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Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMLC062749B

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

8. Lease Name and Well No. (320074): ZIA HILLS 19 FEDERAL COM 107H

2. Name of Operator: CONOCOPHILLIPS COMPANY (217817)

9. API Well No.: 30-025-44234

3a. Address: 600 N. Dairy Ashford Rd Houston TX 77079

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

10. Field and Pool, or Exploratory (98065): WOLFCAMP / WOLFCAMP

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: LOT 2 / 2627 FNL / 496 FWL / LAT 32.028319 / LONG -103.721442

At proposed prod. zone: LOT 2 / 50 FSL / 660 FWL / LAT 32.000347 / LONG -103.720764

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 19 / T26S / R32E / NMP

14. Distance in miles and direction from nearest town or post office*: 44.8 miles

12. County or Parish: LEA

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any): 43 feet

16. No. of acres in lease: 321.45

17. Spacing Unit dedicated to this well: 348.1

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 33 feet

19. Proposed Depth: 11579 feet / 21349 feet

20. BLM/BIA Bond No. on file: FED: ES0085

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3176 feet

22. Approximate date work will start*: 10/01/2017

23. Estimated duration: 90 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

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

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Ashley Bergen / Ph: (432)688-6938	07/16/2017

Title: Associate, Regulatory MCBU

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	11/10/2017

Title	Office
Supervisor Multiple Resources	CARLSBAD

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

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

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

KZ 12/01/17

Approval Date: 11/10/2017

Doubles

X

OCD Hobbs 17-7240

AFMSS

U.S. Department of the Interior
Bureau of Land Management

Application for Permit to Drill

APD Package Report

Date Printed: 11/17/2017 12:28 PM

APD ID: 10400015610
APD Received Date: 07/16/2017 02:06 PM (217817)
Operator: CONOCOPHILLIPS COMPANY

Well Status: AAPD
Well Name: ZIA HILLS 19 FEDERAL CON 320074
Well Number: 107H

APD Package Report Contents Pool 98065

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
  -- Well Plat: 1 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
  -- Blowout Prevention Choke Diagram Attachment: 1 file(s)
  -- Blowout Prevention BOP Diagram Attachment: 1 file(s)
  -- Casing Design Assumptions and Worksheet(s): 4 file(s)
  -- Hydrogen sulfide drilling operations plan: 2 file(s)
  -- Proposed horizontal/directional/multi-lateral plan submission: 3 file(s)
  -- Other Facets: 4 file(s)
  -- Other Variances: 3 file(s)
- SUPO Report
- SUPO Attachments
  -- Existing Road Map: 1 file(s)
  -- New Road Map: 1 file(s)
  -- Attach Well map: 1 file(s)
  -- Production Facilities map: 2 file(s)
  -- Water source and transportation map: 1 file(s)
  -- Well Site Layout Diagram: 1 file(s)
  -- Existing Vegetation at the well pad attachment: 1 file(s)
  -- ROW Applications: 1 file(s)
  -- Other SUPO Attachment: 6 file(s)
- PWD Report
- PWD Attachments
  -- None

AFMSS

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

Application Data Report

11/17/2017

APD ID: 10400015610 **Submission Date:** 07/16/2017

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400015610 **Tie to previous NOS?** **Submission Date:** 07/16/2017

BLM Office: CARLSBAD **User:** Ashley Bergen **Title:** Associate, Regulatory MCBU

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

Lease number: NMLC062749B **Lease Acres:** 321.45

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

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

Agreement number:

Agreement name:

Keep application confidential? NO

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

Operator letter of designation:

Operator Info

Operator Organization Name: CONOCOPHILLIPS COMPANY

Operator Address: 600 N. Dairy Ashford Rd

Zip: 77079

Operator PO Box:

Operator City: Houston **State:** TX

Operator Phone: (281)293-1748

Operator Internet Address:

Section 2 - Well Information

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

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

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

Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H **Well API Number:**

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

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

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** ZIA HILLS 19 FEDERAL PAD **Number:** 1

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 44.8 Miles **Distance to nearest well:** 33 FT **Distance to lease line:** 43 FT

Reservoir well spacing assigned acres Measurement: 348.1 Acres

Well plat: ZIA_HILLS_19__FEDERAL_COM_107H_C_102_07-05-2017.pdf

Well work start Date: 10/01/2017 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2627	FNL	496	FWL	26S	32E	19	Lot 2	32.028319	-103.721442	LEA	NEW MEXICO	NEW MEXICO	F	NMLC062749B	3176	0	0
KOP Leg #1	2637	FNL	660	FWL	26S	32E	19	Lot 2	32.02829	-103.720913	LEA	NEW MEXICO	NEW MEXICO	F	NMLC062749B	-7721	10900	10897
PPP Leg #1	3442	FNL	668	FWL	26S	32E	19	Lot 2	32.027292	-103.720911	LEA	NEW MEXICO	NEW MEXICO	F	NMLC062749B	-8403	11990	11579

APD ID: 10400015610 **Submission Date:** 07/16/2017

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	3177	0	0		NONE	No
2	RUSTLER	2058	1119	1119	DOLOMITE,ANHYDRITE	NONE	No
3	SALADO	1898	1279	1279	SALT	NONE	No
4	CASTILE	548	2629	2629	SALT	NONE	No
5	DELAWARE	-1052	4229	4229	SANDSTONE	NATURAL GAS,OIL	No
6	CHERRY CANYON	-1977	5154	5154	SANDSTONE	NATURAL GAS,OIL	No
7	BRUSHY CANYON	-3452	6629	6629	SANDSTONE	NATURAL GAS,OIL	No
8	BONE SPRING	-4852	8029	8029	SANDSTONE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-6027	9204	9204	SANDSTONE	NATURAL GAS,OIL	No
10	BONE SPRING 2ND	-6702	9879	9879	SANDSTONE	NATURAL GAS,OIL	No
11	BONE SPRING 3RD	-7162	10339	10339	LIMESTONE	NATURAL GAS,OIL	No
12	WOLFCAMP	-8202	11379	11379	LIMESTONE,SHALE,SANDSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M **Rating Depth:** 21350

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.

Testing Procedure: BOP/BOPE will be isolated from the casing and tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. BOPE controls will be installed prior to drilling

under the surface casing and will be used until the completion of drilling operations. The intermediate interval and the production interval will be tested per 10M working system requirements. See attached "Drill Plan" document.

Choke Diagram Attachment:

Zia_Hills_19_Pad_1_Choke_Manifold_07-11-2017.pdf

BOP Diagram Attachment:

Zia_Hills_19_Pad_1__BOPE_07-11-2017.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	14.75	11.75	NEW	API	N	0	1170	0	1170	-8403	-9573	1170	J-55	47	BUTT	2.89	5.87	DRY	15.4	DRY	15.4
2	INTERMEDIATE	10.875	8.625	NEW	API	N	0	11420	0	10410	-8403	-18813	11420	P-110	32	BUTT	2.04	1.55	DRY	3.53	DRY	3.53
3	PRODUCTION	7.875	5.5	NEW	API	N	0	21350	0	21350	-8403	-29753	21350	P-110	20	OTHER - TXP	1.54	1.75	DRY	2.34	DRY	2.34

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

ZIA_HILLS_19_Federal_COM_107H_csg_design_07-11-2017.pdf

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

ZIA_HILLS_19_Federal_COM_107H_csg_design_07-11-2017.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Zia_Hills_19_Pad_1__Production_csg_specification_07-05-2017.pdf

ZIA_HILLS_19_Federal_COM_107H_csg_design_07-11-2017.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1170	470	1.68	13.5	789.6	100	Class C	+ 4.0% Bentonite + 0.2% Anti-Foam + 2.0% CaCl2 +0.125lb/sk LCM + 0.1% Dispersant.
SURFACE	Tail				240	1.35	14.8	324	100	Class C	+ 0.2% Anti-Foam + 0.1% Lost Circ Control
INTERMEDIATE	Lead		0	11420	800	2.7	11	2160	30	Class C	75.00 lb/sk BWOB D049 + 1.00 % BWOB D013 Retarder + 10.00

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											% BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti foam + 2.00 % BWOB D154 Extender + 0.15 % BWOB D208 Viscosifier
INTERMEDIATE	Tail				570	1.29	13.5	735	30	Class C	75.00 lb/sk BWOB D049 + 0.50 % BWOB D013 Retarder + 1.00 % BWOB D020 Extender + 3.00 lb/sk WBWOB D042 Extender + 0.02 gal/sk VBWOB D047Anti foam + 0.10 % BWOB D065 Dispersant + 0.13 lb/sk WBWOB D130 Lost Circula + 0.30 % BWOB D238 Fluid loss
PRODUCTION	Lead		0	21350	0	0	0	0	0	no lead	no lead
PRODUCTION	Tail				2140	1.08	16.4	2311	15	Class H	+ 1.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti Foam + 0.10 % BWOB D065 Dispersant + 0.15 % BWOB D255 Fluid loss + 0.30 % BWOB D800 Retarder

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.

Operator Name: CONOCOPHILLIPS COMPANY

Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1170	SPUD MUD	8.34	8.6							
0	11420	OIL-BASED MUD	8.6	9.4							
0	21350	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.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 8128 **Anticipated Surface Pressure:** 5580.62

Anticipated Bottom Hole Temperature(F): 205

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_19_PAD_1_H2S_C_Plan_07-03-2017.pdf

Zia_Hills_19__Pad_1_Rig_Layout_07-05-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Zia_Hills_19_Federal_COM_107H_Directional_Plan_07-03-2017.pdf
Zia_Hills_19_Federal_COM_107H_Section_View_07-11-2017.pdf
Zia_Hills_19_Federal_COM_107H_Wellbore_Schematic_20170830132734.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

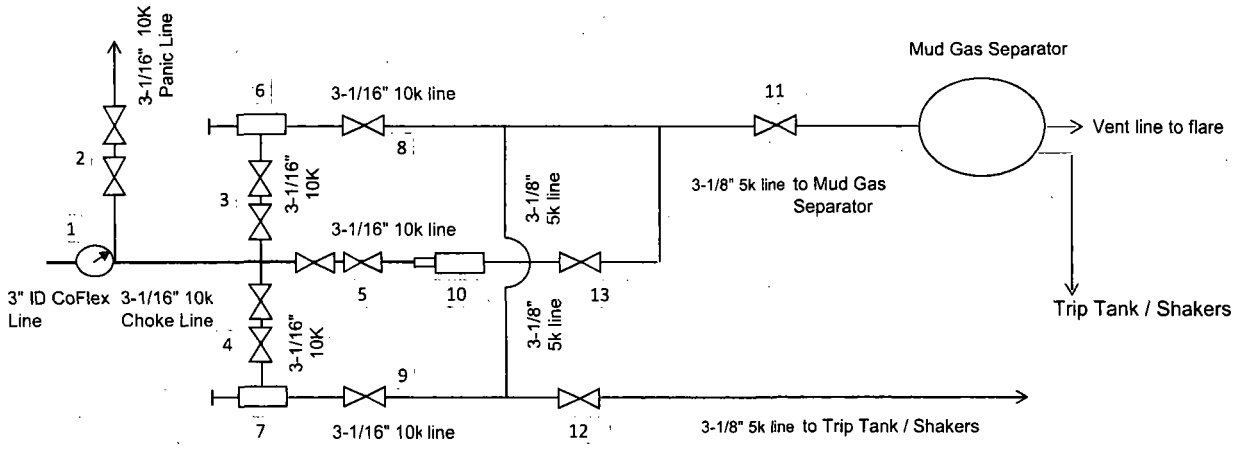
Zia_Hills_19_Pad_1_Drill_Waste_Containment_07-03-2017.pdf
Zia_Hills_19_Pad_1_Gas_Capture_Plan_07-05-2017.pdf
ZIA_HILLS_19_Federal_COM_107H_Drilling_Plan_20170915100259.pdf
Option_2_for_cement_plan_20170915100311.pdf

Other Variance attachment:

Zia_Hills_19_Pad_1_Generic_WH_07-03-2017.pdf
Zia_Hills_19_Pad_1_Flexhose_Variance_07-05-2017.pdf
Zia_Hills_19_Pad_1_Running_Procedure_2_20170915100321.pdf

CHOKE MANIFOLD ARRANGEMENT - 10M Choke

per Onshore Oil and Gas Order No. 2 utilizing 5M/10M Equipment



All Tees must be Targeted

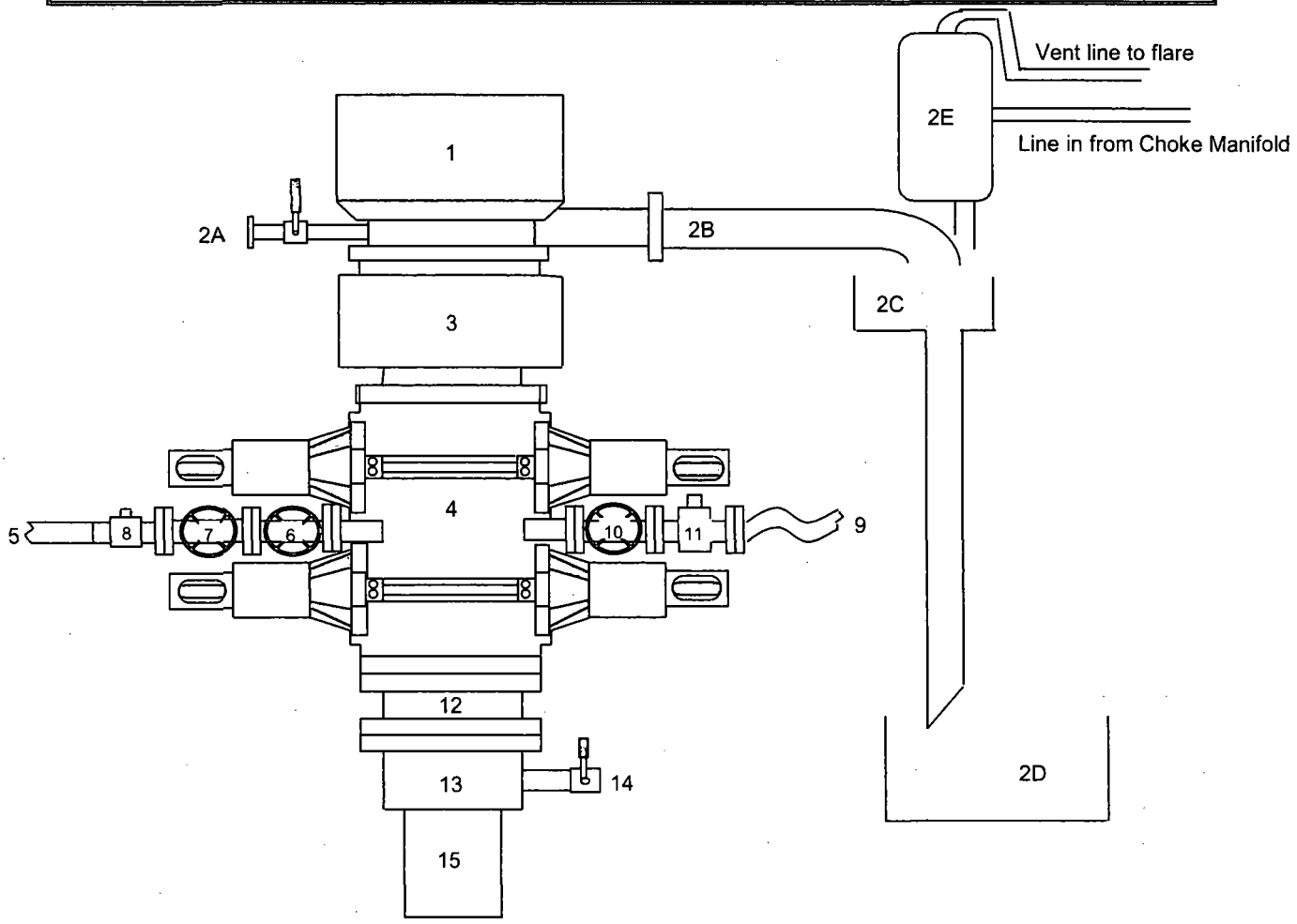
Item	Description
1	Pressure Gauge
2	2 Gate Valves, 3-1/16" 10M
3	2 Gate Valves, 3-1/16" 10M
4	2 Gate Valves, 3-1/16" 10M
5	2 Gate Valves, 3-1/16" 10M
6	Upper Manual Adjustable Choke, 4-1/16", 10M
7	Lower Manual Adjustable Choke, 4-1/16", 10M
8	Gate Valve, 3-1/16" 10M
9	Gate Valve, 3-1/16" 10M
10	Remote Controlled Hydraulic Adjustable Choke, 4-1/16", 10M
11	Gate Valve, 3-1/8" 5M
12	Gate Valve, 3-1/8" 5M
13	Gate Valve, 3-1/16" 10M

The 10M Choke Manifold & Valves will be tested to rated working pressure.

*Choke manifold will have one remotely operated valve and a manual adjustable valve in front of the choke manifold, as detailed in the Onshore Order 2. It currently contains one 10M hydraulic choke for a total of three choke branches (two manual and one hydraulic).

BLOWOUT PREVENTER ARRANGEMENT - 13-5/8" 5M BOPE

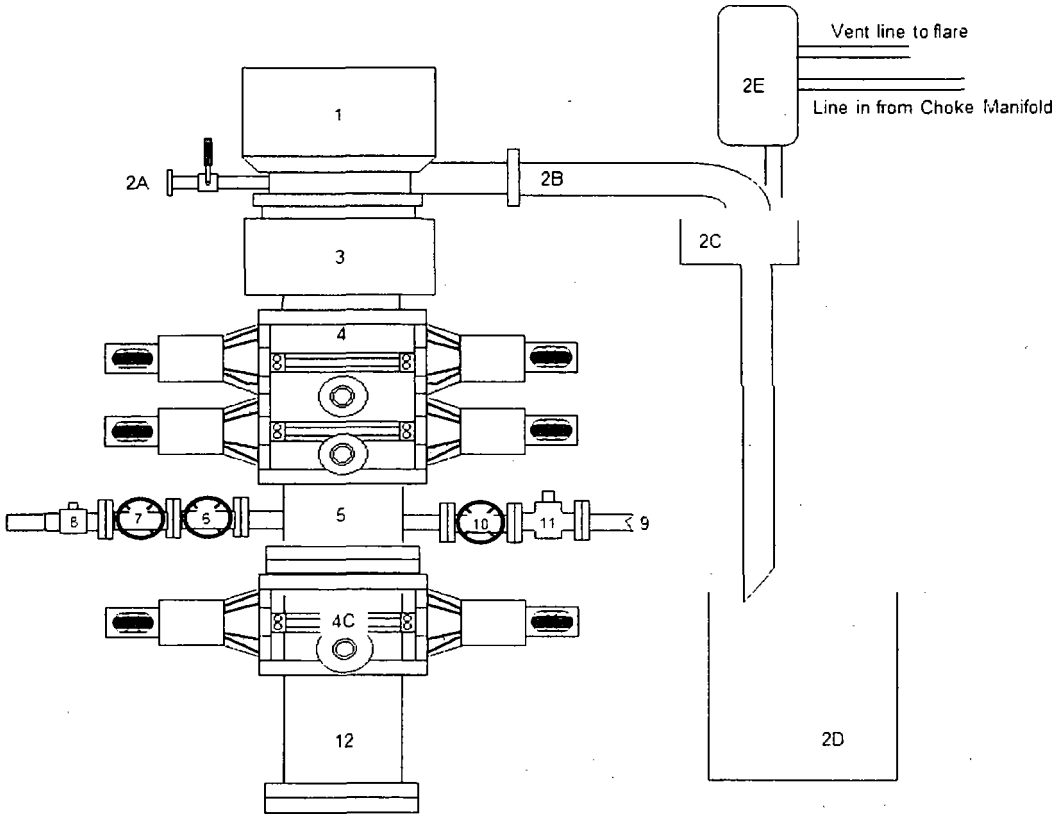
per Onshore Oil and Gas Order No. 2 utilizing 5M Rated Equipment



Item	Description
1	Rotating Head, 13-5/8"
2A	Fill up Line and Valve
2B	Flow Line (10")
2C	Shale Shakers and Solids Settling Tank
2D	Cuttings Bins for Zero Discharge
2E	Rental Mud Gas Separator with vent line to flare and return line to mud system
3	Annular BOP (13-5/8", 5M)
4	Double Ram (13-5/8", 5M, Blind Ram top x Pipe Ram bottom)
5	Kill Line (2" flexible hose, 5M)
6	Kill Line Valve, Inner (2-1/16", 5M)
7	Kill Line Valve, Outer (2-1/16", 5M)
8	Kill Line Check Valve (2-1/16", 5M)
9	Choke Line (3-1/8", 5M Stainless Steel Coflex Line)
10	Choke Line Valve, Inner (3-1/8", 5M)
11	Choke Line Valve, Outer (3-1/8", Hydraulically operated, 5M)
12	Spacer Spool (13-5/8", 5M)
13	Casing Head (13-5/8" 5M)
14	Ball Valve and Threaded Nipple on Casing Head Outlet, 2" 5M
15	Surface Casing

BLOWOUT PREVENTER ARRANGEMENT - 11" 10M BOPE

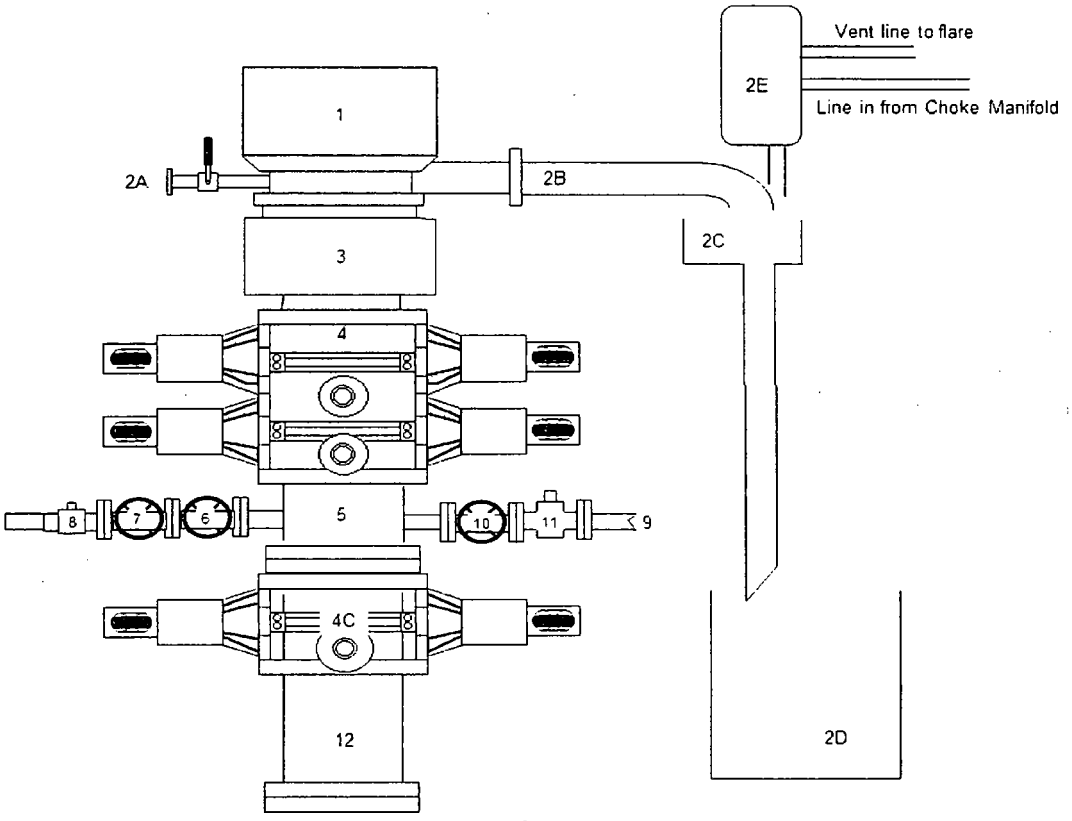
per Onshore Oil and Gas Order No. 2 utilizing 10M Rated Equipment



Item	Description
1	Rotating Head
2A	Fill up Line and Valve
2B	Flow Line (10")
2C	Shale Shakers and Centrifuges
2D	Cuttings Bins for Zero Discharge
2E	Mud Gas Separator with vent line to flare and return line to mud system
3	Annular Preventer (11", 10M)
4	Double Ram (11", 10M, Pipe Ram top x Blind Ram bottom)
5	Drilling Spool (11" 10M)
4C	Single Ram (11", 10M, Pipe Rams)
6	Kill Line Gate Valve, Inner (2-1/16", 10M)
7	Kill Line Gate Valve, Outer (2-1/16", 10M)
8	Kill Line Check Valve (2-1/16, 10M)
9	CoFlex Choke Line (4-1/16", 10M)
10	Choke Line Gate Valve, Inner (4-1/16", 10M)
11	Choke Line Hydraulically Operated Gate Valve, Outer, (4-1/6" 10M w/ Double Acting
12	HCR) Drilling Spool Adapter (11", 10M)

BLOWOUT PREVENTER ARRANGEMENT - 13-5/8" 10M BOPE

per Onshore Oil and Gas Order No. 2 utilizing 10M Rated Equipment



Item	Description
1	Rotating Head
2A	Fill up Line and Valve
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2E	Mud Gas Separator with vent line to flare and return line to mud system
3	Annular Preventer (13-5/8", 10M)
4	Double Ram (13-5/8", 10M, Pipe Ram top x Blind Ram bottom)
5	Drilling Spool (13-5/8" 10M)
4C	Single Ram (13-5/8", 10M, Pipe Rams)
6	Kill Line Gate Valve, Inner (2-1/16", 10M)
7	Kill Line Gate Valve, Outer (2-1/16", 10M)
8	Kill Line Check Valve (2-1/16, 10M)
9	CoFlex Choke Line (4-1/16", 10M)
10	Choke Line Gate Valve, Inner (4-1/16", 10M)
11	Choke Line Hydraulically Operated Gate Valve, Outer, (4-1/6" 10M w/ Double Acting HCR)
12	Drilling Spool Adapter (13-5/8", 10M)

Type	Depth MD	Depth TVD	Csg length ft	Wt	M/Y	Col	Tensile	Drill Fluid
Surface Casing	1170	1170	1170	47	3070	1510	737000	8.6
Intermediate 1 Casing	10410	10379	10410	32	7860	3420	1006000	9.4
Intermediate 2 Casing	0	0	0					
Production 1 Casing	21350	11579	11824	29	12630	11100	641000	12
Production 2 Casing								

Uses TVD!!!!

Burst Design (Safety) Factors – BLM Criteria

Burst Design (Safety) Factor: SFb

SFb = Pi / BHP

Where

- Pi is the rated pipe Burst (Minimum Internal Yield) Pressure in pounds per square inch (psi)
- BHP is bottom hole pressure in pounds per square inch (psi)

The Minimum Acceptable Burst Design (Safety) Factor SFb = 1.0

Surface Casing
SFb = 3070 / 523 = **5.87**

Intermediate 1 Casing
SFb = 7860 / 5073 = **1.55**

Intermediate 2 Casing
SFb = 0 / 0 = **#DIV/0!**

Production 1 Casing
SFb = 12630 / 7225 = **1.75**

Production 2 Casing
SFb = 0 / 0 = **#DIV/0!**

Collapse Design (Safety) Factors – BLM Criteria

Collapse Design (Safety) Factor: SFc

SFc = Pc / (MW x .052 x Ls)

Where

- Pc is the rated pipe Collapse Pressure in pounds per square inch (psi)
- MW is mud weight in pounds per gallon (ppg)
- Ls is the length of the string in feet (ft)

The Minimum Acceptable Collapse Design (Safety) Factor SFc = 1.125

Surface Casing
SFc = 1510 / 523 = **2.89**

Intermediate 1 Casing
SFc = 3420 / 5073 = **0.67**

Intermediate 2 Casing
SFc = 0 / 0 = **#DIV/0!**

Production 1 Casing
SFc = 11100 / 7225 = **1.54**

Production 2 Casing
SFc = 0 / 0 = **#DIV/0!**

Joint Strength Design (Safety) Factors – BLM Criteria

Joint Strength Design (Safety) Factor: SFt

SFt = Fj / Wt.

Where

- Fj is the rated pipe Joint Strength in pounds (lbs)
- Wt is the weight of the casing string in pounds (lbs)

The Minimum Acceptable Joint Strength Design (Safety) Factor SFT = 1.6 dry or 1.8 buoyant

Surface Casing
SFi Dry = 737000 / 54990 = **13.4**
SFi Bouyant = 737000 / (54990 x 0.869) = **15.4**

Intermediate 1 Casing
SFi Dry = 1006000 / 333120 = **3.02**
SFi Bouyant = 1006000 / (333120 x 0.856) = **3.53**

Intermediate 2 Casing
SFi Dry = 0 / 0 = **#DIV/0!**
SFi Bouyant = 0 / (0 x 1.000) = **#DIV/0!**

Production 1 Casing
SFi Dry = 641000 / 335791 = **1.91**
SFi Bouyant = 641000 / (335791 x 0.817) = **2.34**

Production 2 Casing
SFi Dry = 0 / 0 = **#DIV/0!**
SFi Bouyant = 0 / (0 x 1.000) = **#DIV/0!**

Type	Depth MD	Depth TVD	Csg length ft	Wt	MIY	Col	Tensile	Drill Fluid
Surface Casing	1170	1170	1170	47	3070	1510	737000	8.6
Intermediate 1 Casing	10410	10379	10410	32	7860	3420	1006000	9.4
Intermediate 2 Casing	0	0	0					
Production 1 Casing	21350	11579	11824	29	12630	11100	641000	12
Production 2 Casing								

Uses TVD!!!!

Burst Design (Safety) Factors – BLM Criteria

Burst Design (Safety) Factor: SFb

SFb = Pi / BHP

Where

- Pi is the rated pipe Burst (Minimum Internal Yield) Pressure in pounds per square inch (psi)
- BHP is bottom hole pressure in pounds per square inch (psi)

The Minimum Acceptable Burst Design (Safety) Factor SFb = 1.0

Surface Casing
SFb = 3070 / 523 = **5.87**

Intermediate 1 Casing
SFb = 7860 / 5073 = **1.55**

Intermediate 2 Casing
SFb = 0 / 0 = **#DIV/0!**

Production 1 Casing
SFb = 12630 / 7225 = **1.75**

Production 2 Casing
SFb = 0 / 0 = **#DIV/0!**

Collapse Design (Safety) Factors – BLM Criteria

Collapse Design (Safety) Factor: SFc

SFc = Pc / (MW x .052 x Ls)

Where

- Pc is the rated pipe Collapse Pressure in pounds per square inch (psi)
- MW is mud weight in pounds per gallon (ppg)
- Ls is the length of the string in feet (ft)

The Minimum Acceptable Collapse Design (Safety) Factor SFc = 1.125

Surface Casing
SFc = 1510 / 523 = **2.89**

Intermediate 1 Casing
SFc = 3420 / 5073 = **0.67**

Intermediate 2 Casing
SFc = 0 / 0 = **#DIV/0!**

Production 1 Casing
SFc = 11100 / 7225 = **1.54**

Production 2 Casing
SFc = 0 / 0 = **#DIV/0!**

Joint Strength Design (Safety) Factors – BLM Criteria

Joint Strength Design (Safety) Factor: SFt

SFt = Fj / Wt

Where

- Fj is the rated pipe Joint Strength in pounds (lbs)
- Wt is the weight of the casing string in pounds (lbs)

The Minimum Acceptable Joint Strength Design (Safety) Factor SFT = 1.6 dry or 1.8 buoyant

Surface Casing
SFi Dry = 737000 / 54990 = **13.4**
SFi Bouyant = 737000 / (54990 x 0.869) = **15.4**

Intermediate 1 Casing
SFi Dry = 1006000 / 333120 = **3.02**
SFi Bouyant = 1006000 / (333120 x 0.856) = **3.53**

Intermediate 2 Casing
SFi Dry = 0 / 0 = **#DIV/0!**
SFi Bouyant = 0 / (0 x 1.000) = **#DIV/0!**

Production 1 Casing
SFi Dry = 641000 / 335791 = **1.91**
SFi Bouyant = 641000 / (335791 x 0.817) = **2.34**

Production 2 Casing
SFi Dry = 0 / 0 = **#DIV/0!**
SFi Bouyant = 0 / (0 x 1.000) = **#DIV/0!**

Production Casing Specification Sheet

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

August 29 2016

Tenaris

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

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

PIPE BODY DATA

GEOMETRY

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

PERFORMANCE

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

TENARISXP® BTC CONNECTION DATA

GEOMETRY

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

PERFORMANCE

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

ESTIMATED MAKE-UP TORQUES[3]

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

OPERATIONAL LIMIT TORQUES

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

Type	Depth MD	Depth TVD	Csg length ft	Wt	MIY	Col	Tensile	Drill Fluid
Surface Casing	1170	1170	1170	47	3070	1510	737000	8.6
Intermediate 1 Casing	10410	10379	10410	32	7860	3420	1006000	9.4
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Production 1 Casing	21350	11579	11824	29	12630	11100	641000	12
Production 2 Casing								

Uses TVD!!!!

Burst Design (Safety) Factors – BLM Criteria

Burst Design (Safety) Factor: SFb

SFb = Pi / BHP

Where

- Pi is the rated pipe Burst (Minimum Internal Yield) Pressure in pounds per square inch (psi)
- BHP is bottom hole pressure in pounds per square inch (psi)

The Minimum Acceptable Burst Design (Safety) Factor SFb = 1.0

Surface Casing
SFb = 3070 / 523 = **5.87**

Intermediate 1 Casing
SFb = 7860 / 5073 = **1.55**

Intermediate 2 Casing
SFb = 0 / 0 = **#DIV/0!**

Production 1 Casing
SFb = 12630 / 7225 = **1.75**

Production 2 Casing
SFb = 0 / 0 = **#DIV/0!**

Collapse Design (Safety) Factors – BLM Criteria

Collapse Design (Safety) Factor: SFc

SFc = Pc / (MW x .052 x Ls)

Where

- Pc is the rated pipe Collapse Pressure in pounds per square inch (psi)
- MW is mud weight in pounds per gallon (ppg)
- Ls is the length of the string in feet (ft)

The Minimum Acceptable Collapse Design (Safety) Factor SFc = 1.125

Surface Casing
SFc = 1510 / 523 = **2.89**

Intermediate 1 Casing
SFc = 3420 / 5073 = **0.67**

Intermediate 2 Casing
SFc = 0 / 0 = **#DIV/0!**

Production 1 Casing
SFc = 11100 / 7225 = **1.54**

Production 2 Casing
SFc = 0 / 0 = **#DIV/0!**

Joint Strength Design (Safety) Factors – BLM Criteria

Joint Strength Design (Safety) Factor: SFt

SFt = Fj / Wt;

Where

- Fj is the rated pipe Joint Strength in pounds (lbs)
- Wt is the weight of the casing string in pounds (lbs)

The Minimum Acceptable Joint Strength Design (Safety) Factor SFT = 1.6 dry or 1.8 buoyant

Surface Casing
SFi Dry = 737000 / 54990 = **13.4**
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SFi Bouyant = 1006000 / (333120 x 0.856) = **3.53**

Intermediate 2 Casing
SFi Dry = 0 / 0 = **#DIV/0!**
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Production 1 Casing
SFi Dry = 641000 / 335791 = **1.91**
SFi Bouyant = 641000 / (335791 x 0.817) = **2.34**

Production 2 Casing
SFi Dry = 0 / 0 = **#DIV/0!**
SFi Bouyant = 0 / (0 x 1.000) = **#DIV/0!**

ConocoPhillips, ZIA HILLS 19 FEDERAL COM 107H

1. 05Geologic Formations

TVD of target	**11,579'**	Pilot hole depth	N/A
MD at TD:	**21,350'**	Deepest expected fresh water:	300

Basin

Formation	Depth (TVD) from KB	SSTVD (ft.)	Water/Mineral Bearing/Target Zone	Hazards *
Quaternary Fill	Surface	0	Water	
Base of Fresh Water	300	300	Water	
Rustler	1,119	2060	Water	
Top of Salt / Salado	1,279	1900	Mineral	
Castile	2,629	550	Mineral	
Delaware Top / Base Salt	4,229	-1050	O & G	
Ford Shale	4,354	-1175	O & G	
Cherry Canyon	5,154	-1975	O & G	
Brushy Canyon	6,629	-3450	O & G	
Bone Springs	8,029	-4850	O & G	
Bone Springs 3rd Carb	10,339	-1760	O & G	
WolfCamp	11,379	-8200	O & G	
WolfCamp 1	11,604	-8425	O & G	

*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 8-5/8" casing set in the Bone Spring 3rd Carb. The intent for the casing and cementing program:

- Drill 14-3/4" surface hole to Rustler.
- Drill 10-5/8" hole from Rustler to Bone Spring 3rd Carb with the same density mud (OBM or Saturated Brine).
- Case and cement the well with 11-3/4" surface, 10-5/8" intermediate and 5-1/2" production casing (3-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 11-3/4" casing and 8-5/8" casing to surface. Cement 5-1/2" casing to lap inside 8-5/8" casing shoe.
- 5-1/2" TXP buttress Casing Connection in 7-7/8" OH for minimum of 0.422 in clearance per Onshore Oil and Gas Order #2 III.B.

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
14.75"	0	1170	11.75"	47.0	J55	BTC	2.89	5.87	15.4
10.875"	0	11,420	8.625"	32.0	P110	BTC	**2.04	1.55	3.53
7.875"	0	21,350	5.5"	20.0	P110	TXP	1.54	1.75	2.34
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

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

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

Must have table for contingency casing

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

3. Cementing Program

Option 1:

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (Estimated hours)	Slurry Description
Surf.	470	13.5	1.68	8.94	8	**Lead:** Class C + 4.0% Bentonite + 0.2% Anti-Foam + 2.0% CaCl2 +0.125lb/sk LCM + 0.1% Dispersant.
	240	14.8	1.35	6.38	7	**Tail:** Class C + 0.2% Anti-Foam + 0.1% Lost Circ Control
Inter.	800	11.0	2.7	16.5	18	**Lead:** Class C 75.00 lb/sk BWOB D049 + 1.00 % BWOB D013 Retarder + 10.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti foam + 2.00 % BWOB D154 Extender + 0.15 % BWOB D208 Viscosifier
	570	13.5	1.29	6.02	7	**Tail:** Class C 75.00 lb/sk BWOB D049 + 0.50 % BWOB D013 Retarder + 1.00 % BWOB D020 Extender + 3.00 lb/sk WBWOB D042 Extender + 0.02 gal/sk VBWOB D047Anti foam + 0.10 % BWOB D065 Dispersant + 0.13 lb/sk WBWOB D130 Lost Circulation + 0.30 % BWOB D238 Fluid loss
Prod.	2290	16.4	1.08	4.38	10	**Tail:** Class H + 1.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti Foam + 0.10 % BWOB D065 Dispersant + 0.15 % BWOB D255 Fluid loss + 0.30 % BWOB D800 Retarder
	DV/ACP Tool: NO					

Option 2:

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (Estimated hours)	Slurry Description
Surf.	470	13.5	1.68	8.94	8	**Lead:** Class C + 4.0% Bentonite + 0.2% Anti-Foam + 2.0% CaCl2 +0.125lb/sk LCM + 0.1% Dispersant.
	240	14.8	1.35	6.38	7	**Tail:** Class C + 0.2% Anti-Foam + 0.1% Lost Circ Control
Inter.	370	11.0	2.7	16.5	18	**Lead:** Class C 75.00 lb/sk BWOB D049 + 1.00 % BWOB D013 Retarder + 10.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti foam + 2.00 % BWOB D154 Extender + 0.15 % BWOB D208 Viscosifier

	570	13.5	1.29	6.02	7	**Tail:** Class C 75.00 lb/sk BWOB D049 + 0.50 % BWOB D013 Retarder + 1.00 % BWOB D020 Extender + 3.00 lb/sk WBWOB D042 Extender + 0.02 gal/sk VBWOB D047Anti foam + 0.10 % BWOB D065 Dispersant + 0.13 lb/sk WBWOB D130 Lost Circulation + 0.30 % BWOB D238 Fluid loss
	DV/ACP Tool: 4,200'					
	420	11.0	3.10	19.03	15	**2nd Stage Lead:** Class 'C' + 2.00 % BWOB Extender + 3.40 lb/sk WBWOB D042 Extender + 0.02 gal/sk VBWOB D047 Anti Foam + 2.00 % BWOB D079 Extender + 5.00 % BWOB D154 Extender + 1.00 % BWOB S001 CaCl2
Prod.	2290	16.4	1.08	4.38	10	**Tail:** Class H + 1.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti Foam + 0.10 % BWOB D065 Dispersant + 0.15 % BWOB D255 Fluid loss + 0.30 % BWOB D800 Retarder
	DV/ACP Tool: NO					

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

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

Casing String	TOC	% Excess in OH
Surface	0'	>100%
Intermediate	0'	>30%
Production	10,200'	>15%

Include Pilot Hole Cementing specs: NO PILOT HOLE.
Pilot hole depth N/A
KOP

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type

4. Pressure Control Equipment

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

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

*Specify if additional ram is utilized.
Note: A 11" or 13-5/8" BOPE will be utilize depending on availability and Rig Substructure Clearance.

BOP/BOPE will be isolated from the casing and tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. BOPE controls will be installed prior to drilling under the surface casing and will be used until the completion of drilling operations. The intermediate interval and the production interval will be tested per 10M working system requirements.

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

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

The wellhead will be installed and tested as soon as the surface casing is cemented. Prior to drilling out the surface casing, ConocoPhillips shall nipple up a 10M BOPE & choke arrangement with 10M components and test to the rated working pressure of a 10M BOPE system as it is subjected to the maximum anticipated surface pressure 5581 psi. The pressure test to MASP and 50% for annular shall be performed with a test plug after installing the casing head and nippling up the 5M BOPE system prior to drilling out the surface casing.

However, ConocoPhillips shall nipple up a 10M BOPE with 5M Annular Preventer if drilling out surface casing with Primary Rig.

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

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,170	Spud Mud	8.34 - 8.6	32-36	N/C
0	11,420	Cut-Brine or OBM	8.6-9.4	30-40	≤5
0	21,350	Oil Base Mud	9.5-13.5	30-40	≤5

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

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

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	GR from 200' above KOP to TD (GR as part of the BHA while drilling).
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain
x	Dry samples taken 30' from intermediate 1 casing point to TD.

Additional logs planned		Interval
	Resistivity	
	Density	
	CBL	
x	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8128 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

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

Spudder Rig and Batch Drilling Operations:

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

Attachments:

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

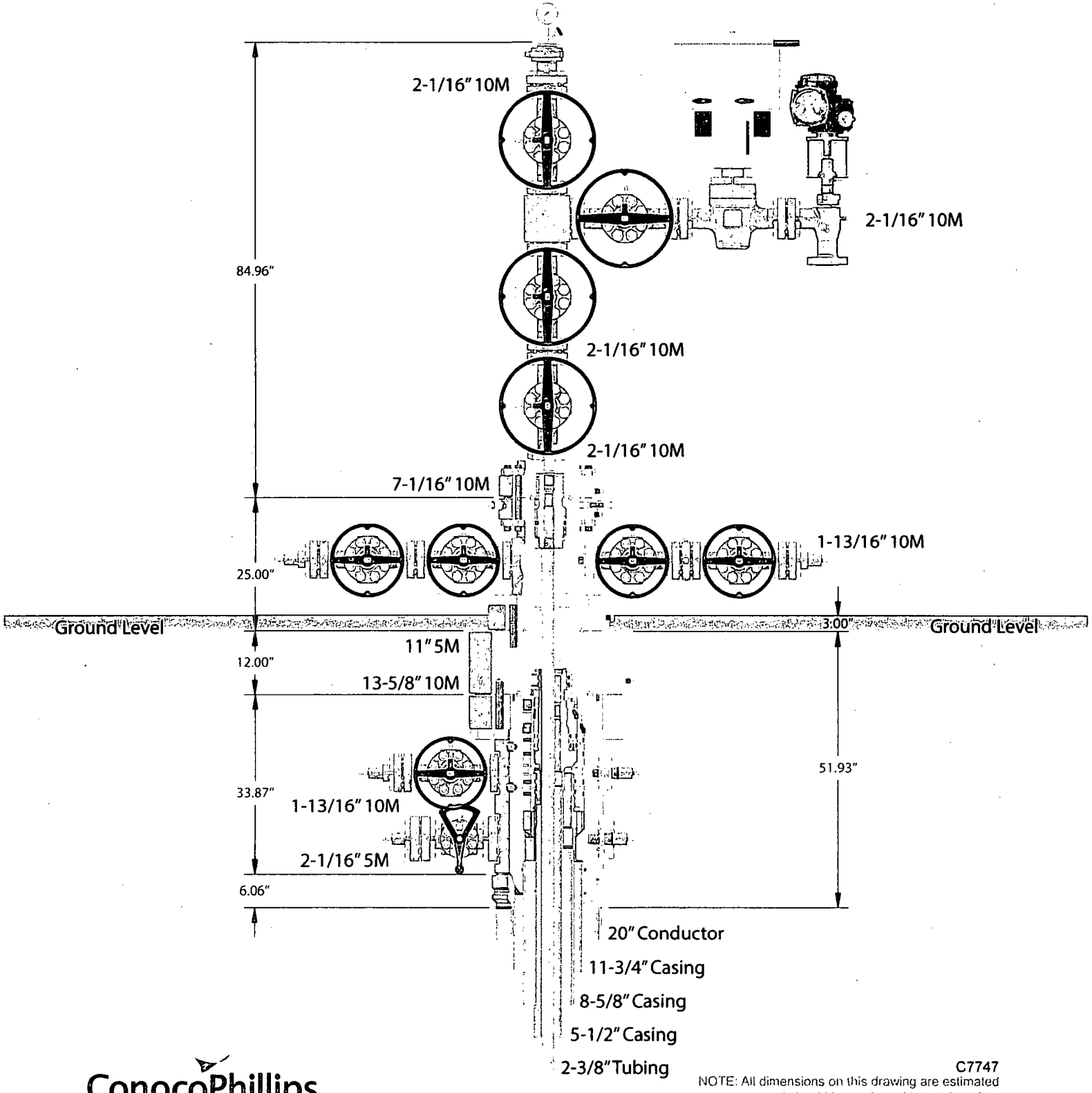
Option 2:

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (Estimated hours)	Slurry Description
Surf.	470	13.5	1.68	8.94	8	**Lead:** Class C + 4.0% Bentonite + 0.2% Anti-Foam + 2.0% CaCl2 +0.125lb/sk LCM + 0.1% Dispersant.
	240	14.8	1.35	6.38	7	**Tail:** Class C + 0.2% Anti-Foam + 0.1% Lost Circ Control
Inter.	370	11.0	2.7	16.5	18	**Lead:** Class C 75.00 lb/sk BWOB D049 + 1.00 % BWOB D013 Retarder + 10.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti foam + 2.00 % BWOB D154 Extender + 0.15 % BWOB D208 Viscosifier
	570	13.5	1.29	6.02	7	**Tail:** Class C 75.00 lb/sk BWOB D049 + 0.50 % BWOB D013 Retarder + 1.00 % BWOB D020 Extender + 3.00 lb/sk WBWOB D042 Extender + 0.02 gal/sk VBWOB D047Anti foam + 0.10 % BWOB D065 Dispersant + 0.13 lb/sk WBWOB D130 Lost Circulation + 0.30 % BWOB D238 Fluid loss
	DV/ACP Tool: 4,200'					
	420	11.0	3.10	19.03	15	**2nd Stage Lead:** Class 'C' + 2.00 % BWOB Extender + 3.40 lb/sk WBWOB D042 Extender + 0.02 gal/sk VBWOB D047 Anti Foam + 2.00 % BWOB D079 Extender + 5.00 % BWOB D154 Extender + 1.00 % BWOB S001 CaCl2
Prod.	2290	16.4	1.08	4.38	10	**Tail:** Class H + 1.00 % BWOB D020 Extender + 0.02 gal/sk VBWOB D047 Anti Foam + 0.10 % BWOB D065 Dispersant + 0.15 % BWOB D255 Fluid loss + 0.30 % BWOB D800 Retarder
	DV/ACP Tool: NO					

ZIA HILL 19 PAD #1

CAMERON
A Schlumberger Company

13-5/8" 10M MN-DS Wellhead System
with CXS Completion



ConocoPhillips

C7747

NOTE: All dimensions on this drawing are estimated measurements and should be evaluated by engineering.

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

Hose Data Sheet

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

Continental ContiTech

Fluid Technology

Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE		CERT. N°:	184
PURCHASER:	ContiTech Beattie Co.	P.O. N°:	005438
CONTITECH ORDER N°: 516273	HOSE TYPE: 3" ID	Choke and Kill Hose	
HOSE SERIAL N°: 61477	NOMINAL / ACTUAL LENGTH:	10,67 m / 10,71 m	
W.P. 68,9 MPa 10000 psi	T.P. 103,4 MPa 15000 psi	Duration: 60 min.	

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min

→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°		Quality	Heat N°
3" coupling with	10178	10173	AISI 4130	20231
4 1/16" 10K API Flange end			AISI 4130	33051

NOT DESIGNED FOR WELL TESTING

API Spec 16 C

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

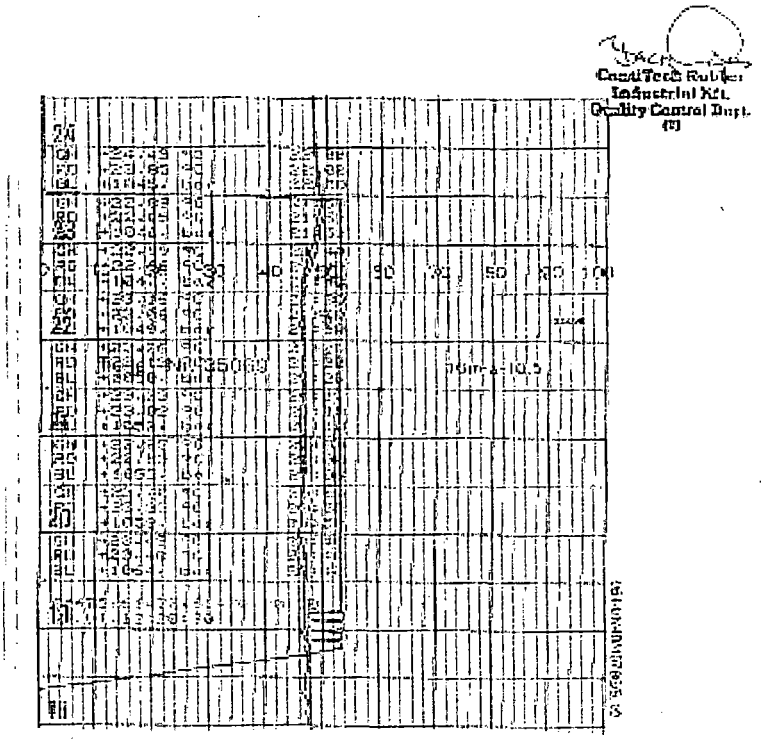
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

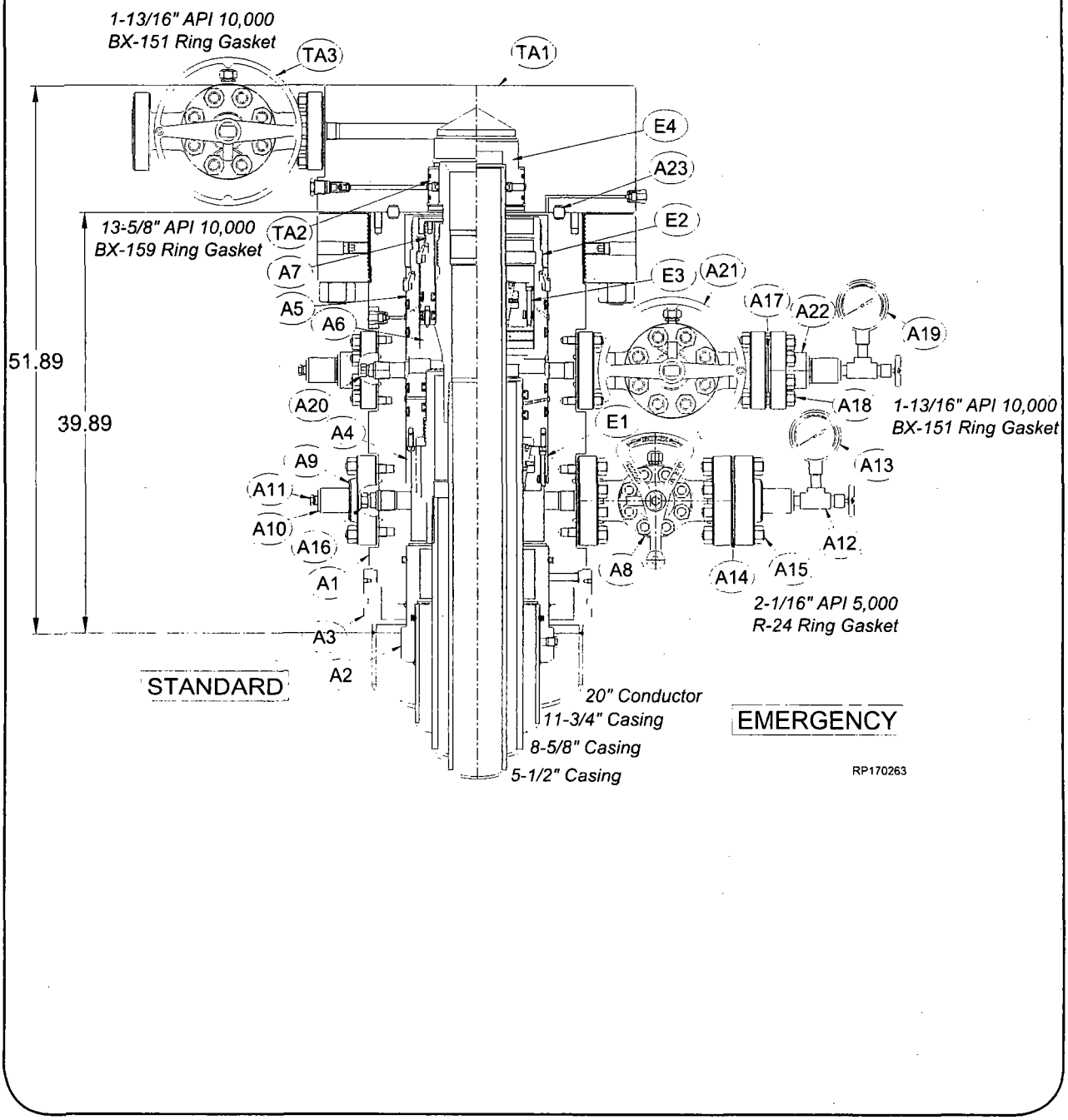
Date:	Inspector	Quality Control
30. January 2012.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1) [signature]

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No. 183, 184, 185*

Page: 3 / 3



System Drawing



Bill of Materials

NOTE **Contact your Cameron representative for replacement part inquiries. Cameron personnel can check the latest revision of the assembly bill-of-material to obtain the appropriate and current replacement part number.**

MN-DS HOUSING

Item	Qty	Description
A1	1	Conversion; Casing Head Housing, Type 'Mn-Ds', 10K, 13-5/8 Nom 10K Oec BX-159 w/ 20.500-4TPI LH Stub Acme Top f/ Thded Flg and Prep f/ Internal Snap Ring x 13-3/8 SOW Btm w/ Four Grout Ports, w/ (2) Upper 1-13/16 API 10K BX-151 Outlets w/1-1/4 API Vr Thds Part# 2031060-48-02
A2	1	Body, Bushing Reducer,13-3/8 SOW x 11-3/4 SOW Part# 2310058-03-01
A3	1	Body, Load Ring f/ 20 Casing (.375 C.S. Casing) To Accept Low Pressure Adapter Part# 2329761-07-01
A4	1	Casing Hanger, Mandrel, Type 'Mn-Ds', 13-5/8 Nom x 8-5/8 API BC Box Thd Btm x 10.000-4TPI L.H Stub Acme Running Thd, Min Bore: 8.000, 10,000 Psi Max Working Pressure, 700,000 Lbs Max Hanging Load Part# 2345509-17
A5	1	Assy; Packoff Support Bushing, Type MN-DS', 13-5/8 10K, w/ 13-5/8 Nom Dovetail Seal, and 9-5/8 Nom 'T' Seal and w/ Internal and External Lock Ring Prep, Min. Bore 8.835 Part# 2161673-01-01
A6	1	Rotating Mandrel Hanger, Type 'MN-DS'; 11 Nom, 5-1/2 20 Lb/Ft Tenaris XP Buttress Box Thd Btm X 7.500- 4 TPI Stub ACME Running Thd w/ 5.010 OD type 'H' BPV Thd w/ 7 Nom Slick Neck Top, w/ FLow-by Slots; Min Bore: 4.754 Part# 2345649-49-01

MN-DS HOUSING

Item	Qty	Description
A7	1	Assy; Seal Packoff f/ 11 Nom Type 'Mn-Ds', w/ 9.875-4TPI LH Stub Acme Thd w/ 7.75 Dbl 'T' Seals At ID and Dovetails At OD Part# 2217588-05-03
A8	1	Gate Valve, Manual, Model M Pow-R-Seal, 2-1/16 Bore, 5K Psi Psi, 2-1/16 API Flg x Flg Part# 2148451-31-22
A9	2	Companion Flange, 2-1/16 API 5K x 2" API LP Thd Part# 142362-01-03-02
A10	4	Bull Plug 2" LP w/1/2 NPT x 3.750" Lg Part# 007481-01
A11	2	Bleeder Fitting, Plug 1/2 NPT 4140 Nace Part# 2738068-02
A12	2	Needle Valve, 1/2 NPT 10000 Psi Part# 006818-23
A13	1	Pressure GaugE 0-5M Liquid Filled Part# Y52100-00300791
A14	3	Ring Gasket, R-24 Part# 702001-24-02
A15	8	Stud w/(2) Nuts 7/8" x 6" Lg Part# Y51201-20220301
A16	1	VR Plug 1-1/2 In 11-1/2 TPI - 3/4 TPF 'Vee' Tubing Thd, 2-1/16 2K - 10K Part# 2222164-02-01
A17	3	Ring Gasket, BX-151 Part# 702003-15-12
A18	8	Stud w/(2) Nuts, 3/4"-10 x 5-1/4" Lg Part# Y51201-20120201
A19	1	Pressure Gauge 0-10M Liquid Filled Part# Y52100-00301391

MN-DS HOUSING

Item	Qty	Description
A20	1	VR Plug 1-1/4 LP Thd, 1-13/16 2K - 10K Part# 2222164-01-01
A21	1	Gate Valve, Manual, Model FLS, 1-13/16 Bore, 10K Psi, 1-13/16 API Flg x Flg Part# 141510-41-91-01
A22	2	Companion Flange, 1-13/16 API 10K w/ 2" API Line Pipe, 5000 Psi WP Part# 142359-01-03-02
A23	1	Ring Gasket, BX-159 Part# 702003-15-92

Bill of Materials

NOTE **Contact your Cameron representative for replacement part inquiries. Cameron personnel can check the latest revision of the assembly bill-of-material to obtain the appropriate and current replacement part number.**

SERVICE TOOLS

Item	Qty	Description
ST1	1	Conversion Assy; Casing Head Torque Tool, f/ 'MN-DS' w/ Lift Plate, 13-3/8 In API 8Rnd Short Thread Casing Box Thread Top X .750-10UNC (16) Bolt Pattern Btm, (8) Torque Pins, Min Bore: 12.605 Part# 2143701-75
ST1A	1	Conversion Body; Lift Plate for Casing Head Torque Tool w/ Exrt 14.75 Stub ACMERng Thd and (2) OD O-ring Seals Part# 2143700-76
ST2	1	Assy; Test Plug, Type "C" 13-5/8" Nom f/ Use In Cactus Head w/ WQ Seal 4-1/2" IF Box X 4-1/2" IF Pin Btm, w/ Weep Hole On Top Portion Of Test Plug Part# 2247044-01-01
ST3	1	Weldment and Assy; Wear Bushing Running & Retrieving Tool IC-2, 13-5/8" Nom x 4-1/2" IF Box Btm x Top Part# 2301310-02
ST4	1	Assy; Wear Bushing, f/ 13-5/8" Nom 10K Type 'Mn-Ds' Housing, Installed w/ (4) O-Rings & (4) Welded Stop Lugs Min Bore: 12.615 Part# 2367788-02
ST5	1	Assy; Running Tool, 13-5/8" Nom, w/ 8-5/8 BC Box Thd Top x 10.000-4TPI LH Stub Acme Running Thd Btm, C/ W Single O-Ring and (3) Centralizing Ribs, Min Bore: 8.00 Part# 2161757-98-01
ST6	1	Assy; Jetting Tool, 13-5/8" Nom Compact Housing, Type 'SSMC' Part# 2125914-01

SERVICE TOOLS

Item	Qty	Description
ST7	1	Running Tool, 'MN-DS' Type f/ 13-5/8" Nom Pack-off Support Bushing w/ 4-1/2" API IF Thd Top x 4-1/2" API IF Thd Btm and 12.375" 4-TPI LH Stub Acme Thd, Safe Working Load: 275K Lbf Part# 2017712-10-01
ST8	1	Assy; Test Plug, Type 'IC', 11" Nom 4-1/2" IF Box X Pin Btm, w/ Weep Hole On Top Portion Of Test Plug, w/(2)Dovetail Seal Grooves Part# 2247042-07-01
ST9	1	Weldment and Assembly, Retrieving Tool, 11" In Nom x 4-1/2" IF Box Btm x Top, Min Bore: 4.19" Part# 2367902-01-01
ST10	1	Assy; Wear Bushing, f/ 11" Nom Type 'MN-DS', Min Bore: 8.910" Part# 2125720-06
ST11	1	Assy; Rotating Fluted Mandrel Hanger Running Tool, TSDS-S; 11 Nom X 7.500-4TPI Stub ACME Thd Btm X 5-1/2 23 Lb/Ft TSH Blue Box Thd Top, w/ 1/8-27 NPT Test Port Part# 2161757-83-01
ST12	1	Running Tool; F/ 11 Nom Seal Assembly w/ 4-1/2 API IF Thd Top X 2-7/8 API IF Thd Btm and 9.875-4 TPI LH Stub ACME Thd Part# 2017712-15-01
ST13	1	Assy; Casing Head Running Tool; 14.750-4 TPI LH Internal Stub ACME Thd Btm X 11-3/4 API 8Rnd Short Thd Casing Box Thd Top; Min Bore: 11.359 Part# 2254468-04-01
ST14	1	Assy; Low Pressure Adapter; 24.00 OD X22.740 ID Part# 2222008-06-01

EMERGENCY EQUIPMENT

Item	Qty	Description
E1	1	Assy; MN-DS-IC-1 Casing Slip, 13-5/8 Nom X 8-5/8 Casing; w/ Holes F/ Antirotation Pins, (Control Height) Part# 2161741-09-01
E2	1	Assy; Emergency Bushing Packoff Support, 'MN-DS', 13-5/8, w/ 13-5/8 Dovetail; 8-5/8 'T' Seals, w/ Internal and External Lockring Prep; 10K Service Part# 2161673-20-01
E3	1	Assy; Casing Hanger, IC-2, 11" x 5-1/2", (f/ 10K Above and Below) Part# 2357372-01-01
E4	1	Assy. 'NX' Bushing Nom 11" x 5-1/2" OD Csg w/ Integral Bit Guide Part# 2161829-02-01

CAPPING FLANGE

Item	Qty	Description
TA1	1	Assy; Capping Flg, 7-1/16" API 10K BX-156 Std'd Blind Top x 13-5/8" API 10K BX-159 Std'd Btm, w/ One 1-13/16" API 10K BX-151 Std'd Side Outlet, w/ 1-13/16" API Vr Thd, w/ 11" 'NX' Btm Prep, Oal: 12" Part# 2392883-03-01
TA2	1	Assy 'NX' Bushing Nom 11" w/ 7" OD Csg Part# 608783-17
TA3	1	Gate Valve, Manual, Model FLS, 1-13/16 Bore, 10K Psi, 1-13/16 API Flg x Flg Part# 141510-41-91-01

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

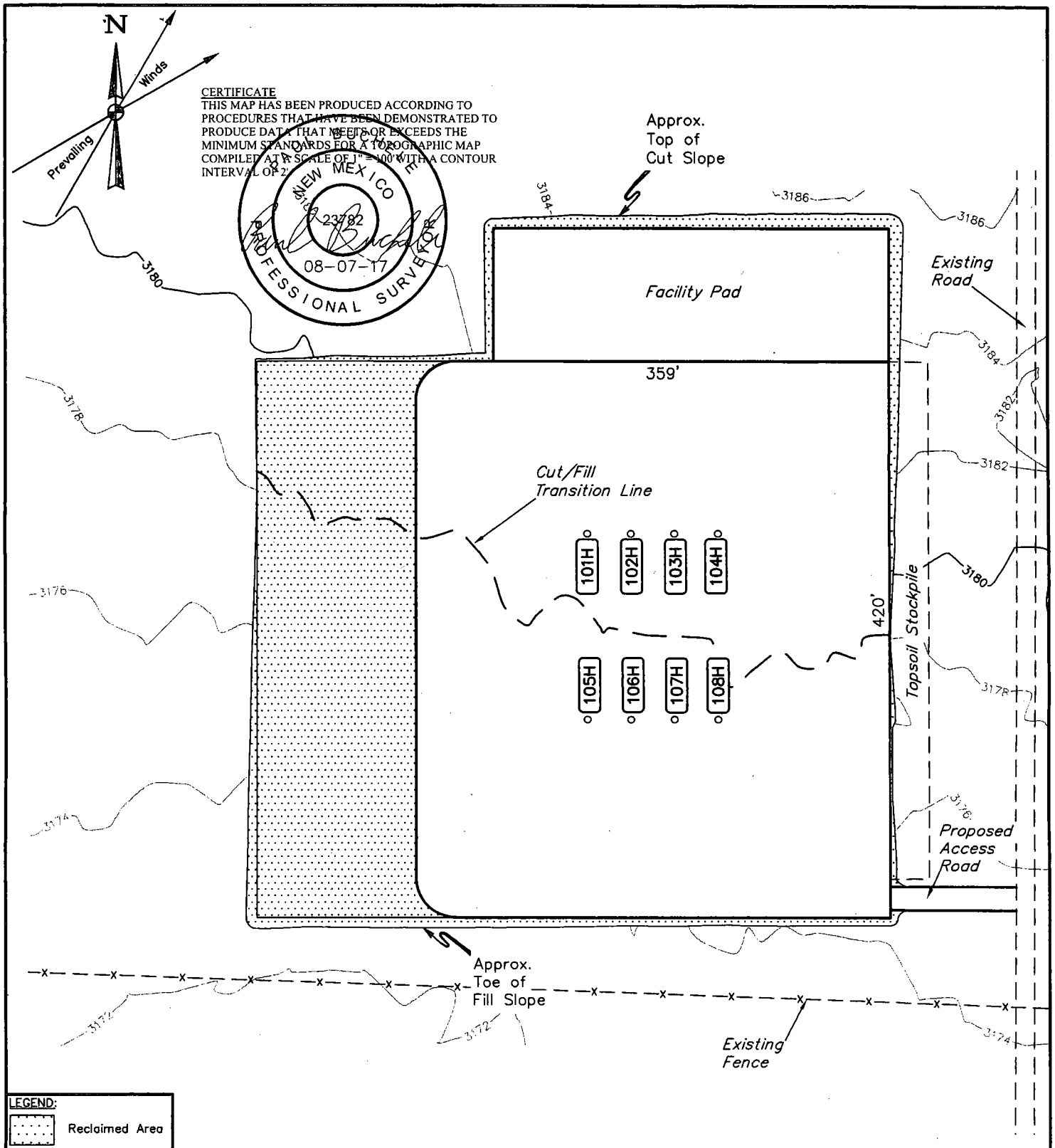
Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:



LEGEND:

Reclaimed Area

APPROXIMATE PRODUCTION PAD ACREAGE = ±4.141 ACRES
APPROXIMATE RECLAIMED AREA ACREAGE = ±1.676 ACRES
TOTAL ACREAGE = ±5.817 ACRES

REV: 2 08-07-17 S.S. (RECLAIM AREA CHANGE)

NOTES:

- Contours shown at 2' intervals.

ConocoPhillips Company

ZIA HILLS 19 FEDERAL PAD 1
SECTION 19, T26S, R32E, N.M.P.M.
LEA COUNTY, NEW MEXICO

UINTAH ENGINEERING & LAND SURVEYING

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

SURVEYED BY	J.A.V., R.D.	04-19-17	SCALE
DRAWN BY	C.D.	05-03-17	1" = 100'

RECLAMATION DIAGRAM | **FIGURE #4**

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

11/17/2017

Bond Information

Federal/Indian APD: FED

BLM Bond number: ES0085

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

AFMSS

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

Operator Certification Data Report

11/17/2017

Operator Certification

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

NAME: Ashley Bergen **Signed on:** 07/11/2017

Title: Associate, Regulatory MCBU

Street Address: 3300 N. A Street

City: Midland **State:** TX **Zip:** 79710

Phone: (432)688-6938

Email address: Ashley.Bergen@conocophillips.com

Field Representative

Representative Name:

Street Address:

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

Phone:

Email address:

Operator Name: CONOCOPHILLIPS COMPANY

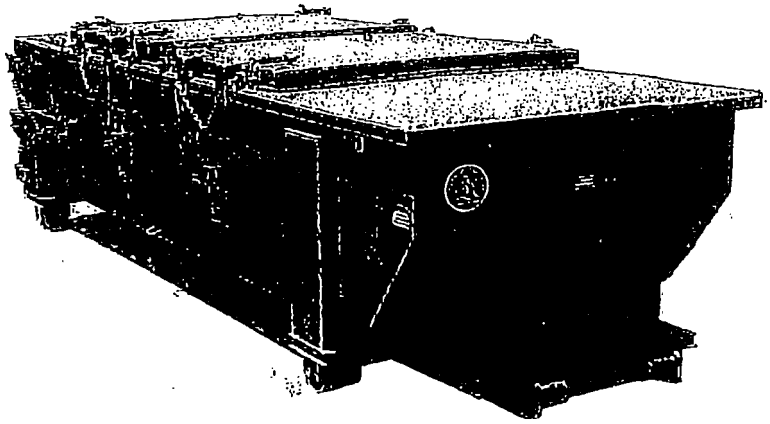
Well Name: ZIA HILLS 19 FEDERAL COM **Well Number:** 107H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
PPP Leg #1	0	FNL	664	FWL	26S	32E	30	Lot 1	32.02097	-103.720876	LEA	NEW MEXICO	NEW MEXICO	F	NMLC068281B	-8403	13850	11579
PPP Leg #1	0	FNL	661	FWL	26S	32E	31	Lot 1	32.006157	-103.720795	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 120910	-8403	19250	11579
EXIT Leg #1	50	FSL	660	FWL	26S	32E	31	Lot 2	32.001117	-103.720769	HIDALGO	NEW MEXICO	NEW MEXICO	F	NMNM 120910	-8403	21349	11579
BHL Leg #1	50	FSL	660	FWL	26S	32E	31	Lot 2	32.000347	-103.720764	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 120910	-8403	21349	11579

SPECIFICATIONS

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

Heavy Duty Split Metal Rolling Lid



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