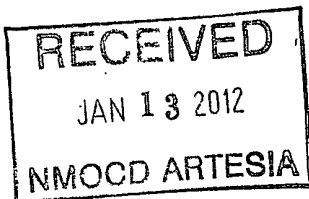


ATS-11-724

SECRETARY'S POTASH

Form 3160-3
(April 2004)

OCD Artesia

 UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-0560353, Fee Minerals
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Cimarex Energy Co. of Colorado		7. If Unit or CA Agreement, Name and No. Pending
3a. Address 600 N. Marienfeld St., Ste. 600; Midland, TX 79701	3b. Phone No. (include area code) 432-571-7800	8. Lease Name and Well No. Crescent Hale 10 Federal Land No. 2 (39015)
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 11-19S-30E 1560 FNL & 1960 FWL At proposed prod Zone 10-19S-30E 2310 FNL & 330 FWL Horizontal Bone Spring test		9. API Well No. 30-015-39825
14. Distance in miles and direction from nearest town or post office*		10. Field and Pool, or Exploratory Benson; Bone Spring (5260)
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig unit line if any) 240'		11. Sec., T. R. M., or Bk. and Survey or Area 10 & 11, 19S-30E
16. No of acres in lease 2160.32 acres		12. County or Parish Lee Eldridge
17. Spacing Unit dedicated to this well SWNW 11-19S-30E & S2N2 10-19S-30E, 200 acres		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 322		
19. Proposed Depth MD 15376 TVD 8550		
20. BLM/BIA Bond No. on File NM-2575		
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3380' GR	22. Approximate date work will start* 09.01.11	23. Estimated duration 25-30 days
24. Attachments		

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

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

25. Signature <i>Zeno Farris</i>	Name (Printed/Typed) Zeno Farris	Date 6.9.11
Title Manager Operations Administration		
Approved By (Signature) <i>/s/ Tony J. Herrell</i>	Name (Printed/Typed) <i>/s/ Tony J. Herrell</i>	Date JAN 6 2012
Office NM STATE OFFICE		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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)

CAPTAN CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

Operator Certification Statement
Crescent Hale 10 Federal Com No. 2
Cimarex Energy Co. of Colorado
Unit F, Section 11
T19S-R30E, Eddy County, NM

Operator's Representative

Cimarex Energy Co. of Colorado
600 N. Marienfeld St., Ste. 600
Midland, TX 79701
Office Phone: (432) 571-7800
Zeno Farris

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

Executed this 9th day of June, 2011

NAME: Zeno Farris
Zeno Farris

TITLE: Manager Operations Administration

ADDRESS: 600 N. Marienfeld St., Ste. 600
Midland, TX 79701

TELEPHONE: (432) 620-1938

EMAIL: zfarris@cimarex.com

Field Representative: Same as above

DISTRICT I
N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised July 16, 2010

Submit one copy to appropriate
District Office

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-39825	Pool Code 5200	Pool Name Benson; Bone Spring
Property Code 39015	Property Name CRESCENT HALE "10" FEDERAL COM	Well Number 2H
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3380'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	11	19 S	30 E		1560	NORTH	1960	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	10	19 S	30 E		2310	NORTH	330	WEST	EDDY

Dedicated Acres 200	Joint or Infill	Consolidation Code	Order No. NSL PENDING
-------------------------------	-----------------	--------------------	---------------------------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

BHL
1560 FNL & 1960 FWL

PROPOSED BOTTOM HOLE LOCATION
Lat - N 32°40'32.84"
Long - W 103°58'02.34"
NMSPC - N 609777.808
E 653958.146
(NAD-83)

SHL & PP Bone Spring
2310 FNL & 330 FWL

SURFACE LOCATION
Lat - N 32°40'40.19"
Long - W 103°56'41.52"
NMSPC - N 610544.333
E 660864.022
(NAD-83)

OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Zeno Farris 6/9/2011
Signature Date
Printed Name
zfarris@cimarex.com
Email Address

SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

GARY L. JONES
Date Surveyed
Signature & Seal of Professional Surveyor
W.O. No. 24185
Certificate No. Gary L. Jones 7977
BASIN SURVEYS 24185

No Perf Zone

Application to Drill
Crescent Hale 10 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 Unit F, Section 11
 T19S-R30E, Eddy County, NM

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

- 1 Location: SHL 11-19S-30E 1560 FNL & 1960 FWL
 BHL 10-19S-30E 2310 FNL & 330 FWL
- 2 Elevation above sea level: 3380' GR
- 3 Geologic name of surface formation: Quaternary Alluvium Deposits
- 4 Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.
- 5 Proposed drilling depth: MD 15376 TVD 8550
- 6 Estimated tops of geological markers:

Rustler	450'	Upper Bone Spring Shale	6780'
T. Salt	600'	1st BSS	7570'
B. Salt	1850'	2nd BSS	8400'
Delaware	4600'		
Bone Spring	6010'		
- 7 Possible mineral bearing formation:
 Bone Spring Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 475'	8.4 - 8.6	28	NC	FW
475' to 3700'	10.0	30-32	NC	Brine water
3700' to 15376'	8.4 - 9.5	30-32	NC	FW, brine

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.

8a. Proposed drilling Plan

8264

After setting surface and intermediate casing, drill 8¾" hole to KOP @ ~~8624~~ and kick off to drill and drill through the curve to lateral TD @ 15376. Run and cement dual casing string. Use 5½" 17# P110 LTC from 15376-8300, then cross over with 2' long 7" 26# LTC P110 Box x 5 1/2" 17# LTC Pin Tong Neck cross over to 7" 26# P110 LTC from 8300-0. Cement as shown on following page.

Application to Drill
Crescent Hale 10 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 Unit F, Section 11
 T19S-R30E, Eddy County, NM

9 Casing & Cementing Program:

String	Hole Size	Depth		Casing OD		Weight	Collar	Grade
Surface	17½"	0'	to 475'	New	13⅝"	48#	STC	H-40
Intermediate	12¼"	0'	to 3700'	New	9⅝"	36#	LTC	J55
Production	8¾"	0'	to 8300'	New	7"	26#	LTC	P-110
Production	8¾"	8300'	to 15376'	New	5½"	17#	LTC	P-110

10 Cementing:

Surface

Lead:280SKS Halcem C + 4% Bentomite + 2% CaCl 13.5ppg 1.75yield 100% Excess

Tail:125SKS Halcem C + 2% CaCl 14.2ppg 1.34 yield 25% Excess

TOC Surface Centralizers per Onshore Order 2.III.B.1f

Intermediate

Lead:1060SKS EconoCem + 5% salt + 5 lbm gilsonite 12.9ppg 1.85yield 70% % Excess

Tail:195SKS HalCem + 1% CaCl 14.8ppg 1.34 yield 25% Excess

TOC Surface

Production

Lead:580SKS EconoCem - H + 0.2 % HR-601 2.44 11.9ppg 2.44yield 50% % Excess

Tail:1765SKS Versacem - H + 0.5% Halad(R)-344 + 0.4% CFR-3 + 1 lbm/sk salt + 0.1% HR-601 14.5ppg 1.22 yield 25% Excess

Centralizers every 3rd joint in lateral and curve to provide adequate cement coverage every 100'

TOC 3200' unless lateral doglegs require greater spacing between centralizers.

According to the State Engineer, average depth to groundwater is 142. Fresh water zones will be protected by setting 13⅝" casing at 475 and cementing to surface. Hydrocarbon zones will be protected by setting 9⅝" casing at 3700 and cementing to surface, and by setting 7" and 5½" casing at 15376 and cementing to 3200.

<u>Collapse Factor</u>	<u>Burst Factor</u>	<u>Tension Factor</u>
1.125	1.125	1.6

11 Pressure control Equipment:

Exhibit "E". A 13⅝" 5000 PSI working pressure B.O.P. tested to 3000 PSI consisting of one set of blind rams and one set of pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 3700.' A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor. Mud-Gas separator will be utilized if drilling in potential H2S area.

BOP unit will be hydraulically operated. BOP will be nipped up and operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling. From the base of the surface pipe through the running of production casing, the well will be equipped with a 5000 psi BOP system tested to 3000 psi.

BOPS will be tested by an independent service company to 250 psi low and 3000 psi high. Hydril will be tested to 250 psi low and 1500 psi high.

Application to Drill
Crescent Hale 10 Federal Com No. 2
Cimarex Energy Co. of Colorado
Unit F, Section 11
T19S-R30E, Eddy County, NM

12 Testing, Logging and Coring Program: *See CoA*

- A. Mud logging program: 2 man unit from 3700 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H₂S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S Safety package on all wells, attached is an "H₂S Drilling Operations Plan." Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP **3850 psi** Estimated BHT **130°**

14 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.

Drilling expected to take 30-35 days

If production casing is run an additional 30 days will be required to complete and construct surface facilities.

15 Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

Bone Spring pay will be perforated and stimulated.

The proposed well will be tested and potentialiaed as **an oil well.**



Cimarex Energy Co.

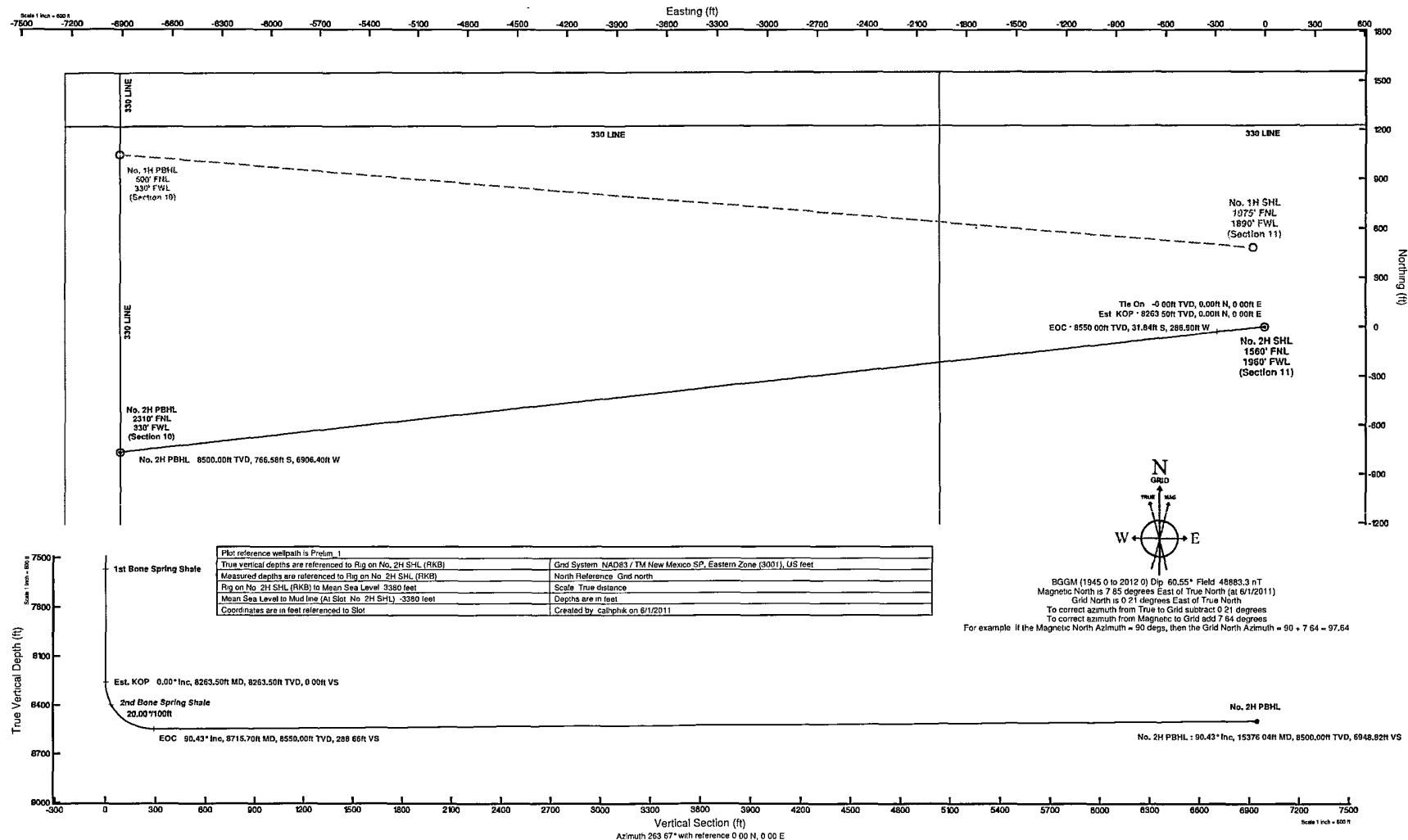
Location: Eddy County, NM
Field: (Crescent) Sec 10 & 11, T19S, R30E
Facility: Crescent Hale 10 Fed No. 2H

Slot: No. 2H SHL
Well: No. 2H
Wellbore: No. 2H PWB



Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	263.666	0.00	0.00	0.00	0.00	0.00
Est. KOP	8263.50	0.000	263.666	8263.50	0.00	0.00	0.00	0.00
EOC	8715.70	90.430	263.666	8550.00	-31.84	-286.90	20.00	288.66
No. 2H PBHL	15376.04	90.430	263.666	8500.00	-766.58	-6906.40	0.00	6948.82





Planned Wellpath Report

Prelim_1
Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 2H PWB
Facility	Crescent Hale 10 Fed No. 2H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Calhphik
Scale	0.999925	Report Generated	6/1/2011 at 5:14:58 PM
Convergence at slot	0.21° East	Database/Source file	WA Midland/No. 2H_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W
Facility Reference Pt			660864.02	610544.33	32°40'40.187"N	103°56'41.515"W
Field Reference Pt			660864.02	610544.33	32°40'40.187"N	103°56'41.515"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 2H SHL (RKB) to GL	0.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (RKB) to Mean Sea Level	3380.00ft
Vertical Reference Pt	Rig on No. 2H SHL (RKB)	Rig on No. 2H SHL (RKB) to Mud Line at Slot (No. 2H SHL)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	263.67°



Planned Wellpath Report

Prelim_1

Page 2 of 6



**BAKER
HUGHES**

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 2H PWB
Facility	Crescent Hale 10 Fed No. 2H		

WELLPATH DATA (161 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	263.666	0.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	Tie On
100.00†	0.000	263.666	100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
200.00†	0.000	263.666	200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
300.00†	0.000	263.666	300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
400.00†	0.000	263.666	400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
500.00†	0.000	263.666	500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
600.00†	0.000	263.666	600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
700.00†	0.000	263.666	700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
800.00†	0.000	263.666	800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
900.00†	0.000	263.666	900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1000.00†	0.000	263.666	1000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1100.00†	0.000	263.666	1100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1200.00†	0.000	263.666	1200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1300.00†	0.000	263.666	1300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1400.00†	0.000	263.666	1400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1500.00†	0.000	263.666	1500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1600.00†	0.000	263.666	1600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1700.00†	0.000	263.666	1700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1800.00†	0.000	263.666	1800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
1900.00†	0.000	263.666	1900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2000.00†	0.000	263.666	2000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2100.00†	0.000	263.666	2100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2200.00†	0.000	263.666	2200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2300.00†	0.000	263.666	2300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2400.00†	0.000	263.666	2400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2500.00†	0.000	263.666	2500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2600.00†	0.000	263.666	2600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2700.00†	0.000	263.666	2700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2800.00†	0.000	263.666	2800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
2900.00†	0.000	263.666	2900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3000.00†	0.000	263.666	3000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3100.00†	0.000	263.666	3100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3200.00†	0.000	263.666	3200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3300.00†	0.000	263.666	3300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3400.00†	0.000	263.666	3400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3500.00†	0.000	263.666	3500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3600.00†	0.000	263.666	3600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3700.00†	0.000	263.666	3700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3800.00†	0.000	263.666	3800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
3900.00†	0.000	263.666	3900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4000.00†	0.000	263.666	4000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4100.00†	0.000	263.666	4100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4200.00†	0.000	263.666	4200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4300.00†	0.000	263.666	4300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4400.00†	0.000	263.666	4400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 2H PWB
Facility	Crescent Hale 10 Fed No. 2H		

WELLPATH DATA (161 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4500.00†	0.000	263.666	4500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4600.00†	0.000	263.666	4600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	Delaware Sands
4700.00†	0.000	263.666	4700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4800.00†	0.000	263.666	4800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
4900.00†	0.000	263.666	4900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5000.00†	0.000	263.666	5000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5100.00†	0.000	263.666	5100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5200.00†	0.000	263.666	5200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5300.00†	0.000	263.666	5300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5400.00†	0.000	263.666	5400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5500.00†	0.000	263.666	5500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5600.00†	0.000	263.666	5600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5700.00†	0.000	263.666	5700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5800.00†	0.000	263.666	5800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
5900.00†	0.000	263.666	5900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6000.00†	0.000	263.666	6000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6010.00†	0.000	263.666	6010.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	Bone Spring
6100.00†	0.000	263.666	6100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6200.00†	0.000	263.666	6200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6300.00†	0.000	263.666	6300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6400.00†	0.000	263.666	6400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6500.00†	0.000	263.666	6500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6600.00†	0.000	263.666	6600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6700.00†	0.000	263.666	6700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6780.00†	0.000	263.666	6780.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	Upper Bone Spring Shale
6800.00†	0.000	263.666	6800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
6900.00†	0.000	263.666	6900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7000.00†	0.000	263.666	7000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7100.00†	0.000	263.666	7100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7200.00†	0.000	263.666	7200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7300.00†	0.000	263.666	7300.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7400.00†	0.000	263.666	7400.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7500.00†	0.000	263.666	7500.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7570.00†	0.000	263.666	7570.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	1st Bone Spring Shale
7600.00†	0.000	263.666	7600.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7700.00†	0.000	263.666	7700.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7800.00†	0.000	263.666	7800.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
7900.00†	0.000	263.666	7900.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
8000.00†	0.000	263.666	8000.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
8100.00†	0.000	263.666	8100.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
8200.00†	0.000	263.666	8200.00	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	
8263.50	0.000	263.666	8263.50	0.00	0.00	0.00	660864.02	610544.33	32°40'40.187"N	103°56'41.515"W	0.00	Est KOP
8300.00†	7.299	263.666	8299.90	2.32	-0.26	-2.31	660861.71	610544.07	32°40'40.184"N	103°56'41.542"W	20.00	
8400.00†	27.297	263.666	8394.89	31.91	-3.52	-31.71	660832.31	610540.81	32°40'40.153"N	103°56'41.886"W	20.00	
8405.78†	28.452	263.666	8400.00	34.61	-3.82	-34.39	660829.63	610540.51	32°40'40.150"N	103°56'41.918"W	20.00	2nd Bone Spring Shale



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BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 2H PWB
Facility	Crescent Hale 10 Fed No. 2H		

WELLPATH DATA (161 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8500.00†	47.295	263.666	8474.04	92.19	-10.17	-91.63	660772.40	610534.16	32°40'40.089"N	103°56'42.587"W	20.00	
8600.00†	67.293	263.666	8527.80	175.91	-19.41	-174.84	660689.20	610524.93	32°40'40.001"N	103°56'43.561"W	20.00	
8700.00†	87.291	263.666	8549.69	272.97	-30.11	-271.30	660592.74	610514.22	32°40'39.899"N	103°56'44.690"W	20.00	
8715.70	90.430	263.666	8550.00	288.66	-31.84	-286.90	660577.15	610512.49	32°40'39.882"N	103°56'44.873"W	20.00	EOC
8800.00†	90.430	263.666	8549.37	372.96	-41.14	-370.68	660493.36	610503.19	32°40'39.793"N	103°56'45.853"W	0.00	
8900.00†	90.430	263.666	8548.62	472.96	-52.18	-470.07	660393.99	610492.16	32°40'39.688"N	103°56'47.017"W	0.00	
9000.00†	90.430	263.666	8547.87	572.95	-63.21	-569.46	660294.61	610481.13	32°40'39.582"N	103°56'48.180"W	0.00	
9100.00†	90.430	263.666	8547.11	672.95	-74.24	-668.84	660195.23	610470.10	32°40'39.476"N	103°56'49.343"W	0.00	
9200.00†	90.430	263.666	8546.36	772.95	-85.27	-768.23	660095.85	610459.07	32°40'39.371"N	103°56'50.506"W	0.00	
9300.00†	90.430	263.666	8545.61	872.95	-96.30	-867.62	659996.47	610448.04	32°40'39.265"N	103°56'51.670"W	0.00	
9400.00†	90.430	263.666	8544.86	972.94	-107.33	-967.00	659897.09	610437.00	32°40'39.160"N	103°56'52.833"W	0.00	
9500.00†	90.430	263.666	8544.11	1072.94	-118.36	-1066.39	659797.71	610425.97	32°40'39.054"N	103°56'53.996"W	0.00	
9600.00†	90.430	263.666	8543.36	1172.94	-129.40	-1165.78	659698.33	610414.94	32°40'38.948"N	103°56'55.159"W	0.00	
9700.00†	90.430	263.666	8542.61	1272.93	-140.43	-1265.17	659598.95	610403.91	32°40'38.843"N	103°56'56.322"W	0.00	
9800.00†	90.430	263.666	8541.86	1372.93	-151.46	-1364.55	659499.57	610392.88	32°40'38.737"N	103°56'57.485"W	0.00	
9900.00†	90.430	263.666	8541.11	1472.93	-162.49	-1463.94	659400.19	610381.85	32°40'38.632"N	103°56'58.649"W	0.00	
10000.00†	90.430	263.666	8540.36	1572.93	-173.52	-1563.33	659300.81	610370.82	32°40'38.526"N	103°56'59.812"W	0.00	
10100.00†	90.430	263.666	8539.61	1672.92	-184.55	-1662.71	659201.43	610359.79	32°40'38.421"N	103°57'00.975"W	0.00	
10200.00†	90.430	263.666	8538.86	1772.92	-195.59	-1762.10	659102.06	610348.76	32°40'38.315"N	103°57'02.138"W	0.00	
10300.00†	90.430	263.666	8538.11	1872.92	-206.62	-1861.49	659002.68	610337.73	32°40'38.209"N	103°57'03.301"W	0.00	
10400.00†	90.430	263.666	8537.36	1972.92	-217.65	-1960.87	658903.30	610326.70	32°40'38.104"N	103°57'04.465"W	0.00	
10500.00†	90.430	263.666	8536.60	2072.91	-228.68	-2060.26	658803.92	610315.67	32°40'37.998"N	103°57'05.628"W	0.00	
10600.00†	90.430	263.666	8535.85	2172.91	-239.71	-2159.65	658704.54	610304.64	32°40'37.892"N	103°57'06.791"W	0.00	
10700.00†	90.430	263.666	8535.10	2272.91	-250.74	-2259.03	658605.16	610293.61	32°40'37.787"N	103°57'07.954"W	0.00	
10800.00†	90.430	263.666	8534.35	2372.90	-261.77	-2358.42	658505.78	610282.58	32°40'37.681"N	103°57'09.117"W	0.00	
10900.00†	90.430	263.666	8533.60	2472.90	-272.81	-2457.81	658406.40	610271.54	32°40'37.576"N	103°57'10.281"W	0.00	
11000.00†	90.430	263.666	8532.85	2572.90	-283.84	-2557.19	658307.02	610260.51	32°40'37.470"N	103°57'11.444"W	0.00	
11100.00†	90.430	263.666	8532.10	2672.90	-294.87	-2656.58	658207.64	610249.48	32°40'37.364"N	103°57'12.607"W	0.00	
11200.00†	90.430	263.666	8531.35	2772.89	-305.90	-2755.97	658108.26	610238.45	32°40'37.259"N	103°57'13.770"W	0.00	
11300.00†	90.430	263.666	8530.60	2872.89	-316.93	-2855.35	658008.88	610227.42	32°40'37.153"N	103°57'14.933"W	0.00	
11400.00†	90.430	263.666	8529.85	2972.89	-327.96	-2954.74	657909.50	610216.39	32°40'37.047"N	103°57'16.097"W	0.00	
11500.00†	90.430	263.666	8529.10	3072.88	-338.99	-3054.13	657810.13	610205.36	32°40'36.942"N	103°57'17.260"W	0.00	
11600.00†	90.430	263.666	8528.35	3172.88	-350.03	-3153.52	657710.75	610194.33	32°40'36.836"N	103°57'18.423"W	0.00	
11700.00†	90.430	263.666	8527.60	3272.88	-361.06	-3252.90	657611.37	610183.30	32°40'36.731"N	103°57'19.586"W	0.00	
11800.00†	90.430	263.666	8526.85	3372.88	-372.09	-3352.29	657511.99	610172.27	32°40'36.625"N	103°57'20.749"W	0.00	
11900.00†	90.430	263.666	8526.09	3472.87	-383.12	-3451.68	657412.61	610161.24	32°40'36.519"N	103°57'21.912"W	0.00	
12000.00†	90.430	263.666	8525.34	3572.87	-394.15	-3551.06	657313.23	610150.21	32°40'36.414"N	103°57'23.076"W	0.00	
12100.00†	90.430	263.666	8524.59	3672.87	-405.18	-3650.45	657213.85	610139.18	32°40'36.308"N	103°57'24.239"W	0.00	
12200.00†	90.430	263.666	8523.84	3772.86	-416.22	-3749.84	657114.47	610128.15	32°40'36.202"N	103°57'25.402"W	0.00	
12300.00†	90.430	263.666	8523.09	3872.86	-427.25	-3849.22	657015.09	610117.12	32°40'36.097"N	103°57'26.565"W	0.00	
12400.00†	90.430	263.666	8522.34	3972.86	-438.28	-3948.61	656915.71	610106.09	32°40'35.991"N	103°57'27.728"W	0.00	
12500.00†	90.430	263.666	8521.59	4072.86	-449.31	-4048.00	656816.33	610095.05	32°40'35.885"N	103°57'28.892"W	0.00	
12600.00†	90.430	263.666	8520.84	4172.85	-460.34	-4147.38	656716.95	610084.02	32°40'35.780"N	103°57'30.055"W	0.00	
12700.00†	90.430	263.666	8520.09	4272.85	-471.37	-4246.77	656617.57	610072.99	32°40'35.674"N	103°57'31.218"W	0.00	
12800.00†	90.430	263.666	8519.34	4372.85	-482.40	-4346.16	656518.20	610061.96	32°40'35.568"N	103°57'32.381"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 2H PWB
Facility	Crescent Hale 10 Fed No. 2H		

WELLPATH DATA (161 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12900.00†	90.430	263.666	8518.59	4472.84	-493.44	-4445.54	656418.82	610050.93	32°40'35.463"N	103°57'33.544"W	0.00	
13000.00†	90.430	263.666	8517.84	4572.84	-504.47	-4544.93	656319.44	610039.90	32°40'35.357"N	103°57'34.707"W	0.00	
13100.00†	90.430	263.666	8517.09	4672.84	-515.50	-4644.32	656220.06	610028.87	32°40'35.251"N	103°57'35.871"W	0.00	
13200.00†	90.430	263.666	8516.34	4772.84	-526.53	-4743.70	656120.68	610017.84	32°40'35.145"N	103°57'37.034"W	0.00	
13300.00†	90.430	263.666	8515.58	4872.83	-537.56	-4843.09	656021.30	610006.81	32°40'35.040"N	103°57'38.197"W	0.00	
13400.00†	90.430	263.666	8514.83	4972.83	-548.59	-4942.48	655921.92	609995.78	32°40'34.934"N	103°57'39.360"W	0.00	
13500.00†	90.430	263.666	8514.08	5072.83	-559.63	-5041.86	655822.54	609984.75	32°40'34.828"N	103°57'40.523"W	0.00	
13600.00†	90.430	263.666	8513.33	5172.82	-570.66	-5141.25	655723.16	609973.72	32°40'34.723"N	103°57'41.686"W	0.00	
13700.00†	90.430	263.666	8512.58	5272.82	-581.69	-5240.64	655623.78	609962.69	32°40'34.617"N	103°57'42.850"W	0.00	
13800.00†	90.430	263.666	8511.83	5372.82	-592.72	-5340.03	655524.40	609951.66	32°40'34.511"N	103°57'44.013"W	0.00	
13900.00†	90.430	263.666	8511.08	5472.82	-603.75	-5439.41	655425.02	609940.63	32°40'34.406"N	103°57'45.176"W	0.00	
14000.00†	90.430	263.666	8510.33	5572.81	-614.78	-5538.80	655325.64	609929.59	32°40'34.300"N	103°57'46.339"W	0.00	
14100.00†	90.430	263.666	8509.58	5672.81	-625.81	-5638.19	655226.27	609918.56	32°40'34.194"N	103°57'47.502"W	0.00	
14200.00†	90.430	263.666	8508.83	5772.81	-636.85	-5737.57	655126.89	609907.53	32°40'34.088"N	103°57'48.665"W	0.00	
14300.00†	90.430	263.666	8508.08	5872.81	-647.88	-5836.96	655027.51	609896.50	32°40'33.983"N	103°57'49.829"W	0.00	
14400.00†	90.430	263.666	8507.33	5972.80	-658.91	-5936.35	654928.13	609885.47	32°40'33.877"N	103°57'50.992"W	0.00	
14500.00†	90.430	263.666	8506.58	6072.80	-669.94	-6035.73	654828.75	609874.44	32°40'33.771"N	103°57'52.155"W	0.00	
14600.00†	90.430	263.666	8505.83	6172.80	-680.97	-6135.12	654729.37	609863.41	32°40'33.665"N	103°57'53.318"W	0.00	
14700.00†	90.430	263.666	8505.08	6272.79	-692.00	-6234.51	654629.99	609852.38	32°40'33.560"N	103°57'54.481"W	0.00	
14800.00†	90.430	263.666	8504.32	6372.79	-703.03	-6333.89	654530.61	609841.35	32°40'33.454"N	103°57'55.644"W	0.00	
14900.00†	90.430	263.666	8503.57	6472.79	-714.07	-6433.28	654431.23	609830.32	32°40'33.348"N	103°57'56.808"W	0.00	
15000.00†	90.430	263.666	8502.82	6572.79	-725.10	-6532.67	654331.85	609819.29	32°40'33.243"N	103°57'57.971"W	0.00	
15100.00†	90.430	263.666	8502.07	6672.78	-736.13	-6632.05	654232.47	609808.26	32°40'33.137"N	103°57'59.134"W	0.00	
15200.00†	90.430	263.666	8501.32	6772.78	-747.16	-6731.44	654133.09	609797.23	32°40'33.031"N	103°58'00.297"W	0.00	
15300.00†	90.430	263.666	8500.57	6872.78	-758.19	-6830.83	654033.72	609786.20	32°40'32.925"N	103°58'01.460"W	0.00	
15376.04	90.430	263.666	8500.00 ¹	6948.82	-766.58	-6906.40	653958.15	609777.81	32°40'32.845"N	103°58'02.345"W	0.00	No. 2H PBHL

HOLE & CASING SECTIONS - Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim_1									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
15in Open Hole	0.00	500.00	500.00	0.00	500.00	0.00	0.00	0.00	0.00
13.375in Casing	0.00	500.00	500.00	0.00	500.00	0.00	0.00	0.00	0.00
12.25in Open Hole	500.00	3700.00	3200.00	500.00	3700.00	0.00	0.00	0.00	0.00
9.625in Casing	0.00	3700.00	3700.00	0.00	3700.00	0.00	0.00	0.00	0.00
8.75in Open Hole	3700.00	15376.04	11676.04	3700.00	8500.00	0.00	0.00	-766.58	-6906.40
5.5in Casing	0.00	15376.04	15376.04	0.00	8500.00	0.00	0.00	-766.58	-6906.40



Planned Wellpath Report

Prelim_1
Page 6 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 2H PWB
Facility	Crescent Hale 10 Fed No. 2H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No. 2H PBHL	15376.04	8500.00	-766.58	-6906.40	653958.15	609777.81	32°40'32.845"N	103°58'02.345"W	point

SURVEY PROGRAM - Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim_1				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	15376.04	NaviTrak (Standard)		No. 2H PWB

SR & A

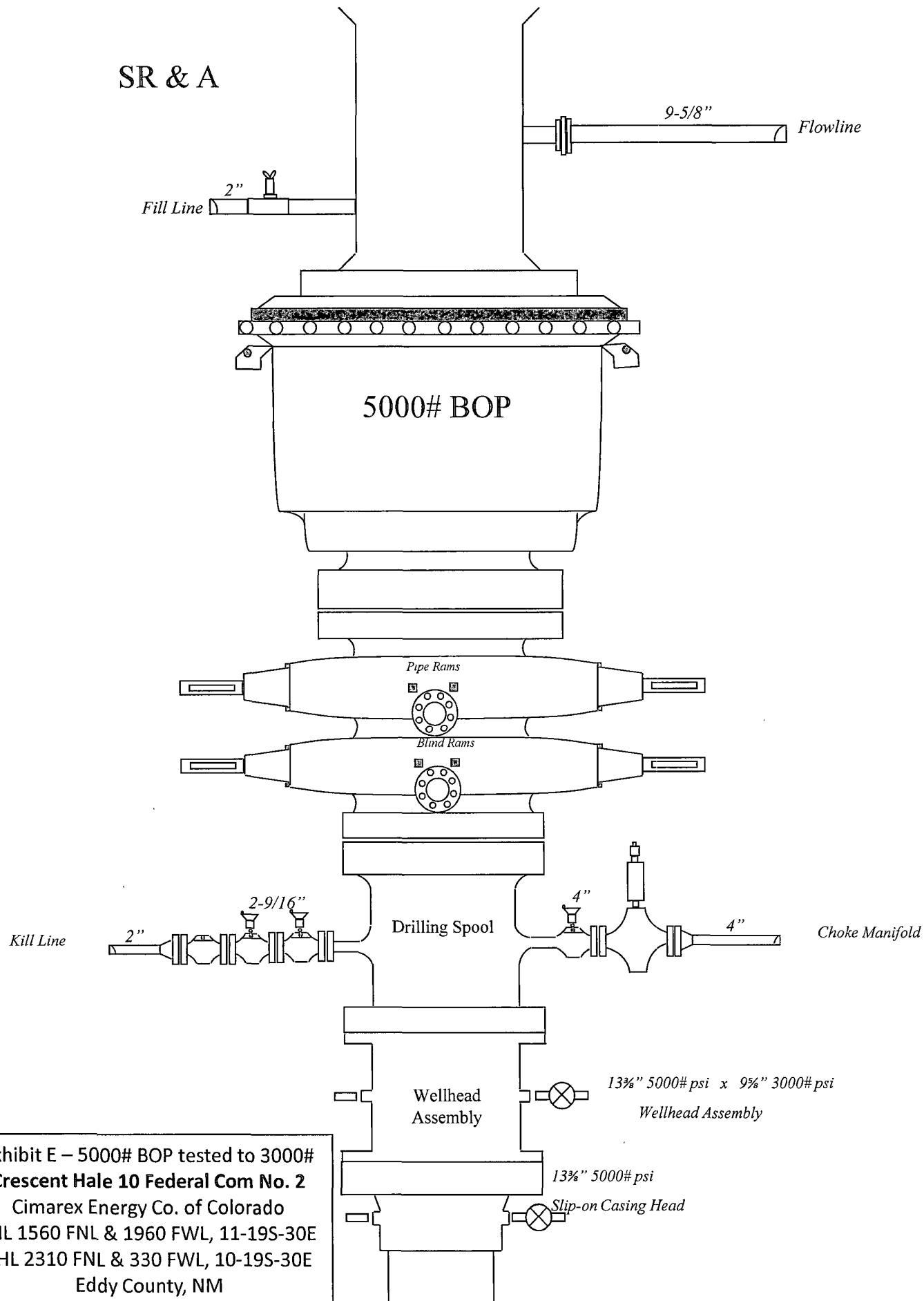
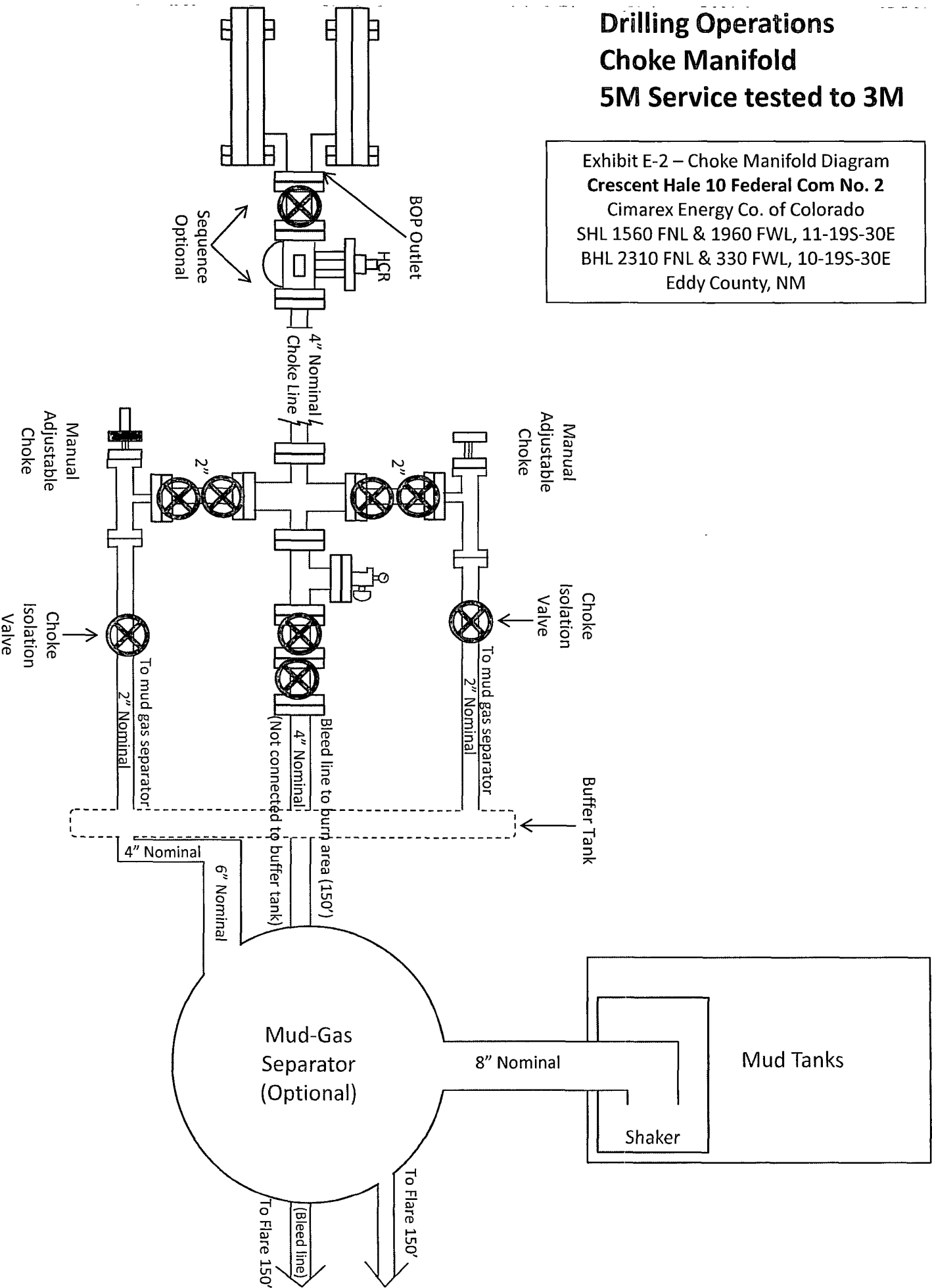


Exhibit E – 5000# BOP tested to 3000#
Crescent Hale 10 Federal Com No. 2
Cimarex Energy Co. of Colorado
SHL 1560 FNL & 1960 FWL, 11-19S-30E
BHL 2310 FNL & 330 FWL, 10-19S-30E
Eddy County, NM

Drilling Operations
Choke Manifold
5M Service tested to 3M

Exhibit E-2 – Choke Manifold Diagram
Crescent Hale 10 Federal Com No. 2
Cimarex Energy Co. of Colorado
SHL 1560 FNL & 1960 FWL, 11-19S-30E
BHL 2310 FNL & 330 FWL, 10-19S-30E
Eddy County, NM



Key 881

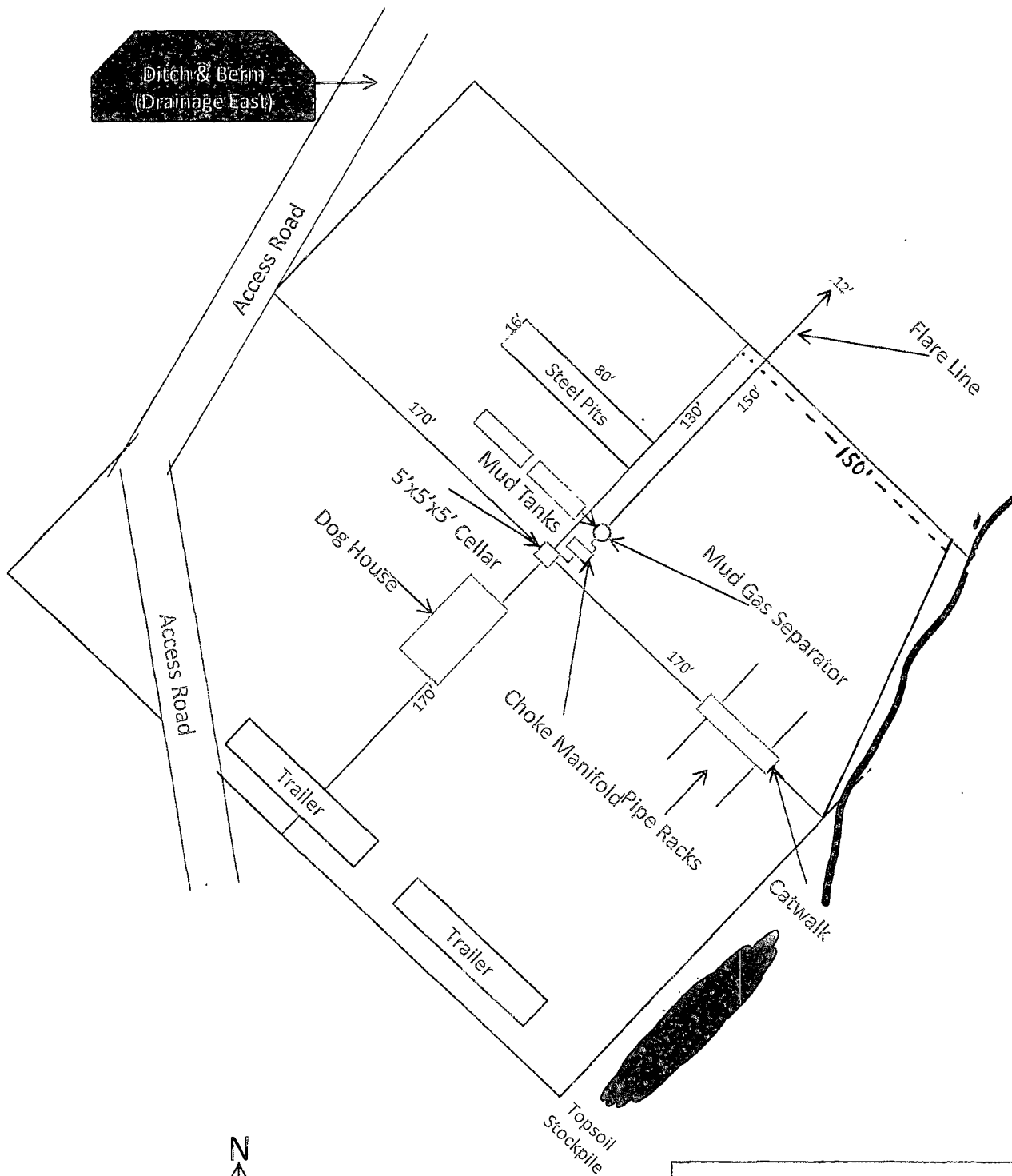


Exhibit D – Rig Diagram
 Crescent Hale 10 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 SHL 1560 FNL & 1960 FWL, 11-19S-30E
 BHL 2310 FNL & 330 FWL, 10-19S-30E
 Eddy County, NM

— drainage

Avoid construction over drainage area. si of.

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S
 - B. Physical effects and hazards
 - C. Proper use of safety equipment and life support systems.
 - D. Principle and operation of H₂S detectors, warning system and briefing areas.
 - E. Evacuation procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
- 2 H₂S Detection and Alarm Systems:
 - A. H₂S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
- 3 Windsock and/or wind streamers:
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock at briefing area should be high enough to be visible.
- 4 Condition Flags and Signs:
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H₂S present in dangerous concentration). Only emergency personnel admitted to location.
- 5 Well control equipment:
 - A. See exhibit "E"
- 6 Communication:
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
- 9 If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

H₂S Contingency Plan
Crescent Hale 10 Federal Com No. 2
Cimarex Energy Co. of Colorado
Unit F, Section 11
T19S-R30E, Eddy County, NM

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H₂S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
 - ◆ Detection of H₂S, and
 - ◆ Measures for protection against the gas,
 - ◆ Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air=1	2 ppm	N/A	1000 ppm

Contacting Authorities

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H₂S Contingency Plan Emergency Contacts
Crescent Hale 10 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 Unit F, Section 11
 T19S-R30E, Eddy County, NM

Company Office

Cimarex Energy Co. of Colorado	800-969-4789
Co. Office and After-Hours Menu	

Key Personnel

Name	Title	Office	Mobile
Doug Park	Drilling Manager	432-620-1934	972-333-1407
Dee Smith	Drilling Super	432-620-1933	972-882-1010
Jim Evans	Drilling Super	432-620-1929	972-465-0564
Roy Shirley	Field Super		432-634-2136

Artesia

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

Santa Fe

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

National

National Emergency Response Center (Washington, D.C.)	800-424-8802
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Medical

Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

Other

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		

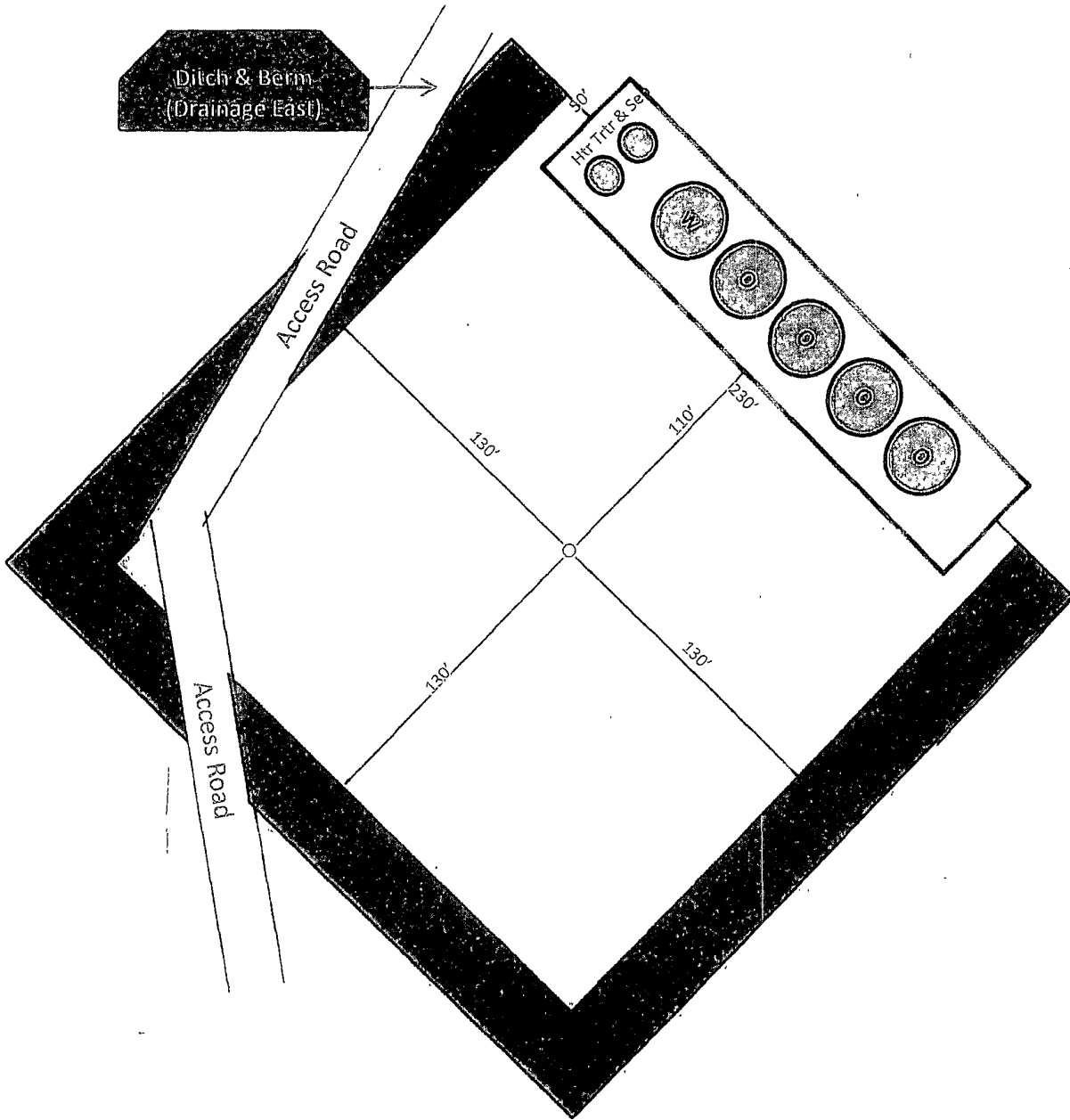
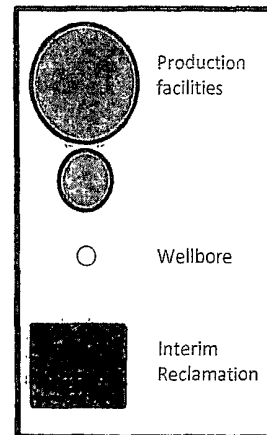


Exhibit D-1
 Production Facilities Layout Diagram
 Crescent Hale 10 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 SHL 1560 FNL & 1960 FWL, 11-19S-30E
 BHL 2310 FNL & 330 FWL, 10-19S-30E
 Eddy County, NM



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY
LEASE NO.:	NM-0560353
WELL NAME & NO.:	CRESCENT HALE 10 FED COM #2
SURFACE HOLE FOOTAGE:	1560' FNL & 1960' FWL
BOTTOM HOLE FOOTAGE:	2310' FNL & 330' FWL (Sec. 10)
LOCATION:	Section 11, T. 19 S., R. 30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**

- Pad restriction
 - Berming
 - Hackberry OHV
 - Communitization Agreement

- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads

- ☐ **Road Section Diagram**

- ☒ **Drilling**
 - H₂S – Onshore Order #6
 - Secretary's Potash
 - Logging requirements
 - Waste Material and Fluids

- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines

- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Pad restriction

Avoid drainage approximately 150 feet east of center hole

Berming

Construct berm on north side of pad to divert water into drainage on east side of pad

Line drainage on east side of pad with rock to prevent further erosion.

Hackberry OHV

Pipelines shall be buried a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. If trails need to be re-located around the edge of the pad, this will be done at the company's expense. Power poles and associated ground structures (guide wires) will not be placed within 20 feet of recreation trails. Guide wires must be equipped with a sleeve, tape or other industry approved apparatus that is highly visible during the day and reflective at night. Appropriate safety signage will be in place during all phases of the project. Upon completion of construction, the road shall be returned to pre-construction condition with no bumps or dips. All vehicle and equipment operators will observe speed limits and practice responsible defensive driving habits.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-6235 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 4 inches in depth. The topsoil will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty (20) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

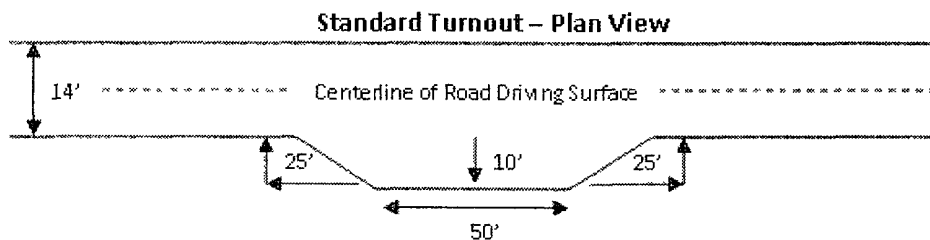
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

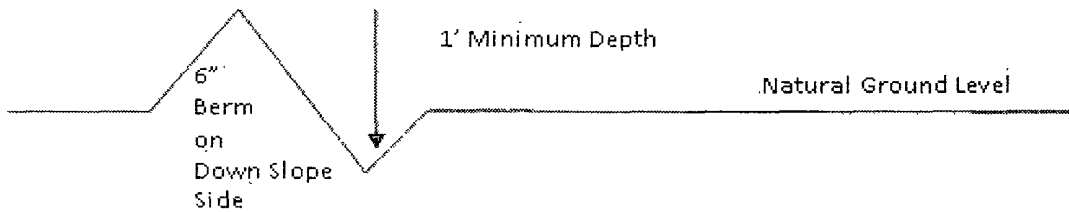


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and inslaping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

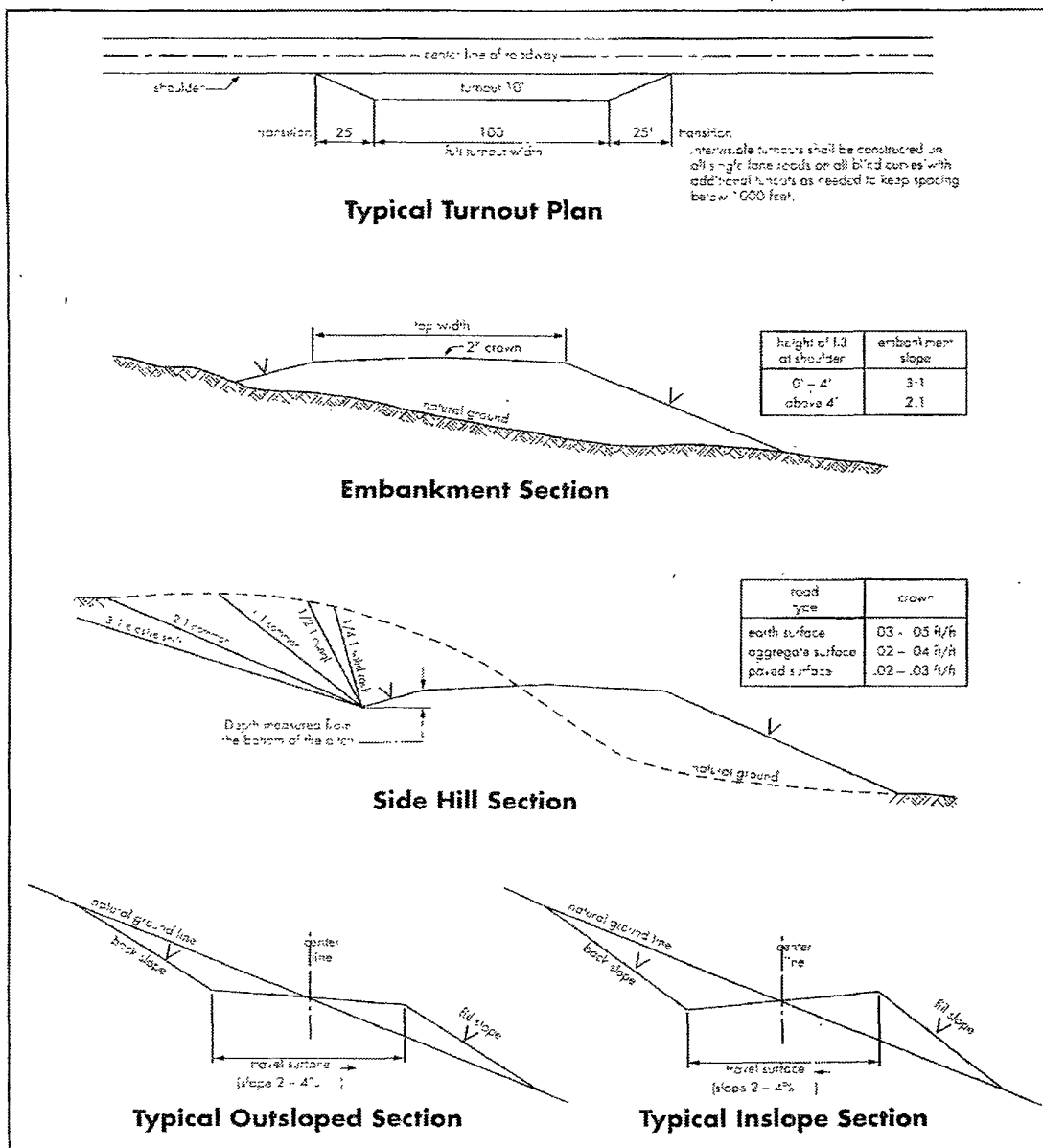
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. **Due to recent H₂S encounters in the salt formation, it is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide prior to drilling out the surface shoe. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**
2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. 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.
4. **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.**

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

Secretary's Potash

Possible brine and water flows in the Artesia and Salado Groups.

Possible lost circulation in the Capitan Reef (if encountered) and the Artesia Group.

1. The 13-3/8 inch surface casing shall be set at **approximately 475 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 is to include the lead cement slurry.**
 - 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 9-5/8 inch intermediate casing is:
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every third joint unless lateral doglegs require greater spacing between centralizers.

3. The minimum required fill of cement behind the 7 X 5-1/2 inch production casing is:

☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

4. 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.

C. 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. 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. Operator installing a 5M but testing as a 3M.**

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. 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.

b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) prior to initiating the test.

c. The results of the test shall be reported to the appropriate BLM office.

d. 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.**

- e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES (not applied for in APD)

C. ELECTRIC LINES (not applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed