	UNITED STATES	TERIOR			OMB N	APPROVED O. 1004-0137 Junuary 31, 2018
SUNDRY	UREAU OF LAND MANA( NOTICES AND REPOR	RTS ON WEI	LS HO	BBS 0	5. Lease Serial No.	
Do not use thi abandoned we	is form for proposals to ( II. Use form 3160-3 (APD	drill or to re-e )) for such pro	nter an oposals.		6. If Indian, Allottee of	
SUBMIT IN 1	TRIPLICATE - Other inst	ructions on p			<ol> <li>If Unit or CA/Agreen NMNM138329X</li> </ol>	ement, Name and/or No.
1. Type of Well	ıer			.OEIVE	Vell Name and No. ZIA HILLS 19 FEI	DERAL COM 106H
2. Name of Operator CONOCOPHILLIPS COMPAN		JEREMY LEE ee@cop.com			9. API Well No. 30-025-44233-0	)0-X1
3a. Address 925 N ELDRIDGE PARKWAY HOUSTON, TX 77079	,	3b. Phone No. ( Ph: 832-486	include area code) -2510		10. Field and Pool or WOLFCAMP	Exploratory Area
4. Location of Well (Footage, Sec., T	., R., M., or Survey Description)	)	i .		11. County or Parish,	State
Sec 19 T26S R32E 2627FNL 32.028320 N Lat, 103.721550					LEA COUNTY,	NM
12. CHECK THE AF	PROPRIATE BOX(ES)	TO INDICAT	E NATURE O	F NOTICE, I	REPORT, OR OTH	IER DATA
TYPE OF SUBMISSION			TYPE OF	ACTION		
Notice of Intent	🗖 Acidize	🗖 Deepe	en	Production	on (Start/Resume)	UWater Shut-Off
-	Alter Casing	🗖 Hydra	ulic Fracturing	🗖 Reclama	tion	Well Integrity
Subsequent Report	Casing Repair	🗖 New (	Construction	🗖 Recompl	ete	Other
Final Abandonment Notice	Change Plans	🗖 Plug a	ind Abandon	Tempora	rily Abandon	Change to Original A PD
ConocoPhillips respectfully rea attached documents: Zia Hills 19 Fed Com 106H Ke Zia Hills 19 Fed Com 106H Cl Zia Hills 19 Fed Com 106H Dr In particular the casing design approval at your earliest conve	elly Cock noke Manifold DPE sg Design ement rill Plan is being modified due to a		OCD H	lobbs	and the second sec	
<ol> <li>I hereby certify that the foregoing is Con</li> </ol>	true and correct. Electronic Submission #4 For CONOCOI nmitted to AFMSS for proce	164611 verified PHILLIPS COM assing by PRIS	by the BLM Wel PANY, sent to t CILLA PEREZ or	ll Information he Hobbs n 05/08/2019 (	System 19PP1816SE)	
Name (Printed/Typed) JEREMY					ORDINATOR	
Signature (Electronic S	Submission)		Date 05/08/2	019		
	THIS SPACE FO	R FEDERAL	OR STATE	OFFICE US	SE	
Approved By_NDUNGU KAMAU_ onditions of approval, if any, are attache ertify that the applicant holds legal or equ hich would entitle the applicant to condu	d. Approval of this notice does uitable title to those rights in the	not warrant or subject lease	TitlePETROLE	UM ENGINE	ER	Date 06/19/2015
itle 18 U.S.C. Section 1001 and Title 43 States any false, fictitious or fraudulent s	U.S.C. Section 1212, make it a statements or representations as	crime for any pers to any matter with	on knowingly and in its jurisdiction.	willfully to ma	ke to any department or	agency of the United
Instructions on page 2) <b>** BLM REV</b>	ISED ** BLM REVISED	) ** BLM RE\	/ISED ** BLN	I REVISED	** BLM REVISE	D** XZ

### Revisions to Operator-Submitted EC Data for Sundry Notice #464611

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	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMLC062749B	NMLC062749B
Agreement:		NMNM138329X (NMNM138329X)
Operator:	CONOCOPHILLIPS COMPANY 925 N. ELDRIDGE PARKWAY SUITE EC3-10-W305 HOUSTON, TX 77079 Ph: 832-486-2510	CONOCOPHILLIPS COMPANY 925 N ELDRIDGE PARKWAY HOUSTON, TX 77079 Ph: 281 206 5281
Admin Contact:	JEREMY LEE REGULATORY COORDINATOR E-Mail: jeremy.I.lee@cop.com	JEREMY LEE REGULATORY COORDINATOR E-Mail: Jeremy.L.Lee@cop.com
	Ph: 832-486-2510	Ph: 832-486-2510
Tech Contact:	JEREMY LEE REGULATORY COORDINATOR E-Mail: jeremy.I.lee@cop.com	JEREMY LEE REGULATORY COORDINATOR E-Mail: Jeremy.L.Lee@cop.com
	Ph: 832-486-2510	Ph: 832-486-2510
Location: State: County:	NM LEA COUNTY	NM LEA
Field/Pool:	WOLFCAMP	WOLFCAMP
Well/Facility:	ZIA HILLS 19 FEDERAL COM 106H Sec 19 T26S R32E Mer NMP 2627FNL 463FWL	ZIA HILLS 19 FEDERAL COM 106H Sec 19 T26S R32E 2627FNL 463FWL 32.028320 N Lat, 103.721550 W Lon

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CONOCO PHILLIPS CO
LEASE NO.:	NMLC062749B
WELL NAME & NO.:	ZIA HILLS 20 FED COM 106H
SURFACE HOLE FOOTAGE:	2570'/S & 2067'/E
<b>BOTTOM HOLE FOOTAGE</b>	50'/S & 2310'/E
LOCATION:	SECTION 20, T26S, R32E, NMPM
COUNTY:	LEA

## COA

H2S	⊂ Yes		· · · ·
Potash	None		⊂ R-111-P
Cave/Karst Potential	CLow	C Medium	• High
Variance	C None	Flex Hose	⊂ Other
Wellhead	Conventional	Multibowl	• Both
Other	☐ 4 String Area	Capitan Reef	└ WIPP
Other	Fluid Filled	☐ Cement Squeeze	🏳 Pilot Hole
Special Requirements	☐ Water Disposal	COM	Γ Unit

#### **All Previous COAs Still Apply**

#### A. CASING

- 1. The 13-3/8 inch surface casing shall be set at approximately 1200 feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of <u>8</u> <u>hours</u> or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

# Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

#### **Option 1 (Single Stage):**

• Cement to surface. If cement does not circulate see B.1.a, c-d above. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

### Option 2:

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 to surface. If cement does not circulate, contact the appropriate BLM office.
     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.
- 3. 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.

### **B. 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).'

#### Option 1:

- a. 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.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be 10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.

#### **Option 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 10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

#### C. SPECIAL REQUIREMENT (S)

#### **Communitization Agreement**

• The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. <u>When the Communitization Agreement number is known, it shall also be</u> <u>on the sign.</u>

## **GENERAL REQUIREMENTS**

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

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)
  - Chaves and Roosevelt Counties Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201. During office hours call (575) 627-0272. After office hours call (575)
  - Eddy County

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

Lea County

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

- 1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 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 hours</u>. 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.
- 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.

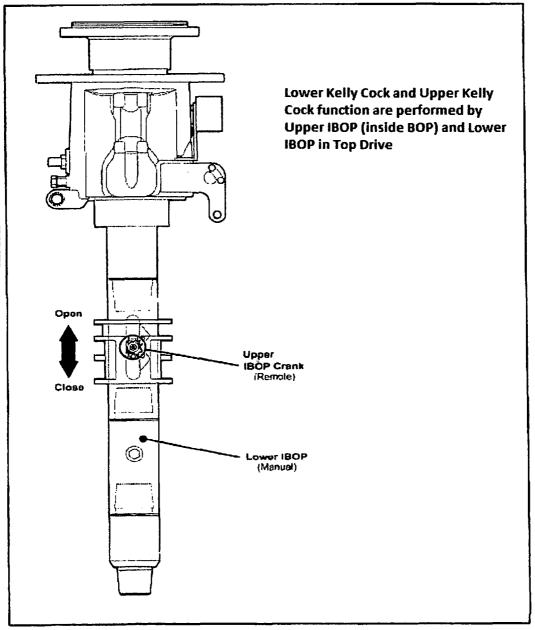
Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

#### NMK6192019

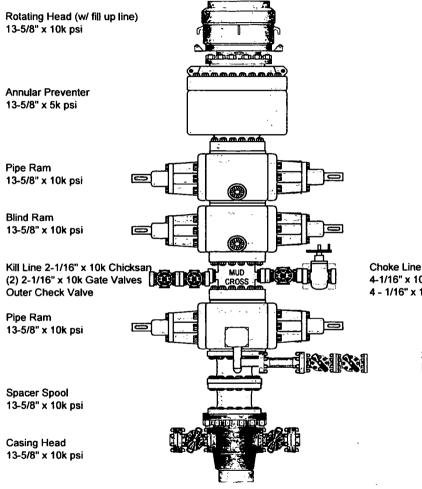
- ×					WELL P	LAN SUMI	<b>VIAR T</b>					Date: May 08, 201 Version: 1
ConocoPhil	lips			1280 E	xtended	I Reach Si	ngle La	terai			I	Prepared by: M. Callaha
							<b>J</b>					
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mb 1000,45 Fac	PBTE		21,649	11,824	Gas / Oil		Geologist	Josh D	ay		281-206-5	5620 423-512-0347
						Onsite I	Drilling Rep.				432-309-9	3007
stimated BH Static Temp	perature (*F):	185				Field C	Drilling Supt.		Castillo Tavlor		830-583-4	4828 956-229-1393
Max, Anticipated BH Pres	sure:	0,700 psi/ft	•	13	.5 ppg		• ·	Patrick	Weilma	n		432-215-7079
lax Anticipated Surface F	Pressure: Type		1,218 psi Inte	rval	Density		Drilling Supt YP	PH	EL	LGS	832-486-2 NaCl Re	2575 346-242-4551 marks
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Intermediate Production:	12-1/4" 8-1/2"	27' 27'	12,339 21,649	12,312 21,622	9 5/8 5 1/2	40.00 L80-K 20.00 P-110 K				Stackup -	Rotating Head Pipe Ram, Blir	l, Annular Preventer, nd Ram.
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							_,			Waste	Pipe Ram Closed loop cu	uttings disposal system with h
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ENTRALIZATION: urface Casing:	1 per 4 joints.										Closed loop cu approved facili Float Based E	
ENTRALIZATION: urface Casing: termediate Casing:	Shoe joint, 1 per joi					r 4 joints 2,300' to s o 100' above KOP.	urface.	to surface		Handling:	Closed loop or approved facili Float Based E Gravity Trip Ta	ity. lectronic PVT with Flow Sens
ENTRALIZATION: urface Casing: termediate Casing: toduction Liner: EMENT:	Shoe joint, 1 per joi Rigid body 1 per 2 j Hole	joints TD to Int MD	Shoe, Bow Sp TVD	xing 1 per 2 S	joints int shoe t pacer	o 100' above KOP.	urface. 1 per 4 joints Lead			Handling: Mud Pit: Wellhead: Tail	Closed loop or approved facili Float Based E Gravity Trip Ta 13-5/8" x 10M	ity. lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Casing Head - "A" Section COMMENTS
ENTRALIZATION: urface Casing: tarmediate Casing: tarmediate Casing: tarmediate Casing: tarment: EMENT: Surface:	Shoe joint, 1 per joi Rigid body 1 per 2 j <u>Hole</u> 17-1/2"X13-3/8"	joints TD to Int MD 1,169'	Shoe. Bow Sp TVD 1,169	ring 1 per 2 <u>9</u> 20	joints int shoe t pacer bbi FW	o 100' above KOP. 930 sx Cont 11.5pp	urface. 1 per 4 joints Lead Troi Set 'C' + g 2.66 ft3/si	adds		Handling: Mud Pit: Wellhead: Tail 60 sx Type 'III 13ppg 1.34	Closed loop or approved facili Float Based E Gravity Trip Ta 13-5/8" x 10M + edds 13/sk	ity. lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Casing Head - "A" Sectio <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock
ENTRALIZATION: urface Casing: termediate Casing: terment: EMENT: Surface:	Shoe joint, 1 per joi Rigid body 1 per 2 j Hole	joints TD to Int MD	Shoe, Bow Sp TVD	20 40 bbl b	joints int shoe t pacer	o 100' above KOP. 930 sx Cont 11.5pp 1080 sx	urface. 1 per 4 joints Lead trol Set 'C' +	edds S		Handling: Mud Pit: Wellhead: 60 sx Type 'lli	Closed loop or approved facili Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Casing Head - "A" Sectio <u>COMMENT9</u> Commented to surface w/ 200 Add FlberBlock TOC 500' Into previous casis w/ 70%L / 30%T XS calcd o
ENTRALIZATION: urface Casing: termediate Casing: EMENT: EMENT: Surface: Intermediate:	Shoe joint. 1 per joi Rigid body 1 per 2 j Hele 17-1/2"X13-3/8" 12-1/4"X9-5/8"	joints TD to Int : <u>MD</u> 1,169' 12,339'	<u>Shoe. Bow Sj</u> <u>TVD</u> 1,169' 11,824	20 40 bbl h + 10	joints int shoe t pacer bbl FW nvert Spacer 0 bbl SW	o 100' above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp	urface. 1 per 4 joints <u>Lead</u> trol Set 'C' + g 2.66 ft3/s) (WBL + add g 1.77 ft3/s)	adds S	47	Handling: Mud Pit: Wellhead: Tail 60 sx Type 'III 13ppg 1.34 0 sx Thermal 3	Closed loop or approved facili Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds	ity. Jectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cermented to surface w/ 200 Add FiberBlock TOC 500 <sup>1</sup> into previous casis w/ 70%L / 30%FT XS calc'd c Add FiberBlock
ENTRALIZATION: Auface Casing: termediate Casing: toduction Liner: EMENT: Surface: Intermediate: Production:	Shoe joint. 1 per joi Rigid body 1 per 2 j Hole 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2"	joints TD to Int MD 1,169'	Shoe. Bow Sp TVD 1,169	20 40 bbl h + 10	joints int shoe t pacer bbi FW nvert Spacer	o 100' above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:1:0 'P Flour + 8% Silic	urface. 1 per 4 joints Lead trol Set 'C' + g 2.66 ft3/s} (WBL + add g 1.77 ft3/s} Poz:Lafarge ( a Furne + ad	edds 5 3' + 20% ( 1ds	47	Handling: Mud Pit: Wellhead: Tail 60 sx Type 'III 13ppg 1.34 0 sx Thermal 3	Closed loop or approved facili Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds	ity. Jectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500 <sup>°</sup> Into previous casis w/ 70%L / 30%T XS calc <sup>1</sup> do Add FiberBlock Cemented to TOL w/ 10% X con 8.5 <sup>°</sup> hole, Displ. = volumi
ENTRALIZATION: surface Casing: termediate Casing: EMENT: EMENT: Surface: Intermediate:	Shoe joint. 1 per joi Rigid body 1 per 2 j Hole 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2"	joints TD to Int : <u>MD</u> 1,169' 12,339'	<u>Shoe. Bow Sj</u> <u>TVD</u> 1,169' 11,824	20 40 bbl h + 10	joints int shoe t pacer bbl FW nvert Spacer 0 bbl SW	o 100' sbove KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:1:0 'P Flour + 8% Silic	urface. 1 per 4 joints Lead troi Set 'C' + 10 2.66 ft3/s) WBL + add 1.77 ft3/s) Poz:Lafarge (	edds 5 3' + 20% ( 1ds	47	Handling: Mud Pit: Wellhead: Tail 60 sx Type 'III 13ppg 1.34 0 sx Thermal 3	Closed loop ct approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 55 + adds 13/sk	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Casing Head - "A" Sectio <u>COMMENTS</u> <u>Commented to surface w/ 200</u> Add FiberBlock TOC 500' into previous casis w/ 70%L / 30%T XS calc'd o Add FiberBlock Cemented to TOL w/ 10% X on 8.5" hole, Displ. = volume collar +/- half shoe track
ENTRALIZATION: urface Casing: termediate Casing: EMENT: EMENT: Surface: Intermediate: Production: teference Cementing Rec	Shoe joint. 1 per joi Rigid body 1 per 2 j Hote 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation	joints TD to Int : MD 1,169' 12,339' 21,649' <u>MD</u>	Shoe. Bow Si <u>IVD</u> 1,169 <sup>.</sup> 11,824 11,824 <sup>.</sup> <u>INC</u>	20 40 bbl h + 10 40 bb 50 40 bb	joints int shoe t pacer bbil FW wert Spacer 0 bbil SW I Visweep I Visweep	o 100' sbove KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:1:0 'P Flour + 8% Silic 15.6 pp NS EW	urface. 1 per 4 joints Lead 101 Set 'C' + 9 2.66 f3/si vBL + add 1.77 f3/si 202:Lafarge 4 a Furne + ac pg 1.18f3/si DLS	edds 3 3' + 20% ( ids <u>VS</u>	47 Silica	Handling: Mud Pit: Wellhead: Tail 60 sx Type 'III 13ppg 1.34 0 sx Thermal 3	Closed loop ct approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 55 + adds 13/sk	ity. Jectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500 <sup>°</sup> Into previous casis w/ 70%L / 30%T XS calc <sup>1</sup> do Add FiberBlock Cemented to TOL w/ 10% X con 8.5 <sup>°</sup> hole, Displ. = volumi
ENTRALIZATION: urface Casing: termediate Casing: termediate Casing: EMENT: Surface: Intermediate: Production: eference Correnting Rec IRECTIONAL PLAN: <u>Commenting</u> Build (20 1.5 <sup>7</sup> )	Shoe joint. 1 per joi Rigid body 1 per 2] Hole 17-1/2"X13-3/8" 12-1/4"X8-5/8" 8-1/2"X5-1/2" commendation 3 //100"	joints TD to Int : <u>MD</u> 1,169' 12,339' 21,649' <u>MD</u> (ft) 5,500'	Shoe. Bow Sj TVD 1,169 11,824 11,824 (deg) 0	20 40 bbl h + 10 40 bb 	joints int shoe t pacer bbl FW hvert Spacer 0 bbl SW I Visweep <u>IVP</u> ( ft ) 5.500	o 100' above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:1:0 'P Flour + 8% Silic 15.6 pp (ft) (ft) 0 0	urface. 1 per 4 joints Lead troi Ser (C' + g 2.66 ft3/st (WBL + add g 1.77 ft3/si Poz:Lafarge ( a Furne + ac pg 1.18ft3/si <u>DLS</u> ("f100") 0	edds s 3' + 20% 5 ids <u>VS</u> (ft) 0	47 Silica <u>Si</u> Sec 19	Handling: Mud Pit: Tail 60 sx Type 'III 13ppg 1.34 0 sx Thermal 15ppg 1.63 EC-T-R	Closed loop or approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds 13/sk <u>Saction Li</u> 2627 <sup>-</sup> FSL	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Casing Head - "A" Section <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500' into previous casis w/ 70%L / 30%T XS calc'd of Add FiberBlock Cemented to TOL w/ 10% X on 8.5" hole, Displ. = volume collar +/- half shoe track <u>ine Distance</u> 453' FVVL
ENTRALIZATION: urface Casing: termediate Casing: roduction Liner: EMENT: Surface: Intermediate: Production: eference Cementing Rev IRECTIONAL PLAN: <u>Comment</u>	Shos joint. 1 per joi Rigid body 1 per 2 j Hole 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation 2 (100" 6 6"	joints TD to Int : <u>MD</u> 1,169' 12,339' 21,649' <u>MD</u> (ft )	Shoe. Bow Si <u>IVD</u> 1,169' 11,824 11,824' <u>INC</u> ( deg )	xing 1 per 2 9 20 40 bbl h + 10 40 bb 	joints int shoe t <del>DECET</del> bbl FW Ivert Spacer 0 bbl SW I Visweep <u>TVD</u> (ft)	o 100' above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:1:0 'P Flour + 8% Silic 15.6 pp <u>NS</u> EW (†) (†)	urface. 1 per 4 joints Lead Trol Set 'C' + g 2.66 A13's (WBL + add g 1.77 ft3/s) Voz:Lafarge + a Furme + ac g 1.18A3/s) DLS ('1100')	edds s G' + 20% ( ds <u>VS</u> (ft)	47 Silica <u>Sec</u> 19 Sec 19	Handiing: Mud Pit: Welihead: Tail 80 sx Type 18 13ppg 1.34 0 sx Thermal 15ppg 1.63	Closed loop c. approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M 1 + adds 13/sk 55 + adds 13/sk <u>Section Li</u>	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500' into previous casis w/ 70%L / 30%T XS calc'd of Add FiberBlock Cemented to TOL w/ 10% X on 8.5" hole, Displ. = voltume collar +/- half shoe track ine Distance
ENTRALIZATION: urface Casing: termediate Casing: EMENT: Surface: Intermediate: Production: eference Cementing Rec [RECTIONAL PLAN: Comments Build @ 1.57 End Build @ 1.57 Complete Drop, Mo	Shoe joint. 1 per joi Rigid body 1 per 2] Hole 17-1/2"X13-3/8" 12-1/4"X8-5/8" 8-1/2"X5-1/2" commendation 2 (100" 9 6" 100" 9 6"	joints TD to Int <u>MD</u> 1,169' 12,339' 21,649' <u>MD</u> (ft) 5.500' 5.872' 6.958' 7,330'	Shoe. Bow Sy TVD 1,169' 11,824' 11,824' I1,824' (deg) 0 6 0 6 0	vring 1 per 2 9 20 40 bbl li + 10 40 bbl 40 bbl 40 bbl 40 bbl 40 bbl 249 249 249 249 0 0	joints bit shoe t <u>BREEF</u> bbi FW wert Spacer 0 bbi SW I Visweep <u>IVD</u> (11) 5.500 5.871' 5.953' 7.324'	NS         EW           0         0.0         10.80 sx           11.5pp         1080 sx         11.5pp           1080 sx         11.5pp         11.5pp           2460 sx         11.15p         11.5pp           Phour + 8% Silic         15.5 pp           NS         EW         11.7 (n)           0         0         0           -6         -17         -44           -50         -133         -133	urface. 1 per 4 joints Lead troil Set 'C' + g 2.66 ft3/st Voz:Lafarge ( a Furme + ac pg 1.18ft3/si) DLS ('f100') 0 15 0,0 1,5	edds s (ds <u>V3</u> (ft) C 6 44 51	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19	Handling: Mud Pit: Tail 60 ax Type III 13ppg 1.34 0 ax Thermal 15ppg 1.63 15ppg 1.63 15ppg 1.63 15ppg 1.63 15ppg 1.63	Closed loop or approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 5 + adds 13/sk <u>Section Li</u> 2627: FSL 2621: FSL 2527: FSL 2537: FSL	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Casing Head - "A" Sectio <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500' into previous casis w/ 70%L / 30%T XS calc'd o Add FiberBlock Cemented to TOL w/ 10% X on 8.5" hole, Displ. = volume collar +/- half shoe track ine Distance 453' FWL 446' FWL 347' FWL 330' FWL
ENTRALIZATION: urface Casing: termediate Casing: roduction Liner: EMENT: Surface: Intermediate: Production: eference Comenting Rev IRECTIONAL PLAN: Comment Build @ 1.57 End Build @ Drop @ 1.57	Shoe joint. 1 per joi Rigid body 1 per 2j Hele 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation 2 (100" 6 6" (100" 9 6" (100" 9 6" (100" 9 6"	joints TD to int MD 1,169' 12,339' 21,649' <u>MD</u> (ft) 5.500' 5.872' 6.956'	Shoe. Bow Sy TYD 1,169' 11,824 11,824' (deg) 0 6 6 6 0 0 0 6 6 0 0 0 50	vring 1 per 2 9 20 40 bbl h + 10 40 bbl 40 bbl <b>6</b> <b>6</b> <b>7</b> <b>7</b> <b>7</b> <b>7</b> <b>7</b> <b>7</b> <b>7</b> <b>7</b>	joints bit shoe t <u>PRCET</u> bbl FW nvert Spacer 0 bbl SW I Visweep <u>IVP</u> (11) 5.500 5.871' 6.953'	o 100° above KOP. 930 sx Cont 11.5pp 1060 sx 11.5pp 2460 sx 1:1:0 'P Flour + 8% Slite 15.8 pp NS EW (ft) (ft) 0 0 -5 -17 -44 -116 -50 -133 -50 -133 -50 -135	urface. 1 per 4 joints Lead Trol Set 'C' + 1 g 2.66 f13/s (vYBL + add 1.77 f13/s 20:Llafarge (a 4 Func + ac pg 1.18f13/s) 0 1.5 0,0 1.5 0	edds 5 5' + 20% 5 ids (ft ) 6 6 44	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19	Handling: Mud Pit: Mud Pit: 13ppg 1.34 0 sx There ill 15ppg 1.83 15ppg 1.63 15ppg 1.63 1	Closed loop or approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 55 + adds 13/sk S5 + adds 13/sk Section Li 2627 · FSL 2637 · FSL 2583 · FSL 2577 · FSL 1860' FSL	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cessing Head - "A" Sectio <u>COMMEINTS</u> Cernented to surface w/ 200 Add FiberBlock TOC 500' Into previous casis w/ 70%L / 30%T XS calc'd of Add FiberBlock Cernented to TOL w/ 10% X on 8.5' hote, Displ. = votume collar +/- half shoe track ine Distance 463' FWL 347' FWL 340' FWL 330' FWL 330' FWL
ENTRALIZATION: urface Casing: termediate Casing: roduction Liner: EMENT: Surface: Intermediate: Production: eference Cementing Rev IRECTIONAL PLAN: Commentis Build @ 1.57 End Build @ Drop @ 1.57 Complete Drop, Mo KOP Build @ 8 Curve LP Too Sheeve	Shoe joint. 1 per joi Rigid body 1 per 2 Hole 17-1/2"X13-3/8" 12-1/4"X8-5/8" 8-1/2"X5-1/2" commendation 2 (100" 9 6" 100" 9 6" 100" 9 6" 2	joints TD to Int <u>MD</u> 1,169' 12,339' 21,649' <u>MD</u> (ft) 5,500' 5,872' 6,958' 7,330' 11,114' 12,239' 21,549'	Shoe. Bow Si <u>TVD</u> 1,169' 11,824' 11,824' <u>INC</u> (deg) 0 6 6 6 0 0 0 90 90	ring 1 per 2 9 20 40 bbl li + 10 40 bbl (deg) 0 249 249 249 249 0 0 0 179 179	joints bit shoe t <u>BRCET</u> <u>BRCET</u> <u>BBD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDD</u> <u>BDDD</u> <u>BDD</u> <u>BDD</u> <u>BDDD</u> <u>BDDD</u> <u>BDDD</u> <u>BDDD</u> <u>B</u>	NS         EW           0         0.00         above KOP.           930 sx Cont         11.5pp           1080 sx         11.15pp           1080 sx         11.5pp           2460 sx         11.15pp           Flour + 8% Silic.         15.6 pj           NS         EW           (n)         (n)           0         0           -6         -17           -44         -116           -50         -133           -50         -133           -767         -125           -10076         -25	urface. 1 per 4 jeints Lead 1 y 2.66 ft3/si VVBL + add 1.77 ft3/si Voz:Lafarge ( a Furne + ac pg 1.19ft3/si 0 0 1.5 0.0 1.5 0 8 0 8 0	edds s s'+ 20% { ds (ft) 6 44 51 767 10,076	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 31	Handling: Mud Pit: Tail 60 ax Type 'II 13ppg 1.34 0 ax Type 'II 13ppg 1.34 15ppg 1.63 15ppg 1.63 15	Closed loop c. approved facilit Float Based E Gravity Trip Ta 13-5/8" x 10M * edds 13/sk 5 + edds 13/sk <u>Section Li</u> 2627: FSL 2621: FSL 2577: FSL 2577: FSL 1860: FSL	ity. Jactonic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500' Into previous casis w/ 70%L / 30%T XS calc <sup>1</sup> do Add FiberBlock Cemented to TOL w/ 10% X cemented to TOL w/ 10% X collar +/- half shoe track Ine Distance 453' FWL 446' FWL 330' FWL 330' FWL 330' FWL 330' FWL
ENTRALIZATION: Inface Casing: termediate Casing: EMENT: Surface: Intermediate: Production: aference Comenting Rec RECTIONAL PLAN: Commenting Commenting Build (2) 1.57 End Build (2) Drop (2) 1.57 Complete Drop, Ho KOP Build (2) Complete Drop, Ho KOP Build (2) Carpe LP Toe Sizeve PBH/UTD	Shoe joint. 1 per joi Rigid boy 1 per 2] Hele 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation 3 (100" 9 6* 1100" 9 6* 1100" 9 6* 1100" 9 6* 1100" 9 6* 1100"	joints TD to Int: MD 1,169' 12,339' 21,649' 21,649' MD (ft) 5,500' 5,872' 6,958' 7,330' 11,114' 12,239' 21,549' 21,599' 21,549'	Shoe. Bow Sr <u>TVD</u> 1,169' 11,824' 11,824' <u>INC</u> (deg) 0 6 6 6 6 0 0 0 90 90 90 90	ring 1 per 2 9 20 40 bbl ib + 10 40 bb 40 bb 40 bb (deg ) 0 249 0 249 0 249 0 0 179 179 179 179	joints bit shoe t <u>BRCer</u> <u>BRCer</u> <u>BRCer</u> D bbi FW Ivert Spacer 0 bbi SW I Visweep <u>IVD</u> (11) 5.500 5.871' 5.953' 7.324' 11.108' 11.824' 11.824' 11.824' 11.824' 11.824'	NS         EW           000         above KOP.           930 sx Cont         11.5pp           1080 sx         11.5pp           2460 sx 1:10 'P         Flour + 8% Slite.           15.8 pp         15.8 pp           NS         EW           (ft) (ft)         0           -6         -17           -44         -116           -50         -133           -50         -133           -767         -125           -10076         -29           -10176         -29	urface. 1 <u>Lead</u> trol Set (C' + g 2,66 ft3/s) (WBL + add g 1.77 ft3/s) Poz:Lafarge ( a Furne + ac pg 1.1981/s) 0 15 0,0 1,5 0 8 0 0 0 0 1,5 0 0 0 0 0 0 0 0 0 0 0 0 0	edds s s (t + 20% s dds <u>VS</u> (t t) 0 6 44 51 51 51 767 10,076 10,176	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 31 Sec 31 Sec 31	Handling: Mud Pit: Tali 60 sx Type 'II 13ppg 1.34 0 sx Themal 15ppg 1.63 15ppg 1.63 15ppg 1.63 15ppg 1.63 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E	Closed loop or approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds 13/sk <u>Section Li</u> 2627 FSL 2627 FSL 2583 FSI 2577 FSL 1507 FSL 1507 FSL 100 FSL	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cessing Head - "A" Sectio <u>COMMEINTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500' Into previous casis w/ 70%L / 30%T XS calc'd of Add FiberBlock Cemented to TOL w/ 10% X on 8.5' hole, Displ. = voltume collar +/- half shoe track ine Distance 463' FWL 347' FWL 330' FWL 330' FWL 330' FWL 330' FWL 330' FWL 330' FWL
ENTRALIZATION: urface Casing: termediate Casing: EMENT: Surface: Intermediate: Production: eference Comenting Rev IRECTIONAL PLAN: Compete Drop, 40 Drop @ 1.57 Complete Drop, 40 KOP Build @ 1.57 Complete Drop, 40 KOP Build @ 38 Curve LP Too Sheeve PBHL/TD eference Directional Plan	Shoe joint. 1 per joi Rigid body 1 per 2 ] Hole 17-1/2"X13-3/8" 12-1/4"X8-5/8" 8-1/2"X5-1/2" commendation 2 (100" 6 6" (100" 6 6" (100" 9 6" 2 100" 9 6" 2 100" 9 6" 100" 9 6" 100" 9 6" 100" 9 6" 100" 9 6" 100" 9 6" 100"	joints TD to Int: MD 1,169' 12,339' 21,649' 21,649' MD (ft) 5,500' 5,872' 6,958' 7,330' 11,114' 12,239' 21,549' 21,599' 21,549'	Shoe. Bow Sr <u>TVD</u> 1,169' 11,824' 11,824' <u>INC</u> (deg) 0 6 6 6 6 0 0 0 90 90 90 90	ring 1 per 2 9 20 40 bbl ib + 10 40 bb 40 bb 	joints bit shoe t <u>BRCer</u> <u>BRCer</u> <u>BRCer</u> D bbi FW Ivert Spacer 0 bbi SW I Visweep <u>IVD</u> (11) 5.500 5.871' 5.953' 7.324' 11.108' 11.824' 11.824' 11.824' 11.824' 11.824'	NS         EW           (11,5pp)         11,5pp           1080 sx         11,15pp           1080 sx         11,15pp           2460 sx         11,15pp           Flour + 8% Silic         15,8 pj           NS         EW           (ft)         (ft)           0         0           -5         -17           -44         -116           -50         -133           -50         -133           -767         -125           -100276         -29	urface. 1 <u>Lead</u> trol Set (C' + g 2,66 ft3/s) (WBL + add g 1.77 ft3/s) Poz:Lafarge ( a Furne + ac pg 1.1981/s) 0 15 0,0 1,5 0 8 0 0 0 0 1,5 0 0 0 0 0 0 0 0 0 0 0 0 0	edds s s (t + 20% s dds <u>VS</u> (t t) 0 6 44 51 51 51 767 10,076 10,176	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 31 Sec 31 Sec 31	Handling: Mud Pit: Tali 60 sx Type 'II 13ppg 1.34 0 sx Themal 15ppg 1.63 15ppg 1.63 15ppg 1.63 15ppg 1.63 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E 1265 R32E	Closed loop or approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds 13/sk <u>Section Li</u> 2627 FSL 2627 FSL 2583 FSI 2577 FSL 1507 FSL 1507 FSL 100 FSL	ity, lectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cessing Head - "A" Sectio <u>COMMEINTS</u> Cemented to surface w/ 200 Add FiberBlock TOC 500' Into previous casis w/ 70%L / 30%T XS calc'd of Add FiberBlock Cemented to TOL w/ 10% X on 8.5' hole, Displ. = voltume collar +/- half shoe track ine Distance 463' FWL 347' FWL 330' FWL 330' FWL 330' FWL 330' FWL 330' FWL 330' FWL
ENTRALIZATION: urface Casing: termediate Casing: ioduction Liner: EMENT: Surface: Intermediate: Production: aferance Comenting Rec RECTIONAL PLAN: Commenting Rec RECTIONAL PLAN: Build @ 1.57' End Build @ Drop @ 1.57' Complete Drop, Ho KOP Build @ Drop @ 1.57' Complete Drop, Ho Curve LP Toe Siseve PBH/JTD Deformer Directional Plan DRMATION EVALUATION	Shoe joint. 1 per joi Rigid boy 1 per 2] Hele 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation 3 (100" 9 6" (100" 9 6") (100" 9 6" (100" 9 6") (100" 9 6") (100" (100" 9 6") (100" (100" (100" (100" (100") (100" (100") (1	joints TD to Int: MD 1,169' 12,339' 21,649' 21,649' MD (ft) 5,500' 5,872' 6,958' 7,330' 11,114' 12,239' 21,549' 21,549' 21,549' 21,549' First surface	Shoe. Bow Sr <u>TVD</u> 1,169' 11,824' 11,824' <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,855'</u> <u>I1,855'</u>	rting 1 per 2 20 40 bbl b + 10 40 bbl b + 10 40 bbl (deg) 0 249 249 249 249 0 0 0 179 179 179 179 179 179 179 179	joints bit shoe t <u>BRCer</u> <u>BRCer</u> <u>BRCer</u> D bbi FW Ivert Spacer 0 bbi SW I Visweep <u>IVD</u> (11) 5.500 5.871' 5.953' 7.324' 11.108' 11.824' 11.824' 11.824' 11.824' 11.824'	o 100° above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:10° F Flour + 8% Silic 15.6 pj NS EW (ft) (ft) 0 0 -6 -17 -44 -116 -50 -133 -50 -133 -767 -125 -10076 -29 -10176 -29 enval below surface	urface. 1 <u>Lead</u> trol Set (C' + g 2,66 ft3/s) (WBL + add g 1.77 ft3/s) Poz:Lafarge ( a Furne + ac pg 1.1981/s) 0 15 0,0 1,5 0 8 0 0 0 0 1,5 0 0 0 0 0 0 0 0 0 0 0 0 0	edds s s (t + 20% s dds <u>VS</u> (t t) 0 6 44 51 51 51 767 10,076 10,176	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 31 Sec 31 Sec 31	Handling: Mud Pit: Mud Pit: Mud Pit: Mo ax Type 11 13ppg 1.84 0 ax Thermal 13ppg 1.84 0 ax Thermal 13ppg 1.83 15ppg 1.83 T26S R32E T26S R32E	Closed loop or approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M + adds 13/sk 35 + adds 13/sk <u>Section Li</u> 2627 FSL 2627 FSL 2583 FSI 2577 FSL 1507 FSL 1507 FSL 100 FSL	ity. Jectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cernented to surface w/ 200 Add FiberBlock TOC 500° into previous casis w/ 70%L / 30%T XS calc'do Add FiberBlock Cernented to TOL w/ 10% X on 8.5° hote, Displ. = volume collar +/- half shoe track ine Distance 463° FWL 347° FWL 347° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL
ENTRALIZATION: urface Casing: termediate Casing: EMENT: Surface: Intermediate: Production: eference Comenting Rev IRECTIONAL PLAN: Compete Drop, 40 Drop @ 1.57 Compete Drop, 40 KOP Build @ 1.57 Compete Drop, 40 Too Siseve Too Siseve DBIL/TD eference Directional Plan DRMATION EVALUATIK Mud Logging - Mud Logging -	Shoe joint. 1 per joi Rigid body 1 per 2j Hele 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation 2 (100" 9 6" (100" 9 6" (100" (10	joints TD to Int MD 1,169' 12,339' 21,649' MD (ft) 5.500' 5.872' 6.958' 7.330' 11.114' 12.239' 21,549' 21,549' 21,549' 21,649'	Shoe. Bow Sr <u>TVD</u> 1,169' 11,824' 11,824' <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,824'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,825'</u> <u>I1,855'</u> <u>I1,855'</u>	rting 1 per 2 20 40 bbl b + 10 40 bbl b + 10 40 bbl (deg) 0 249 249 249 249 0 0 0 179 179 179 179 179 179 179 179	joints bit shoe t pacer bbi FW ivent Spacer 0 bbi SW I Visweep <u>IVP</u> (ft) 5.500 5.871 6.953 7.324 11 108 11.324 11.824 11.824 11.824 11.824 11.824 11.824 11.824	o 100° above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:10° F Flour + 8% Silic 15.6 pj NS EW (ft) (ft) 0 0 -6 -17 -44 -116 -50 -133 -50 -133 -767 -125 -10076 -29 -10176 -29 enval below surface	urface. 1 <u>Lead</u> trol Set (C' + g 2,66 ft3/s) (WBL + add g 1.77 ft3/s) Poz:Lafarge ( a Furne + ac pg 1.1981/s) 0 15 0,0 1,5 0 8 0 0 0 0 1,5 0 0 0 0 0 0 0 0 0 0 0 0 0	edds s s (t + 20% s dds <u>VS</u> (t t) 0 6 44 51 51 51 767 10,076 10,176	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 31 Sec 31 Sec 31	Handling: Mud Pit: Mud Pit: Mud Pit: Mo ax Type 11 13ppg 1.84 0 ax Thermal 13ppg 1.84 0 ax Thermal 13ppg 1.83 15ppg 1.83 T26S R32E T26S R32E	Closed loop c. approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M *+ edds 13/sk 5 + edds 13/sk <u>Section Li</u> 2627 FSL 2621 FSL 2627 FSL 2627 FSL 2627 FSL 2577 FSL 1860 FSL 100 FSL 50 FSL 90 while drilling	ity. Jectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cernented to surface w/ 200 Add FiberBlock TOC 500° into previous casis w/ 70%L / 30%T XS calc'do Add FiberBlock Cernented to TOL w/ 10% X on 8.5° hote, Displ. = volume collar +/- half shoe track ine Distance 463° FWL 347° FWL 347° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL
ENTRALIZATION: Inface Casing: termediate Casing: ioduction Liner: EMENT: Surface: Intermediate: Production: aference Cementing Rec RECTIONAL PLAN: Commente Build @ 1.5'' End Build @ Drop @ 1.5'' Complete Drop, Ho KOP Build @ Drop @ 1.5'' Complete Drop, Ho KOP Build @ Drop @ 1.5'' Complete Drop, Ho Steve PBH/JTD Steves PBH/JTD Steves Deference Directional Plan DRMATION EVALUATION	Shos joint. 1 per joi Rigid body 1 per 2 j Hele 17-1/2"X13-3/8" 12-1/4"X9-5/8" 8-1/2"X5-1/2" commendation 8-1/2"X5-1/2" commendation 9 6* 100" 9 7* 100" 9 7* 100" 100" 9 7* 100" 100" 100" 100" 100" 100" 100" 100	joints TD to Int. MD 1,169' 12,339' 21,649' MD (ft) 5,500' 5,872' 5,49' 21,549' 5,1649' First surface Intermediate	Shoe. Bow Si         Shoe. Bow Si           11,169         11,824           11,824         11,824           11,824         11,824           11,824         11,824           11,824         0           0         0           6         6           0         0           90         90	rting 1 per 2 20 40 bbl b + 10 40 bbl b + 10 40 bbl (deg) 0 249 249 249 249 0 0 0 179 179 179 179 179 179 179 179	joints bit shoe t pacer bbi FW ivent Spacer 0 bbi SW I Visweep <u>IVP</u> (ft) 5.500 5.871 6.953 7.324 11 108 11.324 11.824 11.824 11.824 11.824 11.824 11.824 11.824	o 100° above KOP. 930 sx Cont 11.5pp 1080 sx 11.5pp 2460 sx 1:10° F Flour + 8% Silic 15.6 pj NS EW (ft) (ft) 0 0 -6 -17 -44 -116 -50 -133 -50 -133 -767 -125 -10076 -29 -10176 -29 enval below surface	urface. 1 <u>Lead</u> trol Set (C' + g 2,66 ft3/s) (WBL + add g 1.77 ft3/s) Poz:Lafarge ( a Furne + ac pg 1.1981/s) 0 15 0,0 1,5 0 8 0 0 0 0 1,5 0 0 0 0 0 0 0 0 0 0 0 0 0	edds s s (t + 20% s dds <u>VS</u> (t t) 0 6 44 51 51 51 767 10,076 10,176	47 Silica Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 19 Sec 31 Sec 31 Sec 31	Handling: Mud Pit: Mud Pit: Mud Pit: Mo ax Type 11 13ppg 1.84 0 ax Thermal 13ppg 1.84 0 ax Thermal 13ppg 1.83 15ppg 1.83 T26S R32E T26S R32E	Closed loop c. approved facility Float Based E Gravity Trip Ta 13-5/8" x 10M *+ edds 13/sk 5 + edds 13/sk <u>Section Li</u> 2627 FSL 2621 FSL 2627 FSL 2627 FSL 2627 FSL 2577 FSL 1860 FSL 100 FSL 50 FSL 90 while drilling	ity. Jectronic PVT with Flow Sens ank, Alarms +/- 10 BBLS psi (Cesing Head - "A" Sectio <u>COMMENTS</u> Cernented to surface w/ 200 Add FiberBlock TOC 500° into previous casis w/ 70%L / 30%T XS calc'do Add FiberBlock Cernented to TOL w/ 10% X on 8.5° hote, Displ. = volume collar +/- half shoe track ine Distance 463° FWL 347° FWL 347° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL 330° FWL

## PH-75 pipenandler

### the **IBOP** valves



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



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

2" x 5k psi Gate Valves Pressure Testing Lines

#### Zia Hills 19 106H Sec 19 T263 R32E

Slage 2 <u>9-5/11<sup>2</sup> Intermediate Cesting (Tell)</u>; Surface Casing Depth (ft) Surface Casing I.D. (ft) DV Tool Depth (Ft) Production Casing I.D. (ft) Production Casing I.D. (ft) Production Casing I.D (ft) Stage 1 <u>9-5/8" Internediate Casing (Lead);</u> Production Casing O.D. (In.) Production Casing ID (In) Hole O.D. (In) 5-1/2" Production Liner (Tell); Informadate Casing Depth (FU Informadate Casing D.D. (In.) Informadate Casing ID (In) Production Casing Opth (FI) Production Casing Opth (FI) Production Casing Opth (FI) 13-3/17" Surface Casing; Surface Casing Depth (Ft) Surface Casing O.D. (In.) Surface Casing ID (In) 9-6/8" Intermediate Casing (Tall): 1,169 12,612 5,154 9,625 8,835 12,25 200% 27 Production Casing Depth (Fi) Production Casing (D. (in.) Production Casing (D. (in.) Production Casing (D (in) Hole O.O. (in) Excess (%) 1,169 13 3/6 12,612 17 1/2 200% 9.625 8.835 12.25 70% 5.154 12.339 12,339 9.625 9.625 6.835 Hole O.D. (In) Excess (%) Volume Tail (Sx) 6,835 10,114 21,649 5,500 4,778 8,50 10% 1,19 12 1,5 Excess (%) OV Tool Depth 12.25 30% 1.2 KOP Hale O.D. (In) Votume Tall (5x) Yidd Tall (Cu, FL/Sx) Yidd Lead (Cu, FL/Sx) Shoe Joint (Ft) Shoe Votume (Cu, Fl) Tall feel of cement Production Casing (D (in) Hole O.D. (in) 1.33 Top Tall (FI) - 1000' above KOP 10,614 Excess (%) Top Cement (Surface) Yield Tall (Cu, FL/Sx) Shoe Joint (Ft) Shoe Volume (Cu, Ft) Yield Lead (Cu. FL/Sa) 27 1.59 90 38.3 40 34,7 400 Excess (%) Yield Tail (Cu. FL/Sx) 2.907 Yield Tell (Cu. FL/Sz) 1.73 Calculated Total Lead (Cu. FL) Shoe Joini (Fl) Shoe Valume (Cu, Fl) Tail teal of camani Calculated Total Volume (Cu, Ft.) Calc. Tail Volume (Cu, Ft.) Calc. Lead Volume (Cu, Ft.) Calc. Lead Volume (Sx) 2.471 Calc, Lead Volume (Sx) 1.55 Calo, Tell Volume (Cu, FL) 741 858 1,603 Lead Volume (bbbs) 5. Required Tall Volume (8x) Calc. Tell Volume (Cu. Fl.) 4,167 Calc. Tal Volume (Cu. FL) 2,925 2-70 Tall Volume (bbbs) Displacement Volume (bbbs) 13£ 2.: Required Tall Volume (8x) 2416 Required Tail Volume (8x) Lead Volume (bbts) Tail volume (bbts) 255,4 154.6 Tall Volume (bbls) 747 29: 521,2361695 Displacement Volume (bbfs) Displacement Volume (bits) 174,5 Intermediate Tail Gement Description; Mx Weight ppg Thermal 35 Production Lines Tell Coment Description; Mr Weight 15.6 ppg 1:1:0 Proz.Latarge G 20% Silca Flour Lead Coment Description; Nix Weight 12.8 ppg Control Set "C" Intermediate <u>Tail Commit Description;</u> Mix Weight 13,21 ppg Themai 35 10% NaCl Intermediate Lead Coment Description; Mix Weight 11 ppg WBL 1.0% CaCly 1.0% SMS 1.0% OGC-60 10% NaCl 0.9% CFR 0.7% CFL-4 0.5% CFL-4 0.9% CFR 0.7% CFL 4 0.1% LTR 0.2% SPC-II 0.6% LTR 8% Sõca Rume 2% FWCA-H (FWC-2) 0.6% LTR 0.2% SPC-0 0.4% CDF-4P % ID/sk Polylake % ppb FiberBlock % Ib/sk Polytaka % ppb FiberBlock 0.1% LTR 0.2% SPC-II 0.3% HTR 0.5% CR-4 (MCR-4) 0.4% CDF-4P % D/sk Polytake % ppb FiberBlock 1% TAE-1 (SEA-1) 1% CFL-4 0,2% CFR-5 0.4% CDF-4P % Ib/tk Polyfata % ppb FiberBlock 0.3% ASM-3 (AS-3)

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#### Production Displacement

Votume to Latch down collar +4 ,15 8	BLS (helf shoe	track)	
Component	Capacity	Length	Valume
Drill Pipe	.0108 bbl/ft	0	
Liner (Liner top to Float Cotter)	0149366/1	0	
Total			

.

Tell Cement Description; Mix Weight 14.8 ppg 0.130 Type II 0.5% CaCl<sub>3</sub> % Ib/sk Pelyletios % ppb FiberCliock

			Sec 19 T	26S R32E			Lea, Co, NI	VI		5/8/2019	9	
CE CASING D	ESIGN INFO	RMATION	,			Setting Depth:	1,169' MD	1,169' TVD				
PIPE BODY DI	MENSIONAL / P	ERFORMANC	E DATA:									
SIZE	WEIGHT	GRADE	CPLG	BOREID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Surface	Casing Test Pres	sure = 1,500 psi	
(Inches)	(LB/FT)	GRADE	TYPE	(Inches)	(inches)	API / CoP	API / CoP	API / CoP	Pre	ssure Test Prior	to Drill Out	
13,375	54.5	J-55	втс	12.612	12.459	1,130/960	2,730 / 2,320	909 / 772				
		CONNECTION	DIMENSIONA	L / PERFORMA	NCE DATA:				Burst 1.15	Minimum Desigr Collapse 1.05	n / Safety Factors Co Tension (Body & 1.40	OP
		OD	D	DRIFT	CPLG	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)		Actual Desig	n / Safety Factors	
		(inches)	(Inches)	(Inches)	Туре	API / CoP	API / CoP	API / CoP	Burst	Collapse	Tension (Body)	
		14.375	12.612	12.459	втс	1,130/960	2,730 / 2,320	909 / 772	5.22	3.23	14.27	D
7. OR .					• · · · · · · · · · · · · · · · · · · ·			,			16.42	B
(Inches)	(LB/FT)	GRADE	ТҮРЕ	(Inches)	(inches)	API / CoP	API / CoP	API / CoP		-		
SIZE	WEIGHT	GRADE	CPLG	BORE ID	DRIFTID	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)	Product	ion Casing Test i	Pressure = TBD	
9.625	40.0	L80-IC	BTC	8,835	8.75	3,870 / 3,685	5,750 / 5000	916 / 654	Minii	num Design / Sa	-	
									Burst	Collapse	Tension (Body & Connection)	
		CONNECTION	DIMENSIONA	L / PERFORMAI	NCE DATA:			1	1.15	1.05	1.40	
	ſ	GO	di	DRIFT	CPLG	COLLAPSE (PSI)	BURST (PSI)	TENSION (1k LBS)		Actual Desig	n / Safety Factors	
			10- at a a b	(Inches)	TYPE	API/CoP	API / CoP	API/CoP	Burst	Collapse	Tension (Body)	
	L.	(Inches)	(inches)									_
	l	(Inches) 10.625	8.835	8.75	BTC	3,870 / 3,685	5,750 / 5000	947 / 676	1.65	2.50	1.87	
								947 / 676	1.65	2.50	1.87 2.19	
								947 / 676	1.65	2.50		
								947 / 676	1.65	2.50		
								947 / 676	1.65	2.50		
ICTION CASIN	IG DESIGN I	10,625	8.835				5,750 / 5000	947 / 676 11,824' TVD	1.65	2.50		
		10.625	8.835 DN			3,870 / 3,685	5,750 / 5000		1.65	2.50		
PIPE BODY DI	MENSIONAL / P	10.625 NFORMATIC PERFORMANC	8.835 DN E DATA:	8,75	втс	3,870 / 3,685 Setting Depth:	5,750 / 5000 21,649' MD	11,824' TVD			2.19	
		10.625	8.835 DN			3,870 / 3,685	5,750 / 5000			2.50 Ion Casing Test i	2.19	
	MENSIONAL / P WEIGHT	10.625 NFORMATIC PERFORMANC	B.835 DN E DATA: CPLG	8,75 BORE ID	BTC ORIFT ID	3,870 / 3,685 Setting Depth: COLLAPSE (PSI)	5,750 / 5000 21,649' MD BURST (PSI)	11,824' TVD	Product		2.19 Pressure = TBD	Di B4
PIPE BODY DI	MENSIONAL / P WEIGHT (LB/FT)		B.835 DN E DATA: CPLG TYPE	8,75 BORE ID (Inches)	BTC DRIFT ID (Inches)	3,870 / 3,685 Setting Depth: COLLAPSE (PSI) API / CoP	5,750 / 5000 21,649' MD BURST (PSI) API / CoP	11,824' TVD TENSION (1k LBS) API / Cop	Product	ion Casing Test i	2.19 Pressure = TBD	

#### CONNECTION DIMENSIONAL / PERFORMANCE DATA:

(inches)	(inches)	(inches)	TYPE	API / CoP	API / CoP	API / CoP
6.1	4.766	4.653	TXP	12,100 / 11,524	14,360 / 12,487	729 / 521

Minin	um Design / Sa	fety Factors	
Burst	Collapse	Tension (Body & Connection)	
1.15	1.05	1.40	
	Actual Desig	n / Safety Factors	
Burst	Collapse	Tension (Body)	
2.42	3.79	3.08	Dry
		3.88	Bouyed

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#### TXP® BTC

Printed on: 22/04/2019

IC							Printed on: 22/U	14/2019
				Min. Wall Thickness	87.5%		(*)GradeJ55 (Casing)	
	Outside Diameter	13.375 in.		Connection Option	OD REGULAR		Coupling	Pipe Body
	Wall Thickn	ess 0.380 in.		Drift	API Standard	t	Body: Bright Green	1st Band: Bright Green
	Grade	J55 (Casing	)*	Туре	Casing		1st Band: White	2nd Band: -
							2nd Band: -	3rd Band: -
							3rd Band: -	4th Band: -
DATA		· · · · ·						
13.375	in.	Nominal Weight	54.5	bs/ft	Drift	12.4	59 in.	
12.615	in.	Wall Thickness	0.380	in.	Plain End Weight	52.7	9 lbs/ft	
API								
							·	
853 x10	000 lbs	Internal Yield	2730	psi	SMYS	5500	l0 psi	
•						_		
N DAT/	4							
14.375	in.	Coupling Length	10.82	5 in.	Connection ID	12.6	03 in.	
4.891 ii	n.	Threads per in	5		Connection OD Option	REG	ULAR	
100.0 %	%	Joint Yield Strength	853.0 Ibs	00 ×1000	Internal Pressure Capacity [1]	2730	).000 psi	
100 %		Compression Strength	853.0 Ibs	00 x1000	Max. Allowable Bending	19 °/	100 ft	
1130.0	00 psi							
ques	·····							
21610	ft-lbs	Optimum	24010	) ft-lbs	Maximum	2641	0 ft-lbs	
nit Tora	ues							
	12.615 API 853 x1 1130 p NDAT 14.375 4.891 i 100.0 9 100 % 1130.0 0 000 %	Outside Diameter Wall Thickn Grade 0ATA 13.375 in. 12.615 in. API 853 x1000 lbs 1130 psi N DATA 14.375 in. 4.891 in. 100.0 % 100 % 1130.000 psi	Outside Diameter13.375 in.Wall Thickness 0.380 in.GradeJ55 (CasingOATA13.375 in.Nominal Weight12.615 in.Wall ThicknessAPI853 x1000 lbsInternal Yield1130 psiN DATA14.375 in.Coupling Length14.375 in.Coupling Length100.0 %Joint Yield Strength100.0 %Compression Strength1130.000 psiOptimum	Outside Diameter         13.375 in. Diameter           Wall Thickness 0.380 in.           Grade         J55 (Casing)*           DATA           13.375 in.         Nominal Weight         54.5 I Weight           12.615 in.         Wall Thickness         0.380           API         130 psi         2730           NDATA         2730         10.82           130 psi         Internal Yield         2730           14.375 in.         Coupling Length         10.82           14.891 in.         Threads per in         5           100.0 %         Joint Yield Strength         853.0           100 %         Compression Strength         853.0           1130.000 psi         Doth Yield Strength         853.0	Min. Wall ThicknessOutside Diameter13.375 in.Connection OptionWall Thickness 0.380 in.DriftGradeJ55 (Casing)*TypeOATAImage: State Stat	Min. Wall Thickness87.5% ThicknessOutside Diameter13.375 in.Connection OptionREGULAR OptionWall Thickness 0.380 in.DriftAPI Standard CasingGradeJ55 (Casing)*TypeCasing2014413.375 in.Nominal Weight54.5 lbs/ftDrift12.615 in.Wall Thickness0.380 in.Plain End Weight12.615 in.Wall Thickness0.380 in.Plain End Weight853 x1000 lbsInternal Yield2730 psiSMYS1130 psiInternal Length10.825 in.Connection ID14.375 in.Coupling Length10.825 in.Connection ID100.0 %Joint Yield Strength853.000 x1000 lbsInternal Pressure Capacity [1]100 %Compression Strength853.000 x1000 lbsMax. Allowable Bending1130.000 psiCompression Strength853.000 x1000 lbsMax. Allowable Bending1130.000 psiCompression Strength853.000 x1000 lbsMax. Maximum	Min. Wall Thickness87.5% ThicknessOutside Diameter13.375 in. OptionConnection OD REGULAR OptionWall Thickness 0.380 in.DriftAPI StandardGradeJ55 (Casing)*TypeCasingDALAImage: Casing of the standard of the stan	Min, Wall Thickness87.5% (*)GradeJ55 (Casing)(*)GradeJ55 (Casing)Outside Diameter13.375 in. (*)GradeConnection OD REGULAR OptionCoupling Body: Bright GreenGody: Bright GreenGradeJ55 (Casing)*TypeCasingHist Band: White 2nd Band: - 3rd Band: - 3rd Band: -3.375 in.Norminal Weight54.5 lbs/ftDrift12.459 in. Weight12.615 in.Wall Thickness0.380 in.Plain End Weight52.79 lbs/ft13.375 in.Naminal Yield2730 psiSMYS55000 psi1130 psiInternal Yield2730 psiSMYS55000 psi14.375 in.Coupling Length10.825 in. In StrengthConnection ID12.603 in. ID100.0 %Joint Yield Strength853.000 x1000 IbsInternal Pressure Capacity [1]2730.000 psi100.0 %Compression Strength853.000 x1000 IbsMax. Allowable Berding19 */100 ft Allowable Berding1130.000 psiCompression Strength853.000 x1000 IbsMax. Allowable Berding19 */100 ft Allowable Berding1130.000 psiCompression Strength853.000 x1000 IbsMax. Allowable Berding19 */100 ft Allowable Berding

#### Notes

This concention is fully interchangeable with

TYP BTC - 13,375 in - 61 - 65 - 72 lbc/t

[1] Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.

Datasheet is also valid for Special Bevel option when applicable - except for Coupling Face Load, which will be reduced. Please contact a local Tenans technical sales representative.

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

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#### **TXP® BTC**

		Printed on: 22/04/2019
	Min. Wall 87.5% Thickness	(*)GradeL80-IC
Outside 9.625 in. Diameter	Connection OD REGULAR Option	Coupling Pipe Body
Wall Thickness 0.395 in.	Drift API Standard	Body: Red 1st Band: Red
Grade L80-IC*	Type Casing	1st Band: 2nd Band: Brown Brown
		2nd Band: - 3rd Band: Pale Green
		3rd Band: - 4th Band: -

PIPE BODY L	DATA				
Geometry					
Nominal OD	9.625 in.	Nominal Weight	40 lbs/ft	Drift	8.679 in.
Nominal ID	8.835 in.	Wall Thickness	0.395 in.	Plain End Weight	38.97 lbs/ft
OD Tolerance	ΑΡΙ				
Performance					
Body Yield Strength	916 x1000 lbs	Internal Yield	5750 psi	SMYS	80000 psi
Collapse	3870 psi				
CONNECTIO	N DATA		21 - 21 - 21 - 21 - 21 - 21 - 21 - 21 -		·····
Geometry					
Connection OD	10.625 in.	Coupling Length	10.825 in.	Connection ID	8.823 in.
Make-up Loss	4.891 in.	Threads per in	5	Connection OD Option	REGULAR
Performance					
Tension Efficiency	100.0 %	Joint Yield Strength	916.000 x1000 lbs	Internal Pressure Capacity [1]	5750.000 psi <sup>v</sup>
Compression Efficiency	100 %	Compression Strength	916.000 x1000 lbs	Max. Allowable Bending	38 °/100 ft
External Pressure Capacity	3870.000 psi				
Make-Up Tor	ques				
Minimum	18860 ft-lbs	Optimum	20960 ft-lbs	Maximum	23060 ft-lbs
Operation Lin	nit Torques				
Operating Torque	35600 ft-lbs	Yield Torque	43400 ft-lbs		

#### Notes

This creation is fally interclariteable with

TYP BTC+6.02F (0.536) 43.0 47 57.5 (58.4 Bolt)

[1] Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.

Datasheet is also valid for Special Sevel option when applicable - except for Coupling Face Load, which will be reduced. Please contact a local Tenans technical sales representative.

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

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TXP® B	тс							Printed on: 22/04	/2019
					Min. Wall Thickness	87.5%		(*)GradeP110- ICY	
		Outside Diameter	5.500 in.		Connection ( Option	D REGULAR		Coupling	Pipe Body
		Wall Thickn	ess 0.361 in.		Drift	API Standard		Body: White	1st Band: White
		Grade	P110-ICY*		Туре	Casing		1st Band: Pale Green	2nd Band: Pale Green
								2nd Band: -	3rd Band: Pale Green
						<u> </u>		3rd Band: -	4th Band: -
PIPE BODY I Geometry	DATA		<u>-</u> · ·						
Nominal OD	5.500 ii	n.	Nominal Weight	20 lbs	/ft	Drift	4.653	3 in.	
Nominal ID	4.778 ii	n.	Wall Thickness	0.361	in.	Plain End Weight	19.83	3 lbs/ft	
OD Tolerance	API								
Performance									
Body Yield Strength	729 x1000 lbs		Internal 14360 Yield		) psi	SMYS 125		00 psi	
Collapse	12100	psi							
CONNECTION DATA									
Geometry Connection OD	6.100 i	n.	Coupling Length	9.450	in.	Connection ID	4.76	ð in.	
Make-up Loss	4.204 in.		Threads per 5 in		Connection I OD Option		REGULAR		
Performance									
Tension Efficiency	100.0 9	%	Joint Yield Strength	729.0 Ibs	00 x1000	Internal Pressure Capacity [1]	1436	0.000 psi	
Compression Efficiency	100 %		Compression Strength	729.0 Ibs	00 ×1000	Max. Allowable Bending	104 '	2/100 ft	
External Pressure Capacity	12100.	000 psi							
Make-Up Torques									
Minimum	nimum 11540 ft-lbs		Optimum 12820		ft-lbs Maximum 14		1410	0 ft-lbs	
Operation Limit Torques									
Operating Torque	22700	ft-lbs	Yield Torque	25250	) ft-lbs				

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#### Notes

This connection in fully interchangeratic with

#### TXP® BTC - 5.5 in. - 15.5 / 17 / 23 / 26 lbs/ft

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[1] Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 503 / ISO 10400 - 2007.

Datasheet is also valid for Special Bevel option when applicable - except for Coupling Face Load, which will be reduced. Please contact a local Tenans technical sales representative.

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