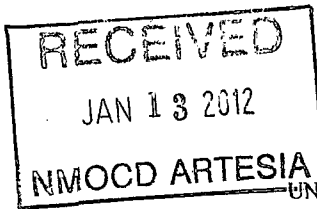


ATS-11-723

OCD Artesia

SECRETARY'S POTASH

Form 3160-3
(April 2004)



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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
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
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 No. 1 (39615)
3b. Phone No. (include area code) 432-571-7800		9. API Well No. 30-015- 39824
4. Location of Well (Report location clearly and in accordance with any State requirements.) At Surface 11-19S-30E 1075 FNL & 1890 FWL At proposed prod. Zone 10-19S-30E 500 FNL & 330 FWL		10. Field and Pool, or Exploratory Benson Bone Spring (5260)
11. Sec., T. R. M., or Blk. and Survey or Area		11. Sec., T. R. M., or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish Eddy Co
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 245'		13. State NM
16. No of acres in lease 2160.32 acres		17. Spacing Unit dedicated to this well NWNW 11-19S-30E, N2N2 10-19S-30E
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 322		20. BLM/BIA Bond No. on File NM-2575
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3400' GR		22. Approximate date work will start* 09.01.11
		23. Estimated duration 25-30 days

UNORTHODOX LOCATION
Horizontal Bone Spring test

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 6.8.11
-------------------------------------	-------------------------------------	----------------

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
---	--	--------------------

FOR the ACTING STATE DIRECTOR	Office NM STATE OFFICE
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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)

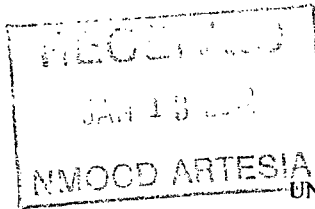
CAPTAN CONTROLLED WATER BASIN
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

*Hold C104 for
NSL april*

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

ATS-11-723

OCD Artesia



Form 3160-3
(April 2004)

SECRETARY'S POTASH

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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
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	3b. Phone No. (include area code) 432-571-7800	8. Lease Name and Well No. Crescent Hale 10 Federal No. 1 [39015]
4. Location of Well (Report location clearly and in accordance with any State requirements) At Surface 11-19S-30E 1075 FNL & 1890 FWL At proposed prod. Zone 10-19S-30E 500 FNL & 330 FWL		9. API Well No. 30-015- 39824
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) 245'		11. Sec., T. R. M. or Blk. and Survey or Area 10 & 11, 19S-30E
16. No of acres in lease 2160.32 acres		12. County or Parish Eddy Co
17. Spacing Unit dedicated to this well NWNW 11-19S-30E, N2N2 10-19S-30E		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 322		
19. Proposed Depth MD 15293 TVD 8550		
20. BLM/BIA Bond No. on File NM-2575		
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3400' 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:

- Well plat certified by a registered surveyor
- A Drilling Plan
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator Certification
- 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 6.8.11
-------------------------------------	-------------------------------------	----------------

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
---	--	--------------------

FOR THE ACTING 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.

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APPROVAL FOR TWO YEARS

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* (Instructions on page 2)

CAPITAN CONTROLLED WATER BASIN
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

*Used C104 for
NSL april*

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

Operator Certification Statement

Crescent Hale 10 Federal No. 1

Cimarex Energy Co. of Colorado

Unit C, 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 8th 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
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. 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 30-015-39824	Pool Code 5200	Well Name Benson; Bone Spring
Property Code	Property Name CRESCENT HALE "10" FEDERAL	Well Number 1H
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3400'

Surface Location

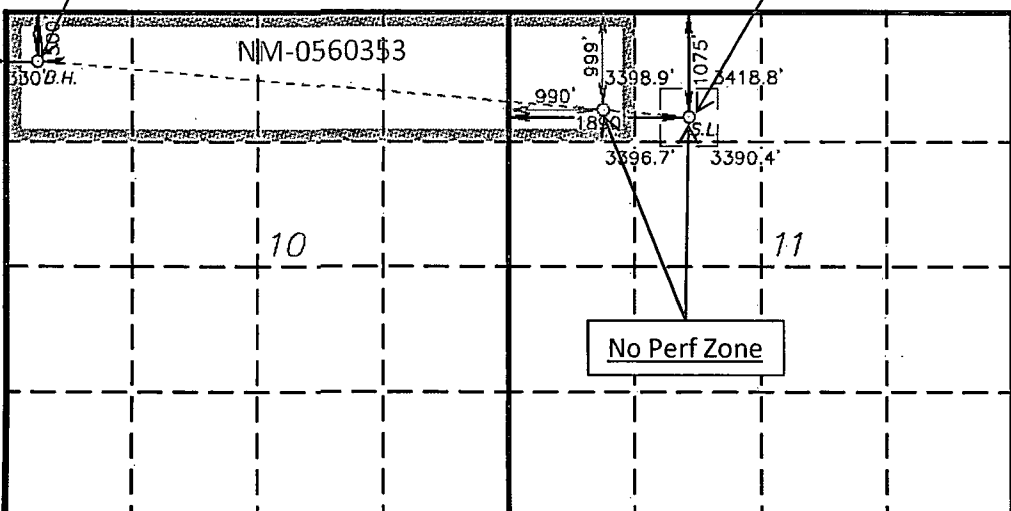
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	11	19 S	30 E		1075	NORTH	1890	WEST	EDDY

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
D	10	19 S	30 E		500	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
200			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 500 FNL & 330 FWL PROPOSED BOTTOM HOLE LOCATION Lat - N 32°40'50.76" Long - W 103°58'02.35" NMSPCE - N 611587.797 E 653951.307 (NAD-83)	SHL & PP Bone Spring 1075 FNL & 1890 FWL SURFACE LOCATION Lat - N 32°40'44.98" Long - W 103°56'42.32" NMSPCE - N 611028.899 E 660793.865 (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 5/8/2011 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. GARY L. JONES Date Surveyed GARY L. JONES Signature & Seal of Professional Surveyor Certificate No. Gary L. Jones 7977 BASIN SURVEYS 24184

Application to Drill
Crescent Hale 10 Federal No. 1
 Cimarex Energy Co. of Colorado
 Unit C, Section 11
 T19S-R30E, Eddy County, NM

30-015-39824

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 1075 FNL & 1890 FWL
 BHL 10-19S-30E 500 FNL & 330 FWL

- 2 Elevation above sea level: 3400' 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 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 15293'	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 8 3/4" hole to KOP @ 8624 and kick off to drill and drill through the curve to lateral TD @ 15293. Run and cement dual casing string. Use 5 1/2" 17# P110 LTC from 15293-8300, 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 No. 1
 Cimarex Energy Co. of Colorado
 Unit C, 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 15293'	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 15293 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 No. 1
Cimarex Energy Co. of Colorado
Unit C, 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 potentialized as **an oil well.**



Planned Wellpath Report

Prelim_1

Page 1 of 6



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 1H PWB
Facility	Crescent Hale 10 Fed No. 1H		

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 5:11:31 PM
Convergence at slot	0.21° East	Database/Source file	WA Midland/No. 1H_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	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W
Facility Reference Pt			660793.86	611028.90	32°40'44.984"N	103°56'42.315"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. 1H SHL (RKB) to GL	0.00ft
Horizontal Reference Pt	Slot	Rig on No. 1H SHL (RKB) to Mean Sea Level	3400.00ft
Vertical Reference Pt	Rig on No. 1H SHL (RKB)	Rig on No. 1H SHL (RKB) to Mud Line at Slot (No. 1H SHL)	0.00ft
MD Reference Pt	Rig on No. 1H SHL (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	274.67°



Planned Wellpath Report

Prelim_1

Page 2 of 6



BAKER HUGHES

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 1H PWB
Facility	Crescent Hale 10 Fed No. 1H		

WELLPATH DATA (160 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	274.670	0.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	Tie On
100.00†	0.000	274.670	100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
200.00†	0.000	274.670	200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
300.00†	0.000	274.670	300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
400.00†	0.000	274.670	400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
500.00†	0.000	274.670	500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
600.00†	0.000	274.670	600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
700.00†	0.000	274.670	700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
800.00†	0.000	274.670	800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
900.00†	0.000	274.670	900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1000.00†	0.000	274.670	1000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1100.00†	0.000	274.670	1100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1200.00†	0.000	274.670	1200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1300.00†	0.000	274.670	1300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1400.00†	0.000	274.670	1400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1500.00†	0.000	274.670	1500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1600.00†	0.000	274.670	1600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1700.00†	0.000	274.670	1700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1800.00†	0.000	274.670	1800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
1900.00†	0.000	274.670	1900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2000.00†	0.000	274.670	2000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2100.00†	0.000	274.670	2100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2200.00†	0.000	274.670	2200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2300.00†	0.000	274.670	2300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2400.00†	0.000	274.670	2400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2500.00†	0.000	274.670	2500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2600.00†	0.000	274.670	2600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2700.00†	0.000	274.670	2700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2800.00†	0.000	274.670	2800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
2900.00†	0.000	274.670	2900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3000.00†	0.000	274.670	3000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3100.00†	0.000	274.670	3100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3200.00†	0.000	274.670	3200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3300.00†	0.000	274.670	3300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3400.00†	0.000	274.670	3400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3500.00†	0.000	274.670	3500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3600.00†	0.000	274.670	3600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3700.00†	0.000	274.670	3700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3800.00†	0.000	274.670	3800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
3900.00†	0.000	274.670	3900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4000.00†	0.000	274.670	4000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4100.00†	0.000	274.670	4100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4200.00†	0.000	274.670	4200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4300.00†	0.000	274.670	4300.00	-0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4400.00†	0.000	274.670	4400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 1H PWB
Facility	Crescent Hale 10 Fed No. 1H		

WELLPATH DATA (160 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	274.670	4500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4600.00†	0.000	274.670	4600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	Delaware Sands
4700.00†	0.000	274.670	4700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4800.00†	0.000	274.670	4800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
4900.00†	0.000	274.670	4900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5000.00†	0.000	274.670	5000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5100.00†	0.000	274.670	5100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5200.00†	0.000	274.670	5200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5300.00†	0.000	274.670	5300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5400.00†	0.000	274.670	5400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5500.00†	0.000	274.670	5500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5600.00†	0.000	274.670	5600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5700.00†	0.000	274.670	5700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5800.00†	0.000	274.670	5800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
5900.00†	0.000	274.670	5900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6000.00†	0.000	274.670	6000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6010.00†	0.000	274.670	6010.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	Bone Spring
6100.00†	0.000	274.670	6100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6200.00†	0.000	274.670	6200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6300.00†	0.000	274.670	6300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6400.00†	0.000	274.670	6400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6500.00†	0.000	274.670	6500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6600.00†	0.000	274.670	6600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6700.00†	0.000	274.670	6700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6780.00†	0.000	274.670	6780.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	Upper Bone Spring Shale
6800.00†	0.000	274.670	6800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
6900.00†	0.000	274.670	6900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7000.00†	0.000	274.670	7000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7100.00†	0.000	274.670	7100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7200.00†	0.000	274.670	7200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7300.00†	0.000	274.670	7300.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7400.00†	0.000	274.670	7400.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7500.00†	0.000	274.670	7500.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7570.00†	0.000	274.670	7570.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	1st Bone Spring Shale
7600.00†	0.000	274.670	7600.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7700.00†	0.000	274.670	7700.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7800.00†	0.000	274.670	7800.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
7900.00†	0.000	274.670	7900.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
8000.00†	0.000	274.670	8000.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
8100.00†	0.000	274.670	8100.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
8200.00†	0.000	274.670	8200.00	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	
8263.50	0.000	274.670	8263.50	0.00	0.00	0.00	660793.86	611028.90	32°40'44.984"N	103°56'42.315"W	0.00	Est KOP
8300.00†	7.299	274.670	8299.90	2.32	0.19	-2.31	660791.55	611029.09	32°40'44.986"N	103°56'42.342"W	20.00	
8400.00†	27.297	274.670	8394.89	31.91	2.60	-31.80	660762.06	611031.50	32°40'45.011"N	103°56'42.687"W	20.00	
8405.78†	28.452	274.670	8400.00	34.61	2.82	-34.49	660759.37	611031.72	32°40'45.013"N	103°56'42.719"W	20.00	2nd Bone Spring Shale



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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 1H PWB
Facility	Crescent Hale 10 Fed No. 1H		

WELLPATH DATA (160 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	274.670	8474.04	92.19	7.51	-91.89	660701.98	611036.40	32°40'45.062"N	103°56'43.390"W	20.00	
8600.00†	67.293	274.670	8527.80	175.91	14.32	-175.33	660618.55	611043.22	32°40'45.132"N	103°56'44.366"W	20.00	
8700.00†	87.291	274.670	8549.69	272.97	22.22	-272.06	660521.82	611051.12	32°40'45.214"N	103°56'45.497"W	20.00	
8715.72	90.436	274.670	8550.00	288.69	23.50	-287.73	660506.15	611052.40	32°40'45.227"N	103°56'45.680"W	20.00	EOC
8800.00†	90.436	274.670	8549.36	372.96	30.36	-371.72	660422.17	611059.26	32°40'45.298"N	103°56'46.663"W	0.00	
8900.00†	90.436	274.670	8548.60	472.96	38.50	-471.39	660322.51	611067.40	32°40'45.382"N	103°56'47.828"W	0.00	
9000.00†	90.436	274.670	8547.84	572.95	46.64	-571.05	660222.85	611075.54	32°40'45.466"N	103°56'48.994"W	0.00	
9100.00†	90.436	274.670	8547.08	672.95	54.78	-670.72	660123.19	611083.68	32°40'45.550"N	103°56'50.160"W	0.00	
9200.00†	90.436	274.670	8546.32	772.95	62.92	-770.38	660023.54	611091.82	32°40'45.635"N	103°56'51.325"W	0.00	
9300.00†	90.436	274.670	8545.56	872.95	71.07	-870.05	659923.88	611099.96	32°40'45.719"N	103°56'52.491"W	0.00	
9400.00†	90.436	274.670	8544.80	972.94	79.21	-969.71	659824.22	611108.10	32°40'45.803"N	103°56'53.657"W	0.00	
9500.00†	90.436	274.670	8544.04	1072.94	87.35	-1069.38	659724.56	611116.24	32°40'45.887"N	103°56'54.822"W	0.00	
9600.00†	90.436	274.670	8543.28	1172.94	95.49	-1169.04	659624.91	611124.38	32°40'45.971"N	103°56'55.988"W	0.00	
9700.00†	90.436	274.670	8542.52	1272.93	103.63	-1268.71	659525.25	611132.52	32°40'46.055"N	103°56'57.154"W	0.00	
9800.00†	90.436	274.670	8541.76	1372.93	111.77	-1368.37	659425.59	611140.66	32°40'46.139"N	103°56'58.319"W	0.00	
9900.00†	90.436	274.670	8541.00	1472.93	119.91	-1468.04	659325.93	611148.80	32°40'46.223"N	103°56'59.485"W	0.00	
10000.00†	90.436	274.670	8540.24	1572.93	128.05	-1567.70	659226.28	611156.94	32°40'46.308"N	103°57'00.651"W	0.00	
10100.00†	90.436	274.670	8539.48	1672.92	136.19	-1667.37	659126.62	611165.08	32°40'46.392"N	103°57'01.816"W	0.00	
10200.00†	90.436	274.670	8538.72	1772.92	144.33	-1767.03	659026.96	611173.22	32°40'46.476"N	103°57'02.982"W	0.00	
10300.00†	90.436	274.670	8537.96	1872.92	152.47	-1866.70	658927.30	611181.36	32°40'46.560"N	103°57'04.148"W	0.00	
10400.00†	90.436	274.670	8537.20	1972.91	160.61	-1966.37	658827.65	611189.50	32°40'46.644"N	103°57'05.313"W	0.00	
10500.00†	90.436	274.670	8536.44	2072.91	168.75	-2066.03	658727.99	611197.64	32°40'46.728"N	103°57'06.479"W	0.00	
10600.00†	90.436	274.670	8535.68	2172.91	176.89	-2165.70	658628.33	611205.78	32°40'46.812"N	103°57'07.645"W	0.00	
10700.00†	90.436	274.670	8534.92	2272.91	185.03	-2265.36	658528.67	611213.92	32°40'46.896"N	103°57'08.810"W	0.00	
10800.00†	90.436	274.670	8534.16	2372.90	193.17	-2365.03	658429.01	611222.06	32°40'46.980"N	103°57'09.976"W	0.00	
10900.00†	90.436	274.670	8533.40	2472.90	201.32	-2464.69	658329.36	611230.20	32°40'47.064"N	103°57'11.142"W	0.00	
11000.00†	90.436	274.670	8532.63	2572.90	209.46	-2564.36	658229.70	611238.34	32°40'47.148"N	103°57'12.308"W	0.00	
11100.00†	90.436	274.670	8531.87	2672.89	217.60	-2664.02	658130.04	611246.48	32°40'47.233"N	103°57'13.473"W	0.00	
11200.00†	90.436	274.670	8531.11	2772.89	225.74	-2763.69	658030.38	611254.62	32°40'47.317"N	103°57'14.639"W	0.00	
11300.00†	90.436	274.670	8530.35	2872.89	233.88	-2863.35	657930.73	611262.76	32°40'47.401"N	103°57'15.805"W	0.00	
11400.00†	90.436	274.670	8529.59	2972.88	242.02	-2963.02	657831.07	611270.90	32°40'47.485"N	103°57'16.970"W	0.00	
11500.00†	90.436	274.670	8528.83	3072.88	250.16	-3062.68	657731.41	611279.04	32°40'47.569"N	103°57'18.136"W	0.00	
11600.00†	90.436	274.670	8528.07	3172.88	258.30	-3162.35	657631.75	611287.18	32°40'47.653"N	103°57'19.302"W	0.00	
11700.00†	90.436	274.670	8527.31	3272.88	266.44	-3262.01	657532.10	611295.32	32°40'47.737"N	103°57'20.467"W	0.00	
11800.00†	90.436	274.670	8526.55	3372.87	274.58	-3361.68	657432.44	611303.46	32°40'47.821"N	103°57'21.633"W	0.00	
11900.00†	90.436	274.670	8525.79	3472.87	282.72	-3461.34	657332.78	611311.60	32°40'47.905"N	103°57'22.799"W	0.00	
12000.00†	90.436	274.670	8525.03	3572.87	290.86	-3561.01	657233.12	611319.74	32°40'47.989"N	103°57'23.964"W	0.00	
12100.00†	90.436	274.670	8524.27	3672.86	299.00	-3660.67	657133.47	611327.88	32°40'48.073"N	103°57'25.130"W	0.00	
12200.00†	90.436	274.670	8523.51	3772.86	307.14	-3760.34	657033.81	611336.02	32°40'48.157"N	103°57'26.296"W	0.00	
12300.00†	90.436	274.670	8522.75	3872.86	315.28	-3860.00	656934.15	611344.16	32°40'48.241"N	103°57'27.461"W	0.00	
12400.00†	90.436	274.670	8521.99	3972.86	323.42	-3959.67	656834.49	611352.30	32°40'48.325"N	103°57'28.627"W	0.00	
12500.00†	90.436	274.670	8521.23	4072.85	331.56	-4059.33	656734.84	611360.44	32°40'48.409"N	103°57'29.793"W	0.00	
12600.00†	90.436	274.670	8520.47	4172.85	339.71	-4159.00	656635.18	611368.58	32°40'48.493"N	103°57'30.958"W	0.00	
12700.00†	90.436	274.670	8519.71	4272.85	347.85	-4258.67	656535.52	611376.72	32°40'48.577"N	103°57'32.124"W	0.00	
12800.00†	90.436	274.670	8518.95	4372.84	355.99	-4358.33	656435.86	611384.86	32°40'48.661"N	103°57'33.290"W	0.00	



Planned Wellpath Report

Prelim_1

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 1H PWB
Facility	Crescent Hale 10 Fed No. 1H		

WELLPATH DATA (160 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†	90.436	274.670	8518.19	4472.84	364.13	-4458.00	656336.21	611393.00	32°40'48.745"N	103°57'34.455"W	0.00	
13000.00†	90.436	274.670	8517.43	4572.84	372.27	-4557.66	656236.55	611401.14	32°40'48.829"N	103°57'35.621"W	0.00	
13100.00†	90.436	274.670	8516.67	4672.84	380.41	-4657.33	656136.89	611409.28	32°40'48.913"N	103°57'36.787"W	0.00	
13200.00†	90.436	274.670	8515.91	4772.83	388.55	-4756.99	656037.23	611417.42	32°40'48.997"N	103°57'37.953"W	0.00	
13300.00†	90.436	274.670	8515.15	4872.83	396.69	-4856.66	655937.58	611425.56	32°40'49.081"N	103°57'39.118"W	0.00	
13400.00†	90.436	274.670	8514.39	4972.83	404.83	-4956.32	655837.92	611433.70	32°40'49.165"N	103°57'40.284"W	0.00	
13500.00†	90.436	274.670	8513.63	5072.82	412.97	-5055.99	655738.26	611441.84	32°40'49.249"N	103°57'41.450"W	0.00	
13600.00†	90.436	274.670	8512.87	5172.82	421.11	-5155.65	655638.60	611449.98	32°40'49.333"N	103°57'42.615"W	0.00	
13700.00†	90.436	274.670	8512.11	5272.82	429.25	-5255.32	655538.95	611458.12	32°40'49.417"N	103°57'43.781"W	0.00	
13800.00†	90.436	274.670	8511.35	5372.82	437.39	-5354.98	655439.29	611466.26	32°40'49.501"N	103°57'44.947"W	0.00	
13900.00†	90.436	274.670	8510.59	5472.81	445.53	-5454.65	655339.63	611474.40	32°40'49.585"N	103°57'46.112"W	0.00	
14000.00†	90.436	274.670	8509.83	5572.81	453.67	-5554.31	655239.97	611482.54	32°40'49.669"N	103°57'47.278"W	0.00	
14100.00†	90.436	274.670	8509.07	5672.81	461.81	-5653.98	655140.31	611490.68	32°40'49.753"N	103°57'48.444"W	0.00	
14200.00†	90.436	274.670	8508.31	5772.80	469.96	-5753.64	655040.66	611498.82	32°40'49.837"N	103°57'49.609"W	0.00	
14300.00†	90.436	274.670	8507.55	5872.80	478.10	-5853.31	654941.00	611506.96	32°40'49.921"N	103°57'50.775"W	0.00	
14400.00†	90.436	274.670	8506.79	5972.80	486.24	-5952.97	654841.34	611515.10	32°40'50.005"N	103°57'51.941"W	0.00	
14500.00†	90.436	274.670	8506.03	6072.80	494.38	-6052.64	654741.68	611523.24	32°40'50.089"N	103°57'53.107"W	0.00	
14600.00†	90.436	274.670	8505.27	6172.79	502.52	-6152.30	654642.03	611531.38	32°40'50.173"N	103°57'54.272"W	0.00	
14700.00†	90.436	274.670	8504.51	6272.79	510.66	-6251.97	654542.37	611539.52	32°40'50.257"N	103°57'55.438"W	0.00	
14800.00†	90.436	274.670	8503.75	6372.79	518.80	-6351.63	654442.71	611547.66	32°40'50.341"N	103°57'56.604"W	0.00	
14900.00†	90.436	274.670	8502.99	6472.78	526.94	-6451.30	654343.05	611555.80	32°40'50.425"N	103°57'57.769"W	0.00	
15000.00†	90.436	274.670	8502.23	6572.78	535.08	-6550.96	654243.40	611563.94	32°40'50.509"N	103°57'58.935"W	0.00	
15100.00†	90.436	274.670	8501.47	6672.78	543.22	-6650.63	654143.74	611572.08	32°40'50.593"N	103°58'00.101"W	0.00	
15200.00†	90.436	274.670	8500.71	6772.78	551.36	-6750.30	654044.08	611580.22	32°40'50.677"N	103°58'01.266"W	0.00	
15293.09	90.436	274.670	8500.00†	6865.87	558.94	-6843.08	653951.31	611587.80	32°40'50.755"N	103°58'02.352"W	0.00	No. 1H PBHL

HOLE & CASING SECTIONS - Ref Wellbore: No. 1H 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	15293.09	11593.09	3700.00	8500.00	0.00	0.00	558.94	-6843.07
5.5in Casing	0.00	15293.09	15293.09	0.00	8500.00	0.00	0.00	558.94	-6843.07



Planned Wellpath Report

Prelim_1

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(Crescent) Sec 10 & 11, T19S, R30E	Wellbore	No. 1H PWB
Facility	Crescent Hale 10 Fed No. 1H		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No. 1H PBHL	15293.09	8500.00	558.94	-6843.08	653951.31	611587.80	32°40'50.755"N	103°58'02.352"W	point

SURVEY PROGRAM: Ref Wellbore: No. 1H PWB Ref Wellpath: Prelim_1				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	15293.09	NaviTrak (Standard)		No. 1H PWB

SR & A

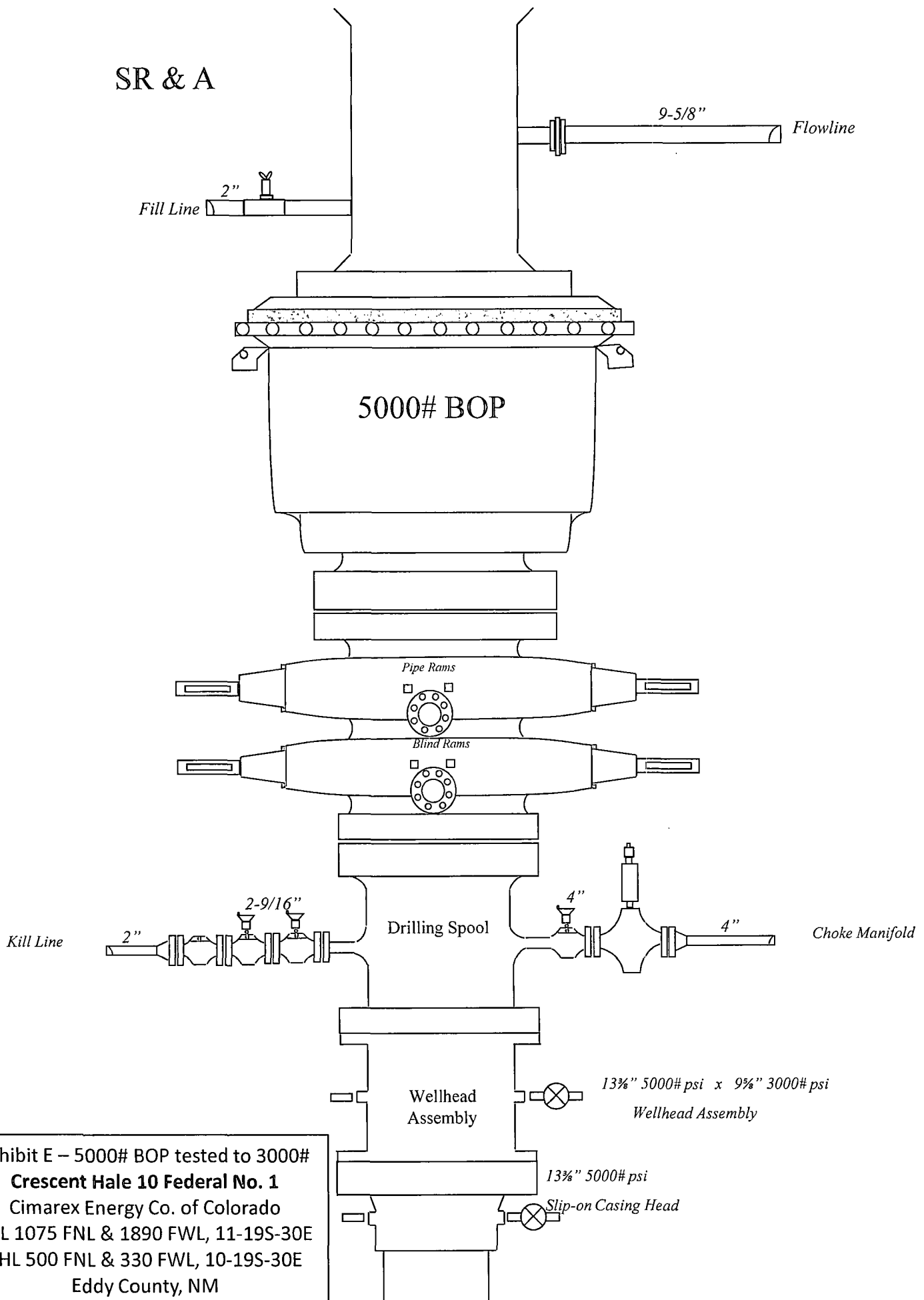
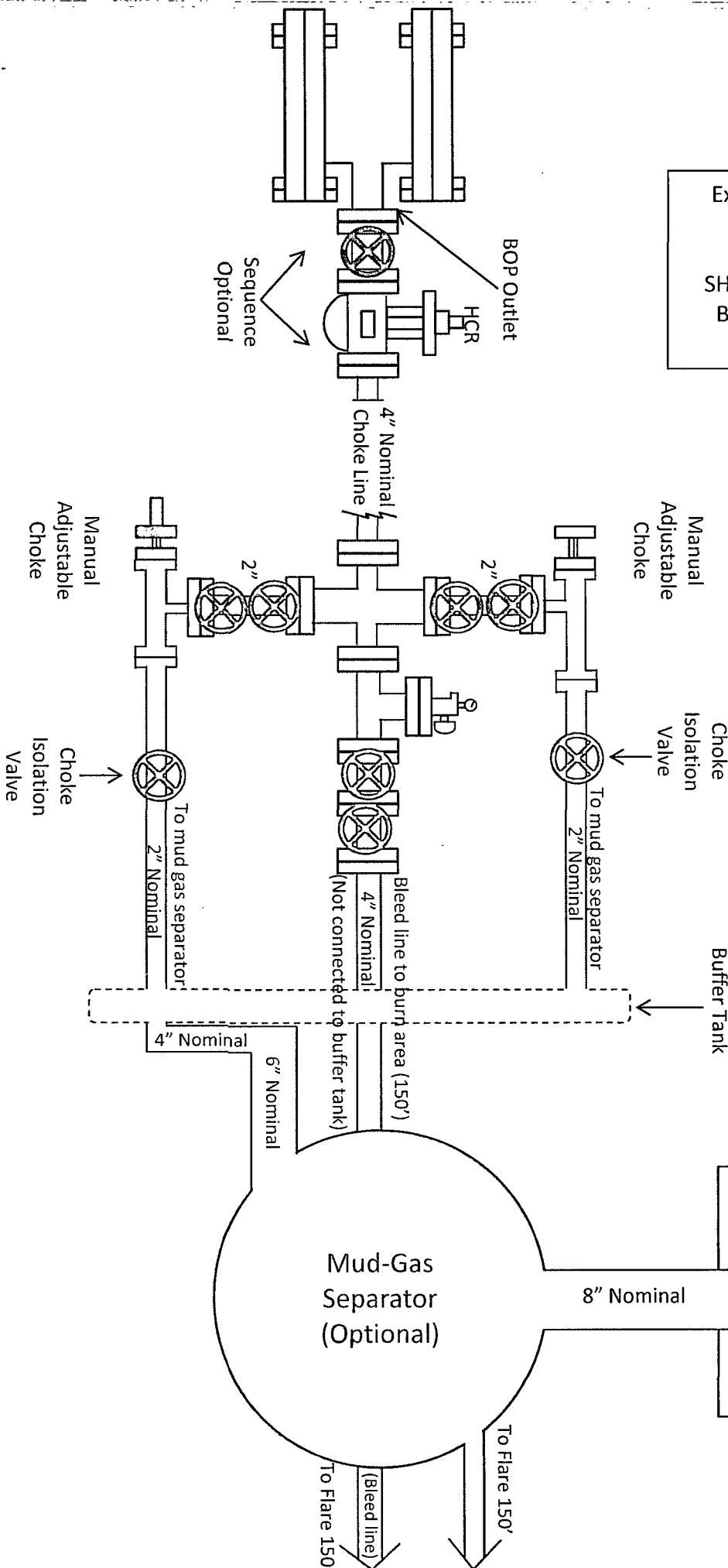


Exhibit E – 5000# BOP tested to 3000#
Crescent Hale 10 Federal No. 1
Cimarex Energy Co. of Colorado
SHL 1075 FNL & 1890 FWL, 11-19S-30E
BHL 500 FNL & 330 FWL, 10-19S-30E
Eddy County, NM

Drilling Operations Choke Manifold 5M Service tested to 3M

Exhibit E-2 – Choke Manifold Diagram
Crescent Hale 10 Federal No. 1
Cimarex Energy Co. of Colorado
SHL 1075 FNL & 1890 FWL, 11-19S-30E
BHL 500 FNL & 330 FWL, 10-19S-30E
Eddy County, NM



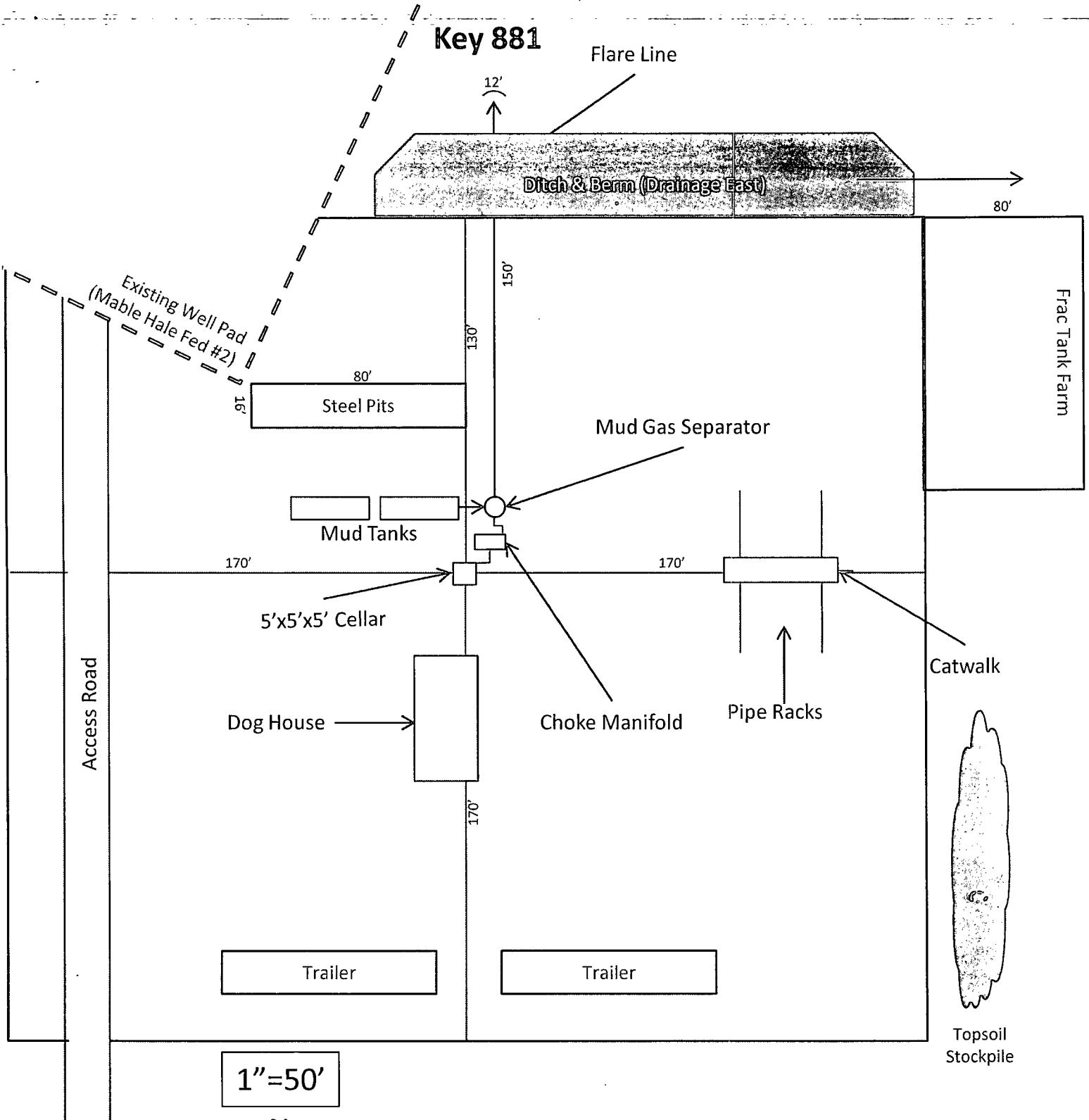


Exhibit D – Rig Diagram
Crescent Hale 10 Federal No. 1
Cimarex Energy Co. of Colorado
SHL 1075 FNL & 1890 FWL, 11-19S-30E
BHL 500 FNL & 330 FWL, 10-19S-30E
Eddy County, NM

- 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 No. 1
Cimarex Energy Co. of Colorado
Unit C, 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 No. 1
Cimarex Energy Co. of Colorado
Unit C, 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		

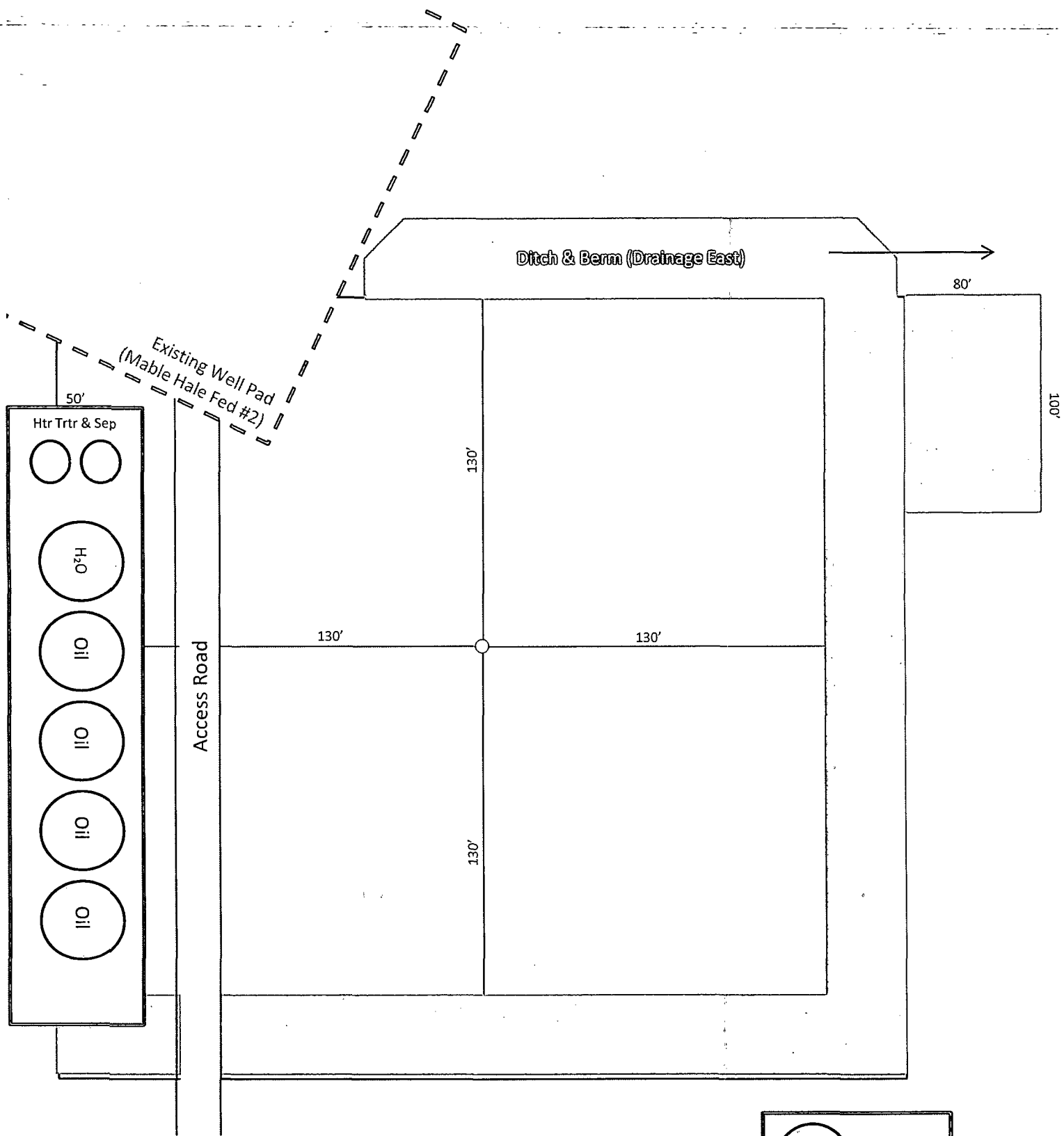
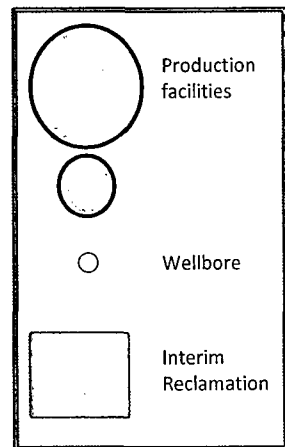


Exhibit D-1
 Production Facilities Layout Diagram
Crescent Hale 10 Federal No. 1
 Cimarex Energy Co. of Colorado
 SHL 1075 FNL & 1890 FWL, 11-19S-30E
 BHL 500 FNL & 330 FWL, 10-19S-30E
 Eddy County, NM



1"=50'



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY
LEASE NO.:	NM-0560353
WELL NAME & NO.:	CRESCENT HALE 10 FED COM #1
SURFACE HOLE FOOTAGE:	1075' FNL & 1890' FWL
BOTTOM HOLE FOOTAGE:	500' 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
 - OHV recreation area stipulations
- ☐ 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