

DISTRICT I
1825 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 3001538294	Pool Code 97056	Pool Name Hackeberry; Bone Spring, North
Property Code 38395	Property Name WEST SHUGART 32 STATE COM	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3570

Surface Location

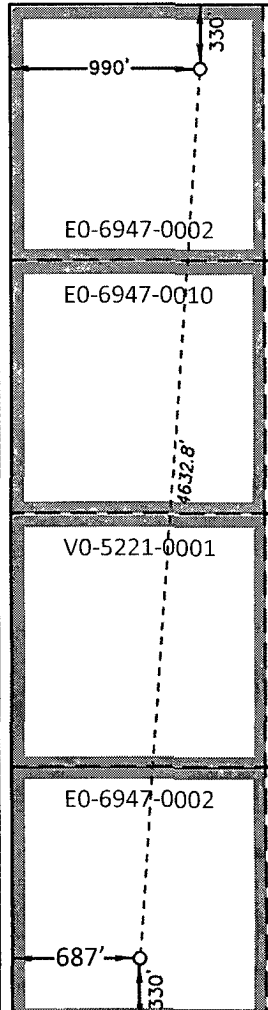
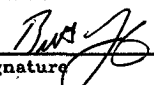
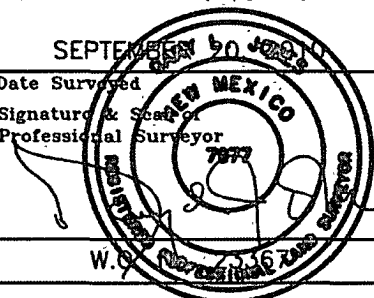
UL or lot No. D	Section 32	Township 18 S	Range 31 E	Lot Idn	Feet from the 330	North/South line NORTH	Feet from the 990	East/West line WEST	County EDDY
--------------------	---------------	------------------	---------------	---------	----------------------	---------------------------	----------------------	------------------------	----------------

Bottom Hole Location If Different From Surface

UL or lot No. M	Section 32	Township 18 S	Range 31 E	Lot Idn	Feet from the 330	North/South line SOUTH	Feet from the 687	East/West line WEST	County EDDY
--------------------	---------------	------------------	---------------	---------	----------------------	---------------------------	----------------------	------------------------	----------------

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

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

	SURFACE LOCATION Lat - N 32°42'36.929" Long - W 103°53'49.155" NMSPCE- N 622399.5 E 675547.0 (NAD-83) PROPOSED BOTTOM HOLE LOCATION Lat - N 32°41'51.209" Long - W 103°53'52.919" NMSPCE- N 617777.64 E 675244.37 (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. Signature:  Date: 9/29/11 Printed Name: Brett Jennings Regulatory 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. SEPTEMBER 30 2011 Date Surveyed Signature & Seal of Professional Surveyor  Certificate No. Gary L. Jones 7977 BASIN SURVEYS 23367
---	--	--

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., 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

Form C-103
May 27, 2004

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

WELL API NO.
30-015-38294

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name

West Shugart 32 State Com

8. Well Number
001

9. OGRID Number
162683

10. Pool name or Wildcat
Hackberry; Bone Spring, North

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS)

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

2. Name of Operator
Cimarex Energy Co. of Colorado

3. Address of Operator
600 N. Marienfeld St., Ste. 600; Midland, TX 79701

4. Well Location
SHL Unit Letter D : 330 feet from the North line and 990 feet from the West line
Section 32 Township 18S Range 31E NMPM County Eddy

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
3570 GR

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type Depth to Groundwater Distance from nearest fresh water well Distance from nearest surface water

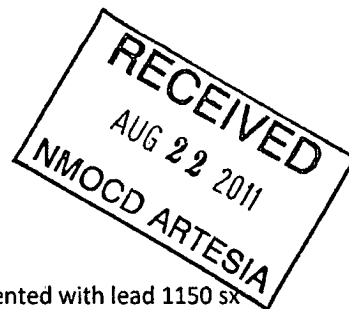
Pit Liner Thickness: Below-Grade Tank: Volume bbls; Construction Material

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK ☐	PLUG AND ABANDON ☐	REMEDIAL WORK ☐	ALTERING CASING ☐
TEMPORARILY ABANDON ☐	CHANGE PLANS ☐	COMMENCE DRILLING OPNS ☐	P AND A ☐
PULL OR ALTER CASING ☐	MULTIPLE COMPL ☐	CASING/CEMENT JOB ☒	
OTHER: ☐		OTHER: ☐	

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

05-17-11 Spud 17.5" hole. Ran 13.375" 48# K55 STC @ 574.
05-18-11 Cemented with lead 320 sx Class C, tail 220 sx Premium C, circ 195 sx, WOC 45 hrs, tested to 1000# for 30 min, ok.
05-26-11 In 12.25" hole, ran 9.625" 40# J55 LTC @ 4222. Cemented with lead 1250 sx Premium C, tail 215 sx Premium C, no rtms. TS TOC 830. One-inch to 809 with 300 sx, no rtms. Tagged @ 123. One-inched with 75 sx, circ to surf. Tested to 2060# for 30 min, ok. WOC 19.5 hrs.
06-04-11 Drilled 8.75" hole to 9150 and logged.
06-05-11 TIH to 9086 to set 285 sx balanced cement plug. Tagged @ 8622.
06-06-11 Pumped additional 120 sx cmt for plug. Tagged @ 8601.
06-07-11 Pumped additional 220 sx cmt for plug, tagged @ 8067.
06-08-11 Dressed plug to 8488 and kicked off 8.75" lateral @ 8488.
06-10-11 Drilled cement from 8547-8640 and decided to re-cement plug. Re-cemented with 165 sx H.
06-11-11 Dressed to 8462 and kicked off 8.75" lateral @ 8460.
06-24-11 TD @ 13354 MD, 8838 TVD.
06-28-11 Ran 5.5" 17# P110 casing from 0-13354. 0-8427 LTC, 8427-8873 BTC, 8873-13354 LTC. Cemented with lead 1150 sx Econocem, tail 1370 sx Versacem, circ 370 sx. Tested to 5000# for 30 min, ok. RR.



I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOC D guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE Natalie Krueger TITLE Regulatory Analyst DATE August 18, 2011

Type or print name Natalie Krueger email address: nkruieger@cimarex.com Telephone No. 432-620-1936

For State Use Only

APPROVED BY: David Gray TITLE Field Supervisor DATE 8-23-11
Conditions of Approval (if any):

10

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., 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

Form C-103
May 27, 2004

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

WELL API NO.
30-015-38294

5. Indicate Type of Lease
STATE ☒ FEE ☐

6. State Oil & Gas Lease No.

7. Lease Name or Unit Agreement Name

West Shugart 32 State Com ☒

8. Well Number
001 ☒

9. OGRID Number
162683 ☒

10. Pool name or Wildcat
Hackberry; Bone Spring, North

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

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

2. Name of Operator
Cimarex Energy Co. of Colorado

3. Address of Operator
600 N. Marienfeld St., Ste. 600; Midland, TX 79701

4. Well Location
SHL Unit Letter D : 330 feet from the North line and 990 feet from the West line
Section 32 Township 18S Range 31E NMPM County Eddy

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
3570 GR

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____

Pit Liner Thickness: _____ Below-Grade Tank: Volume _____ bbls; Construction Material _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS ☐ P AND A ☐
CASING/CEMENT JOB ☒
OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

See attached PEAK diagram for location of Frac Ports and Stages.

07-12-11 Perfed Bone Spring 12913-13314 5 spf, 40 holes.
07-22-11 Frac'd with 307,510 gal 20# XL Borate & 387,041# 16/30 White Sand.
07-23-11 Frac'd Stage 2 (12312-12741) with 299,180 gal 20# XL Borate & 361,857# 16/30 White Sand. Frac'd Stage 3 (11770-12194) with 309,269 gal 20# XL Borate & 359,730# 16/30 White Sand. Frac'd Stage 4 (11198-11605) with 306,097 gal 20# XL Borate & 380,490# 16/30 White Sand. Frac'd Stage 5 (10624-11069) with 264,262 gal 20# XL Borate & 367,132# 16/30 White Sand. Frac'd Stage 6 (10061-10481) with 286,604 gal 20# XL Borate & 407,603# 16/30 White Sand.
07-24-11 Frac'd Stage 7 (9497-9898) with 288,528 gal 20# XL Borate & 359,222# 16/30 White Sand. Frac'd Stage 8 (8914-9344) with 286,547 gal 20# XL Borate & 332,592# 16/30 White Sand.
08-03-11 Began milling out seats.
08-08-11 Finished milling out seats and CO to PBTD @ 13161.
08-11-11 Installed production tubing string: 2.875" 6.5# L80 EUE to 8389. Also installed SLB REDA sub pump. Turned to production.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE Natalie Krueger TITLE Regulatory Analyst DATE August 18, 2011

Type or print name Natalie Krueger email address: nkrueger@cimarex.com Telephone No. 432-620-1936

For State Use Only

APPROVED BY: Donald Young TITLE Field Supervisor DATE 8-23-11
Conditions of Approval (if any):

RECEIVED
AUG 22 2011
NMOCD ARTESIA



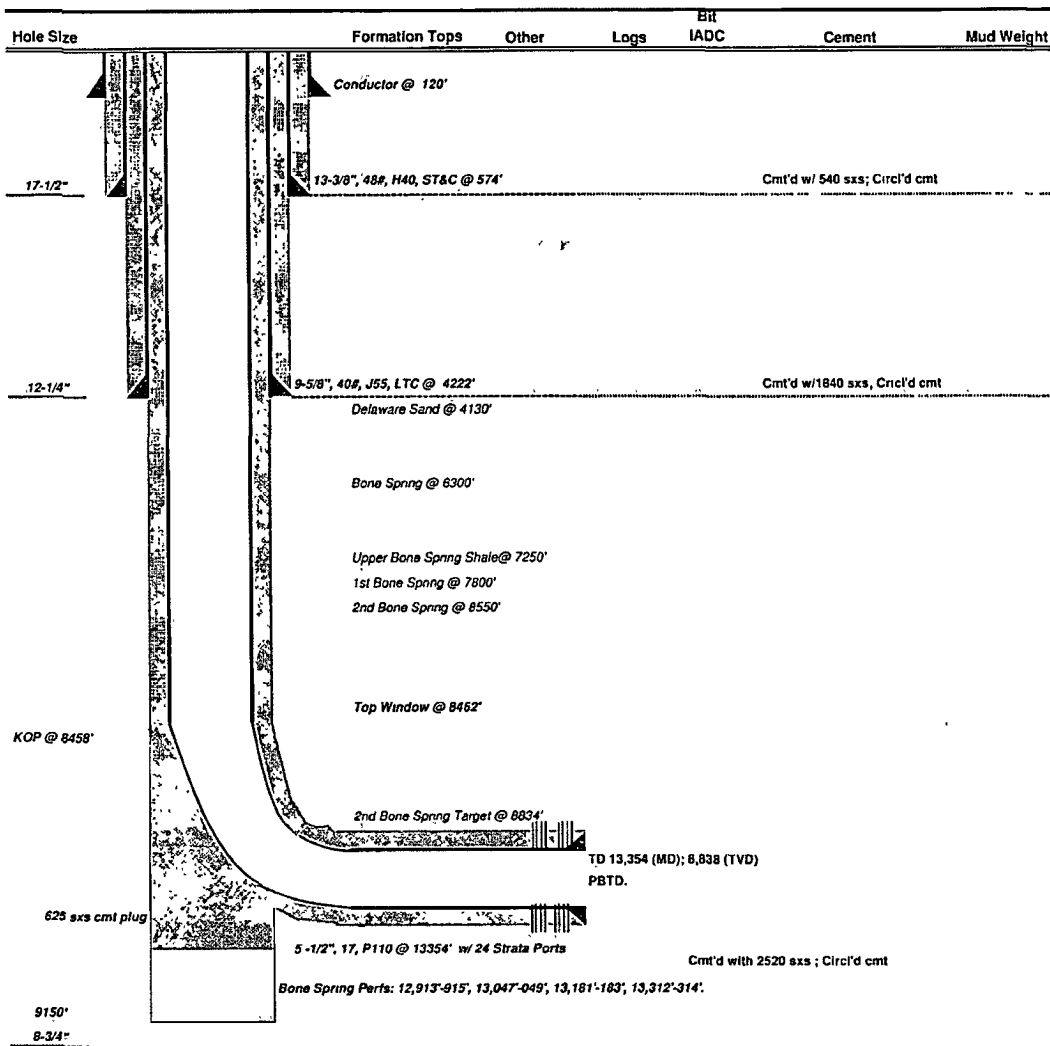
Cimarex Energy Company

8/18/2011

Well: West Shugart 32 State 1H
Location: Sec 32, T18S-R31E
County, State: Eddy
Surface Location: 330' FNL 990' FWL
Bottomhole Loc: 330' FSL 660' FWL
E-Mail: wellsite35@cimarex.com
Wellhead: SEC A 11" 5M x 9-5/8" SOW
SEC B. 11" 5M X 7-1/16" 10M

Co. Well ID: 309775-007
AFE No.: 250065
API No.: 30-015-38294
Lse Serial #:
Field: Shugart
Objective: 2nd Bone Spring
TVD/MD: 8850' / 13345
Cementing: Halliburton
Mud: MI
Motors: Baker
OH Logs
Rlg: Cactus 115
Offset Wells: West Shugart 31-3,4, 5

Xmas Tree
Tubing: 2 7/8" L80 EUE
Superintendent: Dee Smith
Engineer: Ryan Braxton



Quantity	Description	Length	Setting Depth
1	KB	18	18
1	Pup Jt	4 10	22 10
252	2-7/8" 6 5# L80 8rd EUE Tbg	8162 24	8184 34
1	Pup Jt	4 10	8188 44
4	Pumps	78 00	8266 44
1	AGH Pump	6 30	8272 74
1	Intake	3 50	8276 24
1	Protector	8 20	8284 44
1	Motor	31 70	8316 14
1	Phoenix	3 00	8319 14
1	De-Sander	4 00	8323 14
2	2-7/8" 6 5# L80 8rd EUE Tbg	64 82	8387 96
1	Bull Plug	0 75	8388 71

Submit To Appropriate District Office State Lease - 6 copies Fee Lease - 5 copies 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 Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505	Form C-105 Revised June 10, 2003 WELL API NO. 30-015-38294 5. Indicate Type of Lease STATE ☒ FEE ☐ State Oil & Gas Lease No.																								
WELL COMPLETION OR RECOMPLETION REPORT AND LOG																										
1a. Type of Well: OIL WELL ☒ GAS WELL ☐ DRY ☐ OTHER _____ b. Type of Completion: NEW ☒ WORK ☐ DEEPEN ☐ PLUG ☐ DIFF. ☐ WELL OVER BACK RESVR. ☐ OTHER		7. Lease Name or Unit Agreement Name West Shugart 32 State Com																								
2. Name of Operator Cimarex Energy Co. of Colorado		8. Well No. 001																								
3. Address of Operator 600 N. Marienfeld, Ste 600 Midland, TX 79701		9. Pool name or Wildcat Hackberry; Bone Spring, North																								
4. Well Location SHL: Unit Letter <u>D</u> : <u>330</u> Feet From The <u>North</u> Line and <u>990</u> Feet From The <u>West</u> Line Section <u>32</u> Township <u>18S</u> Range <u>31E</u> NMPM _____ County <u>Eddy</u>																										
10. Date Spudded 05-17-11	11. Date T.D. Reached 06-24-11	12. Date Compl. (Ready to Prod.) 08-11-11																								
13. Elevations (DF& RKB, RT, GR, etc.) 3570 GR		14. Elev. Casinghead																								
15. Total Depth MD 13354 TVD 8838	16. Plug Back T.D. MD 13354 TVD 8838	17. If Multiple Compl. How Many Zones?																								
18. Intervals Drilled By Rotary Tools Rotary		19. Producing Interval(s), of this completion - Top, Bottom, Name 8914-13314 Bone Spring																								
20. Was Directional Survey Made Yes		21. Type Electric and Other Logs Run Porosity & Resistivity																								
22. Was Well Cored No		23. CASING RECORD (Report all strings set in well)																								
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>CASING SIZE</th> <th>WEIGHT LB./FT.</th> <th>DEPTH SET</th> <th>HOLE SIZE</th> <th>CEMENTING RECORD</th> <th>AMOUNT PULLED</th> </tr> <tr> <td>13 3/8</td> <td>48</td> <td>574</td> <td>17 1/2</td> <td>540</td> <td></td> </tr> <tr> <td>9 5/8</td> <td>40</td> <td>4222</td> <td>12 1/4</td> <td>1840</td> <td></td> </tr> <tr> <td>5 1/2</td> <td>17</td> <td>13354</td> <td>8 3/4</td> <td>2520</td> <td></td> </tr> </table>	CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED	13 3/8	48	574	17 1/2	540		9 5/8	40	4222	12 1/4	1840		5 1/2	17	13354	8 3/4	2520		24. LINER RECORD	
CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED																					
13 3/8	48	574	17 1/2	540																						
9 5/8	40	4222	12 1/4	1840																						
5 1/2	17	13354	8 3/4	2520																						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>SIZE</th> <th>TOP</th> <th>BOTTOM</th> <th>SACKS CEMENT</th> <th>SCREEN</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN						25. TUBING RECORD															
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN																						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>SIZE</th> <th>DEPTH SET</th> <th>PACKER SET</th> </tr> <tr> <td>2 3/8</td> <td>8389</td> <td>---</td> </tr> </table>	SIZE	DEPTH SET	PACKER SET	2 3/8	8389	---	26. Perforation record (interval, size, and number) 12913-13314 5SPF .41 40 Holes Ball drop system 12312-12741, 11770-12194, 11198-11605, 10624-11069, 10061-10481, 9497-9898, 8914-9344																			
SIZE	DEPTH SET	PACKER SET																								
2 3/8	8389	---																								
27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.																										
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>DEPTH INTERVAL</th> <th>AMOUNT AND KIND MATERIAL USED</th> </tr> <tr> <td>8914-13314</td> <td>2,146,772 gal 20# XL Borate & 2,955,667# 16/30 White Sand</td> </tr> </table>	DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED	8914-13314	2,146,772 gal 20# XL Borate & 2,955,667# 16/30 White Sand	28. PRODUCTION																					
DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED																									
8914-13314	2,146,772 gal 20# XL Borate & 2,955,667# 16/30 White Sand																									
Date First Production 08-15-11	Production Method (Flowing, gas lift, pumping - Size and type pump) Submersible pump																									
Well Status (Prod. or Shut-in) Producing																										
Date of Test 08-17-11	Hours Tested 24	Choke Size --																								
Prod'n For Test Period 541	Oil - Bbl 554	Gas - MCF 554																								
Water - Bbl. 550	Gas - Oil Ratio 1024																									
Flow Tubing Press. 250	Casing Pressure 120	Calculated 24 Hour Rate Oil - Bbl. Gas - MCF Water - Bbl. 39.6																								
29. Disposition of Gas (Sold, used for fuel, vented, etc.) Sold		Test Witnessed By																								
30. List Attachments C-102, Deviation report, Directional survey																										
31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief.																										
Signature E-mail Address <u>bjennings@cimarex.com</u>																										
Printed Name <u>Brett Jennings</u> Title <u>Regulatory Analyst</u> Date <u>9/29/2011</u>																										

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, items 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico			Northwestern New Mexico	
B. Anhy	T. Canyon		T. Ojo Alamo	T. Penn. "B"
T. Salt	T. Strawn		T. Kirtland-Fruitland	T. Penn. "C"
B. Salt	1930	T. Atoka	T. Pictured Cliffs	T. Penn. "D"
T. Yates	2450	T. Miss	T. Cliff House	T. Leadville
T. 7 Rivers		T. Devonian	T. Menefee	T. Madison
T. Queen		T. Silurian	T. Point Lookout	T. Elbert
T. Grayburg		T. Montoya	T. Mancos	T. McCracken
T. San Andres		T. Simpson	T. Gallup	T. Ignacio Otzte
T. Glorieta		T. McKee	B. Greenhorn	T. Granite
T. Paddock		T. Ellenburger	T. Dakota	T.
T. Blinebry		T. Gr. Wash	T. Morrison	T.
T. Tubb		T. Delaware 4650	T.Todilto	T.
T. Drinkard		T. Bone Spring 6225	T. Entrada	T.
T. Abo		T. Morrow	T. Wingate	T.
T. Wolfcamp		T. SBSS	T. Chinle	T.
T. Penn		T. Barnett	T. Permian	T.
T. Cisco (Bough C)		T. Rustler 555	T. Penn "A"	T.

OIL OR GAS SANDS OR ZONES

No. 1, from.....to.....

No. 3, from.....to.....

No. 2, from.....to.....

No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....

No. 2, from.....to.....feet.....

No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness In Feet	Lithology

From	To	Thickness In Feet	Lithology



Actual Wellpath Report

No. 1H AWP

Page 2 of 5



15-38294

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(West Shugart) Sec 32, T18S, R31E	Wellbore	No. 1H AWP
Facility	West Shugart 32 State Com No.1		

WELLPATH DATA (158 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	266.490	0.00	0.00	0.00	0.00	675547.00	622399.50	32°42'36.930"N	103°53'49.155"W	0.00	
20.00	0.000	266.490	20.00	0.00	0.00	0.00	675547.00	622399.50	32°42'36.930"N	103°53'49.155"W	0.00	
100.00	0.340	266.490	100.00	0.03	-0.01	-0.24	675546.76	622399.49	32°42'36.929"N	103°53'49.157"W	0.43	
200.00	0.490	264.940	200.00	0.13	-0.07	-0.96	675546.04	622399.43	32°42'36.929"N	103°53'49.166"W	0.15	
300.00	0.550	253.270	299.99	0.37	-0.25	-1.84	675545.16	622399.25	32°42'36.927"N	103°53'49.176"W	0.12	
400.00	0.720	244.010	399.99	0.85	-0.66	-2.87	675544.13	622398.84	32°42'36.923"N	103°53'49.188"W	0.20	
500.00	0.400	222.000	499.98	1.43	-1.19	-3.67	675543.33	622398.31	32°42'36.918"N	103°53'49.198"W	0.38	
626.90	0.220	233.310	626.88	1.94	-1.67	-4.16	675542.84	622397.83	32°42'36.913"N	103°53'49.203"W	0.15	
719.20	0.250	278.180	719.18	2.04	-1.75	-4.50	675542.50	622397.75	32°42'36.912"N	103°53'49.207"W	0.20	
814.50	0.120	355.860	814.48	1.92	-1.62	-4.71	675542.29	622397.88	32°42'36.914"N	103°53'49.210"W	0.27	
909.80	0.100	289.380	909.78	1.80	-1.49	-4.80	675542.20	622398.01	32°42'36.915"N	103°53'49.211"W	0.13	
1005.10	0.110	315.540	1005.08	1.72	-1.40	-4.94	675542.06	622398.10	32°42'36.916"N	103°53'49.213"W	0.05	
1100.40	0.180	4.000	1100.38	1.51	-1.18	-5.00	675542.01	622398.32	32°42'36.918"N	103°53'49.213"W	0.14	
1195.80	0.280	25.550	1195.78	1.14	-0.82	-4.88	675542.12	622398.68	32°42'36.922"N	103°53'49.212"W	0.14	
1291.10	0.380	34.690	1291.08	0.65	0.35	-4.60	675542.40	622399.15	32°42'36.926"N	103°53'49.209"W	0.12	
1386.40	0.500	39.990	1386.37	0.05	0.23	-4.16	675542.84	622399.73	32°42'36.932"N	103°53'49.203"W	0.13	
1481.70	0.610	45.010	1481.67	-0.67	0.90	-3.53	675543.47	622400.40	32°42'36.939"N	103°53'49.196"W	0.13	
1577.00	0.810	53.820	1576.96	-1.48	1.66	-2.63	675544.37	622401.16	32°42'36.946"N	103°53'49.185"W	0.24	
1672.40	1.110	50.470	1672.35	-2.55	2.65	-1.37	675545.63	622402.14	32°42'36.956"N	103°53'49.171"W	0.32	
1767.70	1.680	57.530	1767.62	-4.01	3.98	0.52	675547.52	622403.48	32°42'36.969"N	103°53'49.148"W	0.62	
1863.00	2.080	57.490	1862.87	-5.86	5.66	3.16	675550.16	622405.16	32°42'36.985"N	103°53'49.117"W	0.42	
1958.30	2.110	60.190	1958.10	-7.85	7.46	6.14	675553.14	622406.96	32°42'37.003"N	103°53'49.082"W	0.11	
2053.60	2.260	55.830	2053.33	-9.97	9.39	9.21	675556.21	622408.89	32°42'37.022"N	103°53'49.046"W	0.23	
2149.00	2.050	49.880	2148.67	-12.31	11.55	12.07	675559.07	622411.05	32°42'37.043"N	103°53'49.013"W	0.32	
2244.30	1.940	47.010	2243.91	-14.67	13.75	14.56	675561.56	622413.24	32°42'37.065"N	103°53'48.984"W	0.16	
2339.60	1.860	44.150	2339.16	-17.02	15.96	16.82	675563.81	622415.45	32°42'37.087"N	103°53'48.957"W	0.13	
2434.90	1.650	45.810	2434.41	-19.22	18.02	18.88	675565.88	622417.52	32°42'37.107"N	103°53'48.933"W	0.23	
2530.20	1.840	57.630	2529.67	-21.14	19.80	21.15	675568.15	622419.30	32°42'37.125"N	103°53'48.906"W	0.43	
2625.60	1.400	82.090	2625.03	-22.27	20.78	23.60	675570.60	622420.28	32°42'37.134"N	103°53'48.877"W	0.85	
2720.90	1.000	103.270	2720.31	-22.37	20.75	25.56	675572.56	622420.25	32°42'37.134"N	103°53'48.854"W	0.62	
2816.20	0.490	107.530	2815.60	-22.14	20.43	26.76	675573.76	622419.93	32°42'37.131"N	103°53'48.840"W	0.54	
2911.50	0.440	99.310	2910.90	-22.01	20.25	27.51	675574.51	622419.75	32°42'37.129"N	103°53'48.832"W	0.09	
3006.80	0.360	87.860	3006.20	-22.00	20.20	28.17	675575.17	622419.70	32°42'37.128"N	103°53'48.824"W	0.12	
3102.20	0.220	79.740	3101.60	-22.08	20.25	28.65	675575.65	622419.75	32°42'37.129"N	103°53'48.818"W	0.15	
3197.50	0.210	103.630	3196.89	-22.09	20.24	29.00	675576.00	622419.74	32°42'37.129"N	103°53'48.814"W	0.09	
3292.80	0.310	91.530	3292.19	-22.07	20.19	29.43	675576.43	622419.69	32°42'37.128"N	103°53'48.809"W	0.12	
3388.10	0.480	68.650	3387.49	-22.25	20.33	30.06	675577.06	622419.83	32°42'37.130"N	103°53'48.802"W	0.24	
3483.40	0.530	61.890	3482.79	-22.65	20.68	30.82	675577.82	622420.18	32°42'37.133"N	103°53'48.793"W	0.08	
3578.80	0.600	62.790	3578.18	-23.14	21.12	31.65	675578.65	622420.62	32°42'37.137"N	103°53'48.783"W	0.07	
3674.10	0.590	62.310	3673.48	-23.65	21.57	32.53	675579.53	622421.07	32°42'37.142"N	103°53'48.773"W	0.01	
3769.40	0.560	51.450	3768.77	-24.22	22.09	33.33	675580.33	622421.59	32°42'37.147"N	103°53'48.764"W	0.12	
3864.70	0.600	63.790	3864.07	-24.79	22.60	34.14	675581.14	622422.10	32°42'37.152"N	103°53'48.754"W	0.14	
3960.00	0.570	72.810	3959.36	-25.20	22.96	35.04	675582.04	622422.46	32°42'37.155"N	103°53'48.743"W	0.10	
4055.40	0.510	88.630	4054.76	-25.41	23.11	35.92	675582.92	622422.61	32°42'37.157"N	103°53'48.733"W	0.17	
4150.70	0.440	85.030	4150.06	-25.50	23.16	36.71	675583.70	622422.65	32°42'37.157"N	103°53'48.724"W	0.08	



Cimarex Energy Co.

Location: Eddy County, NM
Field: (West Shugart) Sec 32, T18S, R31E
Facility: West Shugart 32 State Coin No.1

Slot: No. 1H SHL
Well: No. 1H
Wellbore: No. 1H PWB



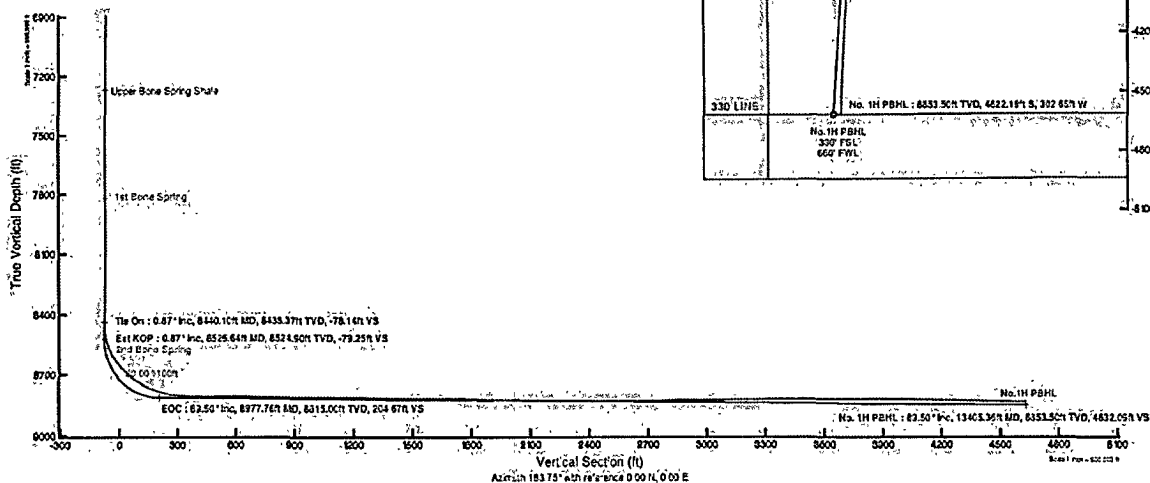
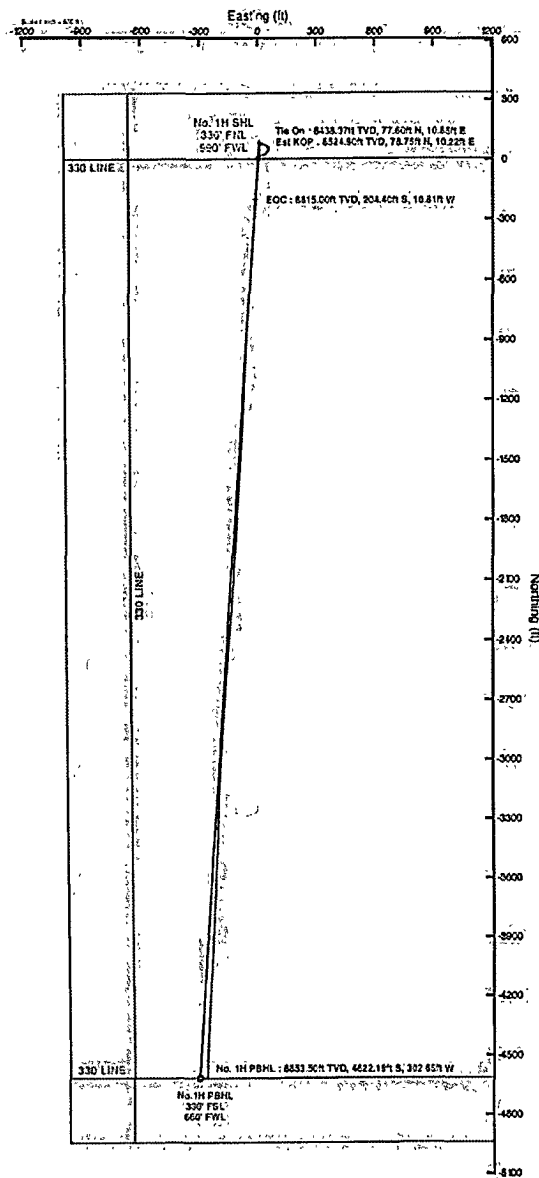
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local H (ft)	Local E (ft)	DLS (ft/100ft)	VS (ft)
Tie On	6440.10	0.870	331.680	8438.37	77.60	10.85	0.00	-78.14
Est KOP	6526.64	0.870	331.680	8524.90	78.75	10.22	0.00	-79.25
EOC	8977.76	89.502	183.779	8815.00	-204.40	-10.81	20.00	204.67
No. 1H PBHL	13405.36	89.502	183.780	8853.50	-4622.19	-302.65	0.00	4632.09

Reference Azimuth Part 1	Grid System: NAD83 / TM Zone 18N to SP Easting Zone 18N US Feet
Tie On to SHL and EOC to R31E No. 1H SHL (RT)	From Reference Grid North
Measured depths are referenced to R31E No. 1H SHL (RT)	Scale True distance
R31E No. 1H SHL (RT) to Mean Sea Level 3520 feet	Depth are listed
Mean Sea Level to NAD83 (US) of No. 1H SHL - 30.0 feet	Created by: 01/08/2011
Core depths are listed referenced to EOC	



EGGM (1945.0 to 2012.0) Dip: 60.53° Field: 43913.9 nT
Magnetic North is 7.84 degrees East of True North (at 5/11/2011)
Grid North is 0.24 degrees East of True North
To correct azimuth from True to Grid subtract 0.24 degrees
To correct azimuth from Magnetic to Grid add 7.60 degrees
For example if the Magnetic North Azimuth = 60 degs, then the Grid North Azimuth = 60 + 7.60 = 67.60





Actual Wellpath Report

No. 1H AWP

Page 3 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(West Shugart) Sec 32, T18S, R31E	Wellbore	No. 1H AWP
Facility	West Shugart 32 State Com No.1		

WELLPATH DATA (158 stations)												
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
4246.00	0.540	74.440	4245.35	-25.71	23.31	37.50	675584.50	622422.81	32°42'37.159"N	103°53'48.715"W	0.14	
4341.30	0.900	62.240	4340.65	-26.25	23.78	38.60	675585.60	622423.28	32°42'37.163"N	103°53'48.702"W	0.41	
4436.60	1.110	49.280	4435.93	-27.29	24.73	39.96	675586.96	622424.23	32°42'37.173"N	103°53'48.686"W	0.32	
4532.00	1.270	40.120	4531.31	-28.78	26.14	41.34	675588.34	622425.64	32°42'37.187"N	103°53'48.670"W	0.26	
4627.30	1.490	36.590	4626.58	-30.68	27.94	42.76	675589.76	622427.44	32°42'37.204"N	103°53'48.653"W	0.25	
4722.60	1.540	37.670	4721.85	-32.78	29.95	44.28	675591.28	622429.45	32°42'37.224"N	103°53'48.635"W	0.06	
4817.90	1.500	39.290	4817.12	-34.86	31.93	45.86	675592.85	622431.43	32°42'37.244"N	103°53'48.616"W	0.06	
4913.20	1.450	43.400	4912.38	-36.80	33.77	47.47	675594.47	622433.27	32°42'37.262"N	103°53'48.597"W	0.12	
5008.60	1.370	42.050	5007.76	-38.62	35.49	49.07	675596.06	622434.99	32°42'37.279"N	103°53'48.579"W	0.09	
5103.90	1.260	41.280	5103.03	-40.35	37.13	50.52	675597.52	622436.62	32°42'37.295"N	103°53'48.562"W	0.12	
5199.20	1.150	35.880	5198.31	-41.99	38.69	51.77	675598.77	622438.19	32°42'37.310"N	103°53'48.547"W	0.17	
5294.50	1.040	29.080	5293.59	-43.58	40.22	52.75	675599.75	622439.72	32°42'37.325"N	103°53'48.535"W	0.18	
5389.80	0.990	27.910	5388.88	-45.11	41.70	53.56	675600.56	622441.20	32°42'37.340"N	103°53'48.526"W	0.06	
5485.20	0.940	31.160	5484.26	-46.56	43.10	54.35	675601.35	622442.60	32°42'37.354"N	103°53'48.517"W	0.08	
5580.50	0.880	27.150	5579.55	-47.93	44.42	55.09	675602.08	622443.92	32°42'37.367"N	103°53'48.508"W	0.09	
5675.80	0.830	25.520	5674.84	-49.24	45.70	55.72	675602.72	622445.19	32°42'37.379"N	103°53'48.500"W	0.06	
5771.10	0.700	14.510	5770.13	-50.45	46.88	56.16	675603.16	622446.38	32°42'37.391"N	103°53'48.495"W	0.21	
5866.40	0.740	8.840	5865.42	-51.64	48.05	56.40	675603.40	622447.55	32°42'37.403"N	103°53'48.492"W	0.09	
5961.80	0.840	7.910	5960.82	-52.95	49.36	56.59	675603.59	622448.85	32°42'37.416"N	103°53'48.490"W	0.11	
6057.10	0.960	357.990	6056.10	-54.44	50.85	56.66	675603.66	622450.34	32°42'37.430"N	103°53'48.489"W	0.21	
6152.40	1.110	349.310	6151.39	-56.13	52.55	56.46	675603.46	622452.05	32°42'37.447"N	103°53'48.491"W	0.23	
6247.70	1.220	333.520	6246.67	-57.90	54.37	55.84	675602.84	622453.86	32°42'37.465"N	103°53'48.499"W	0.35	
6343.00	1.290	325.620	6341.95	-59.62	56.16	54.78	675601.78	622455.65	32°42'37.483"N	103°53'48.511"W	0.20	
6438.40	1.400	314.180	6437.32	-61.22	57.86	53.34	675600.34	622457.35	32°42'37.500"N	103°53'48.528"W	0.30	
6533.70	1.560	312.670	6532.59	-62.79	59.55	51.55	675598.55	622459.04	32°42'37.517"N	103°53'48.548"W	0.17	
6629.00	1.580	311.990	6627.85	-64.42	61.31	49.62	675596.62	622460.80	32°42'37.534"N	103°53'48.571"W	0.03	
6724.30	1.440	308.170	6723.12	-65.91	62.92	47.70	675594.70	622462.42	32°42'37.550"N	103°53'48.593"W	0.18	
6819.60	1.560	303.150	6818.39	-67.22	64.37	45.68	675592.67	622463.87	32°42'37.565"N	103°53'48.617"W	0.19	
6915.00	1.870	309.640	6913.74	-68.77	66.08	43.39	675590.39	622465.57	32°42'37.582"N	103°53'48.644"W	0.38	
7010.30	1.740	314.590	7009.00	-70.63	68.09	41.16	675588.16	622467.58	32°42'37.602"N	103°53'48.670"W	0.21	
7105.60	1.300	306.000	7104.26	-72.15	69.74	39.26	675586.25	622469.23	32°42'37.618"N	103°53'48.692"W	0.52	
7200.90	1.460	286.800	7199.54	-73.00	70.72	37.22	675584.22	622470.22	32°42'37.628"N	103°53'48.716"W	0.51	
7296.20	1.770	272.220	7294.80	-73.24	71.13	34.59	675581.58	622470.63	32°42'37.632"N	103°53'48.746"W	0.54	
7391.60	1.850	274.800	7390.15	-73.23	71.32	31.58	675578.58	622470.81	32°42'37.634"N	103°53'48.782"W	0.12	
7486.90	1.890	275.610	7485.40	-73.31	71.60	28.48	675575.48	622471.09	32°42'37.637"N	103°53'48.818"W	0.05	
7582.20	1.680	270.120	7580.65	-73.27	71.76	25.52	675572.52	622471.25	32°42'37.639"N	103°53'48.853"W	0.28	
7677.50	1.490	269.630	7675.92	-73.09	71.75	22.89	675569.88	622471.25	32°42'37.639"N	103°53'48.883"W	0.20	
7772.80	1.150	272.040	7771.19	-72.97	71.78	20.69	675567.69	622471.27	32°42'37.639"N	103°53'48.909"W	0.36	
7868.20	0.950	274.850	7866.58	-72.96	71.88	18.95	675565.95	622471.37	32°42'37.640"N	103°53'48.929"W	0.22	
7963.50	0.950	272.620	7961.86	-72.96	71.98	17.37	675564.37	622471.48	32°42'37.641"N	103°53'48.948"W	0.04	
8058.80	0.870	278.270	8057.15	-73.00	72.12	15.87	675562.86	622471.62	32°42'37.643"N	103°53'48.966"W	0.13	
8154.10	1.150	313.640	8152.44	-73.67	72.88	14.46	675561.46	622472.38	32°42'37.650"N	103°53'48.982"W	0.70	
8249.40	1.320	323.690	8247.71	-75.13	74.43	13.11	675560.11	622473.92	32°42'37.665"N	103°53'48.998"W	0.29	
8344.80	1.250	322.270	8343.09	-76.75	76.14	11.83	675558.83	622475.63	32°42'37.682"N	103°53'49.013"W	0.08	
8440.10	0.870	331.680	8438.37	-78.14	77.60	10.85	675557.85	622477.09	32°42'37.697"N	103°53'49.024"W	0.44	



Actual Wellpath Report

No. 1H AWP

Page 4 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(West Shugart) Sec 32, T18S, R31E	Wellbore	No. 1H AWB
Facility	West Shugart 32 State Com No.1		

WELLPATH DATA (158 stations)												
ID [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	Northing [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8446.00	0.500	325.300	8444.27	-78.20	77.66	10.81	675557.81	622477.15	32°42'37.698"N	103°53'49.024"W	6.39	
8478.00	1.900	192.700	8476.27	-77.78	77.25	10.62	675557.62	622476.75	32°42'37.694"N	103°53'49.027"W	7.09	
8510.00	7.800	185.500	8508.14	-75.09	74.57	10.29	675557.29	622474.07	32°42'37.667"N	103°53'49.031"W	18.50	
8542.00	13.700	183.200	8539.56	-69.12	68.62	9.87	675556.87	622468.12	32°42'37.608"N	103°53'49.036"W	18.48	
8573.00	21.200	182.200	8569.12	-59.83	59.34	9.45	675556.45	622458.84	32°42'37.516"N	103°53'49.041"W	24.21	
8605.00	28.100	181.600	8598.18	-46.50	46.01	9.02	675556.02	622445.51	32°42'37.384"N	103°53'49.047"W	21.58	
8637.00	34.400	182.300	8625.53	-29.92	29.43	8.44	675555.44	622428.93	32°42'37.220"N	103°53'49.054"W	19.72	
8669.00	40.800	183.100	8650.87	-10.41	9.94	7.51	675554.51	622409.44	32°42'37.028"N	103°53'49.066"W	20.06	
8700.00	45.600	184.500	8673.46	10.81	-11.23	6.10	675553.10	622388.27	32°42'36.818"N	103°53'49.084"W	15.79	
8732.00	49.300	185.200	8695.09	34.37	-34.71	4.10	675551.10	622364.79	32°42'36.586"N	103°53'49.108"W	11.67	
8764.00	53.200	185.600	8715.12	59.31	-59.55	1.75	675548.75	622339.95	32°42'36.340"N	103°53'49.137"W	12.23	
8795.00	57.100	184.900	8732.83	84.74	-84.88	-0.57	675546.43	622314.62	32°42'36.090"N	103°53'49.165"W	12.72	
8827.00	61.000	184.300	8749.29	112.17	-112.23	-2.77	675544.23	622287.28	32°42'35.819"N	103°53'49.193"W	12.29	
8859.00	64.900	183.600	8763.84	140.67	-140.66	-4.73	675542.27	622258.85	32°42'35.538"N	103°53'49.217"W	12.34	
8891.00	68.700	183.700	8776.44	170.07	-170.01	-6.60	675540.40	622229.51	32°42'35.248"N	103°53'49.240"W	11.88	
8922.00	72.500	184.100	8786.73	199.31	-199.17	-8.59	675538.41	622200.34	32°42'34.959"N	103°53'49.265"W	12.32	
8954.00	76.600	184.400	8795.26	230.14	-229.92	-10.88	675536.12	622169.59	32°42'34.655"N	103°53'49.293"W	12.84	
8986.00	80.700	184.700	8801.55	261.51	-261.19	-13.37	675533.63	622138.33	32°42'34.346"N	103°53'49.324"W	12.85	
9018.00	84.500	185.000	8805.67	293.23	-292.81	-16.05	675530.95	622106.71	32°42'34.033"N	103°53'49.357"W	11.91	
9049.00	87.900	184.300	8807.73	324.15	-323.63	-18.56	675528.44	622075.89	32°42'33.728"N	103°53'49.387"W	11.20	
9081.00	87.700	184.100	8808.96	356.13	-355.52	-20.90	675526.10	622044.00	32°42'33.413"N	103°53'49.416"W	0.88	
9113.00	87.800	184.200	8810.21	388.10	-387.41	-23.21	675523.79	622012.11	32°42'33.097"N	103°53'49.445"W	0.44	
9176.00	90.200	184.200	8811.31	451.09	-450.23	-27.83	675519.17	621949.30	32°42'32.476"N	103°53'49.502"W	3.81	
9208.00	90.500	183.800	8811.12	483.09	-482.15	-30.06	675516.94	621917.38	32°42'32.160"N	103°53'49.530"W	1.56	
9304.00	90.600	184.100	8810.20	579.08	-577.92	-36.67	675510.33	621821.62	32°42'31.213"N	103°53'49.612"W	0.33	
9399.00	88.600	184.100	8810.86	674.07	-672.67	-43.46	675503.54	621726.88	32°42'30.276"N	103°53'49.696"W	2.11	
9495.00	88.300	183.400	8813.46	770.04	-768.43	-49.74	675497.26	621631.13	32°42'29.329"N	103°53'49.774"W	0.79	
9590.00	89.000	183.200	8815.69	865.01	-863.24	-55.21	675491.80	621536.32	32°42'28.391"N	103°53'49.842"W	0.77	
9685.00	89.700	182.600	8816.77	959.99	-958.12	-60.01	675486.99	621441.45	32°42'27.452"N	103°53'49.903"W	0.97	
9780.00	90.000	182.600	8817.02	1054.97	-1053.02	-64.32	675482.68	621346.56	32°42'26.513"N	103°53'49.958"W	0.32	
9876.00	89.400	181.800	8817.52	1150.93	-1148.94	-68.01	675479.00	621250.64	32°42'25.564"N	103°53'50.006"W	1.04	
9971.00	88.900	182.900	8818.93	1245.89	-1243.85	-71.90	675475.10	621155.74	32°42'24.625"N	103°53'50.056"W	1.27	
10066.00	88.400	182.700	8821.17	1340.85	-1338.71	-76.54	675470.46	621060.89	32°42'23.687"N	103°53'50.115"W	0.57	
10162.00	89.600	184.600	8822.85	1436.83	-1434.50	-82.65	675464.35	620965.11	32°42'22.740"N	103°53'50.191"W	2.34	
10257.00	89.700	184.000	8823.43	1531.82	-1529.23	-89.78	675457.23	620870.38	32°42'21.803"N	103°53'50.279"W	0.64	
10353.00	89.800	183.400	8823.85	1627.82	-1625.02	-95.97	675451.04	620774.59	32°42'20.855"N	103°53'50.356"W	0.63	
10448.00	89.700	183.700	8824.26	1722.82	-1719.84	-101.85	675445.15	620679.78	32°42'19.917"N	103°53'50.429"W	0.33	
10543.00	88.100	182.700	8826.08	1817.80	-1814.67	-107.15	675439.85	620584.96	32°42'18.979"N	103°53'50.496"W	1.99	
10639.00	88.600	183.500	8828.85	1913.75	-1910.49	-112.34	675434.66	620489.15	32°42'18.031"N	103°53'50.561"W	0.98	
10734.00	88.600	182.900	8831.17	2008.72	-2005.31	-117.65	675429.36	620394.33	32°42'17.093"N	103°53'50.628"W	0.63	
10829.00	89.200	184.000	8832.99	2103.69	-2100.12	-123.36	675423.65	620299.53	32°42'16.155"N	103°53'50.699"W	1.32	
10925.00	89.400	183.900	8834.17	2199.69	-2195.89	-129.97	675417.04	620203.77	32°42'15.208"N	103°53'50.781"W	0.23	
11020.00	89.200	184.100	8835.33	2294.68	-2290.65	-136.60	675410.41	620109.02	32°42'14.271"N	103°53'50.864"W	0.30	
11116.00	90.200	184.400	8835.83	2390.67	-2386.38	-143.71	675403.30	620013.29	32°42'13.324"N	103°53'50.951"W	1.09	
11211.00	90.000	184.200	8835.66	2485.67	-2481.11	-150.84	675396.17	619918.57	32°42'12.387"N	103°53'51.039"W	0.30	



Actual Wellpath Report

No. 1H AWP

Page 5 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(West Shugart) Sec 32, T18S, R31E	Wellbore	No. 1H AWP
Facility	West Shugart 32 State Com No.1		

WELLPATH DATA (158 stations)												
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
11306.00	90.600	184.500	8835.17	2580.66	-2575.84	-158.04	675388.97	619823.85	32°42'11.450"N	103°53'51.128"W	0.71	
11402.00	91.100	184.700	8833.74	2676.64	-2671.52	-165.74	675381.27	619728.17	32°42'10.504"N	103°53'51.223"W	0.56	
11497.00	91.000	184.200	8832.00	2771.62	-2766.22	-173.11	675373.90	619633.48	32°42'09.567"N	103°53'51.314"W	0.54	
11593.00	90.400	183.900	8830.83	2867.61	-2861.97	-179.89	675367.12	619537.74	32°42'08.620"N	103°53'51.398"W	0.70	
11688.00	90.500	183.300	8830.08	2962.60	-2956.78	-185.86	675361.16	619442.94	32°42'07.682"N	103°53'51.472"W	0.64	
11783.00	90.400	183.000	8829.34	3057.59	-3051.63	-191.08	675355.94	619348.09	32°42'06.744"N	103°53'51.538"W	0.33	
11878.00	90.200	183.000	8828.84	3152.59	-3146.50	-196.05	675350.97	619253.23	32°42'05.805"N	103°53'51.600"W	0.21	
11974.00	90.300	182.600	8828.42	3248.57	-3242.38	-200.74	675346.28	619157.35	32°42'04.857"N	103°53'51.660"W	0.43	
12069.00	90.600	182.700	8827.67	3343.55	-3337.28	-205.13	675341.89	619062.46	32°42'03.918"N	103°53'51.716"W	0.33	
12165.00	90.800	182.200	8826.50	3439.52	-3433.18	-209.23	675337.78	618966.56	32°42'02.969"N	103°53'51.768"W	0.56	
12260.00	89.700	182.500	8826.09	3534.49	-3528.10	-213.13	675333.89	618871.65	32°42'02.030"N	103°53'51.819"W	1.20	
12356.00	89.800	181.900	8826.50	3630.45	-3624.03	-216.81	675330.20	618775.73	32°42'01.081"N	103°53'51.866"W	0.63	
12451.00	90.100	182.700	8826.59	3725.42	-3718.95	-220.63	675326.39	618680.82	32°42'00.142"N	103°53'51.915"W	0.90	
12546.00	90.600	181.900	8826.01	3820.39	-3813.87	-224.44	675322.58	618585.90	32°41'59.203"N	103°53'51.965"W	0.99	
12641.00	89.300	183.100	8826.09	3915.36	-3908.78	-228.58	675318.44	618491.00	32°41'58.264"N	103°53'52.018"W	1.86	
12737.00	89.100	183.600	8827.43	4011.35	-4004.60	-234.19	675312.83	618395.18	32°41'57.316"N	103°53'52.088"W	0.56	
12832.00	89.500	183.400	8828.59	4106.34	-4099.42	-239.99	675307.03	618300.38	32°41'56.378"N	103°53'52.160"W	0.47	
12928.00	89.200	183.500	8829.68	4202.33	-4195.24	-245.77	675301.25	618204.56	32°41'55.431"N	103°53'52.233"W	0.33	
13023.00	88.600	183.000	8831.50	4297.31	-4290.07	-251.15	675295.87	618109.74	32°41'54.493"N	103°53'52.300"W	0.82	
13118.00	88.700	182.900	8833.74	4392.28	-4384.92	-256.04	675290.98	618014.90	32°41'53.554"N	103°53'52.362"W	0.15	
13214.00	88.900	182.100	8835.75	4488.23	-4480.80	-260.23	675286.79	617919.02	32°41'52.606"N	103°53'52.415"W	0.86	
13308.00	89.000	181.800	8837.48	4582.17	-4574.73	-263.42	675283.60	617825.10	32°41'51.676"N	103°53'52.457"W	0.34	
13354.00	89.000	181.800	8838.28	4628.14	-4620.70	-264.87	675282.15	617779.13	32°41'51.222"N	103°53'52.477"W	0.00	Project to Bit

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
No. 1H PBHL		8853.50	-4622.19	-302.65	675244.37	617777.64	32°41'51.208"N	103°53'52.919"W	point

WELLPATH COMPOSITION - Ref Wellbore: No. 1H AWP Ref Wellpath: No. 1H AWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
20.00	8440.10	Generic gyro - northseeking (Standard)	Gyro	No. 1H AWP
8440.10	13354.00	NaviTrak (Standard)	MWD	No. 1H AWP



Actual Wellpath Report

No. 1H AWP

Page 1 of 5



REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 1H SHL
Area	Eddy County, NM	Well	No. 1H
Field	(West Shugart) Sec 32, T18S, R31E	Wellbore	No. 1H AWB
Facility	West Shugart 32 State Com No.1		

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	Calphik
Scale	0.99993	Report Generated	6/27/2011 at 9:06:52 AM
Convergence at slot	0.24° East	Database/Source file	WA Midland/No. 1H AWB.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	675547.00	622399.50	32°42'36.930"N	103°53'49.155"W
Facility Reference Pt			675547.00	622399.50	32°42'36.930"N	103°53'49.155"W
Field Reference Pt			675547.00	622399.50	32°42'36.930"N	103°53'49.155"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 1H SHL (RKB) to Facility Vertical Datum	20.00ft
Horizontal Reference Pt	Slot	Rig on No. 1H SHL (RKB) to Mean Sea Level	3590.00ft
Vertical Reference Pt	Rig on No. 1H SHL (RKB)	Rig on No. 1H SHL (RKB) to Mud Line at Slot (No. 1H SHL)	20.00ft
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	183.75°



CACTUS DRILLING COMPANY, L.L.C.

REPORT OF PROOF OF APPARENT DEVIATION
NEW MEXICO

OPERATOR CIMAREX CO OF COLORADO

600 N. MARIENFELD ST
MIDLAND, TX 79701

FIELD NAME

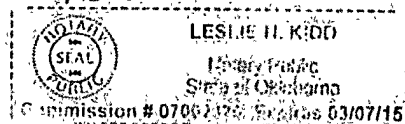
COUNTY/PARISH EDDY

WELL NAME & NO. WEST SHUGART 32 ST 1H

LEGAL SEC 32-18S-31E

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
191	1.91	1	1.7452	3.33	3.33	
955	7.64	1	1.7452	13.33	16.67	
1250	2.95	1/2	0.8727	2.57	19.24	
1750	5.00	1	1.7452	8.73	27.97	
2205	4.55	1	1.7452	7.94	35.91	
2705	5.00	1 1/5	2.0942	10.47	46.38	
3212	5.07	4/9	0.7854	3.98	50.36	
4205	9.94	8/9	1.5533	15.44	65.80	
4830	6.24	1	1.7452	10.89	76.69	
5285	4.55	0	0.1745	0.79	77.49	
5485	2.00	0	0.1745	0.35	77.83	
6285	8.00	1	1.7452	13.96	91.80	
6785	5.00	0	0.1745	0.87	92.67	
7285	5.00	2	3.4899	17.45	110.12	
7740	4.55	0	0.1745	0.79	110.91	
8240	5.00	1	1.7452	8.73	119.64	
8730	4.90	0	0.0000	0.00	119.64	

Leslie H. Kidd
9-29-11



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

9/29/2011