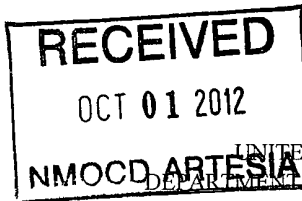


ATS-12-785

OCD-ARTESIA

Form 3160-3
(April 2004)



R-111-POTASH

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of Work ☒ DRILL ☐ REENTER		5 Lease Serial No NM-0560353	
1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6 If Indian, Allottee or Tribe Name TCS 10/10/2012	
2 Name of Operator Cimarex Energy Co. of Colorado		7 If Unit or CA Agreement, Name and No.	
3a Address 600 N. Marienfeld St., Ste. 600; Midland, TX 79701		8 Lease Name and Well No Crescent Hale 10 Federal #3H <39015>	
3b Phone No (include area code) 432-571-7800		9 API Well No 30-015- 90784	
4 Location of Well (Report location clearly and in accordance with any State requirements *) At Surface 11-19S-30E 2250 FSL & 2025 FWL At proposed prod Zone 10-19S-30E 1980 FSL & 330 FWL Horizontal Bone Spring Test		10 Field and Pool, or Exploratory Hackberry, Bone Spring NW <92020>	
14 Distance in miles and direction from nearest town or post office*		11 Sec., T. R. M. or Blk and Survey or Area 10 & 11, 19S-30E	
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line if any) 330'		12 County or Parish Eddy	
16 No of acres in lease 2160.32		13 State NM	
17 Spacing Unit dedicated to this well N2S2 160 acres			
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 148'			
19 Proposed Depth MD 15293 TVD 8520		20 BLM/BIA Bond No on File NM-2575	
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3354' GR		22 Approximate date work will start* 8.15.12	
		23 Estimated duration 30-35 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 5.29.12
Title Manager Operations Administration		
Approved By (Signature) <i>/s/ Arden L Seidlitz</i>	Name (Printed/Typed)	Date SEP 24 2012
Title STATE DIRECTOR	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.S. 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)

NMOC: Must be in compliance w/ Rule 5.9 prior to placing well on prod.

Capitan Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

DISTRICT I
1025 N. French Dr., Hobbs, NM 88240
DISTRICT II
1501 V. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised July 16, 2010

Submit one copy to appropriate
District Office

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-40784	Pool Code 97020	Pool Name Hackberry; Bone Spring NW
Property Code 39015	Property Name CRESCENT HALE "10" FEDERAL	Well Number 3H
GRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3354'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	11	19 S	30 E		2250	SOUTH	2025	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
L	10	19 S	30 E		1980	SOUTH	330	WEST	EDDY

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

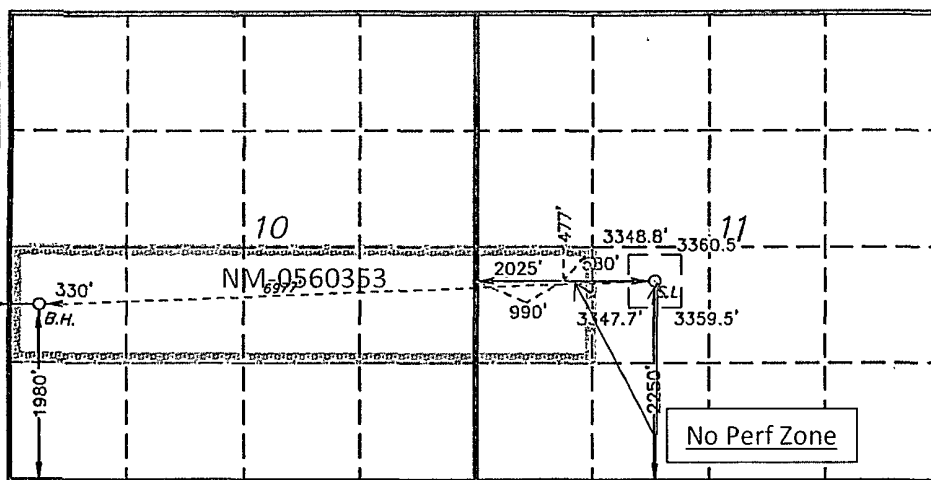
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

PROPOSED BOTTOM
HOLE LOCATION

Lat - N 32°40'23.10"
Long - W 103°58'02.34"
NMSPC- N 608792.577
E 653961.869
(NAD-83)

SURFACE LOCATION

Lat - N 32°40'25.66"
Long - W 103°56'40.77"
NMSPC- N 609076.065
E 660933.135
(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 5-29-12

Signature Date

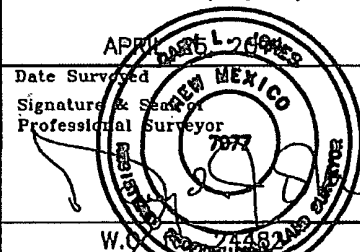
Zeno Farris

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.



Certificate No. Gary L. Jones 7977

Basin Surveys 24482

Operator Certification Statement
Crescent Hale "10" Federal #3H
Cimarex Energy Co. of Colorado
Unit K, 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 29th day of May, 2012

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

Drilling Plan
Crescent Hale "10" Federal #3H
Cimarex Energy Co. of Colorado
Unit K, 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 2250 FSL & 2025 FWL
BHL 10-19S-30E 1980 FSL & 330 FWL
- 2 **Elevation above sea level:** 3354 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 15293 TVD 8520
- 6 **Estimated tops of geological markers:**

Rustler	380
T. Salt	600
B. Salt	1850
Yates	2035
7 Rivers	2250
Capitan	3790
Delaware	4250
Bone Spring	6075
1st Bone Spring	7550
2nd Bone Spring	8370
- 7 **Possible mineral bearing formations:**
Bone Spring Oil

8 **Proposed Mud Circulating System:**

See LOA

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 500'	8.4 - 8.6	28	NC	FW
500' to 2000'	10.0	30-32	NC	Brine water
2000' to 4000'	8.4	30-32	NC	2% KCL

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.

Proposed Drilling Plan

After setting surface & intermediate csg, drill 7-7/8" hole to KOP @ 8043 & kick off to drill and drill through the curve to lateral TD @ 15376' MD, 8520' TVD. Run 5-1/2" csg to TD.

15293' per directional plan

Drilling Plan
Crescent Hale "10" Federal #3H
 Cimarex Energy Co. of Colorado
 Unit K, Section 11
 T19S-R30E; Eddy County, NM

9 Casing & Cementing Program:

See COA

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
Surface 1	20"	0' to 500'	New 16"	65#	STC	H-40
Surface 2	14 3/4"	0' to 2000'	New 11 3/4"	47#	STC	J/K-55
Intermediate	10 5/8"	0' to 4000'	New 8 5/8"	32#	STC	J-55
Production	7 7/8"	0' to 15293'	New 5 1/2"	17#	LTC/BTC	P-110

10 Cementing:

Surface

Lead: 350SKS EconoCemC + 4% Bentomite + 2% CaCl 13.5 ppg 1.75 yield 100% Excess
 Tail: 250SKS HalCem + 1% CaCl 14.2ppg 1.34 yield 25% Excess
TOC Surface Centralizers per Onshorder 2.III.B.1.f

Surface 2

Lead: 650SKS EconoCem + 5% salt + 5 lbm gilsonite 12.9ppg 1.88 yield 100% Excess
 Tail: 175SKS HalCem + 1% CaCl 14.2ppg 1.34 yield 25% Excess
TOC Surface

Intermediate

Lead: 625SKS EconoCem + 5% salt + 5lbm gilsonite 14.6ppg 1.54 yield 70% Excess
 Tail: 200SKS HalCem + 1% CaCl 14.8ppg 1.34 yield 25% Excess

TOC Surface

Centralizers every 3rd joint through the curve or legal location hardline to provide adequate cement coverage every 100' unless hole conditions require greater spacing

Production

Lead: 430SKS EconoCem - H + 0.2% HR-601 11.9ppg 2.44 yield 50% Excess
 Tail: 320730SKS Versacem - H + 0.5% Halad®-344 + 0.4% CFR-3 + 1 lbm/sk salt + 0.1% HR-601 14.5ppg 1.22 yield 25% excess

TOC 3500

Centralizers ever 2nd joint in curve to provide adequate cement coverage every 100'

Depth to ground water is 142' according to the State Engineer. Fresh water zones will be protected by setting 13 3/8" casing at 500' and cementing to surface and 9 5/8" casing at 400' and cementing to surface. Hydrocarbon zones will be protected by setting 5 1/2" casing at 15293' and cementing to surface.

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

11 Pressure control Equipment:

** See COA*
 Exhibit "E". A 13 3/8" 5000 psi working pressure BOP system 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 as needed. 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 available if drilling in H2S areas.

From base of 16" csg => See COA

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 13 3/8" casing through the running of production casing, the well will be equipped with a 5000 psi BOP system tested to 3000 psi.

11 3/4" See COA
 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.

Drilling Plan
Crescent Hale "10" Federal #3H
Cimarex Energy Co. of Colorado
Unit K, Section 11
T19S-R30E; Eddy County, NM

12 Testing, Logging and Coring Program:

** See COA*

- A. Mud logging program: 2 man unit from 4000' to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR Surface to TD
- 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** 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 potentialized as **an oil well.**



Cimarex Energy Co.

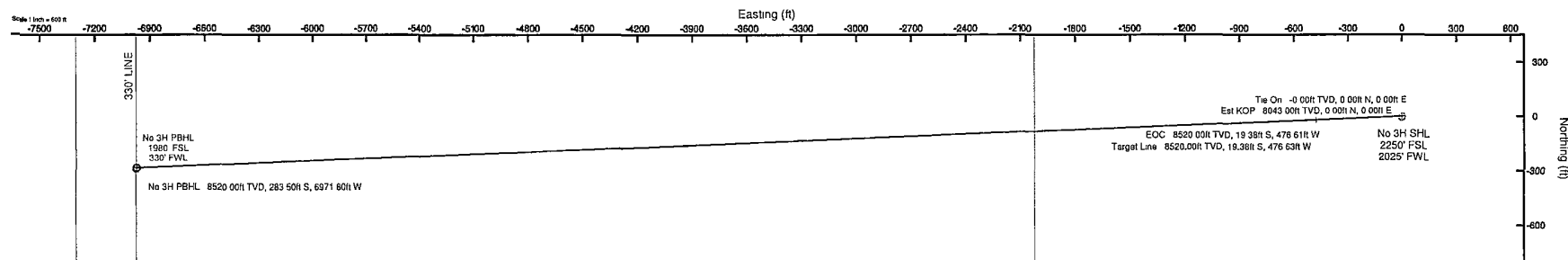
Location Eddy County, NM
Field (Crescent) Sec 10 & 11, T19S, R30E
Facility Crescent Hale 10 Fed No. 3H

Slot: No.3H SHL
Well: No.3H
Wellbore No.3H PWB

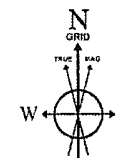


Well Profile Data

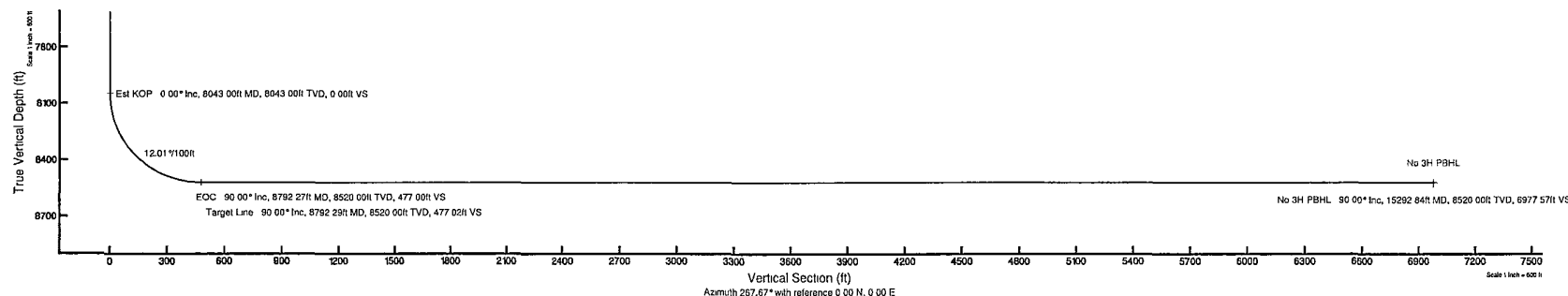
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	267.671	0.00	0.00	0.00	0.00	0.00
Est KOP	8043.00	0.000	267.671	8043.00	0.00	0.00	0.00	0.00
EOC	8792.27	90.000	267.671	8520.00	-19.38	-476.61	12.01	477.00
Target Line	8792.29	90.000	267.671	8520.00	-19.38	-476.63	2.00	477.02
No.3H PBHL	15292.84	90.000	267.671	8520.00	-283.50	-6971.80	0.00	6977.57



Plot reference wellpath is Prelim_1	
True vertical depths are referenced to Rig on No 3H SHL (RT)	Grid System NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No 3H SHL (RT)	North Reference Grid north
Rig on No 3H SHL (RT) to Mean Sea Level 3354 feet	Scale True distance
Mean Sea Level to Mud line (At Slot No 3H SHL) -3354 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by genitry on 2/29/2012



BGGM (1945 0 to 2013 0) Dip 60.49° Field 48790.2 nT
Magnetic North is 7.79 degrees East of True North (at 2/29/2012)
Grid North is 0.21 degrees East of True North
To correct azimuth from True to Grid subtract 0.21 degrees
To correct azimuth from Magnetic to Grid add 7.59 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.59 = 97.59





Planned Wellpath Report

Prelim_1
Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.3H SHL
Area	Eddy County, NM	Well	No.3H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No.3H PWB
Facility	Crescent Hale 10 Fed No. 3H		

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	Gentbry
Scale	0.999925	Report Generated	2/29/2012 at 11:50:12 AM
Convergence at slot	0.21° East	Database/Source file	WA Midland/No.3H_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	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W
Facility Reference Pt			660933.14	609076.06	32°40'25.656"N	103°56'40.769"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.3H SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on No.3H SHL (RT) to Mean Sea Level	3354.00ft
Vertical Reference Pt	Rig on No.3H SHL (RT)	Rig on No.3H SHL (RT) to Mud Line at Slot (No.3H SHL)	0.00ft
MD Reference Pt	Rig on No.3H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	267.67°



Planned Wellpath Report

Prelim_1
Page 2 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.3H SHL
Area	Eddy County, NM	Well	No.3H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No.3H PWB
Facility	Crescent Hale 10 Fed No. 3H		

WELLPATH DATA (162 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	267.671	0.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	Tie On
100.00†	0.000	267.671	100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
200.00†	0.000	267.671	200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
300.00†	0.000	267.671	300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
400.00†	0.000	267.671	400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
500.00†	0.000	267.671	500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
600.00†	0.000	267.671	600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	Top Salt
700.00†	0.000	267.671	700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
800.00†	0.000	267.671	800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
900.00†	0.000	267.671	900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1000.00†	0.000	267.671	1000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1100.00†	0.000	267.671	1100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1200.00†	0.000	267.671	1200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1300.00†	0.000	267.671	1300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1400.00†	0.000	267.671	1400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1500.00†	0.000	267.671	1500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1600.00†	0.000	267.671	1600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1700.00†	0.000	267.671	1700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1800.00†	0.000	267.671	1800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
1850.00†	0.000	267.671	1850.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	Base of Salt
1900.00†	0.000	267.671	1900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2000.00†	0.000	267.671	2000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2100.00†	0.000	267.671	2100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2200.00†	0.000	267.671	2200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2300.00†	0.000	267.671	2300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2400.00†	0.000	267.671	2400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2500.00†	0.000	267.671	2500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2600.00†	0.000	267.671	2600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2700.00†	0.000	267.671	2700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2800.00†	0.000	267.671	2800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
2900.00†	0.000	267.671	2900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3000.00†	0.000	267.671	3000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3100.00†	0.000	267.671	3100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3200.00†	0.000	267.671	3200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3300.00†	0.000	267.671	3300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3400.00†	0.000	267.671	3400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3500.00†	0.000	267.671	3500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3600.00†	0.000	267.671	3600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3700.00†	0.000	267.671	3700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3800.00†	0.000	267.671	3800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
3900.00†	0.000	267.671	3900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4000.00†	0.000	267.671	4000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4100.00†	0.000	267.671	4100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4200.00†	0.000	267.671	4200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4250.00†	0.000	267.671	4250.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	Delaware Sands



Planned Wellpath Report

Prelim_1
Page 3 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.3H SHL
Area	Eddy County, NM	Well	No.3H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No.3H PWB
Facility	Crescent Hale 10 Fed No. 3H		

WELLPATH DATA (162 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
4300.00†	0.000	267.671	4300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4400.00†	0.000	267.671	4400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4500.00†	0.000	267.671	4500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4600.00†	0.000	267.671	4600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4700.00†	0.000	267.671	4700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4800.00†	0.000	267.671	4800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
4900.00†	0.000	267.671	4900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5000.00†	0.000	267.671	5000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5100.00†	0.000	267.671	5100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5200.00†	0.000	267.671	5200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5300.00†	0.000	267.671	5300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5400.00†	0.000	267.671	5400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5500.00†	0.000	267.671	5500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5600.00†	0.000	267.671	5600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5700.00†	0.000	267.671	5700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5800.00†	0.000	267.671	5800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
5900.00†	0.000	267.671	5900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6000.00†	0.000	267.671	6000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6100.00†	0.000	267.671	6100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6150.00†	0.000	267.671	6150.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	Bone Spring
6200.00†	0.000	267.671	6200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6300.00†	0.000	267.671	6300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6400.00†	0.000	267.671	6400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6500.00†	0.000	267.671	6500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6600.00†	0.000	267.671	6600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6700.00†	0.000	267.671	6700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6800.00†	0.000	267.671	6800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
6900.00†	0.000	267.671	6900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7000.00†	0.000	267.671	7000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7100.00†	0.000	267.671	7100.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7200.00†	0.000	267.671	7200.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7300.00†	0.000	267.671	7300.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7400.00†	0.000	267.671	7400.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7500.00†	0.000	267.671	7500.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7550.00†	0.000	267.671	7550.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	1st Bone Spring
7600.00†	0.000	267.671	7600.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7700.00†	0.000	267.671	7700.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7800.00†	0.000	267.671	7800.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
7900.00†	0.000	267.671	7900.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
8000.00†	0.000	267.671	8000.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	
8043.00	0.000	267.671	8043.00	0.00	0.00	0.00	660933.14	609076.06	32°40'25.656"N	103°56'40.769"W	0.00	Est KOP
8100.00†	6.847	267.671	8099.86	3.40	-0.14	-3.40	660929.74	609075.92	32°40'25.654"N	103°56'40.809"W	12.01	
8200.00†	18.858	267.671	8197.18	25.61	-1.04	-25.58	660907.56	609075.02	32°40'25.646"N	103°56'41.069"W	12.01	
8300.00†	30.870	267.671	8287.75	67.58	-2.75	-67.52	660865.63	609073.31	32°40'25.631"N	103°56'41.559"W	12.01	
8400.00†	42.882	267.671	8367.59	127.47	-5.18	-127.37	660805.78	609070.88	32°40'25.609"N	103°56'42.260"W	12.01	



Planned Wellpath Report

Prelim_1
Page 4 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.3H SHL
Area	Eddy County, NM	Well	No.3H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No.3H PWB
Facility	Crescent Hale 10 Fed No. 3H		

WELLPATH DATA (162 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
8403.30†	43.278	267.671	8370.00	129.72	-5.27	-129.62	660803.53	609070.79	32°40'25.608"N	103°56'42.286"W	12.01	2nd Bone Spring
8500.00†	54.893	267.671	8433.23	202.68	-8.24	-202.51	660730.65	609067.82	32°40'25.581"N	103°56'43.139"W	12.01	
8600.00†	66.905	267.671	8481.77	289.89	-11.78	-289.66	660643.51	609064.28	32°40'25.549"N	103°56'44.158"W	12.01	
8700.00†	78.917	267.671	8511.10	385.30	-15.66	-384.99	660548.18	609060.40	32°40'25.515"N	103°56'45.274"W	12.01	
8792.27	90.000	267.671	8520.00	477.00	-19.38	-476.61	660456.57	609056.68	32°40'25.481"N	103°56'46.346"W	12.01	EOC
8792.29	90.000	267.671	8520.00	477.02	-19.38	-476.63	660456.55	609056.68	32°40'25.481"N	103°56'46.346"W	2.00	Target Line
8800.00†	90.000	267.671	8520.00	484.73	-19.70	-484.33	660448.85	609056.36	32°40'25.478"N	103°56'46.436"W	0.00	
8900.00†	90.000	267.671	8520.00	584.73	-23.76	-584.25	660348.94	609052.30	32°40'25.442"N	103°56'47.605"W	0.00	
9000.00†	90.000	267.671	8520.00	684.73	-27.82	-684.16	660249.03	609048.24	32°40'25.405"N	103°56'48.774"W	0.00	
9100.00†	90.000	267.671	8520.00	784.73	-31.89	-784.08	660149.12	609044.18	32°40'25.368"N	103°56'49.943"W	0.00	
9200.00†	90.000	267.671	8520.00	884.73	-35.95	-884.00	660049.21	609040.11	32°40'25.332"N	103°56'51.112"W	0.00	
9300.00†	90.000	267.671	8520.00	984.73	-40.01	-983.92	659949.30	609036.05	32°40'25.295"N	103°56'52.281"W	0.00	
9400.00†	90.000	267.671	8520.00	1084.73	-44.08	-1083.83	659849.39	609031.99	32°40'25.259"N	103°56'53.450"W	0.00	
9500.00†	90.000	267.671	8520.00	1184.73	-48.14	-1183.75	659749.48	609027.92	32°40'25.222"N	103°56'54.620"W	0.00	
9600.00†	90.000	267.671	8520.00	1284.73	-52.20	-1283.67	659649.57	609023.86	32°40'25.185"N	103°56'55.789"W	0.00	
9700.00†	90.000	267.671	8520.00	1384.73	-56.27	-1383.59	659549.66	609019.80	32°40'25.149"N	103°56'56.958"W	0.00	
9800.00†	90.000	267.671	8520.00	1484.73	-60.33	-1483.50	659449.75	609015.74	32°40'25.112"N	103°56'58.127"W	0.00	
9900.00†	90.000	267.671	8520.00	1584.73	-64.39	-1583.42	659349.84	609011.67	32°40'25.075"N	103°56'59.296"W	0.00	
10000.00†	90.000	267.671	8520.00	1684.73	-68.45	-1683.34	659249.93	609007.61	32°40'25.039"N	103°57'00.465"W	0.00	
10100.00†	90.000	267.671	8520.00	1784.73	-72.52	-1783.26	659150.02	609003.55	32°40'25.002"N	103°57'01.634"W	0.00	
10200.00†	90.000	267.671	8520.00	1884.73	-76.58	-1883.17	659050.11	608999.49	32°40'24.966"N	103°57'02.803"W	0.00	
10300.00†	90.000	267.671	8520.00	1984.73	-80.64	-1983.09	658950.20	608995.42	32°40'24.929"N	103°57'03.972"W	0.00	
10400.00†	90.000	267.671	8520.00	2084.73	-84.71	-2083.01	658850.29	608991.36	32°40'24.892"N	103°57'05.141"W	0.00	
10500.00†	90.000	267.671	8520.00	2184.73	-88.77	-2182.93	658750.38	608987.30	32°40'24.856"N	103°57'06.310"W	0.00	
10600.00†	90.000	267.671	8520.00	2284.73	-92.83	-2282.84	658650.47	608983.23	32°40'24.819"N	103°57'07.479"W	0.00	
10700.00†	90.000	267.671	8520.00	2384.73	-96.90	-2382.76	658550.56	608979.17	32°40'24.782"N	103°57'08.648"W	0.00	
10800.00†	90.000	267.671	8520.00	2484.73	-100.96	-2482.68	658450.65	608975.11	32°40'24.746"N	103°57'09.817"W	0.00	
10900.00†	90.000	267.671	8520.00	2584.73	-105.02	-2582.60	658350.74	608971.05	32°40'24.709"N	103°57'10.986"W	0.00	
11000.00†	90.000	267.671	8520.00	2684.73	-109.09	-2682.51	658250.83	608966.98	32°40'24.672"N	103°57'12.155"W	0.00	
11100.00†	90.000	267.671	8520.00	2784.73	-113.15	-2782.43	658150.92	608962.92	32°40'24.636"N	103°57'13.324"W	0.00	
11200.00†	90.000	267.671	8520.00	2884.73	-117.21	-2882.35	658051.01	608958.86	32°40'24.599"N	103°57'14.494"W	0.00	
11300.00†	90.000	267.671	8520.00	2984.73	-121.27	-2982.27	657951.10	608954.80	32°40'24.562"N	103°57'15.663"W	0.00	
11400.00†	90.000	267.671	8520.00	3084.73	-125.34	-3082.18	657851.19	608950.73	32°40'24.526"N	103°57'16.832"W	0.00	
11500.00†	90.000	267.671	8520.00	3184.73	-129.40	-3182.10	657751.28	608946.67	32°40'24.489"N	103°57'18.001"W	0.00	
11600.00†	90.000	267.671	8520.00	3284.73	-133.46	-3282.02	657651.37	608942.61	32°40'24.452"N	103°57'19.170"W	0.00	
11700.00†	90.000	267.671	8520.00	3384.73	-137.53	-3381.94	657551.46	608938.54	32°40'24.416"N	103°57'20.339"W	0.00	
11800.00†	90.000	267.671	8520.00	3484.73	-141.59	-3481.85	657451.55	608934.48	32°40'24.379"N	103°57'21.508"W	0.00	
11900.00†	90.000	267.671	8520.00	3584.73	-145.65	-3581.77	657351.64	608930.42	32°40'24.342"N	103°57'22.677"W	0.00	
12000.00†	90.000	267.671	8520.00	3684.73	-149.72	-3681.69	657251.73	608926.36	32°40'24.306"N	103°57'23.846"W	0.00	
12100.00†	90.000	267.671	8520.00	3784.73	-153.78	-3781.60	657151.82	608922.29	32°40'24.269"N	103°57'25.015"W	0.00	
12200.00†	90.000	267.671	8520.00	3884.73	-157.84	-3881.52	657051.91	608918.23	32°40'24.232"N	103°57'26.184"W	0.00	
12300.00†	90.000	267.671	8520.00	3984.73	-161.90	-3981.44	656952.01	608914.17	32°40'24.195"N	103°57'27.353"W	0.00	
12400.00†	90.000	267.671	8520.00	4084.73	-165.97	-4081.36	656852.10	608910.11	32°40'24.159"N	103°57'28.522"W	0.00	
12500.00†	90.000	267.671	8520.00	4184.73	-170.03	-4181.27	656752.19	608906.04	32°40'24.122"N	103°57'29.691"W	0.00	
12600.00†	90.000	267.671	8520.00	4284.73	-174.09	-4281.19	656652.28	608901.98	32°40'24.085"N	103°57'30.860"W	0.00	



Planned Wellpath Report

Prelim_1
Page 5 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.3H SHL
Area	Eddy County, NM	Well	No.3H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No.3H PWB
Facility	Crescent Hale 10 Fed No. 3H		

WELLPATH DATA (162 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
12700.00†	90.000	267.671	8520.00	4384.73	-178.16	-4381.11	656552.37	608897.92	32°40'24.049"N	103°57'32.029"W	0.00	
12800.00†	90.000	267.671	8520.00	4484.73	-182.22	-4481.03	656452.46	608893.85	32°40'24.012"N	103°57'33.198"W	0.00	
12900.00†	90.000	267.671	8520.00	4584.73	-186.28	-4580.94	656352.55	608889.79	32°40'23.975"N	103°57'34.367"W	0.00	
13000.00†	90.000	267.671	8520.00	4684.73	-190.35	-4680.86	656252.64	608885.73	32°40'23.938"N	103°57'35.536"W	0.00	
13100.00†	90.000	267.671	8520.00	4784.73	-194.41	-4780.78	656152.73	608881.67	32°40'23.902"N	103°57'36.706"W	0.00	
13200.00†	90.000	267.671	8520.00	4884.73	-198.47	-4880.70	656052.82	608877.60	32°40'23.865"N	103°57'37.875"W	0.00	
13300.00†	90.000	267.671	8520.00	4984.73	-202.53	-4980.61	655952.91	608873.54	32°40'23.828"N	103°57'39.044"W	0.00	
13400.00†	90.000	267.671	8520.00	5084.73	-206.60	-5080.53	655853.00	608869.48	32°40'23.792"N	103°57'40.213"W	0.00	
13500.00†	90.000	267.671	8520.00	5184.73	-210.66	-5180.45	655753.09	608865.42	32°40'23.755"N	103°57'41.382"W	0.00	
13600.00†	90.000	267.671	8520.00	5284.73	-214.72	-5280.37	655653.18	608861.35	32°40'23.718"N	103°57'42.551"W	0.00	
13700.00†	90.000	267.671	8520.00	5384.73	-218.79	-5380.28	655553.27	608857.29	32°40'23.681"N	103°57'43.720"W	0.00	
13800.00†	90.000	267.671	8520.00	5484.73	-222.85	-5480.20	655453.36	608853.23	32°40'23.645"N	103°57'44.889"W	0.00	
13900.00†	90.000	267.671	8520.00	5584.73	-226.91	-5580.12	655353.45	608849.16	32°40'23.608"N	103°57'46.058"W	0.00	
14000.00†	90.000	267.671	8520.00	5684.73	-230.98	-5680.04	655253.54	608845.10	32°40'23.571"N	103°57'47.227"W	0.00	
14100.00†	90.000	267.671	8520.00	5784.73	-235.04	-5779.95	655153.63	608841.04	32°40'23.534"N	103°57'48.396"W	0.00	
14200.00†	90.000	267.671	8520.00	5884.73	-239.10	-5879.87	655053.72	608836.98	32°40'23.498"N	103°57'49.565"W	0.00	
14300.00†	90.000	267.671	8520.00	5984.73	-243.17	-5979.79	654953.81	608832.91	32°40'23.461"N	103°57'50.734"W	0.00	
14400.00†	90.000	267.671	8520.00	6084.73	-247.23	-6079.71	654853.90	608828.85	32°40'23.424"N	103°57'51.903"W	0.00	
14500.00†	90.000	267.671	8520.00	6184.73	-251.29	-6179.62	654753.99	608824.79	32°40'23.387"N	103°57'53.072"W	0.00	
14600.00†	90.000	267.671	8520.00	6284.73	-255.35	-6279.54	654654.08	608820.73	32°40'23.351"N	103°57'54.241"W	0.00	
14700.00†	90.000	267.671	8520.00	6384.73	-259.42	-6379.46	654554.17	608816.66	32°40'23.314"N	103°57'55.410"W	0.00	
14800.00†	90.000	267.671	8520.00	6484.73	-263.48	-6479.38	654454.26	608812.60	32°40'23.277"N	103°57'56.579"W	0.00	
14900.00†	90.000	267.671	8520.00	6584.73	-267.54	-6579.29	654354.35	608808.54	32°40'23.240"N	103°57'57.748"W	0.00	
15000.00†	90.000	267.671	8520.00	6684.73	-271.61	-6679.21	654254.44	608804.47	32°40'23.203"N	103°57'58.917"W	0.00	
15100.00†	90.000	267.671	8520.00	6784.73	-275.67	-6779.13	654154.53	608800.41	32°40'23.167"N	103°58'00.087"W	0.00	
15200.00†	90.000	267.671	8520.00	6884.73	-279.73	-6879.04	654054.62	608796.35	32°40'23.130"N	103°58'01.256"W	0.00	
15292.84	90.000	267.671	8520.00†	6977.57	-283.50	-6971.80	653961.87	608792.58	32°40'23.096"N	103°58'02.341"W	0.00	No.3H PBHL



Planned Wellpath Report

Prelim_1
Page 6 of 6



REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.3H SHL
Area	Eddy County, NM	Well	No.3H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No.3H PWB
Facility	Crescent Hale 10 Fed No. 3H		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No.3H PBHL	15292.84	8520.00	-283.50	-6971.80	653961.87	608792.58	32°40'23.096"N	103°58'02.341"W	point

SURVEY PROGRAM - Ref Wellbore: No.3H PWB Ref Wellpath: Prelim_1

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	15374.81	NaviTrak (Standard)		No.3H PWB

SR & A

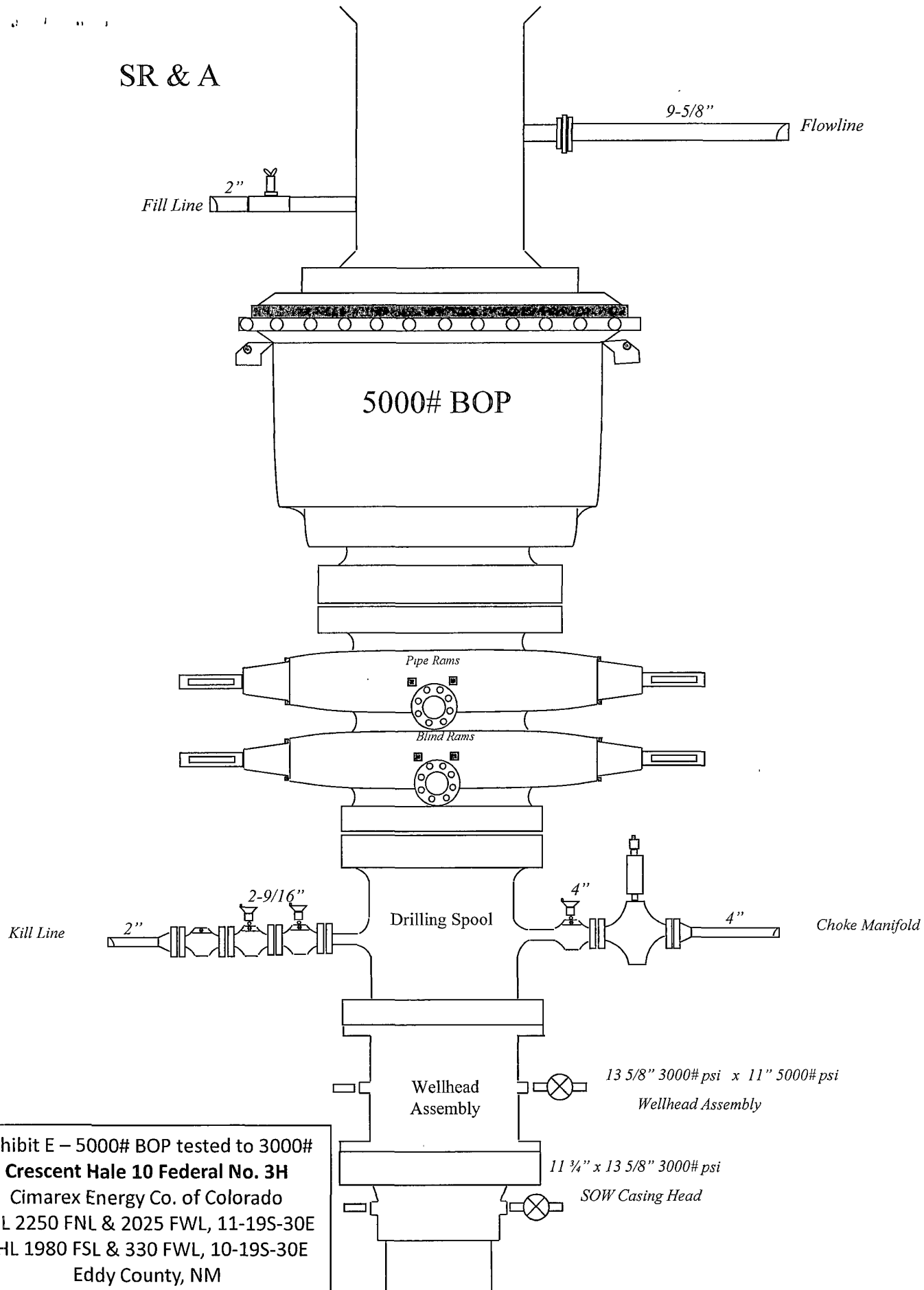
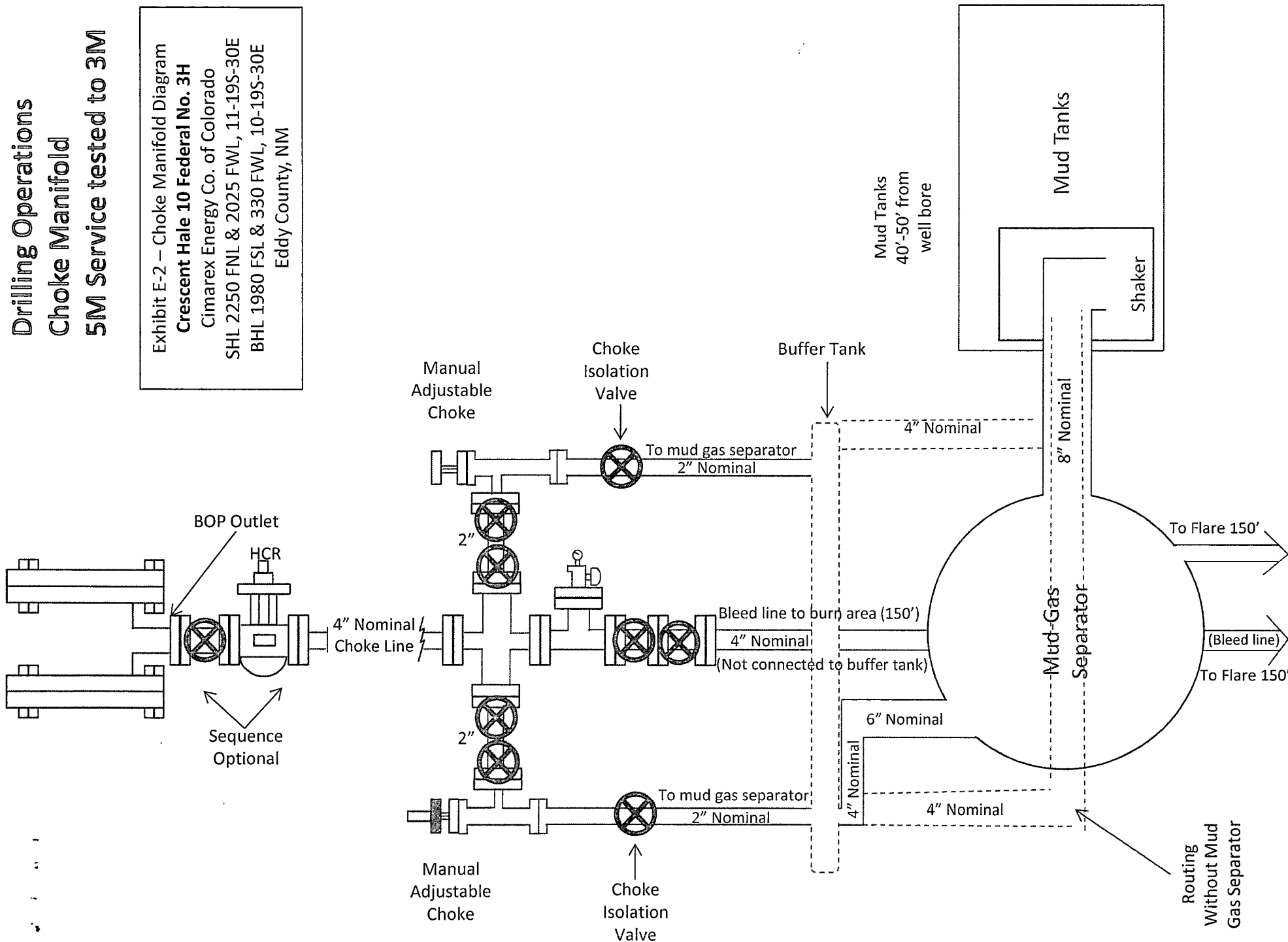


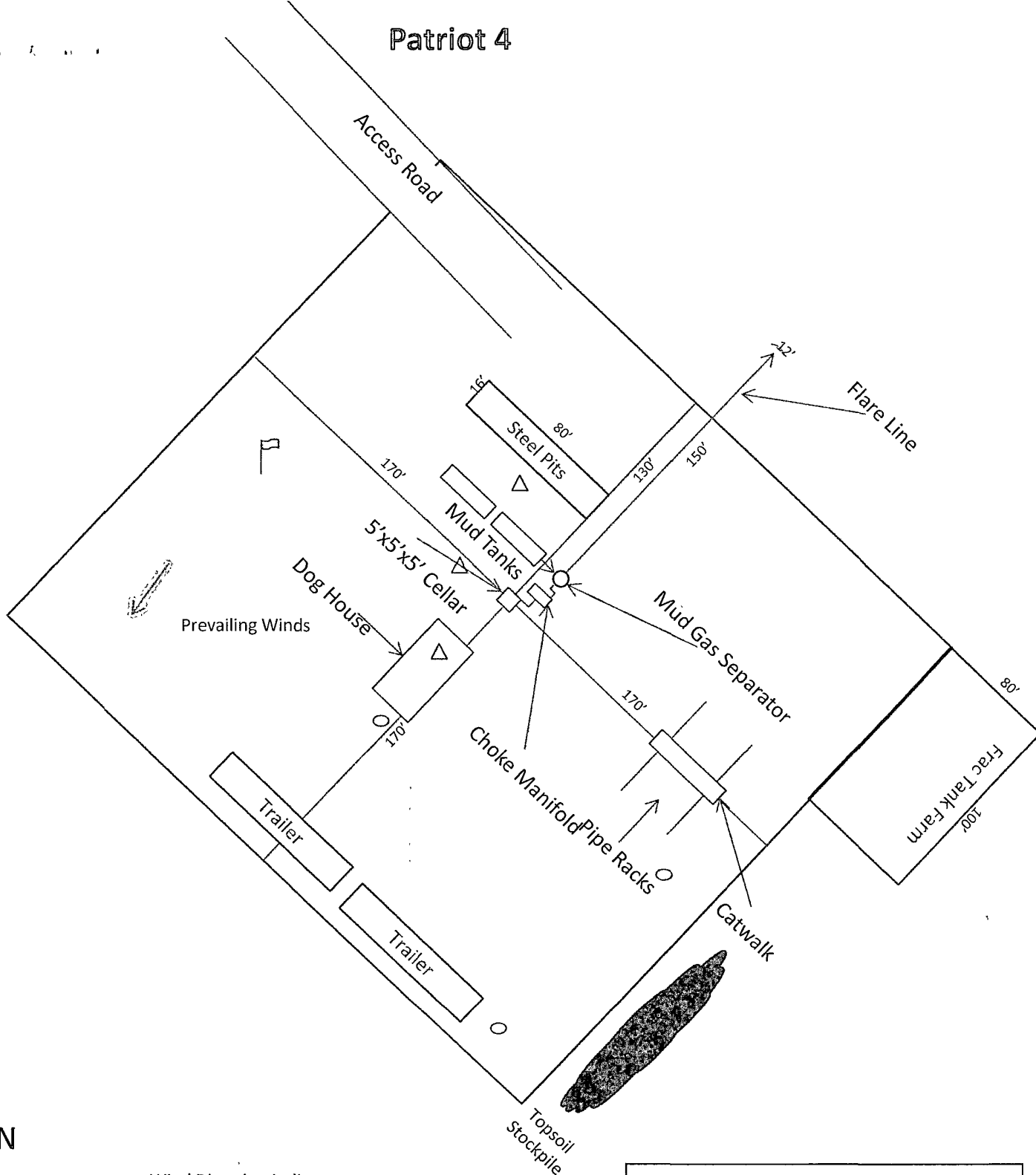
Exhibit E – 5000# BOP tested to 3000#
Crescent Hale 10 Federal No. 3H
Cimarex Energy Co. of Colorado
SHL 2250 FNL & 2025 FWL, 11-19S-30E
BHL 1980 FSL & 330 FWL, 10-19S-30E
Eddy County, NM

Drilling Operations Choke Manifold 5M Service tested to 3M

Exhibit E-2 – Choke Manifold Diagram
Crescent Hale 10 Federal No. 3H
 Cimarex Energy Co. of Colorado
 SHL 2250 FNL & 2025 FWL, 11-19S-30E
 BHL 1980 FSL & 330 FWL, 10-19S-30E
 Eddy County, NM



Patriot 4



N

-  Wind Direction Indicators
(wind sock or streamers)
-  • H2S Monitors
(alarms at bell nipple and shale shaker)
-  Briefing Areas

Exhibit D – Rig Diagram
Crescent Hale 10 Federal No. 3H
 Cimarex Energy Co. of Colorado
 SHL 2250 FNL & 2025 FWL, 11-19S-30E
 BHL 1980 FSL & 330 FWL, 10-19S-30E
 Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan

Crescent Hale "10" Federal #3H

Cimarex Energy Co. of Colorado

Unit K, Section 11

T19S-R30E; Eddy County, NM

- 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 #3H
Cimarex Energy Co. of Colorado
Unit K, 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 #3H

Cimarex Energy Co. of Colorado

Unit K, Section 11

T19S-R30E; Eddy County, NM

<u>Company Office</u>			
Cimarex Energy Co. of Colorado		800-969-4789	
Co. Office and After-Hours Menu			
<u>Key Personnel</u>			
<u>Name</u>	<u>Title</u>	<u>Office</u>	<u>Mobile</u>
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8285
Scott Lucas	Field Drilling Super		432-894-5572
Jeff Lajoie	Field Drilling Super		432-257-9889
Roy Shirley	Field Super		432-634-2136
<u>Artesia</u>			
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	
<u>Carlsbad</u>			
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	
<u>Santa Fe</u>			
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	
<u>National</u>			
National Emergency Response Center (Washington, D.C.)		800-424-8802	
<u>Medical</u>			
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	
<u>Other</u>			
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	

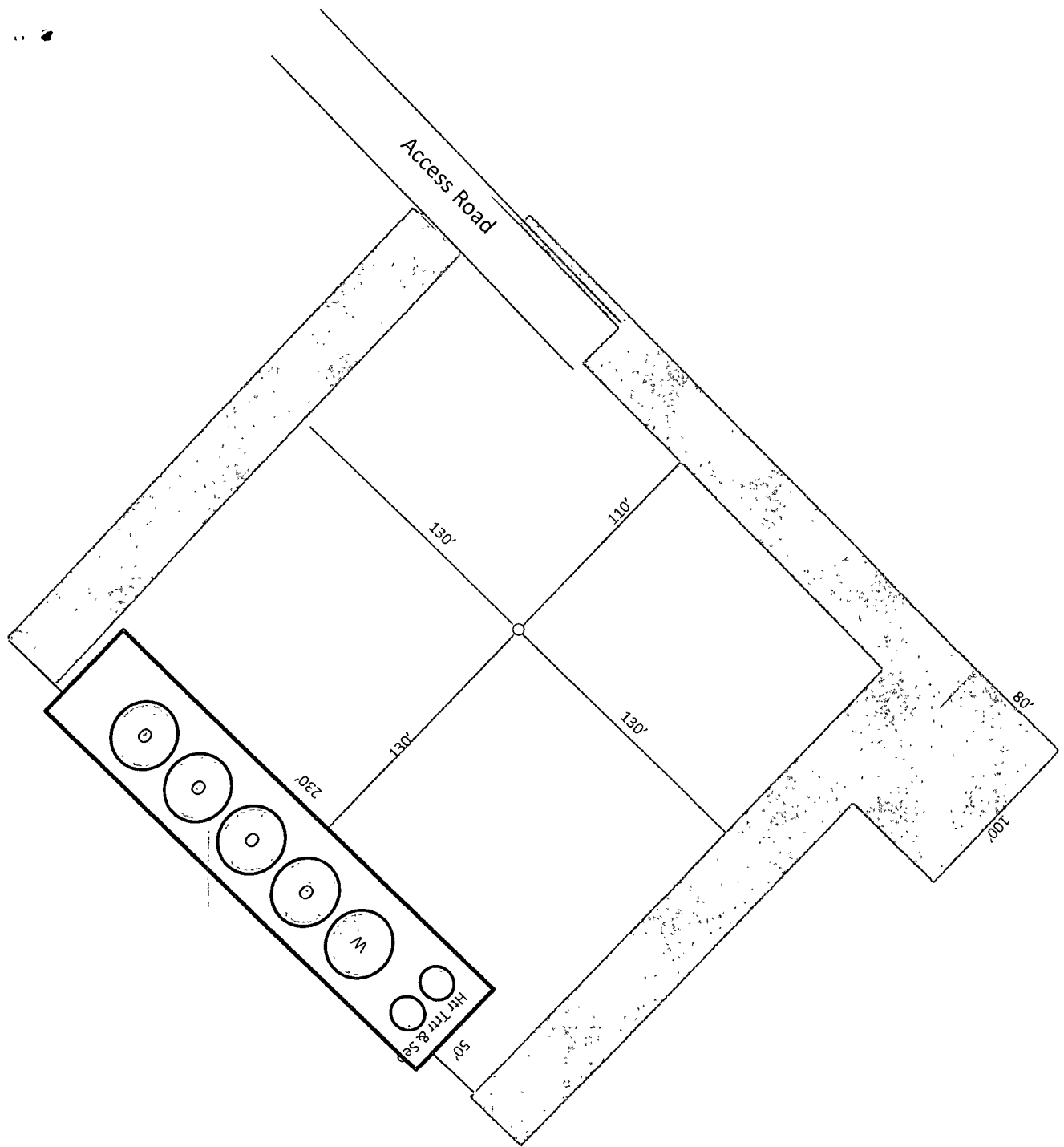
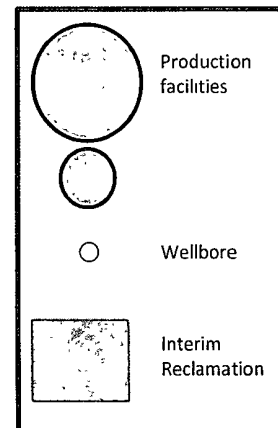


Exhibit D-1
 Production Facilities Layout Diagram
Crescent Hale 10 Federal No. 3H
 Cimarex Energy Co. of Colorado
 SHL 2250 FNL & 2025 FWL, 11-19S-30E
 BHL 1980 FSL & 330 FWL, 10-19S-30E
 Eddy County, NM



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMEREX ENERGY
LEASE NO.:	NM0560353
WELL NAME & NO.:	3H-CRESCENT HALE 10 FEDERAL
SURFACE HOLE FOOTAGE:	2250'/S. & 2050'/W.
BOTTOM HOLE FOOTAGE:	1980'/S. & 0330'/W. (Sec. 10)
LOCATION:	Section 11, T. 1925 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**
 - Hackberry Lake Special Recreation Management Area (OHV)
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - R-111-Potash
 - Casing/Cement Requirements
 - BOPE Requirements
 - Logging Requirements
 - H2S – Onshore Order 6 Requirements
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**