT
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
MBR operating [m]	1,60
MBR storage [m]	1,40
Type of packing	WOODEN CRATE ISPM-15