

AAPD

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTHOBBSOCD
OCD Hobbs

JAN 14 2015

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010**SUNDRY 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.

RECEIVED

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM0392082A
2. Name of Operator CIMAREX ENERGY COMPANY OF CO		6. If Indian, Allottee or Tribe Name
Contact: PAULA BRUNSON E-Mail: pbrunson@cimarex.com		7. If Unit or CA/Agreement, Name and/or No.
3a. Address 600 NORTH MARIENFELD STREET, SUITE 600 MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 432-571-7848	8. Well Name and No. HALLERTAU 5 FEDERAL COM 3H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 5 T26S R32E SESW 330FSL 1980FWL		9. API Well No. 30-025-40455-00-X1
		10. Field and Pool, or Exploratory JENNINGS
		11. County or Parish, and State LEA COUNTY, NM

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

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

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 recomplate 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.)

Cimarex Energy respectfully requests approval to make changes to the drilling plan for the Hallertau 5 Federal Com 3H.

Please see the attached revised drilling plan, preliminary directional plan, and C102 for your approval.

Cimarex proposes to drill the pilot hole to 12,300' (bottom of the Wolfcamp A). When pilot hole is reached, logs will be run from 11,600' to 12,300'. We will then RIH with an open hole whipstock with 2-7/8" tail pipe that will be run from 11,459' to 12,300'. We will kick off with an 8-3/4" bit and drill the curve to 75 degrees and then run 7" 32# P110 BTC and LTC casing to surface. We will drill out with a 6" bit to finish the curve and lateral.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct. Electronic Submission #286185 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs Committed to AFMSS for processing by CHRISTOPHER WALLS on 12/24/2014 (15CRW0036SE)	
Name (Printed/Typed) PAULA BRUNSON	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 12/23/2014
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
APPROVED	
Approved By _____	Title _____
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.	Date _____
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 any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.	Office _____
BUREAU OF LAND MANAGEMENT CARLSBAD FIELD OFFICE	

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

JAN 20 2015

jm

Additional data for EC transaction #286185 that would not fit on the form

32. Additional remarks, continued

Casing properties and cement volumes, along with the open hole whipstock plug, are shown on the attached drilling plan.

Pressure Control Equipment:

A BOP consisting of two rams with blind rams and pipe rams, and one annular preventer. Below the surface casing, a 2M system will be used. Below the intermediate casing, a 5M system will be used. Below the production casing, a 5M system will be used. See attachment for BOP diagram. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A rotating head may be installed as needed. A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

BOP and associated equipment will be installed, used, maintained, and tested in a manner necessary to assure well control and shall be in place and operational prior to drilling the surface casing shoe. The annular preventer shall be functioned at least weekly. The pipe and blind rams will be operated each trip. No abnormal pressure or temperature is expected while drilling.

BOPS will be tested by an independent service company. The ram preventers, choke manifold, and safety valves will be tested as follows: On the surface casing, pressure tests will be made to 250 psi low and 2000 psi high. On the intermediate casing, pressure tests will be made to 250 psi low and 5000 psi high. On the production casing, pressure tests will be made to 250 psi low and 5000 psi high.

The annular preventer will be tested to 250 psi low and 1000 psi high on the surface casing, and 250 low and 2500 high on the intermediate casing, and 250 low and 2500 high on the production casing.

DISTRICT I
1626 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 30-025-40455	Pool Code	Pool Name Wildcat Wolfcamp
Property Code 38778	Property Name HALLERTAU "5" FEDERAL	Well Number 3H
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3272'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	5	26 S	32 E		330	SOUTH	1980	WEST	LEA

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
C	5	26 S	32 E		330	NORTH	2260	WEST	LEA

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	PROPOSED BOTTOM HOLE LOCATION Lat - N 32°04'43.29" Long - W 103°41'54.80" NMSPC- N 392943.2 E 737937.9 (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: <i>Terri Stathem</i> Date: 12/17/2014 Printed Name: Terri Stathem Email Address: tstathem@cimarex.com
	SURFACE LOCATION Lat - N 32°03'56.96" Long - W 103°41'57.93" NMSPC- N 388259.934 E 737703.024 (NAD-83)	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: 12/17/2014 Signature & Seal of Professional Surveyor: <i>Gary L. Jones</i> Certificate No. Gary L. Jones 7977 BASIN SURVEYS 24496

3160-5 Attachment
Hallertau 5 Federal 3H
Drilling Plan

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1125	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.44	3.36	5.96
12 1/4	0	4400	9-5/8"	40.00	J-55	LT&C	1.08	1.69	2.95
8 3/4	0	11309	7"	32.00	P-110	LT&C	2.04	2.35	2.34
8 3/4	12300	12215	7"	32.00	P-110	BT&C	1.92	2.07	46.35
6	11160	16479	4-1/2"	13.50	P-110	BT&C	1.43	1.66	37.21
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

Casing	R Stk	Wt. lb/gal	Yld. ft ³ /sack	H ₂ O gal/ft ³	500# Comp. Strength (hours)	Slurry Description
Surface	545	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	146	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	824	12.90	1.88	9.65	50	Lead: 35:65 (Poz:C) + Salt + Bentonite
	253	14.80	1.36	6.57	9.5	Tail: Class C + Retarder
Production	789	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	95	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Completion System	385	14.50	1.30	5.79	20	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + Expanding Agent + Retarder + Antifoam

Pipe Size	Pipe Depth	TOC	SS Excess	Whipstock Depth	Wt. lb/gal	Weight	Yld. ft ³ /sack	OH Size	No. Sacks	Blend
2-7/8"	12300	11449	10	11449	5.240	15.600	1.190	8 3/4	319	Class H Neat



Cactus 104

Cimarex

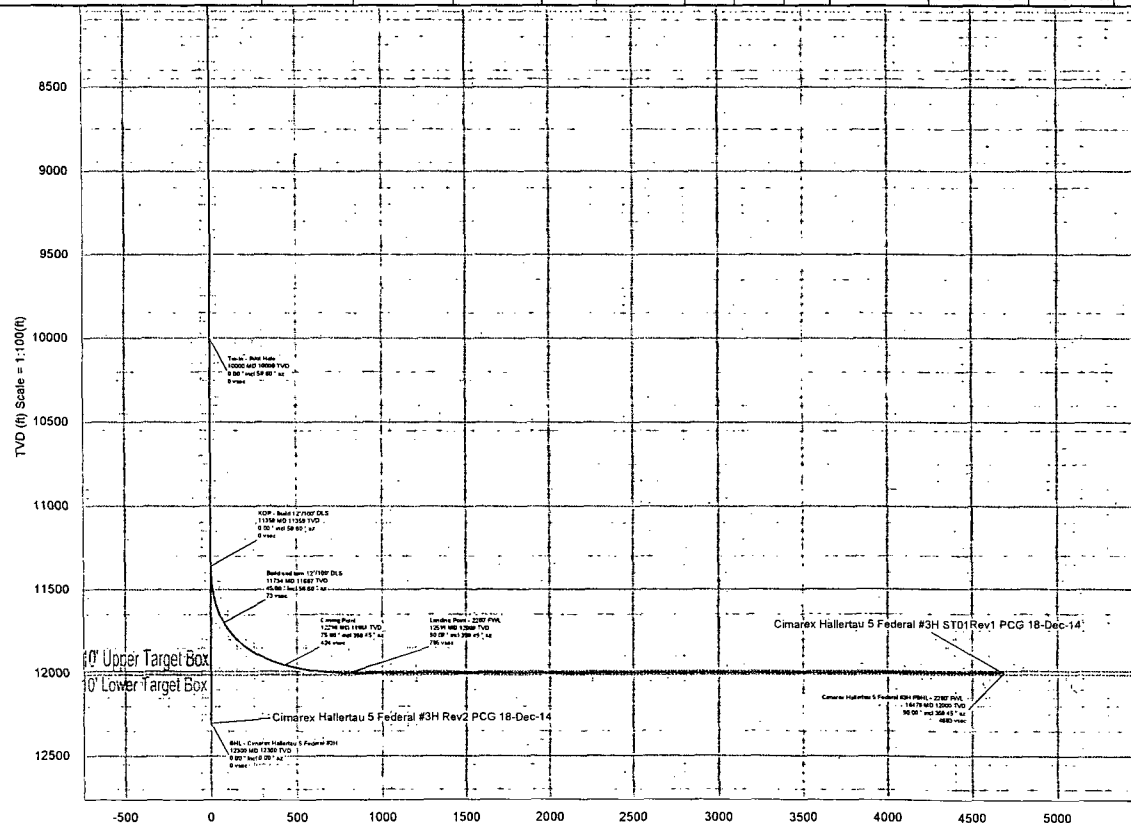
ST01 Rev1

PATHFINDER
A Schlumberger Company

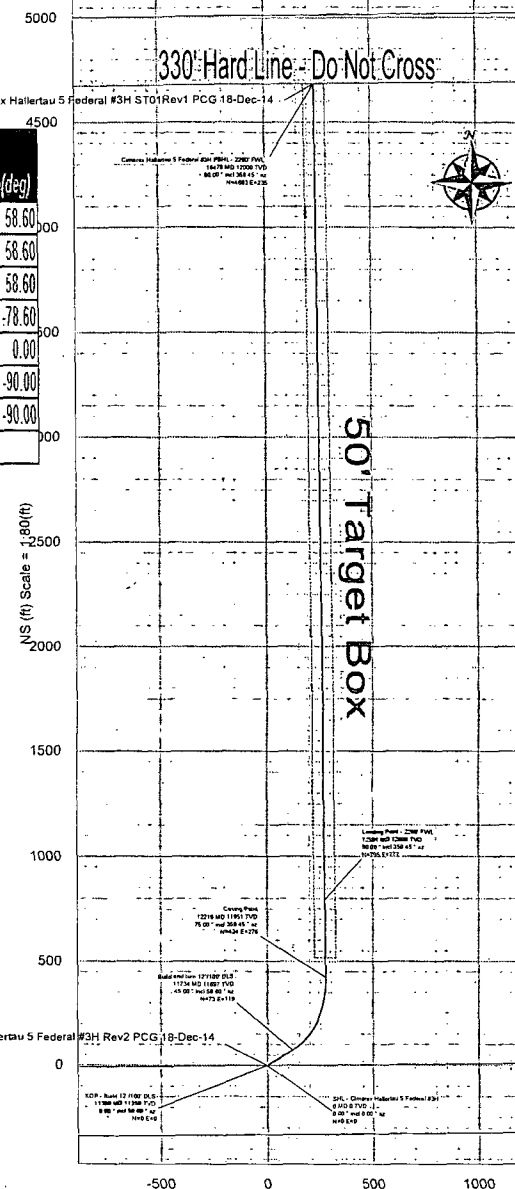
Borehole:	Well:	Field:	Structure:
ST01	Hallertau 5 Federal #3H	NM Lea County	Cactus 104
Gravity & Magnetic Parameters			
Model: HDGM 2014 Dip: 59.809° Date: 15-Dec-2014	Surface Location: NAD83 New Mexico State Plane, Eastern Zone, US Feet	Miscellaneous	
MagDec: 7.099° FS: 48194.634mT Gravity FS: 998.426mgm (9.80665 Based)	Lat: N 32 3 56.96 Northing: 388259.834m US Grid Conv: 0.3365°	Sit: Hallertau 5 Federal #3H TVD Ref: RKB(32921 above MSL)	
	Lon: W 103 41 57.83 Easting: 737703.924m US Scale Fact: 0.99995325	Plan: ST01Rev1 PCG 18-Dec-14	

Critical Points

Comments	Survey MD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sea TVD	VS(ft)	HS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	Easting(ftUS)	Northing(ftUS)	DLSF(100ft)	Tool Face(deg)
SHL - Cimarex Hallertau 5 Federal #3H	0.00	0.00	0.00	0.00	-3292.00	0.00	0.00	0.00	N 32 3 56.955	W 103 41 57.927	737703.02	388259.93		58.60
Tie-In - Pilot Hole	10000.00	0.00	58.60	10000.00	6708.00	0.00	0.00	0.00	N 32 3 56.955	W 103 41 57.927	737703.02	388259.93	0.00	58.60
KOP - Build 12°/100' DLS	11359.10	0.00	58.60	11359.10	8067.10	0.00	0.00	0.00	N 32 3 56.955	W 103 41 57.927	737703.02	388259.93	0.00	58.60
Build and turn 12°/100' DLS	11734.10	45.00	58.60	11696.72	8404.72	72.86	72.86	119.37	N 32 3 57.670	W 103 41 56.535	737822.38	388332.79	12.00	-78.60
Casing Point	12215.55	75.00	359.45	11951.18	8659.18	424.36	424.36	275.92	N 32 4 1.139	W 103 41 54.692	737978.93	388684.27	12.00	0.00
Landing Point - 2260' FWL	12590.67	90.00	359.45	12000.00	8708.00	795.19	795.19	272.36	N 32 4 4.808	W 103 41 54.708	737975.37	389055.08	4.00	-90.00
Center Point	14444.25	90.00	359.45	12000.00	8708.00	2648.68	2648.68	254.51	N 32 4 23.150	W 103 41 54.788	737957.53	390908.49	0.00	-90.00
Cimarex Hallertau 5 Federal #3H PBHL - 2260' FWL	16479.15	90.00	359.45	12000.00	8708.00	4683.49	4683.49	234.89	N 32 4 43.286	W 103 41 54.877	737937.90	392943.20	0.00	



Vertical Section (ft) Azim = 0° Scale = 1:100(ft) Origin = 0N/-S, 0E/-W

Grid North
Tot Corr (M->G 6.762°)
Mag Dec (7.099°)
Grid Conv (0.337°)

CONTROLLED	
Cimarex Hallertau 5 Federal #3H ST01 Rev1 PCG 18-Dec-14	
Drawn by	1 of 1
Checked by	15-Dec-2014
1. Engineer	Scaling Services
2. GE Sup. Off. Authority	
3. Data Entry Manager	
4. Client	
5. Other	



Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-Dec-14 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: December 18, 2014 - 04:06 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Hallertau 5 Federal #3H / Cimarex Hallertau 5 Federal #3H
Well: Cimarex Hallertau 5 Federal #3H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-Dec-14
Survey Date: December 15, 2014
Tort / AHD / DDI / ERD Ratio: 117.776 ° / 4800.958 ft / 5.890 / 0.400
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 3' 56.95550", W 103° 41' 57.92706"
Location Grid N/E Y/X: N 388259.934 ftUS, E 737703.024 ftUS
CRS Grid Convergence Angle: 0.3365 °
Grid Scale Factor: 0.99995325
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 0.000 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3292.000 ft above MSL
Seabed / Ground Elevation: 3272.000 ft above MSL
Magnetic Declination: 7.099 °
Total Gravity Field Strength: 998.4260mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48194.634 nT
Magnetic Dip Angle: 59.809 °
Declination Date: December 15, 2014
Magnetic Declination Model: HDGM 2014
North Reference: Grid North
Grid Convergence Used: 0.3365 °
Total Corr Mag North->Grid North: 6.7621 °
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Tie-In - Pilot Hole	10000.00	0.00	58.60	10000.00	0.00	0.00	0.00	N/A	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
KOP - Build 12"/100' DLS	11359.10	0.00	58.60	11359.10	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
Build and turn 12"/100' DLS	11734.10	45.00	58.60	11696.72	72.86	72.86	119.37	12.00	388332.79	737822.38	N 32 3 57.67	W 103 41 56.54
Casing Point	12215.55	75.00	359.45	11951.18	424.36	424.36	275.92	12.00	388684.27	737978.93	N 32 4 1.14	W 103 41 54.69
Landing Point - 2260' FWL	12590.67	90.00	359.45	12000.00	795.19	795.19	272.36	4.00	389055.08	737975.37	N 32 4 4.81	W 103 41 54.71
Center Point Cimarex Hallertau 5	14444.25	90.00	359.45	12000.00	2648.68	2648.68	254.51	0.00	390908.49	737957.53	N 32 4 23.15	W 103 41 54.79
Federal #3H PBHL - 2260' FWL	16479.15	90.00	359.45	12000.00	4683.49	4683.49	234.89	0.00	392943.20	737937.90	N 32 4 43.29	W 103 41 54.88

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey				
	1	0.000	20.000	1/100.000	30.000	30.000	SLB_UNKNOWN-Depth Only	ST01 / Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-				
	1	20.000	16479.155	1/100.000	30.000	30.000	SLB_MWD-STD	ST01 / Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-				



Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-Dec-14 Proposal
Geodetic Report - 100ft Interpolated
 (Non-Def Plan)



Report Date: December 18, 2014 - 04:07 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Hallertau 5 Federal #3H / Cimarex Hallertau 5 Federal #3H
Well: Cimarex Hallertau 5 Federal #3H
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-Dec-14
Survey Date: December 15, 2014
Tort / AHD / DDI / ERD Ratio: 117.776 ° / 4800.958 ft / 5.890 / 0.400
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 3' 56.95550", W 103° 41' 57.92706"
Location Grid N/E Y/X: N 388259.934 ftUS, E 737703.024 ftUS
CRS Grid Convergence Angle: 0.3365 °
Grid Scale Factor: 0.99995325
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 0.000 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3292.000 ft above MSL
Seabed / Ground Elevation: 3272.000 ft above MSL
Magnetic Declination: 7.099 °
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Gravity Model: GARM
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Magnetic Declination Model: HDGM 2014
North Reference: Grid North
Grid Convergence Used: 0.3365 °
Total Corr Mag North->Grid North: 6.7621 °
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Tie-In - Pilot Hole	10000.00	0.00	58.60	10000.00	0.00	0.00	0.00	N/A	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10100.00	0.00	58.60	10100.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10200.00	0.00	58.60	10200.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10300.00	0.00	58.60	10300.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10400.00	0.00	58.60	10400.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10500.00	0.00	58.60	10500.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10600.00	0.00	58.60	10600.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10700.00	0.00	58.60	10700.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10800.00	0.00	58.60	10800.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	10900.00	0.00	58.60	10900.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
KOP - Build 12"/100' DLS	11000.00	0.00	58.60	11000.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	11100.00	0.00	58.60	11100.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	11200.00	0.00	58.60	11200.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	11300.00	0.00	58.60	11300.00	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	11359.10	0.00	58.60	11359.10	0.00	0.00	0.00	0.00	388259.93	737703.02	N 32 3 56.96	W 103 41 57.93
	11400.00	4.91	58.60	11399.95	0.91	0.91	1.49	12.00	388260.85	737704.52	N 32 3 56.96	W 103 41 57.91
	11500.00	16.91	58.60	11497.96	10.75	10.75	17.62	12.00	388270.69	737720.64	N 32 3 57.06	W 103 41 57.72
	11600.00	28.91	58.60	11589.91	31.00	31.00	50.78	12.00	388290.93	737753.80	N 32 3 57.26	W 103 41 57.33
	11700.00	40.91	58.60	11671.77	60.76	60.76	99.54	12.00	388320.69	737802.56	N 32 3 57.55	W 103 41 56.77
	11734.10	45.00	58.60	11696.72	72.86	72.86	119.37	12.00	388332.79	737822.38	N 32 3 57.67	W 103 41 56.54

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	11800.00	47.07	47.98	11742.53	101.19	101.19	157.24	12.00	388361.12	737860.25	N 32 3 57.95	W 103 41 56.09
	11900.00	51.88	33.50	11807.69	158.71	158.71	206.32	12.00	388418.64	737909.34	N 32 3 58.51	W 103 41 55.52
	12000.00	58.24	21.06	11865.08	231.45	231.45	243.44	12.00	388491.38	737946.46	N 32 3 59.23	W 103 41 55.08
	12100.00	65.64	10.33	11912.20	316.25	316.25	266.97	12.00	388576.17	737969.98	N 32 4 0 0.07	W 103 41 54.80
	12200.00	73.70	0.85	11946.98	409.38	409.38	275.88	12.00	388669.30	737978.89	N 32 4 0 0.99	W 103 41 54.69
Casing Point	12215.55	75.00	359.45	11951.18	424.36	424.36	275.92	12.00	388684.27	737978.93	N 32 4 1 1.14	W 103 41 54.69
	12300.00	78.38	359.45	11970.62	506.52	506.52	275.13	4.00	388766.43	737978.14	N 32 4 1 1.95	W 103 41 54.70
	12400.00	82.38	359.45	11987.33	605.09	605.09	274.18	4.00	388865.00	737977.19	N 32 4 2 2.93	W 103 41 54.70
	12500.00	86.37	359.45	11997.13	704.58	704.58	273.23	4.00	388964.48	737976.24	N 32 4 3 3.91	W 103 41 54.70
Landing Point - 2260' FWL	12590.67	90.00	359.45	12000.00	795.19	795.19	272.36	4.00	389055.08	737975.37	N 32 4 4 4.81	W 103 41 54.71
	12600.00	90.00	359.45	12000.00	804.52	804.52	272.27	0.00	389064.41	737975.28	N 32 4 4 4.90	W 103 41 54.71
	12700.00	90.00	359.45	12000.00	904.52	904.52	271.31	0.00	389164.41	737974.32	N 32 4 5 5.89	W 103 41 54.71
	12800.00	90.00	359.45	12000.00	1004.51	1004.51	270.34	0.00	389264.40	737973.35	N 32 4 6 6.88	W 103 41 54.72
	12900.00	90.00	359.45	12000.00	1104.51	1104.51	269.38	0.00	389364.39	737972.39	N 32 4 7 7.87	W 103 41 54.72
	13000.00	90.00	359.45	12000.00	1204.50	1204.50	268.42	0.00	389464.38	737971.43	N 32 4 8 8.86	W 103 41 54.73
	13100.00	90.00	359.45	12000.00	1304.50	1304.50	267.46	0.00	389564.37	737970.47	N 32 4 9 9.85	W 103 41 54.73
	13200.00	90.00	359.45	12000.00	1404.49	1404.49	266.50	0.00	389664.36	737969.51	N 32 4 10 8.84	W 103 41 54.73
	13300.00	90.00	359.45	12000.00	1504.49	1504.49	265.53	0.00	389764.35	737968.54	N 32 4 11 8.3	W 103 41 54.74
	13400.00	90.00	359.45	12000.00	1604.48	1604.48	264.57	0.00	389864.34	737967.58	N 32 4 12 8.2	W 103 41 54.74
	13500.00	90.00	359.45	12000.00	1704.48	1704.48	263.61	0.00	389964.33	737966.62	N 32 4 13 8.1	W 103 41 54.75
	13600.00	90.00	359.45	12000.00	1804.47	1804.47	262.65	0.00	390064.32	737965.66	N 32 4 14 8.0	W 103 41 54.75
	13700.00	90.00	359.45	12000.00	1904.47	1904.47	261.68	0.00	390164.31	737964.69	N 32 4 15 7.9	W 103 41 54.76
	13800.00	90.00	359.45	12000.00	2004.46	2004.46	260.72	0.00	390264.30	737963.73	N 32 4 16 7.7	W 103 41 54.76
	13900.00	90.00	359.45	12000.00	2104.46	2104.46	259.76	0.00	390364.29	737962.77	N 32 4 17 7.6	W 103 41 54.76
	14000.00	90.00	359.45	12000.00	2204.45	2204.45	258.79	0.00	390464.28	737961.81	N 32 4 18 7.5	W 103 41 54.77
	14100.00	90.00	359.45	12000.00	2304.45	2304.45	257.83	0.00	390564.27	737960.84	N 32 4 19 7.4	W 103 41 54.77
	14200.00	90.00	359.45	12000.00	2404.45	2404.45	256.87	0.00	390664.26	737959.88	N 32 4 20 7.3	W 103 41 54.78
	14300.00	90.00	359.45	12000.00	2504.44	2504.44	255.90	0.00	390764.25	737958.92	N 32 4 21 7.2	W 103 41 54.78
	14400.00	90.00	359.45	12000.00	2604.44	2604.44	254.94	0.00	390864.24	737957.95	N 32 4 22 7.1	W 103 41 54.79
Center Point	14444.25	90.00	359.45	12000.00	2648.68	2648.68	254.51	0.00	390908.49	737957.53	N 32 4 23 15	W 103 41 54.79
	14500.00	90.00	359.45	12000.00	2704.43	2704.43	253.98	0.00	390964.23	737956.99	N 32 4 23 70	W 103 41 54.79
	14600.00	90.00	359.45	12000.00	2804.43	2804.43	253.01	0.00	391064.22	737956.03	N 32 4 24 69	W 103 41 54.80
	14700.00	90.00	359.45	12000.00	2904.42	2904.42	252.05	0.00	391164.21	737955.06	N 32 4 25 68	W 103 41 54.80
	14800.00	90.00	359.45	12000.00	3004.42	3004.42	251.09	0.00	391264.21	737954.10	N 32 4 26 67	W 103 41 54.80
	14900.00	90.00	359.45	12000.00	3104.41	3104.41	250.12	0.00	391364.20	737953.13	N 32 4 27 66	W 103 41 54.81
	15000.00	90.00	359.45	12000.00	3204.41	3204.41	249.16	0.00	391464.19	737952.17	N 32 4 28 65	W 103 41 54.81
	15100.00	90.00	359.45	12000.00	3304.40	3304.40	248.19	0.00	391564.18	737951.21	N 32 4 29 64	W 103 41 54.82
	15200.00	90.00	359.45	12000.00	3404.40	3404.40	247.23	0.00	391664.17	737950.24	N 32 4 30 63	W 103 41 54.82
	15300.00	90.00	359.45	12000.00	3504.39	3504.39	246.27	0.00	391764.16	737949.28	N 32 4 31 62	W 103 41 54.83
	15400.00	90.00	359.45	12000.00	3604.39	3604.39	245.30	0.00	391864.15	737948.31	N 32 4 32 61	W 103 41 54.83
	15500.00	90.00	359.45	12000.00	3704.39	3704.39	244.34	0.00	391964.14	737947.35	N 32 4 33 60	W 103 41 54.83
	15600.00	90.00	359.45	12000.00	3804.38	3804.38	243.37	0.00	392064.13	737946.38	N 32 4 34 59	W 103 41 54.84
	15700.00	90.00	359.45	12000.00	3904.38	3904.38	242.41	0.00	392164.12	737945.42	N 32 4 35 58	W 103 41 54.84
	15800.00	90.00	359.45	12000.00	4004.37	4004.37	241.44	0.00	392264.11	737944.45	N 32 4 36 57	W 103 41 54.85
	15900.00	90.00	359.45	12000.00	4104.37	4104.37	240.48	0.00	392364.10	737943.49	N 32 4 37 56	W 103 41 54.85
	16000.00	90.00	359.45	12000.00	4204.36	4204.36	239.51	0.00	392464.09	737942.52	N 32 4 38 54	W 103 41 54.86

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	16100.00	90.00	359.45	12000.00	4304.36	4304.36	238.55	0.00	392564.08	737941.56	N 32 4 39.53	W 103 41 54.86
	16200.00	90.00	359.45	12000.00	4404.35	4404.35	237.58	0.00	392664.07	737940.59	N 32 4 40.52	W 103 41 54.87
	16300.00	90.00	359.45	12000.00	4504.35	4504.35	236.62	0.00	392764.06	737939.63	N 32 4 41.51	W 103 41 54.87
	16400.00	90.00	359.45	12000.00	4604.34	4604.34	235.65	0.00	392864.05	737938.66	N 32 4 42.50	W 103 41 54.87

Cimarex
Hallertau 5
Federal #3H
PBHL - 2260'
FWL

16479.15	90.00	359.45	12000.00	4683.49	4683.49	234.89	0.00	392943.20	737937.90	N 32 4 43.29	W 103 41 54.88
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Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	20.000	1/100.000	30.000	30.000	SLB_UNKNOWN-Depth Only	ST01 / Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-
	1	20.000	16479.155	1/100.000	30.000	30.000	SLB_MWD-STD	ST01 / Cimarex Hallertau 5 Federal #3H ST01Rev1 PCG 18-

Drilling below $9\text{-}5/8"$ Casing

Fill Line

Flowline

5000# (5M)
BOP

Annular Preventer

SRR & A

Pipe Rams

Blind Rams

2" Minimum Kill Line

3" minimum choke line

Kill Line

Drilling
Spool

Choke Line

2 Valves and a check valve

2 Valves Minimum
(HCR Required)

Wellhead
Assembly

11" 5000 psi x 7-1/16" 10,000 psi
Wellhead Assembly

Wellhead
Assembly

13-5/8" 3000 psi x 11" 5000 psi
Wellhead Assembly

13-5/8" 3000# psi x 13-3/8" SOW Casing Head

Exhibit E-1 – 5000# BOP
Hallertau 5 Federal 3H
Cimarex Energy Co. of Colorado
5-T26S-R32E
SHL 330 FSL & 1980 FWL
BHL 330 FNL & 1980 FWL
Lea County, NM

copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#).

Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

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

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

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

**Possible water/brine flows in the Salado, Castile, Delaware and Bone Springs.
Possible lost circulation in the Red Beds, Delaware and Bone Springs formation.**

- 1. The 13-3/8 inch surface casing shall be set at approximately 1125 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.**
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.**
 - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.**

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, **which is to be set in the Castile or Lamar at approximately 4400'**, is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

3. The minimum required fill of cement behind the **7** inch production casing is:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Pilot hole plugging approved as written.

Formation below the 7" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

4. The minimum required fill of cement behind the **4-1/2** inch production liner is:

☒ Cement should tie-back to the top of the liner. Operator shall provide method of verification.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 inch intermediate casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - c. The results of the test shall be reported to the appropriate BLM office.
 - d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 010715