

HOBBS OCD

Form 3160-5
(August 2007)

JAN 30 2012

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

EDDY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

OCD - Artesia

FORM APPROVED
OMB NO 1004-0135
Expires: July 31, 20105 Lease Serial No.
NMNM0560353

6 If Indian, Allottee or Tribe Name

7 If Unit or C/A Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other Instructions on reverse side.

1 Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2 Name of Operator

CIMAREX ENERGY CO OF COLORADO

Contact: NATALIE E KRUEGER

Email: nkrueger@cimarex.com

8 Well Name and No.

CRESCENT HALE 1 FEDERAL 2

9 API Well No.

30-015-38524-00-X1

3a. Address

600 E MARIENFELD STREET SUITE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)

Ph: 432-620-1936

Fx: 432-620-1940

10. Field and Pool, or Exploratory

CHACKBERRY

Benson Bone Spring

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 1 T19S R30E NENW 330FNL 2310FWL

11. County or Parish, and State

EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☐
- Notice of Intent
-
- ☒
- Subsequent Report
-
- ☐
- Final Abandonment Notice

TYPE OF ACTION

- ☐
- Acidize
- ☐
- Deepen
- ☐
- Production (Start/Resume)
- ☐
- Water Shut-Off
-
- ☐
- Alter Casing
- ☐
- Fracture Treat
- ☐
- Reclamation
- ☐
- Well Integrity
-
- ☐
- Casing Repair
- ☐
- New Construction
- ☐
- Recomplete
- ☒
- Other
-
- ☐
- Change Plans
- ☐
- Plug and Abandon
- ☐
- Temporarily Abandon
- ☐
- Well Spud
-
- ☐
- Convert to Injection
- ☐
- Plug Back
- ☐
- Water Disposal

13 Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

03-19-11 Spud 17.5 inch hole.

03-20-11 Ran 13.375 inch 48# H40 STC @ 515. Cemented with lead 300 sx Extendacem, tail 220 sx Halcem C, circulated to surface, WOC 49 hrs.

03-22-11 Tested casing to 1218# for 30 min, ok.

03-27-11 In 12.25 inch hole, ran 9.625 inch 40# J55 LTC @ 4020. Cemented with lead 1200 sx Econocem HLH, tail 200 sx Cemex Premium Plus C, circ 100 bbl to surface, WOC 34.5 hrs.

03-29-11 Tested casing to 2765# for 30 min, ok.

03-31-11 Reached 8.75 inch pilot hole depth @ 8435 and logged.

04-01-11 Kicked off 8.75 inch lateral @ 8435.

04-09-11 TD'd lateral @ 13268 MD, 8702 TVD.

04-11-11 Ran 5.5 inch 17# P110 casing. 0-8388 LTC, 8388-9292 BTC, 9292-13268 LTC.

04-12-11 Cemented with lead 680 sx Econocem H, tail 1350 sx Versacem H. No circ. TS TOC 2464.

Accepted for record - NMOCD

D-2 6-20-11

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JUN 07 2011
NMOCD ARTESIA

14 Thereby certify that the foregoing is true and correct.

Electronic Submission #108367 verified by the BLM Well Information System

For CIMAREX ENERGY CO OF COLORADO, sent to the Carlsbad

Committed to AFMSS for processing by KURT SIMMONS on 05/17/2011 (11KMS1666SE)

Name (Printed/Typed) NATALIE E KRUEGER

Title REGULATORY

Signature (Electronic Submission)

Date 05/16/2011

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

ACCEPTED

JAMES A AMOS
Title SUPERVISOR EPS

Date 05/29/2011

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Carlsbad

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

HOBBS OCD

JAN 30 2012

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**RECEIVED**
Do not use this form for proposals to drill or to re-enter an
abandoned well. Use form 3160-3 (APD) for such proposals.

OCD - Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires July 31, 20105. Lease Serial No.
NMNM0560353

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
CRESCENT HALE 1 FEDERAL 2 ✓9. API Well No.
30-015-38524-00-X1 ✓

10. Field and Pool, or Exploratory

HACKBERRY
Benson Bone Spring

11. County or Parish, and State

EDDY COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

CIMAREX ENERGY COMPANY OF CO-Mail: nkrueger@cimarex.com

3a. Address

600 NORTH MARIENFELD STREET SUITE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)

Ph: 432-620-1936
Fx: 432-620-1940

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 1 T19S R30E NENW 330FNL 2310FWL ✓

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
☐ Notice of Intent	☐ Acidize
☒ Subsequent Report	☐ Deepen
☐ Final Abandonment Notice	☐ Fracture Treat
	☐ New Construction
	☐ Change Plans
	☐ Plug and Abandon
	☐ Convert to Injection
	☐ Plug Back
	☐ Production (Start/Resume)
	☐ Reclamation
	☐ Recomplete
	☐ Temporarily Abandon
	☐ Water Disposal
	☐ Water Shut-Off
	☐ Well Integrity
	☒ Other Drilling Operations

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

04-21-11 Perfed Bone Spring 12501-13218 5 spf, 40 holes.

05-04-11 Frac'd with 193,787 gal 20# Borate XL & 254,379# 20/40 SLC. Set CBP @ 12388. Perfed Bone Spring 11569-12276 5 spf, 40 holes and frac'd with 181,806 gal 20# Borate XL & 254,888# 20/40 SLC. Set CBP @ 11428. Perfed Bone Spring 10629-11336 5 spf, 40 holes.

05-05-11 Frac'd with 304,381 gal 20# Borate XL & 353,156# 20/40 SLC. Set CBP @ 10513. Perfed Bone Spring 9689-10396 5 spf, 40 holes and frac'd with 171,592 gal 20# Borate XL & 249,007# 20/40 SLC. Set CBP @ 9568. Perfed Bone Spring 8749-9456 5 spf, 40 holes and frac'd with 171,592 gal 20# Borate XL & 249,007# 20/40 SLC.

05-16-11 Drilled out CBPs and CO to PBTD @ 13226.

05-18-11 Installed production tubing string and SLB sub pump. Tbg: 2.875 in 6.5# L80 EUE @ 8355.

05-19-11 First oil and gas production.

Accepted for record - NMOCD

023 8-1-11

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AUG 31 2011
NMOCD ARTESIA

14. Thereby certify that the foregoing is true and correct.

Electronic Submission #115903 verified by the BLM Well Information System

For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad

Committed to AFMSS for processing by KURT SIMMONS on 08/24/2011 (11KMS2397SE)

Name(Printed/Typed) NATALIE E KRUEGER

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 08/24/2011

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By	ACCEPTED	JAMES A AMOS Title SUPERVISOR EPS	Date 08/28/2011
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Carlsbad	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

12

HOBBS OGD

JAN 30 2012

DISTRICT I

1828 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

1820 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources DepartmentForm C-102
Revised October 15, 2000Submit one copy to appropriate
District Office

RECEIVED

OIL CONSERVATION DIVISION

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-38524	Pool Code 5200	Pool Name Benson; Bone Spring
Property Code 38064	Property Name CRESCENT HALE "1" FEDERAL COM	Well Number 2
OGRID No 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3515'

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	1	19 S	30 E		330	NORTH	2310	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
N	1	19 S	30 E		330	SOUTH	2023	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160		P	

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

	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. <u>Natalie Krueger</u> 8/25/2011 Signature Date Natalie Krueger Printed Name 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. Date Surveyed: <u>8/25/2011</u> Signature & Seal of Professional Surveyor: <u>[Signature]</u> Certificate No. <u>7977</u> Basin Surveys
--	---

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No 1004-0137
Expires July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.
NMNM0560353

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.

8. Lease Name and Well No
CRESCENT HALE 1 FEDERAL 2

9. API Well No
30-015-38524-00-S1

10. Field and Pool, or Exploratory
JACKBERRY *Benson Bone Spring*

11. Sec., T., R., M., or Block and Survey
or Area Sec 1 T19S R30E Mer NMP

12. County or Parish
EDDY

13. State
NM

14. Date Spudded
03/19/2011

15. Date T.D. Reached
04/09/2011

16. Date Completed
☐ D & A ☒ Ready to Prod.
05/18/2011

17. Elevations (DF, KB, RT, GL)*
3515 GL

18. Total Depth: MD 13268
TVD 8702

19. Plug Back T.D.: MD
TVD

20. Depth Bridge Plug Set: MD
TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
POROSITY&RESIST

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23 Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 H-40	48.0	0	515		500		0	
12.250	9.625 J-55	40.0	0	4020		1400		0	
8.750	5.500 P-110	17.0	0	13268		2030		2464	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2 875	8355							

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No Holes	Perf. Status
A) BONE SPRING	8749	13218	8749 TO 9456		40	Open, Bone Spring
B)			9689 TO 10395		40	Open, Bone Spring
C)			10629 TO 11336		40	Open, Bone Spring
D)			11569 TO 12276		40	Open, Bone Spring

27 Acid, Fracture, Treatment, Cement Squeeze, Etc

Depth Interval	Amount and Type of Material
8749 TO 9456	171,592 gal 20# borate XL, 249,007# 20/40 SLC
9689 TO 10395	171,592 gal 20# Borate XL, 249,007# 20/40 SLC
10629 TO 11336	304,381 gal 20# Borate XL, 353,165# 20/40 SLC
11569 TO 12276	181,806 gal 20# Borate XL, 254,888# 20/40 SLC

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
05/19/2011	06/11/2011	24	→	266.0	921.0	1483.0	39.3	1.34	ELECTRIC PUMP SUB-SURFACE
Choke Size	Tbg Press Flwg	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas Oil Ratio	Well Status	
38/64	SI	400	→	266	921	1483	3462	POW	

28a Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas Oil Ratio	Well Status	
	SI		→						

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #116386 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

ocd-Artesia

ACCEPTED FOR RECORD

SEP 4 2011

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE
ELECTRIC PUMP SUB-SURFACERECEIVED
SEP 12 2011
ocd-ArtesiaRECLAMATION
DUE 11-18-11

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg. SI	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg. SI	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas Oil Ratio	Well Status	
			→						

29. Disposition of Gas(Sold, used for fuel, vented, etc.)

SOLD

30. Summary of Porous Zones (Include Aquifers)

Show all important zones of porosity and contents thereof. Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc	Name	Top
					Meas. Depth
YATES	2210	2430	SAND	YATES	2210
SEVEN RIVERS	2430	3080	SHALE	SEVEN RIVERS	2430
QUEEN	3080	4030	SAND	QUEEN	3080
DELAWARE	4030	4030	SAND	DELAWARE	4030
BONE SPRING	6112		SAND	BONE SPRING	6112

32. Additional remarks (include plugging procedure)

Additional Perf Interval:

8749-9456 0.42 40 holes, frac with 171,592 gal 20# Borate XL & 249,007# 20/40 SLC

Logs to be mailed to BLM.

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|----------------------|
| 1 Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4 Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7 Other: | |

34. Thereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #116386 Verified by the BLM Well Information System.

For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad

Committed to AFMSS for processing by KURT SIMMONS on 08/30/2011 (11KMS2418SE)

Name(please print) NATALIE E KRUEGER

Title REGULATORY

Signature (Electronic Submission)

Date 08/29/2011

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** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED **

Additional data for transaction #116386 that would not fit on the form

26. Perforation Record, continued

Perf Interval	Size	No. Holes	Perf Status
12501 TO 13218		40	Open, Bone Spring

27. Acid, Fracture, Treatment, Cement Squeeze, etc., continued

Depth Interval	Amount and Type of Material
12501 TO 13218	193,787 gal 20# Borate XL, 254,379# 20/40 SLC

3D-D15-38524



Cimarex Energy Co.

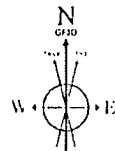
Location: Eddy County, NM
Field: (Crescent) Sec 1, T19S, R30E
Facility: Crescent Hole 1 No. 2H

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

**BAKER
HUGHES**
INTEQ

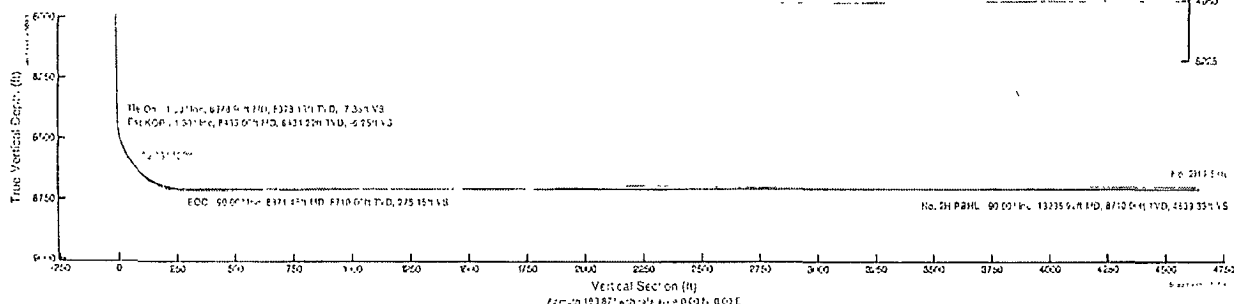
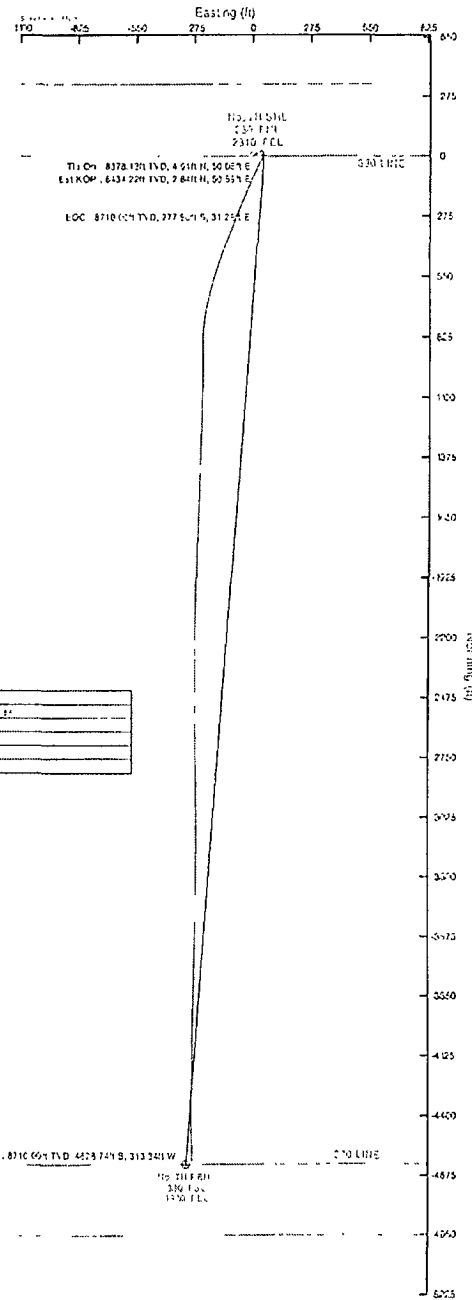
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Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (ft/100ft)
Tie On	8378.93	1.300	156.570	8378.13	4.01	50.03	0.00
1st KOP	8435.00	1.300	156.570	8134.22	2.84	50.59	0.60
LOC	8371.45	90.000	184.529	8710.00	-277.90	31.29	20.75
No. 2H PVB	13235.92	90.000	184.529	8710.00	-4028.74	-313.34	0.00
							VS (ft)
							-7.38
							-6.25
							275.15
							4639.33



EGD 11 (1315.0 to 112.0) by Co. 0753° E, 10.4016 ft
Major correction 7.87 degrees East of True North (113.5 to 101.1)
Grid North 0.22 degrees East of True North
To correct from Grid North to True North 0.22 degrees
To correct from True North to Grid North 0.22 degrees
For every 2.000 ft of True North, add 0.22 degrees to Grid North. For every 2.000 ft of Grid North, subtract 0.22 degrees from True North.

Well Name: Crescent Hole 1 No. 2H	Well Type: Oil
Well Status: Active	Well Depth: 13235.92 ft
Well Completion: Open Hole	Well Production: 0 bbl/d
Well Location: Eddy County, NM	Well Operator: Cimarex Energy Co.
Well Record: 10/1/11	Well Record: 10/1/11
Well Record: 10/1/11	Well Record: 10/1/11





Actual Wellpath Report

No. 2 AWP

Page 1 of 5



INTEQ

REFERENCE WELL INFORMATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWP
Facility	Crescent Hale 1 No. 2H		

PROJECTION SYSTEM INFORMATION			
Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Calphik
Scale	0.999927	Report Generated	4/11/2011 at 4:36:44 PM
Convergence at slot	0.22° East	Database/Source-file	WA Midland/No. 2_AWP.xml

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	666473.20	617077.80	32°41'44.628"N	103°55'35.595"W
Facility Reference Pt			666473.20	617077.80	32°41'44.628"N	103°55'35.595"W
Field Reference Pt			664708.10	613101.90	32°41'05.353"N	103°55'56.426"W

CALCULATION DATA			
Calculation method	Minimum curvature	Rig on No. 2H SHL (GL) to GL	18.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (GL) to Mean Sea Level	3533.00ft
Vertical Reference Pt	Rig on No. 2H SHL (GL)	GL to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (GL)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	183.87°



Actual Wellpath Report

No. 2 AWP

Page 2 of 5



BAKER
HUGHES

INTEQ

REFERENCE WELLPAID IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	19.260	0.00	0.00	0.00	0.00	666473.20	617077.80	32°41'44.628"N	103°55'35.595"W	0.00	
97.10	0.320	19.260	97.10	-0.26	0.26	0.09	666473.29	617078.06	32°41'44.631"N	103°55'35.594"W	0.33	
184.20	0.320	22.210	184.20	-0.73	0.71	0.26	666473.46	617078.51	32°41'44.635"N	103°55'35.592"W	0.02	
273.40	0.270	16.430	273.40	-1.17	1.14	0.42	666473.62	617078.94	32°41'44.639"N	103°55'35.590"W	0.07	
363.70	0.180	307.710	363.70	-1.46	1.43	0.36	666473.56	617079.23	32°41'44.642"N	103°55'35.591"W	0.29	
452.60	0.600	264.490	452.59	-1.46	1.47	-0.21	666472.99	617079.27	32°41'44.643"N	103°55'35.597"W	0.55	
542.50	0.710	268.920	542.49	-1.33	1.42	-1.24	666471.96	617079.22	32°41'44.642"N	103°55'35.609"W	0.13	
632.80	0.720	268.500	632.78	-1.23	1.39	-2.36	666470.84	617079.19	32°41'44.642"N	103°55'35.622"W	0.01	
728.50	0.700	263.020	728.47	-1.06	1.31	-3.54	666469.66	617079.11	32°41'44.641"N	103°55'35.636"W	0.07	
824.10	0.580	257.440	824.07	-0.82	1.13	-4.60	666468.60	617078.93	32°41'44.639"N	103°55'35.649"W	0.14	
919.70	0.450	248.530	919.66	-0.52	0.89	-5.42	666467.78	617078.69	32°41'44.637"N	103°55'35.658"W	0.16	
1015.30	0.450	244.890	1015.26	-0.18	0.59	-6.11	666467.09	617078.39	32°41'44.634"N	103°55'35.666"W	0.03	
1111.00	0.280	243.340	1110.96	0.12	0.33	-6.66	666466.54	617078.13	32°41'44.632"N	103°55'35.673"W	0.18	
1206.60	0.060	210.750	1206.56	0.29	0.18	-6.89	666466.31	617077.98	32°41'44.630"N	103°55'35.675"W	0.24	
1302.20	0.190	78.360	1302.16	0.29	0.17	-6.76	666466.44	617077.97	32°41'44.630"N	103°55'35.674"W	0.25	
1397.90	0.490	73.580	1397.86	0.10	0.32	-6.21	666466.99	617078.12	32°41'44.631"N	103°55'35.668"W	0.31	
1493.50	0.650	72.170	1493.45	-0.24	0.60	-5.30	666467.90	617078.40	32°41'44.634"N	103°55'35.657"W	0.17	
1589.10	0.800	68.500	1589.04	-0.72	1.01	-4.17	666469.03	617078.81	32°41'44.638"N	103°55'35.644"W	0.16	
1684.80	1.070	66.210	1684.73	-1.43	1.61	-2.73	666470.47	617079.41	32°41'44.644"N	103°55'35.627"W	0.28	
1780.40	1.620	71.860	1780.30	-2.35	2.39	-0.63	666472.57	617080.19	32°41'44.652"N	103°55'35.602"W	0.59	
1876.00	1.970	74.710	1875.86	-3.39	3.25	2.24	666475.44	617081.05	32°41'44.660"N	103°55'35.568"W	0.38	
1971.60	1.980	73.530	1971.40	-4.51	4.15	5.41	666478.61	617081.95	32°41'44.669"N	103°55'35.531"W	0.04	
2067.30	1.660	70.350	2067.05	-5.63	5.08	8.30	666481.50	617082.88	32°41'44.678"N	103°55'35.497"W	0.35	
2162.90	1.310	62.690	2162.62	-6.75	6.05	10.58	666483.78	617083.85	32°41'44.688"N	103°55'35.471"W	0.42	
2258.50	1.160	60.790	2258.20	-7.85	7.02	12.39	666485.59	617084.82	32°41'44.697"N	103°55'35.450"W	0.16	
2354.20	0.670	55.560	2353.89	-8.72	7.81	13.70	666486.90	617085.61	32°41'44.705"N	103°55'35.434"W	0.52	
2449.80	0.420	59.280	2449.48	-9.27	8.31	14.46	666487.66	617086.11	32°41'44.710"N	103°55'35.425"W	0.26	
2545.40	0.200	34.410	2545.08	-9.61	8.63	14.86	666488.06	617086.43	32°41'44.713"N	103°55'35.421"W	0.26	
2641.10	0.110	10.350	2640.78	-9.84	8.85	14.97	666488.17	617086.65	32°41'44.715"N	103°55'35.419"W	0.11	
2736.70	0.130	352.040	2736.38	-10.04	9.05	14.97	666488.17	617086.85	32°41'44.717"N	103°55'35.419"W	0.04	
2832.30	0.050	24.140	2831.98	-10.19	9.20	14.97	666488.17	617087.00	32°41'44.719"N	103°55'35.419"W	0.10	
2927.90	0.050	159.600	2927.58	-10.18	9.19	15.01	666488.20	617086.99	32°41'44.718"N	103°55'35.419"W	0.11	
3023.60	0.060	115.580	3023.28	-10.12	9.12	15.07	666488.27	617086.92	32°41'44.718"N	103°55'35.418"W	0.05	
3119.20	0.040	90.460	3118.88	-10.10	9.10	15.15	666488.35	617086.90	32°41'44.718"N	103°55'35.417"W	0.03	
3214.80	0.100	307.560	3214.48	-10.15	9.15	15.11	666488.31	617086.95	32°41'44.718"N	103°55'35.418"W	0.14	
3310.50	0.110	328.570	3310.18	-10.27	9.28	15.00	666488.20	617087.08	32°41'44.719"N	103°55'35.419"W	0.04	
3406.10	0.170	329.670	3405.78	-10.46	9.48	14.88	666488.08	617087.28	32°41'44.721"N	103°55'35.420"W	0.06	
3501.70	0.280	332.570	3501.38	-10.78	9.81	14.70	666487.90	617087.61	32°41'44.725"N	103°55'35.422"W	0.12	
3597.30	0.200	355.290	3596.98	-11.14	10.18	14.58	666487.78	617087.98	32°41'44.728"N	103°55'35.424"W	0.13	
3693.00	0.190	19.310	3692.68	-11.46	10.50	14.62	666487.82	617088.30	32°41'44.731"N	103°55'35.423"W	0.09	
3788.60	0.090	57.060	3788.28	-11.66	10.69	14.73	666487.93	617088.49	32°41'44.733"N	103°55'35.422"W	0.14	
3884.20	0.180	31.960	3883.88	-11.84	10.86	14.88	666488.08	617088.66	32°41'44.735"N	103°55'35.420"W	0.11	
3979.90	0.180	30.810	3979.58	-12.10	11.11	15.03	666488.23	617088.91	32°41'44.737"N	103°55'35.418"W	0.00	
4075.50	0.370	64.510	4075.17	-12.39	11.38	15.39	666488.59	617089.17	32°41'44.740"N	103°55'35.414"W	0.25	
4171.10	0.430	68.480	4170.77	-12.69	11.64	16.00	666489.20	617089.44	32°41'44.743"N	103°55'35.407"W	0.07	



Actual Wellpath Report

No. 2 AWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srvt]	Grid North [srvt]	Latitude	Longitude	DLS [°/100ft]	Comments
4266.80	0.460	73.250	4266.47	-12.98	11 88	16.70	666489.90	617089.68	32°41'44.745"N	103°55'35.399"W	0.05	
4362.40	0.500	72.940	4362.07	-13.27	12.12	17.47	666490.67	617089.91	32°41'44.747"N	103°55'35.390"W	0.04	
4458.00	0.530	75.510	4457.66	-13.56	12.35	18.30	666491.50	617090.15	32°41'44.750"N	103°55'35.380"W	0.04	
4553.60	0.560	77.980	4553.26	-13.82	12.56	19.18	666492.38	617090.36	32°41'44.752"N	103°55'35.370"W	0.04	
4649.30	0.600	76.790	4648.95	-14.10	12.77	20.13	666493.33	617090.57	32°41'44.754"N	103°55'35.359"W	0.04	
4744.90	0.730	87.190	4744.55	-14.32	12.91	21.22	666494.42	617090.71	32°41'44.755"N	103°55'35.346"W	0.19	
4840.50	0.930	86.100	4840.14	-14.49	12.99	22.60	666495.80	617090.79	32°41'44.756"N	103°55'35.330"W	0.21	
4936.20	0.990	85.250	4935.82	-14.72	13.12	24.20	666497.40	617090.92	32°41'44.757"N	103°55'35.311"W	0.06	
5031.80	0.910	94.600	5031.41	-14.83	13.12	25.78	666498.98	617090.92	32°41'44.757"N	103°55'35.293"W	0.18	
5127.40	0.740	83.820	5127.00	-14.93	13.13	27.15	666500.35	617090.93	32°41'44.757"N	103°55'35.276"W	0.24	
5223.10	0.780	88.490	5222.69	-15.10	13.21	28.42	666501.62	617091.01	32°41'44.758"N	103°55'35.262"W	0.08	
5318.70	0.660	119.440	5318.28	-14.93	12.96	29.55	666502.75	617090.76	32°41'44.755"N	103°55'35.248"W	0.42	
5414.30	0.830	133.600	5413.88	-14.25	12.21	30.53	666503.73	617090.01	32°41'44.748"N	103°55'35.237"W	0.26	
5509.90	0.380	142.750	5509.47	-13.56	11.48	31.22	666504.42	617089.28	32°41'44.740"N	103°55'35.229"W	0.48	
5605.60	0.060	213.540	5605.17	-13.28	11.19	31.39	666504.59	617088.99	32°41'44.738"N	103°55'35.227"W	0.38	
5701.20	0.220	301.820	5700.77	-13.32	11.24	31.20	666504.40	617089.04	32°41'44.738"N	103°55'35.229"W	0.24	
5796.80	0.390	311.460	5796.37	-13.61	11.55	30.80	666504.00	617089.35	32°41'44.741"N	103°55'35.234"W	0.19	
5892.50	0.520	326.060	5892.07	-14.15	12.13	30.32	666503.52	617089.93	32°41'44.747"N	103°55'35.240"W	0.18	
5988.10	0.540	340.330	5987.66	-14.91	12.91	29.92	666503.12	617090.71	32°41'44.755"N	103°55'35.244"W	0.14	
6083.70	0.620	355.680	6083.26	-15.83	13.85	29.73	666502.93	617091.65	32°41'44.764"N	103°55'35.246"W	0.18	
6179.40	0.680	6.050	6178.95	-16.91	14.94	29.75	666502.95	617092.73	32°41'44.775"N	103°55'35.246"W	0.14	
6275.00	0.800	10.260	6274.54	-18.14	16.16	29.93	666503.13	617093.95	32°41'44.787"N	103°55'35.241"W	0.14	
6370.60	0.770	22.660	6370.13	-19.41	17.41	30.30	666503.50	617095.20	32°41'44.799"N	103°55'35.239"W	0.18	
6466.30	0.760	34.610	6465.82	-20.57	18.52	30.91	666504.11	617096.32	32°41'44.810"N	103°55'35.232"W	0.17	
6561.90	0.670	45.190	6561.42	-21.53	19.44	31.66	666504.86	617097.24	32°41'44.819"N	103°55'35.223"W	0.17	
6657.50	0.890	65.370	6657.01	-22.31	20.14	32.74	666505.93	617097.94	32°41'44.826"N	103°55'35.211"W	0.36	
6753.10	0.990	76.600	6752.60	-22.90	20.64	34.21	666507.41	617098.44	32°41'44.831"N	103°55'35.194"W	0.22	
6848.80	0.960	75.270	6848.28	-23.41	21.04	35.79	666508.99	617098.84	32°41'44.835"N	103°55'35.175"W	0.04	
6944.40	0.830	70.810	6943.87	-23.93	21.47	37.22	666510.42	617099.27	32°41'44.839"N	103°55'35.158"W	0.15	
7040.00	1.030	67.650	7039.46	-24.58	22.02	38.67	666511.87	617099.82	32°41'44.845"N	103°55'35.141"W	0.22	
7135.70	1.160	88.150	7135.14	-25.06	22.38	40.43	666513.63	617100.18	32°41'44.848"N	103°55'35.121"W	0.43	
7231.30	1.030	97.490	7230.72	-25.10	22.30	42.25	666515.45	617100.10	32°41'44.847"N	103°55'35.099"W	0.23	
7326.90	0.760	120.250	7326.31	-24.77	21.87	43.65	666516.85	617099.67	32°41'44.843"N	103°55'35.083"W	0.46	
7422.60	0.630	143.940	7422.00	-24.08	21.12	44.51	666517.71	617098.92	32°41'44.835"N	103°55'35.073"W	0.33	
7518.20	0.930	147.620	7517.60	-23.05	20.04	45.24	666518.43	617097.84	32°41'44.825"N	103°55'35.065"W	0.32	
7613.80	1.190	157.080	7613.18	-21.54	18.47	46.04	666519.23	617096.27	32°41'44.809"N	103°55'35.055"W	0.33	
7709.40	1.170	161.960	7708.76	-19.75	16.63	46.73	666519.92	617094.43	32°41'44.791"N	103°55'35.047"W	0.11	
7805.10	1.090	165.150	7804.44	-17.98	14.82	47.26	666520.46	617092.62	32°41'44.773"N	103°55'35.041"W	0.11	
7900.70	1.000	173.940	7900.02	-16.30	13.11	47.58	666520.78	617090.91	32°41'44.756"N	103°55'35.037"W	0.19	
7996.30	1.120	164.250	7995.61	-14.60	11.39	47.93	666521.12	617089.18	32°41'44.739"N	103°55'35.034"W	0.23	
8092.00	1.240	172.690	8091.29	-12.70	9.46	48.31	666521.51	617087.26	32°41'44.720"N	103°55'35.029"W	0.22	
8187.60	0.930	167.870	8186.87	-10.94	7.67	48.61	666521.80	617085.17	32°41'44.702"N	103°55'35.026"W	0.34	
8283.20	1.260	155.280	8282.45	-9.27	5.96	49.21	666522.40	617083.76	32°41'44.685"N	103°55'35.019"W	0.43	
8378.90	1.300	156.570	8378.13	-7.38	4.01	50.08	666523.28	617081.81	32°41'44.666"N	103°55'35.009"W	0.05	
8384.00	1.700	221.000	8383.23	-7.27	3.90	50.05	666523.25	617081.70	32°41'44.665"N	103°55'35.009"W	0.05	



Actual Wellpath Report

No. 2 AWP

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DIS [°/100ft]	Comments
8416.00	1.700	241.400	8415.21	-6.64	3.31	49.33	666522.52	617081.11	32°41'44.659"N	103°55'35.017"W	1.88	
8448.00	4.600	209.700	8447.16	-5.23	1.97	48.27	666521.47	617079.77	32°41'44.646"N	103°55'35.030"W	10.24	
8480.00	11.200	201.300	8478.84	-1.10	-2.04	46.51	666519.70	617075.76	32°41'44.606"N	103°55'35.051"W	20.88	
8512.00	17.100	210.000	8509.86	6.09	-9.02	43.02	666516.22	617068.78	32°41'44.537"N	103°55'35.092"W	19.55	
8544.00	23.300	207.900	8539.88	16.11	-18.70	37.70	666510.90	617059.10	32°41'44.442"N	103°55'35.154"W	19.50	
8576.00	30.200	208.600	8568.44	29.22	-31.37	30.88	666504.08	617046.43	32°41'44.316"N	103°55'35.235"W	21.58	
8608.00	36.800	205.200	8595.11	45.47	-47.13	22.94	666496.14	617030.67	32°41'44.161"N	103°55'35.329"W	21.44	
8640.00	43.100	203.900	8619.63	64.69	-65.82	14.42	666487.62	617011.99	32°41'43.976"N	103°55'35.429"W	19.86	
8672.00	47.300	207.900	8642.18	85.72	-86.22	4.48	666477.68	616991.59	32°41'43.775"N	103°55'35.546"W	15.84	
8704.00	53.500	204.100	8662.57	108.55	-108.38	-6.29	666466.91	616969.43	32°41'43.556"N	103°55'35.673"W	21.42	
8734.00	60.000	203.200	8679.01	132.15	-131.35	-16.34	666456.86	616946.46	32°41'43.329"N	103°55'35.792"W	21.81	
8766.00	66.600	204.000	8693.38	159.04	-157.53	-27.78	666445.42	616920.28	32°41'43.071"N	103°55'35.927"W	20.75	
8797.00	73.100	203.400	8704.05	186.41	-184.16	-39.47	666433.73	616893.65	32°41'42.807"N	103°55'36.065"W	21.05	
8821.00	78.300	203.400	8709.98	208.32	-205.50	-48.70	666424.50	616872.32	32°41'42.597"N	103°55'36.174"W	21.67	
8829.00	80.100	203.100	8711.48	215.73	-212.72	-51.81	666421.40	616865.10	32°41'42.525"N	103°55'36.211"W	22.80	
8861.00	88.400	203.000	8714.68	245.78	-241.99	-64.26	666408.94	616835.83	32°41'42.236"N	103°55'36.358"W	25.94	
8893.00	89.400	202.000	8715.30	276.09	-271.55	-76.50	666396.70	616806.27	32°41'41.944"N	103°55'36.502"W	4.42	
8956.00	89.600	201.900	8715.85	335.98	-329.98	-100.05	666373.15	616747.85	32°41'41.367"N	103°55'36.780"W	0.35	
9052.00	90.700	200.500	8715.59	427.62	-419.48	-134.77	666338.44	616658.35	32°41'40.483"N	103°55'37.191"W	1.85	
9148.00	91.300	198.600	8713.92	520.03	-509.92	-166.89	666306.33	616567.91	32°41'39.589"N	103°55'37.570"W	2.08	
9244.00	91.900	196.500	8711.24	613.27	-601.42	-195.82	666277.39	616476.43	32°41'38.685"N	103°55'37.913"W	2.27	
9339.00	90.800	191.100	8709.00	706.78	-693.61	-218.46	666254.75	616384.24	32°41'37.774"N	103°55'38.182"W	5.80	
9435.00	89.900	185.400	8708.11	802.46	-788.58	-232.23	666240.98	616289.28	32°41'36.834"N	103°55'38.348"W	6.01	
9530.00	89.200	179.800	8709.16	897.40	-883.44	-236.54	666236.68	616194.43	32°41'35.896"N	103°55'38.402"W	5.94	
9626.00	89.200	179.600	8710.50	993.13	-979.43	-236.04	666237.18	616098.45	32°41'34.946"N	103°55'38.401"W	0.21	
9687.00	90.300	180.300	8710.77	1053.99	-1040.42	-235.99	666237.23	616037.45	32°41'34.343"N	103°55'38.403"W	2.14	
9722.00	90.700	181.100	8710.46	1088.93	-1075.42	-236.41	666236.80	616002.46	32°41'33.996"N	103°55'38.409"W	2.56	
9817.00	90.900	181.900	8709.13	1183.84	-1170.38	-238.90	666234.32	615907.51	32°41'33.057"N	103°55'38.443"W	0.87	
9913.00	90.100	181.900	8708.30	1279.78	-1266.32	-242.08	666231.14	615811.57	32°41'32.108"N	103°55'38.484"W	0.83	
10009.00	89.000	182.600	8709.05	1375.74	-1362.24	-245.85	666227.37	615715.66	32°41'31.159"N	103°55'38.533"W	1.36	
10105.00	88.600	181.700	8711.06	1471.67	-1458.15	-249.45	666223.77	615619.76	32°41'30.210"N	103°55'38.579"W	1.03	
10201.00	89.300	181.700	8712.82	1567.58	-1554.09	-252.30	666220.92	615523.82	32°41'29.261"N	103°55'38.617"W	0.73	
10297.00	91.200	181.700	8712.40	1663.51	-1650.05	-255.15	666218.07	615427.88	32°41'28.312"N	103°55'38.654"W	1.98	
10390.00	91.800	182.600	8709.97	1756.43	-1742.95	-258.63	666214.58	615334.98	32°41'27.393"N	103°55'38.699"W	1.16	
10485.00	92.400	181.600	8706.48	1851.32	-1837.82	-262.11	666211.11	615240.12	32°41'26.454"N	103°55'38.744"W	1.23	
10581.00	92.200	181.900	8702.63	1947.18	-1933.70	-265.04	666208.18	615144.25	32°41'25.505"N	103°55'38.783"W	0.38	
10677.00	91.300	181.300	8699.70	2043.06	-2029.61	-267.72	666205.50	615048.34	32°41'24.557"N	103°55'38.818"W	1.13	
10772.00	91.300	181.500	8697.54	2137.95	-2124.56	-270.04	666203.18	614953.40	32°41'23.617"N	103°55'38.850"W	0.21	
10868.00	89.600	179.800	8696.79	2233.78	-2220.54	-271.13	666202.09	614857.42	32°41'22.668"N	103°55'38.867"W	2.50	
10963.00	89.600	180.400	8697.45	2328.58	-2315.54	-271.30	666201.92	614762.43	32°41'21.728"N	103°55'38.873"W	0.63	
11059.00	89.700	179.900	8698.04	2424.37	-2411.54	-271.55	666201.67	614666.44	32°41'20.778"N	103°55'38.880"W	0.53	
11155.00	89.300	180.000	8698.88	2520.14	-2507.53	-271.46	666201.76	614570.45	32°41'19.828"N	103°55'38.884"W	0.43	
11250.00	89.100	179.500	8700.20	2614.89	-2602.52	-271.05	666202.17	614475.47	32°41'18.888"N	103°55'38.883"W	0.57	
11346.00	89.800	179.300	8701.13	2710.59	-2698.51	-270.04	666203.18	614379.49	32°41'17.938"N	103°55'38.876"W	0.76	
11442.00	89.500	179.200	8701.71	2806.27	-2794.50	-268.79	666204.43	614283.51	32°41'16.989"N	103°55'38.865"W	0.33	

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Eddy County, NM	Well	No. 2H
Field	(Crescent) Sec 1, T19S, R30E	Wellbore	No. 2 AWB
Facility	Crescent Hale 1 No. 2H		

WELLPATH DATA (155 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srvc ft]	Grid North [srvc ft]	Latitude	Longitude	DLS [%/100ft]	Comments
11538.00	89.000	178.900	8702.97	2901.93	-2890.48	-267.20	666206.02	614187.54	32°41'16.039"N	103°55'38.851"W	0.61	
11633.00	89.800	179.700	8703.96	2996.62	-2985.47	-266.04	666207.18	614092.56	32°41'15.099"N	103°55'38.841"W	1.19	
11729.00	89.500	179.700	8704.55	3092.36	-3081.46	-265.53	666207.69	613996.57	32°41'14.149"N	103°55'38.840"W	0.31	
11825.00	90.000	180.700	8704.97	3188.16	-3177.46	-265.87	666207.35	613900.58	32°41'13.199"N	103°55'38.848"W	1.16	
11921.00	89.900	180.700	8705.05	3284.01	-3273.45	-267.04	666206.18	613804.59	32°41'12.250"N	103°55'38.866"W	0.10	
12017.00	89.900	180.600	8705.22	3379.86	-3369.45	-268.13	666205.09	613708.61	32°41'11.300"N	103°55'38.883"W	0.10	
12113.00	90.100	181.100	8705.22	3475.73	-3465.44	-269.55	666203.67	613612.62	32°41'10.350"N	103°55'38.903"W	0.56	
12209.00	89.900	181.100	8705.22	3571.62	-3561.42	-271.40	666201.82	613516.65	32°41'09.400"N	103°55'38.930"W	0.21	
12305.00	90.000	181.500	8705.30	3667.52	-3657.39	-273.58	666199.64	613420.68	32°41'08.451"N	103°55'38.960"W	0.43	
12400.00	90.000	181.600	8705.30	3762.44	-3752.36	-276.15	666197.08	613325.72	32°41'07.511"N	103°55'38.994"W	0.11	
12496.00	90.300	182.000	8705.05	3858.38	-3848.31	-279.16	666194.06	613229.78	32°41'06.562"N	103°55'39.034"W	0.52	
12592.00	90.600	181.500	8704.30	3954.31	-3944.26	-282.09	666191.13	613133.83	32°41'05.613"N	103°55'39.072"W	0.61	
12688.00	90.700	181.200	8703.21	4050.21	-4040.23	-284.35	666188.87	613037.87	32°41'04.663"N	103°55'39.103"W	0.33	
12783.00	90.600	181.000	8702.13	4145.09	-4135.21	-286.18	666187.04	612942.90	32°41'03.724"N	103°55'39.129"W	0.24	
12879.00	90.500	180.600	8701.21	4240.95	-4231.19	-287.52	666185.70	612846.93	32°41'02.774"N	103°55'39.149"W	0.43	
12975.00	90.300	180.200	8700.54	4336.77	-4327.19	-288.19	666185.03	612750.94	32°41'01.824"N	103°55'39.161"W	0.47	
13070.00	89.900	180.100	8700.37	4431.57	-4422.19	-288.44	666184.78	612655.95	32°41'00.884"N	103°55'39.168"W	0.43	
13166.00	89.400	179.500	8700.96	4527.32	-4518.18	-288.10	666185.12	612559.96	32°40'59.935"N	103°55'39.168"W	0.81	
13212.00	89.500	179.200	8701.40	4573.18	-4564.18	-287.58	666185.64	612513.96	32°40'59.479"N	103°55'39.164"W	0.69	
13268.00	89.500	179.200	8701.89	4628.99	-4620.17	-286.80	666186.42	612457.98	32°40'58.925"N	103°55'39.158"W	0.00	Project to Bit

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
No. 2H PBHL		8710.00	-4628.74	-313.32	666159.90	612449.41	32°40'58.842"N	103°55'39.468"W	point

WELLPATH COMPOSITION Ref Wellbore: No. 2 AWB Ref Wellpath: No. 2 AWP

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	8378.90	Generic gyro - northseeking (Standard)	Gyro	No. 2 AWB
8378.90	13268.00	NaviTrak (Standard)	MWD	No. 2 AWB



INTEQ

End of Well Report

Cimarex Energy Co.

Eddy County, NM

Crescent Hale 1 Fed No. 2H

Cactus 101

Well Specifications

Well Name: Crescent Hale 1 Fed No. 2H
Start Date: 4/2/2011
Client: Cimarex Energy Co.
Rig Name: Cactus 101
County: Eddy County, NM
Field: (Crescent) Sec 1, T19S, R30E

Well Location:

NAD83 / TM New Mexico State Planes, Eastern Zone (3001)

Grid Coordinates

Easting: 666473.20'
Northing: 617077.80'

Geographical Coordinates

Latitude: 32°41'44.628"N
Longitude: 103°55'35.595"W

RT: 3,533' above M.S.L.

Date TD Reached: 4/9/2011

Final Depth MD: 13,268'

Final Depth TVD: 8,701.89'



KB - 19' above GL

Cimarex Energy Co. of Colorado

Crescent Hale 1 Fed Com 2H

SHL - 330' FNL & 2310' FWL

BHL - 330' FSL & 1980' FWL

Sec 1, T-19-S, R-30-E, Eddy Co., NM

M Ketter

05/3/2011

13-3/8 48# H40 csg @ 520'
cmtd w/ 520 sx, cmt circ

TOC 5 1/2" csg @ 2464' (TS)

9-5/8" 40# J55 csg @ 4020'
cmtd w/ 1400 sx, cmt circ

Quantity	Description	Length	Selling Depth
	KB	18	18
1	Submersible Hanger	0.50	18.50
1	2-7/8" x 4' L80 Tbg Sub	4.10	22.60
257	2-7/8" 6.5# L-80 8rd EUE Tbg	8140.57	8163.17
1	2-7/8" x 4' L80 Tbg Sub	4.10	8167.27
1	SLB Pump	80.00	8247.27
1	SLB Intake	6.30	8253.57
1	SLB Protector	3.50	8257.07
1	SLB Motor	26.90	8283.97
1	SLB Phoenix	3.00	8286.97
1	Cavins Desander	4.80	8291.77
2	2-7/8" 6.5# L-80 8rd EUE 1 og w/Bull Plug	63.58	8355.35
	Total String Length	8337.35	

Centralift ESP Assy @ 8163'

2nd Bone Spring Perfs 8,749'-13,213' MD

KOP @ 8435'

PBTD @ 13,220' (MD)
TD @ 13,268' (MD), 8,702' (TVD)
5-1/2" 17# P119 @ 13268'
cmtd w/ 2 sxs, TOC @ 2464' (TS)

HOBBS OCD

JAN 30 2012

RECEIVED



CACTUS DRILLING COMPANY, L.L.C.

30-015-38524

REPORT OF PROOF OF APPARENT DEVIATION
NEW MEXICO

OPERATOR CIMAREX CO OF COLORADO

600 N MARIENFELD ST
MIDLAND, TX 79701

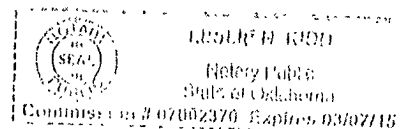
FIELD NAME

COUNTY/PARISH EDDY

WELL NAME & NO. CRESCENT HALE 1 FED COM 2

LEGAL SEC 1-10S-30E

MEASURED DEPTH (FT)	COURSE LENGTH (HUNDREDS OF FT)	ANGLE OF INCLINATION (DEGREES)	DISPLACEMENT PER HUNDRED FT (SINE OF ANGLE X 100)	COURSE DISPLACEMENT (FEET)	ACCUMULATIVE DISPLACEMENT (FEET)	REMARKS
087	6.87	1/2	0.8727	6.00	6.00	
987	3.00	1/2	0.8727	2.62	8.61	
1480	4.93	1/2	0.8727	4.30	12.92	
1880	4.00	1/2	0.8727	3.49	16.41	
2245	3.65	1/2	0.8727	3.19	19.59	
2713	4.68	1/2	0.8727	4.08	23.68	
2999	2.86	1/2	0.8727	2.50	26.17	
3488	4.89	1/2	0.8727	4.27	30.44	
3980	4.92	1/2	0.8727	4.29	34.73	
4270	2.90	1/2	0.8727	2.53	37.26	
4652	3.82	1/2	0.8727	3.33	40.60	
5045	3.93	1/2	0.8727	3.43	44.03	
5426	3.81	1/2	0.8727	3.32	47.35	
5809	3.83	1/2	0.8727	3.34	50.69	
6182	3.73	1/2	0.8727	3.25	53.95	
6565	3.83	1/2	0.8727	3.34	57.29	
6948	3.83	1/2	0.8727	3.34	60.63	
7341	3.93	1/2	0.8727	3.43	64.06	
7723	3.82	1/2	0.8727	3.33	67.40	
8106	3.83	1/2	0.8727	3.34	70.74	
8395	2.89	1/2	0.8727	2.52	73.26	



Leslie H. Kidd

P.O. Box 270848 • Oklahoma City, OK 73137-0848
(405) 577-5347 • Fax (405) 577-9306

8/25/2011

HOBBS OCD

JAN 30 2012

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District I
1625 N. French Dr., Hobbs, NM 88240
District II
201 W. Grand Avenue, Artesia, NM 85210
District III
1000 Rio Prazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-104
Revised June 10, 2003

Submit to Appropriate District Office
5 Copies

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

¹ Operator name and Address Cimarex Energy Co of Colorado 600 N. Marionfeld St., Ste. 600 Midland, TX 79701		² OGRID Number 162683
⁴ API Number 30-015-38524		³ Reason for Filing Code/ Effective Date NW / 05-19-11
⁵ Pool Name Hackberry	⁶ Pool Code 5200	
⁷ Property Code 38064	⁸ Property Name Crescent Hale 1 Federal Com	⁹ Well Number 002

II. ¹⁰ 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	1	19S	30E		330	North	2310	West	Eddy

¹¹ Bottom Hole Location

Ul or lot no.	Section	Township	Range	Lot/Idn	Feet from the	North/South Line	Feet from the	East/West line	County
N	1	19S	30E		-330	South	2023	West	Eddy

¹² Use Code F	¹³ Producing Method Code P	¹⁴ Gas Connection Date	¹⁵ C-129 Permit Number	¹⁶ C-129 Effective Date	¹⁷ C-129 Expiration Date
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III. Oil and Gas Transporters

¹⁸ Transporter OGRID	¹⁹ Transporter Name and Address	²⁰ POD	²¹ O/G	²² POD ULSR Location and Description
36785	DCP Midstream, LP 370 17 th St, Ste 2500 Denver, CO		G	Same as above
21778	Sunoco Inc R&M PO Box 2039 Tulsa, OK		O	

IV. Produced Water

²³ POD	²⁴ POD ULSR Location and Description Same as above
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V. Well Completion Data

²⁵ Spud Date 03/19/2011	²⁶ Ready Date 05/18/11	²⁷ TD MD 13268 TVD 8702	²⁸ PHTD MD TVD	²⁹ Perforations 8749-13218	³⁰ DIHC, MC
³¹ Hole Size 17%	³² Casing & Tubing Size 13%	³³ Depth Set 515	³⁴ Sacks Cement 500		
12%	9%	4020	1400		
8%	5%	13268	2030		
	2%	8355			

VI. Well Test Data

³⁵ Date New Oil 05-19-2011	³⁶ Gas Delivery Date 05-20-2011	³⁷ Test Date 06-11-2011	³⁸ Test Length 24 hrs	³⁹ Tbg. Pressure 400	⁴⁰ Csg. Pressure 250
⁴¹ Choke Size 28/64	⁴² Oil 266	⁴³ Water 1483	⁴⁴ Gas 921	⁴⁵ AOF	⁴⁶ Test Method Producing

⁴⁷ I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature: *Carolyn Larson*

Printed name: Carolyn Larson

Title: Regulatory Analyst

E-mail Address: clarson@cimarex.com

Date: 9/30/2011

Phone: 432-620-1946

OIL CONSERVATION DIVISION	
Approved by: <i>[Signature]</i>	Title: <i>Godoxist</i>
Approval Date: <i>JAN 30 2012</i>	

Em