Form 3160-3 (June 2015)		HOBBS	0-	FORM	APPROVED	
(June 2015) UNITED STATE	\$	MAY 2.	CD	Expires: J	January 31, 20	
DEPARTMENT OF THE I BUREAU OF LAND MAN	NTERIOR AGEMEN	FC- 2019		5. Lease Serial No. NMLC0068281B		
APPLICATION FOR PERMIT TO D	RILL OR	REENTERO		6. If Indian, Allote	e or Tribe Nar	ne
la. Type of work: 🖌 DRILL	EENTER			7. If Unit or CA Ag	greement, Nan	ne and No.
Ib. Type of Well: 🔽 Oil Well 🗌 Gas Well 🔲 O	ther			8. Lease Name and	Well No.	
Ic. Type of Completion: Hydraulic Fracturing	ingle Zone [	Multiple Zone		ZIA HILLS 20 FEI	DERAL CON	
				106H	(3251	36)
2. Name of Operator CONOCOPHILLIPS COMPANY (2/17817)				9. API Well No. <b>30-025</b>	-44	189
3a. Address PO Box 2197 Houston TX 77252	3b. Phone N (281)293-1	lo. (include area cod 748 Z/I		10. Field and Pool, WOLFCAMP /-WA	or Explorator	98081
4. Location of Well (Report location clearly and in accordance w	with any State			11. Sec., T. R. M. o		vey or Area
At surface NWSE / 2570 FSL / 2067 FEL / LAT 32.027 At proposed prod. zone LOT 2 / 50 FSL / 1980 FEL / LA			180	SEC 20 / T26S / F	R32E / NMP	
14. Distance in miles and direction from nearest town or post offi 44.1 miles		720110-100.0040		I 12. County or Paris LEA	sh 13 NN	. State
15. Distance from proposed* 2067 feet	16. No of ac	res in lease	17. Spacir	ng Unit dedicated to	this well	
location to nearest 2007 leet property or lease line, ft. (Also to nearest drig, unit line, if any)	1841.48		0			
18. Distance from proposed location*	19. Propose	d Depth	20. BLM/	BIA Bond No. in file		
to nearest well, drilling, completed, applied for, on this lease, ft.		/ 21833 feet	FED: ES			×
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3154 feet	22. Approxi 08/20/2019	mate date work will	start*	23. Estimated durat 90 days	lion	
	24. Attac					
The following, completed in accordance with the requirements of (as applicable)	f Onshore Oil					
<ol> <li>Well plat certified by a registered surveyor.</li> <li>A Drilling Plan.</li> </ol>		<ol> <li>Bond to cover th Item 20 above).</li> </ol>	e operation	s unless covered by a	n existing bon	d on file (see
3. A Surface Use Plan (if the location is on National Forest Syster SUPO must be filed with the appropriate Forest Service Office		5. Operator certific		mation and/or plans a	s may be reque	sted by the
25. Signature	Name	(Printed/Typed)			Date	<u></u>
(Electronic Submission)	Jerem	y Lee / Ph: (832)48	86-2510		09/25/2017	<b>,</b>
Title Regulatory Coordinator		·				
Approved by (Signature) (Electronic Submission)		(Printed/Typed) opher Walls / Ph: (	575)234-2	234	Date 05/15/2019	)
Title Petroleum Engineer	Office CARL	SBAD				
Application approval does not warrant or certify that the applican applicant to conduct operations thereon.			iose rights i	in the subject lease w	which would en	ntitle the
Conditions of approval, if any, are attached.	<u> </u>					
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, m of the United States any false, fictitious or fraudulent statements of					any department	nt or agency
GCA Rac 05/20/19				\N	119	
			INNE		pall	
		ru condit	INNO	AM	I	
	VRD WI	TH CONDIT				
(Continued on page 2)				-	structions	
ppro	vai Date	: 05/15/2019		Do	ub ke 1	s. ded

- 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 1/3<sup>rd</sup> 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 <u>High Cave/Karst Areas</u> 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 1/3<sup>rd</sup> casing with fluid while running intermediate casing to maintain collapse safety factor. Casing string for 2<sup>nd</sup> 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 1/2" 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.

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- 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

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- 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 2<sup>nd</sup> 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.
- <u>Wait on cement (WOC) for Potash Areas:</u> 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 <u>24</u> hours. WOC time will be recorded in the driller's log.

- <u>Wait on cement (WOC) for Water Basin:</u> 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 <u>8 hours</u>. 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.

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- 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

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				1	NELL PI	AN S	SUMM	ARY					Date: Feb 13	2019
ConocoPhil	llips			-									Version: 2 Prepared by: J. Vos	s
	•									•				
WELL:	Zia Hills 20 106	н				COUNT	Y,STATE: API No.:		NM				AFE: Initing Network No.:	
	NWSE 20 T26S R3 SWNE 32 T26S R3			2067' FEL 1948' FEL			C Permit: M Permit:						Invoice Handler ID: COST ESTIMATE	
			35 F3L	1040 FEE									DRILLING	
ELEVATIONS:	GL KB	3,157,1° +27.0					H Coord.: D-83)	LAT	32" 103"	1' 41'	40.47" N 42.94" W		ACLITIES TOTAL	
17-1/2" X 13-3/8"	FORMATION		IVD	SUBSEA			DRI	LING RIC	PTEN			FORMATION		
	Quaternar Base of Fresh	Water	30 328	3,154 2,856						and Stat		Orta, Texas, go	North on Hwy 285 toward	
	Ruste Surface Ce		1,162 1,212	2,022 1,972									CR 449. Turn left (SW) onto 10 of a mile to the location.	o CR 449 and
 12-1/4" X 10-3/4"	Top of Sal/S Castile	Salado	1,584	1,600 862	Salt Salt	i .	58-38.55	-						
	Çeixware Bas	-	4,319	(1,135)	Set			Lung. Ivi						
	Intermediate, 1 Cherry Ca		5.032 5.243	(1,848) (2,059)	Gas/Oi Gas/Oi	Shallow	flow haza	rd in surfa	<u>РО</u> :a -> Dive	<u>TENTI/</u> ter rigge	d up and ready	<u>S -&gt; MIIIG</u>	ATIONS	
	Brushy Ca Bone Spring 1	nyan	6,773 8,393	(3,589) (5,209)	Gas / Oi Gas / Oi	Shallow	karst feati	Jres result	ng in full k	xses ->	LIDAR Mappin	g shows little t	o no risks. Use cement plug casing string, Reserve pit f	or firms
	Avelon	A	8,661	(5,477)	Gas / Oil Gas / Oil	Losses	n the Carry	on groups	; flow in th	e Bone i	Springs -> Res	erve pits full w	ith cut brine, LCM	
	Bone Spring FBS She	sle	9,320 9,608	(6,138) (6,424)	Gas / Oil	Wellbor	nstab≣ty	in the PR	OD hole -	Ready	to elevate MW	watching gas	num depth of 9,460" TVD s on connections	
9-7/8" X 7-5/8"	Bone Spring 2 Bone Spring 2		9,689 10,045	(6,505) (6,861)	Gas / Oil Gas / Oil	Strong t	ormation p			_			uick maintenance slides dditional info)	
	Bone Spring 3 Bone Spring 3	ird Carb	11,131 11,131	(7,947) (7,947)	Gas / Oi		r to drilling rt well () lo	procedure	for additi	onal deta	I and informat			
	Wolfcarr	ıp	11,544	(8,360)	Gas / Oi	3.) The	nimary rep ice: 2° ma	julatory ag	ency is th	e BLM.	~			
<b>11    </b>	Wolfcam Intermodiate 2 Casi		11,766 12,023	(8,582) (8,839)		5.) Int: 1	1.54° max	, 1.5 / 10	); svy eve	ry 90 <sup>°</sup> (s	iur yevery 30° in t	uild and drop,	, 30' in curve)	
	πο	_	12,023	(8,839)		8.) Later	al will be t	ied in to 10	6 Pilot Ho	le				
4)    ¥														
6.3	4" X 5-1/2 x 4-1/2"	Toe Stee	~ MD: 0, 1 F	SL		CONT	ACTS							
	***********											Offi		
9 5/5 in. shoe 22196' MD 383'FSL	TARGE	т	12,023	(8,582)	Gas / Oil		Dritting	Engineer:	Jake V	055		832-486	3-2041 832-499-90	35
	РВТО		12,023	(8,582)	Gas / Oil		Onsite Dri	Geologist: lling Rep.;	Greg R	ivera		281-206 432-848		47
Estimated BH Static Temp	perature (°F);	205					Reid Drill	ing Supt.:	Dennis James			830-583	-4828 958-229-13	93
Max. Anticipated BH Press Max Anticipated Surface P		0.700 pu/ft	8,416 psi 5,771 psi		5 ppg i/tigradient		Ort	ing Supt.:	Patrick Scott N			281-206	432-215-70 3-5392 432-230-80	
DRILLING FLUID:	Туре		<u>Inter</u> (4	rval	Density	<u>Via</u> sec/qt	PY	10002	<u></u> 建	EL mL	LGS % by vol	Alkalinity	NaCl Remarks	
Surface:	Spud Mi	ud	Surface		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 Tanka Rig Tanka	
Intermediate 2:	Brine		5032' -		9.5	28-60	1-5	2-6	7.5-8.5	NC	< 5.0		Rig Tanks Rig Tanks Bis Tanks Rig Tanks	an Mud Can
Production: Reference Drilling Fluids P	Brine OBM Program		5032' - 12502' -	22526'	9.5 13.5	28-60 50-70	1-5 18-25	8-14	9.5-10	NC < 8	< 8.0		Rig Tanks Rig Tanks Rig Tanks Potential for 14p	pg Mud Cap
Production: Reference Drilling Fluids F CASING: Surface:	Brine OBM	<u>10P (MD)</u> 27	5032 - 12502 - <u>BTM (MD)</u> 1,212	22526' Length 1,185'	9.5 13.5 <u>Size</u> 13 3/8	28-60 50-70 <u>W1</u> 54.50	1-5 18-25 <u>Grade</u> J-55		9.5-10 stion		< 8.0 BOP: Minimum -	400 - 00	Rig Tanks Potential for 14p	
Production: Reference Drilling Fluids F CASING:	Brine OBM Program	27	5032 - 12502 - <u>BTM (MD)</u> 1,212	22526' Length 1,185'	9.5 13.5 Size	28-60 50-70 <u>W1</u> 54.50	1-5 18-25 <u>Grade</u> J-55	8-14	9.5-10 ction C		< 8.0 BOP: Minimum - Rig -	400 - 00 COP Class 3 13-5/8*x	Rig Tanks Potential for 14p	
Production: Reference Drilling Fluids F CASING: Surface: Contingency Intermediate: Intermediate:	Brine OBM Program 17.5 12.25 9.875	27 ACP/DV	5032' - 12502' - <u>BTM (MD)</u> 1,212' Tool run 100	22526' Length 1,185' ' below wate	9.5 13.5 <u>Size</u> 13 3/8 or board depth	28-50 50-70 <u>W1</u> 54.50 if necess	1-5 18-25 <b>Grade</b> J-55 ary	8-14 Conne BT	9.5-10 ction C		< 8.0 BOP: Minimum - Rig -	400 - 00 COP Class 3 13-5/8*x	Rig Tanks Potential for 14p Well Control Requirement 10M psi Rams / 4-1/16"x10	
Production: Reference Drilling Fluids F CASING: Surface: Contingency Intermediate: Intermediate:	Brine OBM Program 17.5 12.25	27 ACP/DV 27	5032' - 12502' - <u>BTM (MD)</u> 1,212' Tool run 100 5,032'	22526' Length 1,185' ' below wate 5,005'	9.5 13.5 13 3/8 or board depth 10 3/4	28-50 50-70 <u>W1</u> 54.50 If necess 40.50	1-5 18-25 <u>Grade</u> J-55 ary J-55	8-14 Conne BT BT	9.5-10 ction c c		< 8.0 BOP: Minimum - Rig -	400 - 00 I COP Class 3 13-5/8*x Rotating Hea	Rig Tanks Potential for 14p 3 Well Control Requirement 10M pai Rams / 4-1/16"x10 ad, 5M Annutar Preventer, Jind Ram,	
Production: Reference Drilling Fluids P SASING: Surface: Contingency Intermediate: Intermediate: Production:	Brine OBM Program Hole 17.5 12.25 9.875 htt2 ACP/DV Tool	27 ACP/DV 27 27 6500	5032' - 12502' - <u>BTM (MD)</u> 1,212' Tool run 100 5,032' 11,302'	22526' Length 1,185' ' below wate 5,005' 11,275'	9.5 13.5 <b>Siza</b> 13 3/8 In board depth 10 3/4 7 5/8	28-50 50-70 <u>Wi</u> 54.50 if necess 40.50 29.70	1-5 18-25 <u>Grade</u> J-55 ary J-55 P-110	8-14 Conne BT BT BT	9.5-10 ction C C C		< 8.0 BOP: Minimum - Rig -	400 - 00 I COP Class 3 13-5/8*x Rotating Hea	Rig Tanks Potential for 14p 	
Production: Reference Drilling Fluids F ASINO: Surface: Contingency Intermediate: Intermediate: Intermediate: Production: Production: Surface Casing: 1	Brine OBM Program Hote 17.5 12.25 9.875 trt2 ACP/DV Tool 9.875 6.75 1 per 3 joints from 1,77	27 ACP/DV 27 6500 11,302 27 00° to FC. 1 per 3	5032 - 12502 - BTM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,528 3 joints from 1	22526' Length 1,185 ' below wate 5,005' 11,275' 1,200' 22,499' ,700' to surface	9,5 13.5 Size 13 3/8 or board depth 10 3/4 7 5/8 5-1/2 ce	28-60 50-70 54.50 if necess 40,50 29.70 29.70	1-5 18-25 J-55 ary J-55 P-110 P-110	8-14 Conne BT BT BT H5	9.5-10 ction C C C		< 8.0 BOP: Minimum - Rig -	400 - 00 13-5/8"x Rotating Hea Pipe Ram, B Mud Cross (i Pipe Ram Float Based	Rig Tanks Potential for 14p 3 Well Control Requirement 10M pai Rams / 4 - 1/16 * 10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S	a M psi Manifold
Production: Reference Drilling Fluids F ZASING: Surface: Cartingency Intermediate: Intermediate Production: SUTRALL2ATIOH: Surface Casing: Meremediate 2 Casing: 2	Brine OBM           Program           Hola           17.5           12.25           9.875           9.8	27 ACP/DV 27 6500 11,302 27 00 to FC. 1 per 3 nts From FC to 2 from FC to 7,800	5032 - 12502 - BTM (MD) 1,212' Tool run 100 5,032' 11,302' 12,502' 22,528' 3 joints from 1 2,500'. 1 per 4 , 1 per 2 joint	22526' Length 1,185' ' below wate 5,005' 11,275' 1,200' 22,499' ,700' to surfas joints 2,500' a 7,800' to 2,3	9.5 13.5 Size 13.3/8 probard depth 10.3/4 7.5/8 7.5/8 5-1/2 ce to surface. 3007.1 per 4 joi	28-50 50-70 ¥1 54.50 ¥1 mecess 40.50 29.70 29.70 23.00	1-5 18-25 J-55 ary J-55 P-110 P-110 P-110 P-110	B-14 Conne BT BT BT H5 TXP &	9,5-10 c c c c 13 513 FJ		< 8.0 Minimum - Rig - Stackup - Mud Pit:	400 - 00 COP Class 3 13-5/8*x Rotating Hea Mud Cross ( Pipe Ram Float Based Trip Tenk, Al	Rig Tanks Potential for 14p 3 Well Control Requirement 10M pai Rams / 4 - 1/16 % 10 ad, 5M Annutar Preventer, liind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS	a M psi Manifold ensor and Grav
Production: Refarence Drilling Fluids JF ASSING: Surface: Cartingency Intermediate: Intermediate: Production: SURTRALEZATION: Surface Casing: Intermediate 1 Casing: Intermediate 1 Casing: Production: Status 2 Casing: Intermediate 1 Casing: Intermediate 2 Casing: Intermediate 2 Casing: Intermediate 1 Casing: Intermediate 2 Casing: Intermediate 1 Casing: Intermediate 1 Casing: Intermediate 2 Casing: Intermediate 1 Casing: Intermediate 2 Casing: Intermediate	Brine OBM           Program           Hola           17.5           12.25           9.875           12.25           9.875           9.	27 ACP/DV 27 6500 11,302 27 00' to FC. 1 per 3 the From FC' to 2 from FC to 7,800 to TD to Int Shoe MD	5032 - 12502 - ETM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,526 3 joints trom 1 2,500. 1 per 4 . 1 per 2 joint . Bow Spring TVIP	22526' Lensth 1,185 ' below wate 5,005 11,275' 1,200' 22,499' ,700' to surfa- joints 2,500' a 7,800' to 2: t per 2 joints SEP	9.5 13.5 Siza 13.3/8 10 3/4 7 5/8 7 5/8 7 5/8 7 5/8 7 5/8 5 1/2 00 to surface. 300'. 1 per 4 joi ht shoe to 100 sizeri	28-50 50-70 54.50 if necess 40.50 29.70 29.70 29.70 23.00	1-5 18-25 grade J-55 p-110 P-110 P-110 P-110 P-110 lo surface.	B-14 Conne BT BT BT H5 TXP & Joints to su	9.5-10 stilon C C C S13 FJ face		< 8.0 Minimum - Rig - Stackup - Mud Pit: WelDhead: Yeil	400 - 00 COP Class 3 13-5/8*x Rotating Her Pipe Ram, E Mud Cross ( Pipe Ram Float Based Trip Tenk, Al 13-5/8* x 5M	Rig Tanks Potential for 14p 3 Well Control Requirement 10M pal Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS : psi Cameron Multibowi (4 5 <u>COMMENTS</u>	a Mipsi Mantfold ensor and Grav String)
Production: Refarence Drilling Fluids F Castinge: Surface: Cartingency Intermediate: Intermediate: Production: CENTRALEZATION: Surface Casing: Production Casing: EXENT: Surface:	Brine OBM Program Hola 17.5 12.25 9.875 112.26 9.875 9.875 9.875 9.875 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.	27 ACP/DV 27 6500 11,302 27 00 to FC. 1 per 3 nts From FC to 20 to FC to 7.00 to 7.000 to 7.000 to 7.000 to 7.000 to 7.0	5032' - 12502' - ETM (MD) 1,212' Tool run 100 5,032' 11,302' 12,502' 22,528' 3 joints from 1 5,002 - Joint 8 joints from 1 2,500' - 1,212' 1,302' 1,212' 1,302' 1,212' 1,202' 1,212' 1,302' 1,212' 1,302' 1,212' 1,212' 1,302' 1,212' 1,202' 1,202' 2,528' 1,102' 1,212' 1,212' 1,212' 1,202	22526' Length 1,185 below wate 5,005 11,275' 1,200' 22,489' ,700' to surfa- joints 2,500' a 7,800' to 2; t per 2 joints SE 20 bl	9.5 13.5 Size 13.3/8 tr board depth 10.3/4 7.5/8 5-1/2 ce to surface. 300.1 per 4 joi scorf bis FW	28-50 50-70 54-50 if necess 40.50 29.70 29.70 23.00 nts 2,300 * above Kd	1-5 18-25 Grade J-55 P-110 P-110 P-110 to surface. DP. 1 per 4 60 sx Clar 12.8 ppg	B-14 Conne BT BT BT H5 TXP & STXP & so C + add	9.5-10 ction C C C 13 513 FJ face	< 8	< 8.0 BOP: Minimum - Rig - Stackup - Stackup - Mud Pit: Wellhead: Yeill 450 px Class 0 14.8 ppg 1.33	400 - 00 1 COP Class : 13-5/8"x Rotating Hea Pipe Ram, B Mud Cross ( Pipe Ram, Ficat Based Trip Tenk, A/ 13-5/8" x SM :+ adds	Rig Tanks Potential for 14p 3 Well Control Requirement 10M pai Rams / 4-1/167x10 ad, 5M Annutar Preventer, llind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS pai Cameron Multibowi (4 1 <u>COMMENTS</u> Cemented to surface wa Add FiberBlock	M psi Manifold ensor and Grav String)
Production: Refarence Drilling Fluids F Castinge: Surface: Cartingency Intermediate: Intermediate: Production: CENTRALEZATION: Surface Casing: Production Casing: EXENT: Surface:	Brine OBM           Program           Hola           17.5           12.25           9.875           12.25           9.875           9.	27 ACP/DV 27 6500 11,302 27 00' to FC. 1 per 3 the From FC' to 2 from FC to 7,800 to TD to Int Shoe MD	5032 - 12502 - ETM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,526 3 joints trom 1 2,500. 1 per 4 . 1 per 2 joint 8 ow Spring TVID	22526' Length 1,185 below wate 5,005 11,275' 1,200' 22,489' ,700' to surfa- joints 2,500' a 7,800' to 2; t per 2 joints SE 20 bl	9.5 13.5 Siza 13.3/8 10 3/4 7 5/8 7 5/8 7 5/8 7 5/8 7 5/8 5 1/2 00 to surface. 300'. 1 per 4 joi ht shoe to 100 sizeri	28-50 50-70 54-50 if necess 40.50 29.70 29.70 23.00 nts 2,300 * above Kd	1-5 18-25 J-55 ary J-55 P-110 P-110 P-110 P-110 P-110 P-110 P-128 ppg 320 ax Wa	B-14 Conne BT BT BT H5 TXP & STXP & so C + add	9.5-10 ction C C C 13 513 FJ face	< 8	< 8.0 BOP: Minimum - Rig - Stackup - Mud Pit: Wellhead: Yeil 450 tx Class C	400 - 00 1 13-5/8*x Rotating Her Pipe Ram, E Mud Cross ( Pipe Ram Flost Based Trip Tenk, A 13-5/8* x 5M ** adds ** adds	Rig Tanks Potential for 14p Well Control Requirement 10M pal Rams / 4-1/157x10 Job pal Rams / 4-1/157x10 Job pal Rams / 4-1/157x10 Lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS ipsi Cameron Multibowi (4 1 <u>Commetor to surface wa</u>	M psi Manifold ensor and Grav String) 100%LXS 70%L / 30%T
Production: Safarance Dritting Fluids F CASING: Surface: Castingency Intermediate: Intermediate: Production: CENTRALIZATION: Surface Casing: Intermediate 1 Casing: Surface Casing: Surface: Intermediate:	Brine OBM Program <u>Hola</u> 17.5 12.25 9.875 htt2 ACP/DV Tool 9.875 htt2 ACP/DV Tool 9.875 1 per 3 joints from 1,7 fore joint a fore 3 joints fore joint - 1 per 3 joints fore joints - 1 per 3 joints fore joints - 1 per 3 joints - 1 per 3 joints fore joints - 1 per 3 joints	27 ACP/DV 27 27 6500 11,302 27 00 to FC. 1 per 3 the From FC to 2 the From FC to 2 the From FC to 2 the From FC to 2 to 7.800 to TD to Int Shoe MD 1,212 5,032	5032 - 12502 - BTM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,528 3 joints from 1 2,507 22,528 3 joints from 1 2,507 12,502 2,528 3 joints from 1 2,507 1,212 5,032	22528' Length 1,185 below wate 5,005 11,275' 1,200' 22,499' ,700' to surfat joints 2,500' a 7,000' to 2,200' 1,200' to surfat joints 2,500' a 7,000' to 2,200' t per 2 joints <u>Sp</u> 20 bil 40 bbil Im	9.5 13.5 13.3 13.3 r board depth 10.3/4 7.5/8 7.5/8 5-1/2 5-	28-50 50-70 54.50 if necess 40.50 29.70 29.70 23.00 nts 2,300 res 2,300 s 5	1-5 18-25 J-55 ary J-55 P-110 P-110 P-110 P-110 P-110 P-110 Courface. P-110 P-10 P-	B-14 Conne BT BT BT HS TXP & STXP & so C + add so C + adds 2.05ft3/sk	9.5-10 cc c c 513 FJ face	- 8	< 8.0 Minimum - Rig - Stackup - Stackup - <u>VeliDeaat:</u> <u>Yeli</u> 450 ac Class G 14.8 ppg 1.16	400 - 00 COP Class 3 13-56% Rotating Haz Pipe Ram, B Mud Cross ( Pipe Ram, Float Based Trip Tenk, Al 13-5/8" x 5M * adds rt3Ak \$* adds rt3Ak	Rig Tanks Potential for 14; Well Control Requirement 10M pai Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS ipsi Cameron Multibowi (4 1 <u>Commence</u> to surface wi Add FiberBlock Cameride to surface wi Add FiberBlock	a M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T
Production: Reference Dritting Fluids F CASING: Surface: Contingency Intermediate: Intermediate: Production: CENTRALIZATION: Surface Casing: Tetermediate 1 Casing: Surface Casing: CENTRALIZATION: Surface Casing: ENTERMENT: Surface: Intermediate:	Brine OBM 70gram 11018 17.5 12.25 9.875 112.25 9.875 112.25 9.875 112.25 9.875 112.25 9.875 112.25 9.875 112.147 112.147 112.147 112.147 112.147 112.147 112.147 112.147 112.147	27 ACCP/0V 27 27 5500 11,302 27 00° to FC. 1 per 3 the From FC to 2 the FC on FC to 2 the FC on FC to 2 the FC on FC of 2 the FC on FC of 2 the FC of	5032 - 12502 - ETM(MD) 1,212 Tool run 100 5,032 11,302 12,502 22,526 3) joints from 1 2500. 1 per 4 . 1 per 4 2 joint 10,002 10,0	22528' Lensth 1,185 below wate 5,005 11,275' 1,200' 22,499' ,700' to surfas joints 2,500' 2,2499' ,700' to surfas <u>5,005'</u> 1,200' 2,499' ,700' to surfas <u>5,005'</u> 2,00' to surfas <u>5,005'</u> 2,00' to surfas <u>5,005'</u> 2,00' to surfas <u>5,005'</u> 2,00' to surfas <u>5,00'</u> 2,00' to surfas <u>5,00'</u> 2,00	9.5 13.5 13.36 rr board depth 10.3/4 7.5/8 7.5/8 7.5/8 7.5/8 5.90 to surface. 300.1 per 4 joi which to to 100 <del>2021</del> bit short 5 Dis FW reft Spacer 5 ppg spacer	28-60 50-70 54.50 ∦ mecess 40,50 29.70 23.00 29.70 23.00	1-5 18-25 <b>Grade</b> J-55 J-55 P-110 P-110 P-110 P-110 OP. 1 per 4 <u>Le</u> 60 ax Char 11 ppg 2 9 ax Poz/C 11 ppg 2	6-14 Conne BT BT BT H5 TXP & : 15 TXP & : 205n3/sk BL + adds :97n3/sk tass C + s	9.5-10 stilon C C C 13 513 FJ face s	- 8	< 8.0 BOP: Minimum - Rig - Stackup - Mud Pit: Wellhead: <u>Xeli</u> 450 ox Class C 14.8 ppg 1.33 0 ox Thermat	400 - 00 COP Class 3 13-56% X Rotating Hea Pipe Ram, B Mud Cross ( Pipe Ram Float Based Trip Tenk, A 13-56% X 5M * adds 55* adds 13-56% X 5M * adds	Rig Tanks: Potential for 14p Well Control Requirement 10M pai Rams / 4 - 1/16 % 10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/ - 10 BBLS Emeron Mutiboom (4 1: <u>COMMENTS</u> Cemented to surface wo Add FiberBlock	a M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T
Production: Reference Drilling Fluida F CASING: Surface: Contingency Intermediate: Intermediate: Production: CENTRALZATION: DENTRALZATION: Tetrmediate 1 Casing: Surface Casing: Tetemediate 1 Casing: EEMENT: Surface: Intermediate:	Brine OBM Program <u>Hola</u> 17.5 12.25 9.875 htt2 ACP/DV Tool 9.875 htt2 ACP/DV Tool 9.875 1 per 3 joints from 1,7 fore joint a fore 3 joints fore joint - 1 per 3 joints fore joints - 1 per 3 joints fore joints - 1 per 3 joints - 1 per 3 joints fore joints - 1 per 3 joints	27 ACP/DV 27 27 6500 11,302 27 00 to FC. 1 per 3 the From FC to 2 the From FC to 2 the From FC to 2 the From FC to 2 to 7.800 to TD to Int Shoe MD 1,212 5,032	5032 - 12502 - BTM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,528 3 joints from 1 2,507 22,528 3 joints from 1 2,507 12,502 2,528 3 joints from 1 2,507 1,212 5,032	22528' Lensth 1,185 below wate 5,005 11,275' 1,200' 22,499' ,700' to surfas joints 2,500' 2,2499' ,700' to surfas <u>5,005'</u> 1,200' 2,499' ,700' to surfas <u>5,005'</u> 2,00' to surfas <u>5,005'</u> 2,00' to surfas <u>5,005'</u> 2,00' to surfas <u>5,005'</u> 2,00' to surfas <u>5,00'</u> 2,00' to surfas <u>5,00'</u> 2,00	9.5 13.5 13.3 13.3 r board depth 10.3/4 7.5/8 7.5/8 5-1/2 5-	28-60 50-70 54.50 ∦ mecess 40,50 29.70 23.00 29.70 23.00	1-5 18-25 <b>Grade</b> J-55 P-110 P-110 P-110 P-110 D-10 D	6-14 Conne BT BT BT H5 TXP & : 15 TXP & : 205n3/sk BL + adds :97n3/sk tass C + s	9.5-10 stion C C C 13 513 FJ fface s dds	- 8	< 6.0 BOP: Minimum - Rig - Stackup - Stackup - Mud Pit: <u>VelDead:</u> <u>Yeli</u> 450 ex Class C 1.3.8 ppg 1.15 680 ex Class H	400 - 00 COP Class 3 13-56% X Rotating Hea Pipe Ram, B Mud Cross ( Pipe Ram Float Based Trip Tenk, A 13-56% X 5M * adds 55* adds 13-56% X 5M * adds	Rig Tanks Potential for 14p Well Control Requirement 10M pal Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS ipal Cameron Multibowi (4 1 <u>COMMENTS</u> Cemented to surface wi Add FiberBlock Cemented to surface wi ToC 500' into previous.	n M psi Manifold ensor and Grav String) 100%XS 70%L / 30%T
Production: Reference Drilling Fluidas [F CASING: Surface: Contingency Intermediate: Intermediate: Production: CENTRALIZATION: Surface Casing: Teatmediate 1 Casing: CENTRALIZATION: Surface Casing: Troduction casing: Intermediate 2 Casing: CEMENT: Surface: Intermediate:	Brine OBM 70gram 11018 17.5 12.25 9.875 112.25 9.875 112.25 9.875 112.25 9.875 112.25 9.875 112.25 9.875 112.147 112.147 112.147 112.147 112.147 112.147 112.147 112.147 112.147	27 ACCP/0V 27 27 5500 11,302 27 00° to FC. 1 per 3 the From FC to 2 the FC on FC to 2 the FC on FC to 2 the FC on FC of 2 the FC on FC of 2 the FC of	5032 - 12502 - ETM(MD) 1,212 Tool run 100 5,032 11,302 12,502 22,526 3) joints from 1 2500. 1 per 4 . 1 per 4 2 joint 10,002 10,0	22528' Length 1,185 below weta 5,005 11,275' 1,200' 22,499' 700' to surfar 1,200' to 2,2 400' to 2,2 1 per 2 jointa 20 bil 40 bbl im 20 bbls 10. 20 bbls 10.	9.5 13.5 13.3 13.3/8 17.5/8 15.1/2 10.3/4 17.5/8 15.1/2 10.3/4 17.5/8 15.1/2 10.8/1 10.3/4 17.5/8 15.1/2 10.8/1 10.8/1 10.8/1 10.3/4 17.5/8 15.1/2 10.8/10 10.8/10	28-60 50-70 ¥/1 54.50 ¥ mecess 40,50 29.70 23.00 29.70 23.00	1-5 18-25 <b>Grade</b> J-55 P-110 P-110 P-110 P-110 D-10 D-10	6-14 Conne BT BT BT BT HS TXP & ed softs to su ed softs C + ed 2.05f3/sk BL + adds .97f13/sk lass C + e	9.5-10 stion C C C 13 513 FJ fface s dds	< 8 	< 8.0 Minimum - Rig - Stackup - Stackup - Mud Pit: Welfbead: 45.0 px Class C 13.8 ppg 1.15 680 px Class - 13.8 ppg 1.15 953 px Class H	400 - 00 COP Class : 13-567 x Rotating Hea Pipe Ram, B Mud Cross ( Pipe Ram Flost Based Trip Tenk, Al 13-568 x 5M : adds 13-568 x 5M : adds 13-568 x 5M : adds : adds : adds : adds : adds : adds : adds : adds : adds : adds	Rig Tanks Potential for 14; Well Control Requirement 10M pai Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S amms +/- 10 BBLS pai Cameron Mutabowi (4 f) <u>COMMENTS</u> Cemented to surface wi XS calc'd on 12.25° hol TOC 500° into previous. TOC 500° into previous.	s M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T 2 casing shoe w/
Production: Reference Cerrentling Fuida F CASING: Surface: Castingency Intermediate: Intermediate: Production: CENTRALIZATION: Surface Casing: Surface Casing: Intermediate I Casing: EMENT: Surface: Intermediate: Production: Reference Cernenting Rec	Brine OBM 70gram 11018 17.5 12.25 9.875 9.875 9.875 9.875 9.875 9.875 9.875 9.75 10er 3 joints from 1.7 Shoe joint. 1 per 3 joint Shoe joint. 1 per 3 joint Shoe joint. 1 per 3 joint Noise joint Noise joint. 1 per 3 joint Noise j	27 ACP/DV 27 27 5500 11,302 27 00 to FC. 1 per 3 the From FC to 2 the FC of FC. 1 per 3 1.302 27 27 27 5.032 12,502 6500	5032 - 12502 - BTM(MD) 1,212 Tool run 100 5,032 11,302 12,502 22,528 3 joints trom 1 2500: 1 per 4 . 1 per 2 joint 1,212 5,032 12,023 6,500'	22528' Length 1,185 below weta 5,005 11,275' 1,200' 22,499' 700' to surfar 1,200' to 2,2 4,99' 20 bil 40 bbl im 20 bbls 10. 20 bbls 10.	9.5 13.5 13.36 rr board depth 10.3/4 7.5/8 7.5/8 7.5/8 7.5/8 5.90 to surface. 300.1 per 4 joi which to to 100 <del>2021</del> bit short 5 Dis FW reft Spacer 5 ppg spacer	28-60 50-70 ¥/1 54.50 ¥ mecess 40,50 29.70 23.00 29.70 23.00	1-5 18-25 <b>Grade</b> J-55 P-110 P-110 P-110 P-110 D-10 D-10	6-14 Conne BT BT BT BT HS TXP & ed softs to su ed softs C + ed 2.05f3/sk BL + adds .97f13/sk lass C + e	9.5-10 stion C C C 13 513 FJ fface s dds	< 8 	< 6.0 BOP: Niamum - Rig - Stackup - Stackup - Mud Pit: Wellhead: <u>Jeli</u> 450 ox Class - 13.8 ppg 1.18 680 ox Class - 13.8 ppg 1.18	400 - 00 COP Class : 13-567 x Rotating Hea Pipe Ram, B Mud Cross ( Pipe Ram Flost Based Trip Tenk, Al 13-568 x 5M : adds 13-568 x 5M : adds 13-568 x 5M : adds : adds : adds : adds : adds : adds : adds : adds : adds : adds	Rig Tanks Potential for 14p Well Control Requirement 10M pal Rams / 4 - 1/167x10 Job pal Rams / 4 - 1/167x10 Job pal Rams / 4 - 1/167x10 Job pal Rams / 4 - 1/167x10 Electronic PVT with Flow S arms +/ - 10 BBLS i pal Cameron Multibowi (4 1 <u>Committed</u> to surface wa Add FiberBlock Cemented to surface wa XS calc'd on 12.25" hole TOC 500' into previous - TO(500' into previous - TO(5	ansor and Grav String) 100%XS 20%L / 30%T 2 casing shoe w/
Production: Reference Cerrentling Fuida F CASING: Surface: Castingency Intermediate: Intermediate: Production: CENTRALIZATION: Surface Casing: Surface Casing: Intermediate I Casing: EMENT: Surface: Intermediate: Production: Reference Cernenting Rec	Brine OBM Program 150 b 17.5 12.25 9.875 12.25 9.875 12.25 9.875 12.25 9.875 12.25 9.875 1.923 9.875 0.75 1.923 1.923 1.923 1.923 1.923 1.923 1.923 1.923 1.923 1.923 1.923 1.9244 1.924 1.9244 1.9244 1.9244 1.9244 1.9244 1.	27 ACP/0V 27 11,302 27 00° to FC 1 per 11,302 27 00° to FC 1 per 10° to FC 100 1.212 5.032 12,502 6500 22,526	5032 - 12502 - BTM(MD) 1,212 Tool run 100 5,032 11,302 12,502 22,536 3 joints trom 1 2500. 1 per 4 . 1 per 2 joint 1,212 5,032 12,023 6,500 12,023 IXC	22528' Length 1,185 5,005 11,275 1,200' 22,490 10,207' to surfas 1,200' to surfas 1,200' to surfas 1,200' to 2,1 1,200' to 2,1 2,000' to 2,1 1,200' to 2,1 1,200' to 2,1 2,000' to 2,000' to 2,1 2,000' to 2,000'	9.5 13.5 13.3 13.3 13.3 13.3 13.3 13.3 13	28-50 50-70 94.50 40.50 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 29.70 5 5 5 5 5 6 0 175	1-5 18-25 <b>Grade</b> J-55 P-110 P-110 P-110 P-110 P-110 Dec Clair 12.8 ppg So x Clair 11 ppg 2 sx Poz/C 10.8 ppg	E-14     Conne     BT     BT     BT     BT     M5     TXP &     Conne     STAPAk	9,5-10 <u>stion</u> C C C C S S S S S S S S S S S S S	<8 	< 8.0 Minimum - Rig - Stackup - Stackup - Mud Pit: Welfbead: 45.0 px Class C 13.8 ppg 1.15 680 px Class - 13.8 ppg 1.15 953 px Class H	400 - 00 COP Class 1 13-56% Rotaling Heat Pipe Ram, E Mud Cross ( Pipe Ram Float Based Trip Tenk, Al 13-56% x 5M - adds 13-56% x 5M - adds - add - ad	Rig Tanks Potential for 14; Well Control Requirement 10M pai Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S amms +/- 10 BBLS pai Cameron Mutabowi (4 f) <u>COMMENTS</u> Cemented to surface wi XS calc'd on 12.25° hol TOC 500° into previous. TOC 500° into previous.	ansor and Grav String) 100%XS 20%L / 30%T 2 casing shoe w/
Production: Salamace Drilling Fluidas F CASING: Surface: Contingency Intermediate: Intermediate: Production: TENTRALEDATION: Surface Casing: CENTRALEDATION: Tentradiate 2 Casing: CENTRALEDATION: Surface: Intermediate: Intermed	Brine OBM Program Hote 17.5 12.25 9.875 Ht2 ACP/DV Tool 9.875 Ht2 ACP/DV Tool 9.875 1 per 3 joints atom 1.7 Shoe joint. 1 per 3 pin Shoe joint. 1 per 3 pin Hote 17-1/2"X13-3/8" 12-1/4"X 10-3/4" 9-7/6" x 7-5/8" Stage 2 6-3/4"X 5-1/2" commendation ts ng	27 ACP/DV 27 27 5500 11,302 27 00 to FC. 1 per 2 13,022 27 00 to FC. 1 per 2 13,022 11,302 11,202 12,502 11,202 12,502 11,202 12,502 11,202 12,502 11,002 11,002 11,202 11	5032 - 12502 - BTM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,528 3 joints trom 1 220,528 3 joints trom 1 220,528 1,212 5,032 12,023 6,500 12,023 11,022 11,022 12,023 11,022 12,023 11,022 12,023 11,022 12,023 11,022 12,023 11,022 12,023 11,022 12,023 12,022 12,023 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025 12,025	22528' Length 1,185 5,005 11,275' 1,200' 22,009 1,200' 22,00' 2	9.5 13.5 13.36 rr board depth 10.3/4 7.5/8 7.5/9 7.5/8 7.5/9	28-50 50-70 <u>Wf</u> 54.50 40.50 29.70 29.70 29.70 29.70 29.70 29.70 23.00 * above Kf 175 566 175	1-5 18-25 97adbe 1-55 P-110 P-10 P-	6-14 Control BT BT BT HS TXP & IS C + add IS C	9,5-10 stilion C C C C C C C C S S S S S S S S S S S S S	<8 1 <u>5</u> 20 T	<ul> <li>&lt; 6.0</li> <li>BOP: Minimum - Rig - Stackup - Stackup - Mud Pit: Welfbead: <u>Ifil</u> 450 ex Class - 13.8 ppg 1.15 850 ax Class H 15.8 ppg 1.16 <u>Stackup -</u> <u>Stackup - </u> <u>Stackup - </u> <u>Sta</u></li></ul>	400 - 00 COP Class : 13-5/8*X Rotating Her Pipe Ram, B Mud Cross ( Pipe Ram, Float Based Trip Tenk, A 13-5/8* x SM * adds rt3Ak * adds rt3Ak * adds rt3Ak * adds rt3Ak * adds rt3Ak	Rig Tanks Potential for 14; Well Control Requirement 10M pal Rams / 4-1/15/X10 Job pal Rams / 4-1/15/X10 Job pal Rams / 4-1/15/X10 Job pal Rams / 4-1/15/X10 Job pal Rams / 4-1/15/X10 Lipsi Cameron Multibowi (4 1 Commits to surface wa Add FiberBlock Cemented to surface wa XS calc'd on 12.25" hole TOC 500' into previous / TOC 500' into previous / Cemented 100' above / calc'd on 6.75" hole	ansor and Grav String) 100%XS 20%L / 30%T 2 casing shoe w/
Production: Reference Dritting Fluids  F CASING: Surface: Contingency Intermediate: Intermediate: Production: PENTRALIZATION: Surface Casing: Intermediate 1 Casing: Surface Casing: Intermediate 2 Casing: Surface: Intermediate: Intermediate: Intermediate: Reference: Surface: Surface: Intermediate: Reference: Commenting Rec DIRECTONAL PLAN: Commenting Tangert KOP, Budd Ed Budd @Ed Budd Budd @Ed Budd Budd @Ed Budd @Ed Budd Budd Budd Budd Budd Budd @Ed Budd Budd Budd Budd Budd Budd Budd Bu	Brine OBM Trogram Hole 17.5 12.25 9.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.875 10.976 10.976 10.976 10.976 10.976 10.976 10.976 10.976 10.976 10.976 10.976 10.976 10.977 10.976 10.977 10.976 10.977 10.977 10.976 10.9777 10.977	27 ACP/DV 27 11,302 27 00° b FC. 1 per 3 b Fcm FC* to 7,800 at 7D b th Shot 12,502 6500 22,526 <u>MD</u> (11)	5032 - 12502 - BTM(MD) 1,212 Tool nun 100 5,032 11,302 12,502 22,538 3 joints trom 1 2200, 1 per 4 . 1 per 2 joint . Bow Spring TVP 1,212 5,032 12,023 6,500 12,023 INC (deg) 11 0 11,54	22528' Length 1,185 5,005 11,275' 1,200' 22,499' 700' to surfar 1,200' to 2,2 400 bols in 20 bols 10: 20 bols 10: 20 bols 10: 20 bols 14: AZ2 (deg )	9.5 13.5 13.36 rr board depth 10.3/4 7.5/8	28-60 50-70 <u>Wi</u> if necess 40,50 29,70 29,70 29,70 29,70 29,70 29,70 29,70 29,70 29,70 29,70 23,00 12,300 5560 175 560 (T) 9,77	1.5 18-25 Grade J-55 J-55 P-110 P-110 P-110 P-110 P-110 P-110 P-110 P-128 ppg 320 ex Wi 11 ppg 2 sx Paz/C 10.8 ppg	E-14     Conner     BT     BT     BT     BT     H5     TXP &     is     c + edd     sis C + edd     sis C + edd     sis C + edds     Sis C + edd     (7)73/sk	9,5-10 stilion C C C C C 13 513 FJ s s dds dds <u>V8</u> (11) 0 0 -77	<8 1 20 T 20 T 20 T	< 6.0           BOP:         Minimum -           Rig -         Stackup -           Stackup -         Stackup -           Mud Pit:	400 - 00 COP Class 3 13-562 Rotating Heat Pipe Ram, B Mud Cross ( Pipe Ram Float Based Trip Tenk, Al 13-568 x 5M - adds 13-568 x 5M - adds 13-568 x 5M - adds - ad	Rig Tanks Potential for 14p Well Control Requirement 10M pal Rams / 4 - 1/15/X10 Job pal Rams / 4 - 1/15/X10 Electronic PVT with Flow S arms +/ - 10 BBLS Ipal Cameron Multibowi (4 1 <u>Commits of surface wa</u> Add FiberBlock Cemented to surface wa XS calc'd on 12.25" hole TOC 500" into previous - TOSL / 30%T XS Cemented 100" above h calc'd on 6.75" hole Line Distance 2067 FEL 2067 FEL	ansor and Grav String) 100%XS 20%L / 30%T 2 casing shoe w/
Production: Reference Ontiling Fluids  F CASING: Surface: Castingency Intermediate: Intermediate: Production: CENTRALIZATION: Surface Casing: Surface Casing: Intermediate I Casing: Surface: Intermediate: Intermediate: Reference Cementing Rec Reference Cementing Rec Rec Reference Cementing Rec Reference	Brine OBM Program <u>Hola</u> 17.5 12.25 9.875 htt2 ACP/DV Tool 9.875 1 per 3 joints from 1.77 Shoe joint. 1 per 3 joints from 1.77 Broe joint. 1 per 3 joints from 1.77 Broe joint. 1 per 3 joints from 1.77 Hola 17-11/2"X 13-3/6" 12-11/4"X 10-3/4" 9-7/6" x 7-5/6" Stage 2 6-3/4"X 5-1/2" commendation ta 100	27 ACP/0V 27 27 6500 11,302 27 00 to FC. 1 per: 11,302 27 00 to FC. 1 per: 10 to Ft. 20 12,502 6500 22,526 (11) 5,032 6,500 (11) 5,032	5032 - 12502 - ETM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,502 23,507 12,502 23,507 12,502 12,002 11,002 12,002 11,002	22528' Length 1,185 5,005' 11,275' 1,200' 22,489' 1,200' 22,489' 1,200' 24,489' 1,200' 24,489' 1,200' 24,489' 1,200' 24,489' 1,200' 24,489' 20 bits 10,00' 10,00' 20 bits 10,0' 20 bits 10,0' 1	9.5 13.5 13.3 15.6 15.7 1	28-60 50-70 94.50 40.50 29.70 29.70 29.70 29.70 29.70 23.00 5560 175 560 175	1-5 18-25 <u>Grade</u> ary J-55 p-110 p-10 p-	8-14 Conness BT BT BT H5 TXP & as C + add SC + a	9,5-10 <u>stion</u> C C C 13 13 FJ 13 FJ 13 FJ 13 FJ 13 FJ 13 FJ 13 FJ 13 FJ 10 C 13 FJ 13 FJ 10 C 13 FJ 10 C 10 C 1	<8 1 1 20 T 20 T 20 T 20 T 20 T 20 T	< 8.0 BOP: Minimum - Rig - Stackup - Stackup - Mud Pit: Welfbead: Welfbead: 13.8 ppg 1.16 680 av Class - 13.8 ppg 1.16 680 av Class - 15.8 ppg 1.16 EC-T-R 265 R32E	400 - 00 COP Class : 13-567 x Rotating Heat Pipe Ram, E Mud Cross ( Pipe Ram, E Pipe Ram, E Pipe Ram, E Pipe Ram, E Pipe Ram, E Pipe Ram,	Rig Tanks Potential for 14; Well Control Requirement 10M pai Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS pai Cameron Multibowi (4 1 <u>Commented</u> to surface wi Add FiberBlock Cemented to surface wi XS calc'd on 12.25 <sup>th</sup> hole TOC 500 <sup>c</sup> into previous. 70%L / 30%T XS Cemented 100 <sup>c</sup> above H calc'd on 6.75 <sup>th</sup> hole 100 <sup>c</sup> FEL 2007 FEL 2007 FEL 2007 FEL 2007 FEL	s M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T 2 casing shoe w/
Production: Salamace Drilling Fluids F CASING: Surface: Cantingency Intermediate: Intermediate: Production: ENTRALIZATION: Surface Casing: Intermediate I Casing: S Intermediate I Casing: S Intermediate I Casing: S Intermediate I Casing: S Intermediate I Casing: S Intermediate: Surface: Intermediate: Intermedi	Brine OBM Program Hola 17.5 12.25 9.875 htt2 ACP/DV Tool 9.875 htt2 ACP/DV Tool 9.75 htt2 ACP/DV Tool 9.12 htt2 ACP/DV Tool 10.57 1007 9.7107 htt2 ACP/DV Tool 10.57 htt2 ACP/DV Tool 10.57 ht2 ACP/DV Tool 10	27 ACP/0V 27 27 5500 11,302 27 00 to FC 1 per 5 b To b th Shot 5 To b th Shot 12,502 6500 22,526 5.032 12,502 6500 22,526	5032 - 12502 - BTM(MD) 1,212 Tool run 100 5,032 11,302 12,502 22,503 3) joints trom 1 2500. 1 per 4. 5,032 12,023 12,023 6,500 12,023 13,022 12,023 13,054 11,54 0 90	22528' Length 1,185 5,005 11,275' 1,200' 22,490' 1,200' 22,490' 20 bits surfas 20 bits surfas 20 bits 10. 20 bits 10. 20 bits 11. 20 bits 11. 20 bits 11. 20 bits 11. 20 bits 13. 20 bits 14. 6 6,6 0 0 355	9.5 13.5 13.36 Ir board depth 10.3/4 7.5/8 7.5/8 7.5/8 5.1/2 5.	28-60 50-70 <u>Wil</u> if necess 40,50 29,70 20,70 20	1-5 18-25 <b>Grade</b> J-55 P-110 P-110 P-110 P-110 P-110 P-110 Courtisce. P: 1 per 4 Courtisce. P: 1 per 4 Courtisce. Courtis	8-14 Control of the second se	9,5-10 stilion C C C C C C C C S S S S S S S S S S S S S	<8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	<ul> <li>&lt; 6.0</li> <li>BOP: Milmmum - Rig - Stackup - Stackup -</li> <li>Mud Pit:</li> <li>Welfhead: <u>If</u></li> <li>450 ox Class - 13.8 pp 1.15</li> <li>53 ox Class - 15.6 pp 1.16</li> <li>553 ox Class - 15.6 pp 1.16</li> <li>553 ox Class - 15.6 pp 1.12</li> <li>553 ox Class - 255 R32E</li> <li>268 R32E</li> <li>268 R32E</li> <li>268 R32E</li> <li>268 R32E</li> <li>268 R32E</li> </ul>	400 - 00 COP Class : 13-5/8*X Rotating Her Pipe Ram, B Mud Cross ( Pipe Ram Flost Besed 13-5/8*X SM + adds rt3Ak + adds rt3Ak + adds rt3Ak + adds 25/0*FSL 25/0*FSL 25/0*FSL 25/1*FSL 328#FSL 25/1*FSL	Rig Tanks Potential for 14; Well Control Requirement 10M pai Rams / 4-1/167x10 Joh pai Rams / 4-1/167x10 Joh pai Rams / 4-1/167x10 Joh pai Rams / 4-1/167x10 Lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS pai Cameron Mußibowi (4 1 <u>Commited to surface wa</u> Add FiberBlock Cemented to surface wa Add FiberBlock Cemented to surface wa XS calc'd on 12.25° hol TOC 500° into previous - 70%L / 30%T XS Cemented 100° above H Calc'd on 6.75° hola Cemented 100° above H Calc'd on 6.75° hola	ansor and Grav String) 100%XS 20%L / 30%T 2 casing shoe w/
Production: Salamace Drilling Fluids F CASING: Surface: Contingency Intermediate: Intermediate: Production: ENTRALIZATION: Surface Casing: Intermediate 1 Casing: Surface Casing: Intermediate 1 Casing: Surface Casing: Intermediate: Intermedi	Brine OBM 700gram 11018 17.5 12.25 9.875 12.25 9.875 12.25 9.875 12.25 9.875 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.27 12.2	27 ACP/0V 27 11,302 27 00° b FC 1 psr 11,302 27 00° b FC 1 psr 11,302 27 00° b FC 1 psr 11,302 27 00° b FC 1 psr 11,302 12,502 6500 22,526 12,502 6500 22,526	5032 - 12502 - BTM(MD) 1,212 Tool run 100 5,032 11,302 12,502 22,528 3 joints trom 1 2,200, 1 per 4 1,212 5,032 12,023 6,500 12,023 12,023 6,500 12,023 11,54 0 90 90 90	22528' Length 1,185 5,005 11,275' 1,200' 22,400' 1,200' 20 bits 1,200' 22,00' 1,200' 20 bits 1,200' 20 bits 1,200' 20 bits 1,200' 20 bits 1,200' 20 bits 10,200' 20 bits 20 c 20 c	9.5 13.5 13.36 rr board depth 10.3/4 7.5/8 7.5/8 7.5/8 7.5/8 7.5/8 5.5/9 te autoc. 10	28-60 50-70 <u>Wil</u> if necessa 40,50 29,70 20,70 2	1-5 18-25 97 adds J-55 P-110 P	8-14 Control BT BT BT H5 TXP & I IST IST IST IST IST IST IST IS	9,5-10 scilicit C C C C C C C C C C C S S S S S S S S S S S S S	<8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	<ul> <li>&lt; 6.0</li> <li>BOP: Minmum - Rig - Stackup - Stackup - Stackup - Mud Pit: Wellhead: <u>Jeli</u> 450 ex Class - 13.8 ppg 1.16 680 ex Class - 13.8 ppg 1.16 680 ex Class - 15.6 ppg 1.17 553 ex Class - 15.6 ppg 1.17 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E</li> </ul>	400 - 00 COP Class : 13-5/8*X Rotating Her Pipe Ram, B Mud Cross ( Pipe Ram, B Mud Cross	Rig Tanks Potential for 14; Well Control Requirement 10M pal Rams / 4-1/167x10 add SM Annutar Preventer, 10M pal Rams / 4-1/167x10 d, SM Annutar Preventer, 10M pal Rams / 4-1/167x10 Electronic PVT with Flow S arms +/- 10 BBLS pai Cameron Multibowi (4 1 <u>Commited to surface wa</u> Add FiberBlock Cemented to surface wa XS calc'd on 12.25° hole TOC 500° into previous - TOC 500° into previous - 1	ansor and Grav String) 100%XS 20%L / 30%T 2 casing shoe w/
Production: Reference Dritting Fluids  F CASING: Surface: Casingency Intermediate: Intermediate: Entermediate: Casing: S Intermediate 1 Casing: S Intermediate 1 Casing: S Intermediate 1 Casing: S Intermediate 2 Casing: S Intermediate 2 Casing: S Intermediate 1 Casing: S Intermediate: Surface: Intermediate: Intermediate: Intermediate: Reference Cementing Rec DIRECTIONAL PLAN: Comment Int 1 Casis Tangent KOP, Build O URP OF Steven	Brine OBM 700gram 11018 17.5 12.25 9.875 12.25 9.875 12.25 9.875 12.25 9.875 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.25 12.27 12.2	27 ACP/0V 27 27 6500 11,302 27 00 to FC. 1 per 14,502 12,502 6500 22,526 <u>MD</u> (11) 5,032 6500 22,526 <u>MD</u> (11) 5,032 6,500 22,526 (11) 5,032 6,500 22,526	5032 - 12502 - ETM (MD) 1,212 Tool run 100 5,032 11,302 12,502 22,502 23,507 12,502 25,503 12,023 12,023 6,500 12,023 12,023 (deg) 11 154 11,54 11,54 990	22528' Length 1,185 5,005' 11,275' 1,200' 22,499' 700' to surfar 1,200' to 2,2 40' bol lm 20' bols 10. 20' bols 10. 20' bols 14. AZ2 (deg ) 179 0 6,6 6,6 6,6 0 3355 2	9.5 13.5 13.3 14.3 15.5 1	28-60 50-70 945 54.50 29.70 29.70 29.70 29.70 29.70 23.00 23.00 23.00 5 5 5 5 6 0 77 77 6 1 9 9517	1.5 18-25 Grade J-55 J-55 J-55 J-55 P-110 P-110 P-110 P-110 P-110 P-110 P-110 P-110 P-100 P-110 P-10 P-	E-14     Conner     BT     BT     BT     BT     H5     TXP &     is     c + edd     is     is     is     is     is     is     is     is     i	9,5-10 stillori C C C C C 13 13 13 13 13 13 13 13 13 13	<8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	<ul> <li>&lt; 6.0</li> <li>BOP:</li></ul>	400 - 00 COP Class : 13-567 x Rotating Heat Pipe Ram, B Mud Cross ( Pipe Ram, B Mud Cross ( Ram, B M	Rig Tanks Potential for 14; Well Control Requirement 10M pai Rams / 4-1/167x10 ad, 5M Annutar Preventer, lind Ram, Choke & Kill Valves), Electronic PVT with Flow S amms +/- 10 BBLS pai Cameron Mutabowi (4 f <u>COMMENTS</u> Cemented to surface wi Add FiberBlock Cemented to surface wi XS calc'd on 12.25° hol TOC 500° into previous. 70%L / 30%T XS Cemented 100° above h calc'd on 6.75° hole Line Distance 2007 FEL 2007 FEL 2007 FEL 2007 FEL 1994' FEL 1994' FEL	s M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T 2 casing shoe w/
Production: Reference Dritting Fluids  F CASING: Surface: Contingency Intermediate: Intermediate: Production: PENTRALCATION: Surface Casing: Production: Surface: Intermediate I Casing: EMENT: Surface: Intermediate: Intermediate: Reference: Commenting Ree DIRECTIONAL PLAN: Commenting REE DIRECTIONAL PLAN: COM	Brine CBM Program Hola 17.5 12.25 9.875 htt2 ACP/DV Tool 9.875 1 per 3 joints from 1.77 Shoe joint . 1 per 3 joints from 1.77 Broe joint . 1 per 3 joints from 1.77 Broe joint . 1 per 3 joints from 1.77 Hola 17-11/2"X 13-3/6" 12-11/4"X 10-3/4" 9-7/6" x 7-5/6" Stage 2 6-3/4"X 5-1/2" commendation ta 100 8/1100" e 2 D	27 ACP/0V 27 27 6500 11,302 27 00 to FC 1 per 11,302 27 00 to FC 1 per 1,302 12,502 12,502 6500 22,526 (T) 5,032 22,526 (T) 12,502 (T) 5,032 22,526	5032 - 12502 - ETM(MD) 1,212 Tool run 100 5,032 11,302 22,502 22,502 22,502 22,502 12,002	22528' Length 1,185 5,005 11,275' 1,200' 22,409 1,207' to surfar 1,200' to surfar 1,200' to surfar 1,200' to surfar 1,200' to surfar 1,200' to surfar 20 bbls 10: 20 bbls 20 bbls 10: 20 bbls 20	9.5 13.5 13.36 13.36 15.36 15.37 15.36 15.37 15.37 15.37 15.37 15.37 15.37 15.37 15.37 15.37 15.07 10.34 10.34 17.57 10.34 17.57 10.34 10.45 11.305 12.023 12.025 12.025 12.025	28-60 50-70 Wil 54.50 29.70 29.70 29.70 29.70 23.00 29.70 23.00 5 5 5 5 6 6 175 175 175 175 175 175 175 175 175 175	1.5 18-25 <b>Grade</b> ary J-55 P-110 P-110 P-110 P-110 P-110 P-110 D ac Clain 12.8 ppg 320 ac Wi 11 ppg 2 bac Clain 12 ppg 320 ac Wi 11 ppg 320 ac Wi 12 ppg 32 ac Wi	8-14 Conner BT BT BT H5 TXP & is C + add 2.05R3/kk BL + add 2.05R3/kk is C + add 2.05R3/kk is C + add (*1007) 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,5-10 clipin C C C C C 13 13 13 13 13 13 13 13 13 13	<8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	<ul> <li>&lt; 6.0</li> <li>BOP: Minmum - Rig - Stackup - Stackup - Stackup - Mud Pit: Wellhead: <u>Jeli</u> 450 ex Class - 13.8 ppg 1.16 680 ex Class - 13.8 ppg 1.16 680 ex Class - 15.6 ppg 1.17 553 ex Class - 15.6 ppg 1.17 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E</li> </ul>	400 - 00 COP Class 3 13-5/8" X Rotating Heat Pipe Ram, E Mud Cross ( Pipe Ram, E Society ( Pipe Ram, E Pipe Ram, E Pipe Ram, E Society ( Pipe Ram, E Pipe Ram, E P	Rig Tanks Potential for 14p Well Control Requirement 10M pail Rams / 4-1/167x10 Job pail Rams / 4-1/167x10 Job pail Rams / 4-1/167x10 Lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS pail Cameron Multibowi (4 1 <u>Commited</u> to surface with Add FiberBlock Cemented to surface with Add FiberBlock Cemented to surface with XS calc'd on 12.25° hole TOC 500° into previous. 70%L / 30%T XS Cemented 100° above H calc'd on 6.75° hole Line Distance 2007 FEL 2007 FEL 2007 FEL 1993' FEL 1993' FEL 1943' FEL 1943' FEL 1943' FEL	s M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T 2 casing shoe w/
Production: Reference Driting Fluids F CASING: Surface: Contingency Intermediate: Production: ENTRALIZATION: Surface Casing: Intermediate I Casing: Surface: Intermediate I Casing: EMENT: Surface: Intermediate: Reference Comenting Rec SIRECTIONAL PLAN: Reference Comenting Rec Drop @ 07 KOP, Build @ Drop @ 07 KOP, Build @ Drop @ 07 KOP, Build @ Drop & 17 KOP, Build @ CORNATION EVALUATION	Brine OBM Program Hola 17.5 12.25 9.875 htt2 ACP/DV Tool 9.875 htt2 ACP/DV Tool 9.75 htt2 ACP/DV Tool 10.75 htt2 ACP/DV T	27 ACP/OV 27 11,302 27 00° b FC 1 per i b TO b ht Store m FC to 7,000 b TO b ht Store 12,502 6500 22,526 12,502 6500 22,526 10,107 11,376 12,502 10,107 11,376 12,502	5032 - 12502 - <b>BTM(M2)</b> 1,212 Tool run 100 5,032 11,302 12,502 22,503 3) joints trom 1 2500. 1 per 4. 5,032 12,023 13,04 13,54 0 90 90 10,054 12,054 13,54 14,545 14,545 14,545 14,545 14,545 14,545 14,545 14,545 14,54	22528' Length 1,185 5,005 11,275' 1,200' 22,490' 1,200' 22,490' 1,200' 22,400' 1,200' 22,400' 1,200' 20 bits 1,200' 2,700' 1,200' 2,700' 1,200' 2,700' 2,700' 1,200' 2,700' 2,700' 1,200' 2,700' 2,700' 1,200' 2,700' 2,0	9.5 13.5 5123 13.36 13.36 10.344 7.578 7.578 7.578 5.172 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.	28-60 50-70 Wil 54.50 29.70 29.70 29.70 29.70 29.70 29.70 23.00 5 5 5 5 6 6 175 175 175 175 175 175 175 175 175 175	1.5 18-25 <b>Grade</b> ary J-55 P-110 P-110 P-110 P-110 P-110 P-110 D ac Clain 12.8 ppg 320 ac Wi 11 ppg 2 bac Clain 12 ppg 320 ac Wi 11 ppg 320 ac Wi 12 ppg 32 ac Wi	8-14 Conner BT BT BT H5 TXP & is C + add 2.05R3/kk BL + add 2.05R3/kk is C + add 2.05R3/kk is C + add (*1007) 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,5-10 clipin C C C C C 13 13 13 13 13 13 13 13 13 13	<8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	< 6.0 BOP: Minimum - Rig = Stackup - Stackup - Mud Pit: Wellbread: <u>Yell</u> 450 ox Class - 13.8 ppg 1.16 650 ox Class - 13.8 ppg 1.16 650 ox Class - 15.6 ppg 1.11 ECT-R 268 R32E 268 R32E 268 R32E 268 R32E 268 R32E 268 R32E 268 R32E 268 R32E 268 R32E 268 R32E	400 - 00 COP Class 3 13-5/8" X Rotating Heat Pipe Ram, E Mud Cross ( Pipe Ram, E Society ( Pipe Ram, E Pipe Ram, E Pipe Ram, E Society ( Pipe Ram, E Pipe Ram, E P	Rig Tanks Potential for 14p Well Control Requirement 10M pail Rams / 4-1/167x10 Job pail Rams / 4-1/167x10 Job pail Rams / 4-1/167x10 Lind Ram, Choke & Kill Valves), Electronic PVT with Flow S arms +/- 10 BBLS pail Cameron Multibowi (4 1 <u>Commende</u> to surface with Add FiberBlock Cemeride to surface with Add FiberBlock Cemeride to surface with XS calc'd on 12.25° hole TOC 500° into previous. 70%L / 30%T XS Cemeride 100° above H calc'd on 6.75° hole Line Distance 2007 FEL 2007 FEL 2007 FEL 1993' FEL 1993' FEL 1943' FEL 1943' FEL 1943' FEL	s M psi Manifold ansor and Grav String) 100%XS 70%L / 30%T 2 casing shoe w/
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A 51	•••••				WELL P	LAN S	UMMA	<b>ARY</b>					,	Date: Feb 28, 2019 Version: 4
ConocoPh	illips			1280 Extended Reach Single Lateral									ared by: M. Callahan	
						COUNTY	STATE:	an Co I				<u> </u>		AFE:
	.: Zia Hills 20 10		26701 551	2067' EEI			API No.:	198, 00, 1	10				Drilling Net	work No.;
	: NWSE 20 1265 I			2067' FEL 1984' FEL			C Permit: I Permit:							ST ESTIMATE
ELEVATIONS	: GL KB	3,157.1' +27.0'				WH (NAD	l Coord.: )-83)	LAT LON	32° 103°	1' 41'	40.47" N 42.94" W	6	DRILLING OMPLETION FACILITIES	N
7-1/2" x 13-3/8"	FORMATIO	N TOP;	TVD	SUBSEA		Objectiv	Ve						TOTA	L
	Quaterna Base of Fres	•	30 328	3,154 2,856	Fresh Water	This well i	is to be dri	lled with s	safety and	protectio	on of the envir	onment as	the primary o	objectives.
	Rustie Surface C	er	1,162 1,212	2,022			tive is to d	lrill a 1280	) single la	eral well	in the Wolfca	mp formatio	on and comp	leted with 5-1/2"cemented
2-1/4" X 10-3/4"	Top of \$		1,584	1,600	Salt	casing.								
	Castil Delaware Bas		2,322 4,319	862 (1,135)	Salt Gas / Oil	Notes	el) will be (	الشار مطارحة	h Dattacca	- 768				
	Intermediate	1 Casing	5,032	(1,848)	Gas / Oil	2.) Refer t	to drilling p	rocedure	for additio	onal deta	il and informat	ion.		
	Cherry Ca Brushy Ca		5,243 6,773	(2,059) (3,589)	Gas / Oil Gas / Oil	3.) Offset 4.) The pr								
9-7/8" Pilot Hole	Bone Springs		8,163 9,320	(4,979) (6,136)		5.) Surfac					0' y every 30' in I	h hae blind	mp. 30' in cu	(eve)
	Bone Springs	2nd Sand	10,045	(6,861)	Gas / Oil	7.) 10-3/4	" Casing w	vili be set	across the	salt zor	e to allow for \	NBM to be	used for Pild	ot Hole
	Bone Springs Wolfca		11,131 11,544	(7,947) (8,360)	Gas / Oil						5' MD. WBM n ught up to KO			tings analysis curve into the Wolfcamp A
	Wolfcam Total De		11,766 12,281	(8,582) (9,096.9)	Gas / Oil Gas / Oil									
		•				Goals								
						Have no k	ost time or	recordab	le accider	its.				
						Have no s Have no s				l impact.				
						Avoid lost	circulation	incident	<b>3</b> .					
						Maintain v Obtain goo			w Conoco	Phillips v	vell control pol	icy.		
						Deliver us			duction de	epartmer	ıt.			
						CONTAG	CTS							
	TARGI	т	12,281	(9,097)	Gas / Oil		Drilling E	ngineer:	Mike Ca	llahan			<u>ffice</u> 86-2480	<u>Cell</u> 907-231-2176
		ion Dip Rate:	est 90.1*	(up dip)			-	-						
	PBTC	,	12,281	(9,097)	Gas / Oil			-	Josh Da	•			06-5620 48-5238	423-512-0347
							រកនាម Linui	ng Rep.:	Greg Ri	vera		402-0	40-0200	
timated BH Static Tea	nooratura ("E):	220							Dennis	Hously				056.220 1303
		220 0.7 psi/ft	8,474 psi	13.:	3 ppg		Field Drillii	ng Supt.:	Dennis I James 1 Patrick V	Hously Faylor Nellma		830-5	83-4828	956-229-1393 432-215-7079
stimated BH Static Ten lax. Anticipated BH Pre lax Anticipated Surface RILLING FLUID:	ssure: Pressure:	0.7 psi/ft	4,596 psi				Field Drilli Drilli	ng Supt.: ng Supt.:	Dennis I James 1 Patrick V Scott Ni	Hously Faylor Nellma cholsor	<u>،</u>	830-5 281-2	83-4828 06-5392	
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID:	ssure: Pressure: <u>Type</u>	0.7 psi/ft	4,596 psi Inter (Mi	rval 0)	Density	<u>Vîs</u> seciqt	Field Drilli Drillin PV cP	ng Supt.: ng Supt.: YP antoona	Dennis I James 1 Patrick V Scott Ni PH	Hously Faylor Vellma choisor EL mL	) LGS % by vol	830-5 281-2 <u>NaCi</u> ppb sol	83-4828 06-5392 <u>Remarks</u>	432-215-7079 432-230-8010
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1	ssure: Pressure: <u>Type</u> : Fresh W : Emulsified	0.7 psi/ft ater Brine	4,596 psi inter (Mi Surface 1212' -	r <u>val</u> p) - 1,212' 5032'	Density ppg 8.6 9.2	<u>Vis</u> sec.lqt 28-50 28-49	Field Drillin Drillin PV cP 1-5 1-4	ng Supt.: ng Supt.: YP antoona 2-6 2-5	Dennis I James 1 Patrick V Scott Ni PH 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	) % by vol < 5.0 < 5.0	830-5 281-2 <u>NaCi</u> ppb sol 10,000 180,000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks	432-215-7079 432-230-8010
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2: ference Drilling Fluids	ssure: Pressure: <u>Type</u> : Fresh W : Emulsified WBM	0.7 psi/ft t ater Brine	4,598 psi inter Kurface 1212' - 5032' -	r <u>val</u> p) - 1,212' 5032'	Density ppg 8.6 9.2 9.5	<u>Vis</u> sec/qt 28-50 28-49 28-50	Field Drilli Drilli PV cP 1-5	ng Supt.: ng Supt.: YP ar100m2 2-8	Dennis I James 1 Patrick V Scott Ni PH 7.5-8.5	Hously Faylor Vellma choisor EL mL NC	LGS % by vol < 5.0 < 5.0 < 7.0	830-5 281-2 <u>NaCi</u> ppb sol 10,000	83-4828 <u>06-5392</u> <u>Remarks</u> Rig Tanks	432-215-7079 432-230-8010
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2: ference Drilling Fluids	ssure: Pressure: Type : Fresh W : Ernulsified WBN Program Hole	0.7 ps/ft ater Brine I <u>TOP (MD)</u> 27'	4,598 psi inter Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212'	rval p) - 1,212' 5032' 12349' Length 1,185'	Density ppg 8.6 9.2 9.5 <u>Size</u> 13 3/8	<u>Vis</u> sec/qt 28-50 28-49 28-50 <u>W3</u> 54,50	Field Drillin Drillin cP 1-5 1-4 1-5 <u>Grade</u> J-55	ng Supt.: ng Supt.: YP antoona 2-6 2-5	Dennis J James Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP:	830-5 281-2 <u>NaCi</u> ppb sol 10,000 180,000 10,000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks	432-215-7079 432-230-8010
IX. Anticipated BH Pre IX Anticipated Surface IXILLING FLUID: Surface Intermediate 1 ference Drilling Fluids ISING: Surface	ssure: Pressure: Iype : Fresh W : Erruistifed WBM Program Hote : 17-1/2"	0.7 psi/it ater Brine I <u>TOP (MD)</u> 27' ACP/D	4,598 psi inter Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212' V Tool run 10	rval p) - 1,212' 5032' 12349' Length 1,185' 10' below wa'	Density ppg 8.6 9.2 9.5 Size 13 3/8 ter board dept	<u>Vis</u> sec/qt 28-50 28-49 28-50 <u>W3</u> 54,50 th if necess	Field Drilliu Drilliu CP 1-5 1-4 1-5 <u>Grade</u> J-55 sary	ng Supt.: ng Supt.: YP antoonz 2-6 2-5 2-6 BTO	Dennis James 1 Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	) <u>LGS</u> % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig -	830-5 281-2 <u>NaCi</u> ppb sol 10,000 180,000 10,000 10,000 COP Clas 13-5/87	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks S 3 Well Con (10M psi Rar	432-215-7079 432-230-8010 ntrol Requirements ms / 4-1/16"x10M psi Manif
ux. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2: ference Drilling Fluids SING:	ssure: Pressure: Iype : Fresh W : Errulsified WBN Program Hole : 17-1/2"	0.7 ps/ft ater Brine I <u>TOP (MD)</u> 27'	4,598 psi inter Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212'	rval p) - 1,212' 5032' 12349' Length 1,185'	Density ppg 8.6 9.2 9.5 <u>Size</u> 13 3/8	<u>Vis</u> sec/qt 28-50 28-49 28-50 <u>W3</u> 54,50	Field Drillin Drillin cP 1-5 1-4 1-5 <u>Grade</u> J-55	ng Supt.: ng Supt.: YP er100nz 2-6 2-5 2-6 2-5 2-6 <u>Conne</u>	Dennis James 1 Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	) <u>LGS</u> % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig -	830-5 281-2 <u>NaCI</u> ppb sol 10,000 10,000 10,000 COP Clas 13-56 <sup>37</sup> Rotating J Pipe Ram	83-4828 <u>Remarks</u> Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Con (10M psi Ram Head, 5M An , Blind Ram,	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16 <sup>+</sup> x10M psi Manit inular Preventer,
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Intermediate 1 Intermediate 2 Internediate 2 Internece Dnilling Fluids SSING: Surface	ssure: Pressure: Iype : Fresh W : Erruistifed WBM Program Hote : 17-1/2"	0.7 psi/it ater Brine I <u>TOP (MD)</u> 27' ACP/D	4,598 psi inter Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212' V Tool run 10	rval p) - 1,212' 5032' 12349' Length 1,185' 10' below wa'	Density ppg 8.6 9.2 9.5 Size 13 3/8 ter board dept	<u>Vis</u> sec/qt 28-50 28-49 28-50 <u>W3</u> 54,50 th if necess	Field Drilliu Drilliu CP 1-5 1-4 1-5 <u>Grade</u> J-55 sary	ng Supt.: ng Supt.: YP antoonz 2-6 2-5 2-6 BTO	Dennis James 1 Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup -	830-5 281-2 <u>NaCI</u> ppb sol 10,0000 10,0000 10,0000 10,0000 10,00000000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks S Well Cor 10M psi Rar 10M psi Rar 10M psi Rar 10M s A In 10M	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif nular Preventer, Kill Valves),
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 Iference Drilling Fluids ISING: Surface	ssure: Pressure: Iype : Fresh W : Erruistifed WBM Program Hote : 17-1/2"	0.7 psi/it ater Brine I <u>TOP (MD)</u> 27' ACP/D	4,598 psi inter Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212' V Tool run 10	rval p) - 1,212' 5032' 12349' Length 1,185' 10' below wa'	Density ppg 8.6 9.2 9.5 Size 13 3/8 ter board dept	<u>Vis</u> sec/qt 28-50 28-49 28-50 <u>W3</u> 54,50 th if necess	Field Drilliu Drilliu CP 1-5 1-4 1-5 <u>Grade</u> J-55 sary	ng Supt.: ng Supt.: YP antoonz 2-6 2-5 2-6 BTO	Dennis James 1 Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	) <u>LGS</u> % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig -	830-5 281-2 <u>NaCI</u> ppb sol 10,0000 10,0000 10,0000 10,0000 10,00000000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor (10M psi Rer lead, 5M An , Blind Ram, s (Choke & I op cuttings d	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif nular Preventer, Kill Valves),
IX. Anticipated BH Pre IX Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2. ference Drilling Fluids SUNG: Surface Intermediate 1	ssure: Pressure: Iype : Fresh W : Erruistifed WBM Program Hote : 17-1/2"	0.7 ps//t ater Brine T <u>OP (MD)</u> 27' ACP/D 27'	4,598 psi Inter Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212' V Tool run 10 5,032'	rval D) - 1,212' 5032' 12349' Length 1,185' 0' below wa' 5,005'	Density ppg 8.6 9.2 9.5 <u>Size</u> 13 3/8 ter board dept 10 3/4	<u>Vis</u> sec/qt 28-50 28-49 28-50 <u>W3</u> 54,50 th if necess	Field Drilliu Drilliu CP 1-5 1-4 1-5 <u>Grade</u> J-55 sary	ng Supt.: ng Supt.: YP antoonz 2-6 2-5 2-6 BTO	Dennis James 1 Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Waste	830-5 281-2 NaCl ppb sol 10,000 10,000 10,000 10,000 COP Class 0,000 COP Class 0,000 COP Class 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 10	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks s 3 Well Cord (10M psi Rari tead, 5M And , Blind Ram, a (Choke & I) op cuttings d facility.	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul o c PVT with Flow Sensor an
IX. Anticipated BH Pre IX. Anticipated Surface IX.LING FLUID: Surface Intermediate 1 Intermediate 2 ference Drilling Fluids ISING: Surface Intermediate 1 INTRALIZATION: rface Casing:	ssure: Pressure: Ivpe Fresh W Ernulsified WBN Program Hole : 17-1/2" : 12-1/4"	0.7 ps//t ater Brine <u>TOP (MD)</u> 27' ACP/D 27' 700' to FC. 1 p	4,598 psi integration (M) Surface 1212' - 5032' - <u>BTM (MD)</u> 1,212' V Tool run 10 5,032' v Tool run 10	rval 0) - 1,212' 5032' 12349' <u>Lenath</u> 1,185' 10' below wa 5,005'	Density pre 8.6 9.2 9.5 13 20 13 3/8 ter board dept 10 3/4	<u>Vis</u> sectat 28-50 28-50 <u>W3</u> 54.50 th if necess 45.50	Field Drillin <u>PY</u> cP 1-5 1-4 1-5 <u>Grade</u> J-55 ssary L-80	ng Supt.: ng Supt.: YP antoonz 2-6 2-5 2-6 BTO	Dennis James 1 Patrick V Scott Ni <u>PH</u> 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5	Hously Faylor Velima choisor EL mL NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Vaste Handling: Mud Pit:	830-5 281-2 ppb sol 10,000 180,000 10,000 10,000 COP Clas 13-5/8 <sup>7</sup> Rotating I Pipe Ram Closed Io approved Float Bas Gravity Tu	83-4828 <u>06-5392</u> <u>Remarks</u> Rig Tanks Rig Tanks Rig Tanks s 3 Well Cord (10M psi Rar tead, SM An , Blind Rarn, s (Choke & I op cuttings d facility. ed Electronic tip Tank, Alai	432-215-7079 432-230-8010 httpl Requirements ms / 4-1/16"x10M psi Manif nular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an ms +/- 10 BBLS
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 førence Drilling Fluids SUING: Surface Intermediate 1 ENTRALIZATION: Inface Casing: armediate Casing: EMENT:	Ssure: Pressure: Iver Fresh WBW Program Hole 1 per 2 joints from 1. Shoe joint. 1 per joint Hole	0.7 ps//t ater Brine <u>TOP (MD)</u> 27' ACP/D 27' 700' to FC. 1 p t from FC to 7. <u>MD</u>	4,598 psi Inter Okta Surface 1212 - 5032 - 1,212 V Tool run 10 5,032 V Tool run 10 5,032 v Tool run 10 5,032	Length           1,212'           5032'           12349'           Length           1,185'           10' below wa           5,005'           11,200' to surf           11,200' to surf           11,200' to surf           11,200' to surf	Density ppe 8.6 9.2 9.5 13 20 13 3/8 ter board dept 10 3/4	Vis seckt 28-50 28-49 28-50 54.50 54.50 thi I necess 45.50	Field Drillin Drillin PV eP 1-5 1-4 1-5 J-55 J-55 J-55 J-55 J-56 J-50 J-50 J-50 J-50 J-50 J-50 J-50 J-50	ng Supt.: TP TP #710072 2-5 2-5 2-8 Conne- BTI Wedge	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 5.5-8.5 511	Housty Faylor Wellma choisor FL mL NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum Rig Stackup Stackup Stackup Waste Handling: Mud Pit: Wellhead: Tall	830-5 281-2 NaCl ppb sol 10,000 10,000 10,000 10,000 COP Class 13-5/8 <sup>-7</sup> Rotating I Pipe Ram Closed Io approved Float Bas Gravity Ti 13-5/8 <sup>-7</sup> x	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Col (10M psi Rar 4ead, 5M An , Blind Ram, 6 Clocke & I po cuttings d facility. de Electronik po Tank, Alai 10M psi (Cas <u>COM</u>	432-215-7079 432-230-8010 httol Requirements ms / 4-1/16"x10M psi Manif nular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u>
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 sference Drilling Fluids ASING: Surface Intermediate 1 ENTRALIZATION: urface Casing: EMENT: Surface	Ssure: Pressure: Ivee Fresh W Erraulsfied WBM Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1 Shoe joint. 1 per join Hole 17-1/2"X13-3/8"	0.7 ps//t ater Brine 700 to FC. 1 p throm FC to 7, MD 1,212	4,598 psi Inter (RE Surface 1212 - 5032' - BTM (MD) 1,212' V Tool run 10 5,032' v Tool run 10 5,032' 1,212' V Tool run 10 5,032' <u>I TVD</u> 1,212	rval 0) - 1.212' 5032' 12349' Length 1,185' 0' below wa 5,005' 1.200' to surt into 7,800' to 2 Sp 20 b	Density ppa 8.6 9.2 9.5 Size 13 3/8 ter board dept 10 3/4 face 2,300'. 1 per 4 jo acer bi FW	Vis sectat 28-50 28-50 54.50 th if necess 45.50 bints 2,300° to 560 so 12	Field Drillin PY cP 1-5 1-4 1-5 Grade J-55 sery L-80 D surface. <u>Lea</u> x Control S 2.8 ppg 2.	ng Supt.: ng Supt.: YP #10072 2-6 2-5 2-6 Connec BT( Wedge Uvedge g g to ft3/sk	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 5.5-8.5 511	Hously Faylor Wellman cholsor EL mL NC NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Stackup - Waste Handling: Mud Pit: Wellhead: Tail 50 ax Type 11.32	830-5 281-2 NaCl ppb sol 10,000 10,000 10,000 COP Clas 13-5/8 <sup>-</sup> Notating I Pipe Ram Mud Cross Pipe Ram Mud Cross Gravity Tri 13-5/8 <sup>-</sup> x + adds fi3/sk	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks s 3 Well Cord (10M psi Rari ead, 5M And s (Choke & I op cuttings of facility. 4 Electronic (COMM Cerner Add F1	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an ms +/- 10 BBLS sing Head - "A" Section) <u>4ENTS</u> ned to surface w/ 100%XS
iax. Anticipated BH Pre lax Anticipated Surface RILLING FLUID: Surface Intermediate 2: eference Drilling Fluids ASING: Surface Intermediate 1 ENTRALIZATION: urface Casing: termediate Casing: EMENT: Surface	Ssure: Pressure: Iver Fresh WBW Program Hole 1 per 2 joints from 1. Shoe joint. 1 per joint Hole	0.7 ps//t ater Brine <u>TOP (MD)</u> 27' ACP/D 27' 700' to FC. 1 p t from FC to 7. <u>MD</u>	4,598 psi Inter Okta Surface 1212 - 5032 - 1,212 V Tool run 10 5,032 V Tool run 10 5,032 v Tool run 10 5,032	rval 0) - 1.212' 5032' 12349' Length 1,185' 0' below wa 5,005' 1.200' to surt into 7,800' to 2 Sp 20 b	Density ppe 8.6 9.2 9.5 13 20 13 3/8 ter board dept 10 3/4	Vis seckt 28-50 28-49 28-50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 560 sp 1, 3.3	Field Drillin PY cP 1-5 1-4 1-5 Grade J-55 Grade J-55 Control S x Control S	ng Supt.: ng Supt.: YP 2-6 2-5 2-6 BTI Wedge d 	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 5.5-8.5 511	Hously Faylor Wellman cholsor EL mL NC NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Stackup - Waste Handling: Mud Pit: Wellhead: Tali 50 ax Type "IIf	830-5 281-2 Ppb sol 10,000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor (10M psi Ram, band Ram,	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> head to surface w/ 100%XS iberBlock net to surface w/ 100%XS iberBlock no 12.25" hole
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 eference Drilling Fluids ASING: Surface Intermediate 1 ENTRALIZATION: urface Casing: EMENT: Surface	Ssure: Pressure: Ivee Fresh W Erraulsfied WBN Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1. Shoe joint. 1 per join Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4"	0.7 ps//t ater Brine 700 to FC. 1 p throm FC to 7, MD 1,212	4,598 psi Inter (RE Surface 1212 - 5032' - BTM (MD) 1,212' V Tool run 10 5,032' v Tool run 10 5,032' 1,212' V Tool run 10 5,032' <u>I TVD</u> 1,212	rval 0) - 1.212' 5032' 12349' Lenath 1.185' 10' below wa 5,005' 1.200' to surf ints 7,800' to 2 Sp 20 b 40 bbl Inv	Density ppe 8.6 9.2 9.5 13 20 13 3/8 ter board dept 10 3/4	<u>Vis</u> seckt 28-50 28-49 28-50 <u>Wi</u> 54.50 bins 2,300 b 560 s 1; 3 3 534 sx Cl	Field Drillin Drillin PY cP 1-5 1-4 1-5 Grade J-55 Sary L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VHS 11 ppg 2.9 tass 'H' + a	ng Supt.: ng Supt.: YP srioora 2-6 2-5 2-6 BTI Wedge g G Set 'C' + a 05 ft3/sk 17 ft3/sk adds	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 5.5-8.5 511	Hously Faylor Wellman cholsor EL mL NC NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 7.0 80P: Minimum- Rig - Stackup - Stackup - Waste Handling: Mud Pit: Wellhead: <u>Tail</u> 50 ax Type 'III 14.8 ppg 1.32	830-5 281-2 Ppb sol 10,000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor (10M psi Ram, 8 3 Well Cor (10M psi Ram, 8 (Choke & I 10 pop cuttings d facility. de Electronic (p Tanks, Alau 10M psi (Cas Comma Add Fi Cemei 30% T Add Fi Plug b	432-215-7079 432-230-8010 httpl Requirements ms / 4-1/16"x10M psi Manif nular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an ms +/- 10 BBLS sing Head - "A" Section) <u>ERTS</u> Inted to surface w/ 100%XS iberBlock tact to 200' above KOP for
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 2: sference Drilling Fluids ASING: Surface Intermediate 1 ENTRALIZATION: urface Casing: EMENT: Surface Intermediate Pilot Hole Cementing R	Ssure: Pressure: Ivee Fresh W Frogram Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1. Shoe joint 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" 1 9-7/8"	0.7 ps//t ater Brine 27 ACP/D 27' 700' to FC. 1 p t from FC to 7. <u>MD</u> 1,212' 5,032'	4,596 psi Inter extrace 1212 - 5032' - ETM (MD) 1,212' V Tool run 10 5,032' er 4 joints from 800'. 1 per 2 joints 1,212' 5,032	rval 0) - 1.212' 5032' 12349' Lenath 1.185' 10' below wa 5,005' 1.200' to surf ints 7,800' to 2 Sp 20 b 40 bbl Inv	Density ppe 8.6 9.2 9.5 13 20 13 3/8 ter board dept 10 3/4	Vis seciat 28-50 28-49 28-50 54.50 th if necess 45.50 th if necess 45.50	Field Drillin Drillin PY cP 1-5 1-4 1-5 Grade J-55 Sary L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VHS 11 ppg 2.9 tass 'H' + a	ng Supt.: ng Supt.: YP srioora 2-6 2-5 2-6 BTI Wedge g G Set 'C' + a 05 ft3/sk 17 ft3/sk adds	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 5.5-8.5 511	Hously Faylor Wellman cholsor EL mL NC NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 7.0 80P: Minimum- Rig - Stackup - Stackup - Waste Handling: Mud Pit: Wellhead: <u>Tail</u> 50 ax Type 'III 14.8 ppg 1.32	830-5 281-2 Ppb sol 10,000	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cord 10M psi Ram, s 3 Well Cord 10M psi Card S 4 Cord S 4 Cord S 4 Cord S 5 Cord	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> ned to surface w/ 100%XS berBlock total to surface w/ 70%L / XS calc'd on 12.25" hole berBlock
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 forence Drilling Fluids SURG: Surface Intermediate 1 ENTRALIZATION: Inface Casing: Emediate Casing: EMENT: Surface Intermediate Pilot Hole Cemen Internetiate Pilot Hole Cemen Internetiate Pilot Hole Cemen	Ssure: Pressure: Ivpe Fresh WBM Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1. Shoe joint. 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" 19-7/8" scommendation	0.7 ps//t ater Brine 27 ACP/D 27' 700' to FC. 1 p t from FC to 7. <u>MD</u> 1,212' 5,032'	4,596 psi Inter extrace 1212 - 5032' - ETM (MD) 1,212' V Tool run 10 5,032' er 4 joints from 800'. 1 per 2 joints 1,212' 5,032	rval 0) - 1.212' 5032' 12349' Lenath 1.185' 10' below wa 5,005' 1.200' to surf ints 7,800' to 2 Sp 20 b 40 bbl Inv	Density ppe 8.6 9.2 9.5 13 20 13 3/8 ter board dept 10 3/4	<u>Vis</u> secit 28-50 28-49 28-50 <u>Wi</u> 54.50 bints 2,300 b 10 bints 2,300 b 560 s 11 33 534 sx Cl 17.0 ppg 0	Field Drillin Drillin PY cP 1-5 1-4 1-5 Grade J-55 Sary L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VHS 11 ppg 2.9 tass 'H' + a 9.99 ft3/sk	ng Supt.: ng Supt.: YP srioora 2-6 2-5 2-6 BTI Wedge g G Set 'C' + a 05 ft3/sk 17 ft3/sk adds	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 ction C 5511	Hously Taylor Wellma E E NC NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 Minimum - Rig - Stackup - Vaste Handling: Mud Pit: Wellhead: Tall 50 ax Type 'III 14.8 ppg 1.18	830-5 281-2 Ppb sol 10,000 10,000 10,000 10,000 COP Clas 13-5/8 <sup>-7</sup> Rotating I Pipe Rarr Closed Io approved Float Bas Gravity Tr 13-5/8 <sup>-7</sup> x + adds ft3/sk	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cordination S 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif nular Preventer, Kill Valves), lisposal system with haul o c PVT with Flow Sensor an mms //- 10 BBLS sing Head - "A" Section) <u>KENTS</u> nted to surface w/ 100%XS iberBlock tack to 200' above KOP for . 1.20% CD-32 + 0.10% R lib/s Static Free
ax. Anticipated BH Pre ax Anticipated Surface Structures Surface Intermediate 1 Intermediate 2 ference Drilling Fluids INTRALIZATION: rface Casing: ermediate Casing: Intermediate Intermediate Pilot Hole Cement ference Cementing R RECTIONAL PLAN: Comme	Ssure: Pressure: Ivee Fresh W Erraulsified WBN Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1, Shoe joint. 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" 9-7/8" scommendation	0.7 ps//t ater Brine 27 ACP/D 27' 700' to FC. 1 p 1,212' 5,032' 12,349' <u>MD</u> (11)	4,598 psi Inter Ref Surface 1212 - 5032' - ETM (MD) 1,212' V Tool run 10 5,032' er 4 joints from 800'. 1 per 2 joints 1,212' 5,032 1,2,281' 12,281' INC (dog)	rval p) -1,212' 5032' 12349' Lenath 1,185' 10' below wa 5,005' 11,200' to surf ints 7,800' to 2 <u>Sp</u> 20 b 40 bbl Inv 40 bbl i	Density ppa 8.6 9.2 9.5 <u>Size</u> 13 3/8 ter board dept 10 3/4 face 2,300, 1 per 4 jc acar bl FW vert Spacer Visweep (ft)	Vis seckt 28-50 28-49 28-50 54.50 th if necess 45.50 54.50 th if necess 45.50 560 sp 560 sp 560 sp 560 sp 534 sx Cl 17.0 ppg 0 NS (ft)	Field Drillin Drillin PV cP 1-5 1-4 1-5 3-55 3-55 3-55 3-55 3-55 3-55 3-55 3-57 1-80 0 surface. 2.0 ppg 2.9 11 ppg 2.9 12 cP millin 2.0 ppg 2.9 11 ppg 2.9 11 ppg 2.9 12 cP millin 2.0 ppg 12 cP millin 1.0 ppg 12 cP mil	ng Supt.: 19 Supt.: 19 Supt.: 2-8 2-8 2-8 8Ti Wedge 4 Wedge 4 105 R3/sk 105 R3/sk 105 R3/sk 105 R3/sk	Dennis James Patrick N <u>Pt</u> 7.5-8.5 7.5-8.5 7.5-8.5 511 511 dds	Hously Taylor Wellma E E NC NC NC NC NC NC S	LGS *6 by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Stackup - Waste Handling: Mud Pit: Wellhead: Tail 50 ax Type 1.12 90 ax Class H 13.8 ppg 1.18	830-5 281-2 NaCl ppb sol 10,000 1	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S Well Col (10M psi Rar fead, 5M An , Bilind Ram, bilind Ram, op cuttings d facility. de Electronk po p cuttings d facility. 10M psi (Cas <u>COMM</u> <u>Came</u> Add Fi Plug b lateral 0.005 pn Line Diat	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> ned to surface w/ 100%XS berBlock ack to 200° above KOP for . 1.20% CD-32 + 0.10% R Ib/sk Static Free ance
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2. Intermediate 2. Intermediate 2. Intermediate 2. Intermediate 1 ENTRALIZATION: Inface Casing: ermediate Casing: EMENT: Surface Intermediate Pilot Hole Cermen Intermece Cementing R RECTIONAL PLAN: Commen Build @ 1.5 End Build ()	Ssure: Pressure: Ivee Fresh W Frogram Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1. Shoe joint 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" t 9-7/8" scommendation Its 9/100' 2 12"	0.7 ps//t ater Brine 277 ACCP/D 277 700° to FC. 1 p 1,212° 5,032° 12,349° MD (ft) 6,500°	4,596 psi Inter (RW Surface 1212 - 5032' - BTM (MD) 1,212' V Tool run 10 5,032' v Tool run 10 5,032' 1,212' V Tool run 10 5,032' 1,212' 1,212' 1,212' 1,212' 1,212' 1,212' 1,212' 1,212' 1,212' 1,212' V Tool run 10 5,032' 1,212' 1,2	rval 0) - 1.212' 5032' 12349' Length 1,185' 0' below wa 5,005' 1.200' to surt ints 7,800' to 2 20 b 40 bbl inv 40 bbl AZI (deg ) 0 6.6	Density           ppa           8.6           9.2           9.5           Size           13 3/8           ter board dept           10 3/4	Vis seckt 28-50 28-50 28-60 bins 24-550 bins 2,300 b 556 sp 554 sx Cl 17.0 ppg 0 NS (ft) 0 77	Field Drillin Drillin PY cP 1-5 1-4 1-5 Grade J-55 sery L-80 o surface. 2.8 ppg 2. 2.0 sx WBI 11 ppg 2.9 20 sx WBI 11 ppg	g Supt.: tg Supt.: tyP srioonz 2-6 2-5 2-6 BTi Wedge dif C' + a 05 ft3/sk L + adds 7 ft3/sk adds DLS (*1007) 0 1.5	Dennis James Patrick V Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5 0 511	Hously Taylor Velima RL NC NC NC NC NC SI NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Waste Handling: Mud Pit: Wellhead: Teil 14.8 ppg 1.32 90 sx Class H 13.8 ppg 1.18 EC-T-R 265 R32E 265 R32E	830-5 281-2 NACI ppb sol 10,000 100,000 100,000 COP Clas 13-5/6 <sup>3</sup> Rotating I Pipe Ram Closed lo approved Float Bas Gravity Ti 13-5/6 <sup>*</sup> x + adds ft3/sk + adds ft3/sk Section 2570 <sup>*</sup> F 2647 <sup>*</sup> F	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cord 10M psi Rathol S 3 Well Cord 10M psi Card S 3 Well Cord 10M psi Card Carner S 3 000 Carner S 300 Carner S 1 206 S 1	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> hted to surface w/ 100%XS ibarBlock source w/ 100%L/ XS catc'd on 12.25" hole ibarBlock ack to 20° above KOP for 1.20% CD-23 + 0.10% R Ib/sk Static Free ance 7' FEL 8' FEL
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 Intermediate 2 Intermediate 2 Intermediate 1 Intermediate 1 Intermediate 1 Intermediate 1 Intermediate 2 Intermediate	Ssure: Pressure: Ivee Fresh W Erraulsified WBW Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1, Shoe joint. 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" 4 9-7/8" ecommendation 12 9 12" '/100'	0.7 ps//t ater Brine 27 ACP/D 27 700' to FC. 1 p 1,212' 5,032' 12,349' <u>MD</u> (11) 6,500' 7,269' 10,107'	4,598 psi Inter Miter Surface 1212 - 5032 - ETM (IMD) 1,212 V Tool run 10 5,032 V Tool run 10 5,032 V Tool run 10 5,032 V Tool run 10 5,032 1,212 1,212 1,212 5,032 12,281'	rval D) -1,212' 5032' 12349' 11349' 11,185' 10' below wa 5,005' 11,200' to surf inta 7,800' to 2 20 b 40 bbl Inv 40 bbl (deg) 0	Density ppa 8.6 9.2 9.5 Size 13.3/8 ter board dept 10.3/4 face 2,300, 1 per 4 jc accer bi FW vert Spacer Visweep IVD (ft) 6,500' 7,264' 10,045'	<u>Vis</u> seckt 28-50 28-49 28-50 54.50 th if necess 45.50 54.50 th if necess 45.50 560 sp 11. 33 534 sx Cl 17.0 ppg 0 NS (ft ) 0 77 641	Field Drillin Drillin PV cP 1-5 1-4 1-5 3-55 3-55 3-55 3-55 3-57 L-80 0 surface. 2.8 ppg 2.9 11 ppg 2.9 12 2.8 ppg 2.9 11 ppg 2.9 11 ppg 2.9 11 ppg 2.9 12 sx WBI 11 ppg 2.9 13 sx WBI 11 ppg 2.9 14 sx WBI 15 ppg 2.9 16 sx WBI 17 ppg 2.9 17 sx WBI 17 ppg 2.9 18 sx WBI 19 pg 2.9 10 sx WBI 10 pg 7.4 10 sx WBI 10 pg 7.4 10 sx WBI 10 sx WBI 10 sx WBI 11 ppg 2.9 10 sx WBI 10 sx WBI 10 sx WBI 11 ppg 2.9 11 sx WBI 11 ppg 2.9 12 sx WBI 11 ppg 2.9 13 sx WBI 14 sx WBI 15 sx WBI 10 sx WBI 11 ppg 2.9 12 sx WBI 11 ppg 2.9 13 sx WBI 11 ppg 2.9 14 sx WBI 14 sx WBI 15 sx WBI 15 sx WBI 17 sx X 17 sx WBI 17 sx WBI	ng Supt.: ng Supt.: YP eriooriz 2-8 2-5 2-8 BTi Wedge d iet 'C' + a 05 ft3/sk L adds PLLS ('/100') 0 1.5 0.0	Dennis James Patrick V Scott Ni EH 7.5-8.5 7.5-8.5 7.5-8.5 511 511 dds	Hously Taylor Wellma E NC NC NC NC NC NC S T 20 T 20 T	LGS * by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Vaste Handling: Mud Pit: Wellhead: Tail 50 ax Type 'III 14.8 ppg 1.18 90 ax Class H 13.8 ppg 1.18 EC-T-R 26S R32E 26S R32E 26S R32E	830-5 281-2 NaCl ppb sol 10,000 1	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S Well Con- tad, 5M An, Blind Ram, s 3 Well Con- facility. de Electronk po cuttings d facility. de Electronk po cuttings d facility. de Electronk po cuttings d facility. de Electronk Comme Add Fi Plug b lateral 30%T Add Fi Plug b lateral 30%S 2005 St. 2055 SL 199.	432-215-7079 432-230-8010 htrol Requirements rs / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> ned to surface w/ 100%XS berBlock ted to surface w/ 100%XS berBlock ack to 200° above KOP for . 1.20% CD-32 + 0.10% R bloks Static Free ance 7' FEL 8' FEL 3' FEL
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2. <i>ference Drilling Fluids</i> SUNG: Surface Intermediate 1 Intermediate 1 Intermediate 1 Intermediate 2 Intermediate Casing: Intermediate Casing: Intermediate Pilot Hole Cernen <i>ference Cementing R</i> RECTIONAL PLAN: Comment PLAN: Complete Drop, 1.5 Complete Drop, 21.5 KOP (Post Pilot Hole	Ssure: Pressure: Pressure: Fresh W Frogram Hole 17-1/2" 12-1/4" 1 per 2 joints from 1. Shoe joint 1 per joint Hole 12-1/4" 12-	0.7 ps//t ater Brine 27 ACCP/D 27 700' to FC. 1 p ft from FC to 7, MD 1,212' 5,032' 12,349' MD (ft) 6,500' 7,269' 10,107' 10,377'	4,596 psi Inter (RE) (RE) (RE) (RE) (RE) (RE) (Surface 1212 - 5032' - (SUF	rval 0) -1.212' 5032' 12349' Length 1,185' 0' below wa 5,005' 1.200' to surt 5,005' 1.200' to surt 320 b 40 bbl Inv 40 bbl Inv 40 bbl Inv 40 bbl Inv 6.6 6.6 0 0	Density ppa 8.6 9.2 9.5 Size 13 3/8 ter board dept 10 3/4 face 2,300°. 1 per 4 jc acer bi FW reft Spacer Visweep TVD (ft) 6,500° 7,264° 10,045° 10,809° 11,309	Vis seckt 28-50 28-50 28-50 bins 2.300° b 554.550 554 ex Cl 17.0 ppg 0 NS (ft) 0 77 641' 718	Field Drillin Drillin PY cP 1-5 1-4 1-5 Grade J-55 sery L-80 o surface. 2.8 ppg 2. 20 sx WBI 11 ppg 2.9 20 sx WBI 11 ppg 2.8 20 sx WBI 12 sx WBI 13 sx H 14 sx H 15 sx H 15 sx H 15 sx H 15 sx H 16 sx H 17 sx H 17 sx H 18 sx	g Supt.: tg Supt.: tyP srioorz 2-6 2-5 2-6 BTi Wedge d 'C' + a 05 ft3/sk L + adds 7 ft3/sk adds DLS (*1007) 0 1.5 0.0 1.5 0 0	Dennis James Patrick N Scott Ni EH 7.5-8.5 7.7-716 7.716	Hously Faylor Vellma RL NC NC NC NC NC NC NC NC NC NC NC NC NC	LGS % by vol < 5.0 < 5.0 < 7.0 BOP: Minimum - Rig - Stackup - Waste Handling: Mud Pit: Wellhead: Tail 50 ax Type 11.32 90 sx Class H 13.8 ppg 1.18 EC-T-R 265 R32E 265 R32E 265 R32E 265 R32E	830-5 281-2 NaCl ppb sol 10,000 100,000 100,000 100,000 COP Class 13-5/8 <sup>3</sup> Rotating I Pipe Ram Closed Io approved Float Bas Gravity TI 13-5/8" x + adds ft3/sk + adds ft3/sk - 2570" F 2647" F 22570" F 22647" F 3288" F	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cord 10M psi Ram, s 3 Well Cord 10M psi Cast S 4 Corner Carner Add Fi Carner Add Fi Plug b Iateral 0.005 Data Line Diate SL 206 SL 205 SL 198 SL 198 SL 198	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> Inted to surface w/ 100%XS iberBlock tack to 20° above KOP for 1.20% CD-23 + 0.10% Ri <u>Ib/sk Static Free</u> ance 7' FEL 8' FEL 4' FEL
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2; eference Drilling Fluids ASING: Surface Intermediate 1 ENTRALIZATION: Intermediate Casing: EMENT: Surface Intermediate Pilot Hole Cement eference Cementing R RECTIONAL PLAN: Comment Build @ 1.5 End Build @ 1.5 End Buil	Ssure: Pressure: Pressure: Fresh W: Program Hole 1 17-1/2" 1 2-1/4" 1 per 2 joints from 1. Shoe joint 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" 4 9-7/8" scommendation 12 9/100" 9 12" */100" 9 12" */100" */100" 9 12" */100" *	0.7 ps//t ater Brine 27 ACP/D 27' 700' to FC. 1 p 1,212' 5,032' 12,349' <u>MD</u> 1,212' 5,032' 12,349' <u>MD</u> (ft) 6,500' 7,269' 10,107' 10,877' 11,377'	4,598 psi Inter	Val           D)           -1,212'           5032'           12349'           Length           1,185'           00' below wa           5,005'           11,200' to surf           11,200' to surf           11,200' to surf           20 b           40 bbl Inv           40 bbl           0           6.6           0           6.6           0           0           6.6           0           0           6.6           0           0	Density ppe 8.6 9.2 9.5 13 3/8 ter board dept 10 3/4 iace 2,300, 1 per 4 jc acar bl FW vert Spacer Visweep (ft ) 6,500 7,264' 10,809' 11,309 11,209	<u>Vis</u> secit 28-50 28-49 28-50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 560 sp 1; 3 534 sx Cl 17.0 ppg 0 <u>NS</u> (ft) 0 77 718 718	Field Drillin Drillin PV cP 1-5 1-4 1-5 Grade J-55 Sasy L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VBS 11 ppg 2.9 tass 'H' + a 0.99 ft3/sk EW (ft) 0 9 74 83 83	g Supt.: g Supt.: YP grooma 2-6 2-5 2-6 BTI Wedge d Conne- BTI Wedge d Conse- BTI Wedge DLS (*/100') 0 1.5 0.0 1.5 0 0	Dennis James Patrick N Patrick N EH 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5 5511 c c c c c c c c c c c c c c c c c	Hously Taylor Wellma E NC NC NC NC NC NC NC 20 T 20 T 20 T 20 T 20 T	LGS           % by vol           < 5.0	830-5 281-2 NaCl ppb sol 10,000 10,5/8 <sup>-</sup> X 40 13,5/8 <sup>-</sup> 13,5/8 <sup>-</sup>	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor- t10M psi Ram, 8 3 Well Cor- tead, 5M An, Blind Ram, 6 Blind Ram, 6 Come Add Fi Come Come Add Fi Plug b lateral 30% T Add Fi Add Fi	432-215-7079 432-230-8010 http://www.endower.com/ http://wwww.endower.com/ http://www.endowe
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 sference Drilling Fluids ASING: Surface Intermediate 1 ENTRALIZATION: Intermediate Casing: EMENT: Surface Intermediate Pilot Hole Cemen sference Cementing R RECTIONAL PLAN: Commen Build @ 115 Complete Drop, Hol KOP (Post Pilot Hole	Ssure: Pressure: Ivee Fresh W Frogram Hole 17-1/2" 12-1/4" 1 per 2 joints from 1. Shoe joint 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" t 9-7/8" scommendation Its */100' g 12" */100' g 12" */100' t 0 Pilot Hole Cement Plug) TD an ON:	0.7 ps//t ater Brine 27 ACP/D 27' 700' to FC. 1 p 1,212' 5,032' 12,349' <u>MD</u> 1,212' 5,032' 12,349' <u>MD</u> (ft) 6,500' 7,269' 10,107' 10,877' 11,377'	4,596 psi Inter RW Surface 1212 - 5032' - IL,212' V Tool run 10 5,032' V Tool run 10 5,032' 1,212' V Tool run 10 5,032' 1,212 V Tool run 10 5,032' 1,212 V Tool run 10 5,032' 1,212' V Tool run 10 5,032' 1,212' V Tool run 10 5,032' 1,212' 0 1,212' 0 0,022' 0 0 1,154 11.54 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Val           D)           -1,212'           5032'           12349'           Length           1,185'           00' below wa           5,005'           11,200' to surf           11,200' to surf           11,200' to surf           20 b           40 bbl Inv           40 bbl           0           6.6           0           6.6           0           0           6.6           0           0           6.6           0           0	Density ppe 8.6 9.2 9.5 13 3/8 ter board dept 10 3/4 iace 2,300, 1 per 4 jc acar bl FW vert Spacer Visweep (ft ) 6,500 7,264' 10,809' 11,309 11,209	<u>Vis</u> secit 28-50 28-49 28-50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 54.50 560 sp 1; 3 534 sx Cl 17.0 ppg 0 <u>NS</u> (ft) 0 77 718 718	Field Drillin Drillin PV cP 1-5 1-4 1-5 Grade J-55 Sasy L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VBS 11 ppg 2.9 tass 'H' + a 0.99 ft3/sk EW (ft) 0 9 74 83 83	g Supt.: g Supt.: YP grooma 2-6 2-5 2-6 BTI Wedge d Conne- BTI Wedge d Conse- BTI Wedge DLS (*/100') 0 1.5 0.0 1.5 0 0	Dennis James Patrick N Patrick N EH 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5 5511 c c c c c c c c c c c c c c c c c	Hously Taylor Wellma E NC NC NC NC NC NC NC 20 T 20 T 20 T 20 T 20 T	LGS           % by vol           < 5.0	830-5 281-2 NaCl ppb sol 10,000 10,5/8 <sup>-</sup> X 40 13,5/8 <sup>-</sup> 13,5/8 <sup>-</sup>	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor- t10M psi Ram, 8 3 Well Cor- tead, 5M An, Blind Ram, 6 Blind Ram, 6 Come Add Fi Come Come Add Fi Plug b lateral 30% T Add Fi Add Fi	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> Inted to surface w/ 100%XS iberBlock tack to 20° above KOP for 1.20% CD-23 + 0.10% Ri <u>Ib/sk Static Free</u> ance 7' FEL 8' FEL 4' FEL
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2 Serence Drilling Fluids ASING: Surface Intermediate Casing: exmediate Casing: exmediate Casing: Intermediate Casing: EMENT: Surface Pilot Hole Cement Surface Pilot Hole Cement Surface Defence Cementing R RECTIONAL PLAN: Comment Build @ 1.5 End Build Drop @ 1.5 Comment Pilot Hole Pilot Hole Pilot Hole Drop @ 1.5 Comment Surface Drop @ 1.5 Comment NoP (Post Pilot Hole Defence Drop. Hol KOP (Post Pilot Hole Defence Drop Hol Nucl Logging - Mucl Logging -	Ssure: Pressure: Iype : Fresh W : Ernulsified WBM Program Hole : 17-1/2" : 12-1/4" : 12-1	0.7 ps//t ater Brine 277 ACP/D 277 700° to FC. 1 p from FC to 7, MD 1,212° 5,032° 12,349° 10,877 10,877 10,877 11,377 12,349°	4,598 psi Inter Inter Surface 1212 - 5032 - ETM (MD) 1,212 V Tool run 10 5,032' v Tool run 10 5,032' v Tool run 10 5,032' 1,212 V Tool run 10 5,032' 1,212 1,212 5,032 12,281' NC ( deg ) 0 11.54 11.54 11.54 0 0 MWD Survey hole to TD.	rval p) -1,2,12' 5032' 12349' 12349' 12349' 12349' 12349' 132	Density ppe 8.6 9.2 9.5 13 38 ter board dept 10 3/4 iter board dept 11 309 iter board dept 11 309 iter board dept 11 309 iter board dept 10 3/4 iter board dept	Vis secit 28-50 28-49 28-50 Wi 54.50 bints 2,300 b i i necess 45.50 560 s) 10 560 s) 11 560 s) 12 560 s) 13 3 560 s) 12 560 s) 12 57 77 641 718 718 718 718 718 718 718 718 718 71	Field Drillin Drillin PV cP 1-5 1-4 1-5 Grade J-55 Sasy L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VBS 11 ppg 2.9 tass 'H' + a 0.99 ft3/sk EW (ft) 0 9 74 83 83	g Supt.: g Supt.: YP grooma 2-6 2-5 2-6 BTI Wedge d Conne- BTI Wedge d Conse- BTI Wedge DLS (*/100') 0 1.5 0.0 1.5 0 0	Dennis James Patrick N Patrick N EH 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5 5511 c c c c c c c c c c c c c c c c c	Hously Taylor Wellma E NC NC NC NC NC NC NC 20 T 20 T 20 T 20 T 20 T	LGS           % by vol           < 5.0	830-5 281-2 NaCl ppb sol 10,000 10,5/8 <sup>-</sup> x 13,5/8 <sup>-</sup> x 14,5/8 <sup></sup>	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor- t10M psi Ram, 8 3 Well Cor- tead, 5M An, Blind Ram, 6 Blind Ram, 6 Come Add Fi Come Come Add Fi Plug b lateral 30% T Add Fi Add Fi	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> Inted to surface w/ 100%XS iberBlock tack to 20° above KOP for 1.20% CD-23 + 0.10% Ri <u>Ib/sk Static Free</u> ance 7' FEL 8' FEL 4' FEL
ax. Anticipated BH Pre ax Anticipated Surface RILLING FLUID: Surface Intermediate 1 Intermediate 2. Serence Drilling Fluids ASING: Untermediate Casing: ENTRALIZATION: Inface Casing: EMENT: Surface Intermediate Pilot Hole Cerrent Nerence Cementing R RECTIONAL PLAN: Comman Build @ 1.5 Complete Drop, Mo KOP (Post Pilot Hole Pilot Hole Noro Directional PI KAND VICE Prop. Hol KOP (Post Pilot Hole Pilot Hole Logging -	Ssure: Pressure: Pressure: Iype Erralsified VBN Program Hole 17-1/2" 12-1/4" 1 per 2 joints from 1, Shoe joint. 1 per joint Hole 17-1/2"X13-3/8" 12-1/4"X10-3/4" 4 9-7/8" ecommendation 12 9-7/8" commendation 12 0 Cement Plug) TD an ON: One-Man: Two-Man: GR/RES/DEN/N	0.7 ps//t ater Brine 277 ACP/D 277 700° to FC. 1 p from FC to 7, MD 1,212° 5,032° 12,349° 10,877 10,877 10,877 11,377 12,349°	4,598 psi Inter	rval p) -1,2,12' 5032' 12349' 12349' 12349' 12349' 12349' 132	Density ppe 8.6 9.2 9.5 13 38 ter board dept 10 3/4 iter board dept 11 309 iter board dept 11 309 iter board dept 11 309 iter board dept 10 3/4 iter board dept	Vis secit 28-50 28-49 28-50 Wi 54.50 bints 2,300 b i i necess 45.50 560 s) 10 560 s) 11 560 s) 12 560 s) 13 3 560 s) 12 560 s) 12 57 77 641 718 718 718 718 718 718 718 718 718 71	Field Drillin Drillin PV cP 1-5 1-4 1-5 Grade J-55 Sasy L-80 D surface. Lea x Control S 2.8 ppg 2.9 2.0 sx VBS 11 ppg 2.9 tass 'H' + a 0.99 ft3/sk EW (ft) 0 9 74 83 83	g Supt.: g Supt.: YP grooma 2-6 2-5 2-6 BTI Wedge d Conne- BTI Wedge d Conse- BTI Wedge DLS (*/100') 0 1.5 0.0 1.5 0 0	Dennis James Patrick N Patrick N EH 7.5-8.5 7.5-8.5 7.5-8.5 7.5-8.5 5511 c c c c c c c c c c c c c c c c c	Hously Taylor Wellma E NC NC NC NC NC NC NC 20 T 20 T 20 T 20 T 20 T	LGS           % by vol           < 5.0	830-5 281-2 NaCl ppb sol 10,000 10,5/8 <sup>-</sup> x 13,5/8 <sup>-</sup> x 14,5/8 <sup></sup>	83-4828 06-5392 Remarks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks Rig Tanks S 3 Well Cor- t10M psi Ram, 8 3 Well Cor- tead, 5M An, Blind Ram, 6 Blind Ram, 6 Come Add Fi Come Come Add Fi Plug b lateral 30% T Add Fi Add Fi	432-215-7079 432-230-8010 htrol Requirements ms / 4-1/16"x10M psi Manif inular Preventer, Kill Valves), lisposal system with haul of c PVT with Flow Sensor an rms +/- 10 BBLS sing Head - "A" Section) <u>KENTS</u> Inted to surface w/ 100%XS iberBlock tack to 20° above KOP for 1.20% CD-23 + 0.10% Ri <u>Ib/sk Static Free</u> ance 7' FEL 8' FEL 4' FEL

#### Zia Hills 20 106H NWSE 20 T26S R32E

		Stage 1				Pilot Hole Kick Off Cement	
13-3/8" Surface Casing:		10-3/4" Intermediate Casing (Lead);		10-3/4" Intermediate Casing (Tail):		9-7/8" Open Hole Plug;	
Surface Casing Depth (Ft)	1,212	Intermediate Casing O.D. (In.)	10.750	Intermediate Casing Depth (Ft)	5,032	Pilot Hole Depth Depth (Ft)	12,349
Surface Casing O.D. (In.)	13 3/8	Intermediate Casing ID (In)	9.950	Intermediate Casing O.D. (In.)	10.750	Top of KOP (Ft)	11150
Surface Casing ID (In)	12.612	Hole O.D. (In)	12.25	Intermediate Casing ID (In)	9.950		
Hole O.D. (in)	17 1/2	Excess (%)	70%	Hole O.D. (In)	12.25		
Excess (%)	100%	Surface Casing Depth (Ft)	1,212	Excess (%)	30%	5" Drill Pipe ID (In)	4.276
Volume Tall (Sx)	450	Surface Casing ID (In)	12.612	Tail Footage	500'	Hole O.D. (In)	12.25
Yield Tail (Cu. Ft./Sx)	1.32			Top Tall (Ft)	4.532	Excess (%)	10%
Yield Lead (Cu. Ft./Sx)	2.05	Yield Lead (Cu. Ft./Sx)	2.97	Yield Tall (Cu. Ft./Sx)	1.18	Top Cement (Surface)	11,150
Shoe Joint (Ft)	40			Shoe Joint (Ft)	90		
Shoe Volume (Cu. Ft)	34.7	Calculated Total Lead (Cu. Ft.)	827	Shoe Volume (Cu. Ft)	48.6	Yield Tail (Cu. Ft./Sx)	0.99
Tail feet of cement	400					······ · · · · · · · · · · · · · · · ·	
Calculated Total Volume (Cu. Ft.)	1.719	Calc. Lead Volume (Sx)	320	Calc, Tail Volume (Cu. Ft.)	224		
Calc. Tall Volume (Cu. Ft.)	590						
Calc. Lead Volume (Cu. Ft.)	1,128	Lead Volume (bbis)	165	Required Tail Volume (Sx)	190	Calc. Tail Volume (Cu. Ft.)	529
Calc. Lead Volume (Sx)	560					Gale. Tail Volania (Ga. 11.)	520
oule: Loue volenio (ox)				Tail Volume (bbis)	40	Required KO Plug Volume (Sx)	534
				Displacement Volume (bbis)	475	Kedanea Ko Find Aolania (ox)	334
Lead Volume (bbls)	200.9			Displacement volume (DDis)	475	Plus ushing (bbls)	
Tail volume (bbls)	105.2					Plug volume (bbls)	94
						Displacement Volume (bbls)	198
Displacement Volume (bbls)	181.1						
Lead Cement Description:		Intermediate Lead Cement Description:		Intermediate Tail Cement Description:		17 ppg Kick off Plug Cement Description;	
Mix Weight 12.8 ppg		Mix Weight 11 ppg		Mix Weight 13.8 ppg		Mix Weight 17 ppg	
Control Set 'C'		WBL		Thermal 35		Class H	
1.0% CaCl		0.5% CFL-4		10% NaCl		1.2% CD-32	
1.0% SMS		0.6% LTR		0.9% CFR		0.10% R-3	
1.0% OGC-60		0.2% SPC-II		0.7% CFL-4		.005 lb/sk Static Free	
1 b/sk Polyflake		0.4% CDF-4P		0.1% LTR		JUD ILIN SK SIEUU FIER	
% ppb FiberBlock		1/2 lb/sk Polyflake		0.2% SPC-II			
22 ppp 1 ippi block		% ppb FiberBlock		0.4% CDF-4P			
Tall Cement Description:		A Photo por proces		1/2 m/sk Polyflake			
Mix Weight 14.8 ppg				½ ppb FiberBlock			
0:1:0 'Type III'				ve pport internet			

 Tail Coment Description;

 Mix Weight 14.8 ppg

 0.1:0 'Type III'

 0.5% CaCl<sub>2</sub>

 % lb/sk Polyflake

 % ppb FiberBlock

.



CE CASING I	DESIGN INFO	ORMATION				Setting Depth:	1,212' MD	1,212' TVD	
PIPE BODY D	IMENSIONAL /	PERFORMANC	E DATA:						
SIZE	WEIGHT	GRADE	CPLG	BORE ID	DRIFT ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Surface Casing Test Pressure = 1,500 psi
(Inches)	(LB/FT)	GIUDE	TYPE	(inches)	(Inches)	API / CoP	API / CoP	API / CoP	Pressure Test Prior to Drill Out
13.375	54.5	J-55	BTC	12.612	12.459	1,130 / 960	2,730 / 2,320	909 / 772	
		CONNECTION	DIMENSIONAL	/ PERFORMA	NCE DATA:				Minimum Design / Safety Factors ( Burst Collapse Tension (Body ( 1.15 1.05 1.40
		OD	D	DRIFT	CPLG	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Actual Design / Safety Factors
		(inches)	(Inches)	(Inches)	ТҮРЕ	API / CoP	API / CoP	API / CoP	Burst Collapse Tension (Body)
		14.375	12.612	12.459	BTC	1,130 / 960	2,730 / 2,320	909 / 772	5.04 3.62 11.69
									13.45
	ASING DESI					Setting Depth:	5,032' MD	5,032' TVD	
	MENSIONAL /		E DATA:	BORFID					Intermediate Casing Test Processo = 4550 ps
				BORE ID (Inches)	DRIFT ID (Inches)	Setting Depth: COLLAPSE (PSI) API / COP	5,032' MD BURST (PSI) API / CoP	5,032' TVD TENSION (1k LBS) API / Cop	Intermediate Casing Test Pressure = 4550 ps Pressure Test Prior to Drill Out
PIPE BODY D		PERFORMANC	E DATA: CPLG			COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	•
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	PERFORMANC GRADE	E DATA: CPLG TYPE Wedge 511	(inches) 9,95	(Inches) 9,794	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 1040 / 743	Pressure Test Prior to Drill Out Minimum Design / Safety Factors
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	PERFORMANC GRADE	E DATA: CPLG TYPE Wedge 511	(inches) 9,95	(Inches) 9,794	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP	Pressure Test Prior to Drill Out Minimum Design / Safety Factors Burst Collapse Tension (Body
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	PERFORMANC GRADE L-80 CONNECTION	E DATA: CPLG TYPE Wedge 511 DIMENSIONAL	(inches) 9,95	(Inches) 9,794 NCE DATA:	COLLAPSE (PSI) API / CoP 2,470 / 2,352	BURST (PSI) API / CoP 5,210 / 4,530	TENSION (1k LBS) API / CoP 1040 / 743	Minimum Design / Safety Factors Burst Collapse Tension (Body
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	PERFORMANC GRADE L-80 CONNECTION OD	E DATA: CPLG TYPE Wedge 511 DIMENSIONAL	(Inches) 9,95 / PERFORMA DRIFT	(Inches) 9.794 NCE DATA: CPLG	COLLAPSE (PSI) API / CoP 2,470 / 2,352 COLLAPSE (PSI)	BURST (PSI) API / CoP 5,210 / 4,530 BURST (PSI)	TENSION (1k LBS) API / CoP 1040 / 743 TENSION (1k LBS)	Pressure Test Prior to Drill Out Minimum Design / Safety Factors Burst Collapse Tension (Body 1.15 1.05 1.40
PIPE BODY D SIZE (Inches) 10.750	IMENSIONAL / WEIGHT (LB/FT)	PERFORMANC GRADE L-80 CONNECTION (Inches) 10.75	E DATA: CPLG TYPE Wedge 511 DIMENSIONAL ID (Inches)	(Inches) 9.95 / PERFORMA DRIFT (Inches)	(Inches) 9,794 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 2,470 / 2,352 COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 5,210 / 4,530 BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 1040 / 743 TENSION (1k LBS) API / CoP	Pressure Test Prior to Drill Out Minimum Design / Safety Factors Burst Collapse Tension (Body 1.15 1.05 1.40 Actual Design / Safety Factors

lls 20 106H		NWSE 20 T26S R32E					Lea, Co, NM	1	2/13/2019			
ACE CASING						Setting Depth:	1,212' MD	1,212' TVD				
PIPE BODY D	IMENSIONAL /	PERFORMANCE	DATA:									
8IZE	WEIGHT	GRADE	CPL0	BORE ID	ORGET ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (tk LBS)	Surface	Cesing Test Press	ure = 1,500 psi	
(Inches)	(LB/FT)		TYPE	(Inches)	(Inches)	API / CoP	API / CoP	API/CoP	Pre	ssure Test Prior t	o Drill Out	
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1076	2730/2373	853 / 609				
		CONNECTION	DIMENSIONAL	/ PERFORMAN	ICE DATA:				Burst 1.15	Minimum Design Collapse 1.05	/ Safety Fectors Ct Tension (Body & 1.40	
		<b></b>	0	DRBFT	691.0	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)				
		(Inches)	(Inches)	(Inches)	TYPE	API/CoP	API/ CoP	API/ CoP	Burst	Collapse	n / Safety Factora Tension (Body)	
		14.375	12.615	12.459	BIC	1,130/1078	2730/2373	909/649	5.04	2.08	11.69	
											13.45	
MÉDIATE 1 C	ASING DESIG	SN INFORMA	TION			Setting Depth:	5,032' MD	5,243' TVD				
PIPE BODY D	MENSIONAL /	PERFORMANCE	DATA:									
SCZE	WEIGHT	GRADE	CPLO	BORG ID	DREFT ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)		te Casing Test Pr		
(Inches) 10.750	(LB/FT) 40.5		TYPE	(Inches) 10.05	(Inches) 9.694	API / CoP 1580 / 1504	API / CoP	API / CoP 629 / 449	Pre	essure Test Prior t	o Drlll Out	
10.750	40.5	165	BTC	[10.05	9.694	1580/1504	3130/2721	629/449	Mini	imum Design / Saf	hty England	
										-	Tansion (Body &	
									Burst	Collapse	Connection)	
			DIMENSIONAL	PERFORMAN	CE DATA:	COLLAPSE (PSI)	BURST (PS)	TENSION (1): LBS)	1.15	1.05	1.40	
		(Inches)	(inches)	(inches)	1778	API/ CoP	APH/CoP	API/CoP		Actual Desig	n / Safety Fectors	
		9.625	10.05	9,594	BTC	1580 / 1504	3130 / 2721	700/500	Burst	Collapse	Tension (Body)	
		-			•	• -			4.46	2.25	2.92	
											5.72	
MEDIATE 2 C	ASING DESI	SN INFORMA	TION			Setting Depth:	5.032' MD	5.032 TVD				
								4002 112				
PIPE BODY D		PEPEOPMANCE										
PIPE BODY D	MENSIONAL /	PERFORMANCE	DATA:	BOREID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	intermedia	ite Casing Test Pr	essure = 4550 psi	
		GRADE		BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) APt / CoP		-	•	
SIZE (Inches)	WEIGHT (LB/FT)		срі, а туре	(inches)		API/ CoP	API / CoP	API/ CoP		tte Cesing Test Ph Ssure Test Prior t	•	
&iZE	WEIGHT	GRADE	CPLO		(Inches)				Pro	assure Test Prior t	o Drill Out	
SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLO TYPE BTC	(Inches) 6.875	(Inches) 0.75	API/ CoP	API / CoP	API/ CoP	Pro Mini Burst	assure Test Prior t imum Design / Saf Collapse	o Drill Out oty Fectors Tension (Body &	
SIZE (Inches)	WEIGHT (LB/FT)		CPLQ TYPE BTC DIMENSIONAL	(Inches) 6.875	(Inches)	AP1 / CoP 5340/ 5085	API / CoP 9470 / 8234	APt / CoP 940 / 871	Pro Mūni	ossure Test Prior t Imum Design / Saf	o Drill Out	
SIZE (Inches)	WEIGHT (LB/FT)	CONNECTION	CPLQ TYPE BTC DIMENSIONAL ID	(Inches) 6.873 / PERFORMAN DRIFT	(Inches) 0.75 ICE DATA: CPL0	API / CoP 5340/ 5085 COLLAPSE (PSI)	API / CoP 9470 / 8234 BURST (PSI)	AP( / CoP 940 / 671 TENSION (1k LBS)	Pro Mini Burst	assure Test Prior t imum Design / Saf Collapse	o Drill Out oty Fectors Tension (Body &	
SIZE (Inches)	WEIGHT (LB/FT)	GRADE P.110 CONNECTION CD (Inches)	CPLQ TYPE BTC DIMENSIONAL ED (Inches)	(Inches) 6.875 / PERFORMAN DR9FT (Inches)	(Inches) 0.75 ICE DATA: CPL0 TYPE	API / CoP 5340/ 5085 COLLAPSE (PSI) API / CoP	API / CaP 9470 / 6234 BURST (PSI) API / CaP	API / CoP 940 / 871 TENSION (1k LBS) API / CoP	Pro Mini Burst 1.15	bassure Test Prior t imum Design / Saf Collapse 1.05 Actual Design	o Drill Out htty Fectors Tension (Body & 1.40 n / Safety Fectors	
SIZE (Inches)	WEIGHT (LB/FT)	CONNECTION	CPLQ TYPE BTC DIMENSIONAL ID	(Inches) 6.873 / PERFORMAN DRIFT	(Inches) 0.75 ICE DATA: CPL0	API / CoP 5340/ 5085 COLLAPSE (PSI)	API / CoP 9470 / 8234 BURST (PSI)	AP( / CoP 940 / 671 TENSION (1k LBS)	Pro Mini Burst 1.15 Burst	ossure Test Prior t Imum Design / Saf Collapse 1.05 Actual Desig Collapse	o Drill Out sty Factors Tension (Body & 1.40 n / Safety Factors Tension (Body)	
SIZE (Inches)	WEIGHT (LB/FT)	GRADE P.110 CONNECTION CD (Inches)	CPLQ TYPE BTC DIMENSIONAL ED (Inches)	(Inches) 6.875 / PERFORMAN DR9FT (Inches)	(Inches) 0.75 ICE DATA: CPL0 TYPE	API / CoP 5340/ 5085 COLLAPSE (PSI) API / CoP	API / CaP 9470 / 6234 BURST (PSI) API / CaP	API / CoP 940 / 871 TENSION (1k LBS) API / CoP	Pro Mini Burst 1.15	bassure Test Prior t imum Design / Saf Collapse 1.05 Actual Design	o Drill Out Very Fectors Tension (Body & 1.40 n / Safety Fectors Tension (Body) 2.63	
SIZE (Inches)	WEIGHT (LB/FT)	GRADE P.110 CONNECTION CD (Inches)	CPLQ TYPE BTC DIMENSIONAL ED (Inches)	(Inches) 6.875 / PERFORMAN DR9FT (Inches)	(Inches) 0.75 ICE DATA: CPL0 TYPE	API / CoP 5340/ 5085 COLLAPSE (PSI) API / CoP	API / CaP 9470 / 6234 BURST (PSI) API / CaP	API / CoP 940 / 871 TENSION (1k LBS) API / CoP	Pro Mini Burst 1.15 Burst	ossure Test Prior t Imum Design / Saf Collapse 1.05 Actual Desig Collapse	o Drill Out sty Factors Tension (Body & 1.40 n / Safety Factors Tension (Body)	
SIZE (Inches)	WEIGHT (LB/FT)	GRADE P.110 CONNECTION CD (Inches)	CPLQ TYPE BTC DIMENSIONAL ED (Inches)	(Inches) 6.875 / PERFORMAN DR9FT (Inches)	(Inches) 0.75 ICE DATA: CPL0 TYPE	API / CoP 5340/ 5085 COLLAPSE (PSI) API / CoP	API / CaP 9470 / 6234 BURST (PSI) API / CaP	API / CoP 940 / 871 TENSION (1k LBS) API / CoP	Pro Mini Burst 1.15 Burst	ossure Test Prior t Imum Design / Saf Collapse 1.05 Actual Desig Collapse	o Drill Out Very Fectors Tension (Body & 1.40 n / Safety Fectors Tension (Body) 2.63	
SIZE (Inches)	WEIGHT (LB/FT) 29.7	GRADE CONNECTION CO (Inches) 8 635	CPLQ TYPE BTC DIMENSIONAL ED (Inches)	(Inches) 6.875 / PERFORMAN DR9FT (Inches)	(Inches) 0.75 ICE DATA: CPL0 TYPE	API / CoP 3540/ 5085 COLLAPSE (PSI) API / CoP 5340 / 5085 Setting Depth:	API I CoP 9470 / 8234 BURST (PSI) API I CoP 9470 / 8234	API / CoP 942 / 871 TENSION (111 LBS) API / CoP 980 / 685	Pro Mini Burst 1.15 Burst	ossure Test Prior t Imum Design / Saf Collapse 1.05 Actual Desig Collapse	o Drill Out Very Fectors Tension (Body & 1.40 n / Safety Fectors Tension (Body) 2.63	
EIZE (Inches) 7.023	R DESIGN IN	GRADE CONNECTION CO (Inches) 8 635	CPLG TYPE BTC DIMENSIONAL DIMENSIONAL DIMENSIONAL (Inches) 8.84	(Inches) / PERFORMAN DRFT (Inches) 8.73	(Preches) 0.75 ICE DATA: CPLO TYPE BTC	API / CoP 3340/5085 COLLAPSE (P81) API / CoP 3340 / 5085 Setting Depth: Hanger:	API / CoP 9470 / 6234 API / CoP 9470 / 6234 'MD 11,302' MD / TT	API / CoP 940 / 071 TENSION (111 LB3) API / CoP 950 / 655 950 / 655	Pro Mini Burat 1.15 Burat 4.69	assure Test Prior ( Imum Design / Sef Collapse 1.05 Actual Desig Collapse 2.64	o Drill Out Stry Factors Tension (Body & 1.40 n / Safety Factors Tension (Body) 2.83 3.08	
	R DESIGN IN	GRADE CONNECTION CO (Inches) 9525 FORMATION PERFORMANCE	CRLG TYPE BTC DIMENSIONAL BTC (Inches) 8.84 DATA: CPLG	(Inches) 0.873 / PERFORMAN DRFT (Inches) 0.75 0.75 0.75	(Paches) 6.75 CE DATA: CPLG TYPE BTC 0RBT ID	API / CoP 3340 5065 COLLAPSE (PSI) API / CoP 5340 / 5065 Setting Depth: Hanger: COLLAPSE (PSI)	API / COP 9470 / 5234 API / COP 9470 / 5234 * MD 11,302* MD / TN BURST (PSI)	APri / CoP 940 / 871 TENSION (116 LBS) APri CoP 980 / 885 70 /D TENSION (16 LBS)	Pro Mini Burat 1.15 Burat 4.69	ossure Test Prior t Imum Design / Saf Collapse 1.05 Actual Desig Collapse	o Drill Out Stry Factors Tension (Body & 1.40 n / Safety Factors Tension (Body) 2.83 3.08	
UCTION LINE PIPE BODY D SCE ((nches)	(LBFT) 29.7 20.7	GRADE CONNECTION CO (Dretwa) 0.825 FORMATION PERFORMANCE GRADE	CPLG TYPE BTC DIMENSIONAL DIMENSIONAL DIMENSIONAL B B 8.84 DATA: CPLG TYPE	(Inches) 0.873 / PERFORMAN DRFT (Inches) 0.75 BORE D (Inches)	(Inches) 0.75 ICE DATA: CPLO TYPE BTC ORET ID (Inches)	API / CoP 3340/ 5085 COLLAPSE (PSI) API / CoP 3340 / 5085 Setting Depth: Hanger: COLLAPSE (PSI) API ( CoP	API / COP 9470 / 6234 BURST (PSI) API / COP 9470 / 6234 ' MD 11,302' MD / TN BURST (PSI) API / CoP	API / CoP 940 / 071 TEINSION (111 LBS) API / CoP 950 / 665 //D TEINSION (114 LBS) API / CoP	Pro Burat 1.15 Burat 4.69 Product	sssure Test Prior ( Imum Design / Saf Collapse 1.05 Actual Desig Collapse 2.64 2.64	o Drill Out by Factors Tension (Body & 1.40 n / Safety Factors Tension (Body) 2.63 3.03 ************************************	
	R DESIGN IN	GRADE CONNECTION CO (Inches) 9525 FORMATION PERFORMANCE	CRLG TYPE BTC DIMENSIONAL BTC (Inches) 8.84 DATA: CPLG	(Inches) 0.873 / PERFORMAN DRFT (Inches) 0.75 0.75 0.75	(Paches) 6.75 CE DATA: CPLG TYPE BTC 0RBT ID	API / CoP 3340 5065 COLLAPSE (PSI) API / CoP 5340 / 5065 Setting Depth: Hanger: COLLAPSE (PSI)	API / COP 9470 / 5234 API / COP 9470 / 5234 * MD 11,302* MD / TN BURST (PSI)	APri / CoP 940 / 871 TENSION (116 LBS) APri CoP 980 / 885 70 /D TENSION (16 LBS)	Pro Burst 1.15 Burst 4.69 Product	assure Test Prior f Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 2.84 tion Casing Test F	o Drill Out aty Factors Tension (Body & 1.40 n / Safaty Factors Tension (Body) 2.63 3.08 Pressure = TBD aty Factors	
UCTION LINE PIPE BODY D SCE ((nches)	(LBFT) 29.7 20.7	GRADE P-110 CONNECTION GD (Inches) 0 625 FORMATION PERFORMANCE GRADE P-110	CRLG TYPE BTC DIMENSIONAL ED (Inches) 6.84 DATA: CPLG TYPE TXP x 513	(Inches) 6.873 / PERFORMAN DRFT (Inches) 6.73 BORE ID (Inches) 4.670	(Inches) 0.75 ICE DATA: CPL0 TYPE BTC BTC ORFT ID (Inches) 4.55	API / CoP 3540 5065 COLLAPSE (PSI) API / CoP 5340 / 5005 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 18,220 / 15,447	API ( CGP 9470 / 8234 API ( CGP 9470 / 8234 API ( CGP 9470 / 8234 'MD 11,302' MD / TN BURST (PSI) API ( CGP 14,530 / 12,633	API / CoP 940/ 871 TEHSION (18 LBS) API / CoP 980/ 685 //D TEHSION (18 LBS) API / CoP 729/ 530	Pro Burat 1.15 Burat 4.69 Product	sssure Test Prior ( Imum Design / Saf Collapse 1.05 Actual Desig Collapse 2.64 2.64	o Drill Out by Factors Tension (Body & 1.40 n / Safety Factors Tension (Body) 2.63 3.03 ************************************	
UCTION LINE PIPE BODY D SCE ((nches)	(LBFT) 29.7 20.7	GRADE P110 CONNECTION GD (Inches) 0 625 FORMATION PERFORMANCE GRADE P-110	CRLG TYPE BTC DIMENSIONAL ED (Inches) 6.84 DATA: CPLG CPLG TYPE TXP x 513	(Inches) 6.873 / PERFORMAN DRFT (Inches) 6.73 BORE ID (Inches) 4.670	(Pechas) 8.75 ICE DATA: CPLG TYPE BTC DRET ID (Pechas) 4.56 ICE DATA: TXP	API / CoP 3340/ 5085 COLLAPSE (PSI) API / CoP 3340 / 5085 Setting Depth: Hanger: COLLAPSE (PSI) API ( CoP	API ( CGP 9470 / 8234 API ( CGP 9470 / 8234 API ( CGP 9470 / 8234 'MD 11,302' MD / TN BURST (PSI) API ( CGP 14,530 / 12,633	API / CoP 940/ 871 TEHSION (18 LBS) API / CoP 980/ 685 //D TEHSION (18 LBS) API / CoP 729/ 530	Pro Burst 1.15 Burst 4.69 Product	assure Test Prior f Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 2.84 tion Casing Test F	o Drill Out by Factors Tension (Body & 1.40 n / Safety Factors Tension (Body ) 3.03 Yessure = TBD by Factors Tension (Body &	
UCTION LINE PIPE BODY D SCE ((nches)	(LB/T) 29.7 20.7	GRADE CONNECTION CO (Dretwa) 0.623 FORMATION PERFORMANCE GRADE P110 CONNECTION CONNECTION	CPLG TYPE BTC DIMENSIONAL D (friches) 8.84 DATA: CPLG TXPE X513 DIMENSIONAL D	(nches) 6.873 / PERFORMAN DRFT (nches) 6.73 BORE D (nches) 4.870 / PERFORMAN / PERFORMAN	(Reches) 0.73 ICE DATA: CPL0 TYPE BTC DRET D (Pechas) 456 ICE DATA: TXP CPL0	API / CcP 3540 5065 COLLAPSE (P61) API / CcP 5340 / 5005 Setting Depth: Hanger: COLLAPSE (P61) API / CcP 16.220 / 15.447 (From 500' inside COLLAPSE (P81)	API ( CoP 9470 / 8234 9470 / 8234 9470 / 8234 API ( CoP 9470 / 8234 * MD 11,302* MD / Th BURST (PSI) API ( CoP 14,550 / 12,655 intermediate al BURST ( PSI)	API / CoP 940 / 871 TERSION (116 LES) API / CoP 950 / 655 //D TERSION (116 LES) API / CoP 720 / 530 //D TERSION (116 LES)	Pro Burat 1.15 Burat 4.89 Product Mini Burat 1.15	assure Test Prior t Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 tion Casing Test F Imum Design / Saf Collapse 1.05 Actual Design	o Drill Out tay Fectors Tension (Body & 1.40 n / Safety Fectors Tension (Body) 2.63 3.08 Pressure = TBD tay Fectors Tension (Body & Connection) 1.40 n / Safety Fectors	
UCTION LINE	(LB/T) 29.7 20.7	GRADE CONNECTION GD (Inches) 9.625 FORMATION PERFORMANCE GRADE P-110 CONNECTION CONNECTION CONNECTION	DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL	(Inches) 6.873 / PERFORMAN DRFT (Inches) 6.73 8008 ID (Inches) 4.75 (Inches) 4.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) (	(Reches) 0.75 ICE DATA: CPLG TYPE BTC DRBT ID (Reches) 456 ICE DATA: TXP CPLG TYPE	API / CoP 3340 5065 COLLAPSE (PSI) API / CoP 5340 / 5065 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 16,220 / 15,447 (From 500' Inside COLLAPSE (PSI) API / CoP	API / CoP 9470 / 5034 API / CoP 9470 / 5034 API / CoP 9470 / 6034 'MD 11,302' MD / T1 BURST (PSI) API / CoP 14,530 / 12,633 Intermediate al BURST (PSI) API / CoP	API / CoP 940 / 871 TENSION (114 LBS) API / CoP 980 / 885 720 / 585 TV/D TENSION (114 LBS) API / CoP 729 / 530 TENSION (114 LBS) API / CoP	Pro Mini Burat 1.18 Burat 4.69 Produci Burat 1.16 Burat	assure Test Prior t Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 tion Casing Test F imum Design / Saf Collapse 1.05 Actual Design Collapse	o Drill Out aty Factors Tension (Body & 1.40 n / Safaty Factors Tension (Body) 2.83 3.08 Pressure = TBD tay Factors Tension (Body & Connection) 1.40 n / Safaty Factors Tension (Body Tension (Body	
UCTION LINE	(LB/T) 29.7 20.7	GRADE CONNECTION CO (Dretwa) 0.623 FORMATION PERFORMANCE GRADE P110 CONNECTION CONNECTION	CPLG TYPE BTC DIMENSIONAL D (friches) 8.84 DATA: CPLG TXPE X513 DIMENSIONAL D	(nches) 6.873 / PERFORMAN DRFT (nches) 6.73 BORE D (nches) 4.870 / PERFORMAN / PERFORMAN	(Reches) 0.73 ICE DATA: CPL0 TYPE BTC DRET D (Pechas) 456 ICE DATA: TXP CPL0	API / CcP 3540 5065 COLLAPSE (P61) API / CcP 5340 / 5005 Setting Depth: Hanger: COLLAPSE (P61) API / CcP 16.220 / 15.447 (From 500' inside COLLAPSE (P81)	API ( CoP 9470 / 8234 9470 / 8234 9470 / 8234 API ( CoP 9470 / 8234 * MD 11,302* MD / Th BURST (PSI) API ( CoP 14,550 / 12,655 intermediate al BURST ( PSI)	API / CoP 940 / 871 TERSION (116 LES) API / CoP 950 / 655 //D TERSION (116 LES) API / CoP 720 / 530 //D TERSION (116 LES)	Pro Burat 1.15 Burat 4.89 Product Mini Burat 1.15	assure Test Prior t Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 tion Casing Test F Imum Design / Saf Collapse 1.05 Actual Design	o Drill Out by Factors Tension (Body & 1.40 n / Safety Factors Tension (Body 2 3.03 Yessure = TED by Factors Tension (Body 2 Connection) 1.40 n / Safety Factors Tension (Body 2 Connection) 2.64	
UCTION LINE	(LB/T) 29.7 20.7	GRADE CONNECTION GD (Inches) 9.625 FORMATION PERFORMANCE GRADE P-110 CONNECTION CONNECTION CONNECTION	DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL DIMENSIONAL	(Inches) 6.873 / PERFORMAN DRFT (Inches) 6.73 8008 ID (Inches) 4.75 (Inches) 4.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) 6.75 (Inches) (	(Reches) 0.75 ICE DATA: CPLG TYPE BTC DRBT ID (Reches) 456 ICE DATA: TXP CPLG TYPE	API / CoP 3340 5065 COLLAPSE (PSI) API / CoP 5340 / 5065 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 16,220 / 15,447 (From 500' Inside COLLAPSE (PSI) API / CoP	API / CoP 9470 / 5034 API / CoP 9470 / 5034 API / CoP 9470 / 6034 'MD 11,302' MD / T1 BURST (PSI) API / CoP 14,530 / 12,633 Intermediate al BURST (PSI) API / CoP	API / CoP 940 / 871 TENSION (114 LBS) API / CoP 980 / 885 720 / 585 TV/D TENSION (114 LBS) API / CoP 729 / 530 TENSION (114 LBS) API / CoP	Pro Mini Burat 1.18 Burat 4.69 Produci Burat 1.16 Burat	assure Test Prior t Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 tion Casing Test F imum Design / Saf Collapse 1.05 Actual Design Collapse	o Drill Out aty Factors Tension (Body & 1.40 n / Safaty Factors Tension (Body) 2.83 3.08 Pressure = TBD tay Factors Tension (Body & Connection) 1.40 n / Safaty Factors Tension (Body Tension (Body	
UCTION LINE	(LB/T) 29.7 20.7	GRADE CONNECTION O (Dretwa) 0.625 FORMATION PERFORMANCE GRADE P110 CONNECTION CONNECTION CONNECTION CONNECTION CONNECTION	CPLG TYPE BTC DIMENSIONAL D (inches) 8.84 CPLG TPE TAP x 513 DIMENSIONAL Conception (inches) 4.670	(nches) 	(Reches) 8-73 ICE DATA: CPL0 TYPE BTC BTC BTC (Reches) 4-55 CPL0 (Prches) 4-55 CPL0 TYPE TXP	API / CoP 350/ 5055 COLLAPSE (PSI) API / CoP 5360 / 5005 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 16,220 / 15,447 (From TD to 500' Isi	API / CoP 9470 / 5234 API / CoP 9470 / 5234 API / CoP 9470 / 5234 11,302* MD / Th BURST (PSI) API / CoP 14,530 / 12,555	API / CoP 940 / 071 TENSION (1% LBS) API / CoP 980 / 685 700 / 700 TENSION (1% LBS) API / CoP 729 / 520 TENSION (1% LBS) API / CoP 729 / 520	Pro Mini Burat 1.18 Burat 4.69 Produci Burat 1.16 Burat	assure Test Prior t Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 tion Casing Test F imum Design / Saf Collapse 1.05 Actual Design Collapse	o Drill Out by Factors Tension (Body & 1.40 n / Safety Factors Tension (Body 2 3.03 Yessure = TED by Factors Tension (Body 2 Connection) 1.40 n / Safety Factors Tension (Body 2 Connection) 2.64	
UCTION LINE	(LB/T) 29.7 20.7	GRADE CONNECTION O (Dretwa) 0.625 FORMATION PERFORMANCE GRADE P110 CONNECTION CONNECTION CONNECTION CONNECTION CONNECTION	CPLG TYPE BTC DIMENSIONAL D (inches) 8.84 CPLG TPE TAP x 513 DIMENSIONAL Conception (inches) 4.670	(nches) 	(Reches) 8-73 ICE DATA: CPL0 TYPE BTC BTC BTC (Reches) 4-55 CPL0 (Prches) 4-55 CPL0 TYPE TXP	API / CoP 350/ 5005 COLLAPSE (PSI) API / CoP 5340 / 5005 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 10.220 / 15.447 10.220 / 15.447	API / CoP 9470 / 5234 API / CoP 9470 / 5234 API / CoP 9470 / 5234 11,302* MD / Th BURST (PSI) API / CoP 14,530 / 12,555	API / CoP 940 / 071 TENSION (1% LBS) API / CoP 980 / 685 700 / 700 TENSION (1% LBS) API / CoP 729 / 520 TENSION (1% LBS) API / CoP 729 / 520	Pro Mini Burat 1.18 Burat 4.69 Produci Burat 1.16 Burat	assure Test Prior t Imum Design / Saf Collapse 1.05 Actual Design Collapse 2.84 tion Casing Test F imum Design / Saf Collapse 1.05 Actual Design Collapse	o Drill Out by Factors Tension (Body & 1.40 n / Safety Factors Tension (Body 2 3.03 Yessure = TED by Factors Tension (Body 2 Connection) 1.40 n / Safety Factors Tension (Body 2 Connection) 2.64	

L	(Inches)	(inches)	(Inches)	TYPE	API/ CoP	APIICOP	API/ CoP
1	5.5	4.670	4.546	513 (Ficsh Jaint)	18.220 / 15,447	14,530 / 12,635	540 / 386
_							

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

Printed on: 14/02/2019 Wedge 513® 87.5% Min. Wall (\*)GradeP110-IC Thickness 5.500 in. Connection OD REGULAR Outside Coupling Pipe Body Diameter Option Wall Thickness 0.415 in. Drift **API Standard** Body: White 1st Band: White Grade P110-IC\* Casing 2nd Band: Pale Туре 1st Band: -Green 2nd Band: -3rd Band: -3rd Band: -4th Band: -PIPE BODY DATA Geometry Nominal OD 5.500 in. Nominal 23.00 lbs/ft Drift 4.545 in. Weight Nominal ID 4.670 in. Wall 0.415 in. Plain End 22.56 lbs/ft Weight Thickness API OD Tolerance Performance **Body Yield** 729 x1000 lbs Internal 14530 psi SMYS 110000 psi Strength Yield 16220 psi Collapse CONNECTION DATA Geometry Connection 5.500 in. Connection 4.420 in. 4.590 in. Make-up ID OD Loss Connection REGULAR Threads per 3.29 **OD** Option in Performance Tension 63.5 % **Joint Yield** 462.915 x1000 Internal 14530.000 psi Efficiency Strength lbs Pressure Capacity Compression 74.1 % Compression 540.189 x1000 58.4 °/100 ft Max. Strength Allowable Efficiency lbs Bending External 16220.000 psi Pressure Capacity Make-Up Torques Minimum 8400 ft-lbs Optimum 10100 ft-lbs Maximum 14700 ft-lbs Operation Limit Torques Operating 27000 ft-lbs Yield 41000 ft-lbs Torque Torque

#### Notes

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

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

Wedge 513®

Printed on: 14/02/2019

Wedge	513®								Printed on: 14/0	)2/2019
					Min. Wall Thickness		87.5%		(*)GradeP110-I	с
		Outside Diameter	5.500 in.		Connectior Option	n OE	REGULAR		Coupling	Pipe Body
		Wall Thickr	<b>1ess 0.415 in</b> .		Drift		API Standar	d	Body: White	1st Band: White
		Grade	P110-IC*		Туре		Casing		1st Band: -	2nd Band: Pale Green
									2nd Band: -	3rd Band: -
									3rd Band: -	4th Band: -
PIPE BODY (	ΔΑΤΑ									
Geometry Nominal OD	5.500 i	n.	Nominal Weight	23.00	lbs/ft	D	rift	4.54	ō in.	
Nominal ID	4.670 i	n.	Wall Thickness	0.415	in.		lain End /eight	22.56	3 lbs/ft	
OD Tolerance	API									
Performance							·			
Body Yield Strength	729 x10	000 lbs	Internal Yield	14530	) psi	S	MYS	1100	00 psi	
Collapse	16220	psi								
CONNECTIO Geometry	N DATA	<i>J</i>		* *						
Connection OD	5.500 ii	n.	Connection ID	4.590	in.		ake-up oss	4.420	) in.	
Threads per in	3.29		Connection OD Option	REGU	JĻAR					
Performance										
Tension Efficiency	63.5 %		Joint Yield Strength	462.9 <sup>°</sup> Ibs	15 x1000	P	ternal ressure apacity	1453	0.000 psi	
Compression Efficiency	74.1 %		Compression Strength	540.18 Ibs	89 x1000	A	ax. Iowable ending	58.4	°/100 ft	
External Pressure Capacity	16220.0	000 psi								
Make-Up Tor	ques									
Minimum	8400 ft	-lbs	Optimum	10100	ft-lbs	Μ	aximum	1470	0 ft-lbs	
Operation Lin	nit Torqi	Jes			· · · · · · · · · · · · · · · · · · ·					
Operating Torque	27000 1	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

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

**TXP® BTC** 

Printed on: 03/05/2019

								1 111160 011. 00/0	0/2010
					Min. Wall Thickness	87.5%		(*)GradeP110	
		Outside Diameter	5.500 in.		Connection Option	OD REGULAR		Coupling	Pipe Body
	١	Wall Thickn	ness 0.415 in.	[	Drift	API Standa	rd	Body: White	1st Band: White
	(	Grade	P110*	1	Гуре	Casing		1st Band: -	2nd Band: -
								2nd Band: -	3rd Band: -
								3rd Band: -	4th Band: -
PIPE BODY D Geometry	ΟΑΤΑ								
Nominal OD	5.500 in.		Nominal Weight	23 lbs/ft	t	Drift	4.548	5 in.	
Nominal ID	4.670 in.		Wall Thickness	0.415 in	1.	Plain End Weight	22.56	∂ lbs/ft	
OD Tolerance	API								
Performance									
Body Yield Strength	729 x100	00 lbs	Internal Yield	14530 p	osi	SMYS	1100	00 psi	
Collapse	14540 ps	si							
CONNECTIO Geometry	N DATA								
Connection OD	6.200 in.		Coupling Length	9.450 in	l.	Connection ID	4.658	3 in.	
Make-up Loss	4.204 in.		Threads per in	5		Connection OD Option	REG	ULAR	
Performance		,		· · ··· · •·				]	
Tension Efficiency	100.0 %		Joint Yield Strength	729.000 Ibs	) x1000	Internal Pressure Capacity [1]	1453	0.000 psi	
Compression Efficiency	100 %		Compression Strength	729.000 Ibs	) x1000	Max. Allowable Bending	92 °/′	100 ft	
External Pressure Capacity	14540.00	00 psi							
Make-Up Torc	ques								
Minimum	12980 ft-	lbs	Optimum	14420 fi	t-lbs	Maximum	1586	0 ft-lbs	
								i	
Operation Lim	<u>nit Torque</u>	<u>əs</u>							

#### Notes

This connection is fully interchangeable with:

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

# 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.

General Provisions
Permit Expiration
Archaeology, Paleontology, and Historical Sites
Noxious Weeds
🔀 Special Requirements
Cave/Karst
Hydrology
Construction
Notification
Topsoil
Closed Loop System
Federal Mineral Material Pits
Well Pads
Roads
Road Section Diagram
Production (Post Drilling)
Well Structures & Facilities
Buried Pipelines
Interim Reclamation
Final Abandonment & Reclamation

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# 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.

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- 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.

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#### 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 cavebearing 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.

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# 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.

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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

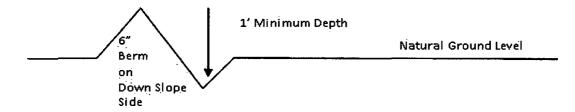
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

#### 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 %);

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#### Formula for Spacing Interval of Lead-off Ditches

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

400 foot road with 4% road slope:  $\frac{400'}{4\%}$  + 100' = 200' 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.

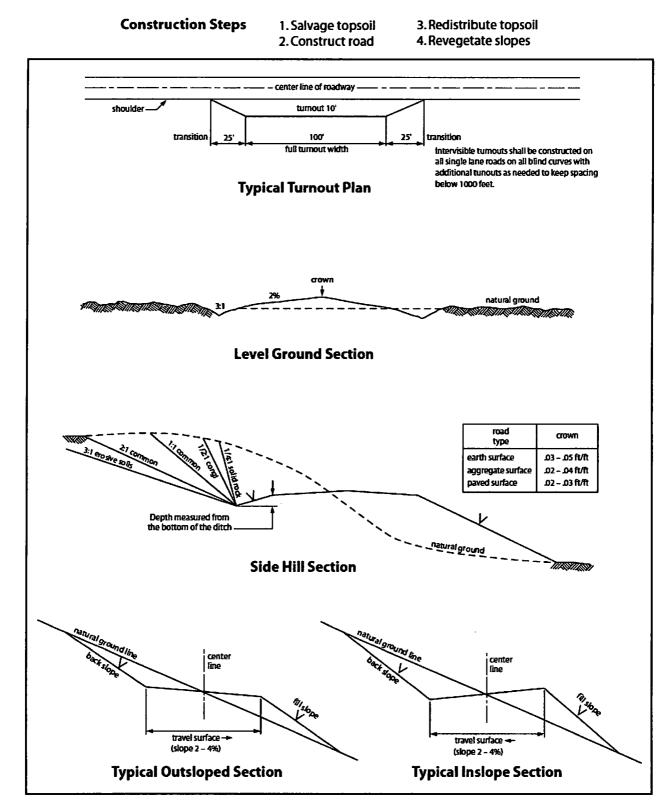
#### **Fence Requirement**

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.

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# 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 net, screen, or cover the tanks to prevent wildlife entry. The operator will net, screen, or cover 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.

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#### **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, <u>Shale Green</u> 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 <u>et seq.</u> (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, <u>et seq</u>. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, <u>et seq</u>.) 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

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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  $\underline{36}$  inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be  $\underline{30}$  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 <u>30</u> 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.

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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-ofway 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. <u>Escape Ramps</u> - 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:

#### <u>Karst:</u>

- 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 <u>will be submitted to the BLM Carlsbad Field Office for</u> <u>approval</u> 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).

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# 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).

Page 15 of 16

#### 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

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# 

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

# **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.

Derator Certification Data Report

05/16/2019

NAME: Jeremy Lee		Signed on: 09/27/2018
Title: Regulatory Coordinator		
Street Address: PO Box 2197		
City: Houston	State: TX	<b>Zip:</b> 77252
Phone: (832)486-2510		
Email address: Jeremy.L.Lee@cop	o.com	
Field Representative		
Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		

Email address:

# **WAFMSS**

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

#### APD ID: 10400018650

**Operator Name: CONOCOPHILLIPS COMPANY** 

Well Name: ZIA HILLS 20 FEDERAL COM

Well Type: OIL WELL

APD ID:

Submission Date: 09/25/2017

Is the first lease penetrated for production Federal or Indian? FED

**Reservation:** 

Well Number: 106H Well Work Type: Drill Highlighted data reflects the most recent changes

Show Final Text

Submission Date: 09/25/2017

Title: Regulatory Coordinator

Well Work Type: Dri

User: Jeremy Lee

Allotted?

Lease Acres: 1841.48

Federal or Indian agreement:

**APD Operator: CONOCOPHILLIPS COMPANY** 

# Section 1 - General 10400018650 Tie to previous NOS?

Federal/Indian APD: FED

Lease number: NMLC0068281B

Surface access agreement in place?

Agreement in place? NO

Agreement number:

Agreement name:

Keep application confidential? NO

**Permitting Agent? NO** 

**Operator letter of designation:** 

**Operator Info** 

**Operator Organization Name: CONOCOPHILLIPS COMPANY** 

Operator Address: PO Box 2197

**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? NOMaster Development Plan name:Well in Master SUPO? NOMaster SUPO name:Well in Master Drilling Plan? NOMaster Drilling Plan name:Well Name: ZIA HILLS 20 FEDERAL COMWell Number: 106HWell API Number:Field/Pool or Exploratory? Field and PoolField Name: WOLFCAMPPool Name: WOLFCAMP

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

Page 1 of 3



Application Data Report

05/16/2019

Operator Name: CONOCOPHILLIPS COMPANY Well Name: ZIA HILLS 20 FEDERAL COM

Well Number: 106H

Describe other minerals:														
Is the proposed well in a l	N Use I	Use Existing Well Pad? NO					New surface disturbance?							
Type of Well Pad: MULTIPLE WELL					Multiple Well Pad Name: ZIA				Number: 1					
Well Class: HORIZONTAL		HILLS 20 FEDERAL PAD 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 as	signed a	acres Me	asurem	ent: 0 Acre	es									
Well plat: ZIA_HILLS_2	0_106H_	_C_102_	2018092	7144755.p	odf									
Well work start Date: 08/20	)/2019			Durat	ion: 90 D/	AYS								
Ocation 2 Mall				7										
Section 3 - Well	Locat	ion la	bie											
Survey Type: RECTANGUI	AR													
Describe Survey Type:														
Datum: NAD83 Vertical Datum: NAVD88														
Survey number:														
NS-Foot NS Indicator EW-Foot EW Indicator	Twsp	Kange Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	۵۷۲	
SHL 257 FSL 206 FEL	26S 32	2E 20		32.02790	-	LEA	NEW		F	NMLC0		0	0	
Leg 0 7 #1			NWSE	8	103.6952 61		MEXI CO	CO		068281 B	4			
	265 32	2E 20	Aliquot	32.02813		LEA	NEW	NEW	F	NMLCO	-	113	113	
Leg 2 8 #1			NWSE	36	103.6948 747		MEXI CO	MEXI CO		068281 B	816 1	23	15	
PPP 257 FSL 198 FEL Leg 0 0 #1	265 32	2E 20	Aliquot NWSE	32.02791 1	- 103.6949 81	LEA	NEW MEXI CO		F	NMLC0 068281 B		117 50	116 40	

# **Operator Name: CONOCOPHILLIPS COMPANY**

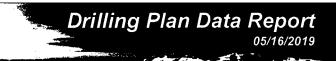
# Well Name: ZIA HILLS 20 FEDERAL COM

#### 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	QW	DVT
PPP Leg #1	0	FNL	197 6	FEL	26S	32E	29	Aliquot NWNE	32.02084 6	- 103.6949 84	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 027508	- 856 1	141 00	117 15
PPP Leg #1	0	FNL	197 8	FEL	265	32E	32	Lot 2	32.00615 6	- 103.6949 88	LEA	NEW MEXI CO		S	STATE	- 856 1	174 50	117 15
EXIT Leg #1	100	FSL	198 0	FEL	26S	32E	32	Lot 2	32.00049 4	- 103.6949 88	LEA	4	NEW MEXI CO	S	STATE	- 856 1	212 45	117 15
BHL Leg #1	50	FSL	198 0	FEL	26S	32E	32	Lot 2	32.00035 8	- 103.6949 89	LEA	NEW MEXI CO		S	STATE	- 884 8	218 33	120 02

# **FMSS**

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



APD ID: 10400018650

**Operator Name: CONOCOPHILLIPS COMPANY** 

Well Name: ZIA HILLS 20 FEDERAL COM

Submission Date: 09/25/2017

Well Number: 106H

Highlighted data reflects the most recent changes

Show Final Text

Well Type: OIL WELL

## Well Work Type: Drill

# Section 1 - Geologic Formations

Formation			True Vertical	Measured			Producing
ID	Formation Name	Elevation	Depth	Depth	Lithologies	Mineral Resources	Formation
1	QUATERNARY	3154	0	0		NONE	No
2	RUSTLER	2160	994	994	DOLOMITE,ANHYDRIT E	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,SA NDSTONE	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

Page 1 of 8

## Well Name: ZIA HILLS 20 FEDERAL COM

#### Well Number: 106H

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		OTHER - BTC	2.08	5.04	DRY	11.6 9	DRY	11.6 9
2	INTERMED IATE	12.2 5	10.75	NEW	API	N	0	5032	0	5032			5032	J-55		OTHER - BTC	2.25	4.46	DRY	2.92	DRY	2.92
3	INTERMED IATE	9.87 5	7.625	NEW	API	N	0	11302	0	11302			11302	P- 110		OTHER - BTC	2.64	4.69	DRY	2.63	DRY	2.63
4	INTERMED IATE	9.87 5	7.625	NEW	API	N	11302	12502	11302	12023				P- 110		OTHER - H513	2.64	4.69	DRY	2.63	DRY	2.63
	PRODUCTI ON	6.75	5.5	NEW	API	N	0	22526	0	12023			22526	P- 110		OTHER - TXP	1.72	1.46	DRY	2.64	DRY	2.64

#### **Casing Attachments**

Page 2 of 8

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

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 - Ce	emen	t								
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 +

Page 4 of 8

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
	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- Il + 0.4% CDF-4P + ¼ Ib/sk Polyflake + ½ ppb FiberBlock
	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	1037 6	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		1037 6	1250 2	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		1037 6	2252 6	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

1

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 (Ibs/gal)	Max Weight (Ibs/gal)	Density (lbs/cu ft)	Gel Strength (ibs/100 sqft)	Hd	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1124	OTHER : FRESH WATER	8.34	8.6							
0	1245 1	OIL-BASED MUD	8.6	9.2							
0	2183 3	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.

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:

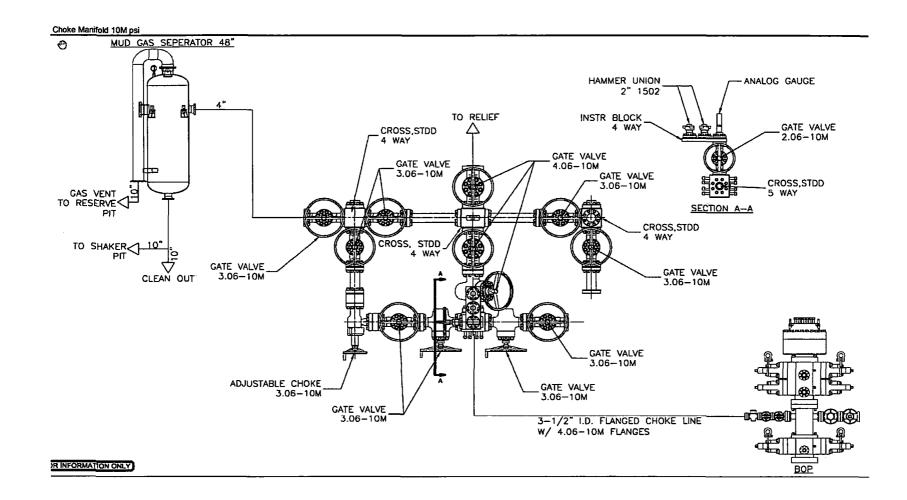
This well will have a pilot hole.

#### Other proposed operations facets attachment:

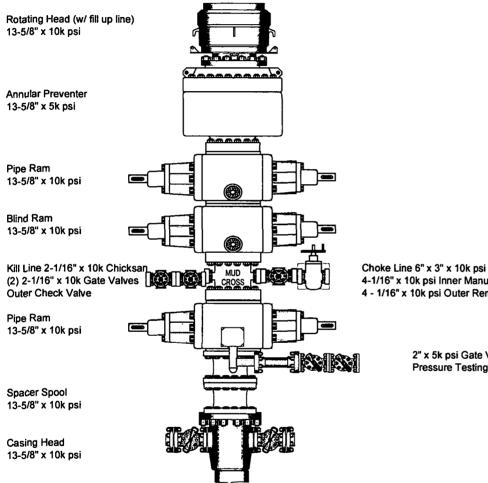
Zia\_Hills\_20\_Pad\_1\_Drill\_Waste\_Containment\_08-04-2017.pdf Zia\_Hills\_20\_Pad\_1\_Gas\_Capture\_Plan\_08-04-2017.pdf ZIA\_HILLS\_20\_106H\_Drilling\_Plan\_revised\_2\_1\_19\_20190204073307.pdf

#### 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



#### **BOPE** Configuration & Specifications 13-5/8" x 10,000 psl System



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

> 2" x 5k psi Gate Valves Pressure Testing Lines

s 20 106H			NWSE 20	T26S R32E			Lea, Co, Ni	M	2/4/2019	
CE CASING I	DESIGN INFO	DRMATION				Setting Depth:	1,212' MD	1,212' TVD		
	IMENSIONAL /	PERFORMANC	F DATA-							
SIZE	WEIGHT	<b>1</b>	CPLQ	BOREID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Surface Casing Test Pressure = 1,500 psl	
(Inches)	(LB/FT)	GRADE	туре	(Inches)	(inches)	API / CoP	AP1/CoP	API / CoP	Pressure Test Prior to Drill Out	
13.375	54.5	J-55	BTC	12.615	12.459	1,130/1078	2730/2373	<b>853 / 809</b>		
									Minimum Design / Safety Factors COP	>
		CONNECTION	DIMENSIONA	L / PERFORMA	NCE DATA:				Burst Collapse Tension (Body & 1.15 1.05 1.40	
		8	D	DRIFT	CPLO	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Actual Design / Safety Factors	
		(inches)	(inches)	(Inches)	TYPE	API/CoP	AP1/CoP	API / CoP	Burst Collapse Tension (Body)	
		14.375	12.615	12.459	BTC	1,130 / 1076	2730/2373	909 / 549	5.04 2.08 11.69 D	Dry
			-	•	**				13.45 B	Bouyed
IEDIATE 1 C	ASING DESI	GN INFORMA	TION			Setting Depth:	5,032" MD	6,243' TVD		
		PERFORMANC	E DATA.							
PIPE BODY D	WEIGHT	1	E DATA:	BORE ID	ORIPT ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (11 LBS)	Intermediate Casing Test Pressure = 4550 psi	
(Inches)	(LB/PT)	GRADE	TYPE	(Inches)	(inches)	API/CoP	API/CoP	API / CoP	Pressure Test Prior to Drill Out	
10.750	40.5	884	BTC	10.05	9.894	1580 / 1504	3130/2721	629 / 449		
								Г	Minimum Design / Safety Factors Tension (Body &	
									Burst Collapse Connection)	
		CONNECTION					<u></u>		1.15 1.05 1.40	
		OD (Inches)	ID (Inches)	(inches)	CPLG TYPE	COLLAPSE (PSI) AP1 / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP	Actual Design / Safety Factors	
		9.625	10.05	9.694	втс	1580 / 1504	3130/2721	700/500	Burst Collapse Tension (Body)	
				•					4.46 2.25 2.92 D	Dry
									5.72 B	
									0.74 8	Bouyed
EDIATE 2 C	ASING DESI	GN INFORMA	TION			Setting Depth:	12.502° MD	12.023" TVD		Bouyed
						Setting Depth:	12,502" MD	12,023' TVD		Bouyed
PIPE BODY D	MENSIONAL /	GN INFORMA	E DATA:			-	-		-	Bouyed
PIPE BODY D	MENSIONAL /		E DATA:	BOREID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Intermediate Casing Test Pressure = 4550 pai	Bouyed
PIPE BODY D SiZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	GRADE	E DATA: CPLO TYPE	(inches)	(Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP	-	Bouyed
PIPE BODY D	MENSIONAL /	PERFORMANC	E DATA:		-	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	brtermediate Casing Test Pressure = 4550 pai Pressure Test Prior to Drill Out	Bouyed
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	PERFORMANC GRADE P-110	E DATA: CPLQ TYPE BTC	(inches) 6.875	(Inches) 6.75	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP	Intermediate Casing Test Pressure = 4550 pai Pressure Test Prior to Drill Out Minimum Design / Safety Fectors Burst Collapse Tension (Body &	Bouyed
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	GRADE B-110 CONNECTION	E DATA: CPLO TYPE BTC	(inches) 6.875	(Inches) 6.75	COLLAPSE (PSI) API / CoP 53407 5085	BURST (PSI) API / CoP 9470 / 8234	TENSION (1k LBS) API / CoP 940 / 871	Intermediate Casing Test Pressure = 4550 pei Pressure Test Prior to Drill Out Minimum Design / Safety Factors	Bouyed
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	CONNECTION	E DATA: CPLQ TYPE 8TC DIMENSIONA	(Inches)	(Inches) 6.75 NCE DATA: CPLG	COLLAPSE (PSI) API / CoP 3340/5085 COLLAPSE (PSI)	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI)	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS)	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Design / Safety Fectors Burst Collapse Tension (Body & 1.15 1.05 1.40	Bouyed
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	CONNECTION (nches)	E DATA: CPLG TYPE BTC DIMENSIONA ID (Inches)	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 5340' 5085 COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	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	Bouyed
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	CONNECTION	E DATA: CPLQ TYPE 8TC DIMENSIONA	(Inches)	(Inches) 6.75 NCE DATA: CPLG	COLLAPSE (PSI) API / CoP 3340/5085 COLLAPSE (PSI)	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI)	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS)	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)	
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	CONNECTION (nches)	E DATA: CPLG TYPE BTC DIMENSIONA ID (Inches)	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 5340' 5085 COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	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 D	Dry
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	CONNECTION (nches)	E DATA: CPLG TYPE BTC DIMENSIONA ID (Inches)	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 5340' 5085 COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	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 D	
PIPE BODY D Size (Inches)	IMENSIONAL / WEIGHT (LB/PT)	CONNECTION (nches)	E DATA: CPLG TYPE BTC DIMENSIONA ID (Inches)	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 5340' 5085 COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	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 D	Dry
PIPE BODY D SIZE (Inches) 7625	IMENSIONAL / WeidahT (Lairt) 28.7	CONNECTION GRADE CONNECTION CO (Inches) 9.625	E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 8.94	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP S3407 5065 COLLAPSE (PSI) API / CoP S3407 5065	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	TENSION (1k LBS) API / CoP 940 / 571 TENSION (1k LBS) API / CoP 960 / 695	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Dealgn / 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 0 3.08 B	Dry
PIPE BODY D SIZE (Inches) 7625	IMENSIONAL / WeidahT (Lairt) 28.7	CONNECTION (nches)	E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 8.94	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 33407 5085 COLLAPSE (PSI) API / CoP 33407 5085 Setting Depth:	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 960 / 665	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Dealgn / 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 0 3.08 B	Dry
PIPE BODY D SIZE (Inclust) 7.625	IMENSIONAL / WEIGHT (LEIFT) 287	CONNECTION GRADE CONNECTION CO (Inches) 9.625	E DATA: CPLO TYPE DIMENSIONA (Inches)	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 33407 5085 COLLAPSE (PSI) API / CoP 33407 5085 Setting Depth:	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 960 / 665	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Dealgn / 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 0 3.08 B	Dry
PIPE BODY D SIZE (Inclust) 7.625	R DESIGN IN IMENSIONAL / WEIGHT 287	PERFORMANC GRADE P-110 CONNECTION (Inches) 9625 IFORMATION PERFORMANC	E DATA: CPLG TYPE BTC DIMENSIONA (Increas) 	(inches) 6.875 L / PERFORMA DRIFT (inches)	(Inches) 6.75 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP S3407 5085 COLLAPSE (PSI) API / CoP S340 / 5005 Setting Depth: Hanger COLLAPSE (PSI)	BURST (PSI) API / CoP 9470 / 6234 BURST (PSI) API / CoP 9470 / 8234 22,826* MD 11,302* MD / T 8URST (PSI)	TENSION (1k LBS) API / CoP 940 / 571 TENSION (1k LBS) API / CoP 960 / 685 12,023' TVD VD TENSION (1k LBS)	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Dealgn / 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 0 3.08 B	Dry
PIPE BODY D SIZE (Inches) 7.625 7.625 CTION LINE PIPE BODY SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT) 28.7 28.7 28.7 R DESIGN IN IMENSIONAL / LB/FT)	PERFORMANC GRADE P-110 CONNECTION OC (Inches) 9625 9625 9625 9625 9625 9625 9625 9625	E DATA: CPLO TYPE DIMENSIONA (Inches) 6.64 (Inches) CPLO TYPE	(inches) 6.875 L / PERFORMA ORUPT (inches) 8.73 BORE ID (inches)	(Inches) 6.75 INCE DATA: CPLG TYPE BTC BTC DBUFT ID (Inches)	COLLAPSE (PSI) API / CoP S3407 5055 COLLAPSE (PSI) API / CoP S340 / 5085 Setting Depth: Hanger COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526' MD 11,302' MD / T BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 900 / 605 12,023' TVD VD TENSION (1k LBS) API / CoP	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 D 3.08 B	Dry
PIPE BODY D SIZE (Inchest) 7625 CTION LINE PIPE BODY D SIZE	R DESIGN IN IMENSIONAL / WEIGHT 28.7	PERFORMANC GRADE P-110 CONNECTION (Inches) 9625 IFORMATION PERFORMANC	E DATA: CPLG TYPE BTC DIMENSIONA (Increas) 	(mchas) 6.875 L / PERFORMA DRIPT (Inchas) 8.75 8.75 8.75	(Inches) 6.73 NICE DATA: CPLG TYPE BTC BTC	COLLAPSE (PSI) API / CoP S3407 5085 COLLAPSE (PSI) API / CoP S340 / 5005 Setting Depth: Hanger COLLAPSE (PSI)	BURST (PSI) API / CoP 9470 / 6234 BURST (PSI) API / CoP 9470 / 8234 22,826* MD 11,302* MD / T 8URST (PSI)	TENSION (1k LBS) API / CoP 940 / 571 TENSION (1k LBS) API / CoP 960 / 685 12,023' TVD VD TENSION (1k LBS)	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Dealgn / 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 D 3.08 B Production Casing Test Pressure = TBD Minimum Design / Safety Factors	Dry
PIPE BODY D SIZE (Inches) 7.625 7.625 CTION LINE PIPE BODY SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT) 28.7 28.7 28.7 R DESIGN IN IMENSIONAL / LB/FT)	PERFORMANC GRADE P-110 CONNECTION (Inches) 9.625 IFORMATION PERFORMANC GRADE P-110	E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 8.94 E DATA: CPLO TYPE TXP	(inches) 6.875 L / PERFORMA DRIFT (inches) 8.75 80RE ID (inches) 4.670	(Inches) 6.75 INCE DATA: CPLG TYPE BTC BTC (Inches) 4.545	COLLAPSE (PSI) API / CoP S3407 5055 COLLAPSE (PSI) API / CoP S340 / 5085 Setting Depth: Hanger COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526' MD 11,302' MD / T BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 900 / 605 12,023' TVD VD TENSION (1k LBS) API / CoP	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 D 3.08 B	Dry
PIPE BODY D SIZE (Inches) 7.625 7.625 CTION LINE PIPE BODY SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT) 28.7 28.7 28.7 R DESIGN IN IMENSIONAL / LB/FT)	PERFORMANC GRADE P-110 CONNECTION 00 (Inches) 9625 9625 9625 9625 9625 9625 9626 9626	E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 8.94 E DATA: CPLO TYPE TXP	(inches) 6.875 L / PERFORMA DRIPT (inches) 80988 ID (inches) 4.670 L / PERFORMA	(Inches) 6.73 INCE DATA: CPLG TYPE BTC BTC (Inches) 4.545 INCE DATA:	COLLAPSE (PSI) API / CoP 33407 5085 COLLAPSE (PSI) API / CoP 33407 5085 Setting Depth: Hanger COLLAPSE (PSI) API / CoP 14,5207 13,828	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526° MD 11,302° MD / T 8URST (PSI) API / CoP 12,380 / 10,747	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 960 / 665 12,023' TVD VD TENSION (1k LBS) API / CoP 729 / 520	Intermediate Casing Test Pressure = 4550 psi Pressure Test Prior to Drill Out Minimum Design / Safety Fectors Burst Collapse Tension (Body & 1.15 1.05 1.40 Actual Design / Safety Fectors Burst Collapse Tension (Body) 4.69 2.64 2.63 D 3.08 B Production Casing Test Pressure = TBD Minimum Design / Safety Fectors Burst Collapse Tension (Body & Connection) 1.15 1.05 1.40	Dry
PIPE BODY D SIZE (Inches) 7.625 7.625 CTION LINE PIPE BODY SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT) 28.7 28.7 28.7 R DESIGN IN IMENSIONAL / LB/FT)	PERFORMANC GRADE P-110 CONNECTION 00 (Inches) 9623 FORMATION PERFORMANC GRADE P-110 CONNECTION 00	E DATA: CPLO TYPE DIMENSIONA (Inches) CPLO (Inches) CPLO TYPE TXP DIMENSIONA ID	(inches) 6.875 L / PERFORMA DRIPT (inches) 6.73 6.73 6.73 1.675 1.755	(Inches) 6.75 INCE DATA: CPLG TYPE BTC BTC (Inches) 4.545 INCE DATA: CPLG	COLLAPSE (PSI) API / CoP 33407 5085 COLLAPSE (PSI) API / CoP S407 5085 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 14.5207 13.523	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526* MD 11,302* MD / T BURST (PSI) 12,380 / 10,747 8URST (PSI)	TENSION (1k LBS) API / CoP 940 / 571 TENSION (1k LBS) API / CoP 960 / 605 12,023' TVD VD TENSION (1k LBS) API / CoP 729 / 520 TENSION (1k LBS)	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 D 3.08 B Production Casing Test Pressure = TBD Minimum Design / Safety Factors Tension (Body & Burst Collapse Tension (Body & Connection) 1.15 1.05 1.40 Actual Design / Safety Factors	Dry
PIPE BODY D SIZE (Inches) 7.625 7.625 CTION LINE PIPE BODY SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT) 28.7 28.7 28.7 R DESIGN IN IMENSIONAL / LB/FT)	PERFORMANC GRADE P-110 CONNECTION 00 (Inches) 9625 9625 9625 9625 9625 9625 9626 9626	E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 8.94 E DATA: CPLO TYPE TXP	(inches) 6.875 L / PERFORMA DRIPT (inches) 80988 ID (inches) 4.670 L / PERFORMA	(Inches) 6.73 INCE DATA: CPLG TYPE BTC BTC (Inches) 4.545 INCE DATA:	COLLAPSE (PSI) API / CoP 33407 5085 COLLAPSE (PSI) API / CoP 33407 5085 Setting Depth: Hanger COLLAPSE (PSI) API / CoP 14,5207 13,828	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526° MD 11,302° MD / T 8URST (PSI) API / CoP 12,380 / 10,747	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 960 / 665 12,023' TVD VD TENSION (1k LBS) API / CoP 729 / 520	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 p 3.08 B 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 &	Dry

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	DESIGN INFO		E DATA.			Setting Depth:	1,212' MD	1,212' TVD				•
SIZE (Inches)	WEIGHT	GRADE	CPLO	BORE (D	DRIFT ID (Inches)	COLLAPSE (PSI) AP1/CoP	BURST (PSI)	TENSION (1k LBS) API / CoP		Casing Test Pressuessure Test Prior to		
13.375	54.5	+55	втс	12.815	12.459	1,130/1078	2730/2373	863 / 609	Burst	Minimum Design /	Safety Factors CC	P
		CONNECTION	DIMENSIONA	/ PERFORMA	NCE DATA:			·	1.15	Collapse 1.05	Tension (Body & 1.40	
		00	Ð	ORIFT	CPLG	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)			/ Safety Factors	
		(Inches) 14.375	(Inches) 12.615	(inches) 12,459	TYPE BTC	API/CoP 1,130/1076	API / CoP 2730 / 2373	AP1 / CoP 909 / 649	Burst 5.04	Collapse 2.08	Tension (Body) 11.69	Dry
											13.45	Bouyed
IEDIATE 1 C/	ASING DESI	gn informa	TION			Setting Depth:	5,032' MD	5,243' TVD				-
SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLO TYPE	BORE ID (Inches)	DRIFT (D (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP		ate Casing Test Pre essure Test Prior to		
10.750	40.5	J-65	BTC	10.05	9,894	1580/1504	3130/2721	629 / 449		imum Design / Safe	tu Encina	
								[	Burst		Tension (Body & Connection)	
		· · · · · · · · · · · · · · · · · · ·	DIMENSIONA						1.15	1.05	1.40	
		OD (Inches)	· D (Inches)	(Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP		Actual Design	/ Safety Factors	
		9.625	10.05	9.694	BIC	1580/1504	3130/2721	700 / 500	Burst 4.46	Collapse 2.25	Tension (Body) 2.92	Dry
									4,40	225	5.72	Bouyed
	ASING DESI	GN INFORMA	TION			Setting Depth:	12,502' MD	12.023' TVD				
						ortang bepair.	14,001 110	12,020 110				
	MENSIONAL	PERFORMANC										
PIPE BODY D	WEIGHT		CPLG	BOREID		COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)		ate Casing Test Pre	•	
PIPE BODY D				BORE (D (Inches) 0.875	DRUFT (D (Inches) 6.75					ate Casing Test Pre essure Test Prior to	•	
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	(Inches)	(Inches)	COLLAPSE (PSI) API/CoP	BURST (PSI) API / CoP	TENSION (11 LBS) API / CoP	Pr Min	essure Test Prior to Imum Design / Safe	Drill Out ty Factors	
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)		CPLG TYPE BTC DIMENSIONA	(Inches)	(Inches) 6.75 NCE DATA:	COLLAPSE (PSI) API / CoP 5340/5085	8URST (PSI) AP1 / CoP 9470 / 8234	TENSION (1k LBS) API / CoP 940/671	Pi	essure Test Prior to Imum Design / Safe	Drill Out	
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)	GRADE P-110	CPLG TYPE BTC	(Inches) 0.875	(Inches) 6.75	COLLAPSE (PSI) API/CoP	BURST (PSI) API / CoP	TENSION (11 LBS) API / CoP	Pr Mir Burst	essure Test Prior to Imum Design / Safe Collapse 1.05	Drill Out ty Factor <del>s</del> Tension (Body & 1.40	
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)		CPLG TYPE BTC DIMENSIONA	(Inches)	(Inches) 875 NCE DATA: CPLG	COLLAPSE (PSI) API / CoP 3340'5085 COLLAPSE (PSI)	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI)	TENSION (1k LBS) API / CoP 940 / 871 TENSION (1k LBS)	Pr Mir. Burst 1.15 Burst	essure Test Prior to limum Design / Sefe Collapse 1.05 Actual Design Collapse	Drill Out ty Fectors Tension (Body & 1.40 / Safety Fectors Tension (Body)	
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)	CONNECTION CONNECTION OD (Indees)	CPLG TYPE BTC DIMENSIONA D (nches)	(Inches) 0.575 L / PERFORMA DRUFT (Inches)	(Inches) 675 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API/CoP 3340'5085 COLLAPSE (PSI) API/CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (11 LBS) AP / CoP 940 / 671 TENSION (11 LBS) API / CoP	Pr Mir. Burst 1.15	essure Test Prior to Imum Design / Safe Collapse 1.05 Actual Design	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors	Dry Bouyed
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)	CONNECTION CONNECTION OD (Indees)	CPLG TYPE BTC DIMENSIONA D (nches)	(Inches) 0.575 L / PERFORMA DRUFT (Inches)	(Inches) 675 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API/CoP 3340'5085 COLLAPSE (PSI) API/CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (11 LBS) AP / CoP 940 / 671 TENSION (11 LBS) API / CoP	Pr Mir. Burst 1.15 Burst	essure Test Prior to limum Design / Sefe Collapse 1.05 Actual Design Collapse	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.63	
PIPE BODY D SIZE (Inches)	WEIGHT (LB/FT)	CONNECTION CONNECTION OD (Indees)	CPLG TYPE BTC DIMENSIONA D (nches)	(Inches) 0.575 L / PERFORMA DRUFT (Inches)	(Inches) 675 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API/CoP 3340'5085 COLLAPSE (PSI) API/CoP	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP	TENSION (11 LBS) AP / CoP 940 / 671 TENSION (11 LBS) API / CoP	Pr Mir. Burst 1.15 Burst	essure Test Prior to limum Design / Sefe Collapse 1.05 Actual Design Collapse	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.63	
PIPE BODY D S228 (Inches) 7,825 CTION LINE	(LE/FT) (LE/FT) 20,7	GRADE P-110 CONNECTION OD (Inches) 0.625 NFORMATION	CPLG TYPE BTC DIMENSIONA D (Inches)	(Inches) 0.575 L / PERFORMA DRUFT (Inches)	(Inches) 675 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API/CoP 3340/3085 COLLAPSE (PSI) API/CoP 5340/5085 Setting Depth:	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 900 / 605 12,023' TVD	Pr Mir. Burst 1.15 Burst	essure Test Prior to limum Design / Sefe Collapse 1.05 Actual Design Collapse	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.63	
PIPE BODY D SZZ (Inches) 7,825 7,825 CTION LINEI PIPE BODY D SZZ	R DESIGN IN IMENSIONAL /	GRADE P-110 CONNECTION 00 (Inches) 9 625	CPLG TYPE BTC IDIMENSIONA (Inches) B84	(Inches)	(Inches) 675 NCE DATA: CPLG TYPE 8TC	COLLAPSE (PSI) API/CoP 3340/5085 COLLAPSE (PSI) API/CoP S340/5085 Setting Depth: Hanger: COLLAPSE (PSI)	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526' MD 11,302' MD / T BURST (PSI)	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 960 / 695 12,023' TVD VD TENSION (1k LBS)	Pr Burst 1.15 Burst 4.69	essure Test Prior to limum Design / Sefe Collapse 1.05 Actual Design Collapse	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.63 3.08	
PIPE BODY D SIZE (Inches) 7,025 7,025 CTION LINED PIPE BODY D	WEIGHT (LEFT) 29.7 R DESIGN IN IMENSIONAL J	GRADE CONNECTION OD (Inches) 0625 NFORMATION / PERFORMANCO	CPLG TYPE BTC DIMENSIONA (Incluse) - 884 -	(Inches)	(Inches) 6.75 NCE DATA: CPLO TYPE BTC	COLLAPSE (PSI) API/COP 3340 5083 COLLAPSE (PSI) API/COP 5340/5085 Setting Depth: Hanger:	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526* MD 11,302* MD / T	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 950 / 655 12,023' TVD VD	Pr Burst 1.15 Burst 4.69 Produc	essure Test Prior to Imum Design / Sefe Collapse 1.05 Actual Design Collepse 2.64 :tion Casing Test Pr Imum Design / Sefe	Drill Out ty Factors Tansian (Body & 1.40 / Safety Factors Tansion (Body) 2.83 3.08 	
PIPE BODY D S228 (inches) 7,825 CTION LINE PIPE BODY S228 (inches)	WEIGHT (LB/FT) 29,7 29,7 R DESIGN IN IMENSIONAL (LB/FT)	GRADE CONNECTION OD (Inches) 0625 NFORMATION / PERFORMANC GRADE	CPLG TYPE BTC BTC IDIMENSIONA (Poches) B84	(Inches)	(Inches) 675 NCE DATA: CPLG TYPE 8TC BRIFT (D (Inches)	COLLAPSE (PSI) API / COP SSIG 7005 COLLAPSE (PSI) API / COP SSIG 7005 SSIG 7005 SSIG 7005 SSIG 7005 SSIG 7005 SSIG 7005 SSIG 7005 SSIG 7005 SSIG 7005	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526' MD 11,302' MD / T BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 900 / 685 12,023' TVD VD TENSION (1k LBS) API / CoP	Pr Burst 1.15 Burst 4.69 Produc	essure Test Prior to Imum Design / Sefe Collapse 1.05 Actual Design Collepse 2.64 :tion Casing Test Pr Imum Design / Sefe	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.83 3.08 ************************************	
PIPE BODY D S228 (inches) 7,825 CTION LINE PIPE BODY S228 (inches)	WEIGHT (LB/FT) 29,7 29,7 R DESIGN IN IMENSIONAL (LB/FT)	GRADE           P-110           CONNECTION           00           (Indres)           9625	CPLG TYPE BTC DIMENSIONA (Inches) B 84 CPLG (Inches) B 84 CPLG (Inches) B 84 CPLG (Inches) (Inches) (	(Inches) 0 873 - / PERFORMA ORIFT (Inches) 80RE ID (Inches) 4570 - 4570 - 4570	(Inches) 675 NCE DATA: CPLG TYPE 8TC 8TC 0RFT ID (Inches) 4.565 NCE DATA:	COLLAPSE (PSI) AP(/CoP 3340/2085 COLLAPSE (PSI) AP(/CoP 5340/5085 Setting Depth: Hanger: COLLAPSE (PSI) AP(/CoP 14,550/13,828	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,626' MD 11,302' MD / T BURST (PSI) API / CoP 12,380 / 10,747	TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 950 / 695 12,023' TVD VD TENSION (1k LBS) API / CoP 729 / 520	Pr Mili Burst 1.15 Burst 4.69 Produk Mir	essure Test Prior to Imum Design / Sefe Collapse 1.05 Actual Design Collapse 2.64 :tion Casing Test Pr Imum Design / Safe Collapse 1.05	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.63 3.08 essure = TBD ty Factors Tension (Body & Connection) 1.40	
PIPE BODY D S228 (inches) 7,825 CTION LINE PIPE BODY S228 (inches)	WEIGHT (LB/FT) 29,7 29,7 R DESIGN IN IMENSIONAL (LB/FT)	GRADE GRADE CONNECTION (Indres) 0.623 NFORMATION / PERFORMANC GRADE CONNECTION (Indres)	CPLG TYPE BTC BTC D (Prches) B B CPLG D (Prches) B B CPLG D (Prches) CPLG D (Prches) CPLG D (Prches) (Prches) (Prc	(Inches) 0.873 I PERFORMA ORUF (Inches) 0.875 0.075	(Inches) 675 NCE DATA: CPLG TYPE STC STC DRIFT(D Inches) 4.545 NCE DATA: CPLG TYPE	COLLAPSE (PSI) API / CoP 3340 5083 COLLAPSE (PSI) API / CoP 5340 / 5085 Setting Depth: Hanger: COLLAPSE (PSI) API / CoP 14,550 / 13,829	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526* MD 11,302* MD / T 11,302* MD / T BURST (PSI) API / CoP	TENSION (1k LBS) AP / CoP 940 / 671 TENSION (1k LBS) AP / CoP 950 / 695 12,023' TVD VD TENSION (1k LBS) AP / CoP 728 / 520 TENSION (1k LBS) AP / CoP	Pr Miin Burst 1.15 Burst 4.69 Produc Min Burst 1.15 Burst	essure Test Prior to imum Design / Sefe Collapse 1.05 Actual Design Collepse 2.64 :tion Casing Test Pr imum Design / Sefe Collapse 1.05 Actual Design Collapse	Drill Out ty Factors Tansian (Body & 1.40 / Safety Factors Tension (Body) 2.83 3.08 sssure = TBD ty Factors Tension (Body & Commetion) 1.40 / Safety Factors Tension (Body)	Bouyed
PIPE BODY D S228 (inches) 7,825 CTION LINE PIPE BODY S228 (inches)	WEIGHT (LB/FT) 29,7 29,7 R DESIGN IN IMENSIONAL (LB/FT)	GRADE GRADE CONNECTION OD (Inches) 0623 FORMATION / PERFORMANC GRADE P-110 CONNECTION OD	CPLG TYPE BTC BTC IDIMENSIONA (Incluse) (Incluse) Contrast CPLG (Incluse) Contrast CPLG (Incluse) CPLG (Incluse	(Inches) 0.873 0.975 0.07FT (Inches) 0.75	(Inches) 673 NCE DATA: CPLG TYPE ETC BRIFT (D (Inches) 4545 NCE DATA: CPLG	COLLAPSE (PSI) API / COP 35407 5085 COLLAPSE (PSI) API / COP 53407 5085 Setting Dapth: Hanger: COLLAPSE (PSI) 14,5507 13,829	BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,626' MD 11,302' MD / T BURST (PSI) API / CoP 12,380 / 10,747 BURST (PSI)	TENSION (1k LES) API / CoP 940 / 671 TENSION (1k LES) API / CoP 960 / 685 12,023' TVD VD TENSION (1k LES) API / CoP 729 / 520 TENSION (1k LES)	Pr Mili Burst 1.15 Burst 4.69 Produc Mir Burst 1.15	essure Test Prior to imum Design / Safe Collapse 2.64 :tion Casing Test Pr imum Design / Safe Collapse 1.05 Actual Design	Drill Out ty Factors Tension (Body & 1.40 / Safety Factors Tension (Body) 2.63 3.08 essure = TBD ty Factors Tension (Body & Connection) 1.40 / Safety Factors	

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CE CASI	ING D	ESIGN INFO	RMATION				Setting Depth:	1,212' MD	1,212' TVD				•
	יום צם	MENSIONAL /	PERFORMANC										
SIZE		WEIGHT		CPLO	BOREID	DRIFT ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1) LBS)	Surface	Casing Test Pres	sum a 1 500 cel	
Inche	. 1	(LB/FT)	GRADE	TYPE	(Inches)	(Inches)	API/CoP	API/CoP	API/CoP		ssure Test Prior		
13.37		54.5	J-66	BTC	12.615	12.459	1,130/1076	2730/2373	853/609				
			• <u> </u>		<u>.</u>	<u> </u>	· · · · · · · · · · · · · · · · · · ·		•			/Safety Factors Co	P
			CONNECTION	DIMENSIONA	L / PERFORMA	NCE DATA:				Burst 1.15	Collapse 1.05	Tension (Body & 1.40	
			<b>00</b>	Ð	ORIPT	CPLO	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)				
			(Inches)	(inches)	(inches)	TYPE	API / CoP	API / CoP	API / CoP	Burst	Collapse	n / Safety Factors Tension (Body)	
			14.375	12.615	12.459	BTC	1,130/1078	2730/2373	909 / 649	5.04	2.08	11.69	Dry
												13.45	Bouy
EDIATE	1 CA	SING DESIC	<b>GN INFORMA</b>	TION			Setting Depth:	5,032' MD	5,243' TVD				
			DEDEODMANO	E DATA.									
SIZE		WEIGHT	PERFORMANC	CPLO	BORE ID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (11 LBS)	intermedia	te Casing Test P	ressure = 4550 psi	
(inche	5)	(LBVFT)	GRADE	TYPE	(inches)	(Inches)	API/CoP	API / CoP	API / CoP		ssure Test Prior		
10.75	50	40.5	J-65	BTC	10.05	9.894	1580 / 1504	3130/2721	629 / 449				
									1		mum Design / Sa	fety Factors Tension (Body &	
										Burst	Collepse	Connection)	
				DIMENSIONA	L / PERFORMA	NCE DATA:	COLLAPSE (PSI)	BURST (PSI)	TENSION (1) LES)	1.15	1.05	1.40	
									TENSION (TELES)				
			(inches)	(Inches)	(Inches)	TYPE	API/CoP	API/CoP	API/CoP		Actual Desig	n / Safety Factors	
				(Inches) 10.05	(Inches) 9.694	TYPE BTC	API / CoP 1580 / 1504	API / CoP 3130 / 2721	API / CoP 700 / 500	Burst	Actual Desig Collapse	n / Safety Factors Tension (Body)	
			(inches)							Burst 4.46		Tension (Body) 2.92	Dry
			(inches)								Collapse	Tension (Body)	Dry Bouy
	2 CA	SING DESIG	(inches)	10.05					700 / 500		Collapse	Tension (Body) 2.92	Dry Bouy
			(Inches) 9.625 GN INFORMA	10.08			1580 / 1504	3130/2721	700 / 500		Collapse	Tension (Body) 2.92	Dry Bouy
			(Inches) 9.625 GN INFORMA PERFORMANC	10.08			1580 / 1504	3130/2721	700 / 500	4,45	Collapse 2.25	Tension (Body) 2.92	Dry Bouy
PIPE BO		MENSIONAL /	(Inches) 9.625 GN INFORMA	TION	9.894	втс	1580 / 1504 Setting Depth:	3130/2721 12,602" MD	12,023' TVD	4.46 Intermedia	Collapse 2.25	Tension (Body) 2.92 5.72 ressure = 4550 psi	Dry Bouy
PIPE BO		MENSIONAL / WEIGHT	(Inches) 9.625 GN INFORMA PERFORMANC	10.05	9.664 BORE ID	BTC DRIFT ID	1580 / 1504 Setting Depth: COLLAPSE (PSI)	3130/2721 12,502* MD BURST (PSI)	700 / 500 12,023" TVD TENSION (1k LBS)	4.46 Intermedia	Collapse 2.25 te Casing Test P	Tension (Body) 2.92 5.72 ressure = 4550 psi	Dry Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9.625 3N INFORMA PERFORMANC GRADE	TION E DATA: CPLO TYPE	9.694 BORE ID (Inches)	BTC DRIFT ID (Inches)	1580 / 1504 Setting Depth: COLLAPSE (PSI) API / CoP	3130/2721 12,502* MD BURST (PSI) API / CoP	700 / 500 12,023" TVD TENSION (1k LBS) API / Cop	4.45 Intermedia Pre	Collapse 2.25 te Casing Test P	Tension (Body) 2.92 5.72 ressure = 4550 psl to Drill Out	Dry Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9.625 GN INFORMA PERFORMANC GRADE P-110	TION E DATA: CPLO TYPE BTC	8,894 BORE ID (Inches) 6,875	BTC DRIFT ID (Inches) 6.75	1580 / 1504 Setting Depth: COLLAPSE (PSI) API / CoP	3130/2721 12,502* MD BURST (PSI) API / CoP	700 / 500 12,023" TVD TENSION (1k LBS) API / Cop	4.45 Intermedia Pre Minii Burst	Coliapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Coliapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out tlety Factors Tension (Body &	Dry Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9.625 GN INFORMA PERFORMANC GRADE P-110	TION E DATA: CPLO TYPE BTC	9.694 BORE ID (Inches)	BTC DRIFT ID (Inches) 6.75	1580 / 1504 Setting Depth: COLLAPSE (PSI) API / CoP	3130/2721 12,502* MD BURST (PSI) API / CoP	700 / 500 12,023" TVD TENSION (1k LBS) API / Cop	4.45 Intermedia Pre: Minli	Coliapse 2.25 ie Casing Test P ssure Test Prior mum Design / Sa	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out tfely Factors	Dry Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9625 3N INFORMAN PERFORMANC GRADE P-110 CONNECTION	TION E DATA: CPLO TYPE BTC DIMENSIONA	BORE ID (Inches) 9.675	BTC DRIFT ID (Inches) 6.75 NCE DATA:	Setting Depth: COLLAPSE (PSi) API/CoP S340/5085	3130/2721 12,602" MD BURST (PSI) API / CoP 9470 / 5234	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 871	4.45 Intermedia Pre Minii Burst	Collapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out to Drill Out fety Factors Tension (Body & 1.40	Dry Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9625 3N INFORMA PERFORMANC GRADE P-110 CONNECTION 00	10.06 TION E DATA: CPLG TYPE BTC DIMENSIONA	BORE ID (Inches) 6 675	BTC DRIFT ID (Inches) 6.75 NCE DATA: CPLO	(380/1504 Setting Depth: COLLAPSE (PSI) API/CoP S340/5085	3130/2721 12,602" MD BURST (PSI) API / CoP 9470 / 5234 BURST (PSI)	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 871 TENSION (1k LBS)	4.45 Intermedia Pre Minii Burst	Collapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out tlety Factors Tension (Body &	Dry Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9625 GN INFORMANC GRADE P-110 CONNECTION (Inches)	10.06 TTION E DATA: CPLQ TYPE BTC IDIMENSIONA (Incres)	BORE ID (Inches) 9.894	BTC (Inches) 6.75 INCE DATA: CPL0 TYPE	1580/1504 Setting Depth: COLLAPSE (PSI) API/CoP COLLAPSE (PSI) API/CoP	3130/2721 12,502' MD BURST (PSI) API / CoP BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LES) API / COP PHO / 671 TENSION (1k LES) API / CoP	4.46 Intermedia Pre Minii Burst 1.15	Collapse 2.25 is Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05 Actual Desig	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9625 GN INFORMANC GRADE P-110 CONNECTION (Inches)	10.06 TTION E DATA: CPLQ TYPE BTC IDIMENSIONA (Incres)	BORE ID (Inches) 9.894	BTC (Inches) 6.75 INCE DATA: CPL0 TYPE	1580/1504 Setting Depth: COLLAPSE (PSI) API/CoP COLLAPSE (PSI) API/CoP	3130/2721 12,502' MD BURST (PSI) API / CoP BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LES) API / COP PHO / 671 TENSION (1k LES) API / CoP	4.46 Intermedia Pre Minis Burst 1.15 Burst	Collapse 2.25 te Casing Test P saure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 un / Safety Factors Tension (Body)	Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9625 GN INFORMANC GRADE P-110 CONNECTION (Inches)	10.06 TTION E DATA: CPLQ TYPE BTC IDIMENSIONA (Incres)	BORE ID (Inches) 9.894	BTC (Inches) 6.75 INCE DATA: CPL0 TYPE	1580/1504 Setting Depth: COLLAPSE (PSI) API/CoP COLLAPSE (PSI) API/CoP	3130/2721 12,502' MD BURST (PSI) API / CoP BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LES) API / COP PHO / 671 TENSION (1k LES) API / CoP	4.46 Intermedia Pre Minis Burst 1.15 Burst	Collapse 2.25 te Casing Test P saure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouy
PIPE BO SIZE (Inche		MENSIONAL / WEIGHT (LB/FT)	(Inches) 9625 GN INFORMANC GRADE P-110 CONNECTION (Inches)	10.06 TTION E DATA: CPLQ TYPE BTC IDIMENSIONA (Incres)	BORE ID (Inches) 9.894	BTC (Inches) 6.75 INCE DATA: CPL0 TYPE	1580/1504 Setting Depth: COLLAPSE (PSI) API/CoP COLLAPSE (PSI) API/CoP	3130/2721 12,502' MD BURST (PSI) API / CoP BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LES) API / COP PHO / 671 TENSION (1k LES) API / CoP	4.46 Intermedia Pre Minis Burst 1.15 Burst	Collapse 2.25 te Casing Test P saure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouy
PIPE BO	9DY OII 5	MENSIONAL / WEIGHT (LB/FT) 29.7	(Inches) 9623 GN INFORMANC GRADE P.110 CONNECTION 00 (Inches) 9623	TION E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 864	BORE ID (Inches) 9.894	BTC (Inches) 6.75 INCE DATA: CPL0 TYPE	(1907/1904 Setting Depth: COLLAPSE (PSI) API/CoP 5340/5085	3130/2721 12,502' MD BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 940 / 685	4.46 Intermedia Pre Minis Burst 1.15 Burst	Collapse 2.25 te Casing Test P saure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouy
PIPE BO: Suze (Inche 7.62		MENSIONAL / WEIGHT (LOFT) 28.7 28.7	(Inches) 9623 GN INFORMANC GRADE CONNECTION 00 (Inches) 9623 FORMATION	10.06 TION E DATA: CPLO TYPE BTC BTC (Incres) 884	BORE ID (Inches) 9.894	BTC (Inches) 6.75 INCE DATA: CPL0 TYPE	1980/1504 Setting Depth: COLLAPSE (PSI) API/CoP S340/5005 COLLAPSE (PSI) API/CoP S340/5005 Setting Depth:	3130/2721 12,502' MD BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 980 / 685 12,023' TVD	4.46 Intermedia Pre Minis Burst 1.15 Burst	Collapse 2.25 te Casing Test P saure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouy
PIPE BO		MENSIONAL / WEIGHT (LB/FT) 287 287 287 287 287 287 287 287 287 287	(Inches) 9623 GN INFORMANC GRADE P.110 CONNECTION 00 (Inches) 9623	TION E DATA: CPLO TYPE BTC (Inches) 864 E DATA:	9.694 BORE ID (Inches) 6.673 CREFT (Inches) 8.73	BTC DRIFT ID (Inchas) 6.75 NCE DATA: CPLO TYPE BTC	1980 / 1504 Setting Depth: COLLAPSE (PSI) API / CoP S340 / 5085 COLLAPSE (PSI) API / CoP S340 / 5085 Setting Depth: Hanger:	3130/2721 12,502* MD BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526* MD 11,302* MD / T	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 940 / 695 12,023' TVD VD	4.45 Intermedia Pre Mini Burst 1.15 Burst 4.69	Collapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse 2.64	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out tiety Factors Tension (Body) 1.40 gn / Safety Factors Tension (Body) 2.63 3.08	Bouy
CTION L		MENSIONAL / WEIGHT (LB/FT) 28.7 28.7 28.7 28.7 28.7 28.7 28.7 28.7	(Inches) 9623 GN INFORMANC GRADE CONNECTION 00 (Inches) 9623 FORMATION	TION E DATA: CPLO TYPE BTC DIMENSIONA DO (Incres) BAM E DATA: CPLG	9.694 BORE ID (Inches) 9.675 L / PERFORMA (Inches) 8.73 8.73	BTC DRIFT ID (Inches) E.75 NCE DATA: CPLO TYPE BTC DRIFT ID	1980/1904 Setting Depth: COLLAPSE (PSI) API CoP S340/5085 COLLAPSE (PSI) Setting Depth: Hanger.	3130/2721 12,502* MD BURST (PSI) API ( CoP 9470 / 5234 BURST (PSI) API ( CoP 9470 / 5234 22,526* MD 11,302* MD / T BURST (PSI)	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) 12,023' TVD VD	4.45 Intermedia Pre Mini Burst 1.15 Burst 4.69	Collapse 2.25 te Casing Test P saure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out tiety Factors Tension (Body) 1.40 gn / Safety Factors Tension (Body) 2.63 3.08	Bouy
PIPE BO	DDY DI = = = = = = = = = = = = =	MENSIONAL / WEIGHT (LB/FT) 287 287 287 287 287 287 287 287 287 287	(Inches) 9623 GN INFORMANC GRADE P-110 CONNECTION (Inches) 9625 FORMATION PERFORMANC	TION E DATA: CPLO TYPE BTC (Inches) 864 E DATA:	9.694 BORE ID (Inches) 6.673 CREFT (Inches) 8.73	BTC DRIFT ID (Inchas) 6.75 NCE DATA: CPLO TYPE BTC	1980 / 1504 Setting Depth: COLLAPSE (PSI) API / CoP S340 / 5085 COLLAPSE (PSI) API / CoP S340 / 5085 Setting Depth: Hanger:	3130/2721 12,502* MD BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234 22,526* MD 11,302* MD / T	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 940 / 695 12,023' TVD VD	4.45 Intermedia Pre Burst 1.15 Burst 4.69 Product	Collapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse 2.64	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out fety Factors Tension (Body & 1.40 gn / Safety Factors Tension (Body) 2.63 3.08	Bouy
CTION L	DDY DI = = = = = = = = = = = = =	MENSIONAL / WEIGHT (LIPFT) 28.7 28.7 28.7 28.7 28.7 28.7 28.7 28.7	(Inches) 9623 GN INFORMANC GRADE P-110 CONNECTION 9625 FORMATION PERFORMANC GRADE	TION E DATA: CPLO TYPE BTC DIMENSIONA C (Incres) 884 E DATA: CPLO TYPE	BORE ID (Inches) 6 875 CRIPT (Inches) 8 75 BORE ID (Inches)	DRIFT ID (Inches) 075 INCE DATA: CPL0 TYPE BTC DRIFT ID (Inches)	1980/1994 Setting Depth: COLLAPSE (PSI) API/CoP S340/5085 COLLAPSE (PSI) API/CoP S340/5085 Setting Depth: Hangor. COLLAPSE (PSI)	3130/2721 12,502' MD BURST (PSI) API / CoP 9470 / 5234 BURST (PSI) API / CoP 9470 / 5234 22,526' MD 11,302' MD / T BURST (PSI) API / CoP	12,023 TVD 12,023 TVD ТЕNSION (1k LES) АР/ СоР 940 / 671 ТЕNSION (1k LES) АР/ СоР 940 / 655 12,023 TVD VD ТЕNSION (1k LES) АР/ СоР	4.45 Intermedia Pre Burst 1.15 Burst 4.69 Product	Collapse 2.25 te Casing Test Prior mum Design / Sa Collapse 2.64 Lon Casing Test	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body) & 1.40 (n / Safety Factors Tension (Body) 2.63 3.08 Pressure = TBD dely Factors Tension (Body &	Bouy
CTION L	DDY DI = = = = = = = = = = = = =	MENSIONAL / WEIGHT (LIPFT) 28.7 28.7 28.7 28.7 28.7 28.7 28.7 28.7	(Inches) 9623 GN INFORMANC GRADE P-110 CONNECTION (Inches) 9623 FORMATION PERFORMANC GRADE	TION E DATA: CFL0 TYPE BTC DIMENSIONA D (Inches) 884 E DATA: CFL0 TXPE	9.694 BORE ID (Inches) 6.675 CIEFORMA DEEFORMA DEEFORMA DEEFO (Inches) 8.75 BORE ID (Inches) 4.670	BTC DRIFT ID (Inchas) 6.75 NCE DATA: CFLO TYPE BTC BTC BTC (Inches) 4.545	1980/1994 Setting Depth: COLLAPSE (PSI) API/CoP S340/5085 COLLAPSE (PSI) API/CoP S340/5085 Setting Depth: Hangor. COLLAPSE (PSI)	3130/2721 12,502' MD BURST (PSI) API / CoP 9470 / 5234 BURST (PSI) API / CoP 9470 / 5234 22,526' MD 11,302' MD / T BURST (PSI) API / CoP	12,023 TVD 12,023 TVD ТЕNSION (1k LES) АР/ СоР 940 / 671 ТЕNSION (1k LES) АР/ СоР 940 / 655 12,023 TVD VD ТЕNSION (1k LES) АР/ СоР	4.45 Intermedia Pre Burst 1.15 Burst 4.69 Product Minh Burst	Collapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse 2.64 tion Casing Test mum Design / Sa Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out they Factors Tension (Body & 1.40 gn / Safety Factors Tension (Body) 2.63 3.08 Pressure = TBD dety Factors Tension (Body & Connection)	Bouy
CTION L	DDY DI = = = = = = = = = = = = =	MENSIONAL / WEIGHT (LIPFT) 28.7 28.7 28.7 28.7 28.7 28.7 28.7 28.7	(Inches) 9623 GN INFORMANC GRADE P-110 CONNECTION (Inches) 9623 FORMATION PERFORMANC GRADE	TION E DATA: CFL0 TYPE BTC DIMENSIONA D (Inches) 884 E DATA: CFL0 TXPE	BORE ID (Inches) 6 875 CRIPT (Inches) 8 75 BORE ID (Inches)	BTC DRIFT ID (Inchas) 6.75 NCE DATA: CFLO TYPE BTC BTC BTC (Inches) 4.545	1980/1994 Setting Depth: COLLAPSE (PSI) API/CoP S340/5085 COLLAPSE (PSI) API/CoP S340/5085 Setting Depth: Hangor. COLLAPSE (PSI)	3130/2721 12,502' MD BURST (PSI) API / CoP 9470 / 5234 BURST (PSI) API / CoP 9470 / 5234 22,526' MD 11,302' MD / T BURST (PSI) API / CoP	12,023 TVD 12,023 TVD ТЕNSION (1k LES) АР/ СоР 940 / 671 ТЕNSION (1k LES) АР/ СоР 940 / 655 12,023 TVD VD ТЕNSION (1k LES) АР/ СоР	4.45 Intermedia Pre Burst 1.15 Burst 4.69 Product	Collapse 2.25 te Casing Test P ssure Test Prior mum Design / Sa Collapse 1.05 Actual Desig Collapse 2.64	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dely Factors Tension (Body) & 1.40 (n / Safety Factors Tension (Body) 2.63 3.08 Pressure = TBD dely Factors Tension (Body &	Bouy

Minin	num Design / Se	fety Factors	
urst	Collepse	Tension (Body & Connection)	
.15	1.05	1.40	
	Actual Desig	n / Safety Factors	
urst	Collapse	Tension (Body)	
.46	1.72	2.64	C
		3.32	E

s 20 106H			NWSE 20	T26S R32E			Lea, Co, N	N		2/4/201	9	
E CASING I	DESIGN INFO	RMATION			·	Setting Depth:	1,212' MD	1,212' TVD				-
PIPE BODY D	MENSIONAL /	PERFORMANC	E DATA:									
SIZE	WEIGHT	GRADE	CPLO	BORE 1D	ORIFT ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Surface	Casing Test Pres	sure ≃ 1,500 psi	
(Inches)	CB/FD		TYPE	(inches)	(inches)	AP1/CoP	AP1/Cop	API / CoP	Pre	ssure Test Prior	to Drill Out	
13.375	54.5	742	BTC	12.615	12.459	1,130/1078	2730/2373	653/609		Minimum Deeler	/ Safety Factors C	
		CONNECTION	DIMENSIONA	L / PERFORMA	NCE DATA:				Burst 1.15	Collapse 1.05	Tension (Body & 1.40	<i></i>
		<b>00</b>	r o	ORUPT	CPLG	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)		Actual Desig	n / Safety Factors	
		(Inches)	(Inches)	(Inches)	TYPE .	AP1/CoP	API/CoP	API/CoP	Burst	Collapse	Tension (Body)	
		14.375	12615	12,459	BTC	1,130/1078	2730/2373	909/649	5.04	2.08	11.69 13.45	Dry Bouyed
											13.43	Bouyau
	ASING DESIG					Setting Depth:	6,032' MD	6,243' TVD				
SIZE	WEIGHT	GRADE	CPLG	BORE ID	DRIFT ID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)			ressure = 4550 psi	
(inches) 10.750	(LB/FT) 40.5		TYPE BTC	(Inches) 10.05	(Inches) 9.894	API/CoP 1590/1504	AP1 / CoP 3130 / 2721	AP1 / CoP 629 / 449	Pre	ssure Test Prior	to Dhii Out	
	<u> </u>			<u> </u>					Mini	mum Design / Sa		
									Burst	Collepse	Tension (Body & Connection)	
		CONNECTION	DIMENSIONA	L / PERFORMA	NCE DATA:				1.15	1.05	1.40	
		00	Þ	ORIFT	CPL0	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)				
		(Inches)	(Inches) 10.05	(Inches)	TYPE BTC	AP1/CoP 1590/1504	API / CoP 3130 / 2721	API / CoP 700 / 500	Burst		n / Safety Factors	
		(Inches) 9.625	(Inches) 10.05	(Inches) 9.594	BTC	1580 / 1504	API/CoP 3130/2721	API / CoP 700 / 500	Burst 4,46	Actual Desig Collapse 2.25	n / Safety Factors Tension (Body) 2.92	Dry
										Collapse	Tension (Body)	Dry Bouyed
EDIATE 2 C	ASING DESIG	9.625	10.05				3130/2721	700 / 500		Collapse	Tension (Body) 2.92	Dry Bouyed
		9.625 3N INFORMA	10.05			1580 / 1504	3130/2721	700 / 500		Collapse	Tension (Body) 2.92	Dry Bouyed
	ASING DESIC	9.625 3N INFORMA	10.05			1580 / 1504	3130/2721	700 / 500 12,023' TVD	4.46	Collapse 2.25	Tension (Body) 2.92 5.72	Dry Bouyed
PIPE BODY D	MENSIONAL /	9.625 3N INFORMA	10.05 TION E DATA:	9.094	втс	1580/1504 Setting Depth:	3130/2721 12,502 MD	700 / 500	4,46 Intermedia	Collapse 2.25	Tension (Body) 2.92 5.72 ressure = 4550 psi	Dry Bouyed
PIPE BODY D	MENSIONAL, /	9.625 BN INFORMA PERFORMANC	10.05 .TION :E DATA: CPL0	9.864 BORE ID	BTC DRIFT ID	Setting Depth:	3130/2721 12,602" MD BURST (PSI)	700 / 500 12,023' TVD TENSION (1k LBS)	4,46 Intermedia	Collapse 2.25	Tension (Body) 2.92 5.72 ressure = 4550 psi	Dry Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	9.625 3N INFORMA PERFORMANC GRADE	10.05 TION E DATA: CPLG TYPE	9.894 BORE ID (Inches)	DRIFT ID (Inches)	Setting Depth: COLLAPSE (PSI) API/CoP	3130/2721 12,602" MD BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / Cop	4,46 Intermedia Pro Mini	Collapse 2.25 Inte Casing Test P Insure Test Prior	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out rfety Factors	Dry Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	9.625 3N INFORMA PERFORMANC GRADE	TION E DATA: CPLQ TYPE BTC	0.094 BORE ID (Inches) 0.875	DRJFT 1D (Inches) 8.73	Setting Depth: COLLAPSE (PSI) API/CoP	3130/2721 12,602" MD BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / Cop	4,45 Intermedia Pro Mini Burst	Collapse 2.25 Inte Casing Test P Insure Test Prior Imum Design / Sa Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out rlety Factors Tension (Body &	Dry Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	RESS	TION E DATA: CPLQ TYPE BTC	0.094 BORE ID (Inches) 0.875	DRJFT 1D (Inches) 8.73	Setting Depth: COLLAPSE (PSI) API/CoP	3130/2721 12,602" MD BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / Cop	4,46 Intermedia Pro Mini	Collapse 2.25 Inte Casing Test P Insure Test Prior	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out rfety Factors	Dry Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	0.623 BN INFORMANC GRADE P-110 CONNECTION (Inches)	10.05 TION E DATA: CPLG TYPE BTC DIMENSIONA (Inches)	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	1580 / 1504 Setting Depth: COLLAPSE (P81) API / CoP E340 / 5085 COLLAPSE (P81) API / CoP	3130 / 2721 12,502' MD BLRST (PSI) API / CoP BLRST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	4.45 Intermedia Pro Mini Burst 1.15	Collapse 2.25 ste Cealing Test P issure Test Prior imum Design / Sa Collapse 1.05	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 yn / Safety Factors	Dry Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	RESS BN INFORMANC GRADE P-110 CONNECTION	TION E DATA: CFLQ TYPE BTC DIMENSIONA	BORE ID (Inches) 0.8875 0.000 0.000 0.000 0.000 0.000 0.000	DRUFT ID (Inches) A.75 NCE DATA: CPLO	Setting Depth: COLLAPSE (PSI) API / COP 5340/ 5005	3130 / 2721 12,602" MD BURST (PSI) API / CoP 9470 / 5234 BURST (PSI)	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671	4.46 Intermedia Pro Mini Burst 1.15 Burst	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out fety Factors Tension (Body & 1.40 yn / Safety Factors Tension (Body)	Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	0.623 BN INFORMANC GRADE P-110 CONNECTION (Inches)	10.05 TION E DATA: CPLG TYPE BTC DIMENSIONA (Inches)	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	1580 / 1504 Setting Depth: COLLAPSE (P81) API / CoP E340 / 5085 COLLAPSE (P81) API / CoP	3130 / 2721 12,502' MD BLRST (PSI) API / CoP BLRST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	4.45 Intermedia Pro Mini Burst 1.15	Collapse 2.25 ste Casing Test P ssaure Test Prior imum Design / Sa Collapse 1.05 Actual Desig	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	0.623 BN INFORMANC GRADE P-110 CONNECTION (Inches)	10.05 TION E DATA: CPLG TYPE BTC DIMENSIONA (Inches)	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	1580 / 1504 Setting Depth: COLLAPSE (P81) API / CoP E340 / 5085 COLLAPSE (P81) API / CoP	3130 / 2721 12,502' MD BLRST (PSI) API / CoP BLRST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	4.46 Intermedia Pro Mini Burst 1.15 Burst	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out fety Factors Tension (Body & 1.40 yn / Safety Factors Tension (Body)	Bouyed
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/PT)	0.623 BN INFORMANC GRADE P-110 CONNECTION (Inches)	10.05 TION E DATA: CPLG TYPE BTC DIMENSIONA (Inches)	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	1580 / 1504 Setting Depth: COLLAPSE (P81) API / CoP E340 / 5085 COLLAPSE (P81) API / CoP	3130 / 2721 12,502' MD BLRST (PSI) API / CoP BLRST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP	4.46 Intermedia Pro Mini Burst 1.15 Burst	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouyed
PIPE BODY D 5028 (Inches) 7.625	IMENSIONAL / WEIGHY (LB/PT) 29.7	0.623 BN INFORMANC PERFORMANC GRADE P-110 P-110 CONNECTION 00 (nches) 9.023	10.05 TION E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 0.04	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	150/1504 Setting Depth: COLLAPSE (PSI) API/CoP 530/5085 COLLAPSE (PSI) API/CoP 530/15085	3130/2721 12,502* MD BURSY (PSI) API / CoP B470 / E234 BURSY (PSI) API / CoP B470 / E234	700 / 500 12,023' TVD TENSION (1k LES) API / CoP 940 / 671 TENSION (1k LES) API / CoP 940 / 685	4.46 Intermedia Pro Mini Burst 1.15 Burst	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouyed
PIPE BODY D 5028 (Inches) 7.625	IMENSIONAL / WEIGHT (LB/PT)	0.623 BN INFORMANC PERFORMANC GRADE P-110 P-110 CONNECTION 00 (nches) 9.023	10.05 TION E DATA: CPLO TYPE BTC DIMENSIONA (Inches) 0.04	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	1580/1504 Setting Depth: COLLAPSE (PSI) API (COP S360 5085 COLLAPSE (PSI) API (COP S360 / 5085 Setting Depth:	3130/2721 12,602* MD BURST (PSI) API (CoP 9470/8234 BURST (PSI) API (CoP 9470/8234 22,626* MD	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 900 / 651 TENSION (1k LBS) API / CoP 900 / 685 12,023' TVD	4.46 Intermedia Pro Mini Burst 1.15 Burst	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouyed
PIPE BODY D	IMENSIONAL / WEIGHY (LB/PT) 29.7	0.623 GN INFORMANC GRADE P-110 CONNECTION 00 00 00 00 00 00 00 00 00 0	10.05 TION E DATA: CPLG TYPE BTC DIMENSIONA (Inchas) 8.84	BORE ID (Inches) 0.873 L / PERFORMA DRIFT (Inches)	DRUFT ID (Inches) 4.75 INCE DATA: CPUG TYPE	1580/1504 Setting Depth: COLLAPSE (PSI) API (COP S360 5085 COLLAPSE (PSI) API (COP S360 / 5085 Setting Depth:	3130/2721 12,502* MD BURSY (PSI) API / CoP B470 / E234 BURSY (PSI) API / CoP B470 / E234	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 900 / 651 TENSION (1k LBS) API / CoP 900 / 685 12,023' TVD	4.46 Intermedia Pro Mini Burst 1.15 Burst	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 m / Safety Factors Tension (Body) 2.63	Bouyed
PIPE BODY D SZE (Inches) 7.825 CTION LINE PIPE BODY D SZE	R DESIGN IN IMENSIONAL / WEGHT 297	0.623 SN INFORMA PERFORMANC GRADE P-110 CONNECTION 00 00 00 00 00 00 00 00 00 0	10.05	0.894 BORE (D (Inches) 0.873 UPERFORMA DRDF (Inches) 0.873 0.873	DRIFT ID (Inches) A.75 NCE DATA: CPLO TYPE BTC	1580/1504 Setting Depth: COLLAPSE (PSI) API CoP 2340 5085 COLLAPSE (PSI) API CoP 5340/5085 Setting Depth: Hanger: COLLAPSE (PSI)	3130/2721 12,602* MD BURST (P6I) API (CoP 9470/6234 API (CoP 9470/6234 22,626* MD 11,302* MD / T BURST (P6I)	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP PO / 671 TENSION (1k LBS) 12,023' TVD VD TENSION (1k LBS)	4.46 Intermedia Pro Mini Burst 1.15 Burst 4.69	Collapse 2.25 ste Ceaing Test P ssaure Test Prior Oessgar / Sa Collapse Collapse	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body) & 1.40 yn / Safety Factors Tension (Body) 2.63 3.08	Bouyed
PIPE BODY D SZZE (Indres) 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825	R DESIGN IN IMENSIONAL / 28.7 R DESIGN IN IMENSIONAL / UBERT	0.623 SN INFORMANC GRADE P-110 CONNECTION 00 0nches) 0.623 FORMATION PERFORMANC GRADE	10.05 TION E DATA: CPLG TYPE BTC DIMENSIONA (Inches) 8.64 E DATA: CPLG TYPE	0.604 BORE ID (Inches) 0.873 URIPT (Inches) 0.73 BORE ID (Inches)	BTC DRIFT ID (Inches) 6.75 NCE DATA: CPUS BTC BTC DRIFT ID (Inches)	Setting Depth: COLLAPSE (PSI) API COP B3K7 SOS API / COP S3K7 SOS Sotting Depth: Hanger: COLLAPSE (PSI) API / COP	12,502 MD 12,502 MD BURST (PSI) API / CoP 9470 / 8234 22,526 MD 11,302 MD / T BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 900 / 671 TENSION (1k LBS) API / CoP 900 / 685 12,023' TVD VD TENSION (1k LBS) API / CoP	4.46 Intermedia Pro Mini Burst 1.15 Burst 4.69 Produc	Collapse 2.25 the Casing Test P sssure Test Prior imum Design / Sa Collapse 1.05 Actual Desig Collapse 2.64	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 gn / Safety Factors Tension (Body) 2.63 3.08	Bouyed
PIPE BODY D SZE (Inches) 7.825 CTION LINE PIPE BODY D SZE	R DESIGN IN IMENSIONAL / WEGHT 297	0.623 SN INFORMA PERFORMANC GRADE P-110 CONNECTION 00 0nches) 0.623 FORMATION PERFORMANC	10.05	0.894 BORE (D (Inches) 0.873 UPERFORMA DRDF (Inches) 0.873 0.873	DRIFT ID (Inches) A.75 NCE DATA: CPLO TYPE BTC	1580/1504 Setting Depth: COLLAPSE (PSI) API CoP 2340 5085 COLLAPSE (PSI) API CoP 5340/5085 Setting Depth: Hanger: COLLAPSE (PSI)	3130/2721 12,602* MD BURST (P6I) API (CoP 9470/6234 API (CoP 9470/6234 22,626* MD 11,302* MD / T BURST (P6I)	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP PO / 671 TENSION (1k LBS) 12,023' TVD VD TENSION (1k LBS)	4.46 intermedia Pro Mini Burst 1.15 Burst 4.69 Produc Mini	Collapse 2.25 Inte Casing Test Prior Imum Design / Sa Collapse 1.05 Actual Desig Collapse 2.64 dian Casing Test Imum Design / Sa	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out dety Factors Tension (Body & 1.40 gn / Safety Factors Tension (Body) 2.63 3.08	Bouyed
PIPE BODY D SZZE (Indres) 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825	R DESIGN IN IMENSIONAL / 28.7 R DESIGN IN IMENSIONAL / UBERT	0.623 SN INFORMANC GRADE P-110 CONNECTION 00 (Inches) 9.623 FORMATION PERFORMANC GRADE P-110	10.05	0.894 BORE ID (inches) 0.873 C/ PERFORM/ DEET (inches) 0.73 0.73 0.73 0.73 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75	DitiFT ID (Inches) 8.75 NCE DATA: CPLG TYPE BTC BTC DRIFT ID (Inches) 4.545	Setting Depth: COLLAPSE (PSI) API COP B3K7 SOS API / COP S3K7 SOS Sotting Depth: Hanger: COLLAPSE (PSI) API / COP	12,502 MD 12,502 MD BURST (PSI) API / CoP 9470 / 8234 22,526 MD 11,302 MD / T BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 900 / 671 TENSION (1k LBS) API / CoP 900 / 685 12,023' TVD VD TENSION (1k LBS) API / CoP	4.46 intermedia Burst 1.15 Burst 4.69 Produc Mini Burst	Collapse 2.25 Inte Casing Test Prior Imum Design / Sa Collapse 2.64 International Design 2.64 International Design 2.64	Tension (Body) 2.92 5.72 Tessure = 4550 psi to Drill Out fety Factors Tension (Body & 1.40 gn / Safety Factors Tension (Body) 2.63 3.08 Pressure = TBD fety Factors Tension (Body & Connection)	Bouyed
PIPE BODY D SZZE (Indres) 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825	R DESIGN IN IMENSIONAL / 28.7 R DESIGN IN IMENSIONAL / UBERT	ecca     eccca     eccca     eccca     ecca     ecca     ecca     ecca     eccc	10.005 TION E DATA: CPL0 TYPE BTC DIMENSIONA E DATA: CPL0 TYPE TXP DIMENSIONA		DRIFT ID (Inches) A.75 NCE DATA: CPLO TYPE BTC DRIFT ID (Inches) 4.545 NCE DATA:	1580 / 1504 Setting Depth: COLLAPSE (PSI) API (COP 5360 5085 COLLAPSE (PSI) API (COP 5360 / 5085 Setting Depth: Hanger: COLLAPSE (PSI) API (CoP 14,550 / 13,828	3130 / 2721 12,602" MD BURST (P6I) API (CoP 9470 / 6234 API (CoP 9470 / 6234 22,526" MD 11,302" MD / T BURST (P6I) API (CoP 12,350 / 10,747	700 / 500           12,023' TVD           TENSION (1k LBS)           API / CoP           940 / 671           TENSION (1k LBS)           API / CoP           960 / 685           12,023' TVD           VD           TENSION (1k LBS)           API / CoP           960 / 685           12,023' TVD           VD           TENSION (1k LBS)           API / CoP           729 / 520	4.46 intermedia Pro Mini Burst 1.15 Burst 4.69 Produc Mini	Collapse 2.25 ate Casing Test Prior collapse 1.05 Actual Desig Collapse 2.64 don Casing Test imum Design / Sa Collapse 1.05	Tension (Body) 2.92 5.72 ressure = 4550 psi to Drill Out restors Tension (Body & 1.40 pr / Safety Factors Tension (Body) 2.63 3.08 Pressure = TBD refy Factors Tension (Body & Connection) 1.40	Bouyed
PIPE BODY D SZZE (Indres) 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825 7.825	R DESIGN IN IMENSIONAL / 28.7 R DESIGN IN IMENSIONAL / UBERT	0.623 SN INFORMANC GRADE P-110 CONNECTION 00 (Inches) 9.623 FORMATION PERFORMANC GRADE P-110	10.05	0.894 BORE ID (inches) 0.873 C/ PERFORM/ DEET (inches) 0.73 0.73 0.73 0.73 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75	DitiFT ID (Inches) 8.75 NCE DATA: CPLG TYPE BTC BTC DRIFT ID (Inches) 4.545	Setting Depth: COLLAPSE (PSI) API COP B3K7 SOS API / COP S3K7 SOS Sotting Depth: Hanger: COLLAPSE (PSI) API / COP	12,502 MD 12,502 MD BURST (PSI) API / CoP 9470 / 8234 22,526 MD 11,302 MD / T BURST (PSI) API / CoP	700 / 500 12,023' TVD TENSION (1k LBS) API / CoP 900 / 671 TENSION (1k LBS) API / CoP 900 / 685 12,023' TVD VD TENSION (1k LBS) API / CoP	4.46 intermedia Burst 1.15 Burst 4.69 Produc Mini Burst	Collapse 2.25 ate Casing Test Prior collapse 1.05 Actual Desig Collapse 2.64 don Casing Test imum Design / Sa Collapse 1.05	Tension (Body) 2.92 5.72 Tessure = 4550 psi to Drill Out fety Factors Tension (Body & 1.40 gn / Safety Factors Tension (Body) 2.63 3.08 Pressure = TBD fety Factors Tension (Body & Connection)	Bouyed

# **Production Casing Specification Sheet**

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

August 29 2016



**Connection**: TenarisXP® BTC **Casing/Tubing**: CAS **Coupling Option**: REGULAR Size: 5.500 in. Wall: 0.361 in. Weight: 20.00 lbs/ft Grade: P110 Min. Wall Thickness: 87.5 %

		PIPE BODY	DATA		
		GEOME	RY		
Nominal OD	<b>5.500</b> in.	Nominal Weight	<b>20.00</b> lbs/ft	Standard Drift Diameter	<b>4.653</b> in.
Nominal ID	<b>4.778</b> in.	Wall Thickness	<b>0.361</b> in.	Special Dríft Diameter	N/A
Plain End Weight	19.83 lbs/ft				
		PERFORM	ANCE		
Body Yield Strength	<b>641</b> x 1000 lbs	Internal Yield	<b>12630</b> psi	SMYS	<b>110000</b> psi
Collapse	<b>11100</b> psi				
	TE	NARISXP® BTC CO	NNECTION D	ATA	
		GEOMET	RY		
Connection OD	<b>6.100</b> in.	Coupling Length	<b>9.450</b> in.	Connection ID	<b>4.766</b> in.
Critical Section Area	<b>5.828</b> sq. in.	Threads per in.	5.00	Make-Up Loss	<b>4.204</b> in.
		PERFORM	ANCE		
Tension Efficiency	100 %	Joint Yield Strength	<b>641</b> × 1000 Ibs	Internal Pressure Capacity <sup>(1)</sup>	<b>12630</b> psi
Structural Compression Efficiency	100 %	Structural Compression Strength	<b>641</b> x 1000 Ibs	Structural Bending <sup>(2)</sup>	<b>92</b> °/100 ft
External Pressure Capacity	<b>11100</b> psi				
	E	STIMATED MAKE-U	JP TORQUES	3)	
Minimum	11270 ft-lbs	Optimum	12520 ft-lbs	Maximum	13770 ft-lb
		OPERATIONAL LIN	IT TORQUES		
Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs		

http://premiumconnectiondata.tenaris.com/tsh\_print.php?hWall=0.361&hSize=5.500&hGr... 8/29/2016

s 20 106H			NWSE 20	T26S R32E			Lea, Co, NI	A		2/4/2019	
CE CASING [	DESIGN INFO	ORMATION				Setting Depth:	1,212' MD	1,212' TVD			
PIPE BODY D	MENSIONAL /	PERFORMANC	E DATA:								
SIZE	WEIGHT	GRADE	CPLG	BORE ID	ORIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (11: LBS)	Surface	Casing Test Press	ure = 1.500 psl
(Inches)	പണ്ടാ	GRADE	TYPE	(Inches)	(Inches)	API/CoP	API / CoP	API/CoP		essure Test Prior to	· •
13.375	54.5	J-65	BTC	12.615	12.459	1,130/1078	2730/2373	653 / 609			
									Burst	Minimum Design	
		CONNECTION	DIMENSIONA	L / PERFORMA	NCE DATA:				1.15	Collapse 1.05	Tension (Body & 1.40
		00	Ð	ORUPT	CPLO	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)		Astual Dealer	/ Safety Factors
		(Inches)	(Inches)	(inches)	TYPE	API/CoP	API/CoP	API / CoP	Burst	Collapse	Tension (Body)
		14.375	12,615	12.459	втс	1,130/1078	2730/2373	909/649	5.04	2.08	11.69
											13.45
EDIATE 1 C	ASING DESI	GN INFORMA	TION			Setting Depth:	5,032' MD	5,243' TVD			
		PERFORMANC	E DATA-								
SIZE	WEIGHT		CPLG	BORE ID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1) LES)	Intermedia	ate Casing Test Pr	ssure = 4550 psi
(Inches)	<u></u>	GRADE	туре	(inches)	(Inches)	API/CoP	API / CoP	API / CoP		essure Test Prior t	
10.750	40.5	1-55	BTC	10.05	9,894	1980 / 1504	3130/2721	629 / 449			
								n		imum Design / Saf	Tension (Body &
								8	Burst	Collapse	Connection)
					CPLO	COLLAPSE (PSI)	BURST (PSI)	TENSION (11 LBS)	1.15	1.05	1.40
		(Inches)	(Inches)	(inches)	TYPE	API/CoP	API/CoP	API / CoP		Actual Design	/ Safety Factors
		9.625	10.08	9,594	BTC	1580/1504		700/500	Burst	A . #	T
		9.025	10.00	1 0.004		1 130071304	3130/2721	/00/300		Collapse	Tension (Body)
		0.023	1 10.06	1 0.004		1 1307 1304	313072721	/30/300	4.46	2.25	2.92
				1		-					
		GN INFORMA	TION			Setting Depth:	12,502° MD	12,023' TVD			2.92
	IMENSIONAL /		TION	* 		Setting Depth:	12,502' MD	12,023' TVD	4,46	2.25	2.92 5.72
PIPE BODY D	IMENSIONAL /	GN INFORMA	TION	BORE ID	ORIPT ID	-		12,023' TVD	4,46 Intermodi	2.25 ate Casing Test Pro	2.92 5.72
PIPE BODY D	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMA PERFORMANC	TION CPLO TYPE	* 		Setting Depth:	12,502" MD BURST (PSI)	12,023' TVD	4,46 Intermodi	2.25	2.92 5.72
PIPE BODY D SIZE (Inches)	IMENSIONAL /	GN INFORMA PERFORMANC GRADE	TION	BORE ID (Inches)	DRIFT (D (Inches)	Setting Depth: COLLAPSE (PSI) API/CoP	12,502" MD BURST (PSI) AP1 / CoP	12,023' TVD TENSION (1k L83) API / CoP	4,46 Intermedil Pri	2.25 ate Casing Test Pro	2.92 5.72 5.72 5.72 5.72 5.72 5.72 5.72 5.7
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMA PERFORMANC GRADE P-110	TION E DATA: CPLO TYPE BTC	BORE ID (Inches) 0.875	DRIFT (D (Inches) 6,75	Setting Depth: COLLAPSE (PSI) API/CoP	12,502" MD BURST (PSI) AP1 / CoP	12,023' TVD TENSION (1k L83) API / CoP	4,46 Intermodil Pri Min Burst	2.25 ate Cesing Test Pri essure Test Prior to imum Design / Saf Collapse	2.92 5.72 2000 - 2.52 2000 - 2
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMA PERFORMANC GRADE P-110	TION CPLO TYPE	BORE ID (Inches) 0.875	DRIFT (D (Inches) 6,75	Setting Depth: COLLAPSE (PSI) API/CoP	12,502" MD BURST (PSI) API ( CoP 9470/6234	12,023' TVD TENSION (1k L83) API / CoP	4,46 Intermodi Pro Min	2.25 ate Casing Test Pri assure Test Prior to imum Design / Saf	2.92 5.72 25.72
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMA PERFORMANC GRADE P-110 CONNECTION	TION E DATA: CPLO TYPE BTC DIMENSIONA	BORE ID (Inches) 6 <i>81</i> 5 L / PERFORMA	DRIFT (D (Inches) 6.73 INCE DATA:	Setting Depth: COLLAPSE (PSI) API / CoP S340/ 5085	12,502" MD BURST (PSI) AP1 / CoP	12,023' TVD TENSION (1k LBS) API / CoP 940 / 671	4,46 Intermodil Pri Min Burst	2.25 ate Casing Test Pri essure Test Prior t imum Design / Saf Collapse 1.05	2.92 5.72 bissure = 4550 psi b Drill Out sty Factors Tension (Body & 1.40
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMA PERFORMANC GRADE P-110 CONNECTION	LTION CE DATA: CPLO TYPE BTC I DIMENSIONA	BORE ID (Inches) 0.875 L / PERFORMA DRIFT	DRIFT (D (Inches) 6,73 NCE DATA: CPLG	Setting Depth: COLLAPSE (PSI) API ( CoP S340' S085	12,502' MD BURST (PSI) API / CoP 9470 / 6234 BURST (PSI)	12,023' TVD TENSION (11 LB3) API / CoP 940 / 671 TENSION (11 LB3)	4,46 Intermodil Pri Min Burst	2.25 ate Casing Test Pri essure Test Prior t imum Design / Saf Collapse 1.05	2.92 5.72 2000 - 2.52 2000 - 2
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMANC GRADE GRADE CONNECTION GO (Inches)	LTION CPLO TYPE BTC IDIMENSIONA	BORE ID (Inches) 6.875 L / PERFORMA DRIFT (Inches)	DRIFT (D (Inches) 673 NCE DATA: CPLG TYPE	Setting Depth: COLLAPSE (PSI) API (CoP S340/5085 COLLAPSE (PSI) API / CoP	12,502' MD BURST (PSI) API ( CoP 9470 / 8234 BURST (PSI) API / CoP	12,023' TVD TENSION (1k LB3) API / CoP 940 / 671 TENSION (1k LB5) API / CoP	4,48 Intermedil Pri Min Burst 1.15	2.25 ate Casing Tast Pri assure Tast Prior to imum Dasign / Sat Collapse 1.05 Actual Dasign	2.92 5.72 
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMANC GRADE GRADE CONNECTION GO (Inches)	LTION CPLO TYPE BTC IDIMENSIONA	BORE ID (Inches) 6.875 L / PERFORMA DRIFT (Inches)	DRIFT (D (Inches) 673 NCE DATA: CPLG TYPE	Setting Depth: COLLAPSE (PSI) API (CoP S340/5085 COLLAPSE (PSI) API / CoP	12,502' MD BURST (PSI) API ( CoP 9470 / 8234 BURST (PSI) API / CoP	12,023' TVD TENSION (1k LB3) API / CoP 940 / 671 TENSION (1k LB5) API / CoP	4,46 Intermedia Pri Min Burst 1.15 Burst	2.25 ate Casing Test Prior to assure Test Prior to imum Design / Sat Collapse 1.05 Actual Design Collapse	2.92 5.72 5.72 5.72 5.72 5.72 5.72 5.72 5.7
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMANC GRADE GRADE CONNECTION GO (Inches)	LTION CPLO TYPE BTC IDIMENSIONA	BORE ID (Inches) 6.875 L / PERFORMA DRIFT (Inches)	DRIFT (D (Inches) 673 NCE DATA: CPLG TYPE	Setting Depth: COLLAPSE (PSI) API (CoP S340/5085 COLLAPSE (PSI) API / CoP	12,502' MD BURST (PSI) API ( CoP 9470 / 8234 BURST (PSI) API / CoP	12,023' TVD TENSION (1k LB3) API / CoP 940 / 671 TENSION (1k LB5) API / CoP	4,46 Intermedia Pri Min Burst 1.15 Burst	2.25 ate Casing Test Prior to assure Test Prior to imum Design / Sat Collapse 1.05 Actual Design Collapse	2.92 5.72 5.72 5.72 5.72 5.72 5.72 5.72 5.7
PIPE BODY D SIZE (Inches)	IMENSIONAL / WEIGHT (LB/FT)	GN INFORMANC GRADE GRADE CONNECTION GO (Inches)	LTION CPLO TYPE BTC IDIMENSIONA	BORE ID (Inches) 6.875 L / PERFORMA DRIFT (Inches)	DRIFT (D (Inches) 673 NCE DATA: CPLG TYPE	Setting Depth: COLLAPSE (PSI) API (CoP S340/5085 COLLAPSE (PSI) API / CoP	12,502' MD BURST (PSI) API ( CoP 9470 / 8234 BURST (PSI) API / CoP	12,023' TVD TENSION (1k LB3) API / CoP 940 / 671 TENSION (1k LB5) API / CoP	4,46 Intermedia Pri Min Burst 1.15 Burst	2.25 ate Casing Test Prior to assure Test Prior to imum Design / Sat Collapse 1.05 Actual Design Collapse	2.92 5.72 5.72 5.72 5.72 5.72 5.72 5.72 5.7
PIPE BODY D SZZE (Inches) 7,625	IMENSIONAL / Weicert (Lart) 29.7	GN INFORMA PERFORMANC GRADE P-110 CONNECTION OD (Inches) 9 623	E DATA: CPLO CPLO TYPE BTC BTC BTC (Inches) I 8.84	BORE ID (Inches) 6.875 L / PERFORMA DRIFT (Inches)	DRIFT (D (Inches) 673 NCE DATA: CPLG TYPE	Setting Depth: COLLAPSE (PSI) API 1 CoP S36/7 5065 COLLAPSE (PSI) API 1 CoP S36/7 5065	12,502" MD BURST (PSI) API / CoP 9470 / 8234 BURST (PSI) API / CoP 9470 / 8234	12,023' TVD TENSION (1k LBS) API / CoP 940 / 671 TENSION (1k LBS) API / CoP 960 / 665	4,46 Intermedia Pri Min Burst 1.15 Burst	2.25 ate Casing Test Prior to assure Test Prior to imum Design / Sat Collapse 1.05 Actual Design Collapse	2.92 5.72 5.72 5.72 5.72 5.72 5.72 5.72 5.7
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# ConocoPhillips

# H<sub>2</sub>S Contingency Plan November 2016

H<sub>2</sub>S 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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# Section

# I. Purpose

II. Scope

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Emergency Equipment Suppliers General Information H2S Safety Equipment and Monitoring Systems

- V. Emergency Call List
- VI. Public/Media Relations
- VII. Pubic Notification/Evacuation
- VIII. Forms/Reports



# HYDROGEN SULFIDE (H<sub>2</sub>S) OPERATIONS

Contingency Plan For Permian Drilling Operations

**ConocoPhillips Company** 

# Mid-Continent Business Unit Permian Asset Area

# <u>I.PURPOSE</u>

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. <u>SCOPE</u>

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<sub>2</sub>S 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<sub>2</sub>S radius of exposure (ROE). All manned barricades must be equipped with an H<sub>2</sub>S monitor and a 2-way radio.

----- Set roadblocks and staging area as determined.

Establish the Incident Command Structure by designating appropriate onscene 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

## <u>AND</u>

On-Scene Incident Command Post Public Relations Briefing Area Staging Area Triage Area Decontamination Area (Cold Zone) (Cold Zone) (Cold Zone) (Cold Zone) (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<sub>2</sub>S. 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. H <sub>2</sub> S monitors Breathing air includes cascade systems First aid and medical supplies Safety equipment H2S Specialist	432.580.3770
<u>Total Safety US Odessa. Tx/ Hobs. NM</u> H₂S monitors Breathing air includes cascade systems First aid and medical supplies Safety equipment	432.561.5049 Odessa 575.392.2973 Hobbs
DXP/ Indian Fire & Safety – Hobbs. NM H <sub>2</sub> S monitors Breathing air including cascade systems trailer mounted 30 minute air packs Safety Equipment	575.393.3093
<u>TC Safety – Odessa. Tx.</u> H <sub>2</sub> S monitors Cascade systems trailer mounted 30 minute air packs Safety Equipment H2S Specialist	432.413.8240
<u>Secorp Industries – Odessa. Tx.</u> H2S Monitor Systems Cascade Systems H2S Specialist H2S, CPR, First Aid Training	432.614.2565

# **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 – <u>Entrance Warning Sign</u> 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 <u>Audible</u> warning system located on rig floor
- 2 <u>Visual</u> 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

<u>Note:</u>

1. All SCBA's must be <u>positive pressure</u> type only!!!

2. All SCBA's must either be Scott or Drager brand.

3. All SCBA's face pieces should be <u>size large</u>, unless otherwise specified by the Drilling Supervisor.

5 – <u>Emergency Escape Paks</u> located at Top Doghouse.

Note: Ensure provisions are included for any personnel working above rig floor in derrick.

Zia Hills 20 Federal Pad #1 1 – <u>Tri or Quad gas monitor</u> 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: 432.684.5581Midland, Texas

New Mexico Oil Conservation CommissionOffice: 575.393.6161P. O. Box 1980Hobbs, 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 <u>Location Information Sheet</u> 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 <u>only with facts.</u> 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

 <u>Public Notification</u> – If the escape of gas could result in a hazard to area residents, the general public, or employees, the person <u>first</u> observing the leak should take <u>immediate</u> 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.

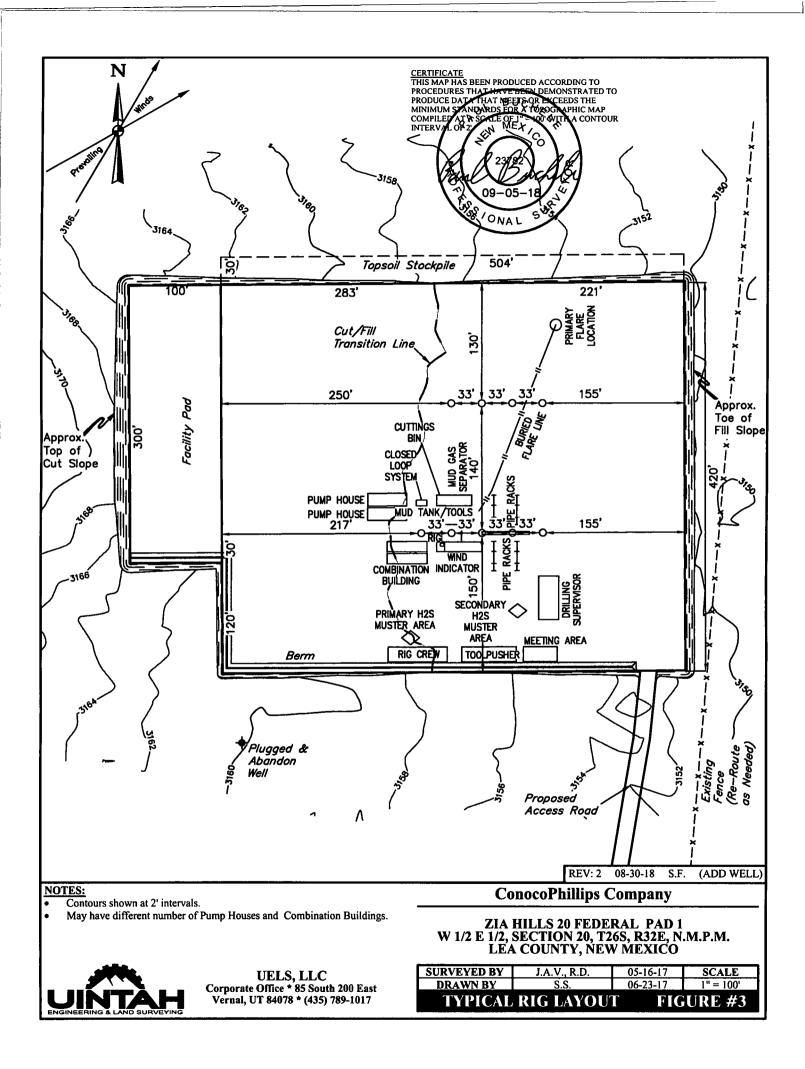
 Evacuation Procedures – Evacuation will proceed upwind from the source of the release of H<sub>2</sub>S. Extreme caution should be exercised in order to avoid any depressions or low-lying areas in the terrain. The public area within the radius of exposure should be evacuated in a southwesterly and southeasterly 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



# 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

# ConocoPhillips Planning Report

Database: Company:	EDT 14 Central ConocoPhillips f		mian-Panhandle		al Co-ordinate Ref Reference:	erence:			DERAL COM 106H Original Well Elev)
Project: Site: Well: Wellbore: Design:	Gold Data Planning - NM E ZłA HILLS 20 FE ZIA HILLS 20 FE ZIA HILLS 20 FE Design A	EDERAL CO	M 106H M 106H	Nor	Reference: th Reference: vey Calculation Me	athod:	-	180.70usft (	Original Well Elev)
Project	Planning - NM Ea	ist State Zor	ne - 3001, Permiar	n Basin - Ne	w Mexico - East/So	uth East, Pla	nning Project f	or Permian	wells in NM Zone 3001
Map System: Geo Datum:	US State Plane 19 NAD 1927 (NADCO	•	•	Syste	m Datum:		Mean Sea Le	vel	
Map Zone:	New Mexico East 3	001					Using geodeti	c scale facto	זכ
Site	ZIA HILLS 20 FEI	DERAL CON	I 106H						
Site Position: From: Position Uncertainty:	Мар	0.00 usft	Northing: Easting: Slot Radius:		374,418.67 usft 697,886.94 usft 13-3/16 "	Latitude: Longitude Grid Conv			32° 1' 40.02 N 103° 41' 41.246 W 0.34 °
Well	ZIA HILLS 20 FED	ERAL COM	106H						
Well Position	+N/-S +E/-W	0.00 usft 0.00 usft	Northing: Easting:		374,418.6 697,886.9	14 usft L	Latitude: Longitude:		32° 1' 40.02 N 103° 41' 41.246 W
Position Uncertainty		2.00 usft	Wellhead Ele	vation:			Ground Level:		3,154.20 usft
Wellbore	ZIA HILLS 20 FE	DERAL CO	M 106H						
Magnetics	Model Name		Sample Date	D	eclination (°)	Di	p Angle (°)		Field Strength (nT)
l	BGGM2	018	12/1/2018		6.93		59.7	'9	47,691.91596743
Design	Design A		· · · · · · · · · · · · · · · · · · ·						
Audit Notes: Version:	0		Phase:	PLAN	т	ie On Depth:		0.00	
Vertical Section:		(u	rom (TVD) sft)	+N (us	ift) (	E/-W usft)		Direction (°)	
		0.	00	0.	00 00	0.00		178.99	

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# 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 106H		
Design:	Design A		
· · · · · · ·			

Plan S	rvey Tool Program Date		Date	9/18/2018		
I	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	A (ZIA HILLS 20 FEDERA	MWD+IFR1+MS_CoP	
					Fixed:v2:Eagleford, crustal dec	2
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	

lan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)	ТFО (°)	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 FEDEI
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

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# ConocoPhillips

## Planning Report

e			
Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle	TVD Reference:	WELL @ 3180.70usft (Original Well Elev)
	Gold Data		
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			Vertical			Vertical	Dogleg	Build	Turn
Depth (usft)	Inclination (°)	Azimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Section (usft)	Rate (°/100usft)	Rate (°/100usft)	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
	SL, 2067' FEL	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00 1,600.00	0.00	0.00	1,500.00	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" Cash	na								
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
•	FSL, 2040' FEL	00.00	0,000.04	10.00	20.00	10.00	1.00	1.00	0.00
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 92.50	-61.46	0.00 0.00	0.00 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
	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	0.00 0.00	4,491.92 4,591.92	82.47 82.47	119.36	-80.36 -80.36	0.00 0.00	0.00 0.00	0.00 0.00

9/18/2018 10:09:29AM

COMPASS 5000.14 Build 85

#### Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle	TVD Reference:	WELL @ 3180.70usft (Original Well Elev)
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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

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Measured			Vertical			Vertical 👘 🕗	Dogleg	Build	Tum
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/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
	0.00			82.47	119.36	-80.36	0.00	0.00	0.00
5,600.00 5,700.00	0.00	0.00 0.00	5,591.92 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
•				82.47		-80.36	0.00	0.00	0.00
5,900.00	0.00	0.00	5,891.92		119.36		0.00	0.00	0.00
6,000.00	0.00	0.00	5,991.92	82.47	119.36	-80.36			
6,100.00	0.00 0.00	0.00 0.00	6,091.92 6,191.92	82.47 82.47	119.36 119.36	-80.36 -80.36	0.00 0.00	0.00 0.00	0.00 0.00
6,200.00									
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
8,800.00	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
			•	82.47	119.36	-80.36	0.00	0.00	0.00
8,900.00	0.00	0.00	8,891.92			-80.36	0.00	0.00	0.00
9,000.00	0.00	0.00	8,991.92	82.47	119.36				
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

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COMPASS 5000.14 Build 85

#### Planning Report

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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	1	A mine - th	Vertical Depth	111 C	1 <b>(</b> ) 141	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
Depth (usft)	Inclination (°)	Azimuth (°)	(usft)	+N/-S (usft)	+E/-W (usft)	(usft)	(°/100usft)	(°/100usft)	(°/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	10,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,200.00		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	10,391.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,500.00		0.00	10,491.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,600.00		0.00	10,591.92	82.47	119.36	-80.36	0.00	0.00	0.00
10,700.00		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	10,891.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,000.00		0.00	10,991.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,100.00		0.00	11,091.92	82.47	119.36	-80.36	0.00	0.00	0.00
11,200.00		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	11,315.28	82.47	119.36	-80.36	0.00	0.00	0.00
KOP: 2652	' FSL, 1915' FEL								
11,350.00		179.68	11,341.92	81.97	119.36	-79.87	8.00	8.00	0.00
11,400.00		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		179.68	11,490.14	60.80	119.48	-58.69	8.00	8.00	0.00
11,550.00		179.68	11,538.16	46.91	119.56	-44.80	8.00	8.00	0.00
11,600.00		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		179.68	11,717.13	-40.89	120.05	42.99	8.00	8.00	0.00
11,800.00		179.68	11,757.51	-70.37	120.21	72.46	8.00	8.00	0.00
11,850.00		179.68	11,795.73	-102.59	120.39	104.68	8.00	8.00	0.00
11,900.00		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		179.68	11,895.66	-214.08	121.02	216.17	8.00	8.00	0.00
12,050.00		179.68	11,923.52	-255.59	121.25	257.68	8.00	8.00	0.00
12,100.00		179.68	11,948.42	-298.94	121.49	301.02	8.00	8.00	0.00
12,150.00		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		179.68	12,004.19	-437.89	122.27	439.96	8.00	8.00	0.00
12,300.00		179.68	12,016.17	-486.42	122.54	488.49	8.00	8.00	0.00
12,350.00		179.68	12,024.74	-535.67	122.82	537.74	8.00	8.00	0.00
12,400.00		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' F	SL, 1915' FEL - 8								
12,500.00		179.68	12,031.32	-685.36	123.65	687.42	0.00	0.00	0.00
12,600.00		179.68	12,031.01	-785.35	124.21	787.41	0.00	0.00	0.00
12,700.00		179.68	12,030.69	-885.35	124.77	887.41	0.00	0.00	0.00
12,800.00		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		179.68	12,029.75	-1,185.35	126.45	1,187.38	0.00	0.00	0.00
13,100.00		179.68	12,029.44	-1,285.34	127.01	1,287.37	0.00	0.00	0.00
13,200.00		179.68	12,029.12	-1,385.34	127.56	1,387.37	0.00	0.00	0.00
13,300.00		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		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

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COMPASS 5000.14 Build 85

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#### 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 106H		
Design:	Design A		

Planned Survey

Measu				Vertical			Vertical	Dogleg	Build	Turn
Dept		Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usf	t)	(°)	ര	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
13.8	00.00	90.18	179.68	12,027.24	-1,985.33	130.92	1,987.32	0.00	0.00	0.00
	00.00	90.18	179.68	12,026.92	-2,085.33	131.48	2,087.31	0.00	0.00	0.00
14.0	00.00	90.18	179.68	12,026.61	-2,185.33	132.04	2,187.31	0.00	0.00	0.00
	00.00 00.00	90.18	179.68	12,028.29	-2,285.32	132.60	2,187.31	0.00	0.00	0.00
	00.00	90.18	179.68	12,025.98	-2,385.32	133.15	2,387.29	0.00	0.00	0.00
	00.00	90.18	179.68	12,025.67	-2,485.32	133.71	2,487.28	0.00	0.00	0.00
	00.00	90.18	179.68	12,025.35	-2,585.32	134.27	2,587.28	0.00	0.00	0.00
-								0.00	0.00	0.00
•	00.00	90.18 90.18	179.68 179.68	12,025.04 12,024.72	-2,685.32 -2,785.31	134.83 135.39	2,687.27 2,787.26	0.00 0.00	0.00	0.00
	00.00 00.00	90.18	179.68	12,024.72	-2,785.31	135.95	2,787.20	0.00	0.00	0.00
	00.00	90.18	179.68	12,024.41	-2,985.31	136.51	2,987.24	0.00	0.00	0.00
-	00.00	90.18	179.68	12,023.78	-3,085.31	137.07	3,087.24	0.00	0.00	0.00
	00.00	90.18	179.68	12,023.47	-3,185.30	137.63	3,187.23	0.00	0.00	0.00
	00.00	90.18	179.68	12,023.15	-3,285.30	138.18	3,287.22	0.00	0.00	0.00
	00.00	90.18	179.68	12,022.84	-3,385.30 -3,485.30	138.74 139.30	3,387.21 3,487.21	0.00 0.00	0.00 0.00	0.00 0.00
	00.00	90.18 90.18	179.68 179.68	12,022.52 12,022.21	-3,465.30 -3,585.30	139.30	3,467.21 3,587.20	0.00	0.00	0.00
10,40	00.00				•					
-	00.00	90.18	179.68	12,021.90	-3,685.29	140.42	3,687.19	0.00	0.00	0.00
	00.00	90.18	179.68	12,021.58	-3,785.29	140.98	3,787.18	0.00	0.00	0.00
	00.00	90.18	179.68	12,021.27	-3,885.29	141.54	3,887.18	0.00	0.00	0.00
-	00.00	90.18	179.68	12,020.95	-3,985.29	142.10	3,987.17	0.00	0.00	0.00
15,90	00.00	90.18	179.68	12,020.64	-4,085.29	142.66	4,087.16	0.00	0.00	0.00
16,00	00.00	90.18	179.68	12,020.33	-4,185.28	143.22	4,187.15	0.00	0.00	0.00
16,10	00.00	90.18	179.68	12,020.01	-4,285.28	143.77	4,287.15	0.00	0.00	0.00
16,20	00.00	90.18	179.68	12,019.70	-4,385.28	144.33	4,387.14	0.00	0.00	0.00
16,30	00.00	90.18	179.68	12,019.38	-4,485.28	144.89	4,487.13	0.00	0.00	0.00
16,40	00.00	90.18	179.68	12,019.07	-4,585.28	145.45	4,587.12	0.00	0.00	0.00
16,50	00.00	90.18	179.68	12,018.76	-4,685.27	146.01	4,687.11	0.00	0.00	0.00
16,60	00.00	90.18	179.68	12,018.44	-4,785.27	146.57	4,787.11	0.00	0.00	0.00
	00.00	90.18	179.68	12,018.13	-4,885.27	147.13	4,887.10	0.00	0.00	0.00
16,80	00.00	90.18	179.68	12,017.81	-4,985.27	147.69	4,987.09	0.00	0.00	0.00
16,90	00.00	90.18	179.68	12,017.50	-5,085.27	148.25	5,087.08	0.00	0.00	0.00
17.00	00.00	90.18	179.68	12,017.18	-5,185.26	148.80	5,187.08	0.00	0.00	0.00
•	00.00	90.18	179.68	12,016.87	-5,285.26	149.36	5,287.07	0.00	0.00	0.00
	00.00	90.18	179.68	12,016.56	-5,385.26	149.92	5,387.06	0.00	0.00	0.00
-	00.00	90.18	179.68	12,016.24	-5,485.26	150.48	5,487.05	0.00	0.00	0.00
-	00.00	90.18	179.68	12,015.93	-5,585.26	151.04	5,587.05	0.00	0.00	0.00
17 5/	00.00	90.18	179.68	12,015.61	-5,685.25	151.60	5,687.04	0.00	0.00	0.00
-	00.00	90.18	179.68	12,015.30	-5,785.25	152.16	5,787.03	0.00	0.00	0.00
-	00.00	90.18	179.68	12,014.99	-5,885.25	152.72	5,887.02	0.00	0.00	0.00
-	00.00	90.18	179.68	12,014.67	-5,985.25	153.28	5,987.02	0.00	0.00	0.00
	00.00	90.18	179.68	12,014.36	-6,085.25	153.84	6,087.01	0.00	0.00	0.00
	00.00	90.18	179.68	12,014.04	-6,185.24	154.39	6,187.00	0.00	0.00	0.00
•	00.00	90.18	179.68	12,013.73	-6,285.24	154.95	6,286.99 6 386 98	0.00	0.00 0.00	0.00 0.00
	00.00	90.18	179.68 179.68	12,013.41 12,013.10	-6,385.24 -6,485.24	155.51 156.07	6,386.98 6,486.98	0.00 0.00	0.00	0.00
-	00.00	90.18 90.18	179.68	12,013.10	-6,585.24 -6,585.24	156.63	6,466.96 6,586.97	0.00	0.00	0.00
	00.00									
	00.00	90.18	179.68	12,012.47	-6,685.23	157.19	6,686.96	0.00	0.00	0.00
	00.00	90.18	179.68	12,012.16	-6,785.23	157.75	6,786.95	0.00	0.00	0.00
	00.00	90.18	179.68	12,011.84	-6,885.23	158.31	6,886.95	0.00	0.00	0.00
	00.00	90.18	179.68	12,011.53	-6,985.23	158.87	6,986.94	0.00	0.00	0.00
18,90	00.00	90.18	179.68	12,011.22	-7,085.22	159.42	7,086.93	0.00	0.00	0.00
10.00	00.00	90.18	179.68	12,010.90	-7,185.22	159.98	7,186.92	0.00	0.00	0.00

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COMPASS 5000.14 Build 85

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#### Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well ZIA HILLS 20 FEDERAL COM 106H
Company:	ConocoPhillips MCBU - Permian-Panhandle	TVD Reference:	WELL @ 3180.70usft (Original Well Elev)
	Gold Data		
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	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/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	1 <b>64.4</b> 6	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

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 cen - Point	0.00 ter	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 cen - Point	0.00 ter	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 - Point	0.00 center by 0.01	0.00 Iusft at 1245		-635.97 0 (12031.48 TV	123.38 D, -635.97 N,	373,782.73 123.38 E)	698,010.31	32° 1' 33.72 N	103° 41' 39.857 W

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#### Planning Report

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

**Casing Points** 

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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	Vertical	Local Coor	dinates		
Depth (usft)	Depth (usft)	+N/-S (usft)	+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	

COMPASS 5000.14 Build 85

# 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

#### Planning Report

D-t-h	EDT 44 OF	tral Disania -		·	A D-F-		1660 714			M 1001	
Database: Company:	EDT 14 Cen ConocoPhilli Gold Data	-	nian-Panhandle	Local Co-ordina TVD Reference:	le Ketere:	nCO:		HILLS 20 FEC 3180.70usft (			
roject:		M East State Zo	ne - 3001	MD Reference:			WELL @	WELL @ 3180.70usft (Original			
ite:	ZIA HILLS 20	D FEDERAL CO	M 106H	North Reference	:		Grid				
/ell:	ZIA HILLS 20	FEDERAL CO	M 106H	Survey Calculat	ion Metho	od:	Minimum	Curvature			
Vellbore:	ZIA HILLS 20	D FEDERAL CO	M 106 [PILOT]								
Design:	Pilot Hole							-			
Project	Planning - NN	I East State Zon	e - 3001, Permian	Basin - New Mexico - E	ast/South	East, Pla	nning Projec	t for Permian	wells in NN	I Zone 300	01
Map System: Geo Datum:		e 1927 (Exact so DCON CONUS)		System Datum:			Mean Sea l	evel			
Map Zone:	New Mexico Ea	ast 3001					Using geod	etic scale fact	or		
Site	ZIA HILLS 20	FEDERAL COM	106H								
Site Position:			Northing:	374,418.67	∕usft L	.atitude:				32° 1'	40.02 N
From:	Мар		Easting:	697,886.94	usft L	ongitude	:			103° 41' 4	1.246 W
Position Uncertainty:		0.00 usft	Slot Radius:	13-3	/16 " G	Grid Conv	ergence:				0.34 '
Nell	ZIA HILLS 20	FEDERAL COM	106H							······································	
Well Position	+N/-S	0.00 usft	Northing:	374	,418.67 u	isft	Latitude:			32° 1'	40.02 N
	+E/-W	0.00 usft	Easting:	697	,886.94 u	isft i	Longitude:			103° 41' 4	1.246 W
Position Uncertainty		2.00 usft	Wellhead Elev	vation:			Ground Leve	əl:		3,15	4.20 usf
Wellbore	ZIA HILLS 20	FEDERALCOM	M 106 [PILOT]								
Magnetics	Model Na	me	Sample Date	Declination		Di	ip Angle		Field Stre	ngth	-
							ሮት		(nT)		
· ·	BGG	GM2018	12/1/2018	ሮን	6.93		(°) 59	).79	(nT) 47,691.	91596743	
Design	BGG Pilot Hole	GM2018	12/1/2018	ሮን	6.93			9.79		91596743	
		SM2018	12/1/2018	ሮን	6.93			9.79		91596743	
Audit Notes:		SM2018	12/1/2018 Phase:	ሮን		On Depth:	55	0.79		91596743	
Audit Notes: Version:	Pilot Hole	· ·	Phase:	(°) PLAN	Tie O	On Depth:	55	0.00		91596743	
Audit Notes:	Pilot Hole	Depth Fr	Phase: om (TVD)	(°) PLAN +N/-S	Tie C +E/-1	On Depth:	55	0.00 Direction		91596743	
Audit Notes: Version:	Pilot Hole	Depth Fr (u:	Phase:	(°) PLAN	Tie O	Dn Depth: W t)	55	0.00		91596743	
Audit Notes: Version: Vertical Section:	Pilot Hole 0	Depth Fr (u: 0.	Phase: om (TVD) sft) 00	(°) PLAN +N/-S (usft)	Tie O +E/-\ (usfi	Dn Depth: W t)	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From	Pilot Hole 0 gram Depth To	Depth Fr (u: 0. Date 9/18/2	Phase: om (TVD) sft) 00 018	(°) PLAN +N/-S (usft) 0.00	Tie O +E/-\ (usfi	Dn Depth: W t) D	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro	Pilot Hole 0	Depth Fr (u: 0.	Phase: om (TVD) sft) 00 018	(°) PLAN +N/-S (usft)	Tie O +E/-\ (usfi	Dn Depth: W t)	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From	Pilot Hole 0 gram Depth To (usft)	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo	Phase: om (TVD) sft) 00 018	(°) PLAN +N/-S (usft) 0.00	Tie O +E/-\ (usfi	Dn Depth: W t) D	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft)	Pilot Hole 0 gram Depth To (usft)	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo	Phase: om (TVD) sft) 00 018 ore)	(°) PLAN +N/-S (usft) 0.00 Tool Name	Tie O +E/-\ (usfi	Dn Depth: W t) D	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft)	Pilot Hole 0 gram Depth To (usft) 2,500.00	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA I	Phase: om (TVD) sft) 00 018 ore)	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO	Tie () +E/-1 (usfi 0.00	Dn Depth: W t) D	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00	Pilot Hole 0 gram Depth To (usft) 2,500.00	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA I	Phase: om (TVD) sft) 00 018 ore) HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO	Tie () +E/-1 (usfi 0.00	Dn Depth: W t) O	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA   Pilot Hole (ZIA	Phase: om (TVD) sft) 00 018 ore) HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_Col Fixed:v2:Eagleford, col MWD+IFR1+MS_Col	Tie C +E/-1 (usfi 0.00	Dn Depth: W t) O Remarks	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00 2 2,500.00	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA   Pilot Hole (ZIA	Phase: om (TVD) sft) 00 018 HILLS 20 FEDER HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_Co Fixed:v2:Eagleford, c	Tie C +E/-1 (usfi 0.00	Dn Depth: W t) O Remarks	55	0.00 Direction (°)		91596743	······
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00 2 2,500.00	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00 3,099.76	Depth Fr (u 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I	Phase: om (TVD) sft) 00 018 HILLS 20 FEDER HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_CO Fixed:v2:Eagleford, c MWD+IFR1+MS_CO	Tie C +E/-1 (usfi 0.00 rustal dec P rustal dec	Dn Depth: W t) D Remarks	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00 2 2,500.00 3 2,600.00 4 3,099.76	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00 3,099.76 3,711.32	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I	Phase: om (TVD) sft) 00 018 HILLS 20 FEDER HILLS 20 FEDER HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_Col Fixed:v2:Eagleford, c MWD+IFR1+MS_Col Fixed:v2:Eagleford, c	Tie O +E/-1 (usfi 0.00 P rustal dec P rustal dec	Dn Depth: W t) D Remarks	55	0.00 Direction (°)		91596743	· · · · · · · · · · · · · · · · · · ·
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00 2 2,500.00 3 2,600.00	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00 3,099.76 3,711.32	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I	Phase: om (TVD) sft) 00 018 HILLS 20 FEDER HILLS 20 FEDER HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_CO Fixed:v2:Eagleford, c MWD+IFR1+MS_CO Fixed:v2:Eagleford, c MWD+IFR1+MS_CO	Tie C +E/-1 (usfi 0.00 rustal dec p rustal dec p rustal dec p	Dn Depth: W t) D Remarks	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00 2 2,500.00 3 2,600.00 4 3,099.76	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00 3,099.76 3,711.32	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I Pilot Hole (ZIA I	Phase: om (TVD) sft) 00 018 HILLS 20 FEDER HILLS 20 FEDER HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_Col Fixed:v2:Eagleford, c MWD+IFR1+MS_Col Fixed:v2:Eagleford, c	Tie C +E/-1 (usfi 0.00 rustal dec p rustal dec p rustal dec p	Dn Depth: W t) D Remarks	55	0.00 Direction (°)		91596743	
Audit Notes: Version: Vertical Section: Plan Survey Tool Pro Depth From (usft) 1 0.00 2 2,500.00 3 2,600.00 4 3,099.76	Pilot Hole 0 gram Depth To (usft) 2,500.00 2,600.00 3,099.76 3,711.32 4,211.08	Depth Fr (u: 0. Date 9/18/2 Survey (Wellbo Pilot Hole (ZIA   Pilot Hole (ZIA   Pilot Hole (ZIA   Pilot Hole (ZIA   Pilot Hole (ZIA	Phase: om (TVD) sft) 00 018 HILLS 20 FEDER HILLS 20 FEDER HILLS 20 FEDER	(°) PLAN +N/-S (usft) 0.00 Tool Name GOOD GYRO GOOD GYRO GOOD GYRO MWD+IFR1+MS_CO Fixed:v2:Eagleford, c MWD+IFR1+MS_CO Fixed:v2:Eagleford, c MWD+IFR1+MS_CO	Tie C +E/-1 (usfi 0.00 P rustal dec P rustal dec P rustal dec	Dn Depth: W t) D Remarks	55	0.00 Direction (°)		91596743	

COMPASS 5000.14 Build 85

#### Planning Report

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

Plan Sections

Measured			Vertical			Dogleg	Build	Turn		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Rate	Rate	Rate	TFO	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>´2,600.00</b>	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	

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COMPASS 5000.14 Build 85

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#### Planning Report

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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)	i.
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			ii

Planned Survey

Measured			Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/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	100.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL: 2570	FSL, 2067' FEL								
200.00		0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00		0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00		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	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00		0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00		0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.0
900.00		0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.0
								0.00	0.0
1,000.00		0.00	1,000.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00	0.0
1,100.00		0.00	1,100.00						
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	1,300.00	0.00	0.00	0.00	0.00	0.00	0.0
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.0
1,500.00		0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.0
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.0
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.0
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.0
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.0
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.0
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.0
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.0
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.0
2,400.00		0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.0
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.0
11 3/4" Cas	sing								
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.0
2,700.00	1.50	55.36	2,699.99	0.74	1.08	1.31	1.50	1.50	0.0
2,800.00	3.00	55.36	2,799.91	2.98	4.31	5.23	1.50	1.50	0.0
2,900.00	4.50	55.36	2,899.69	6.69	9.69	11.77	1.50	1.50	0.0
3,000.00	6.00	55.36	2,999.27	11.89	17.22	20.92	1.50	1.50	0.0
3,099.76	7.50	55.36	3,098.34	18.56	26.86	32.65	1.50	1.50	0.0
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	0.0
3,300.00	7.50	55.36	3,296.86	33.41	48.35	58.77	0.00	0.00	0.0
3,400.00	7.50	55.36	3,396.01	40.82	59.09	71.82	0.00	0.00	0.0
3,500.00	7.50	55.36	3,495.15	48.24	69.82	84.86	0.00	0.00	0.0
3,600.00		55.36	3,594.30	55.66	80.55	97.91	0.00	0.00	0.0
3,700.00		55.36	3,693.45	63.07	91.29	110.96	0.00	0.00	0.0
3,711.32		55.36	3,704.67	63.91	92.50	112.43	0.00	0.00	0.0
-	' FSL, 1974' FEL								
3,800.00		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	0.0
4,000.00		55.36	3,992.03	79.16	114.56	139.25	1.50	-1.50	0.0
4,000.00		55.36	3,992.03 4,091.94	81.55	118.03	143.46	1.50	-1.50	0.00
		55.36	4,191.92	82.46	119.35	145.06	1.50	-1.50	0.00
4,200.00 4,211.08		0.00	4,191.92	82.46 82.47	119.35	145.08	1.50	-1.50	-499.7
4,211.00 8 5/8" Casi		0.00	7,200.00	52.77	110.00	140.00	1.00	-1.00	
	•		4 004 00	60.47	440.00	445.00		0.00	0.04
4,300.00		0.00 0.00	4,291.92 4,391.92	82.47 82.47	119.36 119.36	145.08 145.08	0.00 0.00	0.00 0.00	0.0
4,400.00 4,500.00		0.00	4,391.92 4,491.92	82.47 82.47	119.36	145.08	0.00	0.00	0.00

COMPASS 5000.14 Build 85

#### 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			

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)	
			<u> </u>	(03)9	(usit)	(usic)			( / loousig	(11000310)	
1	4,600.00	0.00	0.00	4,591.92	82.47	119.36	145.08	0.00	0.00	0.00	
1	4,700.00	0.00	0.00	4,691.92	82.47	119.36	145.08	0.00	0.00	0.00	
ĺ	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	1
ļ	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 5.391.92	82.47	119.36	145.08	0.00	0.00	0.00	
	5,400.00 5,500.00	0.00 0.00	0.00 0.00	5,391.92	82.47 82.47	119.36 119.36	145.08 145.08	0.00 0.00	0.00 0.00	0.00 0.00	
	5,600.00	0.00	0.00	5,491.92	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	1
	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	1
	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	0 704 00	82.47	440.26	145.00	0.00	0.00	0.00	
		0.00	0.00	6,791.92		119.36	145.08 145.08	0.00	0.00		
	6,900.00 7,000.00	0.00 0.00	0.00 0.00	6,891.92 6,991.92	82.47 82.47	119.36 119.36	145.08	0.00 0.00	0.00 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	8 704 03	00 47	110.20	145.08	0.00	0.00	0.00	
1	-,	0.00	0.00	8,791.92 8 801 02	82.47 82.47	119.36 119.36		0.00	0.00		
	8,900.00 9,000.00	0.00	0.00 0.00	8,891.92 8 991 92	82.47 82.47	119.36 119.36	145.08 145.08	0.00	0.00 0.00	0.00 0.00	
	9,000.00	0.00 0.00	0.00	8,991.92 9,091.92	82.47 82.47	119.36	145.08	0.00 0.00	0.00	0.00	
	9,200.00	0.00	0.00	9,091.92 9,191.92	82.47 82.47	119.36	145.08	0.00	0.00	0.00	1
	-										
	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	
										0.00	

COMPASS 5000.14 Build 85

#### Planning Report

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

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Planned Survey

Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)		(usft)	(usft)	(°/100usft)	(°/100usft)	(°/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

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 cen - Point	0.00 ter	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				· · · ·					

Measu Dept (usfi	h Depth ) (usft)	Name	Casing Diameter (")	Hole Diameter (")	
2,5	00.00 2,500.00		11-3/4	14-3/4	
4,2	11.08 4,203.00	8 5/8" Casing	8-5/8	10-3/4	
12,2	39.08 12,231.00	5 1/2" Casing	5-1/2	7-7/8	

#### ConocoPhillips Planning Report

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

Plan	Annotations	

Measured	Vertical	Local Coor	dinates	
Depth	Depth	+N/-S	+E/-W	
(usft)	(usft)	(usft)	(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

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ConocoPhi	illing			١	WELL PL	AN SU	MMA	RY					Date: Feb 04, 2019 Version: 2 Prenared by: 1 Voss
CONCOLU	un ho												Prepared by: J. Voss
WELL	: Zia Hills 20 100	н	<u>-</u>			COUNTY,S	TATE:	Lea, Co, I	NM			1	AFE:
	: NWSE 20 T26S R3			2067' FEL		A TRRC F	PI No.: Permit:						riling Network No.: Invoice Handler ID:
BH LOC:	: SWNE 32 1265 R3	2E	53' FSL	1948' FEL		BLM F	Permit:						COST ESTIMATE DRILLING
ELEVATIONS:	: GL KB	3,157.1' +27.0'				WH C	coord.:	LAT	32° 103°	1' 41'	40.47" N 42.94" W		APLETION ACLITICS
	KB	+27.0				-UAN)	22)	LON	10.5*	41	42.04 99	<u> </u>	TOTAL
7-1/2" X 13-3/8"	FORMATIO: Quaternau		1VD 30	<u>SUBSEA</u> 3,154			DRILI	Ling Rig	PTEN 2		TARGET	FORMATION	
	Base of Fresh	h Water	328	2,856						and Stat	a Hwy652 in (	Orta, Texas, go	North on Hwy 285 toward Carisbad, NA
	Ruste		1,162	2,022 1,972									CR 449. Turn left (SW) onto CR 449 and 10 of a mile to the location.
<u>54:     ]≥i</u> 2-1/4" X 10-3/4"	Top of Sat/	Salado	1,584	1,600	Sat	Lat: 31-56-							
	Castiè Delaware Bas		2,322 4,319	862 (1,135)	Sat Sat	Lat. 31-30-	30.35 L	ong, row	-01-29.81				
	Intermediate		5,032	(1,848)	Gas/Oi						L HAZARL		ATIONS
	Cherry Ca Brushy Ca	nyon	5,243 6,773	(2,059) (3,589)	Gas / Oil Gas / Oil	Shallow kar	rst featur	es resulti	ng in full la	5588 ->		g shows little t	o no riska. Use cement plug
	Bone Spring 1 Avaion		8,393 8,661	(5,209) (5,477)	Gas / Oil Gas / Oil								casing string, Reserve pit for flow ith cut brine, LCM
	Bone Spring FBS Sho		9,320 9,608	(6,136) (6,424)	Gas / Oil Gas / Oil	Elevated pr	essure /	gas in the	e Wolfcan	ıp prior t	o INT satpoint	Set at minir	num depth of 9,460' TVD on connections
<u>       </u> }-7/8 <sup></sup> X 7-5/8 <sup></sup>	Bone Spring 2		9,669	(6,505)		Strong form	vation pu	sh in late	rel -> Mair	tain with	in 30° L/R of lin	ne, putting in q	uick maintenance slides
	Bone Spring 2 Bone Spring 3		10.045 11.131	(6,861) (7,947)	Gas / Oi Gas / Oi	1) Refer to	drillino c				S (see well and informat		dditional info)
	Bone Spring 3	ird Sand	11,131	(7,947)	Gas / Ol	2.) Offset w	ell () loca	ated of s	urface loc:	ation.		-	
	Wolfcam	•	11,544 11,768	(8,360) (8,582)	Gas / Oi Gas / Oi	3.) The prin 4.) Surface:					00		
	Intermediate 2 Cas		12,023	(8,839) (8,839)			4° max.,	1.5*/ 100	SVY ever	ry 90' (sv	ry every 30° in I	build and drop	30' in curve)
	D		12,023	(0,039)		J. J Laweral V	- 18 176 78	- si (0 10	~ - #01 MO				
VII VII													
<i>۱۱۱۱</i>													
6-3	3/4" X 5-1/2 x 4-1/2"	Toe Sie	eve MD: 0, ' F	SL		CONTAC	те						
						CONTAG	13					Offi	ce <u>Cell</u>
5/8 in. shoe 22196' MD	TARGE	т	12,023	(8,582)	Gas / Oð		Drilling E	ngineer	Jake Vo	055		832-486	-2041 832-499-9085
383 TSL	PBTD	,	12,023	(8,582)	Gas / Oil		G	eologist:	Josh Da	∃y		281-206	-5620 423-512-0347
						On	site Drilli	ng Rep.:	Greg Ri			432-848	-5238
timated BH Static Tem	perature (°F):	205					aid Drillin	ng Supt.:	Dennis James			830-583	-4828 956-229-1393
x. Anticipated BH Pres		0.700 pair	6,416 psi		5 ppg				Patrick			004 004	432-215-7079
x Anticipated Surface I	Pressure: Type		5,771 psi		At gradient Density	Vis	Dram PV	ng Supt.: YP	Scott N	EL	n L <u>GS</u>	281-206 Alkelinity	-5392 432-230-8010 NaCl Remarks
Surface:		and a	(M Surface		PP9 8.6	eec/qt	ся 1-5	#100ft2 2-6	7.5-8.5	mL NC	% by vol < 5.0		ppb sol Rig Tanks Rig Tanks
Guibes.			001200	- 1,212	0.0	2000	i.		7.0-0.0			10,000	
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: Production:			5032 - 12502 -		9.5 13.5		1-5 8-25	2-6 8-14	7.5-8.5 9.5-10	NC < 8	< 5.0 < 8.0		Rig Tanks Rig Tanks Rig Tanks Potential for 14ppg Mud Cap
ference Drilling Fluids	Program												
SING: Surface:	<u>Hole</u> 17.5	<u>TOP (MD)</u> 27	BTM (MD) 1,212	Length 1,185	<u>Size</u> 13 3/8	54.50	J-55	Conne BT			BOP: Minimum -		Well Control Requirements
Contingency Intermediate:		ACP/D\ 27	Tool run 100 / 5,032	below wate 5,005	r board depth 10 3/4		, J-55	BT	6		Rig - Stackup -		10M psi Rems / 4-1/16"x10M psi Manifol ad, 5M Annutar Preventer,
		27											
intermediate:	Int2 ACP/DV Tool	6500	11,302	11,275	7 5/8		-110	BT				Pipe Rem, E	
Intermediate: Production;		11,302 27	12,502' 22,526'	1,200' 22,499'	7 5/8 5-1/2		'-1 10 '-1 10	H5* TX				Mud Cross ( Pipe Ram	Choke & Kill Valves),
INTRALIZATION:	4 2 lainte frans 4 7		2 ininta fram 1	707 to eurfa	-						Mud Rh-	Final Based	Electronic PVT with Else Bensor and Gr
	Shoe joint. 1 per 3 joi	nta From FC' to									muu Pit.		arms +/- 10 BBLS
rmediate 2 Casing: duction Casing:	Shoe joint, 1 per joint   Rigid body 1 per 2 join							vinta to su	face		Weilhead;	13-5/8° x 5M	psi Cameron Multibowi (4 String)
MENT:	Hole 17-1/2"X13-3/8"	MD 1,212	1 <u>VD</u> 1,212		acer ots FW	560		d C + add			<u>Ipil</u> 450 sx Class (	`+ adds	COMMENTS Commented to surface w/ 100%XS
Stortore						12	8 ppg 2	05ft3/sk			14.8 ppg 1.32	2 ft3/sk	Add FiberBlock
		5,032	5,032	40 DDI (M	ert Spacer		0 sx WB 1 ppg 2.1	L + adds 97ft3/sk	_	1	90 ax Thermal 13.8 ppg 1.18		Cemented to surface w/ 70%L / 30% XS calc'd on 12.25" hole
Surface: Intermediate:	12-1/4"X 10-3/4"												
	12-1/4"X 10-3/4"								_				
		12,502	12,023	20 bbis 10.	5 ppg spacer			55 C + at	ids		680 sx Class H		
Intermediate:		12,502° 6500	12,023 6,500°		5 ppg spacer 5 ppg spacer	1* 175 sx	1 ppg 2.5 Poz/Cla	57113/sk iss C + ad	_		680 sx Class I 13.8 ppg 1.18		TOC 500° into previous casing shoe v 70% L / 30% T XS
Intermediate:	9-7/8" x 7-5/8" Stage 2					1* 175 sx	1 ppg 2.5 Poz/Cla	57ft3/sk	_			3 ft3/sk	TOC 500' into previous casing shoe v 70%L / 30%T XS Cemented 100' above KOP 10% XS
Intermediate: Intermediate: Production:	9-7/8" x 7-5/8" Stage 2 6-3/4"X 5-1/2"	6500	6,500	20 bbis 10.		1* 175 sx	1 ppg 2.5 Poz/Cla	57113/sk iss C + ad	_		13.8 ppg 1.18	3 ft3/sk I + adds	70%L / 30%T XS
Intermediate: Intermediate: Production: ference Cementing Re ECTIONAL PLAN:	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" commendation	6500 22,526	6,500 <sup>,</sup> 12,023 <sup>,</sup>	20 bbis 10. 20 bbis 14.	5 ppg spacer 5 ppg spacer	1 175 sx 10	1 ppg 2. Poz/Cla .8 ppg 2	57ft3/sk ssC+ao 57ft3/sk	ids		13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11	3 ft3/sk   + adds 9ft3/sk	70%L / 30%T XS Cemented 100° above KOP 10% XS catc'd on 6.75° hole
Intermediate: Intermediate: Production: ference Cementing Re	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" commendation	6500	6,500	20 bbis 10.	5 ppg spacer	1 175 sx 10	1 ppg 2.4 Poz/Cla .8 ppg 2	57113/sk iss C + ad	_		13.8 ppg 1.18 953 sx Class H	3 ft3/sk I + adds 9ft3/sk <u>Section</u>	70%L / 30%T XS Cemented 100' above KOP 10% XS cat'd on 8.75' hole
Intermediate: Intermediate: Production: Renence Cementing Re RECTIONAL PLAN: <u>Cemmer</u> Int 1 Cas	9-7/8* x 7-5/8* Stage 2 6-3/4*X 5-1/2* ecommendation mis	6500 22,526 <u>MD</u> (ft) 5,032	6,500 <sup>°</sup> 12,023 <sup>°</sup> <u>INC</u> ( deg ) 11	20 bbis 10. 20 bbis 14. <u>AZI</u> (deg) 179	5 ppg spacer 5 ppg spacer 1VP ( n ) 5,032	1 175 tox 10 <u>NS</u> (R) 0	1 ppg 2.5 Poz/Cla .8 ppg 2 EW (ft ) 0	57ft3/sk ss C + ac 57ft3/sk <u>PL8</u> (*1007) 0.0	1ds <u>V3</u> (ft) 0	<u>8</u> 20 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.19 EC-T-R 26S R32E	3 ft3/sk I + adds 9ft3/sk <u>Section</u> 2570° FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS catc'd on 8.75° hole
Intermediate: Intermediate: Production: Reference Cementing Re RECTIONAL PLAN: Commer Int 1 Cas Tangent KOP, Build End Build (	9-7/8* x 7-5/8* Stage 2 6-3/4*X 5-1/2* scommendation mis sing kd @ 1.5*/100* @ 12*	6500 22,526 <u>MD</u> (11) 5,032' 6,500' 7,269'	6,500 <sup>°</sup> 12,023 <sup>°</sup> (deg) 11 0 11.54	20 bbis 10. 20 bbis 14: (deg) 179 0 6.6	5 ppg spacer 5 ppg spacer 1VR (R) 5,002 6,500 7,264	1 175 so 10 10 <u>NS</u> (R) 0 0 77	1 ppg 2. Poz/Cia 8 ppg 2 EW (ft) 0 0 9	57rt3/sk iss C + ad 57rt3/sk <u>57rt3/sk</u> (*/1007) 0.0 0 1.5	103 (ft) 0 -77	<u>9</u> 20 T 20 T 20 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.19 EC-I-R 265 R32E 265 R32E 265 R32E 265 R32E	3 h3/sk 1 + adds 9h3/sk Section 2570' FSL 2570' FSL 2647' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS catcd on 6.75° hele Line Distance 2087 FEL 2067' FEL 2057' FEL
Intermediate: Intermediate: Production: Rennce Cementing Re RECTIONAL PLAN: Semms: Int 1 Cas Tangent KOP, Bui End Build Drop @ 07	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" ecommendation mis sing 12" 100"	6500 22,526 <u>MD</u> (11) 5,032 6,500	6,500' 12,023' (deg) 11 0	20 bbis 10. 20 bbis 14. AZI (deg) 179 0	5 ppg spacer 5 ppg spacer 1VD (R) 5,032 6,500	1 175 fox 10 10 10 10 (R) 0 77 641'	1 ppg 2.5 Poz/Cis .8 ppg 2 EW (ft ) 0 0	57ft3/sk ss C + ac 57ft3/sk <u>PL8</u> (*/1007) 0.0 0	103 V3 (n) 0 0	20 T 20 T 20 T 20 T 20 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.19 <u>EC-T-R</u> 26S R32E 26S R32E	3 h3/sk I + adds 9h3/sk <u>Section</u> 2570' FSL 2570' FSL	70%L / 30%T XS Cemented 100' above KOP 10% XS catc'd on 6.75' hole Line Distance 2067 FEL 2067 FEL 2058' FEL 1993' FEL
Intermediate: Intermediate: Production: Genece Comenting Re ECTIONAL PLAN: Comment End PLAN: Int 1 Cas Tangent KOP, Build ( Drop @ 0° KOP, Build ( LP	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation mis sing kd @ 1.5"/100" @ 12" 100"	65500 22,526* (#) 5,032* 6,500* 7,269* 10,107* 11,376* 12,502*	6,500 <sup>°</sup> 12,023 <sup>°</sup> (deg) 11 0 11,54 11,54 0 90	20 bbis 10. 20 bbis 14. (deg) 179 0 8.6 6.6 0 355	5 ppg spacer 5 ppg spacer (n) 5,032 6,500 7,264 10,045 11,309 12,023	1 175 m 10 10 10 10 10 10 10 10 10 10	1 ppg 2. Poz/Cla 8 ppg 2 EW (ft) 0 0 9 74 83 87	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> <u>157ft3/sk</u> 0.0 0 1.5 0.0 0 8	1ds <u>V3</u> (ft) 0 -77 -716 -716 -332	20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.10 EC-T-R 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E	3 h3/sk 1 + adds 9ft3/sk Section 2570' FSL 2647' FSL 328' FSL 328' FSL 328' FSL 328' FSL 328' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hele Uno Distance 2067 FEL 2067 FEL 2058' FEL 1993' FEL 1994' FEL 1984' FEL
Intermediate: Intermediate: Production: Reserved Community Re RECTIONAL PLAN: Int 1 Cas Tangent KOP, Build Q Drop Q O KOP, Build Q Drop S O FTP 1 Toe Sie FTP 1 Toe Sie	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation mis sing 15"/100" 9 12" 7100" 9 8'/100" 9 8'/100" 9 8'/100"	6500 22,526 (ft) 5,032 6,500 7,269 10,107 11,376 12,502 22,166 22,246	6,500' 12,023' (deg) 11 0 11.54 11.54 11.54 0 90 90 90	20 bbis 10. 20 bbis 14: ( deg ) 179 0 6.6 6.6 0 3555 2 2 2	5 ppg spacer 5 ppg spacer 1VP (R) 5,032 6,500' 7,284' 10,045' 11,309' 12,023' 12,023'	1 175 sx 19 19 19 19 10 0 0 77 641 718 1 9517 9557	1 ppg 2. Poz/Cla 8 ppg 2 EW (ft ) 0 0 9 74 83 87 301 301	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> (*/1007) 0.0 0 1.5 0.0 0 8 0 0 0	105 <u>V3</u> (n) 0 -77 -716 -332 9,521 9,571	20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E	3 h3/kk H + adds 90:3/sk 2570' FSL 2570' FSL 2570' FSL 3211' FSL 3288' FSL 2571' FSL 3283' FSL 333' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hole Una Distance 2067 FEL 2067 FEL 2058' FEL 1993' FEL 1994' FEL 1994' FEL 1944' FEL 1944' FEL
Intermediate: Intermediate: Production: Rectional PLAN: ECTIONAL PLAN: Genmes Int 1 Cas Tangent KOP, Bui End Build Drop & OT KOP, Build @ U D Too Siee	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation mis sing 15"/100" 9 12" 7100" 9 8'/100" 9 8'/100" 9 8'/100"	65500 22,526* (ft) 5,032* 6,500* 7,269* 10,107* 11,376* 12,502* 22,196*	6,500' 12,023' (deg) 11 0 11,54 11,54 0 90 90	20 bbis 10. 20 bbis 14: (deg) 179 0 6.6 6.6 0 355 2	5 ppg spacer 5 ppg spacer 11,309 12,023' 12,023'	1 175 sx 19 19 19 19 10 0 0 77 641 718 1 9517 9557	1 ppg 2. Poz/Cla 8 ppg 2 EW (n) 0 9 74 83 87 301	57ft3/sk ss C + ac 57ft3/sk <u>7/1007</u> 0,0 0 1.5 0,0 0 8 0,0	1ds 1 1 1 1 1 1 1 1 0 0 -77 -716 -332 9,521	20 T 20 T 20 T 20 T 20 T 20 T 20 T 20 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E	3 h3/sk 9h3/sk 2570' FSL 2570' FSL 2570' FSL 2647' FSL 3211' FSL 3288' FSL 2571' FSL 383' FSL	70%L / 30%T XS Cemented 100' above KOP 10% XS cat'd on 8.75' hole Line Distance 2087 FEL 2087 FEL 2088 FEL 1993 FEL 1994 FEL 1994 FEL 1994 FEL
Intermediate: Intermediate: Production: ference Cementing Re RECTIONAL PLAN: Commer Int 1 Cas Tangent KOP, Buil End Build Drop @ 0* KOP, Build Drop @ 0* FTP / Toe Si PBHL/I	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation mis sing 1.5"/100" 9 12" 1.5"/100" 9 12" 1.5"/100" ve 2 leeve 1 TD	6500 22,526 (ft) 5,032 6,500 7,269 10,107 11,376 12,502 22,166 22,246	6,500' 12,023' ( deg ) 11 0 11,54 11,54 11,54 90 90 90 90 90	20 bbis 10. 20 bbis 14: (deg) 179 0 8.6 0 355 2 2 2 2	5 ppg spacer 5 ppg spacer 1 <u>VB</u> 1 R } 5,002 6,500 7,284 10,045 11,309 12,023 12,023 12,023 12,023	1 175 sx 10 10 (R) 0 0 0 77 641' 718 1 9517 9567 9847	1 ppg 2.4 Poz/Cla 8 ppg 2 EW (tt) 0 0 9 74 83 87 301 301 301	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> <u>1.5</u> 0.0 0 1.5 0.0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	V3 (ft) 0 -77 -716 -332 9,521 9,571 9,851	8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 32 T 32 T 32 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 268 R32E 268 R32E	3 1734sk 1 + edds 61734sk 2570' FSL 2570' FSL 2570' FSL 2571' FSL 3281' FSL 333' FSL 53' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hele Ling Distance 2067 FEL 2058' FEL 1993' FEL 1984' FEL 1984' FEL 1948' FEL 1948' FEL
Intermediate: Intermediate: Production: Rectional PLAN: Control Control Control Int 1 Cas Tangent KOP, Buil End Build Drop & Or KOP, Build @ UP Too Siee FTP / Too Si PBHL/T	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation min sing kl @ 1.5"/100" @ 12" /100" @ 12" /100" @ 12" /100" /100" @ 12" /100" /100" @ 12" /100" /	6500 22,526 (ft) 5,032 6,500 7,269 10,107 11,376 12,502 22,166 22,246	6,500' 12,023' ( deg ) 11 0 11,54 11,54 11,54 90 90 90 90 90	20 bbis 10. 20 bbis 14: (deg) 179 0 8.6 0 355 2 2 2 2	5 ppg spacer 5 ppg spacer 1 <u>VB</u> 1 R } 5,002 6,500 7,284 10,045 11,309 12,023 12,023 12,023 12,023	1 175 sx 10 10 (R) 0 0 0 77 641' 718 1 9517 9567 9847	1 ppg 2.4 Poz/Cla 8 ppg 2 EW (tt) 0 0 9 74 83 87 301 301 301	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> <u>1.5</u> 0.0 0 1.5 0.0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	V3 (ft) 0 -77 -716 -332 9,521 9,571 9,851	8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 32 T 32 T 32 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E 265 R32E	3 1734sk 1 + edds 61734sk 2570' FSL 2570' FSL 2570' FSL 2571' FSL 3281' FSL 333' FSL 53' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hele 2067 FEL 2067 FEL 2058' FEL 1993' FEL 1984' FEL 1984' FEL 1948' FEL 1948' FEL
Intermediate: Production: Rence Cementing Re RECTIONAL PLAN: Int 1 Cas Tangent KOP, Buil End Build Drop @ 0° KOP, Build @ Drop @ 0° KOP, Build @ FTP / Toe Sien FTP / Toe Sien FTP / Toe Sien FTP / Toe Sien RMATION EVALUATI Mud Logsing -	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" ecommendation mis sing 12 (1.5"/100" (2) 1.5"/100" (2) 1.5"/100" (2) 1.5"/100" (3) 8"/100" ve 2 leave 1 TD an NON: One-Man:	6500 22,526 (11) (11) 5,000 7,269 10,107 11,376 12,502 22,186 22,246 22,246 22,526 First surface J	6,500' 12,023' (deg) 11 11 11,54 0 90 90 MWD Surve nois to TD. Fir	20 bbls 10. 20 bbls 14: (deg) 179 0 8.6 8.6 0 355 2 2 2 2 2 2 2 2 3 will be tak st intermedia	5 ppg spacer 5 ppg spacer 1VB (n) 5,032 6,500' 7,284' 10,045' 11,309' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' en at 90' inter	1 175 sx 10 10 (R) 0 0 0 77 641' 718 1 9517 9567 9847	1 ppg 2.4 Poz/Cla 8 ppg 2 EW (tt) 0 0 9 74 83 87 301 301 301	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> <u>1.5</u> 0.0 0 1.5 0.0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	V3 (ft) 0 -77 -716 -332 9,521 9,571 9,851	8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 32 T 32 T 32 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 268 R32E 268 R32E	3 1734sk 1 + edds 61734sk 2570' FSL 2570' FSL 2570' FSL 2571' FSL 3281' FSL 333' FSL 53' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hele Ling Distance 2067 FEL 2058' FEL 1993' FEL 1984' FEL 1984' FEL 1948' FEL 1948' FEL
Intermediate: Intermediate: Production: Cernoral PLAN: Commercial Int 1 Cas Tangent KOP, Buil End Build Drop @ 0" KOP, Build @ Drop @ 0" KOP, Build @ Drop @ 0" KOP, Build @ Drop @ 0" KOP, Build @ PBHUT Toe Siee FTP / Toe Si PBHUT Toe Siee Commercial Plant	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation mis sing ki @ 1.5"/100" @ 12" y 8"/100" ve 2 leave 1 TD an Cone-Man: Two-Man: Two-Man: TPEX	6500 22,526 <u>MD</u> (11) 5,037 6,500 7,2569 10,107 11,376 12,502 22,106 22,246 First surface I https://doi.org/10.107 12,526 First surface I https://doi.org/10.107 10,107 12,526 First surface I https://doi.org/10.107 10,107 12,526 First surface I https://doi.org/10.107 First surface I https://doi.org/10.107 First surface I https://doi.org/10.107 First surface I https://doi.org/10.107 First surface I first surface I	6,500' 12,023' (deg) 11 11 11,54 0 90 90 MWD Surve nois to TD. Fir	20 bbls 10. 20 bbls 14: (deg) 179 0 8.6 8.6 0 355 2 2 2 2 2 2 2 2 3 will be tak st intermedia	5 ppg spacer 5 ppg spacer 1VB (n) 5,032 6,500' 7,284' 10,045' 11,309' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' en at 90' inter	1 175 sx 10 10 (R) 0 0 0 77 641' 718 1 9517 9567 9847	1 ppg 2.4 Poz/Cla 8 ppg 2 EW (tt) 0 0 9 74 83 87 301 301 301	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> <u>1.5</u> 0.0 0 1.5 0.0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	V3 (ft) 0 -77 -716 -332 9,521 9,571 9,851	8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 32 T 32 T 32 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 268 R32E 268 R32E	3 1734sk 1 + edds 61734sk 2570' FSL 2570' FSL 2570' FSL 2571' FSL 3281' FSL 333' FSL 53' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hele Ling Distance 2067 FEL 2058' FEL 1993' FEL 1984' FEL 1984' FEL 1948' FEL 1948' FEL
Intermediate: Production: Grance Cementing Re- ECTONAL PLAN: Int 1 Cas Tangent KOP, Build ECTONAL PLAN: Int 1 Cas Tangent KOP, Build Drop & O' KOP, Build @ Drop & O' KOP, Build & O' KOP, Bui	9-7/8" x 7-5/8" Stage 2 6-3/4" X 5-1/2" scommendation mis sing kd @ 1.5"/100" @ 12" 7100" @ 12"	6500 22,526 (11) 5,032 6,500 7,269 10,107 11,376 12,502 22,166 22,246 22,256	6,500 12,023' (deg) 11 0 11.54 11.54 11.54 0 90 90 90 90 90 90 90 90 90	20 bbls 10. 20 bbls 14: (deg) 179 0 8.6 8.6 0 355 2 2 2 2 2 2 2 2 3 will be tak st intermedia	5 ppg spacer 5 ppg spacer 1VB (n) 5,032 6,500' 7,284' 10,045' 11,309' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' 12,023' en at 90' inter	1 175 sx 10 10 (R) 0 0 0 77 641' 718 1 9517 9567 9847	1 ppg 2.4 Poz/Cla 8 ppg 2 EW (tt) 0 0 9 74 83 87 301 301 301	57ft3/sk ss C + ac 57ft3/sk <u>57ft3/sk</u> <u>1.5</u> 0.0 0 1.5 0.0 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	V3 (ft) 0 -77 -716 -332 9,521 9,571 9,851	8 20 T 20 T 20 T 20 T 20 T 20 T 20 T 32 T 32 T 32 T	13.8 ppg 1.18 953 sx Class H 15.6 ppg 1.11 EC-T-R 268 R32E 268 R32E	3 1734sk 1 + edds 61734sk 2570' FSL 2570' FSL 2570' FSL 2571' FSL 3281' FSL 333' FSL 53' FSL	70%L / 30%T XS Cemented 100° above KOP 10% XS cat/d on 6.75° hele 2067 FEL 2067 FEL 2058' FEL 1993' FEL 1984' FEL 1984' FEL 1948' FEL 1948' FEL

~					WELL P	LAN S	UMM	ARY						Date: Feb 04, 2019 Version: 2
ConocoPhil	lips			1280	Extended	d Read	h Sin	gle La	teral					ared by: J. Voss
14511.	Zia Hills 20	1061				COUNTY	STATE:	Lea, Co,	NM			T -	·	AFE:
SURFACE LOC:		S R32E		2067' FEL 1984' FEL		TRR	API No.: C Permit: A Permit:						Drilling Net Invoice Ha	
ELEVATIONS:	GL KB	3,157,1 +27.0'					l Coord.: 2-83)		32° 103°	1' 41'	40.47" N 42.94" W	6	DRILLING COMPLETION FACILITIES	N
<u> </u>	500144		7/0	01/0054									τοτΑ	
7-1/2" x 13-3/8"	Quate	TION TOP: mary Fill	<u>TVD</u> 30	SUBSEA 3,154				illed with	safety and	d protectio	on of the envir	onment as	the primary o	bjectives.
2-1/4" X 10-3/4"	Ri Surfac Top Cea Detaware Intermedi Cherny Brushy Bone Bone Sprin Bone Sprin Bone Sprin Wol Wolf	reah Water Istler e Casing of Salt Istille Base of Salt ate 1 Casing / Canyon / Canyon Springs rgs 1st Sand rgs 3rd Sand rgs 3rd Sand reamp A Depth	328 1,162 1,212 1,584 2,322 4,329 5,032 5,243 6,773 8,163 9,320 10,045 11,131 11,544 11,766 12,281	2,856 2,022 1,972 1,600 862 (1,135) (2,059) (3,589) (4,979) (6,136) (6,861) (7,947) (8,360) (8,582) (9,096.9)	Fresh Water Fresh Water Salt Salt Gas / Oil Gas / Oil	The objet           casing.           Notes           1.) This v           2.) Refer           3.) Offset           6.) Int: 11           7.) The p           5.) Surfat           6.) Int: 11           7.) 10-3/4           8.) 9-76*           9.) A cerr           Have not           Have not           Maintain or           Obtain gc	vell will be to drilling well () loc rimary reg 54° max. 'Casing v Pilot hole went plug v lost time o spills or ac stuck pipe t circulatio	drilled with procedure ated of s ulatory ag . 1, 17 100 vill be set will be pur r recordal tverse em incidents n incidents n incidents and folk g data.	th Patterss of or addit unface loc ency is th DLS; svy 2; svy eve across th across th across th across th across th across th to TD nped at TI ped at TI ped at TI ped at CI s s s w Conoc	on 256. ional deta ation. e BLM. e very 50 ory 90' (sv e salt zor o of 12,14 D and bro nts. al impact.	iil and informa 10' y every 30' in te to allow for 5' MD. WBM n ught up to KO	tion. build and d WBM to be eeds to be P for landir	rop, 30' in cu used for Pik used for cut	ot Hole
						CONTA	CTS							
	TAF	RGET	12,281	(9,097)	Gas / Oil		Drilling	Engineer:	Jake V	oss			<u>)ffice</u> 186-2041	<u>Cell</u> 832-499-9085
		nation Dip Rate: BTD	est 90.1* 12,281	(up dip) (9,097)	Gas / Qil		( Onsite Dril	-	Josh D Grea R	-			206-5620 348-5238	423-512-0347
mated BH Static Temp		220					Field Drill		Dennis James	Hously Taylor	-		583-4828	956-229-1393
Anticipated BH Press Anticipated Surface P		0.7 psi/ft	8,474 psi 4,596 psi	13.	3 ppg		Drill	ing Supt.:	Scott N	Wellma		281-2	206-5392	432-215-7079 432-230-8010
LLING FLUID:	Ľ	<u>ype</u>	<u>inte</u> M		Density	<u>Vis</u> sec/gt	PV ¢P	YP #100ft2	ъĦ	FL mL	LGS % by vol	NaCI ppb sol	<u>Remarks</u>	
Surface: Intermediate 1:		Water ied Brine	Surface 1212' -		8.6 9.2	28-50 28-49	1-5 1-4	2-6 2-5	7.5-8.5 7.5-8.5	NC NC	< 5.0 < 5.0	10,000	Rig Tanks Rig Tanks	
Intermediate 2:	W	/BM	5032' -		9.5	28-50	1-5	2-6	7.5-8.5	NC	< 7.0	10,000	Rig Tanks	
erence Drilling Fluids P. ING:	ogram <u>Hole</u>	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Conne	ction		BOP:			
Surface:	17-1/2*	27' ACP/D	1,212' V Tool run 10	1,185	13 3/8 Iter board dep	54.50	J-55	BT			Minimum - Rig -			ntrol Requirements ms / 4-1/16"x10M psi Man
		27' m 1,700' to FC. 1 p joint from FC to 7,1				40.50 oints 2,300'	J-55 to surface.	BT	с		Waste Handling: Mud Pit:	Pipe Ran Mud Cros Pipe Ran Closed lo approved Float Bas	n, Blind Ram, ss (Choke & I n oop cuttings o I facility. sed Electronia	
MENT:	Hole	MD	TVD	Si	acer		Lei	d			Weilhead: <u>Tail</u>	13-5/8" x		sing Head - "A" Section) /ENTS
	17-1/2"X13-3/		1,212		DI FW		x Control 12.8 ppg 2	Set 'C' + /		4	150 ax Type 'll 14.8 ppg 1.32		Came	nted to surface w/ 100%X iberBlock
Intermediate:	12-1/4"X10-3/	'4 <b>°</b> 5,032'	5,032	40 bbi in	vert Spacer	:	320 sx WE 11 ppg 2.	L + adds		1	14.6 ppg 1.32 190 sx Class H 13.8 ppg 1.18	i + adds	Cerne 30%T	nted to surface w/ 70%L / XS calc'd on 12.25" hole iberBlock
Pilot Hole Cement	9-7/8"	12,349'	12,281'	40 Ы	Visweep		lass 'H' +						Plug b	ack to 200' above KOP fo
rence Cementing Rec	ommendation					17.0 ppg	u.99 ft3/sl							. 1.20% CD-32 + 0.10% F lb/sk Static Free
ECTIONAL PLAN: Comments		MD	NC	AZI	TVD	NS	EW	DLS	VS	9	EC-T-R	Section	on Line Dist	ance
		(#)	(deg)	(deg)	(#)	(ft)	(ft)	(*/100')	(ff)					
Build @ 1.5% End Build @		6,500 <sup>,</sup> 7,269 <sup>,</sup>	0 11.54	0 6.6	6,500' 7,264'	0 77	0 9	0 1.5	0 -77		26S R32E 26S R32E	2570 F 2647 F		7' FEL 8' FEL
Drop @ 1.5"/1	00'	10,107	11.54	6.6	10,045	641'	74	0.0	-716	20 T	26S R32E	3211' 8	FSL 199	3' FEL
Complete Drop, Hold : KOP (Post Pilot Hole C		10,877 11,377	0	0	10,809' 11,309	718 718	83 83	1.5 0	-716 -716		26S R32E 26S R32E	3288' A 3288' F		4' FEL 4' FEL
Pilot Hole T	D	12,349	0	0	12,281	718	83	0	-716	20 T	26S R32E	3288' F	SL 198	4' FEL
MATION EVALUATION Mud Logging - Mud Logging -		First surface	hole to TD.		ien at 90' inter	vai Delow	SUITACE CE	ising, 30'	wnie buik	aing curve	e, and every 9	u wnite dril	ung latèrai.	
					run through p	oilot hole)								
Open Hole -	GR/RES/DE		(Quad Comp		• •									
	GR/RES/DE	NA 200' above K	-			-								

#### ZIA HILLS 20 FEDERAL PAD #1

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# SPECIFICATIONS

FLOOR: 3/16" PL one piece

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CROSS MEMBER: 3 x 4.1 channel 16" on center

WALLS: 3/16" PL solid welded with tubing top, insi de liner hooks

DOOR: 3/16" PL with tubing frame FRONT: 3/16" PL stant formed

PICK UP: Standard cable with 2" x 6" x 1/4" rails, gu sset at each crossmember

WHEELS: 10 DIA x 9 long with rease fittings DOOR LATCH: 3 Independent ratchet binders with chains, vertical second latch GASKE TS: Extruded rubber seal with metal retainer s

WELDS: All welds continuous except substructur e crossmembers

FINISH: Coated inside and out with direct to metal, rust inhibiting acrylic enamel color coat HYDROTESTING: Full capacity static test DIMEN SIONS: 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

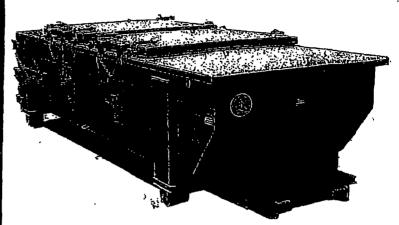
ROLLERS: 4" V-groove rollers with defrin bearings and grease filtings OPENING: (2) 60" x 82" openings

with 8" divider centered on container

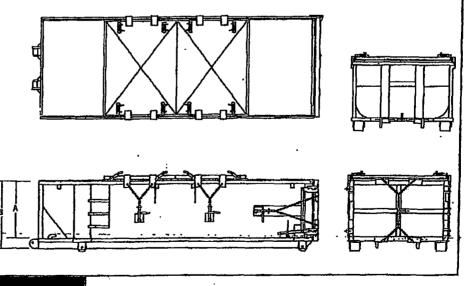
LATCH :(2) independent ratchet binders with chains per lid

GASKETS: Extruded rubber seal with metal retainers

## Heavy Duty Split Metal Rolling Lid



CONT.	Α	В
20 YD	41	53
25 YD	53	65
30 YD	65	77



31

Pilot hole depth

12,281

MD at TD:	22,526'	Deepest expe	cted 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	0&G	
Ford Shale	4,464	-1,280	0 & G	
Cherry Canyon	5,243	-2,059	0&G	Losses
Brushy Canyon	6,773	-3,589	0&G	Losses
Bone Springs	8,393	-5,209	0&G	Abnormal pressure
Bone Springs 1 <sup>st</sup> Carb	9,320	-6,136	0&G	Abnormal pressure
Bone Springs 2 <sup>nd</sup> Carb	9,689	-6,505	0&G	Abnormal pressure
Bone Springs 3rd Carb	11,131	-7,947	0&G	Abnormal pressure
WolfCamp	11,544	-8,360	0&G	Abnormal pressure /Hole Instability
WolfCamp 1	11,766	-8,582	0 & G	Abnormal pressure /Hole Instability

#### 1. Geologic Formations

12,023'

TVD of target

\*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.

Hole	Casing	Interval	Csg. Size	Weight	Grade	Conn.	SF	SF	SF
Size	From	То		(lbs)			Burst	Collapse	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 N	/linimum S	afety 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

	T
	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?	1
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> 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	H20 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	<b>Tail:</b> Class C + 2% bwoc CaCl2 + <sup>1</sup> / <sub>4</sub> 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	<b>Tail:</b> 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		<b>Tail:</b> Class H + 0.3% bwoc Fluid Loss + 0.1% bwoc Retarder + 0.004 gal/sk Defoamer + <sup>1</sup> / <sub>4</sub> 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	<b>Tail:</b> Class H + 0.5% bwoc Fluid Loss + 0.05% bwoc Anti-Settling Agent + 0.35% bwoc Retarder + 0.004 gal/sk Defoamer
					DV/ACP 1	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 <u>12,281</u> KOP

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. Ib/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	Туре		Tested to:
			Annular	x	100% of annular
	11" or		Blind Ram	x	
12-1/4"	13-5/8"	10M	Pipe Ram	x	75% of remaining
	15-5/8		Double Ram	x	equipment
			Other*		
			Annular	x	50% of working pressure
	11" or		Blind Ram x		
9-7/8"	13-5/8"	10M	Pipe Ram	x	100% of working pressure
	13-3/0		Double Ram	x	100% of working pressure
			Other*		
			Annular	x	50% of working pressure
	11" or		Blind Ram	x	
6-3/4"	13-5/8"	10M	Pipe Ram	x	100% of working pressure
	13-3/0		Double Ram	x	100% of working pressure
			Other*		

\*Specify if additional ram is utilized.

4 Drilling Plan

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 value and a manual adjustable value 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 value (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.		
	A variance is requested for the use of a flexible choke line from the BOP to Choke		
Y	, Manifold. See attached for specs and hydrostatic test chart.		
• See attached data sheet & certification.		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	То				
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	PVT/MDTotco/Visual Monitoring
of fluid?	

#### 6. Logging and Testing Procedures

Logg	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.		

Addi	tional 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			
valu	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	No: QC-DB- 45/2012		
Industrial Kft.	Page:	9 / 50	

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#### **Hose Data Sheet**

CRI Order No.	516273	
Customer	ContiTech Beattle 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 wap	
Internal stripwound tube	No	
Lining	OIL RESISTANT	
Safety clamp	No	
Lifting collar	No	
Bement 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	