

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

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.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other	8. Well Name and No. HALLERTAU 4 FEDERAL 6H
2. Name of Operator CIMAREX ENERGY COMPANY OF CO Contact: HOPE KNAULS Email: hknauls@cimarex.com	9. API Well No. 30-025-41628-00-X1
3a. Address 600 NORTH MARIENFELD STREET, SUITE 600 MIDLAND, TX 79701	10. Field and Pool, or Exploratory JENNINGS
3b. Phone No. (include area code) Ph: 918.295.1763	11. County or Parish, and State LEA COUNTY, NM
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 4 T26S R32E NENW 330FNL 2260FWL	

AUG 04 2014

RECEIVED

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize <input type="checkbox"/> Deepen <input type="checkbox"/> Production (Start/Resume) <input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing <input type="checkbox"/> Fracture Treat <input type="checkbox"/> Reclamation <input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair <input type="checkbox"/> New Construction <input type="checkbox"/> Recomplete <input checked="" type="checkbox"/> Other Drilling Operations
	<input type="checkbox"/> Change Plans <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> 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 recompleate 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 recompleation 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 Co. requests approval to change the BHL, casing and cement design as follows:

Surface Casing
APPROVED: 13-3/8" 48# H-40 PROPOSED: Hybrid 13-3/8" 48# J-55
Designed for tension with a 1.8 design factor with effects of buoyancy in 8.30 ppg fluid
Designed for collapse with a 1.125 design factor with full internal evacuation and a collapse force equal to a 8.30 ppg mud gradient.
Designed for Burst with a 1.125 design factor with a surface pressure equal to the fracture gradient at a setting depth less a gas gradient to surface.

*Original Coils Still Stand
(Keep intermediate Casing fluid filled)*

Intermediate Casing
APPROVED: 9 5/8" 40# N-80 PROPOSED: 9 5/8 40# J-55

No pit hole per Terri Statham 7/30/14

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #254701 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs
Committed to AFMSS for processing by JENNIFER MASON on 07/30/2014 (14JAM0061SE)

Name (Printed/Typed) HOPE KNAULS	Title REGULATORY TECH
Signature (Electronic Submission)	Date 07/25/2014

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

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.	
Office BUREAU OF LAND MANAGEMENT CARLSBAD FIELD OFFICE	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a States any false, fictitious or fraudulent statements or representations as

E-PERMITTING P&A NR _____ P&A R _____

** BLM REVISED ** BLM REVISEI

INT to P&A _____
CSNG _____
TA _____

AH CHG Loc *KZ*

VI REVISED **

AUG 05 2014

Additional data for EC transaction #254701 that would not fit on the form

32. Additional remarks, continued

Designed for tension with effects of buoyancy in 10 ppg fluid
Designed for collapse with a 1.125 design factor evacuated 1/3 of TVD of next casing string with a collapse force equal to a 10.00 ppg mud gradient
Designed for burst with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface

Production cement- NO CHANGE TO APPROVED CASING

Lead: 650 sks Tuned Light system @ 10.8 ppg Yield, 2.77 Yield, 17.08 gal/sack
Tail: 1300 sks VersaCem System @ 14.5 ppg Yield, 1.2 cuft/sk, 5.3 Water gal/sack
Excess: 31%

BHL and TVD

Approved

BHL 330' FSL and 2290' FWL

KOP 10172'

EOC 10918'

MD 15128'

TVD 10679'

Proposed

BHL 330' FSL and 2144' FWL

KOP 8795'

EOC 9826'

MD 13856'

TVD 9440'

Dir Plan and C102 attached.

DISTRICT I
1025 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 30-025-41628	Pool Code	Pool Name Jennings Upper Shale; BS
Property Code	Property Name HALLERTAU 4 FEDERAL	Well Number 6H
OGRD No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3307'

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	4	26 S	32 E		330	NORTH	2260	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
N	4	26 S	32 E		330	SOUTH	2144	WEST	LEA

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

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

	<p>OPERATOR CERTIFICATION</p> <p>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.</p> <p><i>Deysi Favela</i> 4/29/2014 Signature Date</p> <p>Deysi Favela Printed Name</p> <p>dfavela@cimarex.com Email Address</p>
	<p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p> Date Surveyed Signature Professional Surveyor</p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS 25945</p>



Cactus 104

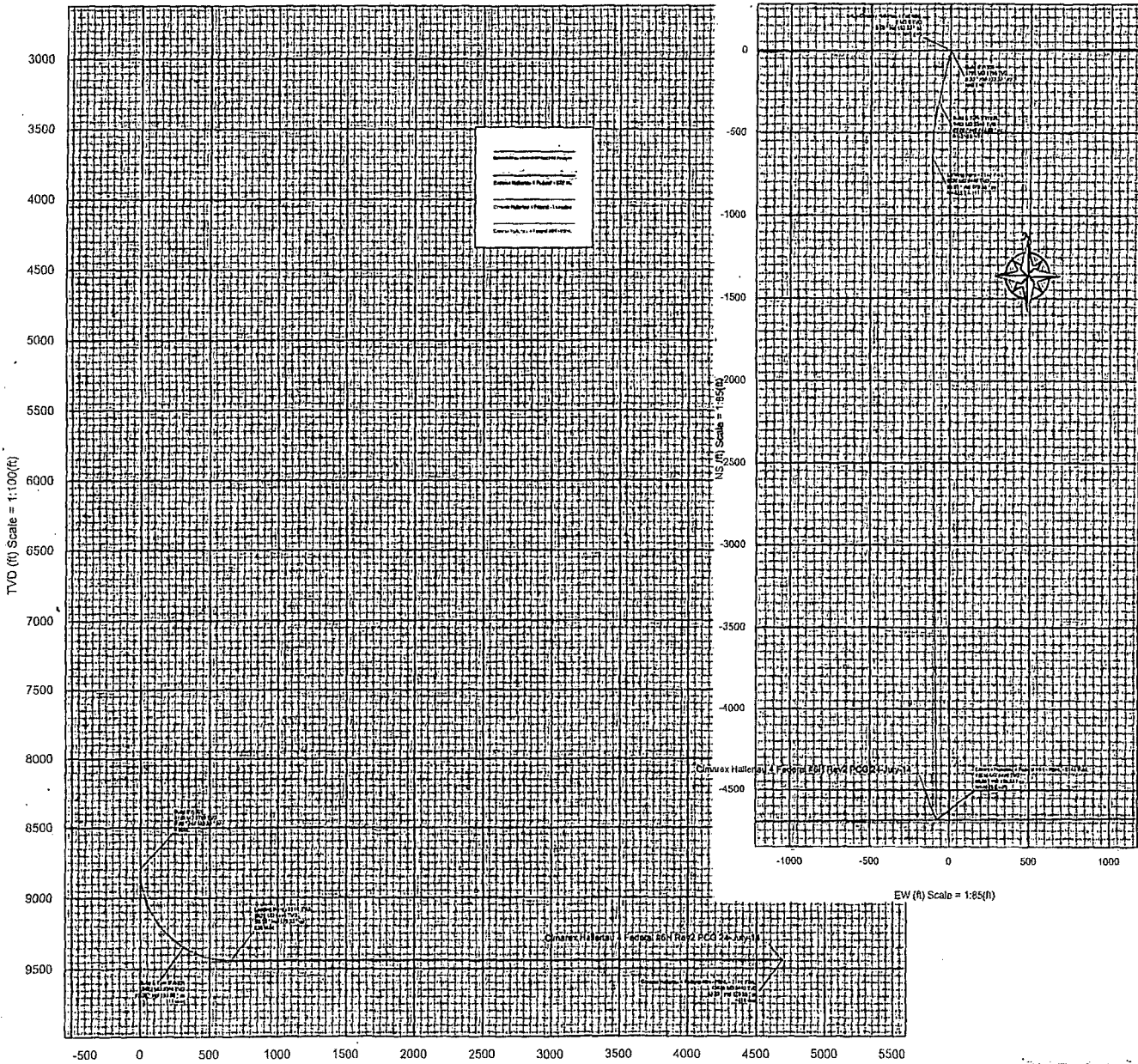
Cimarex Energy

Rev2



Borehole: Original Borehole	Well: Hallertau 4 Federal #6H	Field: NM Lea County	Structure: Cactus 104
Gravity & Magnetic Parameters Model: BGGH 2013 Dip: 59.544° Date: 05/27/2014 Mag Dec: 7.384° FS: 48705.066mT Gravity FS: 998.656mgal (0.00045 Based)	Surface Location Lat: N 32 4 43.45 Longitude: 392931.461US Grid Conv: 0.3463° Lon: W 103 40 52.95 Easting: 743265.0US Scale Fact: 0.92295379	Place Names Hallertau 4 Federal #6H TVD Ref: Unknown (2107h above MSL) Plan: RVD PGG 21-July-14	

Comments	Critical Points													
	Survey Azim (deg)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Sub-Sect (ft)	VS (ft)	US (ft)	EW (ft)	Grd Azim (deg)	Longitude (deg)	Easting (ft)	Northing (ft)	Old TVD (ft)	Total Azim (deg)
SHL - Cimarex Hallertau 4 Fed #6H	0.00	0.00	193.50	0.00	-3307.00	0.00	0.00	0.00	N 32 4 43.449	W 103 40 52.960	743265.00	392931.40		193.50
Build 9' 1100ft	8795.00	0.00	193.50	8795.00	5488.00	0.00	0.00	0.00	N 32 4 43.449	W 103 40 52.960	743265.00	392931.40	0.00	193.50
Build & Turn 9' 1100ft	9461.67	60.00	193.50	9346.33	6039.33	310.73	-309.51	-74.31	N 32 4 40.390	W 103 40 53.845	743190.70	392881.90	9.00	-26.42
Landing Point 2144' FWL	9826.06	90.00	179.55	9440.00	6133.00	656.39	-654.61	-110.71	N 32 4 36.978	W 103 40 54.292	743154.29	392336.82	9.00	
2nd Bone Spring SS	Indefinite			10180.00										90.00
Cimarex Hallertau 4 Federal #6H - PBHL - 2144' FWL	13856.38	90.00	179.55	8440.00	6133.00	4685.49	-4684.82	-79.20	N 32 3 57.096	W 103 40 54.209	743185.80	388306.80	0.00	



Vertical Section (ft) Azim = 180.969° Scale = 1:100(ft) Origin = 0N-S, 0E-W

Grid North
Tot Corr (M-G 7.038°)
Mag Dec (7.384°)
Grid Conv (0.346°)

True
Mag

CONTROLLED

Issued For: []
By: []
Date: []

Supervisor: []
Checked By: []
Drawn By: []
Reviewed By: []



Cimarex Hallertau 4 Federal #6H Rev2 PCG 24-July-14 Proposal Geodetic Report

(Non-Def Plan)



Report Date: July 24, 2014 - 02:37 PM
 Client: Cimarex Energy
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Hallertau 4 Federal #6H / Hallertau 4 Federal #6H
 Well: Hallertau 4 Federal #6H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Hallertau 4 Federal #6H Rev2 PCG 24-July-14
 Survey Date: August 13, 2013
 Tort / AHD / DDI / ERD Ratio: 92.813 ° / 4696.478 ft / 5.806 / 0.498
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 4' 43.44860", W 103° 40' 52.95956"
 Location Grid N/E Y/X: N 392991.400 ftUS, E 743265.000 ftUS
 CRS Grid Convergence Angle: 0.3463 °
 Grid Scale Factor: 0.99995579
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 180.969 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Unknown
 TVD Reference Elevation: 3307.000 ft above MSL
 Seabed / Ground Elevation: 3307.000 ft above MSL
 Magnetic Declination: 7.384 °
 Total Gravity Field Strength: 998.6879mgn (9.80665 Based)
 Gravity Model: DOX
 Total Magnetic Field Strength: 48205.066 nT
 Magnetic Dip Angle: 59.944 °
 Declination Date: May 05, 2014
 Magnetic Declination Model: BGGM 2013
 North Reference: Grid North
 Grid Convergence Used: 0.3463 °
 Total Corr Mag North->Grid North: 7.0375 °
 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 ° ' ")
SHL - Cimarex Hallertau 4 Fed #6H	0.00	0.00	193.50	0.00	0.00	0.00	0.00	N/A	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
Build 9°/100ft	8795.00	0.00	193.50	8795.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
Build & Turn 9°/100ft	9461.67	60.00	193.50	9346.33	310.73	-309.51	-74.31	9.00	392681.90	743190.70	N 32 4 40.39	W 103 40 53.84
Landing Point - 2144' FWL	9826.06	90.00	179.55	9440.00	656.39	-654.61	-110.71	9.00	392336.82	743154.29	N 32 4 36.98	W 103 40 54.29
Cimarex Hallertau 4 Federal #6H - PBHL - 2144' FWL	13856.38	90.00	179.55	9440.00	4685.49	-4684.82	-79.20	0.00	388306.80	743185.80	N 32 3 57.10	W 103 40 54.21

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	8790.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Hallertau 4 Federal #6H Rev2

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 ° ' ")
		1	8790.000	13856.385	1/100.000	30.000	30.000	SLB_MWD-STD			Original Borehole / Cimarex Hallertau 4 Federal #6H Rev2	



Cimarex Hallertau 4 Federal #6H Rev2 PCG 24-July-14 Proposal Geodetic Report 100ft Interpolated (Non-Def Plan)



Report Date: July 24, 2014 - 02:38 PM
 Client: Cimarex Energy
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Hallertau 4 Federal #6H / Hallertau 4 Federal #6H
 Well: Hallertau 4 Federal #6H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Hallertau 4 Federal #6H Rev2 PCG 24-July-14
 Survey Date: August 13, 2013
 Tort / AHD / DDI / ERD Ratio: 92.813 ° / 4696.478 ft / 5.806 / 0.498
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 4' 43.44860", W 103° 40' 52.95956"
 Location Grid N/E Y/X: N 392991.400 ftUS, E 743265.000 ftUS
 CRS Grid Convergence Angle: 0.3463 °
 Grid Scale Factor: 0.99995579
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 180.969 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Unknown
 TVD Reference Elevation: 3307.000 ft above MSL
 Seabed / Ground Elevation: 3307.000 ft above MSL
 Magnetic Declination: 7.384 °
 Total Gravity Field Strength: 998.6879mgn (9.80665 Based)
 Gravity Model: DOX
 Total Magnetic Field Strength: 48205.066 nT
 Magnetic Dip Angle: 59.944 °
 Declination Date: May 05, 2014
 Magnetic Declination Model: BGGM 2013
 North Reference: Grid North
 Grid Convergence Used: 0.3463 °
 Total Corr Mag North->Grid North: 7.0375 °
 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 ° ' ")
SHL - Cimarex Hallertau 4 Fed #6H	0.00	0.00	193.50	0.00	0.00	0.00	0.00	N/A	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	100.00	0.00	193.50	100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	200.00	0.00	193.50	200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	300.00	0.00	193.50	300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	400.00	0.00	193.50	400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	500.00	0.00	193.50	500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	600.00	0.00	193.50	600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	700.00	0.00	193.50	700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	800.00	0.00	193.50	800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	900.00	0.00	193.50	900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1000.00	0.00	193.50	1000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1100.00	0.00	193.50	1100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1200.00	0.00	193.50	1200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1300.00	0.00	193.50	1300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1400.00	0.00	193.50	1400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1500.00	0.00	193.50	1500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1600.00	0.00	193.50	1600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1700.00	0.00	193.50	1700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1800.00	0.00	193.50	1800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	1900.00	0.00	193.50	1900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	
	2000.00	0.00	193.50	2000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45 W 103 40 52.96	

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 ° ' ")
	2100.00	0.00	193.50	2100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2200.00	0.00	193.50	2200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2300.00	0.00	193.50	2300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2400.00	0.00	193.50	2400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2500.00	0.00	193.50	2500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2600.00	0.00	193.50	2600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2700.00	0.00	193.50	2700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2800.00	0.00	193.50	2800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	2900.00	0.00	193.50	2900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3000.00	0.00	193.50	3000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3100.00	0.00	193.50	3100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3200.00	0.00	193.50	3200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3300.00	0.00	193.50	3300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3400.00	0.00	193.50	3400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3500.00	0.00	193.50	3500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3600.00	0.00	193.50	3600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3700.00	0.00	193.50	3700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3800.00	0.00	193.50	3800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	3900.00	0.00	193.50	3900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4000.00	0.00	193.50	4000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4100.00	0.00	193.50	4100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4200.00	0.00	193.50	4200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4300.00	0.00	193.50	4300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4400.00	0.00	193.50	4400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4500.00	0.00	193.50	4500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4600.00	0.00	193.50	4600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4700.00	0.00	193.50	4700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4800.00	0.00	193.50	4800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	4900.00	0.00	193.50	4900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5000.00	0.00	193.50	5000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5100.00	0.00	193.50	5100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5200.00	0.00	193.50	5200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5300.00	0.00	193.50	5300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5400.00	0.00	193.50	5400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5500.00	0.00	193.50	5500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5600.00	0.00	193.50	5600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5700.00	0.00	193.50	5700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5800.00	0.00	193.50	5800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	5900.00	0.00	193.50	5900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6000.00	0.00	193.50	6000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6100.00	0.00	193.50	6100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6200.00	0.00	193.50	6200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6300.00	0.00	193.50	6300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6400.00	0.00	193.50	6400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6500.00	0.00	193.50	6500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6600.00	0.00	193.50	6600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6700.00	0.00	193.50	6700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	6800.00	0.00	193.50	6800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96

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 ° ' ")
	6900.00	0.00	193.50	6900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7000.00	0.00	193.50	7000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7100.00	0.00	193.50	7100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7200.00	0.00	193.50	7200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7300.00	0.00	193.50	7300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7400.00	0.00	193.50	7400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7500.00	0.00	193.50	7500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7600.00	0.00	193.50	7600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7700.00	0.00	193.50	7700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7800.00	0.00	193.50	7800.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	7900.00	0.00	193.50	7900.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8000.00	0.00	193.50	8000.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8100.00	0.00	193.50	8100.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8200.00	0.00	193.50	8200.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8300.00	0.00	193.50	8300.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8400.00	0.00	193.50	8400.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8500.00	0.00	193.50	8500.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8600.00	0.00	193.50	8600.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8700.00	0.00	193.50	8700.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
Build 9°/100ft	8795.00	0.00	193.50	8795.00	0.00	0.00	0.00	0.00	392991.40	743265.00	N 32 4 43.45	W 103 40 52.96
	8800.00	0.45	193.50	8800.00	0.02	-0.02	0.00	9.00	392991.38	743265.00	N 32 4 43.45	W 103 40 52.96
	8900.00	9.45	193.50	8899.52	8.43	-8.40	-2.02	9.00	392983.00	743262.98	N 32 4 43.37	W 103 40 52.96
	9000.00	18.45	193.50	8996.48	31.94	-31.82	-7.64	9.00	392959.58	743257.36	N 32 4 43.13	W 103 40 53.05
	9100.00	27.45	193.50	9088.47	69.97	-69.69	-16.73	9.00	392921.71	743248.27	N 32 4 42.76	W 103 40 53.16
	9200.00	36.45	193.50	9173.23	121.57	-121.10	-29.07	9.00	392870.31	743235.93	N 32 4 42.25	W 103 40 53.31
	9300.00	45.45	193.50	9248.68	185.48	-184.76	-44.36	9.00	392806.65	743220.64	N 32 4 41.62	W 103 40 53.49
Build & Turn 9°/100ft	9400.00	54.45	193.50	9312.96	260.13	-259.12	-62.21	9.00	392732.29	743202.79	N 32 4 40.89	W 103 40 53.70
	9461.67	60.00	193.50	9346.33	310.73	-309.51	-74.31	9.00	392681.90	743190.70	N 32 4 40.39	W 103 40 53.84
	9500.00	63.10	191.78	9364.59	343.73	-342.40	-81.67	9.00	392649.02	743183.33	N 32 4 40.07	W 103 40 53.93
	9600.00	71.28	187.68	9403.34	434.75	-433.17	-97.14	9.00	392558.25	743167.86	N 32 4 39.17	W 103 40 54.12
	9700.00	79.54	183.97	9428.52	531.08	-529.34	-106.90	9.00	392462.08	743158.10	N 32 4 38.22	W 103 40 54.24
Landing Point- 2144' FWL	9800.00	87.84	180.45	9439.51	630.34	-628.56	-110.71	9.00	392362.87	743154.29	N 32 4 37.24	W 103 40 54.29
	9826.06	90.00	179.55	9440.00	656.39	-654.61	-110.71	9.00	392336.82	743154.29	N 32 4 36.96	W 103 40 54.29
	9900.00	90.00	179.55	9440.00	730.31	-728.55	-110.13	0.00	392262.88	743154.87	N 32 4 36.25	W 103 40 54.29
	10000.00	90.00	179.55	9440.00	830.28	-828.55	-109.35	0.00	392162.89	743155.66	N 32 4 35.26	W 103 40 54.29
	10100.00	90.00	179.55	9440.00	930.25	-928.55	-108.56	0.00	392062.90	743156.44	N 32 4 34.27	W 103 40 54.29
	10200.00	90.00	179.55	9440.00	1030.22	-1028.54	-107.78	0.00	391962.90	743157.23	N 32 4 33.28	W 103 40 54.28
	10300.00	90.00	179.55	9440.00	1130.19	-1128.54	-106.99	0.00	391862.91	743158.01	N 32 4 32.29	W 103 40 54.28
	10400.00	90.00	179.55	9440.00	1230.16	-1228.54	-106.21	0.00	391762.92	743158.80	N 32 4 31.30	W 103 40 54.28
	10500.00	90.00	179.55	9440.00	1330.13	-1328.53	-105.42	0.00	391662.93	743159.58	N 32 4 30.31	W 103 40 54.28
	10600.00	90.00	179.55	9440.00	1430.10	-1428.53	-104.64	0.00	391562.93	743160.37	N 32 4 29.32	W 103 40 54.28
	10700.00	90.00	179.55	9440.00	1530.07	-1528.53	-103.85	0.00	391462.94	743161.15	N 32 4 28.33	W 103 40 54.27
	10800.00	90.00	179.55	9440.00	1630.03	-1628.53	-103.07	0.00	391362.95	743161.93	N 32 4 27.34	W 103 40 54.27
	10900.00	90.00	179.55	9440.00	1730.00	-1728.52	-102.29	0.00	391262.96	743162.72	N 32 4 26.35	W 103 40 54.27
	11000.00	90.00	179.55	9440.00	1829.97	-1828.52	-101.50	0.00	391162.97	743163.50	N 32 4 25.36	W 103 40 54.27
	11100.00	90.00	179.55	9440.00	1929.94	-1928.52	-100.72	0.00	391062.97	743164.28	N 32 4 24.37	W 103 40 54.27

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 ° ' ")
	11200.00	90.00	179.55	9440.00	2029.91	-2028.51	-99.94	0.00	390962.98	743165.07	N 32 4 23.38	W 103 40 54.26
	11300.00	90.00	179.55	9440.00	2129.88	-2128.51	-99.15	0.00	390862.99	743165.85	N 32 4 22.39	W 103 40 54.26
	11400.00	90.00	179.55	9440.00	2229.85	-2228.51	-98.37	0.00	390763.00	743166.63	N 32 4 21.40	W 103 40 54.26
	11500.00	90.00	179.55	9440.00	2329.82	-2328.50	-97.59	0.00	390663.00	743167.41	N 32 4 20.41	W 103 40 54.26
	11600.00	90.00	179.55	9440.00	2429.79	-2428.50	-96.81	0.00	390563.01	743168.20	N 32 4 19.42	W 103 40 54.26
	11700.00	90.00	179.55	9440.00	2529.76	-2528.50	-96.03	0.00	390463.02	743168.98	N 32 4 18.43	W 103 40 54.25
	11800.00	90.00	179.55	9440.00	2629.73	-2628.49	-95.24	0.00	390363.03	743169.76	N 32 4 17.44	W 103 40 54.25
	11900.00	90.00	179.55	9440.00	2729.70	-2728.49	-94.46	0.00	390263.03	743170.54	N 32 4 16.46	W 103 40 54.25
	12000.00	90.00	179.55	9440.00	2829.67	-2828.49	-93.68	0.00	390163.04	743171.32	N 32 4 15.47	W 103 40 54.25
	12100.00	90.00	179.55	9440.00	2929.64	-2928.49	-92.90	0.00	390063.05	743172.11	N 32 4 14.48	W 103 40 54.24
	12200.00	90.00	179.55	9440.00	3029.61	-3028.48	-92.12	0.00	389963.06	743172.89	N 32 4 13.49	W 103 40 54.24
	12300.00	90.00	179.55	9440.00	3129.58	-3128.48	-91.34	0.00	389863.07	743173.67	N 32 4 12.50	W 103 40 54.24
	12400.00	90.00	179.55	9440.00	3229.55	-3228.48	-90.56	0.00	389763.07	743174.45	N 32 4 11.51	W 103 40 54.24
	12500.00	90.00	179.55	9440.00	3329.52	-3328.47	-89.77	0.00	389663.08	743175.23	N 32 4 10.52	W 103 40 54.24
	12600.00	90.00	179.55	9440.00	3429.48	-3428.47	-88.99	0.00	389563.09	743176.01	N 32 4 9.53	W 103 40 54.23
	12700.00	90.00	179.55	9440.00	3529.45	-3528.47	-88.21	0.00	389463.10	743176.79	N 32 4 8.54	W 103 40 54.23
	12800.00	90.00	179.55	9440.00	3629.42	-3628.46	-87.43	0.00	389363.10	743177.57	N 32 4 7.55	W 103 40 54.23
	12900.00	90.00	179.55	9440.00	3729.39	-3728.46	-86.65	0.00	389263.11	743178.35	N 32 4 6.56	W 103 40 54.23
	13000.00	90.00	179.55	9440.00	3829.36	-3828.46	-85.87	0.00	389163.12	743179.13	N 32 4 5.57	W 103 40 54.23
	13100.00	90.00	179.55	9440.00	3929.33	-3928.45	-85.09	0.00	389063.13	743179.91	N 32 4 4.58	W 103 40 54.22
	13200.00	90.00	179.55	9440.00	4029.30	-4028.45	-84.32	0.00	388963.13	743180.69	N 32 4 3.59	W 103 40 54.22
	13300.00	90.00	179.55	9440.00	4129.27	-4128.45	-83.54	0.00	388863.14	743181.47	N 32 4 2.60	W 103 40 54.22
	13400.00	90.00	179.55	9440.00	4229.24	-4228.45	-82.76	0.00	388763.15	743182.25	N 32 4 1.61	W 103 40 54.22
	13500.00	90.00	179.55	9440.00	4329.21	-4328.44	-81.98	0.00	388663.16	743183.03	N 32 4 0.62	W 103 40 54.22
	13600.00	90.00	179.55	9440.00	4429.18	-4428.44	-81.20	0.00	388563.16	743183.80	N 32 3 59.63	W 103 40 54.21
	13700.00	90.00	179.55	9440.00	4529.15	-4528.44	-80.42	0.00	388463.17	743184.58	N 32 3 58.64	W 103 40 54.21
	13800.00	90.00	179.55	9440.00	4629.12	-4628.43	-79.64	0.00	388363.18	743185.36	N 32 3 57.65	W 103 40 54.21
Cimarex Hallertau 4 Federal #6H - PBHL - 2144' FWL	13856.38	90.00	179.55	9440.00	4685.49	-4684.82	-79.20	0.00	388306.80	743185.80	N 32 3 57.10	W 103 40 54.21

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	8790.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Hallertau 4 Federal #6H Rev2
	1	8790.000	13856.385	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hallertau 4 Federal #6H Rev2