

14-33

Carlsbad Field Office OCD Hobbs

Form 3160-3
(March 2012)

HOBBS OCD

MAY 19 2015

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

Split Estate

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
SHLABHL: NMNM017440

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
West Grama Ridge 7 Federal 1H

9. API Well No.

10. Field and Pool, or Exploratory

11. Sec., T. R. M. or Blk. and Survey and Area

7, 22S, 34E

12. County or Parish

Lea

13. State

NM

1a. Type of Work ☒ DRILL ☐ REENTER

1b. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator

Cimarex Energy Co.

3a. Address

202 S. Cheyenne Ave., Ste 1000, Tulsa, OK 74103

3b. Phone No. (include area code)

918-585-1100

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At Surface 330 FSL & 860 FEL

At proposed prod. Zone 330 FNL & 660 FEL

Bone Spring

14. Distance in miles and direction from nearest town or post office*

Approx 15 miles N of Carlsbad NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any)

330'

16. No of acres in lease

NMNM017440=1794.49 acres

17. Spacing Unit dedicated to this well

160.00

18. Distance from proposed* location to nearest well, drilling, completed, applied for, on this lease, ft.

1120' to the West Grama Ridge 7 Federal 2H

19. Proposed Depth

Pilot Hole TD: N/A

15,372 MD

10,950 TVD

20. BLM/BIA Bond No. on File

NM2575 & NMB000835

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

3512 GR

22. Approximate date work will start*

11/1/13

23. Estimated duration

35 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor

2. A Drilling Plan

3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).

5. Operator Certification

6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature

Name (Printed/Typed)

Date

Terri Stathem

10/10/13

Title

Regulatory Compliance

Approved By (Signature) /s/George MacDonell

Name (Printed/Typed)

Date

MAY 11 2015

Title

Office CARLSBAD FIELD OFFICE

Application approval 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.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.S. 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.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL
MAY 19 2015

Application to Drill
West Grama Ridge 7 Federal 1H
 Cimarex Energy Co.
 UL: P, Sec. 7, 22S, 34E
 Lea Co., NM

HOBBS OCD

MAY 19 2015

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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 FSL & 860 FEL
 BHL 330 FNL & 660 FEL
2. **Elevation Above Sea Level:** 3,512' 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:** 15,372 MD 10,950 TVD Pilot Hole TD: N/A
6. **Estimated Tops of Geological Markers:**

Formation	Est Top	Bearing
Rustler	1720	N/A
Top of Salt	1875	N/A
Base Salt	3700	N/A
Capitan	4200	N/A
Bell Canyon	5350	N/A
Cherry Canyon	5950	N/A
Brushy Canyon	7300	N/A
Basal Brushy Canyon	8600	N/A
Bone Spring	8850	Hydrocarbons
Avalon Shale	9340	Hydrocarbons
1 BSS	10000	Hydrocarbons

7. **Possible Mineral Bearing Formation:** Shown above

7A. **OSE Ground Water Estimated Depth:** 200'

8. **Casing Program:**

Name	Casing Depth From (ft)	Casing Setting Depth (ft) MD	Casing Setting Depth (ft) TVD	Open Hole Size (inches)	Casing Size (inches)	Casing Weight (lb/ft)	Casing Grade	Thread	Condition	BHP (psig)	Anticipated Mud Weight (ppg)	Collapse SF at Full Evacuation (1.125)	Collapse SF at 1/3 Evacuation (1.125)	Burst SF (1.125)	Cumulative Air Weight	Cumulative Bouyed Weight (lbs)	Bouyant Tension SF (1.8)
Surface	0	1750	1750	17 1/2	13-3/8"	54.50	J-55	ST&C	New	787	8.3	1.50		3.48	95,375	83,289	6.17
Intermediate	0	5300	5300	12 1/4	9-5/8"	40.00	J-55	LT&C	New	2385	10.0		1.35	1.66	212,000	179,634	2.89
Production	0	10472	10472	8 3/4	5-1/2"	17.00	P-110	LT&C	New	2518	9.0	1.53		4.22	186,150	160,572	2.77
Production	10472	15372	10950	8 3/4	5-1/2"	17.00	P-110	BT&C	New	4927	9.0	1.46		2.16	8,126	7,009	77.89

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 Lea Co., NM

8A. Casing Design and Casing Loading Assumptions:

Surface	Tension	A 1.8 design factor with effects of buoyancy: 8.30 ppg.
	Collapse	A 1.125 design factor with full internal evacuation and a collapse force equal to a 8.30 ppg mud gradient.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.
Intermediate	Tension	A 1.8 design factor with effects of buoyancy: 10.00 ppg.
	Collapse	A 1.125 design factor evacuated 1/3 TVD of next casing string with a collapse force equal to a 10.00 ppg mud gradient.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.
Production	Tension	A 1.8 design factor with effects of buoyancy: 9.00 ppg.
	Collapse	A 1.125 design factor with full internal evacuation of next casing string with a collapse force equal to a 9.00 ppg mud gradient.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.

9. Cementing Program:

Casing Type	Type	Sacks	Yield	Weight	Cubic Feet	Cement Blend
Surface	Lead	1112	1.75	13.50	1945	Class C + Bentonite + Calcium Chloride + LCM, 8.829 gps water
	Tail	227	1.34	14.80	303	Class C + LCM, 6.32 gps water
	TOC: 0	85% Excess				Centralizers per Onshore Order 2.III.B.1f
Intermediate	Lead	1142	1.88	12.90	2146	35:65 (poz/C) + Salt + Bentonite + LCM + retarder, 9.65 gps water
	Tail	292	1.34	14.80	391	Class C + retarder + LCM, 6.32 gps water
	TOC: 0	79% Excess				
Production <i>See COA</i>	Lead	636	2.40	11.90	1526	35:65 (poz/H) + salt + Sodium Metasilicate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder, 13.80 gps water
	Tail	1376	1.24	14.50	1706	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder, 5.55 gps water
	TOC: 5100 4062'	25% Excess				No centralizers planned in the lateral section. 1 every jt from EOC to KOP. 1 every 4th joint from KOP to 500' inside previous casing.

Cement volumes will be adjusted depending on hole size

9a. Proposed Drilling Plan:

Pilot Hole TD: No Pilot KOP: 10,472' EOC: 11,222'

Set Surface and Intermediate casing strings. Drill production hole to KOP. Continue drilling lateral through the curve to TD. Run prod casing & cement.

10. Pressure Control Equipment:

Exhibit "E-1". 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 3M system will be used. See attachments for BOP and choke manifold diagrams. 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 3000 psi high.

The Annular Preventer will be tested to 250 psi low and 1000 psi high on the surface casing, and 250 low and 1500 high on the intermediate casing.

See COA

Cimarex Energy Co. of Colorado requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached (please see Exhibit F, F-1, F-2, F-3). The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used.

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See COA

11. Proposed Mud Circulating System:

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 1750'	8.6 - 8.30	28	NC	FW Spud Mud
1750' to 5300'	9.5 - 10.00	30-32	NC	Brine Water
5300' to 15372'	8.5 - 9.00	30-32	NC	FW/Cut Brine

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.

The Mud Monitoring System is an electronic Pason System satisfying requirements of Onshore Order 1.

12. Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from 5300 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / GR -- Inter. Csg to TD
CNL / GR -- Surf to Inter. Csg
- C. No DSTs or cores are planned at this time
- D. CBL w/ CCL from as far as gravity will let it fall to TOC

13. Potential Hazards: *See COA*

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: 4928 psi

Estimated BHT: 168°

14. Construction and Drilling:

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

Drilling expected to take: 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:

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

Bone Spring pay will be perforated and stimulated.

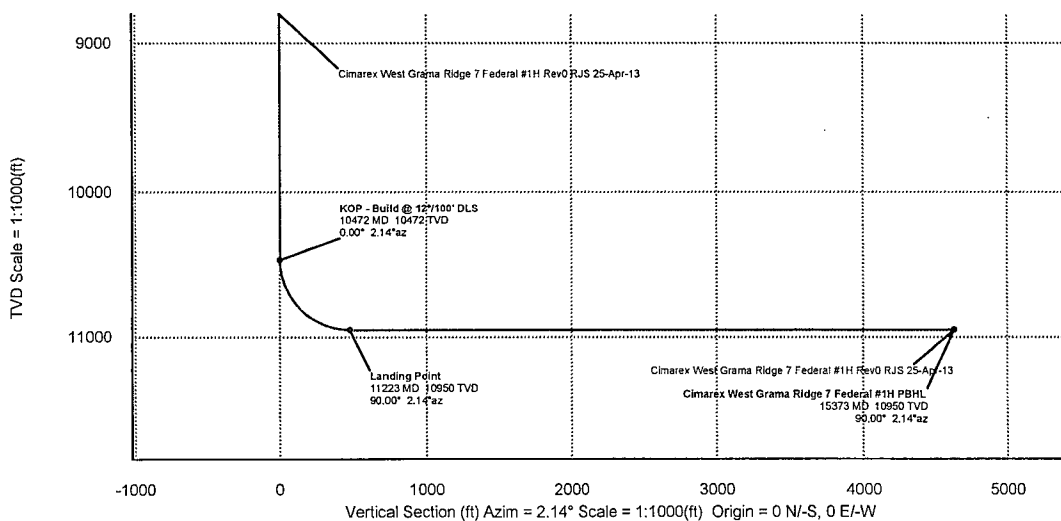
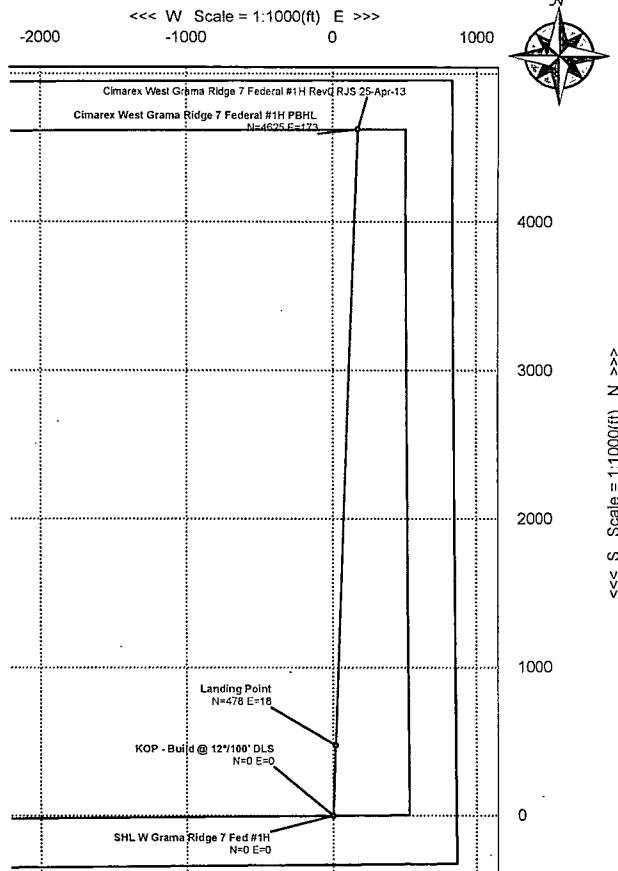
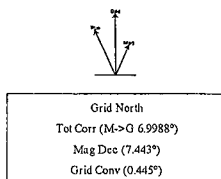
The proposed well will be tested and potentialized as **Oil**



Cimarex

PATHFINDER
A Schlumberger Company

WELL	W Grama Ridge 7 Fed #1H		FIELD	NM Lea County		STRUCTURE	TBD	
Magnetic Parameters	Dip	EQ 275°	Date	Apr 25, 2013	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Altitude	Altitude
Model: SGM 2012	Mag Dec: 7.443°	FS: 46519.8m			Lat: N 32 23 59.600	Grid Corner: 0.449°	Site: W Grama Ridge 7 Federal #1H Rev0 RJS 25-Apr-13	Ground Level(35128 above MSL)
					Lon: W 103 30 12.234	Easting: 787488.40 NUS	Plan: Rev0 RJS 25-Apr-13	Srvy Date: Apr 25, 2013



Critical Points				Critical Points				
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL W Grama Ridge 7 Fed #1H	0.00	0.00	2.14	0.00	0.00	0.00	0.00	
KOP - Build @ 12°/100' DLS	10472.00	0.00	2.14	10472.00	0.00	0.00	0.00	0.00
Landing Point	11223.84	90.00	2.14	10950.00	478.00	477.67	17.83	11.99
Cimarex West Grama Ridge 7 Federal #1H PBHL	15372.62	90.00	2.14	10950.00	4627.78	4624.55	172.68	0.00



Cimarex West Grama Ridge 7 Federal #1H Rev0 RJS 25-Apr-13 Proposal Report

(Non-Def Plan)



Report Date: April 25, 2013 - 04:34 PM
 Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure / Slot: TBD / Cimarex West Grama Ridge 7 Federal #1H
 Well: Cimarex West Grama Ridge 7 Federal #1H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex West Grama Ridge 7 Federal #1H Rev0 RJS 25-Apr-13
 Survey Date: April 25, 2013
 Tort / AHD / DDI / ERD Ratio: 90.001° / 4627.775 ft / 5.767 / 0.423
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 23' 59.59972", W 103° 30' 12.23370"
 Location Grid N/E Y/X: N 510205.010 ftUS, E 797488.460 ftUS
 CRS Grid Convergence Angle: 0.4447°
 Grid Scale Factor: 0.99998424

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 2.138° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Ground Level
 TVD Reference Elevation: 3512.000 ft above MSL
 Seabed / Ground Elevation: 3512.000 ft above MSL
 Magnetic Declination: 7.443°
 Total Gravity Field Strength: 998.4915mgN (9.80665 Based)
 Total Magnetic Field Strength: 48519.754 nT
 Magnetic Dip Angle: 60.275°
 Declination Date: April 25, 2013
 Magnetic Declination Model: BGGM 2012
 North Reference: Grid North
 Grid Convergence Used: 0.4447°
 Total Corr Mag North->Grid North: 6.9988°
 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 W Grama Ridge 7 Fed #1H	0.00	0.00	2.14	0.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	N/A
	100.00	0.00	2.14	100.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	200.00	0.00	2.14	200.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	300.00	0.00	2.14	300.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	400.00	0.00	2.14	400.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	500.00	0.00	2.14	500.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	600.00	0.00	2.14	600.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	700.00	0.00	2.14	700.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	800.00	0.00	2.14	800.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	900.00	0.00	2.14	900.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1000.00	0.00	2.14	1000.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1100.00	0.00	2.14	1100.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1200.00	0.00	2.14	1200.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1300.00	0.00	2.14	1300.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1400.00	0.00	2.14	1400.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1500.00	0.00	2.14	1500.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1600.00	0.00	2.14	1600.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1700.00	0.00	2.14	1700.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1800.00	0.00	2.14	1800.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	1900.00	0.00	2.14	1900.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2000.00	0.00	2.14	2000.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2100.00	0.00	2.14	2100.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2200.00	0.00	2.14	2200.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2300.00	0.00	2.14	2300.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2400.00	0.00	2.14	2400.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2500.00	0.00	2.14	2500.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2600.00	0.00	2.14	2600.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2700.00	0.00	2.14	2700.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	2800.00	0.00	2.14	2800.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	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)
	2900.00	0.00	2.14	2900.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3000.00	0.00	2.14	3000.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3100.00	0.00	2.14	3100.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3200.00	0.00	2.14	3200.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3300.00	0.00	2.14	3300.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3400.00	0.00	2.14	3400.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3500.00	0.00	2.14	3500.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3600.00	0.00	2.14	3600.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3700.00	0.00	2.14	3700.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3800.00	0.00	2.14	3800.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	3900.00	0.00	2.14	3900.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4000.00	0.00	2.14	4000.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4100.00	0.00	2.14	4100.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4200.00	0.00	2.14	4200.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4300.00	0.00	2.14	4300.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4400.00	0.00	2.14	4400.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4500.00	0.00	2.14	4500.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4600.00	0.00	2.14	4600.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4700.00	0.00	2.14	4700.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4800.00	0.00	2.14	4800.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	4900.00	0.00	2.14	4900.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5000.00	0.00	2.14	5000.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5100.00	0.00	2.14	5100.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5200.00	0.00	2.14	5200.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5300.00	0.00	2.14	5300.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5400.00	0.00	2.14	5400.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5500.00	0.00	2.14	5500.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5600.00	0.00	2.14	5600.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5700.00	0.00	2.14	5700.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5800.00	0.00	2.14	5800.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	5900.00	0.00	2.14	5900.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6000.00	0.00	2.14	6000.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6100.00	0.00	2.14	6100.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6200.00	0.00	2.14	6200.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6300.00	0.00	2.14	6300.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6400.00	0.00	2.14	6400.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6500.00	0.00	2.14	6500.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6600.00	0.00	2.14	6600.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6700.00	0.00	2.14	6700.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6800.00	0.00	2.14	6800.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	6900.00	0.00	2.14	6900.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7000.00	0.00	2.14	7000.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7100.00	0.00	2.14	7100.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7200.00	0.00	2.14	7200.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7300.00	0.00	2.14	7300.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7400.00	0.00	2.14	7400.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7500.00	0.00	2.14	7500.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7600.00	0.00	2.14	7600.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7700.00	0.00	2.14	7700.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7800.00	0.00	2.14	7800.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	7900.00	0.00	2.14	7900.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8000.00	0.00	2.14	8000.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8100.00	0.00	2.14	8100.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8200.00	0.00	2.14	8200.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8300.00	0.00	2.14	8300.00	0.00	0.00	0.00	510205.01	797488.46	N	32 23 59.60	W 103 30 12.23	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)
	8400.00	0.00	2.14	8400.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8500.00	0.00	2.14	8500.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8600.00	0.00	2.14	8600.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8700.00	0.00	2.14	8700.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8800.00	0.00	2.14	8800.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	8900.00	0.00	2.14	8900.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9000.00	0.00	2.14	9000.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9100.00	0.00	2.14	9100.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9200.00	0.00	2.14	9200.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9300.00	0.00	2.14	9300.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9400.00	0.00	2.14	9400.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9500.00	0.00	2.14	9500.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9600.00	0.00	2.14	9600.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9700.00	0.00	2.14	9700.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9800.00	0.00	2.14	9800.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	9900.00	0.00	2.14	9900.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	10000.00	0.00	2.14	10000.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	10100.00	0.00	2.14	10100.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	10200.00	0.00	2.14	10200.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	10300.00	0.00	2.14	10300.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	10400.00	0.00	2.14	10400.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
KOP - Build @ 12"/100' DLS	10472.00	0.00	2.14	10472.00	0.00	0.00	0.00	510205.01	797488.46	N 32 23 59.60	W 103 30 12.23	0.00	0.00	0.00
	10500.00	3.36	2.14	10499.98	0.82	0.82	0.03	510205.83	797488.49	N 32 23 59.61	W 103 30 12.23	0.82	2.14	11.99
	10600.00	15.34	2.14	10598.48	17.04	17.02	0.64	510222.03	797489.10	N 32 23 59.77	W 103 30 12.22	17.04	2.14	11.99
	10700.00	27.33	2.14	10691.45	53.35	53.32	1.99	510258.33	797490.45	N 32 24 0.13	W 103 30 12.21	53.35	2.14	11.99
	10800.00	39.32	2.14	10774.86	108.19	108.11	4.04	510313.12	797492.50	N 32 24 0.67	W 103 30 12.18	108.19	2.14	11.99
	10900.00	51.30	2.14	10845.06	179.15	179.03	6.68	510384.03	797495.14	N 32 24 1.37	W 103 30 12.14	179.15	2.14	11.99
	11000.00	63.29	2.14	10898.99	263.14	262.96	9.82	510467.97	797498.28	N 32 24 2.20	W 103 30 12.10	263.14	2.14	11.99
	11100.00	75.28	2.14	10934.30	356.51	356.26	13.30	510561.26	797501.76	N 32 24 3.12	W 103 30 12.05	356.51	2.14	11.99
	11200.00	87.26	2.14	10949.45	455.17	454.85	16.98	510659.85	797505.44	N 32 24 4.10	W 103 30 11.99	455.17	2.14	11.99
Landing Point	11222.84	90.00	2.14	10950.00	478.00	477.67	17.83	510682.67	797506.29	N 32 24 4.32	W 103 30 11.98	478.00	2.14	11.99
	11300.00	90.00	2.14	10950.00	555.16	554.77	20.71	510759.77	797509.17	N 32 24 5.09	W 103 30 11.94	555.16	2.14	0.00
	11400.00	90.00	2.14	10950.00	655.16	654.70	24.44	510859.70	797512.90	N 32 24 6.08	W 103 30 11.89	655.16	2.14	0.00
	11500.00	90.00	2.14	10950.00	755.16	754.63	28.17	510959.63	797516.63	N 32 24 7.06	W 103 30 11.84	755.16	2.14	0.00
	11600.00	90.00	2.14	10950.00	855.16	854.56	31.90	511059.56	797520.36	N 32 24 8.05	W 103 30 11.78	855.16	2.14	0.00
	11700.00	90.00	2.14	10950.00	955.16	954.49	35.63	511159.49	797524.09	N 32 24 9.04	W 103 30 11.73	955.16	2.14	0.00
	11800.00	90.00	2.14	10950.00	1055.16	1054.42	39.36	511259.42	797527.82	N 32 24 10.03	W 103 30 11.68	1055.16	2.14	0.00
	11900.00	90.00	2.14	10950.00	1155.16	1154.36	43.10	511359.34	797531.56	N 32 24 11.02	W 103 30 11.63	1155.16	2.14	0.00
	12000.00	90.00	2.14	10950.00	1255.16	1254.29	46.83	511459.27	797535.29	N 32 24 12.01	W 103 30 11.57	1255.16	2.14	0.00
	12100.00	90.00	2.14	10950.00	1355.16	1354.22	50.56	511559.20	797539.02	N 32 24 13.00	W 103 30 11.52	1355.16	2.14	0.00
	12200.00	90.00	2.14	10950.00	1455.16	1454.15	54.29	511659.13	797542.75	N 32 24 13.98	W 103 30 11.47	1455.16	2.14	0.00
	12300.00	90.00	2.14	10950.00	1555.16	1554.08	58.02	511759.06	797546.48	N 32 24 14.97	W 103 30 11.42	1555.16	2.14	0.00
	12400.00	90.00	2.14	10950.00	1655.16	1654.01	61.75	511858.99	797550.21	N 32 24 15.96	W 103 30 11.36	1655.16	2.14	0.00
	12500.00	90.00	2.14	10950.00	1755.16	1753.94	65.48	511958.92	797553.94	N 32 24 16.95	W 103 30 11.31	1755.16	2.14	0.00
	12600.00	90.00	2.14	10950.00	1855.16	1853.87	69.21	512058.84	797557.67	N 32 24 17.94	W 103 30 11.26	1855.16	2.14	0.00
	12700.00	90.00	2.14	10950.00	1955.16	1953.80	72.94	512158.77	797561.40	N 32 24 18.93	W 103 30 11.21	1955.16	2.14	0.00
	12800.00	90.00	2.14	10950.00	2055.16	2053.73	76.68	512258.70	797565.13	N 32 24 19.91	W 103 30 11.15	2055.16	2.14	0.00
	12900.00	90.00	2.14	10950.00	2155.16	2153.66	80.41	512358.63	797568.87	N 32 24 20.90	W 103 30 11.10	2155.16	2.14	0.00
	13000.00	90.00	2.14	10950.00	2255.16	2253.59	84.14	512458.56	797572.60	N 32 24 21.89	W 103 30 11.05	2255.16	2.14	0.00
	13100.00	90.00	2.14	10950.00	2355.16	2353.52	87.87	512558.49	797576.33	N 32 24 22.88	W 103 30 11.00	2355.16	2.14	0.00
	13200.00	90.00	2.14	10950.00	2455.16	2453.45	91.60	512658.42	797580.06	N 32 24 23.87	W 103 30 10.94	2455.16	2.14	0.00
	13300.00	90.00	2.14	10950.00	2555.16	2553.38	95.33	512758.34	797583.79	N 32 24 24.86	W 103 30 10.89	2555.16	2.14	0.00
	13400.00	90.00	2.14	10950.00	2655.16	2653.31	99.06	512858.27	797587.52	N 32 24 25.85	W 103 30 10.84	2655.16	2.14	0.00
	13500.00	90.00	2.14	10950.00	2755.16	2753.24	102.80	512958.20	797591.25	N 32 24 26.83	W 103 30 10.79	2755.16	2.14	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)
	13600.00	90.00	2.14	10950.00	2855.16	2853.17	106.53	513058.13	797594.99	N 32 24 27.82	W 103 30 10.73	2855.16	2.14	0.00
	13700.00	90.00	2.14	10950.00	2955.16	2953.10	110.26	513158.06	797598.72	N 32 24 28.81	W 103 30 10.68	2955.16	2.14	0.00
	13800.00	90.00	2.14	10950.00	3055.16	3053.03	113.99	513257.99	797602.45	N 32 24 29.80	W 103 30 10.63	3055.16	2.14	0.00
	13900.00	90.00	2.14	10950.00	3155.16	3152.96	117.72	513357.92	797606.18	N 32 24 30.79	W 103 30 10.58	3155.16	2.14	0.00
	14000.00	90.00	2.14	10950.00	3255.16	3252.89	121.46	513457.84	797609.91	N 32 24 31.78	W 103 30 10.52	3255.16	2.14	0.00
	14100.00	90.00	2.14	10950.00	3355.16	3352.82	125.19	513557.77	797613.64	N 32 24 32.76	W 103 30 10.47	3355.16	2.14	0.00
	14200.00	90.00	2.14	10950.00	3455.16	3452.75	128.92	513657.70	797617.38	N 32 24 33.75	W 103 30 10.42	3455.16	2.14	0.00
	14300.00	90.00	2.14	10950.00	3555.16	3552.68	132.65	513757.63	797621.11	N 32 24 34.74	W 103 30 10.36	3555.16	2.14	0.00
	14400.00	90.00	2.14	10950.00	3655.16	3652.61	136.38	513857.56	797624.84	N 32 24 35.73	W 103 30 10.31	3655.16	2.14	0.00
	14500.00	90.00	2.14	10950.00	3755.16	3752.54	140.11	513957.49	797628.57	N 32 24 36.72	W 103 30 10.26	3755.16	2.14	0.00
	14600.00	90.00	2.14	10950.00	3855.16	3852.47	143.85	514057.42	797632.30	N 32 24 37.71	W 103 30 10.21	3855.16	2.14	0.00
	14700.00	90.00	2.14	10950.00	3955.16	3952.41	147.58	514157.34	797636.04	N 32 24 38.70	W 103 30 10.15	3955.16	2.14	0.00
	14800.00	90.00	2.14	10950.00	4055.16	4052.34	151.31	514257.27	797639.77	N 32 24 39.68	W 103 30 10.10	4055.16	2.14	0.00
	14900.00	90.00	2.14	10950.00	4155.16	4152.27	155.04	514357.20	797643.50	N 32 24 40.67	W 103 30 10.05	4155.16	2.14	0.00
	15000.00	90.00	2.14	10950.00	4255.16	4252.20	158.78	514457.13	797647.23	N 32 24 41.66	W 103 30 10.00	4255.16	2.14	0.00
	15100.00	90.00	2.14	10950.00	4355.16	4352.13	162.51	514557.06	797650.97	N 32 24 42.65	W 103 30 9.94	4355.16	2.14	0.00
	15200.00	90.00	2.14	10950.00	4455.16	4452.06	166.24	514656.99	797654.70	N 32 24 43.64	W 103 30 9.89	4455.16	2.14	0.00
	15300.00	90.00	2.14	10950.00	4555.16	4551.99	169.97	514756.92	797658.43	N 32 24 44.63	W 103 30 9.84	4555.16	2.14	0.00
Cimarex West Grama Ridge 7 Federal #1H PBHL	15372.62	90.00	2.14	10950.00	4627.78	4624.55	172.68	514829.48	797661.14	N 32 24 45.34	W 103 30 9.80	4627.78	2.14	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	15372.616	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex West Grama Ridge 7 Federal #1H Rev0

Drilling 12-1/4" hole
below 13 3/8" Casing

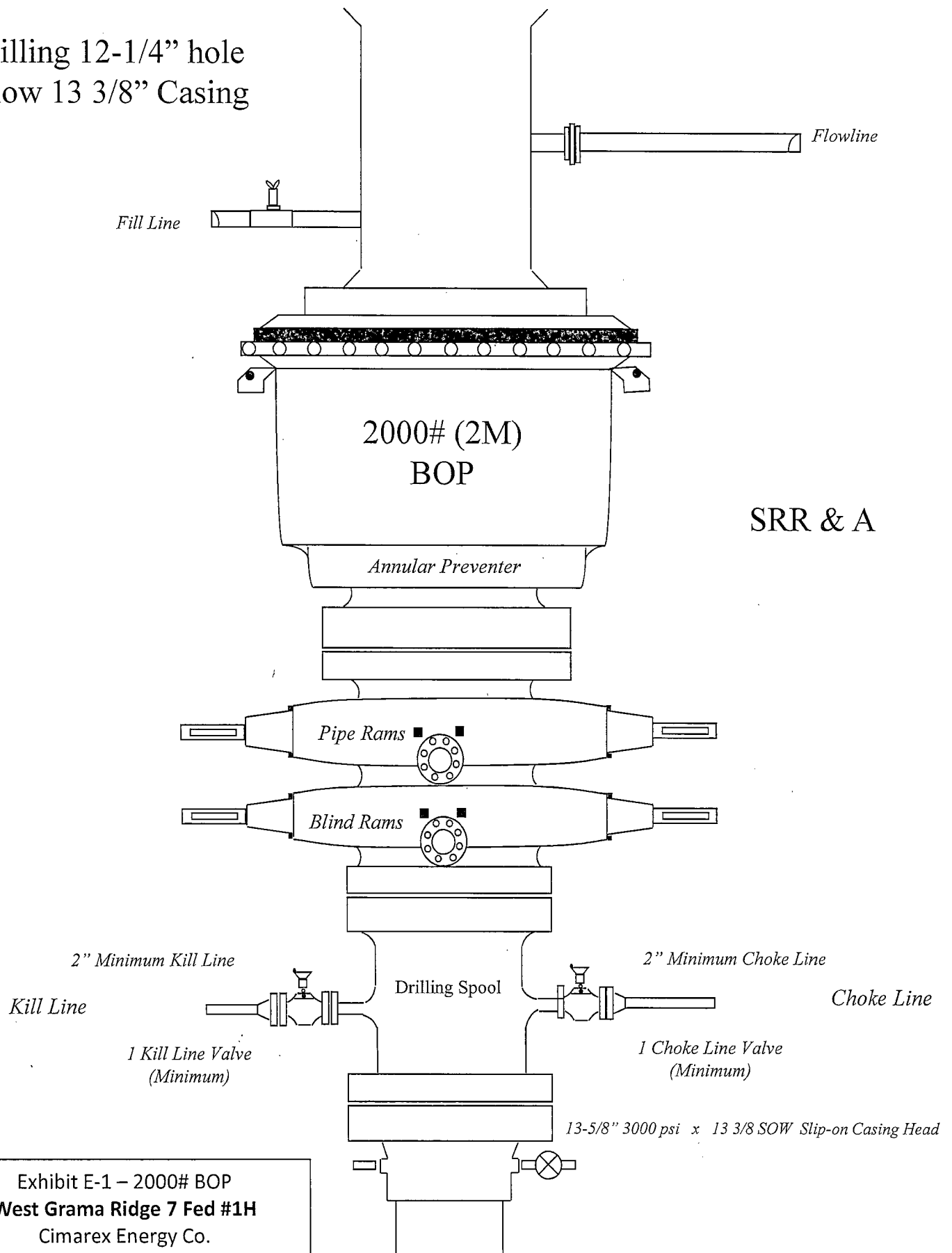


Exhibit E-1 – 2000# BOP
West Grama Ridge 7 Fed #1H
Cimarex Energy Co.
7-22S-34E
SHL 330 FSL & 860 FEL
BHL 330 FNL & 660 FEL
Lea County, NM

Drilling 8-3/4" hole
below 9 5/8" Casing

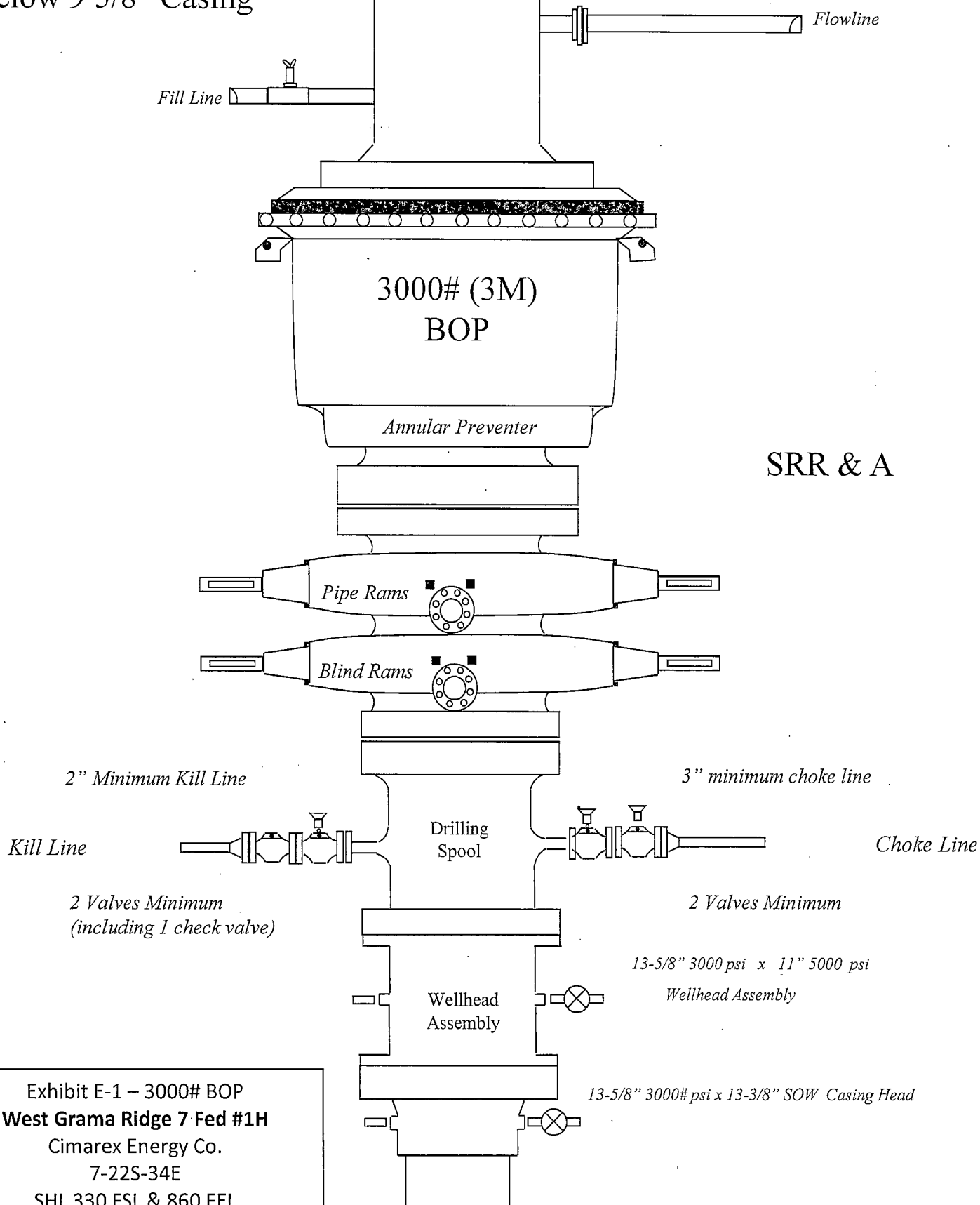
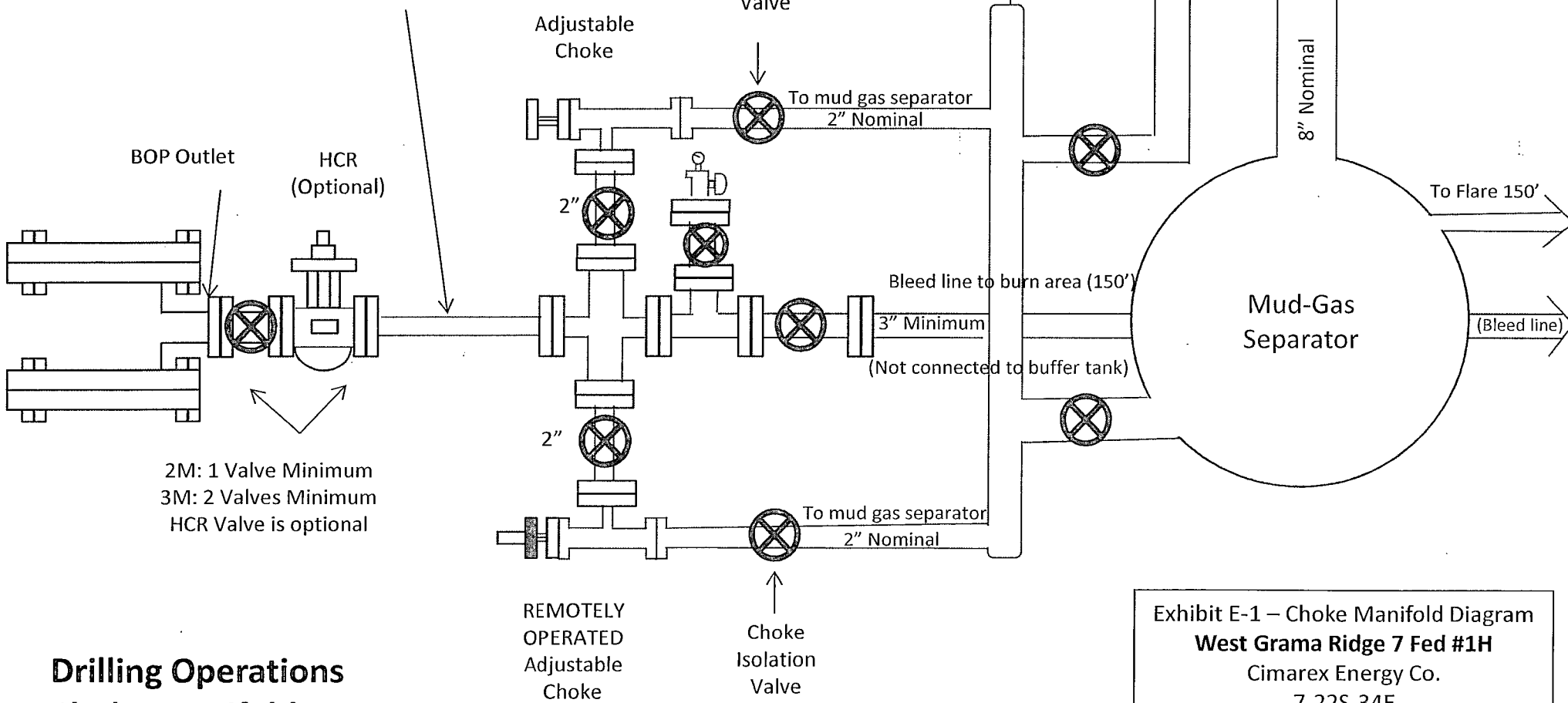


Exhibit E-1 – 3000# BOP
West Grama Ridge 7 Fed #1H
Cimarex Energy Co.
7-22S-34E
SHL 330 FSL & 860 FEL
BHL 330 FNL & 660 FEL
Lea County, NM

Choke Line:
 2M System: 2" Minimum
 3M System: 3" Minimum
 OPTIONAL: 4" Flex Hose may be
 used if approved in APD



2M: 1 Valve Minimum
 3M: 2 Valves Minimum
 HCR Valve is optional

Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
West Grama Ridge 7 Fed #1H
 Cimarex Energy Co.
 7-22S-34E
 SHL 330 FSL & 860 FEL
 BHL 330 FNL & 660 FEL
 Lea County, NM

Exhibit F-1 – Co-Flex Hose Hydrostatic Test

West Grama Ridge 7 Fed #1

Cimarex Energy Co.

7-22S-34E

SHL 330 FSL & 860 FEL

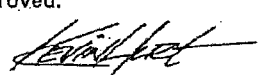
BHL 330 FNL & 660 FEL

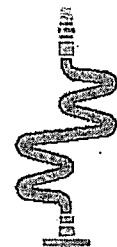
Lea County, NM



Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:		P.O. Number:	
Oderco Inc.		odyd-271	
HOSE SPECIFICATIONS			
Type: Stainless Steel Armor Choke & Kill Hose		Hose Length: 45'ft.	
I.D. 4 INCHES		O.D. 9 INCHES	
WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE	
10,000 PSI	15,000 PSI	0 PSI	
COUPLINGS			
Stem Part No.		Ferrule No.	
OKC		OKC	
OKC		OKC	
Type of Coupling:			
Swage-It			
PROCEDURE			
<u>Hose assembly pressure tested with water at ambient temperature.</u>			
TIME HELD AT TEST PRESSURE		ACTUAL BURST PRESSURE:	
15 MIN.		0 PSI	
Hose Assembly Serial Number:		Hose Serial Number:	
79793		OKC	
Comments:			
Date:		Approved:	
3/8/2011		 	



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

Hose Specifications:

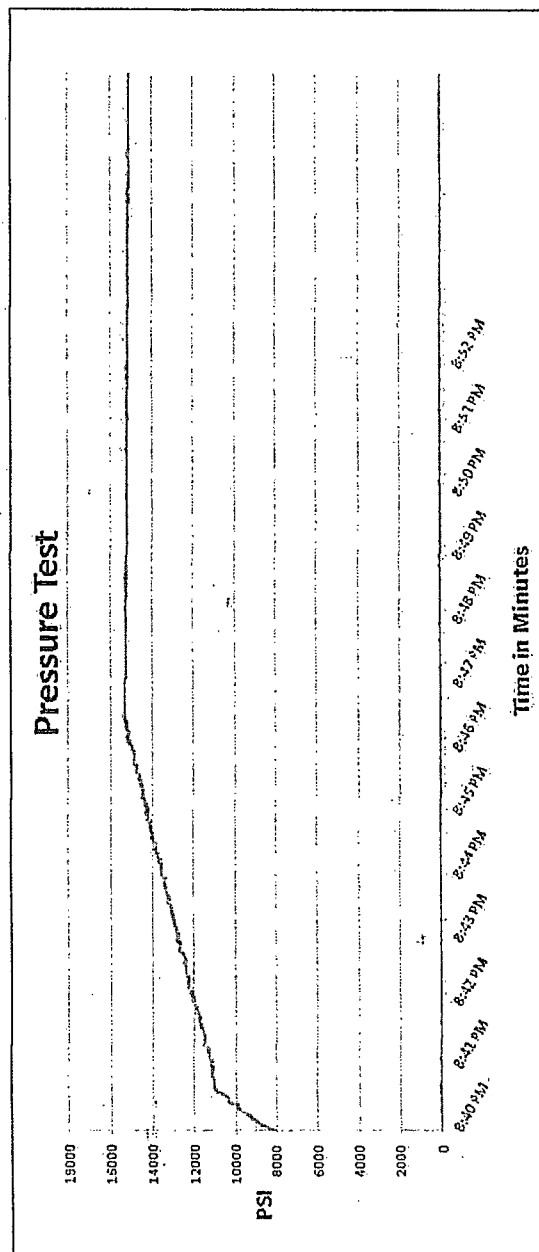
Hose Type
C & K
I.D.
4"
Working Pressure
10000 PSI

Length
45'
O.D.
6.09"
Burst Pressure
Standard Safety Multiplier Applied

Verification

Type of Fittings
41/16 10K
Die Size
6.38"
Hose Serial #
5544

Coupling Method
Swage
Final O.D.
6.25"
Hose Assembly Serial #
79793



Test Pressure 15000 PSI
Time Held at Test Pressure 11 Minutes
Actual Burst Pressure
Peak Pressure 15483 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Zac McConnell

Approved By: Kim Thomas

[Signature]

[Signature]

March 3, 2011

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
West Grama Ridge 7 Fed #1H
Cimarex Energy Co.
7-22S-34E
SHL 330 FSL & 860 FEL
BHL 330 FNL & 660 FEL
Lea County, NM

Exhibit F-2 - Co-Flex Hose
West Grama Ridge 7 Fed #1H

Cimarex Energy Co.

7-22S-34E

SHL 330 FSL & 860 FEL

BHL 330 FNL & 660 FEL

Lea County, NM



Midwest Hose & Specialty, Inc.

Certificate of Conformity

Customer:

DEM

PO

ODYD-271

SPECIFICATIONS

Sales Order

79793

Dated:

3/8/2011

We hereby certify that the material supplied
for the referenced purchase order to be true
according to the requirements of the purchase
order and current industry standards

Supplier:

Midwest Hose & Specialty, Inc.

10640 Tanner Road

Houston, Texas 77041

Comments:

Approved:

David Garcia

Date:

3/8/2011



Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose
West Grama Ridge 7 Fed #1H
Cimarex Energy Co.
7-22S-34E
SHL 330 FSL & 860 FEL
BHL 330 FNL & 660 FEL
Lea County, NM

Specification Sheet Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium components. The reinforcement cables, inner liner and cover are made of the highest quality material to handle the tough drilling applications of today's industry. The end connections are available with API flanges, API male threads, hubs, hammer unions or other special fittings upon request. Hose assembly is manufactured to API 7K. This assembly is wrapped with fire resistant vermiculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

Working Pressure:	5,000 or 10,000 psi working pressure
Test Pressure:	10,000 or 15,000 psi test pressure
Reinforcement:	Multiple steel cables
Cover:	Stainless Steel Armor
Inner Tube:	Petroleum resistant, Abrasion resistant
End Fitting:	API flanges, API male threads, threaded or butt weld hammer unions, unbolt and other special connections
Maximum Length:	110 Feet
ID:	2-1/2", 3", 3-1/2", 4"
Operating Temperature:	-22 deg F to +180 deg F (-30 deg C to +82 deg C)

Exhibit F – Co-Flex Hose
West Grama Ridge 7 Fed #1H

Cimarex Energy Co.

7-22S-34E

SHL 330 FSL & 860 FEL

BHL 330 FNL & 660 FEL

Lea County, NM

