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.

HOBBS OCD

SUBMIT IN TRIPLICATE - Other instructions on page 2.

JUN 27 2018

RECEIVED

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMLC069515
	6. If Indian, Allottee or Tribe Name
	7. If Unit or CA/Agreement, Name and/or No.
	8. Well Name and No. Multiple--See Attached 30-025-42560
2. Name of Operator CONOCOPHILLIPS COMPANY Contact: JEREMY LEE E-Mail: Jeremy.L.Lee@cop.com	9. API Well No. Multiple--See Attached
3a. Address MIDLAND, TX 79710 3b. Phone No. (include area code) Ph: 832-486-2510	10. Field and Pool or Exploratory Area Multiple--See Attached
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)* Multiple--See Attached	11. County or Parish, State LEA COUNTY, NM

Carlsbad Field Office
OCD Hobbs

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 APD
	☐ 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 request the following changes to our plans:

[redacted]
Change in target depth
Change in cementing programs
For changes see attached one-page summary for this well

Zia Hills 25E Fed Com 402H API# 30-025-43364
Change in cementing programs
For changes see attached one-page summary for this well

Zia Hills 25E Fed Com 403H API# 30-025-43377

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #422699 verified by the BLM Well Information System
For CONOCOPHILLIPS COMPANY, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 06/11/2018 (18PP1215SE)

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

Signature (Electronic Submission) — Date 06/05/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 06/19/2018

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 #422699 that would not fit on the form

Wells/Facilities, continued

Agreement	Lease	Well/Fac Name, Number	API Number	Location
NMLC069515	NMLC069515	[redacted]	30-025-42560-00-X1	Sec 25 T26S R32E NWNE 250FNL 2310FEL 32.011286 N Lat, 103.373820 W Lon
NMLC069515	NMLC069515	ZIA HILLS 25E FED COM 402H	30-025-43364-00-X1	Sec 25 T26S R32E NWNE 283FNL 2310FEL 32.011253 N Lat, 103.373820 W Lon
NMLC069515	NMLC069515	ZIA HILLS 25E FED COM 403H	30-025-43377-00-X1	Sec 25 T25S R32E NWNE 316FNL 2310FEL 32.011220 N Lat, 103.373820 W Lon
NMLC069515	NMLC069515	ZIA HILLS 25E FED COM 404H	30-025-43363-00-X1	Sec 25 T26S R32E NWNE 349FNL 2310FEL 32.011188 N Lat, 103.373820 W Lon

10. Field and Pool, continued

WILDCAT;WOLFCAMP

32. Additional remarks, continued

Change in cementing programs
For changes see attached one-page summary for this well

Zia Hills 25E Fed Com 404H API# 30-025-43363
Change in cementing programs
For changes see attached one-page summary for this well

Per our conversation with Z.Stevens set surface casing at least 25' into the Rustler

Thank you.

ConocoPhillips

WELL PLAN SUMMARY

1280 Extended Reach Single Lateral

Date: Jun 05, 2018
Version: 1
Prepared by: M. Smith

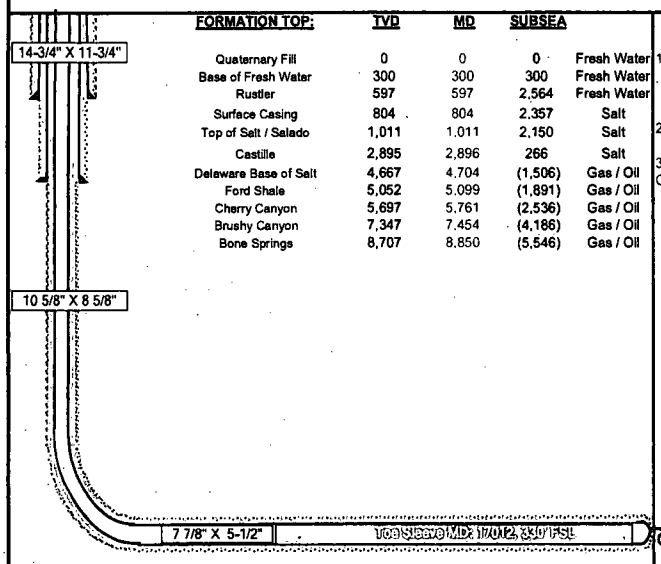
WELL: Zia Hills 25E Fed Com 401H
COUNTY,STATE: Lea, Co, NM
API No.:
BLM Permit:

SURFACE LOC: NWNE 25-T26S-R32E 250' FNL 2310' FEL
BH LOC: SENE 36-T26S-R32E 50' FSL 330' FEL

ELEVATIONS: GL 3,134.0' KB +27.0'

WH Coord.: (NAD-27) LAT 32° 1' 12.41" N LON 103° 37' 36.51" W

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



FORMATION TOP:	TVD	MD	SUBSEA	
Quaternary Fill	0	0	0	Fresh Water
Base of Fresh Water	300	300	300	Fresh Water
Rustler	597	597	2,564	Fresh Water
Surface Casing	804	804	2,357	Salt
Top of Salt / Salado	1,011	1,011	2,150	Salt
Castille	2,895	2,896	266	Salt
Delaware Base of Salt	4,667	4,704	(1,506)	Gas / Oil
Ford Shale	5,052	5,099	(1,891)	Gas / Oil
Cherry Canyon	5,697	5,761	(2,536)	Gas / Oil
Brushy Canyon	7,347	7,454	(4,186)	Gas / Oil
Bone Springs	8,707	8,850	(5,546)	Gas / Oil
TARGET	9,933	10,560	(6,772)	Gas / Oil
Formation Dip Rate:		est > 90° dip		
PBTD	9,933	10,560	(6,772)	Gas / Oil

8 5/8 in. shoe 4900' MD
4825' TVD

Estimated BH Static Temperature (°F): 199
Max. Anticipated BH Pressure: 0.550 psi/ft 5,463 psi
Max Anticipated Surface Pressure: 3,278 psi

Notes

1) Ensure proper notifications are made to BLM
   A) Spud Notice - 24 hours before spud
   B) Running / Cementing all strings of casing - 4 hours
   C) BOP Tests - 4 hours
2) BOP Tests to be completed according to Onshore Order 2.
   A) 10 min high/low tests
3) H2S equipment will be rigged up and functional, 500' before Delaware formation. If H2S is encountered, Onshore Order 6 along with Conocophillips H2S plan will be followed.

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	432-234-9399	
	Dennis Hously		
Drilling Supt.:	Scott Nicholson	432-688-9065	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 - 804'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks/Closed Loop
Intermediate:	Brine	804' - 4900'	10	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks/Closed Loop
Production:	Cut Brine	4900' - 17292'	9.2	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks/Closed Loop

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	14 3/4	27'	804'	777'	11 3/4	47.00	J-55	BTC
Contingency		ACP/DV Tool run 100' below water board depth if necessary						
Intermediate:	10 5/8	27'	4,900'	4,873'	8 5/8	32.00	P-110	BTC
Production:	7 7/8	27'	17,292'	17,265'	5 1/2	23.00	P-110	TXP

CENTRALIZATION:
Surface Casing: 1 per joint on first 3 joints
Intermediate Casing: Shoe joint. 1 per joint where DLS >0.6 °/100'
Production Liner: Rigid body , 1 every other joint from TD to estimated TOC, 1 every 4 joints above 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:	14-3/4"X11-3/4"	804'	804'	20 bbl FW	220 sx Class C + adds 12 ppg 2.414ft3/sk	420 sx Class C+ adds 14.8 ppg 1.33 ft3/sk	Cemented to surface w/ 200%XS Add FiberBlock
Intermediate:	10-5/8"X8-5/8"	4,900'	4,825	40 bbl Spacer	310 sx TXI Lite Weight + adds 11.5 ppg 4.038 ft3/sk	340 sx Class C adds 14.8 ppg 1.328 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 10.625" hole Add FiberBlock
Production:	7-7/8"X5-1/2"	17,292'	9,933'	40 bbl spacer	237 sk TXI Lite Weight + adds 10.5 ppg 4.034ft3/sk	522.83454 sx Class C + adds 14.4 ppg 1.217ft3/sk	Cemented 500' above Int Casing Depth 10% XS calc'd on 7.875" hole

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	900'	0	0	900'	0	0	0	0	25-T26S-R32E	250' FNL	2310' FEL
End Build @ 14°	1,861'	14	83	1,851'	15	119	1.5	-14	25-T26S-R32E	235' FNL	2191' FEL
Intermediate Casing	4,900'	14	83	4,797'	106	870	0.0	-100	25-T26S-R32E	144' FNL	1440' FEL
KOP , Build @ 8°/100'	9,435'	0	0	9,216'	219	1799	0	-206	25-T26S-R32E	31' FNL	511' FEL
Landing Point	10,560'	90	180	9,933'	-485	1927	8	499	25-T26S-R32E	735' FNL	383' FEL
Toe Sleeve 2	16,962'	90	180	9,933'	-6883	2030	0	6,897	36-T26S-R32E	380' FSL	330' FEL
FTP / Toe Sleeve 1	17,012'	90	180	9,933'	-6933	2030	0	6,947	36-T26S-R32E	330' FSL	330' FEL
PBHL/TD	17,292'	90	180	9,933'	-7213	2030	0	7,227	36-T26S-R32E	50' FSL	330' FEL

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

FORMATION EVALUATION:

Mud Logging -	One-Man:	First surface hole to TD. First intermediate hole to TD
Mud Logging -	Two-Man:	All wells. Intermediate Casing Point to TD
Open Hole -	PEX	None
Cased Hole -	GR/CBL/USIT	None
MWD -	GR	Surface Casing Shoe to TD

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

ConocoPhillips

WELL PLAN SUMMARY

1280 Extended Reach Single Lateral

Date: Jun 05, 2018
Version: 1
Prepared by: M. Smith

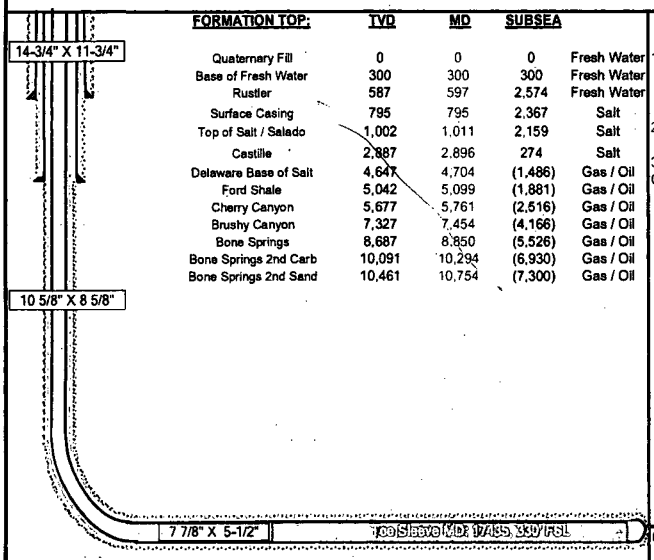
WELL: Zia Hills 25E Fed Com 402H
COUNTY,STATE: Lea, Co, NM
API No.:
BLM Permit:

SURFACE LOC: NWNE 25-T26S-R32E 283' FNL 2310' FEL
BH LOC: SENE 36-T26S-R32E 50' FSL 1320' FEL

ELEVATIONS: GL 3,134.0' KB +27.0'

WH Coord.: (NAD-27) LAT 32° 1' 12.08" N LON 103° 37' 36.51" W

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



FORMATION TOP:	TVD	MD	SUBSEA	
Quaternary Fill	0	0	0	Fresh Water
Base of Fresh Water	300	300	2,834	Fresh Water
Rustler	587	597	2,574	Fresh Water
Surface Casing	795	795	2,367	Salt
Top of Salt / Salado	1,002	1,011	2,159	Salt
Castille	2,887	2,896	274	Salt
Delaware Base of Salt	4,641	4,704	(1,486)	Gas / Oil
Ford Shale	5,042	5,099	(1,881)	Gas / Oil
Cherry Canyon	5,677	5,761	(2,516)	Gas / Oil
Brushy Canyon	7,327	7,454	(4,166)	Gas / Oil
Bone Springs	8,687	8,850	(5,526)	Gas / Oil
Bone Springs 2nd Carb	10,091	10,294	(6,930)	Gas / Oil
Bone Springs 2nd Sand	10,461	10,754	(7,300)	Gas / Oil
TARGET	10,530	11,000	(7,369)	Gas / Oil
Formation Dip Rate:		est > 90° dip		
PBTD	10,530	11,000	(7,369)	Gas / Oil

8 5/8 in. shoe 4800' MD
4777' TVD

Estimated BH Static Temperature (°F): 199
Max. Anticipated BH Pressure: 0.550 psi/ft 5,792 psi
Max Anticipated Surface Pressure: 3,475 psi

Notes

1) Ensure proper notifications are made to BLM
   A) Spud Notice - 24 hours before spud
   B) Running / Cementing all strings of casing - 4 hours
   C) BOP Tests - 4 hours
2) BOP Tests to be completed according to Onshore Order 2.
   A) 10 min high/low tests
3) H2S equipment will be rigged up and functional, 500' before Delaware formation. If H2S is encountered, Onshore Order 6 along with Conocophillips H2S plan will be followed.

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Onsite Drilling Rep.:	Greg Rivera	432-234-9399	
	Dennis Hously		
Drilling Supt.:	Scott Nicholson	432-688-9065	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 - 795'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks/Closed Loop
Intermediate:	Brine	795' - 4800'	10	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks/Closed Loop
Production:	Cut Brine	4800' - 17715'	9.2	50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks/Closed Loop

Reference Drilling Fluids Program

CASING:

	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	14 3/4	27'	795'	768'	11 3/4	47.00	J-55	BTC
Intermediate:	10 5/8	27'	4,800'	4,773'	8 5/8	32.00	P-110	BTC
Production:	7 7/8	27'	17,715'	17,688'	5 1/2	23.00	P-110	TXP

CENTRALIZATION:
Surface Casing: 1 per joint on first 3 joints
Intermediate Casing: Shoe joint. 1 per joint where DLS >0.6 °/100'
Production Liner: Rigid body , 1 every other joint from TD to estimated TOC, 1 every 4 joints above 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:	14-3/4"X11-3/4"	795'	795'	20 bbl FW	220 sx Class C + adds 12 ppg 2.414ft3/sk	420 sx Class C+ adds 14.8 ppg 1.33 ft3/sk	Cemented to surface w/ 200%XS Add FiberBlock
Intermediate:	10-5/8"X8-5/8"	4,800'	4,777	40 bbl Spacer	300 sx TXI Lite Weight + adds 11.5 ppg 4.038 ft3/sk	340 sx Class C adds 14.8 ppg 1.328 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 10.625" hole Add FiberBlock
Production:	7-7/8"X5-1/2"	17,715'	10,530'	40 bbl spacer	242 sk TXI Lite Weight + adds 10.5 ppg 4.034ft3/sk	550.8456 sx Class C + adds 14.4 ppg 1.217ft3/sk	Cemented 500' above Int Casing Depth 10% XS calc'd on 7.875" hole

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	900'	0	0	900'	0	0	0	0	25-T26S-R32E	283' FNL	2310' FEL
End Build @ 7°	1,375'	7	76	1,374'	7	29	1.5	-7	25-T26S-R32E	276' FNL	2281' FEL
Intermediate Casing	4,800'	7	76	4,777'	109	441	0.0	-106	25-T26S-R32E	174' FNL	1869' FEL
KOP , Build @ 8°/100'	9,875'	0	0	9,813'	243	988	0	-236	25-T26S-R32E	40' FNL	1322' FEL
Landing Point	11,000'	90	180	10,530'	-472	993	8	480	25-T26S-R32E	755' FNL	1317' FEL
Toe Sleeve 2	17,385'	90	180	10,572'	-6857	1040	0	6,864	36-T26S-R32E	380' FSL	1320' FEL
FTP / Toe Sleeve 1	17,435'	90	180	10,572'	-6907	1040	0	6,914	36-T26S-R32E	330' FSL	1320' FEL
PBHL/TD	17,715'	90	180	10,572'	-7187	1040	0	7,194	36-T26S-R32E	50' FSL	1320' FEL

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

FORMATION EVALUATION:

Mud Logging -	One-Man:	First surface hole to TD. First intermediate hole to TD
Mud Logging -	Two-Man:	Intermediate Casing Point to TD
Open Hole -	PEX	None
Cased Hole -	GR/CBL/USIT	None
MWD -	GR	Surface Casing Shoe to TD

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1280 Extended Reach Single Lateral

Date: Jun 05, 2018
Version: 1
Prepared by: M. Smith

WELL: Zia Hills 25E Fed Com 403H
COUNTY,STATE: Lea, Co, NM
API No.:
BLM Permit:

SURFACE LOC: NWNE 25-T26S-R32E 316' FNL 2310' FEL
BH LOC: SENE 36-T26S-R32E 50' FSL 2310' FEL

ELEVATIONS: GL 3,134.0' KB +27.0'

WH Coord.: (NAD-27) LAT 32° 1' 11.75" N LON 103° 37' 36.51" W

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Drilling Network No.:
Invoice Handler ID: VENNECP
COST ESTIMATE
DRILLING
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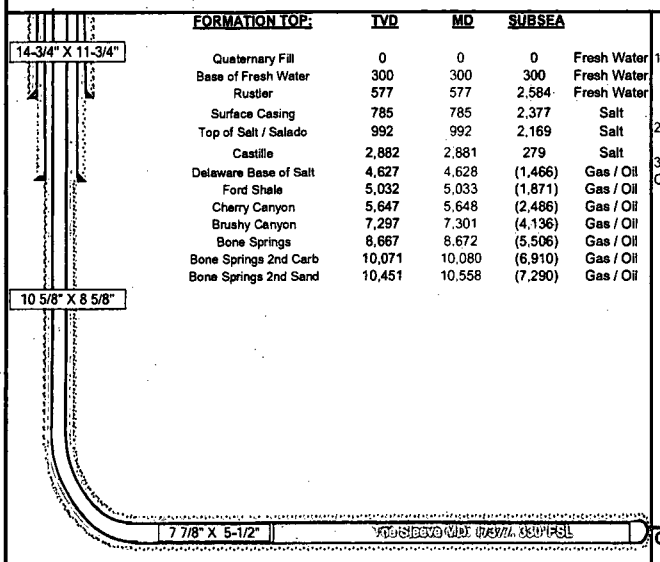
TOTAL



FORMATION TOP:	TVD	MD	SUBSEA	
Quaternary Fill	0	0	0	Fresh Water
Base of Fresh Water	300	300	300	Fresh Water
Rustler	577	577	2,584	Fresh Water
Surface Casing	785	785	2,377	Salt
Top of Salt / Salado	992	992	2,169	Salt
Castile	2,882	2,881	279	Salt
Delaware Base of Salt	4,627	4,628	(1,466)	Gas / Oil
Ford Shale	5,032	5,033	(1,871)	Gas / Oil
Cherry Canyon	5,647	5,648	(2,486)	Gas / Oil
Brushy Canyon	7,297	7,301	(4,136)	Gas / Oil
Bone Springs	8,667	8,672	(5,506)	Gas / Oil
Bone Springs 2nd Carb	10,071	10,080	(6,910)	Gas / Oil
Bone Springs 2nd Sand	10,451	10,558	(7,290)	Gas / Oil
TARGET	10,531	10,996	(7,370)	Gas / Oil
Formation Dip Rate:		est > 90° dip		
PBTD	10,531	10,996	(7,370)	Gas / Oil

8 5/8 in. shoe 4760' MD
4757' TVD

Estimated BH Static Temperature (°F): 199
Max. Anticipated BH Pressure: 0.550 psi/ft 5,792 psi
Max Anticipated Surface Pressure: 3,475 psi

Notes

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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 - 785'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks/Closed Loop
Intermediate:	Brine	785' - 4760'	10	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks/Closed Loop
Production:	Cut Brine	4760' - 17657'	9.2	50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks/Closed Loop

Reference Drilling Fluids Program

CASING:	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	14 3/4	27'	785'	758'	11 3/4	47.00	J-55	BTC
Intermediate:	10 5/8	27'	4,760'	4,733'	8 5/8	32.00	P-110	BTC
Production:	7 7/8	27'	17,657'	17,630'	5 1/2	23.00	P-110	TXP

CENTRALIZATION:
Surface Casing: 1 per joint on first 3 joints
Intermediate Casing: Shoe joint. 1 per joint where DLS >0.6 °/100'
Production Liner: Rigid body , 1 every other joint from TD to estimated TOC, 1 every 4 joints above 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:	14-3/4"X11-3/4"	785'	785'	20 bbl FW	210 sx Class C + adds 12 ppg 2.414ft3/sk	420 sx Class C+ adds 14.8 ppg 1.33 ft3/sk	Cemented to surface w/ 200%XS Add FiberBlock
Intermediate:	10-5/8"X8-5/8"	4,760'	4,757	40 bbl Spacer	290 sx TXI Lite Weight + adds 11.5 ppg 4.038 ft3/sk	340 sx Class C adds 14.8 ppg 1.328 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 10.625" hole Add FiberBlock
Production:	7-7/8"X5-1/2"	17,657'	10,531'	40 bbl spacer	244 sk TXI Lite Weight + adds 10.5 ppg 4.034ft3/sk	547.00484 sx Class C + adds 14.4 ppg 1.217ft3/sk	Cemented 500' above Int Casing Depth 10% XS calc'd on 7.875" hole

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	4,860'	0	0	4,860'	0	0	0	0	25-T26S-R32E	316' FNL	2310' FEL
End Build @ 3°	5,089'	3	360	5,089'	7	0	1.5	-7	25-T26S-R32E	309' FNL	2310' FEL
Intermediate Casing	4,760'	3	360	4,757'	118	-1	0.0	-119	25-T26S-R32E	198' FNL	2311' FEL
KOP , Build @ 8°/100'	9,822'	0	0	9,814'	266	-2	0	-266	25-T26S-R32E	50' FNL	2312' FEL
Landing Point	10,946'	90	180	10,531'	-450	3	8	450	25-T26S-R32E	766' FNL	2307' FEL
Toe Sleeve 2	17,327'	90	180	10,531'	-6830	50	0	6,831	36-T26S-R32E	380' FSL	2310' FEL
FTP / Toe Sleeve 1	17,377'	90	180	10,531'	-6880	50	0	6,881	36-T26S-R32E	330' FSL	2310' FEL
PBHL/TD	17,657'	90	180	10,531'	-7160	50	0	7,161	36-T26S-R32E	50' FSL	2310' FEL

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

FORMATION EVALUATION:

Mud Logging -	One-Man:	First surface hole to TD. First intermediate hole to TD
Mud Logging -	Two-Man:	Intermediate Casing Point to TD
Open Hole -	PEX	None
Cased Hole -	GR/CBL/USIT	None
MWD -	GR	Surface Casing Shoe to TD

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ConocoPhillips

WELL PLAN SUMMARY

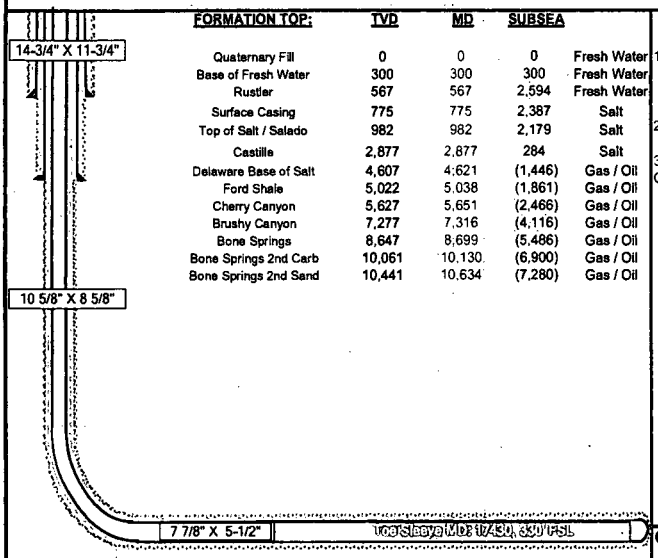
1280 Extended Reach Single Lateral

Date: Jun 05, 2018
Version: 1
Prepared by: M. Smith

WELL: Zia Hills 25E Fed Com 404H
SURFACE LOC: NWNE 25-T26S-R32E 349' FNL 2310' FEL
BH LOC: SENW 36-T26S-R32E 50' FSL 3300' FEL
ELEVATIONS: GL 3,134.0' KB +27.0'

COUNTY,STATE: Lea, Co, NM
API No.:
BLM Permit:
WH Coord.: LAT 32° 1' 11.43" N
(NAD-27) LON 103° 37' 36.51" W

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



FORMATION TOP:	TVD	MD	SUBSEA	
Quaternary Fill	0	0	0	Fresh Water
Base of Fresh Water	300	300	300	Fresh Water
Rustler	567	567	2,594	Fresh Water
Surface Casing	775	775	2,387	Salt
Top of Salt / Salado	982	982	2,179	Salt
Castille	2,877	2,877	284	Salt
Delaware Base of Salt	4,607	4,621	(1,446)	Gas / Oil
Ford Shale	5,022	5,038	(1,861)	Gas / Oil
Cherry Canyon	5,627	5,651	(2,466)	Gas / Oil
Brushy Canyon	7,277	7,316	(4,116)	Gas / Oil
Bone Springs	8,647	8,699	(5,486)	Gas / Oil
Bone Springs 2nd Carb	10,061	10,130	(6,900)	Gas / Oil
Bone Springs 2nd Sand	10,441	10,634	(7,280)	Gas / Oil
TARGET	10,531	11,018	(7,370)	Gas / Oil
Formation Dip Rate:		est > 90° dip		
PBTD	10,531	11,018	(7,370)	Gas / Oil

8 5/8 in. shoe 4788' MD
4737' TVD

Estimated BH Static Temperature (°F): 199
Max. Anticipated BH Pressure: 0.550 psi/ft 5,792 psi
Max Anticipated Surface Pressure: 3,475 psi

Notes

1) Ensure proper notifications are made to BLM
   A) Spud Notice - 24 hours before spud
   B) Running / Cementing all strings of casing - 4 hours
   C) BOP Tests - 4 hours
2) BOP Tests to be completed according to Onshore Order 2.
   A) 10 min high/low tests
3) H2S equipment will be rigged up and functional, 500' before Delaware formation. If H2S is encountered, Onshore Order 6 along with Conocophillips H2S plan will be followed.

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	432-234-9399	
	Dennis Hously		
Drilling Supt.:	Scott Nicholson	432-688-9065	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 - 775'	8.6	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	10,000	Rig Tanks/Closed Loop
Intermediate:	Brine	775' - 4788'	10	28-50	1-5	2-6	7.5-8.5	NC	< 5.0	180,000	Rig Tanks/Closed Loop
Production:	Cut Brine	4788' - 17710'	9.2	50-70	18-25	8-14	9.5-10	< 8	< 8.0	400 - 00	Rig Tanks/Closed Loop

Reference Drilling Fluids Program

CASING:	Hole	TOP (MD)	BTM (MD)	Length	Size	Wt	Grade	Connection
Surface:	14 3/4	27'	775'	748'	11 3/4	47.00	J-55	BTC
Intermediate:	10 5/8	27'	4,788'	4,761'	8 5/8	32.00	P-110	BTC
Production:	7 7/8	27'	17,710'	17,683'	5 1/2	23.00	P-110	TXP

CENTRALIZATION:
Surface Casing: 1 per joint on first 3 joints
Intermediate Casing: Shoe joint. 1 per joint where DLS >0.6 °/100'
Production Liner: Rigid body , 1 every other joint from TD to estimated TOC, 1 every 4 joints above 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:	14-3/4"X11-3/4"	775'	775'	20 bbl FW	210 sx Class C + adds 12 ppg 2.414ft3/sk	420 sx Class C+ adds 14.8 ppg 1.33 ft3/sk	Cemented to surface w/ 200%XS Add FiberBlock
Intermediate:	10-5/8"X8-5/8"	4,788'	4,737	40 bbl Spacer	300 sx TXI Lite Weight + adds 11.5 ppg 4.038 ft3/sk	340 sx Class C adds 14.8 ppg 1.328 ft3/sk	Cemented to surface w/ 70%L / 30%T XS calc'd on 10.625" hole Add FiberBlock
Production:	7-7/8"X5-1/2"	17,710'	10,531'	40 bbl OBM spacer	242 sk TXI Lite Weight + adds 10.5 ppg 4.034ft3/sk	550.5145 sx Class C + adds 14.4 ppg 1.217ft3/sk	Cemented 500' above Int Casing Depth 10% XS calc'd on 7.875" hole

Reference Cementing Recommendation

DIRECTIONAL PLAN:

Comments	MD (ft)	INC (deg)	AZI (deg)	TVD (ft)	NS (ft)	EW (ft)	DLS (°/100')	VS (ft)	SEC-T-R	Section Line Distance	
Build @ 1.5°/100'	1,000'	0	0	1,000'	0	0	0	0	25-T26S-R32E	349' FNL	2310' FEL
End Build @ 7°	1,489'	7	286	1,488'	9	-30	1.5	-9	25-T26S-R32E	340' FNL	2340' FEL
Intermediate Casing	4,788'	7	286	4,737'	126	-435	0.0	-130	25-T26S-R32E	223' FNL	2745' FEL
KOP , Build @ 8°/100'	9,879'	0	0	9,813'	288	-992	0	-296	25-T26S-R32E	61' FNL	3302' FEL
Landing Point	11,003'	90	180	10,531'	-427	-987	8	421	25-T26S-R32E	776' FNL	3297' FEL
Toe Sleeve 2	17,380'	90	180	10,531'	-6804	-940	0	6,798	36-T26S-R32E	380' FSL	3300' FEL
FTP / Toe Sleeve 1	17,430'	90	180	10,531'	-6854	-940	0	6,848	36-T26S-R32E	330' FSL	3300' FEL
PBHL/TD	17,710'	90	180	10,531'	-7134	-940	0	7,128	36-T26S-R32E	50' FSL	3300' FEL

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

FORMATION EVALUATION:

Mud Logging -	One-Man:	First surface hole to TD. First intermediate hole to TD
Mud Logging -	Two-Man:	Intermediate Casing Point to TD
Open Hole -	PEX	None
Cased Hole -	GR/CBL/USIT	None
MWD -	GR	Surface Casing Shoe to TD

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PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CONOCOPHILLIPS COMPANY**
LEASE NO.:	**NMLC069515**
WELL NAME & NO.:	**ZIA HILLS 25E FED COM 401H**
SURFACE HOLE FOOTAGE:	**250' FNL & 2310' FEL**
BOTTOM HOLE FOOTAGE	**50' FSL & 330' FEL; Sec. 36**
LOCATION:	**Section 25, T. 26 S., R 32 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

COA

All previous COA 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

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **11 3/4** inch surface casing shall be set at approximately **795** 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.

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

CONTINGENCY PLAN

Operator has proposed DV tool at depth but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

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. **Addititonal cement maybe required. Excess calculates to -27%.**

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 **3000 (3M)** 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)

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

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

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

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

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

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

A. CASING

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

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

ZS 061918

11 3/4	surface csg in a		14 3/4	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	Weight
"A"	47.00	J 55		BUTT	19.50	4.2	1.21	804	37,788
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500			Tail Cmt	does	circ to sfc.		Totals: 804	37,788

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
14 3/4	0.4336	640	1029	379	172	8.60	1467	2M	1.00

8 5/8	casing inside the	11 3/4			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	32.00	P 110	BTC	6.42	1.34	1.66	4,900	156,800
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	4,900	156,800

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 804 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
10 5/8	0.2100	650	1705	1080	58	10.00	2562	3M	0.50

5 1/2	casing inside the	8 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	23.00	P 110	TXP	3.19	3.22	3.06	9,435	217,005
"B"	23.00	P 110	TXP	9.69	2.76	3.06	7,857	180,711
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,076					Totals:	17,292	397,716

B would be: 63.65 3.06 if it were a vertical wellbore.

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	17292	9933	9933	9435	90	8	10560

The cement volume(s) are intended to achieve a top of 4700 ft from surface or a 200 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
7 7/8	0.1733	760	1593	2188	-27	9.20			0.84

Class 'H' tail cmt yld > 1.20