Form 3160-5
(August 2007)

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.

HOBBS OCD

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

DEC 02 2013

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1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMNM26394
	6. If Indian, Allottee or Tribe Name
	7. If Unit or CA/Agreement, Name and/or No.
	8. Well Name and No. CASCADE 29 FEDERAL 3H
2. Name of Operator CIMAREX ENERGY COMPANY OF CO Contact: PAULA BRUNSON E-Mail: pbrunson@cimarex.com	9. API Well No. 30-025-41241-00-X1
3a. Address 600 NORTH MARIENFELD STREET, SUITE 600 MIDLAND, TX 79701 3b. Phone No. (include area code) Ph: 432-571-7848	10. Field and Pool, or Exploratory WC-025 G08 S253235G
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)* Sec 29 T25S R33E NWNE 330FNL 2310FEL	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 to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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

Cimarex Energy respectfully requests approval to change BHL & TD and to add a pilot hole to the Cascade 29 Federal 3H well as follows:

Approved:
BHL: 330 FSL & ~~330~~ 2310 FEL, Sec 29-25S-33E
Target: 2nd Bone Spring

Proposed:
BHL: 330 FSL & ~~330~~ 2210 FEL, Sec 29-25S-33E
TD: 14312 MD, 9875 TVD
Pilot Hole TD: 10300
KOP: 9398, EOC: 10148

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

Electronic Submission #224726 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs
Committed to AFMSS for processing by DEBORAH HAM on 10/30/2013 (14DMH0083SE)

Name *(Printed/Typed)* PAULA BRUNSON — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 10/29/2013

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ Date NOV 26 2013

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 /s/ Chris Walls
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 crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

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

DEC 02 2013

Additional data for EC transaction #224726 that would not fit on the form

32. Additional remarks, continued

Proposed Target: Avalon

Drilling Plan:
Set OH mechanical whipstock with 850 ft of 2.875 tubing and pump 30 bbls of Mudpush @ 12 ppg, followed by 410 sks Type H cement, dispersant 0.080 gals/sk, retarder 0.045 gal/sk @ 17.5 ppg, 0.94 cuft/sk & 0% excess from pilot hole TD to KOP. KO lateral and drill through the curve to TD. Run production csg to TD & cement.

A revised C102 and directional plan are attached for review and approval.

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DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised July 16, 2010

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-41241		Wildcat Bone Spring

Property Code	Property Name	Well Number
	CASCADE "29" FEDERAL	3H

OGRID No.	Operator Name	Elevation
162683	CIMAREX ENERGY CO. OF COLORADO	3412'

Surface Location

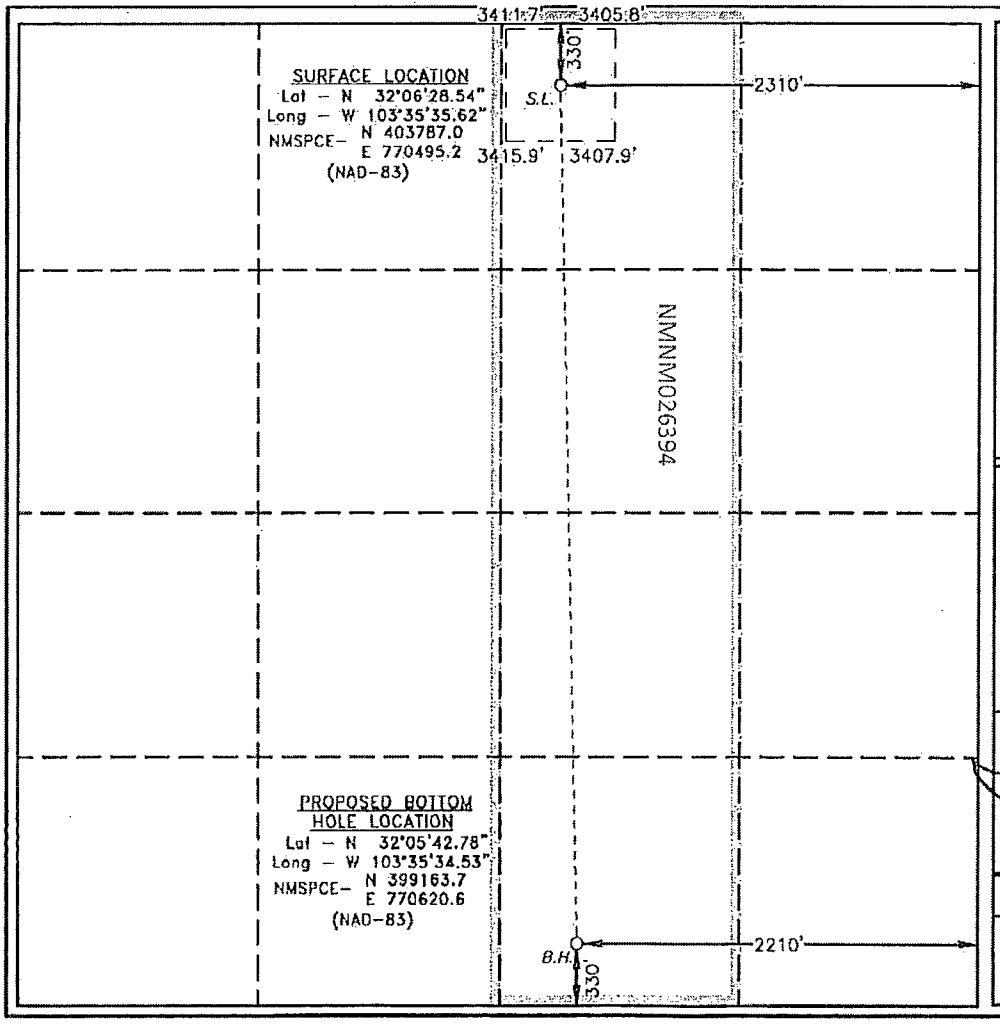
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	29	25 S	33 E		330	NORTH	2310	EAST	LEA

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
O	29	25 S	33 E		330	SOUTH	2210	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 10/28/2013 Date

Paula Brunson
Printed Name

pbrunson@cimarex.com
Email Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

OCTOBER 30, 2013
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES
NEW MEXICO
7977
REGISTERED PROFESSIONAL LAND SURVEYOR

25106

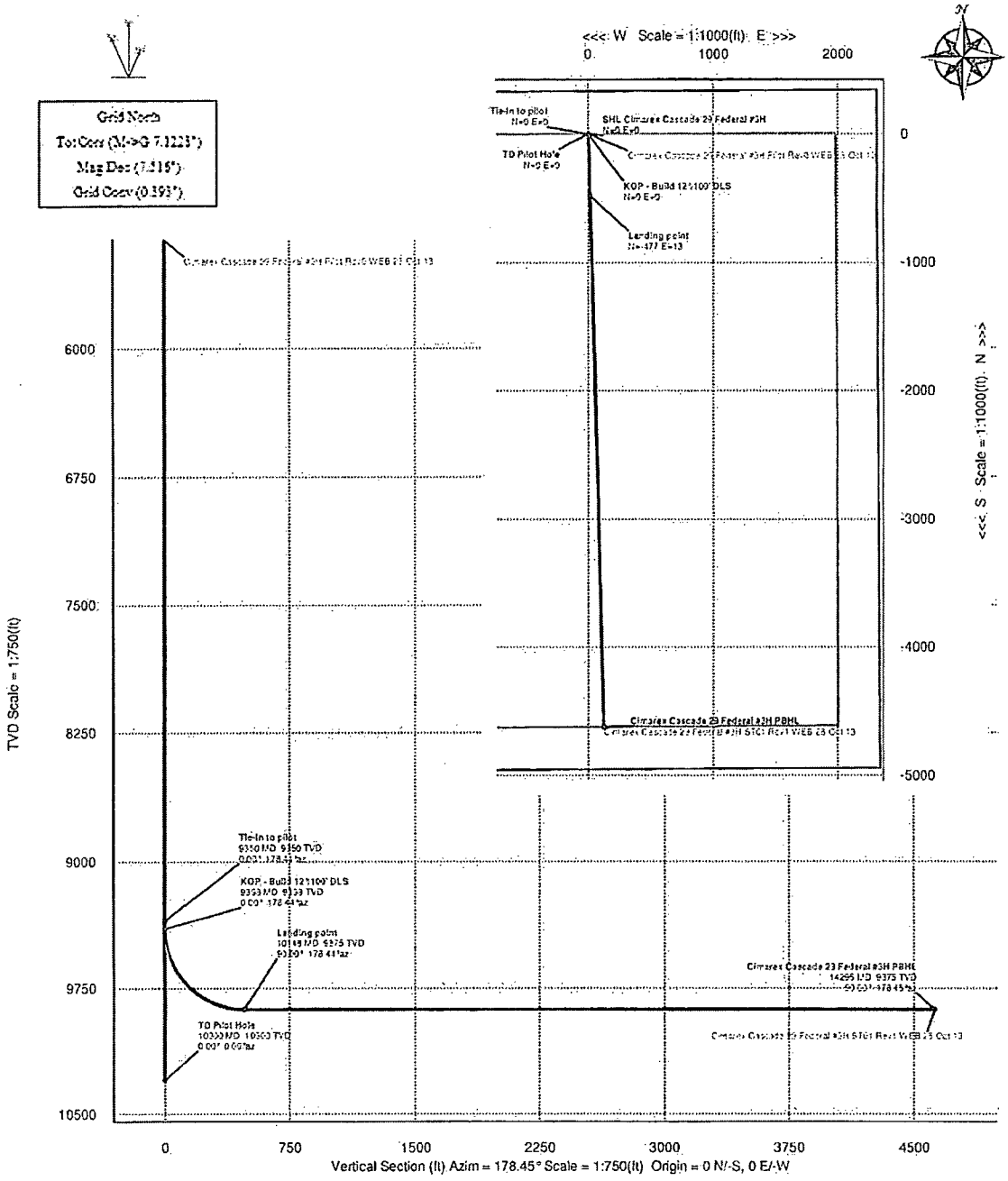
Certificate No. Gary L. Jones 7977

BASIN SURVEYS 25106

Cimarex

PATHFINDER
A Schlumberger Company

Cascade 29 Federal #3H	NM Lea County	TBD



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(+) / W(-)	DLS
Tie-in to pilot	9350.00	0.00	178.45	9350.00	0.00	0.00	0.00	
KOP - Build 12°/100' DLS	9397.50	0.00	178.45	9397.50	0.00	0.00	0.00	0.00
Landing point	10147.56	90.00	178.45	9875.00	477.50	-477.32	12.96	12.00
Cimarex Cascade 29 Federal #3H PBHL	14295.21	90.00	178.45	9875.00	4625.15	-4623.45	125.40	0.00

Cimarex Cascade 29 Federal #3H ST01 Rev1 WEB 28-Oct-13 Proposal
Report 100' Interpolated
(Non-Def Plan)

PATHFINDER
A Schlumberger Company

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Report Date:	October 28, 2013 - 11:33 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	178.446 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	TBD / Cimarex Cascade 29 Federal #3H	**TVD Reference Datum:**	Drillsite Elevation
Well:	Cimarex Cascade 29 Federal #3H	**TVD Reference Elevation:**	3412.000 ft above MSL
Borehole:	ST01 Borehole	**Seabed / Ground Elevation:**	3412.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.516 °
Survey Name:	Cimarex Cascade 29 Federal #3H ST01 Rev1 WEB 28-Oct-13	**Total Gravity Field Strength:**	998.4769mgn (9.80665 Based)
Survey Date:	November 08, 2012	**Total Magnetic Field Strength:**	48390.686 nT
Tort / AHD / DDI / ERD Ratio:	90.003 ° / 4625.152 ft / 5.760 / 0.468	**Magnetic Dip Angle:**	59.999 °
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Declination Date:**	November 08, 2012
Location Lat / Long:	N 32° 6' 28.53761", W 103° 35' 35.61808"	**Magnetic Declination Model:**	BGGM 2012
Location Grid N/E Y/X:	N 403787.000 ftUS, E 770495.200 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	0.3934 °	**Grid Convergence Used:**	0.3934 °
Grid Scale Factor:	0.99996924	**Total Corr Mag North->Grid North:**	7.1228 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
SHL Cimarex Cascade 29 Federal #3H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	N/A
	100.00	0.00	178.45	100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	200.00	0.00	178.45	200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	300.00	0.00	178.45	300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	400.00	0.00	178.45	400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	500.00	0.00	178.45	500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	600.00	0.00	178.45	600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	700.00	0.00	178.45	700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	800.00	0.00	178.45	800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	900.00	0.00	178.45	900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1000.00	0.00	178.45	1000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1100.00	0.00	178.45	1100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1200.00	0.00	178.45	1200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1300.00	0.00	178.45	1300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1400.00	0.00	178.45	1400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1500.00	0.00	178.45	1500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1600.00	0.00	178.45	1600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1700.00	0.00	178.45	1700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1800.00	0.00	178.45	1800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	1900.00	0.00	178.45	1900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2000.00	0.00	178.45	2000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2100.00	0.00	178.45	2100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2200.00	0.00	178.45	2200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2300.00	0.00	178.45	2300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2400.00	0.00	178.45	2400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2500.00	0.00	178.45	2500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2600.00	0.00	178.45	2600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2700.00	0.00	178.45	2700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	2800.00	0.00	178.45	2800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	2900.00	0.00	178.45	2900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3000.00	0.00	178.45	3000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3100.00	0.00	178.45	3100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3200.00	0.00	178.45	3200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3300.00	0.00	178.45	3300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3400.00	0.00	178.45	3400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3500.00	0.00	178.45	3500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3600.00	0.00	178.45	3600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3700.00	0.00	178.45	3700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3800.00	0.00	178.45	3800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	3900.00	0.00	178.45	3900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4000.00	0.00	178.45	4000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4100.00	0.00	178.45	4100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4200.00	0.00	178.45	4200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4300.00	0.00	178.45	4300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4400.00	0.00	178.45	4400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4500.00	0.00	178.45	4500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4600.00	0.00	178.45	4600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4700.00	0.00	178.45	4700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4800.00	0.00	178.45	4800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	4900.00	0.00	178.45	4900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5000.00	0.00	178.45	5000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5100.00	0.00	178.45	5100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5200.00	0.00	178.45	5200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5300.00	0.00	178.45	5300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5400.00	0.00	178.45	5400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5500.00	0.00	178.45	5500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5600.00	0.00	178.45	5600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5700.00	0.00	178.45	5700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5800.00	0.00	178.45	5800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	5900.00	0.00	178.45	5900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6000.00	0.00	178.45	6000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6100.00	0.00	178.45	6100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6200.00	0.00	178.45	6200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6300.00	0.00	178.45	6300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6400.00	0.00	178.45	6400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6500.00	0.00	178.45	6500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6600.00	0.00	178.45	6600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6700.00	0.00	178.45	6700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6800.00	0.00	178.45	6800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	6900.00	0.00	178.45	6900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7000.00	0.00	178.45	7000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7100.00	0.00	178.45	7100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7200.00	0.00	178.45	7200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7300.00	0.00	178.45	7300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7400.00	0.00	178.45	7400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7500.00	0.00	178.45	7500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7600.00	0.00	178.45	7600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7700.00	0.00	178.45	7700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7800.00	0.00	178.45	7800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	7900.00	0.00	178.45	7900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8000.00	0.00	178.45	8000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8100.00	0.00	178.45	8100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8200.00	0.00	178.45	8200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	8300.00	0.00	178.45	8300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8400.00	0.00	178.45	8400.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8500.00	0.00	178.45	8500.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8600.00	0.00	178.45	8600.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8700.00	0.00	178.45	8700.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8800.00	0.00	178.45	8800.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	8900.00	0.00	178.45	8900.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	9000.00	0.00	178.45	9000.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	9100.00	0.00	178.45	9100.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	9200.00	0.00	178.45	9200.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	9300.00	0.00	178.45	9300.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
Tie-in to pilot	9350.00	0.00	178.45	9350.00	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
KOP - Build 12°/100' DLS	9397.50	0.00	178.45	9397.50	0.00	0.00	0.00	403787.00	770495.20	N 32 6 28.54	W 103 35 35.62	0.00	0.00	0.00
	9400.00	0.30	178.45	9400.00	0.01	-0.01	0.00	403786.99	770495.20	N 32 6 28.54	W 103 35 35.62	0.01	178.45	12.00
	9500.00	12.30	178.45	9499.21	10.96	-10.96	0.30	403776.05	770495.50	N 32 6 28.43	W 103 35 35.62	10.96	178.45	12.00
	9600.00	24.30	178.45	9593.98	42.30	-42.28	1.15	403744.72	770496.35	N 32 6 28.12	W 103 35 35.61	42.30	178.45	12.00
	9700.00	36.30	178.45	9680.17	92.66	-92.62	2.51	403694.38	770497.71	N 32 6 27.62	W 103 35 35.60	92.66	178.45	12.00
	9800.00	48.30	178.45	9754.00	159.83	-159.77	4.34	403627.23	770499.54	N 32 6 26.96	W 103 35 35.58	159.83	178.45	12.00
	9900.00	60.30	178.45	9812.25	240.89	-240.80	6.54	403546.21	770501.74	N 32 6 26.15	W 103 35 35.56	240.89	178.45	12.00
	10000.00	72.29	178.45	9852.38	332.28	-332.16	9.02	403454.85	770504.22	N 32 6 25.25	W 103 35 35.54	332.28	178.45	12.00
	10100.00	84.29	178.45	9872.63	430.02	-429.86	11.67	403357.15	770506.87	N 32 6 24.28	W 103 35 35.52	430.02	178.45	12.00
Landing point	10147.56	90.00	178.45	9875.00	477.50	-477.32	12.96	403309.69	770508.16	N 32 6 23.81	W 103 35 35.51	477.50	178.45	12.00
	10200.00	90.00	178.45	9875.00	529.94	-529.75	14.38	403257.27	770509.58	N 32 6 23.29	W 103 35 35.49	529.94	178.45	0.00
	10300.00	90.00	178.45	9875.00	629.94	-629.71	17.09	403157.31	770512.29	N 32 6 22.31	W 103 35 35.47	629.94	178.45	0.00
	10400.00	90.00	178.45	9875.00	729.94	-729.68	19.81	403057.35	770515.01	N 32 6 21.32	W 103 35 35.45	729.94	178.45	0.00
	10500.00	90.00	178.45	9875.00	829.94	-829.64	22.52	402957.39	770517.72	N 32 6 20.33	W 103 35 35.42	829.94	178.45	0.00
	10600.00	90.00	178.45	9875.00	929.94	-929.60	25.23	402857.43	770520.43	N 32 6 19.34	W 103 35 35.40	929.94	178.45	0.00
	10700.00	90.00	178.45	9875.00	1029.94	-1029.57	27.95	402757.47	770523.15	N 32 6 18.35	W 103 35 35.38	1029.94	178.45	0.00
	10800.00	90.00	178.45	9875.00	1129.94	-1129.53	30.66	402657.51	770525.86	N 32 6 17.36	W 103 35 35.35	1129.94	178.45	0.00
	10900.00	90.00	178.45	9875.00	1229.94	-1229.49	33.37	402557.55	770528.57	N 32 6 16.37	W 103 35 35.33	1229.94	178.45	0.00
	11000.00	90.00	178.45	9875.00	1329.94	-1329.46	36.09	402457.59	770531.28	N 32 6 15.38	W 103 35 35.30	1329.94	178.45	0.00
	11100.00	90.00	178.45	9875.00	1429.94	-1429.42	38.80	402357.63	770534.00	N 32 6 14.39	W 103 35 35.28	1429.94	178.45	0.00
	11200.00	90.00	178.45	9875.00	1529.94	-1529.38	41.51	402257.67	770536.71	N 32 6 13.40	W 103 35 35.26	1529.94	178.45	0.00
	11300.00	90.00	178.45	9875.00	1629.94	-1629.34	44.22	402157.71	770539.42	N 32 6 12.41	W 103 35 35.23	1629.94	178.45	0.00
	11400.00	90.00	178.45	9875.00	1729.94	-1729.31	46.94	402057.75	770542.13	N 32 6 11.42	W 103 35 35.21	1729.94	178.45	0.00
	11500.00	90.00	178.45	9875.00	1829.94	-1829.27	49.65	401957.79	770544.85	N 32 6 10.43	W 103 35 35.19	1829.94	178.45	0.00
	11600.00	90.00	178.45	9875.00	1929.94	-1929.23	52.36	401857.83	770547.56	N 32 6 9.44	W 103 35 35.16	1929.94	178.45	0.00
	11700.00	90.00	178.45	9875.00	2029.94	-2029.20	55.07	401757.87	770550.27	N 32 6 8.45	W 103 35 35.14	2029.94	178.45	0.00
	11800.00	90.00	178.45	9875.00	2129.94	-2129.16	57.78	401657.91	770552.98	N 32 6 7.47	W 103 35 35.12	2129.94	178.45	0.00
	11900.00	90.00	178.45	9875.00	2229.94	-2229.12	60.49	401557.95	770555.69	N 32 6 6.48	W 103 35 35.09	2229.94	178.45	0.00
	12000.00	90.00	178.45	9875.00	2329.94	-2329.09	63.21	401457.99	770558.40	N 32 6 5.49	W 103 35 35.07	2329.94	178.45	0.00
	12100.00	90.00	178.45	9875.00	2429.94	-2429.05	65.92	401358.03	770561.11	N 32 6 4.50	W 103 35 35.05	2429.94	178.45	0.00
	12200.00	90.00	178.45	9875.00	2529.94	-2529.01	68.63	401258.07	770563.83	N 32 6 3.51	W 103 35 35.02	2529.94	178.45	0.00
	12300.00	90.00	178.45	9875.00	2629.94	-2628.98	71.34	401158.11	770566.54	N 32 6 2.52	W 103 35 35.00	2629.94	178.45	0.00
	12400.00	90.00	178.45	9875.00	2729.94	-2728.94	74.05	401058.15	770569.25	N 32 6 1.53	W 103 35 34.98	2729.94	178.45	0.00
	12500.00	90.00	178.45	9875.00	2829.94	-2828.90	76.76	400958.19	770571.96	N 32 6 0.54	W 103 35 34.95	2829.94	178.45	0.00
	12600.00	90.00	178.45	9875.00	2929.94	-2928.87	79.47	400858.23	770574.67	N 32 5 59.55	W 103 35 34.93	2929.94	178.45	0.00
	12700.00	90.00	178.45	9875.00	3029.94	-3028.83	82.18	400758.27	770577.38	N 32 5 58.56	W 103 35 34.90	3029.94	178.45	0.00
	12800.00	90.00	178.45	9875.00	3129.94	-3128.79	84.89	400658.31	770580.09	N 32 5 57.57	W 103 35 34.88	3129.94	178.45	0.00
	12900.00	90.00	178.45	9875.00	3229.94	-3228.76	87.60	400558.35	770582.80	N 32 5 56.58	W 103 35 34.86	3229.94	178.45	0.00
	13000.00	90.00	178.45	9875.00	3329.94	-3328.72	90.31	400458.39	770585.51	N 32 5 55.59	W 103 35 34.83	3329.94	178.45	0.00
	13100.00	90.00	178.45	9875.00	3429.94	-3428.68	93.02	400358.43	770588.22	N 32 5 54.60	W 103 35 34.81	3429.94	178.45	0.00
	13200.00	90.00	178.45	9875.00	3529.94	-3528.65	95.73	400258.47	770590.93	N 32 5 53.61	W 103 35 34.79	3529.94	178.45	0.00
	13300.00	90.00	178.45	9875.00	3629.94	-3628.61	98.44	400158.51	770593.64	N 32 5 52.63	W 103 35 34.76	3629.94	178.45	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	13400.00	90.00	178.45	9875.00	3729.94	-3728.57	101.15	400058.55	770596.35	N 32 5 51.64	W 103 35 34.74	3729.94	178.45	0.00
	13500.00	90.00	178.45	9875.00	3829.94	-3828.54	103.86	399958.59	770599.06	N 32 5 50.65	W 103 35 34.72	3829.94	178.45	0.00
	13600.00	90.00	178.45	9875.00	3929.94	-3928.50	106.57	399858.63	770601.77	N 32 5 49.66	W 103 35 34.69	3929.94	178.45	0.00
	13700.00	90.00	178.45	9875.00	4029.94	-4028.46	109.28	399758.67	770604.48	N 32 5 48.67	W 103 35 34.67	4029.94	178.45	0.00
	13800.00	90.00	178.45	9875.00	4129.94	-4128.43	111.99	399658.71	770607.19	N 32 5 47.68	W 103 35 34.65	4129.94	178.45	0.00
	13900.00	90.00	178.45	9875.00	4229.94	-4228.39	114.70	399558.75	770609.90	N 32 5 46.69	W 103 35 34.62	4229.94	178.45	0.00
	14000.00	90.00	178.45	9875.00	4329.94	-4328.35	117.41	399458.79	770612.60	N 32 5 45.70	W 103 35 34.60	4329.94	178.45	0.00
	14100.00	90.00	178.45	9875.00	4429.94	-4428.32	120.12	399358.83	770615.31	N 32 5 44.71	W 103 35 34.58	4429.94	178.45	0.00
	14200.00	90.00	178.45	9875.00	4529.94	-4528.28	122.83	399258.87	770618.02	N 32 5 43.72	W 103 35 34.55	4529.94	178.45	0.00
Cimarex Cascade 29 Federal #3H PBHL	14295.21	90.00	178.45	9875.00	4625.15	-4623.45	125.40	399163.70	770620.60	N 32 5 42.78	W 103 35 34.53	4625.15	178.45	0.00

Survey Type: Non-Def Plan

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

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)		Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	9350.000		1/100.000	30.000	30.000	SLB_MWD-POOR	Pilot Borehole / Cimarex Cascade 29 Federal #3H Pilot Rev0 WEB
	9350.000	14295.207		1/100.000	30.000	30.000	SLB_MWD-POOR	ST01 Borehole / Cimarex Cascade 29 Federal #3H ST01