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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

OCD Hobbs
HOBBS OCD
JAN 16 2018
RECEIVED

5. Lease Serial No.
NMNM0559539

6. If Indian, Allottee or Tribe Name

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

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

8. Well Name and No.
JAMES 19 FEDERAL 31H

2. Name of Operator
CIMAREX ENERGY COMPANY OF CO
Contact: TERRI STATHEM
E-Mail: tstathem@cimarex.com

9. API Well No.
30-025-42222-00-X1

3a. Address
202 S CHEYENNE AVE. SUITE 1000
TULSA, OK 74103

3b. Phone No. (include area code)
Ph: 432-620-1936

10. Field and Pool or Exploratory Area
SAND DUNES

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 18 T23S R32E SESE 0050FSL 0330FEL
32.175064 N Lat, 103.422259 W Lon

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.

Cimarex Energy Co. respectfully request approval to change the original approved rig layout diagram. The rig layout including v-door and flare line may change depending on rig availability. The pad dimensions and orientation will remain the same. There will be no additional disturbance if a rig layout change is necessary to accommodate the drilling rig.

Cimarex respectfully request approval for a multibowl wellhead, please see attached diagram and procedure.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Please also see attached directional plan for the change from 440' FEL to 380' FEL targeting the avalon.

Surface good 1-11-2017 ZR Engineering Good. ZS

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

Electronic Submission #399737 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs
Committed to AFMSS for processing by ZOTA STEVENS on 01/10/2018 (18ZS0039SE)

Name *(Printed/Typed)* TERRI STATHEM — Title MANAGER REGULATORY COMPLIANCE

Signature (Electronic Submission) — Date 01/05/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 01/11/2018

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 ****

KF

Cactus Multi-Bowl Wellhead Steps:

1. Drill 17.5" Hole to Surface TD.
2. Trip out of hole.
3. Run and cement 13-3/8" casing.
4. Weld on Cactus Multi-Bowl Wellhead per Manufacturer's procedure.
5. Test weld to 70% of 13-3/8" surface casing.
6. Manufacturer representative will install test plug
7. Test BOPE equipment to 3,000 psi per permitted test pressure for drilling below 9-5/8" intermediate shoe.
8. Install Wear Bushing
9. Drill to 9-5/8" casing shoe
10. Trip out of hole.
11. Remove Wear Bushing.
12. Run 9-5/8" casing and land 9-5/8" casing hanger.
13. Cement casing.
14. Washout stack. Run wash tool to clean hanger.
15. Run and Install Packoff.
16. Test Packoff Seals.
17. Run Wear Bushing.
18. TIH to float collar.
19. Test Casing per COA WOC times. (500 psi compressive strength and 8 hours, whichever is greater)
20. Drill to production hole TD.
21. Trip out of hole.
22. Run 5.5" Production Casing.
23. Cement 5.5" Casing.
24. Set 5.5" Casing Slips.

Note: We will not Test BOP's after welding on the Surface head unless we exceed the 30 day limit per Onshore Order #2.

Schlumberger

Cimarex

Rev 1

CIMAREX

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex James 19 Federal 31H	NM Lea County (NAD 83)	Cimarex James 19 Federal 31H

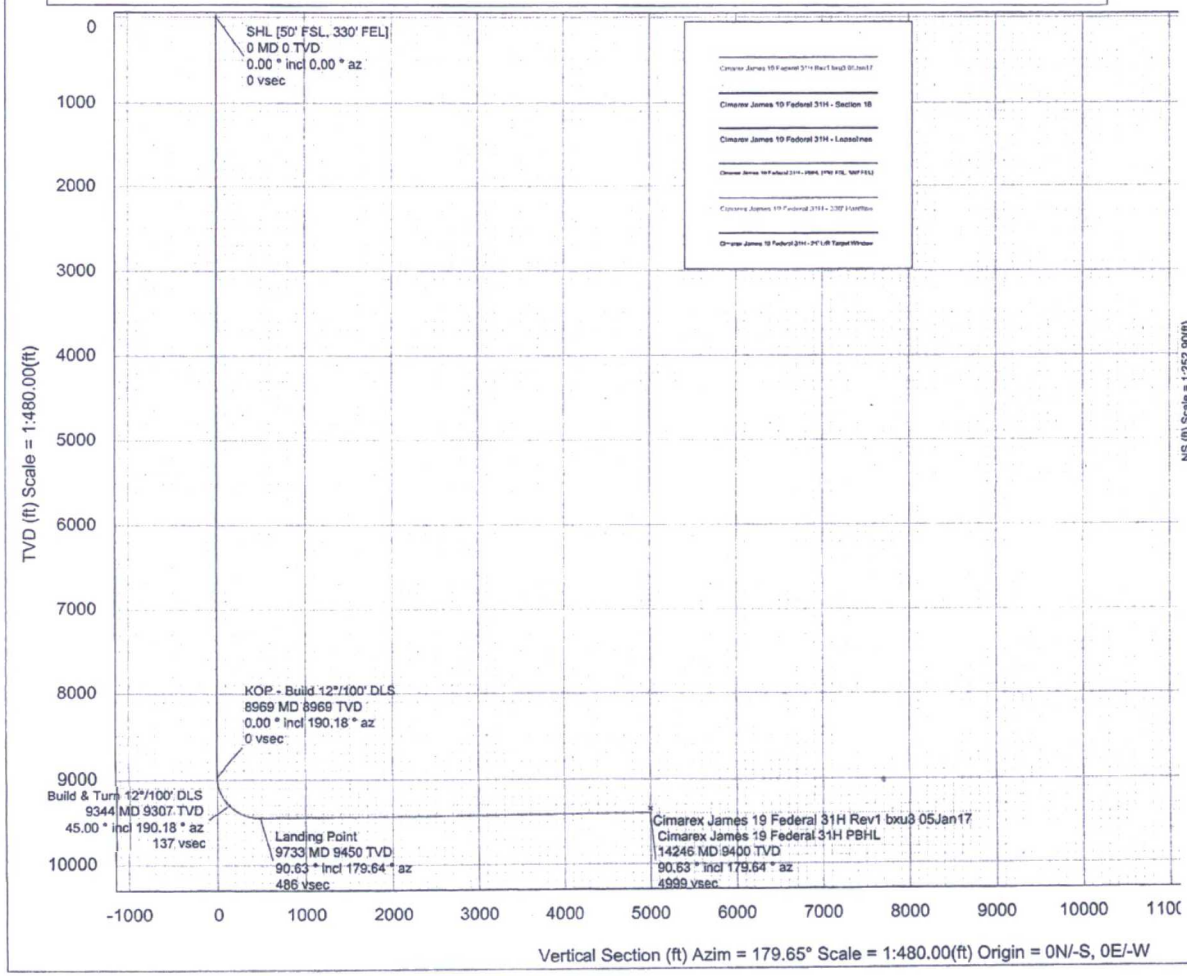
Gravity & Magnetic Parameters
Model: HDGM 2017 | Dip: 60.068° | Date: 04-Jan-2018
MagDec: 6.918° | FS: 48122.654nT | Gravity FS: 998.438mgn (9.80665 Based)

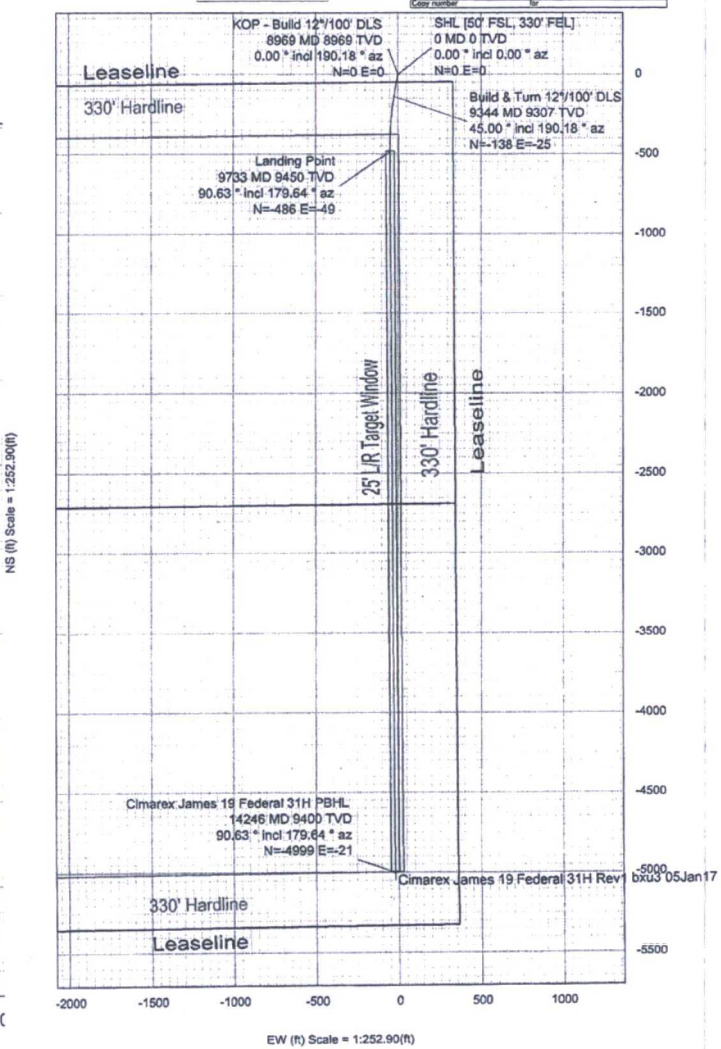
Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet
Lat: N 32 17 50.64 | Northing: 472493.41ftUS | Grid Conv: 0.3351°
Lon: W 103 42 22.59 | Easting: 735089.33ftUS | Scale Fact: 0.99995208

Miscellaneous
Slot: Cimarex James 19 Federal 31H | TVD Ref: RKB(3672ft above MSL)
Plan: Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [50' FSL, 330' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build 12°/100' DLS	8969.32	0.00	190.18	8969.32	0.00	0.00	0.00	0.00
Build & Turn 12°/100' DLS	9344.32	45.00	190.18	9306.94	137.49	-137.65	-24.71	12.00
Landing Point	9732.51	90.63	179.64	9450.00	485.91	-486.23	-49.11	12.00
Cimarex James 19 Federal 31H PBHL	14245.83	90.63	179.64	9400.00	4998.95	-4999.18	-20.84	0.00





CONTROLLED

Plan ref	Cimarex James 19 Federal 31H Rev1 bxu3 04 Jan17	
Drawing ref		
Copy number		of 3
Date		05-Jan-2018
1	Client	
2	Client	
3	Office	
4	Office	
Copy number		for

Schlumberger

Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17 Proposal Geodetic Report

(Def Plan)

CIMAREX

Report Date:	January 05, 2018 - 11:13 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.646 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex James 19 Federal 31H / Cimarex James 19 Federal 31H	**TVD Reference Datum:**	RKB
Well:	Cimarex James 19 Federal 31H	**TVD Reference Elevation:**	3672.000 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3648.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.918 °
Survey Name:	Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17	**Total Gravity Field Strength:**	998.4382mgn (9.80665 Based)
Survey Date:	January 04, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	91.583 ° / 5002.762 ft / 5.839 / 0.529	**Total Magnetic Field Strength:**	48122.654 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.068 °
Location Lat / Long:	N 32° 17' 50.64200", W 103° 42' 22.59467"	**Declination Date:**	January 04, 2018
Location Grid N/E Y/X:	N 472493.410 ftUS, E 735089.330 ftUS	**Magnetic Declination Model:**	HDGM 2017
CRS Grid Convergence Angle:	0.3351 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99995208	**Grid Convergence Used:**	0.3351 °
Version / Patch:	2.10.696.0	**Total Corr Mag North->Grid North:**	6.5826 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [50' FSL, 330' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
KOP - Build 12°/100' DLS	8969.32	0.00	190.18	8969.32	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
Build & Turn 12°/100' DLS	9344.32	45.00	190.18	9306.94	137.49	-137.65	-24.71	12.00	472355.77	735064.62	N 32 17 49.28	W 103 42 22.89
Landing Point	9732.51	90.63	179.64	9450.00	485.91	-486.23	-49.11	12.00	472007.21	735040.23	N 32 17 45.83	W 103 42 23.20
Cimarex James 19 Federal 31H PBHL	14245.83	90.63	179.64	9400.00	4998.95	-4999.18	-20.84	0.00	467494.48	735068.49	N 32 17 1.18	W 103 42 23.18

Survey Type: Def Plan

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	24.000	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG-Depth Only	Original Borehole / Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17
	1	24.000	14245.827	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17

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Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17 Proposal Geodetic Report

(Def Plan)

CIMAREX

Report Date:	January 05, 2018 - 11:14 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.646 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex James 19 Federal 31H / Cimarex James 19 Federal 31H	**TVD Reference Datum:**	RKB
Well:	Cimarex James 19 Federal 31H	**TVD Reference Elevation:**	3672.000 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3648.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.918 °
Survey Name:	Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17	**Total Gravity Field Strength:**	998.4382mgn (9.80665 Based)
Survey Date:	January 04, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	91.583 ° / 5002.762 ft / 5.839 / 0.529	**Total Magnetic Field Strength:**	48122.654 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	60.068 °
Location Lat / Long:	N 32° 17' 50.64200", W 103° 42' 22.59467"	**Declination Date:**	January 04, 2018
Location Grid N/E Y/X:	N 472493.410 ftUS, E 735089.330 ftUS	**Magnetic Declination Model:**	HDGM 2017
CRS Grid Convergence Angle:	0.3351 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99995208	**Grid Convergence Used:**	0.3351 °
Version / Patch:	2.10.696.0	**Total Corr Mag North->Grid North:**	6.5826 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [50' FSL, 330' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	100.00	0.00	190.18	100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	200.00	0.00	190.18	200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	300.00	0.00	190.18	300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	400.00	0.00	190.18	400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	500.00	0.00	190.18	500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	600.00	0.00	190.18	600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	700.00	0.00	190.18	700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	800.00	0.00	190.18	800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	900.00	0.00	190.18	900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1000.00	0.00	190.18	1000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1100.00	0.00	190.18	1100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1200.00	0.00	190.18	1200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1300.00	0.00	190.18	1300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	1400.00	0.00	190.18	1400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1500.00	0.00	190.18	1500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1600.00	0.00	190.18	1600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1700.00	0.00	190.18	1700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1800.00	0.00	190.18	1800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	1900.00	0.00	190.18	1900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2000.00	0.00	190.18	2000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2100.00	0.00	190.18	2100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2200.00	0.00	190.18	2200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2300.00	0.00	190.18	2300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2400.00	0.00	190.18	2400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2500.00	0.00	190.18	2500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2600.00	0.00	190.18	2600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2700.00	0.00	190.18	2700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2800.00	0.00	190.18	2800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	2900.00	0.00	190.18	2900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3000.00	0.00	190.18	3000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3100.00	0.00	190.18	3100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3200.00	0.00	190.18	3200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3300.00	0.00	190.18	3300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3400.00	0.00	190.18	3400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3500.00	0.00	190.18	3500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3600.00	0.00	190.18	3600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3700.00	0.00	190.18	3700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3800.00	0.00	190.18	3800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	3900.00	0.00	190.18	3900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4000.00	0.00	190.18	4000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4100.00	0.00	190.18	4100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4200.00	0.00	190.18	4200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4300.00	0.00	190.18	4300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4400.00	0.00	190.18	4400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4500.00	0.00	190.18	4500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4600.00	0.00	190.18	4600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4700.00	0.00	190.18	4700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4800.00	0.00	190.18	4800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	4900.00	0.00	190.18	4900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5000.00	0.00	190.18	5000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5100.00	0.00	190.18	5100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5200.00	0.00	190.18	5200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5300.00	0.00	190.18	5300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5400.00	0.00	190.18	5400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5500.00	0.00	190.18	5500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5600.00	0.00	190.18	5600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5700.00	0.00	190.18	5700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5800.00	0.00	190.18	5800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	5900.00	0.00	190.18	5900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6000.00	0.00	190.18	6000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6100.00	0.00	190.18	6100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6200.00	0.00	190.18	6200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6300.00	0.00	190.18	6300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6400.00	0.00	190.18	6400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6500.00	0.00	190.18	6500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6600.00	0.00	190.18	6600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6700.00	0.00	190.18	6700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6800.00	0.00	190.18	6800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	6900.00	0.00	190.18	6900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7000.00	0.00	190.18	7000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7100.00	0.00	190.18	7100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7200.00	0.00	190.18	7200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7300.00	0.00	190.18	7300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7400.00	0.00	190.18	7400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7500.00	0.00	190.18	7500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7600.00	0.00	190.18	7600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7700.00	0.00	190.18	7700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7800.00	0.00	190.18	7800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	7900.00	0.00	190.18	7900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8000.00	0.00	190.18	8000.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8100.00	0.00	190.18	8100.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8200.00	0.00	190.18	8200.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8300.00	0.00	190.18	8300.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8400.00	0.00	190.18	8400.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8500.00	0.00	190.18	8500.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8600.00	0.00	190.18	8600.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8700.00	0.00	190.18	8700.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8800.00	0.00	190.18	8800.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	8900.00	0.00	190.18	8900.00	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
KOP - Build 12°/100' DLS	8969.32	0.00	190.18	8969.32	0.00	0.00	0.00	0.00	472493.41	735089.33	N 32 17 50.64	W 103 42 22.59
	9000.00	3.68	190.18	8999.98	0.97	-0.97	-0.17	12.00	472492.44	735089.16	N 32 17 50.63	W 103 42 22.60
	9100.00	15.68	190.18	9098.37	17.47	-17.49	-3.14	12.00	472475.92	735086.19	N 32 17 50.47	W 103 42 22.63
	9200.00	27.68	190.18	9191.13	53.73	-53.79	-9.66	12.00	472439.62	735079.67	N 32 17 50.11	W 103 42 22.71
	9300.00	39.68	190.18	9274.19	108.15	-108.27	-19.44	12.00	472385.14	735069.89	N 32 17 49.57	W 103 42 22.83
Build & Turn 12°/100' DLS	9344.32	45.00	190.18	9306.94	137.49	-137.65	-24.71	12.00	472355.77	735064.62	N 32 17 49.28	W 103 42 22.89
	9400.00	51.49	188.03	9344.00	178.44	-178.64	-31.24	12.00	472314.78	735058.09	N 32 17 48.88	W 103 42 22.97
	9500.00	63.21	185.00	9397.87	261.89	-262.15	-40.63	12.00	472231.27	735048.70	N 32 17 48.05	W 103 42 23.09
	9600.00	74.99	182.54	9433.48	354.91	-355.20	-46.68	12.00	472138.23	735042.66	N 32 17 47.13	W 103 42 23.16
	9700.00	86.80	180.34	9449.27	453.42	-453.73	-49.11	12.00	472039.70	735040.22	N 32 17 46.16	W 103 42 23.20
Landing Point	9732.51	90.63	179.64	9450.00	485.91	-486.23	-49.11	12.00	472007.21	735040.23	N 32 17 45.83	W 103 42 23.20
	9800.00	90.63	179.64	9449.25	553.40	-553.71	-48.68	0.00	471939.73	735040.65	N 32 17 45.17	W 103 42 23.20
	9900.00	90.63	179.64	9448.15	653.39	-653.70	-48.06	0.00	471839.74	735041.27	N 32 17 44.18	W 103 42 23.20
	10000.00	90.63	179.64	9447.04	753.39	-753.70	-47.43	0.00	471739.75	735041.90	N 32 17 43.19	W 103 42 23.20
	10100.00	90.63	179.64	9445.93	853.38	-853.69	-46.81	0.00	471639.77	735042.53	N 32 17 42.20	W 103 42 23.20
	10200.00	90.63	179.64	9444.82	953.38	-953.68	-46.18	0.00	471539.78	735043.15	N 32 17 41.21	W 103 42 23.20
	10300.00	90.63	179.64	9443.72	1053.37	-1053.67	-45.55	0.00	471439.79	735043.78	N 32 17 40.22	W 103 42 23.20
	10400.00	90.63	179.64	9442.61	1153.36	-1153.66	-44.93	0.00	471339.80	735044.41	N 32 17 39.23	W 103 42 23.20
	10500.00	90.63	179.64	9441.50	1253.36	-1253.65	-44.30	0.00	471239.82	735045.03	N 32 17 38.24	W 103 42 23.20
	10600.00	90.63	179.64	9440.39	1353.35	-1353.65	-43.67	0.00	471139.83	735045.66	N 32 17 37.25	W 103 42 23.20
	10700.00	90.63	179.64	9439.28	1453.35	-1453.64	-43.05	0.00	471039.84	735046.28	N 32 17 36.26	W 103 42 23.20
	10800.00	90.63	179.64	9438.18	1553.34	-1553.63	-42.42	0.00	470939.86	735046.91	N 32 17 35.27	W 103 42 23.19
	10900.00	90.63	179.64	9437.07	1653.33	-1653.62	-41.80	0.00	470839.87	735047.54	N 32 17 34.28	W 103 42 23.19
	11000.00	90.63	179.64	9435.96	1753.33	-1753.61	-41.17	0.00	470739.88	735048.16	N 32 17 33.29	W 103 42 23.19
	11100.00	90.63	179.64	9434.85	1853.32	-1853.61	-40.54	0.00	470639.90	735048.79	N 32 17 32.30	W 103 42 23.19
	11200.00	90.63	179.64	9433.74	1953.31	-1953.60	-39.92	0.00	470539.91	735049.42	N 32 17 31.31	W 103 42 23.19
	11300.00	90.63	179.64	9432.64	2053.31	-2053.59	-39.29	0.00	470439.92	735050.04	N 32 17 30.32	W 103 42 23.19
	11400.00	90.63	179.64	9431.53	2153.30	-2153.58	-38.66	0.00	470339.94	735050.67	N 32 17 29.33	W 103 42 23.19
	11500.00	90.63	179.64	9430.42	2253.30	-2253.57	-38.04	0.00	470239.95	735051.29	N 32 17 28.35	W 103 42 23.19
	11600.00	90.63	179.64	9429.31	2353.29	-2353.57	-37.41	0.00	470139.96	735051.92	N 32 17 27.36	W 103 42 23.19
	11700.00	90.63	179.64	9428.20	2453.28	-2453.56	-36.79	0.00	470039.97	735052.55	N 32 17 26.37	W 103 42 23.19
	11800.00	90.63	179.64	9427.10	2553.28	-2553.55	-36.16	0.00	469939.99	735053.17	N 32 17 25.38	W 103 42 23.19
	11900.00	90.63	179.64	9425.99	2653.27	-2653.54	-35.53	0.00	469840.00	735053.80	N 32 17 24.39	W 103 42 23.19
	12000.00	90.63	179.64	9424.88	2753.27	-2753.53	-34.91	0.00	469740.01	735054.42	N 32 17 23.40	W 103 42 23.19
	12100.00	90.63	179.64	9423.77	2853.26	-2853.53	-34.28	0.00	469640.03	735055.05	N 32 17 22.41	W 103 42 23.19
	12200.00	90.63	179.64	9422.67	2953.25	-2953.52	-33.65	0.00	469540.04	735055.68	N 32 17 21.42	W 103 42 23.19
	12300.00	90.63	179.64	9421.56	3053.25	-3053.51	-33.03	0.00	469440.05	735056.30	N 32 17 20.43	W 103 42 23.19
	12400.00	90.63	179.64	9420.45	3153.24	-3153.50	-32.40	0.00	469340.07	735056.93	N 32 17 19.44	W 103 42 23.19

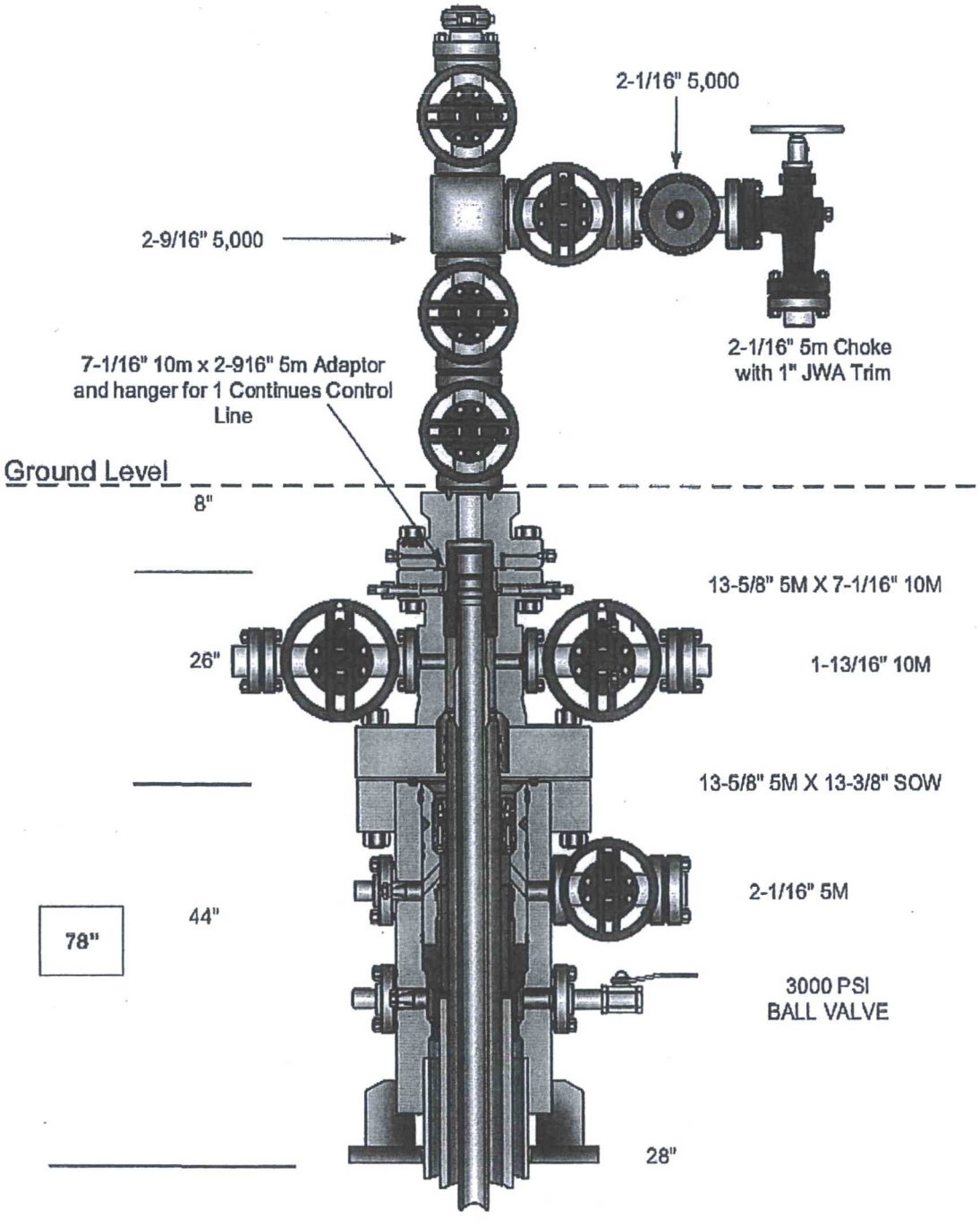
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	12500.00	90.63	179.64	9419.34	3253.23	-3253.49	-31.78	0.00	469240.08	735057.56	N 32 17 18.45	W 103 42 23.19
	12600.00	90.63	179.64	9418.23	3353.23	-3353.48	-31.15	0.00	469140.09	735058.18	N 32 17 17.46	W 103 42 23.19
	12700.00	90.63	179.64	9417.13	3453.22	-3453.48	-30.52	0.00	469040.11	735058.81	N 32 17 16.47	W 103 42 23.19
	12800.00	90.63	179.64	9416.02	3553.22	-3553.47	-29.90	0.00	468940.12	735059.43	N 32 17 15.48	W 103 42 23.18
	12900.00	90.63	179.64	9414.91	3653.21	-3653.46	-29.27	0.00	468840.13	735060.06	N 32 17 14.49	W 103 42 23.18
	13000.00	90.63	179.64	9413.80	3753.20	-3753.45	-28.64	0.00	468740.14	735060.69	N 32 17 13.50	W 103 42 23.18
	13100.00	90.63	179.64	9412.69	3853.20	-3853.44	-28.02	0.00	468640.16	735061.31	N 32 17 12.51	W 103 42 23.18
	13200.00	90.63	179.64	9411.59	3953.19	-3953.44	-27.39	0.00	468540.17	735061.94	N 32 17 11.52	W 103 42 23.18
	13300.00	90.63	179.64	9410.48	4053.19	-4053.43	-26.77	0.00	468440.18	735062.57	N 32 17 10.54	W 103 42 23.18
	13400.00	90.63	179.64	9409.37	4153.18	-4153.42	-26.14	0.00	468340.20	735063.19	N 32 17 9.55	W 103 42 23.18
	13500.00	90.63	179.64	9408.26	4253.17	-4253.41	-25.51	0.00	468240.21	735063.82	N 32 17 8.56	W 103 42 23.18
	13600.00	90.63	179.64	9407.16	4353.17	-4353.40	-24.89	0.00	468140.22	735064.44	N 32 17 7.57	W 103 42 23.18
	13700.00	90.63	179.64	9406.05	4453.16	-4453.40	-24.26	0.00	468040.24	735065.07	N 32 17 6.58	W 103 42 23.18
	13800.00	90.63	179.64	9404.94	4553.15	-4553.39	-23.63	0.00	467940.25	735065.70	N 32 17 5.59	W 103 42 23.18
	13900.00	90.63	179.64	9403.83	4653.15	-4653.38	-23.01	0.00	467840.26	735066.32	N 32 17 4.60	W 103 42 23.18
	14000.00	90.63	179.64	9402.72	4753.14	-4753.37	-22.38	0.00	467740.28	735066.95	N 32 17 3.61	W 103 42 23.18
	14100.00	90.63	179.64	9401.62	4853.14	-4853.36	-21.76	0.00	467640.29	735067.58	N 32 17 2.62	W 103 42 23.18
	14200.00	90.63	179.64	9400.51	4953.13	-4953.36	-21.13	0.00	467540.30	735068.20	N 32 17 1.63	W 103 42 23.18
Cimarex James 19 Federal 31H PBHL	14245.83	90.63	179.64	9400.00	4998.95	-4999.18	-20.84	0.00	467494.48	735068.49	N 32 17 1.18	W 103 42 23.18

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	24.000	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG-Depth Only	Original Borehole / Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17
	1	24.000	14245.827	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cimarex James 19 Federal 31H Rev1 bxu3 05Jan17


2-1/16" 5,000
2-9/16" 5,000
2-1/16" 5m Choke
with 1" JWA Trim
7-1/16" 10m x 2-916" 5m Adaptor
and hanger for 1 Continues Control
Line
Ground Level
8"
13-5/8" 5M X 7-1/16" 10M
26"
1-13/16" 10M
13-5/8" 5M X 13-3/8" SOW
2-1/16" 5M
78"
44"
3000 PSI
BALL VALVE
28"

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CIMAREX ENERGY COMPANY**
LEASE NO.:	**NMNM0559539**
WELL NAME & NO.:	**JAMES 19 FEDERAL 31H**
SURFACE HOLE FOOTAGE:	**50' FSL & 330' FEL**
BOTTOM HOLE FOOTAGE	**330' FSL & 380' FEL**
LOCATION:	**Section 18, T. 23 S., R 32 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

COA

All pervious 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

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 **13-3/8** inch surface casing shall be set at approximately **1250** 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.

ALT. BURST PRESSURE IS GOOD.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

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. **Additional cement maybe required. Excess calculates to 22%.**

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 **2000 (2M)** 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 **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)

☒ 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 011018

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a	17 1/2	inch hole.	Design Factors			SURFACE
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length
"A"	48.00	H 40	ST&C	5.37	1.35	0.72	1,250
"B"							0
w/8.4#/g mud, 30min Sfc Csg Test psig: 666			Tail Cmt	does not	circ to sfc.	Totals:	1,250

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
17 1/2	0.6946	956	1607	923	74	8.80	1393	2M

Burst Frac Gradient(s) for Segment(s) A, B = 1.38, b All > 0.70, OK.

9 5/8	casing inside the	13 3/8		Design Factors			ITERMEDIAT
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length
"A"	36.00	J 55	LT&C	2.71	1.26	0.78	4,650
"B"							0
w/8.4#/g mud, 30min Sfc Csg Test psig: 435						Totals:	4,650
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		1250

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
12 1/4	0.3132	1344	2376	1555	53	10.00	2437	3M

1/3 evacuation used for Collapse calculation

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.76, b, c, d All > 0.70, OK.

5 1/2	casing inside the	9 5/8		Design Factors			PRODUCTIOI
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length
"A"	17.00	L 80	LT&C	2.12	1.47	1.71	8,969
"B"	17.00	L 80	BUTT	5.14	1.24	1.71	5,277
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,316						Totals:	14,246
B Segment Design Factors would be:				54.18	1.40	if it were a vertical wel	

Proposed cmt sx could fill 0 ft of	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°
a 481 ft Pilot Hole	14246	9450	9400	8969	91	12

The cement volume(s) are intended to achieve a top of 4450 ft from surface or a 200

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
8 3/4	0.2526	1973	3029	2483	22	9.20		