Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

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

5. Lease Serial No.
NMLC062749B

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

HOBBS OCD
JAN 16 2019
RECEIVED

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

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

8. Well Name and No.
ZIA HILLS 19 FEDERAL COM 109H

2. Name of Operator
CONOCOPHILLIPS COMPANY
Contact: JEREMY LEE
E-Mail: Jeremy.L.Lee@cop.com

9. API Well No.
30-025-44236-00-X1

3a. Address
MIDLAND, TX 79710

3b. Phone No. (include area code)
Ph: 832-486-2510

10. Field and Pool or Exploratory Area
WOLFCAMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 19 T26S R32E 2498FNL 1600FWL
32.028667 N Lat, 103.717880 W Lon

Carlsbad Field Office
L&E CFO

11. County or Parish, State
LEA COUNTY, NM

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

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

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

ConocoPhillips respectfully requests to change the approved drilling plan as reflected in the attached documents:
Zia Hills 19 Fed Com 109H Kelly Cock
Zia Hills 19 Fed Com 109H Choke Manifold
Zia Hills 19 Fed Com 109H BOPE
Zia Hills 19 Fed Com 109H Casing Design
Zia Hills 19 Fed Com 109H Cement
Zia Hills 19 Fed Com 109H Drill Plan

SEE ATTACHED FOR CONDITIONS OF APPROVAL

In particular the casing design is being modified due to availability of casing. As such we request approval at your earliest convenience.

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #448490 verified by the BLM Well Information System
For CONOCOPHILLIPS COMPANY, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/20/2018 (19PP0685SE)

Name *(Printed/Typed)* JEREMY LEE — Title REGULATORY COORDINATOR

Signature (Electronic Submission) — Date 12/19/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 12/21/2018

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

Office Hobbs

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

(Instructions on page 2)
**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #448490 that would not fit on the form

32. Additional remarks, continued

Thank you for your time spent reviewing this request.

ConocoPhillips

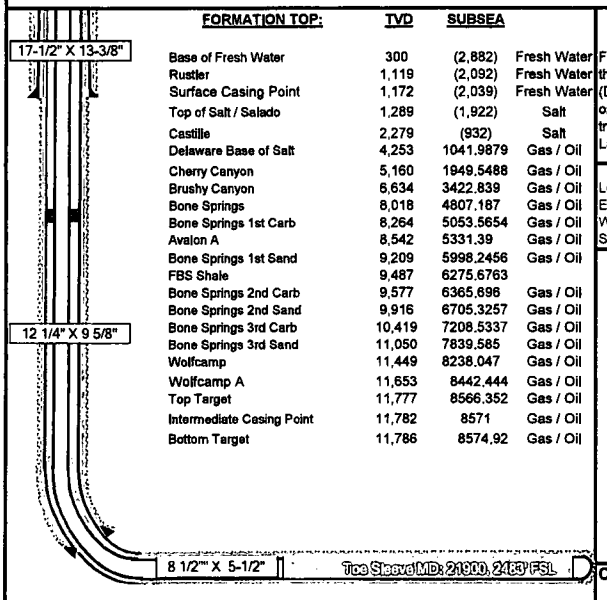
WELL PLAN SUMMARY

1280 Extended Reach Single Lateral

Date: Dec 19, 2018
Version: 1
Prepared by: M. Smith

WELL: ZH 19 109H
COUNTY,STATE: Lea, Co. NM
API No.:
SURFACE LOC: SENW 19 S26 R32E 2498' FNL 1600' FWL
BH LOC: NWSW 7 S26 R32E 2618' FSL 1320' FWL
BLM Permit:
ELEVATIONS: GL 3,182.4' KB +28.5'
WH Coord.: (NAD-83) LAT 32° 1' 43.2" N LON 103° 43' 4.37" W

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



FORMATION TOP:	TVD	SUBSEA	
Base of Fresh Water	300	(2,882)	Fresh Water
Rustler	1,119	(2,092)	Fresh Water
Surface Casing Point	1,172	(2,039)	Fresh Water
Top of Salt / Salado	1,289	(1,922)	Salt
Castille	2,279	(932)	Salt
Delaware Base of Salt	4,253	1041.9879	Gas / Oil
Cherry Canyon	5,160	1949.5488	Gas / Oil
Brushy Canyon	6,634	3422.839	Gas / Oil
Bone Springs	8,018	4807.187	Gas / Oil
Bone Springs 1st Carb	8,264	5053.5654	Gas / Oil
Avalon A	8,542	5331.39	Gas / Oil
Bone Springs 1st Sand	9,209	5998.2456	Gas / Oil
FBS Shale	9,487	6275.6763	
Bone Springs 2nd Carb	9,577	6365.696	Gas / Oil
Bone Springs 2nd Sand	9,916	6705.3257	Gas / Oil
Bone Springs 3rd Carb	10,419	7208.5337	Gas / Oil
Bone Springs 3rd Sand	11,050	7839.585	Gas / Oil
Wolfcamp	11,449	8238.047	Gas / Oil
Wolfcamp A	11,653	8442.444	Gas / Oil
Top Target	11,777	8566.352	Gas / Oil
Intermediate Casing Point	11,782	8571	Gas / Oil
Bottom Target	11,786	8574.92	Gas / Oil

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

LOCATION DIRECTIONS

From the intersection of U.S. Hwy 285 and State Hwy 652 in Orla, TX, go east on State Hwy 652 for 16.6 miles to the Texas and New Mexico state line and continue onto New Mexico County Road 1 for 2 miles to lease road (Directly west of Battle Axe Road). Turn left (W) onto the lese road and travel 1.1 miles to lease road. Turn right (N) onto the lease road and travel 1/10 of a mile to the location lease road. Turn right (E) onto location lease road and travel 600' to the location.
Lat: 32-01-42.74N Long: 103-43-02.68W

POTENTIAL HAZARDS -> MITIGATIONS

Losses in the Canyon groups: flow in the Bone Springs -> Frac tanks full with cut brine, LCM
Elevated pressure / gas in the Wolfcamp prior to INT setpoint -> Set at minimum depth of 11449' TVD
Wellbore instability in the PROD hole -> Ready to elevate MW, watching gas on connections
Strong formation push in lateral -> Maintain within 30' L/R of line, putting in quick maintenance slides

9 5/8 in. shoe 12200' MD 1905' FNL	TARGET	11,782	8,571	Gas / Oil
	Formation Dip Rate:	est 90.1° (up dip)		
	PBTD	11,782	8,571	Gas / Oil

Estimated BH Static Temperature (°F): 203
Max. Anticipated BH Pressure: 0.690 psi/ft 8,129 psi
Max Anticipated Surface Pressure: 5,537 psi

CONTACTS

		Office	Cell
Drilling Engineer:	Matt Smith	281-206-5199	432-269-6432
Geologist:	Josh Day	281-206-5620	423-512-0347
Onsite Drilling Rep.:	Greg Rivera	432-848-5238	
	Dennis Hously		
Field Drilling Supt.:	James Taylor	830-583-4828	956-229-1393
	Patrick Wellman		432-215-7079
Drilling Supt.:	Scott Nicholson	281-206-5392	432-230-8010

DRILLING FLUID:

	Type	Interval (MD)	Density ppg	Vis sec/qt	PV cP	YP #/100ft2	pH	FL mL	LGS % by vol	NaCl ppb sol	Remarks
Surface:	Fresh Water	Surface - 1,172'		28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks
Intermediate:	Emulsified Brine	1172' - 12200'		28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks
Production:	OBM	12200' - 22060'		50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	17-1/2"	29'	1,172'	1,143'	13 3/8	54.50	J-55	BTC
Intermediate:	12-1/4"	29'	12,200'	12,172'	9 5/8	40.00	L80-IC	BTC
	[redacted]				9 5/8	40.00	L80-IC	BTC
Production:	8-1/2"	29'	22,060'	22,032'	5 1/2	23.00	P-110	TXP

CENTRALIZATION:
Surface Casing: 1 each joint on first 3 joints, 1 per 2 joints from FC to 1,700', 1 per 4 joints from 1,700' to surface
Intermediate Casing: Shoe joint, 1 per joint from FC to 7,800', 1 per 2 joints 7,800' to 2,300', 1 per 4 joints 2,300' to surface.
Production Casing: 1 per joint to TOC

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

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

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

CEMENT:

	Hole	MD	TVD	Spacer	Lead	Tail	COMMENTS
Surface:	17-1/2"X13-3/8"	1,172'	1,172'	20 bbls FW	530 sx Class C + adds 12.8 ppg 2.05 ft^3/sk	450 sxClass C + adds 14.8 ppg 1.32 ft^3/sk	Cemented to surface w/ 100%XS Add FiberBlock
Intermediate:	12-1/4"X9-5/8"	12,200'	11,782	20 bbls 10.5 ppg spacer	1240 sx Class C+adds 11 ppg 2.97 ft3/sk	766 sx IntegraCem Lite 13.8 ppg 1.18 ft3/sk	Cemented to Surface w/ 100%L / 30%T XS calc'd on 12.25" hole Add FiberBlock
Production:	8-1/2"X5-1/2"	22,060'	11,782'	30 bbls 14 ppg spacer	2661 sx Class H+Fiber+Retarder+Adds + adds		Cemented to TOC w/ 15% XS calc'd on 8.5" hole.

Reference Cementing Recommendation 15.6 ppg 1.19ft3/sk

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	4,800'	0	0	4,800'	0	0	0	0	19 S26 R32E	2498' FNL	1600' FWL
End Build @ 4°	5,067'	4	246	5,067'	-4	-8	1.5	-4	19 S26 R32E	2502' FNL	1592' FWL
Drop @ 1.5°/100'	9,163'	4	246	9,153'	-119	-270	0	-117	19 S26 R32E	2617' FNL	1330' FWL
KOP	11,075'	0	0	11,064'	-123	-279	1.5	-121	19 S26 R32E	2621' FNL	1321' FWL
Intermediate Curve LP	12,200'	90	359	11,782'	593	-283	10	360	19 S26 R32E	1905' FNL	1317' FWL
Toe Sleeve 2	21,855'	90	359	11,782'	10248	-346	0	10,250	7 S26 R32E	2433' FSL	1320' FWL
Toe Sleeve 1	21,900'	90	359	11,782'	10293	-346	0	10,295	7 S26 R32E	2483' FSL	1320' FWL
PBHL/TD	22,060'	90	359	11,782'	10453	-346	0	10,455	7 S26 R32E	2618' FSL	1320' FWL

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

FORMATION EVALUATION:

Mud Logging -	One-Man:	First intermediate hole to TD
Mud Logging -	Two-Man:	Intermediate Casing Point to TD
Open Hole -	PEX	CNL on 1 well on the pad, as deep as possible into curve section of intermediate
Cased Hole -	GR/CBL/USIT	NA
MWD -	GR	200' above KOP to TD

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

ZH 19 109H
SENW 19 S26 R32E

13-3/8" Surface Casing:	
Surface Casing Depth (Ft)	1,172
Surface Casing O.D. (In.)	13 3/8
Surface Casing ID (In)	12.615
Hole O.D. (In)	17 1/2
Excess (%)	100%
Volume Tail (Sx)	[redacted]
Yield Tail (Cu. Ft./Sx)	1.32
Yield Lead (Cu. Ft./Sx)	2.05
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	34.7
Tail feet of cement	400
Calculated Total Volume (Cu. Ft.)	1,663
Calc. Tail Volume (Cu. Ft.)	590
Calc. Lead Volume (Cu. Ft.)	1,073
Calc. Lead Volume (Sx)	[redacted]
Lead Volume (bbls)	191.0
Tail volume (bbls)	105.2
Displacement Volume (bbls)	175.0

Stage 1

9-5/8" Intermediate Casing (Lead):	
Intermediate Casing O.D. (In.)	9.625
Intermediate Casing ID (In)	8.835
Hole O.D. (In)	12.25
Excess (%)	100%
DV Tool Depth	4,200'
Yield Lead (Cu. Ft./Sx)	2.97
Calculated Total Lead (Cu. Ft.)	3,680
Calc. Lead Volume (Sx)	[redacted]
Lead Volume (bbls)	[redacted]

9-5/8" Intermediate Casing (Tail):	
Intermediate Casing Depth (Ft)	12,200'
Intermediate Casing O.D. (In.)	9.625
Intermediate Casing ID (In)	8.835
Hole O.D. (In)	12.25
Excess (%)	30%
KOP	11,075'
Top Tail (Ft) - 1000' above KOP	10,075'
Yield Tail (Cu. Ft./Sx)	1.18
Shoe Joint (Ft)	80
Shoe Volume (Cu. Ft)	38.3
Calc. Tail Volume (Cu. Ft.)	903
Required Tail Volume (Sx)	[redacted]
Tail Volume (bbls)	[redacted]
Displacement Volume (bbls)	

Stage 2

9-5/8" Intermediate Casing (Lead):	
Surface Casing Depth (ft)	1,172'
Surface Casing I.D. (In)	12.615
DV Tool Depth (Ft)	4,200'
Intermediate Casing O.D. (In.)	9.625
Intermediate Casing ID (In)	8.835
Hole O.D. (In)	12.25
Excess (%)	100%
Top Cement (Surface)	29'
Yield Tail (Cu. Ft./Sx)	3.27
Calc. Lead Volume (Cu. Ft.)	2,322
Required Lead Volume (Sx)	[redacted]
Lead Volume (bbls)	[redacted]
Displacement Volume (bbls)	

5-1/2" Production Liner (Tail):	
Intermediate Casing Depth (Ft)	12,200'
Intermediate Casing O.D. (In.)	9.625
Intermediate Casing ID (In)	8.835
Production CasingTop Depth (Ft)	10,075'
Production Casing Depth (Ft)	22,060'
Production Casing O.D. (In.)	5.500
Production Casing ID (In)	4.778
Hole O.D. (In)	8.50
Excess (%)	15%
Yield Tail (Cu. Ft./Sx)	1.19
Shoe Joint (Ft)	120
Shoe Volume (Cu. Ft)	14.9
Calc. Tail Volume (Cu. Ft.)	3,166
Required Tail Volume (Sx)	[redacted]
	583.0554667

Lead Cement Description:
Mix Weight 12.8 ppg
Class C
.125 lb/sk IntegraSeal Fiber
0.25 lb/sk CelloFlake
0.01gal/sk FP-6L
2 BWOB Sodium Metasilicate
5 BWOW NaCl

Tail Cement Description:
Mix Weight 14.8 ppg
Class C
.125 lb/sk IntegraSeal Fiber
0.01gal/sk FP-6L

Intermediate Lead Cement Description:
Mix Weight 11 ppg
IntegraCem Lite C01
.125 lb/sk IntegraSeal Fiber
10 lb/sk BA-90
0.1gal/sk FP-6L
0.5 BWOB R-21
0.5 BWOB FL-52
0.5 BWOB CD-32
0.75 BWOB Sodium Metasilicate
1 BWOB Gypsum
10 BWOB Bentonite

Intermediate Tail Cement Description:
Mix Weight 13.8 ppg
IntegraCem Lite C01
0.25 lb/sk CelloFlake
0.1gal/sk FP-6L
0.1 BWOB R-21
0.4 BWOB FL-52

Intermediate Lead Cement Description:
Mix Weight 10.8 ppg
IntegraCem Lite C01
10 lb/sk BA-90
0.1gal/sk FP-6L
0.4 BWOB FL-66
0.5 BWOB CD-32
1 BWOB Gypsum
3.5 BWOB Sodium Metasilicate
10 BWOB Bentonite

Production Liner Tail Cement Description:
Mix Weight 15.6 ppg
Class H
.125 lb/sk IntegraSeal Fiber
0.1 BWOB ASA-301
0.15 BWOB R-21
0.4 BWOB CD-32
0.7 BWOB BA-10A

ZH 19 109H | **SENW 19 S26 R32E** | **Lea, Co, NM** | **12/19/2018**

SURFACE CASING DESIGN INFORMATION

Setting Depth: 1,172' MD 1,172' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
13.375	54.5	J-55	BTC	12.615	12.459	1,130 / 1,076	2,730 / 2,373	853 / 609

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
14.375	12.615	12.459	BTC	1,130 / 1,076	2,730 / 2,373	909 / 649

Surface Casing Test Pressure = 1,500 psi

Pressure Test Prior to Drill Out

Minimum Design / Safety Factors COI

Burst	*Collapse*	*Tension (Body &*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*
5.21	*2.16*	*13.36*
		15.37

INTERMEDIATE CASING DESIGN INFORMATION

Setting Depth: 12,200' MD 11,782' TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
9.625	40.0	L80-IC	BTC	8.835	8.75	3,870 / 3,685	5,750 / 5000	916 / 654

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
10.625	8.835	8.75	BTC	3,870 / 3,685	5,750 / 5000	947 / 676

Intermediate Casing Test Pressure = 4550 psi

Pressure Test Prior to Drill Out

Minimum Design / Safety Factors

Burst	*Collapse*	*Tension (Body &*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors

Burst	*Collapse*	*Tension (Body)*
0.99	*2.01*	*1.94*
	**1/3 Evacuation*	*1.94*

PRODUCTION LINER DESIGN INFORMATION

Setting Depth: 22,060' MD 11,782' TVD
Hanger: 29' MD / TVD

PIPE BODY DIMENSIONAL / PERFORMANCE DATA:

SIZE (Inches)	WEIGHT (LB/FT)	GRADE	CPLG TYPE	BORE ID (Inches)	DRIFT ID (Inches)	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
5.5	23	P-110	TXP	4.778	4.653	11,110 / 10,581	12,630 / 10,982	641 / 457

CONNECTION DIMENSIONAL / PERFORMANCE DATA:

OD (Inches)	ID (Inches)	DRIFT (Inches)	CPLG TYPE	COLLAPSE (PSI) API / CoP	BURST (PSI) API / CoP	TENSION (1k LBS) API / CoP
6.1	4.778	4.653	TXP	11,110 / 10,581	12,630 / 10,982	641 / 457

Production Casing Test Pressure = TBD

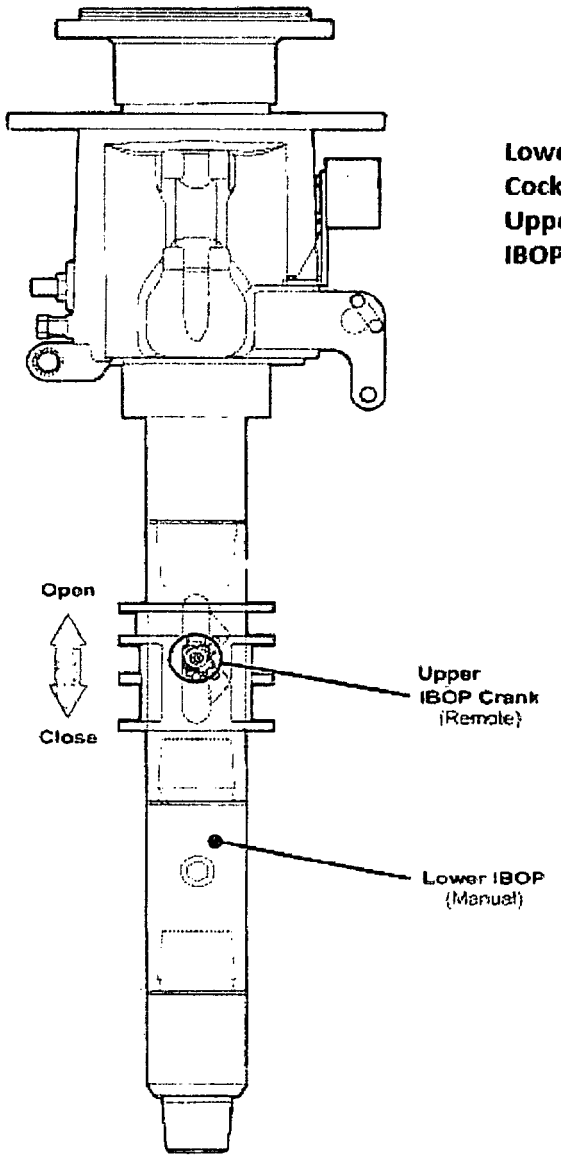
Minimum Design / Safety Factors

Burst	*Collapse*	*Tension (Body & Connection)*
1.15	*1.05*	*1.40*

Actual Design / Safety Factors

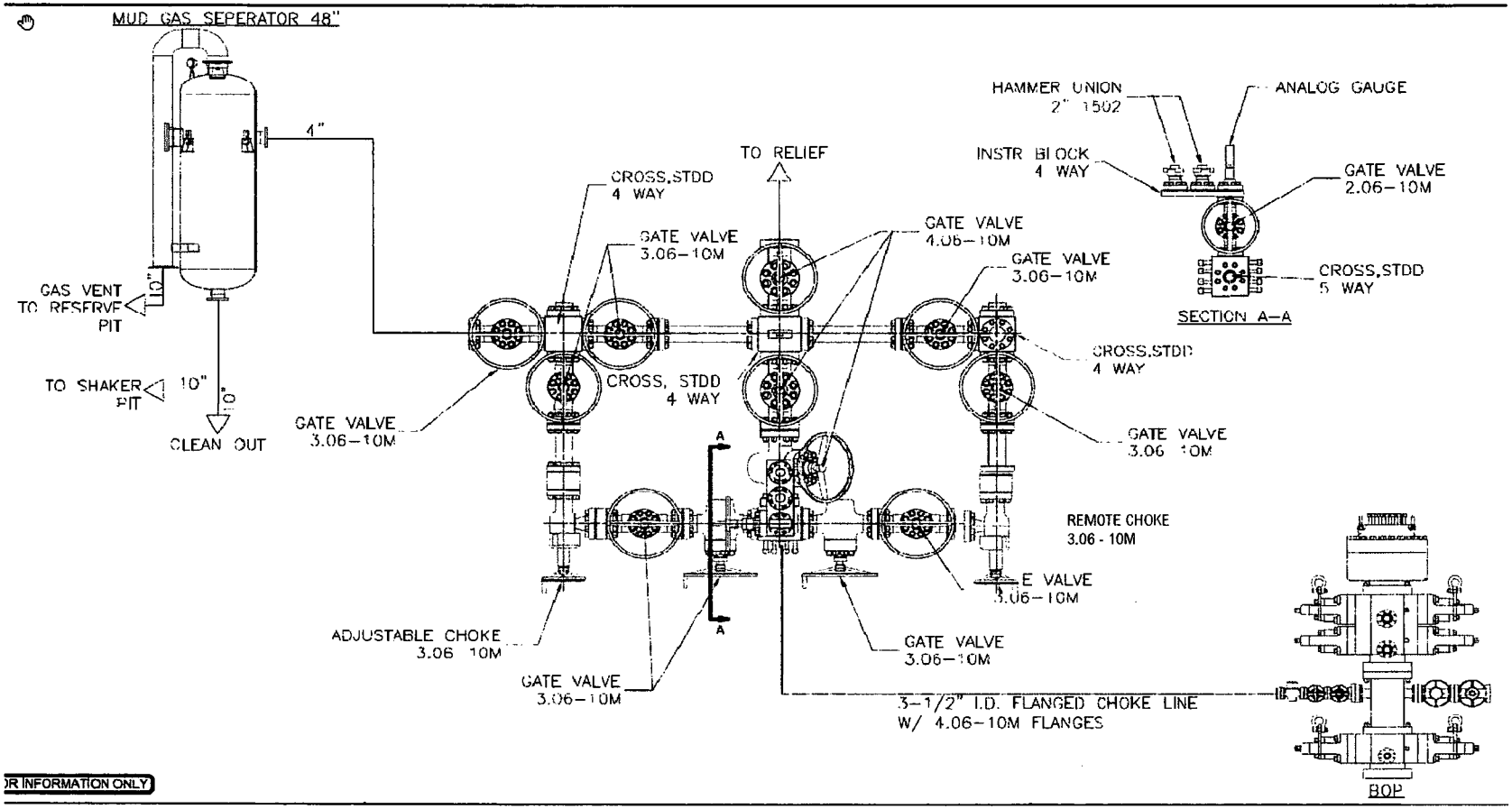
Burst	*Collapse*	*Tension (Body)*
1.53	*1.34*	*2.37*
		2.98

the IBOP valves



Lower Kelly Cock and Upper Kelly Cock function are performed by Upper IBOP (inside BOP) and Lower IBOP in Top Drive

Choke Manifold 10M psi



OR INFORMATION ONLY

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

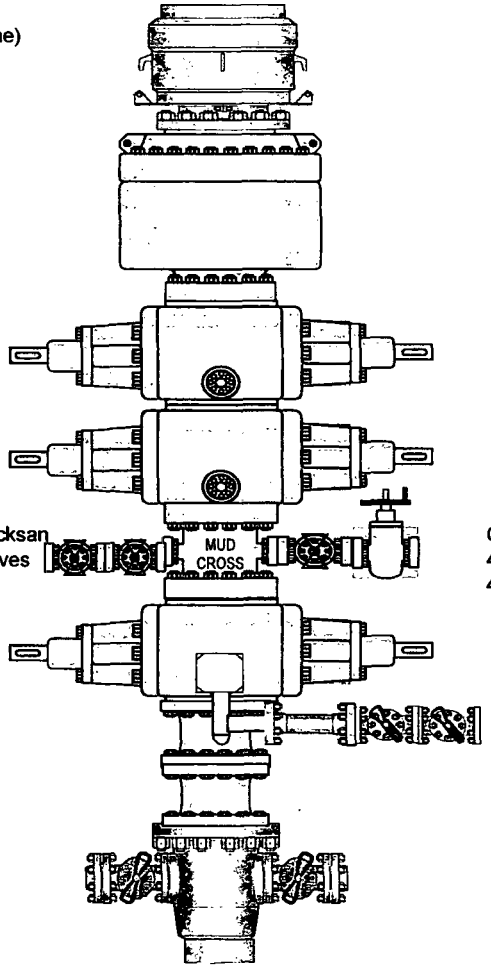
Rotating Head (w/ fill up line)
13-5/8" x 10k psi

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

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

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

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



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

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

2" x 5k psi Gate Valves
Pressure Testing Lines

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

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

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CONOCOPHILLIPS COMPANY**
LEASE NO.:	**NMLC062749B**
WELL NAME & NO.:	**109H –ZIA HILLS 19 FEDERAL COM**
SURFACE HOLE FOOTAGE:	**2498'/N & 1600'/W**
BOTTOM HOLE FOOTAGE	**2618'/S & 1620'/W; 7**
LOCATION:	**Section 19 T.26 S., R.32 E., NMP**
COUNTY:	**LEA County, New Mexico**

COA

All previous COAs still apply expect the following:

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	○ Medium	◉ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13 3/8 inch** surface casing shall be set at approximately **1172 feet** (a minimum of 25 feet 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 **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

   c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours

after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Operator shall fill 1/3rd of the casing with fluid while running intermediate casing.

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

Operator has proposed an with 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.

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

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.

C. PRESSURE CONTROL

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

2. 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.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9 **5/8** intermediate casing shoe shall be **10,000 (10M)** psi.

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)

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1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

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

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

A. CASING

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

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

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

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

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

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

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

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in 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: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

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

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. 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.

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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

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. 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.

f. 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. This test shall be performed prior to the test at full stack pressure.

g. 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.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

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