

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**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.*FORM APPROVED
OMB NO 1004-0135
Expires July 31, 2010OCD Hobbs
HOBBS OCD

SEP 17 2012

RECEIVED

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM127895
2. Name of Operator CIMAREX ENERGY COMPANY		6. If Indian, Allottee or Tribe Name
Contact: TRACIE CHERRY E-Mail: tcherry@cimarex.com		7. If Unit or CA/Agreement, Name and/or No
3a. Address 600 NORTH MARIENFELD STREET STE 600 MIDLAND, TX 79701	3b. Phone No (include area code) Ph: 432-620-1959	8. Well Name and No DOUBLE X 25 FEDERAL 004
4. Location of Well (Footage, Sec, T, R, M., or Survey Description) Sec 25 T24S R32E NENW 330FNL 2055FWL		9. API Well No 30-025-40690
		10. Field and Pool, or Exploratory TRIPLE X; BONE SPRING, W
		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 recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Cimarex Energy Co. respectfully requests permission to change the depth of the pilot hole and kickoff plug for the referenced well. Pilot hole will be drilled to 11350'. After logging, a whipstock will be set @ 11250' and cemented through tailpipe. Cement will be brought 100' above whipstock. Pump 850 sx HalCam H + 0.5% Halad-322 + 0.2% HR-601, 15.6 pg, 1.2 yield

No other aspects of drilling plan will change.

Horizontal wellbore, BHL:
330' FSL & 2310' FWL.

All footages corrected to match directional plan.

14. I hereby certify that the foregoing is true and correct	
Electronic Submission #146957 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY, sent to the Hobbs Committed to AFMSS for processing by KURT SIMMONS on 08/30/2012 ()	
Name (Printed/Typed) TRACIE CHERRY	Title SR REGULATORY ANALYST
Signature (Electronic Submission)	Date 08/22/2012
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
Approved By	Title
SEP 12 2012	
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
WESLEY W. INGRAM PETROLEUM ENGINEER	
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.	

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

SEP 18 2012

Application to Drill
Double X 25 Federal No. 4
 Cimarex Energy Co.
 Unit C, Section 25
 T24S-R32E, Lea County, NM

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

- 1 Location: SHL 330 FNL & 2055 FWL
 BHL 330 FSL & 2310 FWL
- 2 Elevation above sea level: 3572' GR
- 3 Geologic name of surface formation: Quaternary Alluvium Deposits
- 4 Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.
- 5 Proposed drilling depth: MD ~~15470~~ 15193 TVD ~~10975~~ 10826
- 6 Estimated tops of geological markers:

Rustler	1080'
Top of Salt	1400'
Castile	3400'
Base of Salt	4700'
Delaware Sands	5000'
Brushy Canyon	8660'
Bone Spring	8900'
Avalon	9270'
FBSS	10000'
SBSS	10600'
3rd BS Carbonate	11100'
TD Pilot Hole	11350'
- 7 Possible mineral bearing formation:

Bone Spring	Oil
Delaware	Oil

8. Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1170'	8.4 - 8.6	28	NC	FW
1170' to 4900'	10.0	30-32	NC	Brine
4900' to 9248'	8.4-9.0	28-29	NC	FW and brine, use hi-vis sweeps to keep hole clean
9248' to 15470' <u>15193</u>	8.5-9.5	27-45	NC	2% KCL

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.

Proposed drilling Plan

Drill 8 3/4" pilot hole to 11350 and log. Set whipstock at ~~9348'~~ 10412 and cement through tailpipe. Cement will be brought 100' above whipstock. Pump 850 sx HalCem H + 0.5% Halad-322 + 0.2% HR-601, 15.6 pg, 1.2 yield. Kick off lateral @ +/- ~~9248'~~ 10312 and drill to TD @ ~~15470 MD, 10975 TVD.~~ 15193 MD, 10826 TVD. Run 5 1/2" 17# P-110 LTC from 0-~~15470~~ 15193 and cement.

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9 Casing & Cementing Program:

String	Hole Size	Depth		Casing OD		Weight	Collar	Grade
Surface 1	17 1/2"	0'	to 1170'	New	13 3/8"	48#	STC	H-40
Intermediate	12 1/4"	0'	to 4900'	New	9 5/8"	40#	LTC	J-55
Production	7 7/8" or 8 3/4"	0'	to 15470'	New	5 1/2"	17#	LTC	P-110

15193

10 Cementing:

Surface

Lead: 545SKS Halcem C + 4% Bentomite + 2% CaCl 13.5ppg 1.75 yield 100% Excess

Tail: 420SKS Halcem C + 2% CaCl 14.2ppg 1.34 yield 50% Excess

TOC Surface Centralizers per Onshorder 2.III:B.1.f

Intermediate

Lead: 1655SKS Econocem + 5% Salt + 5# Gilsonite 14.6ppg 1.54 yield 70% Excess

Tail: 200SKS Halcem + 1% CaCl 14.8ppg 1.34 yield 25% Excess

TOC Surface

Production

Lead: 1030SKS Econocem H + 0.5% CFR-3 + 0.1% HR-601 11.9ppg 2.44 yield 50% Excess

Tail: 1305SKS Versacem H + 0.5% Halad-344 + 0.4% CFR-3 + 1# Salt + 0.1% HR-601 14.5ppg 1.22 yield 25% Excess. Cement volumes will be adjusted according to hole size.

TOC 3800' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.

According to the NM State Engineer, depth to ground water is 100 feet. Fresh water zones will be protected by setting 13 3/8" casing at 1170' and 9 5/8" casing at 4900 and cementing to surface. Hydrocarbon zones will be protected by setting 5 1/2" casing at 15470 and cementing to 3800.

<u>Collapse Factor</u>	<u>Burst Factor</u>	<u>Tension Factor</u>
1.125	1.125	1.6

11 Pressure control Equipment:

Exhibit "E". A 13 3/8" 5000 PSI working pressure B.O.P. consisting of one set of 10K blind rams and two sets of 10K pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 4900'. 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. Mud gas separator will be available if drilling in H2S areas.

BOP unit will be hydraulically operated. BOP will be nipped up and operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling.

Before drilling out of the surface casing BOPs will be tested to 250 psi low and 3000 psi high by an independent service company. Hydril will be tested to 250 psi low and 1500 psi high. Before drilling out of the intermediate casing BOPs will be tested to 250 psi low and 5000 psi high. Hydril will be tested to 250 psi low and 2500 high.

Cimarex Energy Co. of Colorado requested and was given a variance to drill this well using a co-flex line between the BOP and choke manifold in original APD approval.

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12 Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from 4900 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR Surface to TD
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H₂S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S Safety package on all wells, attached is an "H₂S Drilling Operations Plan." Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP **4940 psi** Estimated BHT **130°**

14 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.

Drilling expected to take 30-35 days

If production casing is run an additional 30 days will be required to complete and construct surface facilities.

15 Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

Bone Spring pay will be perforated and stimulated.

The proposed well will be tested and potentialized as **an oil well.**



Cimarex

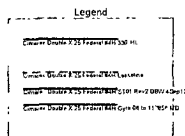
PATHFINDER
A Schlumberger Company

WELL			Double X 25 Federal #4H			FIELD			NM Lea County (NAD 83)			STRUCTURE			Cactus 104						
Vertical Parameters						Surface Location			NAD83 to NAD54 State Plane Eastern Zone 1 S Feet			Miscellaneous									
Model	BDGM 2012	Dip	60.881°	Date	September 04 2012	Lat	N 32 11 47.9"	Longitude	W 103 37 48.763	Northings	433941.50 RL.S	Grid Cont	0 172°	Scale Fact	0.99996127	Plan	Double X 25 Federal #4H	TVD Ref	RAH1039301 (don't N3L)	Rev Date	September 04 2012
		Mag Dec	50.1°	FS	48-10 T&T			Eastings	758630.50 RL.S							ST01 Rev 2 DBN 45pt12					

Critical Points									
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(+) / W(-)	DLS	
Tie-In ST01	10120.30	0.22	278.37	10119.87	24.56	-23.48	18.66		
KOP - Build @ 12°/100'	10312.50	0.22	278.37	10312.07	24.40	-23.37	17.93	0.00	
DLS									
Landing Point @ 89.5° INC	11058.89	89.50	176.74	10790.00	497.81	-496.12	-43.07	12.00	
Cimarex Double X 25	15192.59	89.50	176.74	10825.90	4631.34	-4622.98	278.11	0.00	
Federal #4H PBHL									

From(ft)	To(ft)	Action
10120.30	10312.50	Drill Tangent Hold on inc 0.22° Hold on Az 278.37° From 10119.87 ft TVD to 10312.07 ft TVD
10312.50	11058.89	Curve 12.00°/100ft From inc 0.22° to 89.50° From Az 278.37° to 176.74° From 10312.07 ft TVD to 10790.00 ft TVD
11058.89	15192.59	Curve 0.00°/100ft to TD From inc 89.50° to 89.50° From Az 176.74° to 176.74° From 10790.00 ft TVD to 10825.90 ft TVD

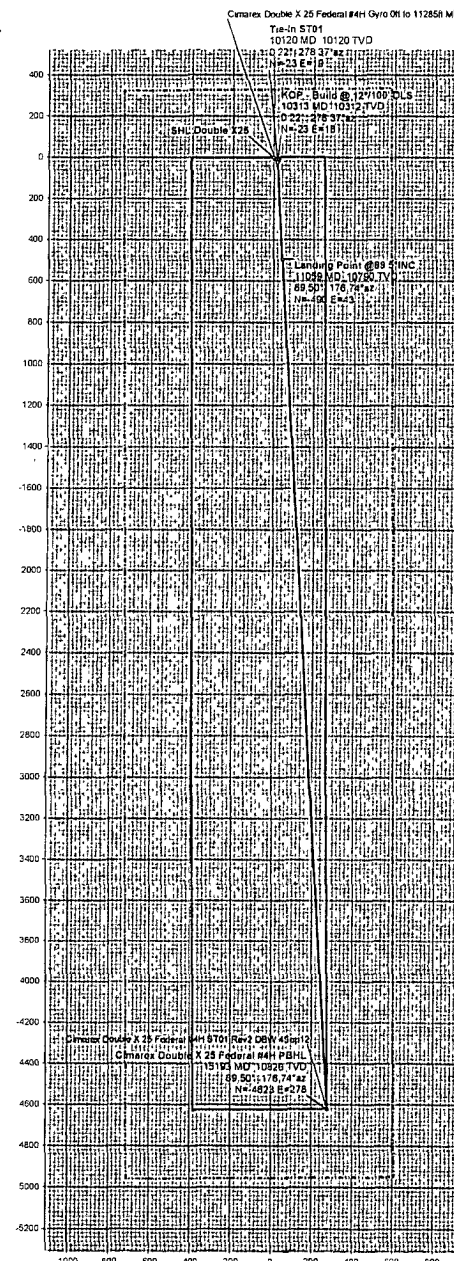
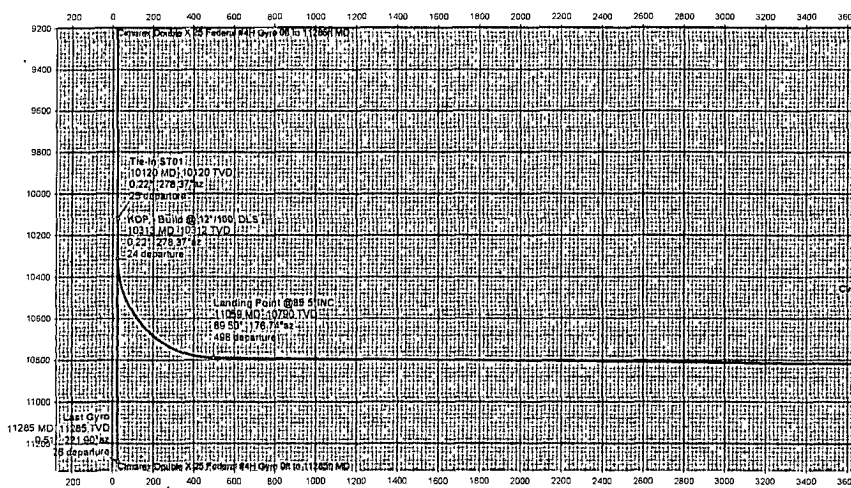
Proposal ST01 Rev2



Grid North
Tot Corr (M→G 7 1860°)
Mag Dec (7.561°)
Grid Conv (0.375°)



Scale = 1:200 (ft) N >>>



Drawn By: [Name]
Date Created: [Date]
Checked By: [Name]
Approved By: [Name]



Cimarex Double X 25 Federal #4H ST01 Rev2 GEO Report

(Non-Def Plan)

Report Date September 04 2012 - 04:00 PM
Client Cimarex
Field NM Lea County (NAD 83)
Structure / Slot Cactus 104 / Cimarex Double X 25 Federal #4H
Well Cimarex Double X 25 Federal #4H
Borehole ST01
UWI / API# Unknown / Unknown
Survey Name Cimarex Double X 25 Federal #4H ST01 Rev2 DBW 4Sep12
Survey Date September 04, 2012
Tort / AHD / DDI / ERD Ratio 108.415" / 4679.531 ft / 5.852 / 0.432
Coordinate Reference System NAD83 New Mexico State Plane - Eastern Zone, US Feet
Location Lat / Long N 32° 11' 42.07747" W 103° 07' 48.76314"
Location Grid N/E Y/X N 435394 300 ftUS, E 758836 500 ftUS
CRS Grid Convergence Angle 0.3746 °
Grid Scale Factor 0.99996327
Survey / DLS Computation
Vertical Section Azimuth 176.557 ° (Grid North)
Vertical Section Origin 0.000 ft 0.000 ft
TVD Reference Datum RKB
TVD Reference Elevation 3583.000 ft above MSL
Seabed / Ground Elevation 3572.000 ft above MSL
Magnetic Declination 7.561 °
Total Gravity Field Strength 999.1456 mgn (9.8 based)
Total Magnetic Field Strength 45460.326 nT
Magnetic Dip Angle 60.081 °
Declination Date September 04, 2012
Magnetic Declination Model BGGM 2012
North Reference Grid North
Grid Convergence Used 0.3746 °
Total Corr Mag North->Grid North 7.1860 °
Local Coord Referenced To Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	TVDSS (ft)	Closure (ft)	Closure Azimuth (°)	TF (°)	Northing (ftUS)	Easting (ftUS)
Tie-In ST01	10120.30	0.22	278.37	10119.87	24.56	23.48	18.66	N/A	N/A	N/A	6526.87	29.99	141.52	278.37M	435370.82	758855.18
KOP - Build @ 12"1100' DLS	10312.50	0.22	278.37	10312.07	24.40	-23.37	17.93	0.00	0.00	0.00	6719.07	29.45	142.51	176.74M	435370.93	758854.43
Landing Point @ 99.5"11VC	11058.89	89.50	176.74	10790.00	497.81	-496.12	43.07	12.00	11.98	-13.62	7197.00	497.99	175.04	7.56R	434898.20	758879.57
Cimarex Double X 25 Federal #4H P&HL	15192.59	89.50	176.74	10825.90	4631.34	-4622.98	278.11	0.00	0.00	0.00	7232.90	4831.34	176.56		430771.50	759114.60

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	21.000		Act Stns	30.000	30.000	SLB_NSG+MSHOT Depth Only
	21.000	10120.300		Act Stns	30.000	30.000	SLB_NSG+MSHOT
	10120.300	15192.591	1/100.000	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Cimarex Double X 25 Federal #4H Gyro Off to 11285H MD Original Borehole / Cimarex Double X 25 Federal #4H Gyro ST01 / Cimarex Double X 25 Federal #4H ST01 Rev2 DBW



Cimarex-Double X 25 Federal #4H ST01 Rev2 GEO Interp Report

(Non-Def Plan)

Report Date	September 04, 2012 04:01 PM	Survey / DLS Computation	Minimum Curvature / Lubinski
Client	Cimarex	Vertical Section Azimuth	176.557 ° (Grid North)
Field	NM Lea County (NAD 83)	Vertical Section Origin	0 000 00 ft
Structure / Slot	Cactus 104 / Cimarex Double X 25 Federal #4H	TVD Reference Datum	RKB
Well	Cimarex Double X 25 Federal #4H	TVD Reference Elevation	9593 000 ft above MSL
Borehole	ST01	Seabed / Ground Elevation	3572 000 ft above MSL
UWI / API#	Unknown / Unknown	Magnetic Declination	7.581 °
Survey Name	Cimarex Double X 25 Federal #4H ST01 Rev2 DBW 4Sep12	Total Gravity Field Strength	989.1456 mgn (g based)
Survey Date	September 04, 2012	Total Magnetic Field Strength	48450.326 nT
Tort / AHD / DDI / ERD Ratio	108.415 ° / 4679.531 ft / 5.852 / 0.432	Magnetic Dip Angle	60.081 °
Coordinate Reference System	NAD83 New Mexico State Plane Eastern Zone US Feet	Declination Date	September 04, 2012
Location Lat / Long	N 32° 11' 42.07747", W 103° 37' 48.75314"	Magnetic Declination Model	BGGM 2012
Location Grid N/E Y/X	N 435394 500 ftUS, E 758836 500 ftUS	North Reference	Grid North
CRS Grid Convergence Angle	0.3746 °	Grid Convergence Used	0.3746 °
Grid Scale Factor	0.99996327	Total Corr Mag North->Grid North	7.1850 °
		Local Coord Referenced To	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grd (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	TVDSS (ft)	Closure Closure Azimuth (ft) (°)	TF (ft)	Northing (ftUS)	Easting (ftUS)	
SHL Double X25 First Gyro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	N/A	N/A	-3593.00	0.00	0.00	56.26M	435394.30	758836.50
	144.90	0.80	56.26	144.90	-0.51	0.56	0.84	0.55	0.55	0.00	-3448.10	1.01	56.26	54.1M	435394.86	758837.34
	235.70	0.80	54.10	235.69	-1.17	1.29	1.88	0.03	0.00	-2.38	-3357.31	2.28	55.66	87.68M	435395.59	758838.38
	421.30	0.65	87.68	421.27	-1.85	2.09	3.98	0.24	-0.08	18.09	-3171.73	4.50	62.34	148.59M	435396.39	758840.48
	601.70	0.85	149.59	601.66	-0.63	0.98	5.68	0.44	0.11	34.32	-2991.34	5.77	80.26	194.84M	435395.28	758842.18
	785.80	0.67	184.84	785.74	1.65	-1.27	6.28	0.27	-0.10	19.15	-2807.26	6.41	101.47	198.21M	435393.03	758842.78
	977.00	1.03	198.21	976.92	4.95	-4.02	5.65	0.21	0.19	6.99	-2616.08	6.94	125.43	184.33M	435390.28	758842.15
	1168.30	0.93	184.33	1168.20	7.49	-7.20	5.00	0.13	-0.05	-7.26	-2424.80	8.77	145.24	172.76M	435387.10	758841.50
	1358.80	0.33	172.76	1358.68	8.57	-9.29	4.95	0.32	-0.31	-6.07	-2234.32	10.52	151.95	196.79M	435385.01	758841.45
	1549.50	0.38	196.79	1549.38	10.71	-10.44	4.84	0.08	0.03	12.60	2043.62	11.50	155.14	142.58M	435383.86	758841.34
	1740.90	0.30	142.58	1740.78	11.72	11.44	4.96	0.17	-0.04	-28.32	-1852.22	12.47	156.58	111.15M	435382.86	758841.46
	1931.60	0.47	111.15	1931.47	12.46	-12.12	5.99	0.14	0.09	-16.48	-1661.53	13.52	153.70	100.26M	435382.18	758842.49
	2122.60	0.43	100.26	2122.47	12.96	-12.53	7.43	0.05	-0.02	-5.70	-1470.53	14.57	149.35	44.34M	435381.77	758843.93
	2313.60	0.29	44.34	2313.48	12.80	12.32	8.47	0.19	-0.07	-29.28	-1279.54	14.95	145.48	13.59M	435381.99	758844.97
	2505.40	0.35	13.59	2505.26	11.82	-11.40	8.95	0.09	0.03	-16.03	-1087.74	14.49	141.87	359.77M	435382.90	758845.45
	2697.10	0.15	359.77	2696.96	11.10	-10.58	9.08	0.11	0.10	-7.21	-896.04	13.94	139.35	205.58M	435383.72	758845.58
	2888.50	0.21	205.58	2888.36	11.16	-10.64	8.93	0.18	0.03	-80.58	-704.64	13.89	140.00	149.48M	435383.66	758845.43
	3078.70	0.32	149.48	3078.56	11.94	-11.42	9.05	0.14	0.06	-29.50	-514.44	14.57	141.60	97.99M	435382.88	758845.55
	3269.80	0.26	97.99	3269.65	12.50	-11.94	9.75	0.13	-0.03	-26.94	-323.35	15.41	140.76	92.74M	435382.36	758846.25
	3459.60	0.15	92.74	3458.45	12.61	-12.01	10.42	0.06	-0.05	-2.78	134.55	15.90	139.05	80.41M	435382.29	758846.92
	3649.10	0.40	80.41	3648.95	12.57	11.91	11.33	0.13	0.13	-6.47	55.95	16.43	136.44	11.1M	435382.39	758847.83
	3840.20	0.37	11.10	3840.05	11.90	-11.19	12.10	0.23	-0.02	-36.27	247.05	16.48	132.76	228.81M	435383.11	758848.60
	4031.60	0.13	228.81	4031.45	11.43	-10.73	12.06	0.25	-0.13	-74.34	438.45	16.14	131.66	63.68M	435383.57	758848.56
	4223.60	1.29	63.68	4223.43	10.73	9.91	13.83	0.74	0.60	86.01	630.43	17.02	125.63	71.76M	435384.39	758850.33
	4414.50	1.00	71.76	4414.29	9.47	-8.44	17.34	0.17	0.15	4.23	821.29	19.28	115.95	83.59M	435385.86	758853.84
	4606.20	1.87	83.59	4605.93	8.88	-7.57	22.04	0.48	0.45	6.17	1012.93	23.30	108.95	86.87M	435386.73	758858.54
	4797.20	0.84	86.87	4796.88	8.72	-7.14	25.53	0.54	0.54	1.72	1203.88	27.48	105.07	127.43M	435387.16	758863.03
	4986.60	0.16	127.43	4986.27	8.90	-7.23	28.13	0.38	0.36	21.41	1393.27	28.04	104.41	128.2M	435387.07	758864.63
	5178.40	0.24	128.20	5178.07	9.35	-7.64	28.66	0.04	0.04	0.40	1595.07	29.66	104.93	192.13M	435386.66	758865.16
	5367.80	0.24	192.13	5367.46	9.99	-8.27	28.88	0.13	0.00	33.75	1774.46	30.05	105.98	181.64M	435386.03	758865.38
	5559.80	0.32	181.64	5558.46	10.91	9.20	28.79	0.05	0.04	-5.49	1965.46	30.22	107.72	124.28M	435385.10	758865.28
	5750.40	0.22	124.28	5750.06	11.67	-9.94	29.07	0.14	-0.05	-29.94	2157.06	30.73	108.87	74.29M	435384.36	758865.57
	5942.00	0.13	74.29	5941.66	11.84	-10.09	29.59	0.09	0.05	-28.09	2348.85	31.26	108.82	210.67M	435384.21	758866.09
	6132.50	0.05	210.67	6132.16	11.67	-10.10	29.75	0.09	-0.04	71.59	2539.16	31.42	108.75	172.87M	435384.20	758866.25
	6323.60	0.15	172.87	6323.26	12.19	-10.42	29.74	0.06	0.05	-19.73	2730.26	31.51	109.31	112.83M	435383.88	758866.24
	6514.50	0.06	112.83	6514.16	12.48	-10.71	29.88	0.07	0.05	31.50	2921.16	31.72	109.72	224.63M	435383.59	758866.36
	6706.10	0.05	224.63	6705.76	12.58	-10.80	29.90	0.05	-0.01	58.35	3112.76	31.79	109.87	214.51M	435383.50	758866.40
	6897.20	0.81	214.51	6896.85	13.70	11.98	29.07	0.40	0.40	-5.30	3303.85	31.44	112.39	170.63M	435382.32	758865.57
	7088.50	0.83	170.63	7088.13	16.15	-14.46	28.53	0.32	0.01	-22.94	3495.13	31.99	116.67	260.88M	435379.84	758865.03
	7280.30	0.08	260.88	7279.93	17.54	-15.85	28.51	0.44	0.39	47.05	3686.93	32.71	118.99	195.18M	435378.45	758865.11
	7470.10	0.17	195.18	7469.73	17.82	-16.15	28.39	0.08	0.04	-34.82	3876.73	32.66	119.63	87.89M	435378.15	758864.89
	7659.40	0.21	87.89	7659.03	18.10	-16.41	28.65	0.16	0.02	-56.63	4066.03	33.03	119.79	210.78M	435377.89	758865.16
	7848.80	0.20	210.78	7848.43	18.38	-16.68	28.84	0.19	-0.01	64.83	4255.43	33.32	120.04	225.53M	435377.62	758865.34
	8038.10	0.20	225.53	8037.73	18.67	-17.19	28.44	0.03	0.00	7.80	4444.73	33.23	121.16	237.55M	435377.11	758864.93
	8227.50	0.31	237.55	8227.12	19.34	17.70	27.77	0.08	0.06	6.35	4634.12	32.93	122.52	194.58M	435376.60	758864.27
	8417.10	0.26	194.58	8416.72	19.59	-18.39	27.23	0.11	0.03	-22.86	4823.72	32.86	124.04	193.18M	435375.91	758863.73
	8606.70	0.21	193.18	8605.32	20.73	-19.14	27.04	0.03	0.03	-0.74	5012.32	33.13	125.30	209.06M	435375.16	758863.54
	8795.00	0.14	209.06	8794.62	21.26	-19.68	26.85	0.04	0.04	6.39	5201.62	33.29	126.25	234.26M	435374.62	758863.35
	8984.20	0.11	234.26	8983.82	21.55	-19.59	26.59	0.03	-0.02	13.32	5390.82	33.27	126.94	179.95M	435374.31	758863.09
	9173.60	0.17	179.95	9173.22	21.93	-20.38	26.44	0.07	0.03	-28.85	5580.22	33.38	127.62	266.38M	435373.92	758862.94
	9362.80	0.21	266.38	9362.42	22.21	-20.68	26.10	0.14	0.02	45.66	5769.42	33.30	128.40	248.88M	435373.62	758862.59
	9552.00	0.91	248.88	9551.61	22.67	-21.24	24.35	0.38	0.37	9.26	5958.61	32.31	131.11	247.59M	435373.06	758862.05
	9741.60	0.87	247.59	9741.18	23.59	-22.34	21.61	0.02	0.02	0.67	6148.18	31.08	135.94	242.97M	435371.96	758858.11
	9930.90	0.43	242.97	9930.47	24.35	23.21	19.65	0.23	-0.23	2.44	6337.47	30.41	139.74	278.37M	435371.09	758856.15
Tie-in ST01	10120.30	0.22	278.37	10119.87	24.56	-23.48	18.66	N/A	0.11	18.69	6526.87	29.99	141.52	278.37M	435370.82	758855.13
KOP - Build @ 12°/100° DLS	10312.50	0.22	278.37	10312.07	24.40	23.37	17.93	0.00	0.00	0.00	6719.07	29.45	142.51	177.91M	435370.93	758854.43
	10400.00	0.46	177.91	10399.08	32.33	-31.30	18.05	12.00	11.70	114.82	6806.08	36.13	150.03	1.98L	435366.00	758854.55
	10500.00	12.45	177.28	10494.81	60.60	-59.54	18.50	12.00	12.00	0.65	6901.81	62.59	162.04	0.58L	435334.76	758855.80
	10600.00	34.45	177.05	10582.58	108.14	-107.04	21.68	12.00	12.00	-0.21	6989.58	108.21	168.55	0.38L	435287.27	758858.16
	10700.00	48.44	176.94	10658.54	172.80	-171.70	25.08	12.00	12.00	-0.11	7065.54	173.52	171.69	0.3L	435222.61	758861.58
	10800.00	58.44	176.87													

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	TVDSS (ft)	Closure (ft)	Closure Azimuth (°)	TF (°)	Northing (ftUS)	Easting (ftUS)
	13500.00	89.50	176.74	10812.11	3238.81	-3033.02	187.58	0.00	0.00	0.00	7219.11	3038.82	176.46	HS	432361.39	759024.08
	13700.00	89.50	176.74	10812.98	3138.81	-3132.85	183.25	0.00	0.00	0.00	7219.98	3138.81	176.47	HS	432261.56	759028.74
	13800.00	89.50	176.74	10813.84	3238.80	-3232.69	188.93	0.00	0.00	0.00	7220.84	3238.81	176.48	HS	432161.73	759035.43
	13900.00	89.50	176.74	10814.71	3338.80	-3332.53	204.82	0.00	0.00	0.00	7221.71	3338.80	176.49	HS	432061.90	759041.11
	14000.00	89.50	176.74	10815.58	3438.80	-3432.36	210.31	0.00	0.00	0.00	7222.58	3438.80	176.49	HS	431962.07	759046.80
	14100.00	89.50	176.74	10816.44	3538.79	-3532.20	215.99	0.00	0.00	0.00	7223.44	3538.79	176.50	HS	431862.24	759052.48
	14200.00	89.50	176.74	10817.31	3638.79	-3632.03	221.68	0.00	0.00	0.00	7224.31	3638.79	176.51	HS	431762.41	759058.17
	14300.00	89.50	176.74	10818.18	3738.78	-3731.86	227.36	0.00	0.00	0.00	7225.18	3738.78	176.51	HS	431662.58	759063.85
	14400.00	89.50	176.74	10819.04	3838.78	-3831.70	233.05	0.00	0.00	0.00	7226.04	3838.78	176.52	HS	431562.75	759069.54
	14500.00	89.50	176.74	10819.91	3938.77	-3931.53	238.73	0.00	0.00	0.00	7226.91	3938.78	176.53	HS	431462.92	759075.22
	14600.00	89.50	176.74	10820.77	4038.77	-4031.37	244.42	0.00	0.00	0.00	7227.77	4038.77	176.53	HS	431363.09	759080.91
	14700.00	89.50	176.74	10821.64	4138.77	-4131.20	250.10	0.00	0.00	0.00	7228.64	4138.77	176.54	HS	431263.26	759086.60
	14800.00	89.50	176.74	10822.51	4238.76	-4231.04	255.79	0.00	0.00	0.00	7229.51	4238.76	176.54	HS	431163.43	759092.28
	14900.00	89.50	176.74	10823.37	4338.76	-4330.87	261.48	0.00	0.00	0.00	7230.37	4338.76	176.54	HS	431063.60	759097.97
	15000.00	89.50	176.74	10824.24	4438.75	-4430.71	267.16	0.00	0.00	0.00	7231.24	4438.75	176.55	HS	430963.77	759103.65
	15100.00	89.50	176.74	10825.10	4538.75	-4530.54	272.85	0.00	0.00	0.00	7232.10	4538.75	176.55	HS	430863.93	759109.34
Cimarex Double X 25 Federal #4H PBHL	15192.59	89.50	176.74	10825.90	4631.34	-4622.98	278.11	0.00	0.00	0.00	7232.90	4631.34	176.56		430771.50	759114.60

Survey Type Non-Del Plan

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

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	21.000		Act Sins	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / Cimarex Double X 25 Federal #4H Gyro Off to 11285ft MD
	21.000	10120.300		Act Sins	30.000	SLB_NSG+MSHOT	Original Borehole / Cimarex Double X 25 Federal #4H Gyro ST01 / Cimarex Double X 25 Federal #4H ST01 Rev2 DBW
	10120.300	15192.591	1/100.000		30.000	SLB_NSG+MSHOT	