

HOBBS OCD

OCT 26 2012

OCD Hobbs

Form 3160-3
(April 2004)

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

R-111-POTASH

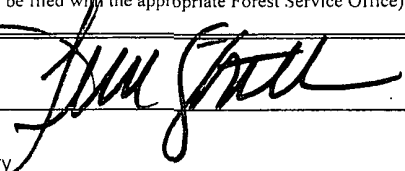
FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM-15906
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Cimarex Energy Co of Colorado		7. If Unit or CA Agreement, Name and No.
3a. Address 600 N Marienfeld St Ste 600 Midland TX 79701		8. Lease Name and Well No. Snoddy Federal No. 21H <39073>
3b. Phone No. (include area code) 432-571-7800		9. API Well No. 30-025- 40838
According to the NM State Engineer, depth to ground water is 40 feet. Fresh water zones will be protected by At Surface .768' FNL & 555' FEL At proposed prod. Zone 330' FSL & 526' FEL Horizontal Bone Spring test		10. Field and Pool, or Exploratory Salt Lake; Bone Spring <53560>
14. Distance in miles and direction from nearest town or post office* 30.5 miles ENE from Carlsbad, NM		11. Sec, T, R, M or Blk and Survey or Area 26-20S-32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 555'	16. No of acres in lease 640 acres	12. County or Parish Lea
17. Spacing Unit dedicated to this well Sec. 26 640 acres	13. State NM	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 50' from #22H	19. Proposed Depth MD 13868' TVD 9900'	20. BLM/BIA Bond No. on File NM-2575
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3555' GR	22. Approximate date work will start* 12.01.12	23. Estimated duration 25-30 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 | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator Certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Terri Stathem	Date 9.5.12
Title Regulatory		
Approved By (Signature) /s/ Jesse J. Juen	Name (Printed/Typed)	Date OCT 19 2012
Title STATE DIRECTOR	Office NM STATE 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.

* (Instructions on page 2)

Capitan Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special Stipulations Attached

OCT 31 2012

Drilling Plan
Snoddy Federal No. 21H
 Cimarex Energy Co of Colorado
 Unit A, Section 26
 T20S-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 768' FNL & 555' FEL
 BHL 330' FSL & 526' FEL
- 2 **Elevation above sea level:** 3555' 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 13868' TVD 9900'

6 **Estimated tops of geological markers:**

Rustler	1100'
Top Salt	1450'
Base Salt	2965'
Yates	3050'
Capitan	3410'
Delaware Sands	4700'
Brushy Canyon	6000'
00', Bone Spring	7900'
FBSS	8965'
SBSS	9520'
Base BS	10800'

7 **Possible mineral- bearing formations:**

Bone Spring Oil
 Delaware Oil

See COA

8 **Proposed Mud Circulating System:**

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1150' <i>1290</i>	8.4 - 8.6	28	NC	FW
0' to 3000' <i>1290 3025</i>	10.0	30-32	NC	Brine water
3000' to 4650' <i>3025</i>	8.4-8.6	30-32	NC	FW,
4650' to 9423'	8.4-9.0	28-29	NC	FW and brine, use hi-vis sweeps to keep hole clean
9423' to 13868'	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

After setting surface 1 and 2 and intermediate casing, drill 8.75" hole to KOP @ 9423' and then kick off for 8.75" lateral. Drill to TD @ 13868' MD, 9900' TVD and set 5.5" casing from 0-13868' and cement as shown on following page.

Drilling Plan
Snoddy Federal No. 21H
 Cimarex Energy Co of Colorado
 Unit A, Section 26
 T20S-R32E, Lea County, NM

9 Casing & Cementing Program:

See COA

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
Surface 1	18 1/2"	0' to 1290'	New 16"	84#	STC	J/K-55
Surface 2	14 3/4"	0' to 3000'	New 11 3/4"	54#	STC	J/K55
Intermediate	10 5/8"	0' to 4650'	New 8 5/8"	32#	LTC	N-80
Production	7 7/8"	0' to 13868'	New 5 1/2"	17#	LTC	P-110

10 Cementing:

Surface

Lead: 1000SKS Halcem C + 2% CaCl 13.5ppg 1.75yield 100% Excess
 Tail: 340SKS Class C + 4% D20, 1% S001, 0.2% D46, 0.125 lb/sk D130 14.2ppg 1.34 yield 25% Excess
TOC Surface Centralizers per Onshorder 2.III.B.1.f

Surface 2

Lead: 2000SKS Econocem + 5% Salt + 5# Gilsonite 13.5ppg 1.75yield 75% Excess
 Tail: 400SKS Halcem + 2% CaCl 14.2ppg 1.34 yield 25% Excess
TOC Surface

Intermediate

Lead: 1000SKS Econocem + 5% Salt + 5# Gilsonite 14.6ppg 1.54yield 70% Excess
 Tail: 300SKS Halcem + 1% CaCl 14.8ppg 1.34 yield 25% Excess
TOC Surface

Production

Lead: 3500SKS Econocem H + 0.5% CFR-3 + 0.1% HR-601 11.9ppg 2.44 yield 50% Excess
 Tail: 55SKS Versacem H + 0.5% Halad-344 + 0.4% CFR-3 + 1# Salt + 0.1% HR-601 14.5ppg 1.22 yield 25% Excess
TOC 2800' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.

See COA
 According to the NM State Enginner, depth to ground water is 40 feet. Fresh water zones will be protected by setting 16" casing at 1150', 11 3/4" casing at 3000', 8 5/8" casing to 4650' and cementing all to surface. Hydrocarbon zones will be protected by setting production casing at 13868' and cementing to 2800'.

<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 135% 5000 PSI working pressure B.O.P. consisting of one set of blind rams and one set of 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 5200'. 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. From the base of the 16" surface pipe the well will be equipped with a 2M diverter system with rotating head (See Exhibit E-1). From the base of the 11 3/4" surface pipe through the running of the production casing the well will be equipped with a 5000 psi BOP system.

See COA
 Before drilling out of the 16" surface pipe the diverter system will be tested to 250 psi low and 500 psi high by rig equipment. Before drilling out of 11 3/4" surface pipe BOP's 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 pipe BOPS will be tested by an independent service company to 250 psi low and 5000 psi high. Hydril will be tested to 250 psi low and 2500 psi high.

Drilling Plan
Snoddy Federal No. 21H
Cimarex Energy Co of Colorado
Unit A, Section 26
T20S-R32E, Lea County, NM

See COA

Cimarex Energy Co of Colorado (operator) requests a variance if Cactus 115 (rig name) is used to drill this well to use a co-flex line between the BOP and choke manifold.

Manufacturer: Midwest Hose & Specialty

Serial Number: 63270

Length: 35' Size: 4-1/16" Ends - flanges/clamps

WP rating: 10,000 psi Anchors required by manufacturer – Yes/No

12 Testing, Logging and Coring Program:

** See COA*

- A. Mud logging program: 2 man unit from 5200 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR from 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, Strata 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 **4455 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.

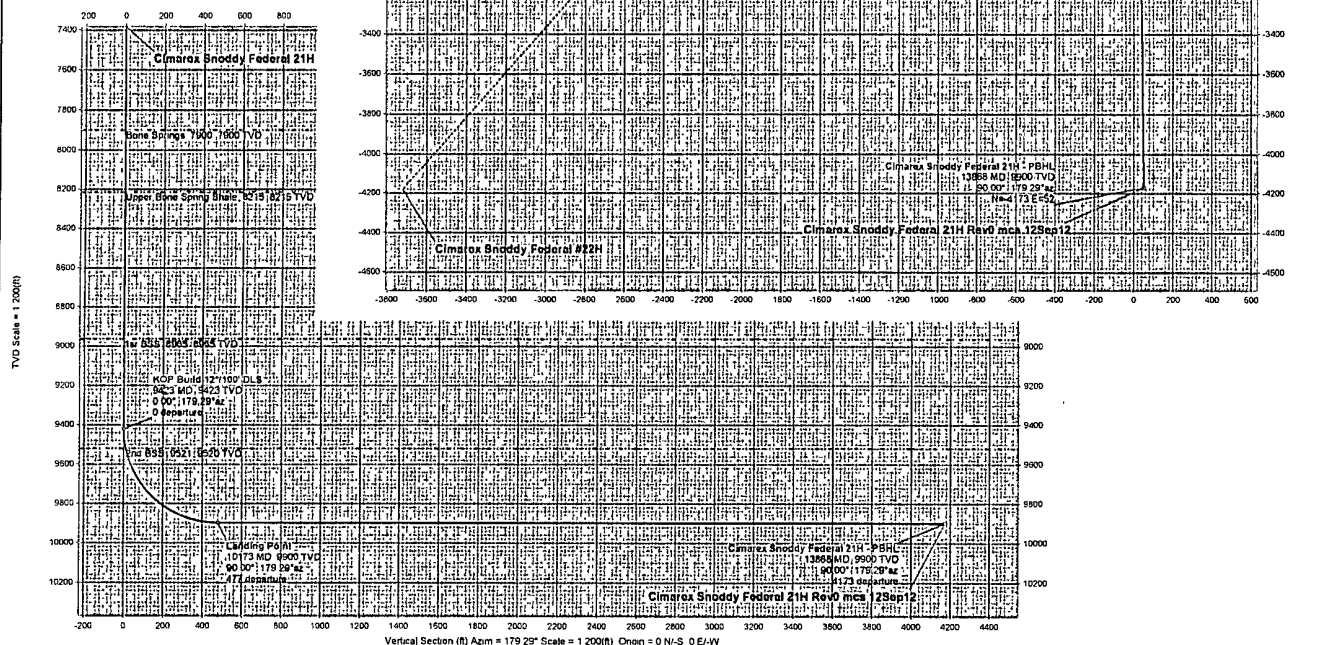
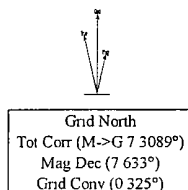
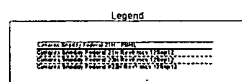
15 Other Facets of Operations:

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.**

WELL				FIELD				STRUCTURE			
Cimarex Snoddy Federal 21H				Lea County, NM (NAD 83)				Cimarex Snoddy Federal 21H			
Majority Parameters Model BGM 21H Dip 60 °N Date September 12 2012 Well Name 154-118-10-10				Surface Location Lat N 12 32 57 N11 Longitude 106 02 10 W10 UTM Zone 18Q UTM Easting 608465 UTM Northing 15411810				Microseis Well Snoddy Federal 21H Event 154-118-10-10			
\ADP5-1- Micro Seis Plane Eastern Zone 115 Feet Grid Center 12345 Scale Factor 1.0000000000000000				TWD Ref Ground Elevation 15499 above MSL							



Critical Points															
Comments	Survey	MD	Inc	Azim	TVD	SSTVD	VS	NS	EW	Longitude	Latitude	Easting	Northing	DLS	Tool Face
SHL	0.00	0.00	179.29	0.00	-3555.00	0.00	0.00	0.00	0.00	W 103 43 48 435 N	32 32 57 383	727204.30	564082.60		179 21
Deleware Sands	5235.00	0.00	179.29	5235.00	1680.00	0.00	0.00	0.00	0.00	W 103 43 48 435 N	32 32 57 383	727204.30	564082.60	0.00	179 21
Bone Springs	7900.00	0.00	179.29	7900.00	4345.00	0.00	0.00	0.00	0.00	W 103 43 48 435 N	32 32 57 383	727204.30	564082.60	0.00	179 21
Upper Bone Spring Shale	8215.00	0.00	179.29	8215.00	4660.00	0.00	0.00	0.00	0.00	W 103 43 48 435 N	32 32 57 383	727204.30	564082.60	0.00	179 21
1sr BSS	8965.00	0.00	179.29	8965.00	5410.00	0.00	0.00	0.00	0.00	W 103 43 48 435 N	32 32 57 383	727204.30	564082.60	0.00	179 21
KOP Build 12°/100' DLS	9422.50	0.00	179.29	9422.50	5867.50	0.00	0.00	0.00	0.00	W 103 43 48 435 N	32 32 57 383	727204.30	564082.60	0.00	0.00
2nd BSS	9520.69	11.78	179.29	9520.00	5965.00	10.06	-10.06	0.12	0.12	W 103 43 48 434 N	32 32 57 283	727204.42	564072.54	12.00	179 21
Landing Point	10172.50	90.00	179.29	9899.96	6344.96	417.46	-417.43	5.92	5.92	W 103 43 48 398 N	32 32 52.658	727210.22	563605.20	12.00	-138.66
PBHL	13867.95	90.00	179.29	9900.00	6345.00	4172.92	-417.60	51.74	W 103 43 48 107 N	32 32 16.094	727256.04	559910.22	0.00	0.00	5.6

Drawn By: Matt Shaffer
Date Created: September 12, 2012 01:43:22 PM
Checked By: Ryan Schneider
Checked Date:
Approved By:
Revised Date:



Cimarex Snoddy Federal 21H Rev0 mcs 12Sep12 Proposal Geodetic Report



(Def Plan)

Report Date: September 12, 2012 - 12 39 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Snoddy Federal 21H / Cimarex Snoddy Federal 21H
Well: Cimarex Snoddy Federal 21H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Snoddy Federal 21H Rev0 mcs 12Sep12
Survey Date: September 12, 2012
Tort / AHD / DDI / ERD Ratio: 90 001 ° / 4172 919 ft / 5 721 / 0.422
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 32' 57 38264", W 103° 43' 48.43523"
Location Grid N/E Y/X: N 564082.600 ftUS, E 727204 300 ftUS
CRS Grid Convergence Angle: 0 3246 °
Grid Scale Factor: 0 99994865

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179 290 ° (Grid North)
Vertical Section Origin: 0 000 ft, 0 000 ft
TVD Reference Datum: Ground Elevation
TVD Reference Elevation: 3555 000 ft above MSL
Seabed / Ground Elevation: 3555 000 ft above MSL
Magnetic Declination: 7 633 °
Total Gravity Field Strength: 999 1774 mgn (9 8 based)
Total Magnetic Field Strength: 48660 934 nT
Magnetic Dip Angle: 60 395 °
Declination Date: September 12, 2012
Magnetic Declination Model: BGGM 2012
North Reference: Grd North
Grid Convergence Used: 0 3246 °
Total Corr Mag North->Grid North: 7 3089 °

Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
Cimarex Snoddy Federal 21H - SHL	0 00	0.00	179 29	0 00	0 00	0 00	0 00	N/A	564082.60	727204 30	N 32 32 57 38	W 103 43 48 44
	100 00	0.00	179 29	100.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57 38	W 103 43 48 44
	200 00	0 00	179 29	200.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57 38	W 103 43 48 44
	300.00	0 00	179 29	300.00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	400.00	0.00	179 29	400.00	0 00	0 00	0 00	0 00	564082.60	727204.30	N 32 32 57.38	W 103 43 48 44
	500 00	0 00	179.29	500 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57 38	W 103 43 48 44
	600.00	0 00	179 29	600.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	700 00	0 00	179 29	700.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	800.00	0 00	179 29	800 00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57 38	W 103 43 48 44
	900 00	0 00	179 29	900 00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57 38	W 103 43 48 44
	1000.00	0 00	179 29	1000.00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	1100 00	0 00	179 29	1100 00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57 38	W 103 43 48 44
	1200 00	0 00	179 29	1200 00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57 38	W 103 43 48 44
	1300 00	0 00	179 29	1300 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57 38	W 103 43 48 44
	1400 00	0 00	179.29	1400.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57 38	W 103 43 48 44
	1500.00	0 00	179.29	1500 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	1600.00	0 00	179 29	1600 00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57 38	W 103 43 48 44
	1700.00	0 00	179.29	1700.00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57 38	W 103 43 48 44
	1800 00	0 00	179 29	1800.00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	1900.00	0 00	179 29	1900 00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	2000 00	0 00	179.29	2000 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57 38	W 103 43 48 44
	2100 00	0 00	179 29	2100 00	0 00	0 00	0 00	0 00	564082.60	727204.30	N 32 32 57 38	W 103 43 48 44
	2200.00	0 00	179 29	2200 00	0 00	0 00	0 00	0 00	564082.60	727204.30	N 32 32 57 38	W 103 43 48 44

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2300 00	0 00	179 29	2300.00	0.00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	2400 00	0 00	179 29	2400 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	2500 00	0.00	179 29	2500 00	0 00	0.00	0.00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	2600 00	0 00	179 29	2600 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	2700 00	0 00	179 29	2700 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	2800.00	0 00	179 29	2800 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	2900 00	0 00	179 29	2900 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3000.00	0 00	179 29	3000 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48.44
	3100.00	0 00	179 29	3100 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3200 00	0 00	179 29	3200 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3300 00	0 00	179 29	3300 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3400 00	0 00	179 29	3400 00	0 00	0 00	0 00	0.00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	3500.00	0 00	179 29	3500 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3600 00	0 00	179.29	3600.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3700.00	0 00	179 29	3700 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48.44
	3800.00	0 00	179 29	3800 00	0.00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	3900 00	0 00	179 29	3900.00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	4000 00	0 00	179 29	4000 00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	4100.00	0 00	179 29	4100 00	0 00	0 00	0.00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	4200.00	0 00	179 29	4200 00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	4300 00	0 00	179 29	4300.00	0 00	0 00	0.00	0.00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	4400 00	0 00	179 29	4400 00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	4500 00	0 00	179 29	4500 00	0.00	0 00	0 00	0 00	564082.60	727204.30	N 32 32 57.38	W 103 43 48 44
	4600 00	0 00	179.29	4600.00	0.00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	4700 00	0.00	179 29	4700 00	0.00	0 00	0 00	0.00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	4800 00	0 00	179 29	4800.00	0 00	0 00	0 00	0.00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	4900 00	0 00	179 29	4900 00	0.00	0 00	0 00	0.00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	5000 00	0.00	179 29	5000 00	0.00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	5100 00	0.00	179 29	5100 00	0 00	0 00	0.00	0.00	564082 60	727204.30	N 32 32 57.38	W 103 43 48.44
	5200 00	0 00	179 29	5200 00	0 00	0 00	0.00	0.00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
Deleware Sands	5235 00	0 00	179 29	5235 00	0 00	0 00	0 00	0.00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	5300 00	0 00	179 29	5300 00	0 00	0 00	0.00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	5400.00	0.00	179 29	5400.00	0 00	0 00	0.00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48.44
	5500 00	0 00	179 29	5500 00	0 00	0 00	0.00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	5600.00	0 00	179 29	5600 00	0 00	0 00	0 00	0 00	564082.60	727204.30	N 32 32 57.38	W 103 43 48 44
	5700 00	0 00	179 29	5700.00	0 00	0 00	0 00	0 00	564082.60	727204.30	N 32 32 57.38	W 103 43 48 44
	5800.00	0 00	179.29	5800 00	0 00	0 00	0.00	0 00	564082.60	727204.30	N 32 32 57.38	W 103 43 48 44
	5900.00	0 00	179.29	5900 00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	6000.00	0 00	179 29	6000 00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	6100 00	0 00	179.29	6100 00	0.00	0 00	0.00	0 00	564082.60	727204.30	N 32 32 57.38	W 103 43 48 44
	6200 00	0.00	179 29	6200.00	0 00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	6300 00	0.00	179 29	6300 00	0.00	0 00	0 00	0 00	564082.60	727204 30	N 32 32 57.38	W 103 43 48 44
	6400 00	0 00	179 29	6400 00	0 00	0.00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	6500 00	0.00	179 29	6500 00	0.00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	6600 00	0 00	179 29	6600 00	0 00	0 00	0 00	0.00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44
	6700 00	0.00	179 29	6700 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48.44
	6800.00	0 00	179.29	6800.00	0 00	0 00	0 00	0 00	564082 60	727204.30	N 32 32 57.38	W 103 43 48 44
	6900 00	0.00	179 29	6900 00	0 00	0 00	0 00	0 00	564082 60	727204 30	N 32 32 57.38	W 103 43 48 44

Comments	MD (ft)	Inci (")	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7000.00	0.00	179.29	7000.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7100.00	0.00	179.29	7100.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7200.00	0.00	179.29	7200.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7300.00	0.00	179.29	7300.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7400.00	0.00	179.29	7400.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7500.00	0.00	179.29	7500.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7600.00	0.00	179.29	7600.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7700.00	0.00	179.29	7700.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	7800.00	0.00	179.29	7800.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
Bone Springs	7900.00	0.00	179.29	7900.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8000.00	0.00	179.29	8000.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8100.00	0.00	179.29	8100.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8200.00	0.00	179.29	8200.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
Upper Bone Spring Shale	8215.00	0.00	179.29	8215.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8300.00	0.00	179.29	8300.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8400.00	0.00	179.29	8400.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8500.00	0.00	179.29	8500.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8600.00	0.00	179.29	8600.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8700.00	0.00	179.29	8700.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8800.00	0.00	179.29	8800.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	8900.00	0.00	179.29	8900.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
1st BSS	8965.00	0.00	179.29	8965.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	9000.00	0.00	179.29	9000.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	9100.00	0.00	179.29	9100.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	9200.00	0.00	179.29	9200.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	9300.00	0.00	179.29	9300.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	9400.00	0.00	179.29	9400.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
KOP Build 12°/100' DLS	9422.50	0.00	179.29	9422.50	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
	9500.00	9.30	179.29	9499.66	6.28	-6.28	0.08	12.00	564076.32	727204.38	N 32 32 57.32	W 103 43 48.43
2nd BSS	9520.69	11.78	179.29	9520.00	10.06	-10.06	0.12	12.00	564072.54	727204.42	N 32 32 57.28	W 103 43 48.43
	9600.00	21.30	179.29	9595.94	32.62	-32.61	0.40	12.00	564049.99	727204.70	N 32 32 57.06	W 103 43 48.43
	9700.00	33.30	179.29	9684.64	78.40	-78.39	0.97	12.00	564004.21	727205.27	N 32 32 56.61	W 103 43 48.43
	9800.00	45.30	179.29	9761.88	141.62	-141.61	1.75	12.00	563941.00	727206.05	N 32 32 55.98	W 103 43 48.42
	9900.00	57.30	179.29	9824.29	219.52	-219.50	2.72	12.00	563863.11	727207.02	N 32 32 55.21	W 103 43 48.42
	10000.00	69.30	179.29	9869.14	308.69	-308.67	3.83	12.00	563773.95	727208.12	N 32 32 54.33	W 103 43 48.41
	10100.00	81.30	179.29	9894.47	405.24	-405.21	5.02	12.00	563677.41	727209.32	N 32 32 53.37	W 103 43 48.40
Landing Point	10172.50	90.00	179.29	9899.96	477.46	-477.43	5.92	12.00	563605.20	727210.22	N 32 32 52.66	W 103 43 48.40
	10200.00	90.00	179.29	9899.96	504.96	-504.93	6.26	0.00	563577.70	727210.56	N 32 32 52.39	W 103 43 48.40
	10300.00	90.00	179.29	9899.96	504.96	-504.92	7.50	0.00	563477.71	727211.80	N 32 32 51.40	W 103 43 48.39
	10400.00	90.00	179.29	9899.96	704.96	-704.91	8.74	0.00	563377.73	727213.04	N 32 32 50.41	W 103 43 48.38
	10500.00	90.00	179.29	9899.97	904.96	-904.90	9.97	0.00	563277.74	727214.27	N 32 32 49.42	W 103 43 48.37
	10600.00	90.00	179.29	9899.97	904.96	-904.90	11.21	0.00	563177.75	727215.51	N 32 32 48.43	W 103 43 48.36
	10700.00	90.00	179.29	9899.97	1004.96	-1004.89	12.45	0.00	563077.77	727216.75	N 32 32 47.44	W 103 43 48.36
	10800.00	90.00	179.29	9899.97	1104.96	-1104.88	13.69	0.00	562977.78	727217.99	N 32 32 46.45	W 103 43 48.35
	10900.00	90.00	179.29	9899.97	1204.96	-1204.87	14.93	0.00	562877.79	727219.23	N 32 32 45.46	W 103 43 48.34
	11000.00	90.00	179.29	9899.97	1304.96	-1304.86	16.17	0.00	562777.80	727220.47	N 32 32 44.47	W 103 43 48.33
	11100.00	90.00	179.29	9899.97	1404.96	-1404.86	17.41	0.00	562677.82	727221.71	N 32 32 43.48	W 103 43 48.32

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	11200 00	90 00	179.29	9899 97	1504 96	-1504 85	18 65	0 00	562577 83	727222 95	N 32 32 42 49	W 103 43 48 32
	11300 00	90 00	179 29	9899 97	1604 96	-1604 84	19 89	0 00	562477.84	727224 19	N 32 32 41 50	W 103 43 48 31
	11400 00	90 00	179 29	9899 97	1704 96	-1704 83	21 13	0 00	562377 86	727225 43	N 32 32 40 51	W 103 43 48 30
	11500 00	90 00	179 29	9899 97	1804 96	-1804 83	22 37	0 00	562277 87	727226 67	N 32 32 39 52	W 103 43 48 29
	11600 00	90 00	179 29	9899 97	1904 96	-1904 82	23 61	0 00	562177.88	727227 91	N 32 32 38 53	W 103 43 48 29
	11700 00	90 00	179 29	9899 97	2004 96	-2004 81	24 85	0 00	562077.90	727229 15	N 32 32 37 54	W 103 43 48 28
	11800 00	90 00	179 29	9899 97	2104 96	-2104 80	26 09	0 00	561977.91	727230 39	N 32 32 36 56	W 103 43 48 27
	11900 00	90 00	179 29	9899 97	2204 96	-2204 80	27 33	0 00	561877 92	727231 63	N 32 32 35 57	W 103 43 48 26
	12000 00	90 00	179 29	9899 97	2304 96	-2304 79	28 57	0 00	561777.94	727232 87	N 32 32 34 58	W 103 43 48 25
	12100 00	90 00	179 29	9899 97	2404 96	-2404 78	29 81	0 00	561677.95	727234.11	N 32 32 33 59	W 103 43 48 25
	12200 00	90 00	179 29	9899 98	2504 96	-2504 77	31.05	0 00	561577.96	727235.35	N 32 32 32 60	W 103 43 48 24
	12300 00	90 00	179 29	9899 98	2604 96	-2604 76	32 29	0 00	561477 97	727236 59	N 32 32 31 61	W 103 43 48 23
	12400 00	90 00	179 29	9899 98	2704 96	-2704 76	33 53	0 00	561377 99	727237 83	N 32 32 30 62	W 103 43 48 22
	12500 00	90 00	179 29	9899 98	2804 96	-2804 75	34 77	0 00	561278 00	727239 07	N 32 32 29 63	W 103 43 48 21
	12600 00	90 00	179 29	9899 98	2904 96	-2904 74	36 01	0 00	561178 01	727240 31	N 32 32 28 64	W 103 43 48 21
	12700 00	90 00	179 29	9899 98	3004 96	-3004 73	37 25	0 00	561078.03	727241 55	N 32 32 27 65	W 103 43 48 20
	12800 00	90 00	179 29	9899 98	3104 96	-3104 73	38 49	0 00	560978.04	727242 79	N 32 32 26 66	W 103 43 48 19
	12900 00	90 00	179 29	9899 98	3204 96	-3204 72	39 73	0 00	560878.05	727244 03	N 32 32 25 67	W 103 43 48 18
	13000 00	90 00	179 29	9899 99	3304 96	-3304 71	40 97	0 00	560778 07	727245 27	N 32 32 24 68	W 103 43 48 18
	13100 00	90 00	179 29	9899 99	3404 96	-3404 70	42 21	0 00	560678 08	727246 51	N 32 32 23 69	W 103 43 48 17
	13200 00	90 00	179 29	9899 99	3504 96	-3504 70	43 45	0 00	560578 09	727247 75	N 32 32 22 70	W 103 43 48 16
	13300 00	90 00	179 29	9899 99	3604 96	-3604 69	44 69	0 00	560478 10	727248 99	N 32 32 21 71	W 103 43 48 15
	13400 00	90 00	179 29	9899 99	3704 96	-3704 68	45 93	0 00	560378 12	727250 23	N 32 32 20 72	W 103 43 48 14
	13500 00	90 00	179 29	9899 99	3804 96	-3804 67	47 17	0 00	560278 13	727251 47	N 32 32 19 73	W 103 43 48 14
	13600 00	90 00	179 29	9900 00	3904 96	-3904 66	48 42	0 00	560178 14	727252 71	N 32 32 18 75	W 103 43 48 13
	13700 00	90 00	179 29	9900 00	4004 96	-4004 66	49 66	0 00	560078 16	727253 95	N 32 32 17 76	W 103 43 48 12
	13800 00	90 00	179 29	9900 00	4104 96	-4104 65	50 90	0 00	559978 17	727255 19	N 32 32 16 77	W 103 43 48 11
Cimarex Snoddy Federal 21H - PBHL	13867 95	90 00	179 29	9900 00	4172 92	-4172 60	51 74	0 00	559910 22	727256 04	N 32 32 16 09	W 103 43 48 11

Survey Type: Def Plan

Survey Error Model: ISCSWA 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	9400 000	1/100 000	30.000	30 000	SLB_NSG+MSHOT	Original Borehole / Cimarex Snoddy Federal 21H Rev0 mcs
	9400 000	13867 955	1/100 000	30.000	30 000	SLB_MWD-STD	Original Borehole / Cimarex Snoddy Federal 21H Rev0 mcs



Cimarex Snoddy Federal 21H Rev0 mcs 12Sep12 Proposal Geodetic Report



(Def Plan)

Report Date: September 12, 2012 - 12 36 PM
 Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Snoddy Federal 21H / Cimarex Snoddy Federal 21H
 Well: Cimarex Snoddy Federal 21H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Snoddy Federal 21H Rev0 mcs 12Sep12
 Survey Date: September 12, 2012
 Tort / AHD / DDI / ERD Ratio: 90 001 ° / 4172 919 ft / 5.721 / 0.422
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 32' 57.38264", W 103° 43' 48.43523"
 Location Grid N/E Y/X: N 564082 600 ftUS, E 727204 300 ftUS
 CRS Grid Convergence Angle: 0.3246 °
 Grid Scale Factor: 0.99994865

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.290 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Ground Elevation
 TVD Reference Elevation: 3555.000 ft above MSL
 Seabed / Ground Elevation: 3555.000 ft above MSL
 Magnetic Declination: 7.633 °
 Total Gravity Field Strength: 999.1774 mgn (9.8 based)
 Total Magnetic Field Strength: 48660.934 nT
 Magnetic Dip Angle: 60.395 °
 Declination Date: September 12, 2012
 Magnetic Declination Model: BGM 2012
 North Reference: Grid North
 Grid Convergence Used: 0.3246 °
 Total Corr Mag North->Grid North: 7.3089 °

Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Cimarex Snoddy Federal 21H - SHL	0.00	0.00	179.29	0.00	0.00	0.00	0.00	N/A	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
Delaware Sands	5235.00	0.00	179.29	5235.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
Bone Springs	7900.00	0.00	179.29	7900.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
Upper Bone Spring Shale	8215.00	0.00	179.29	8215.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
1st BSS	8965.00	0.00	179.29	8965.00	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
KOP Build 12"/100'	9422.50	0.00	179.29	9422.50	0.00	0.00	0.00	0.00	564082.60	727204.30	N 32 32 57.38	W 103 43 48.44
DLS	9520.69	11.78	179.29	9520.00	10.06	-10.06	0.12	12.00	564072.54	727204.42	N 32 32 57.28	W 103 43 48.43
2nd BSS	10172.50	90.00	179.29	9899.96	477.46	-477.43	5.92	12.00	563605.20	727210.22	N 32 32 52.66	W 103 43 48.40
Landing Point												
Cimarex Snoddy Federal 21H - PBHL	13867.95	90.00	179.29	9900.00	4172.92	-4172.60	51.74	0.00	559910.22	727256.04	N 32 32 16.09	W 103 43 48.11

Survey Type: 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	9400.000	1/100.000	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / Cimarex Snoddy Federal 21H Rev0 mcs

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	9400 000		13867.955		1/100 000	30 000	30.000	SLB_MWD-STD			Original Borehole / Cimarex Snoddy Federal 21H Rev0 mcs	

SR & A

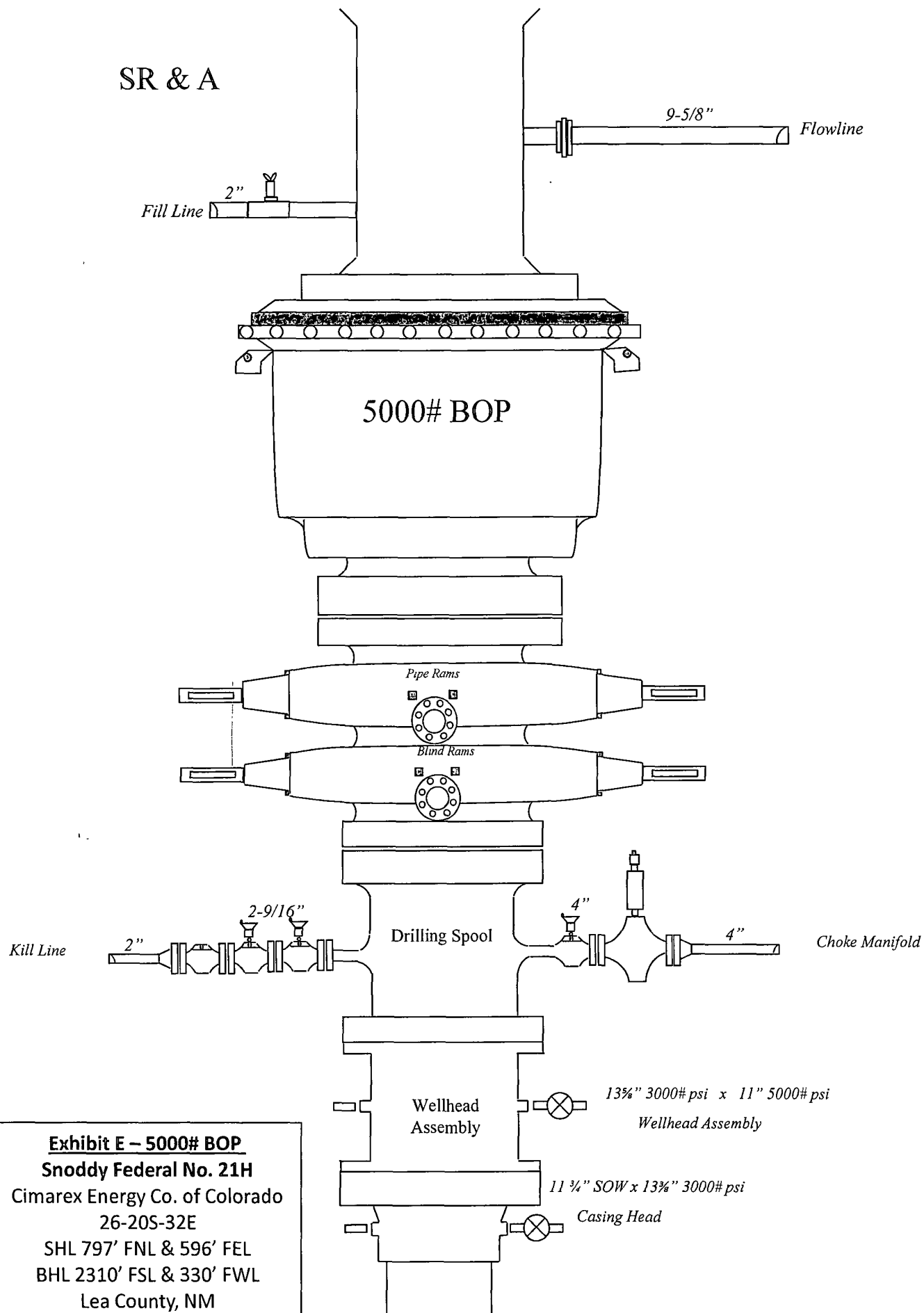


Exhibit E – 5000# BOP

Snoddy Federal No. 21H

Cimarex Energy Co. of Colorado

26-20S-32E

SHL 797' FNL & 596' FEL

BHL 2310' FSL & 330' FWL

Lea County, NM

20" Diverter System

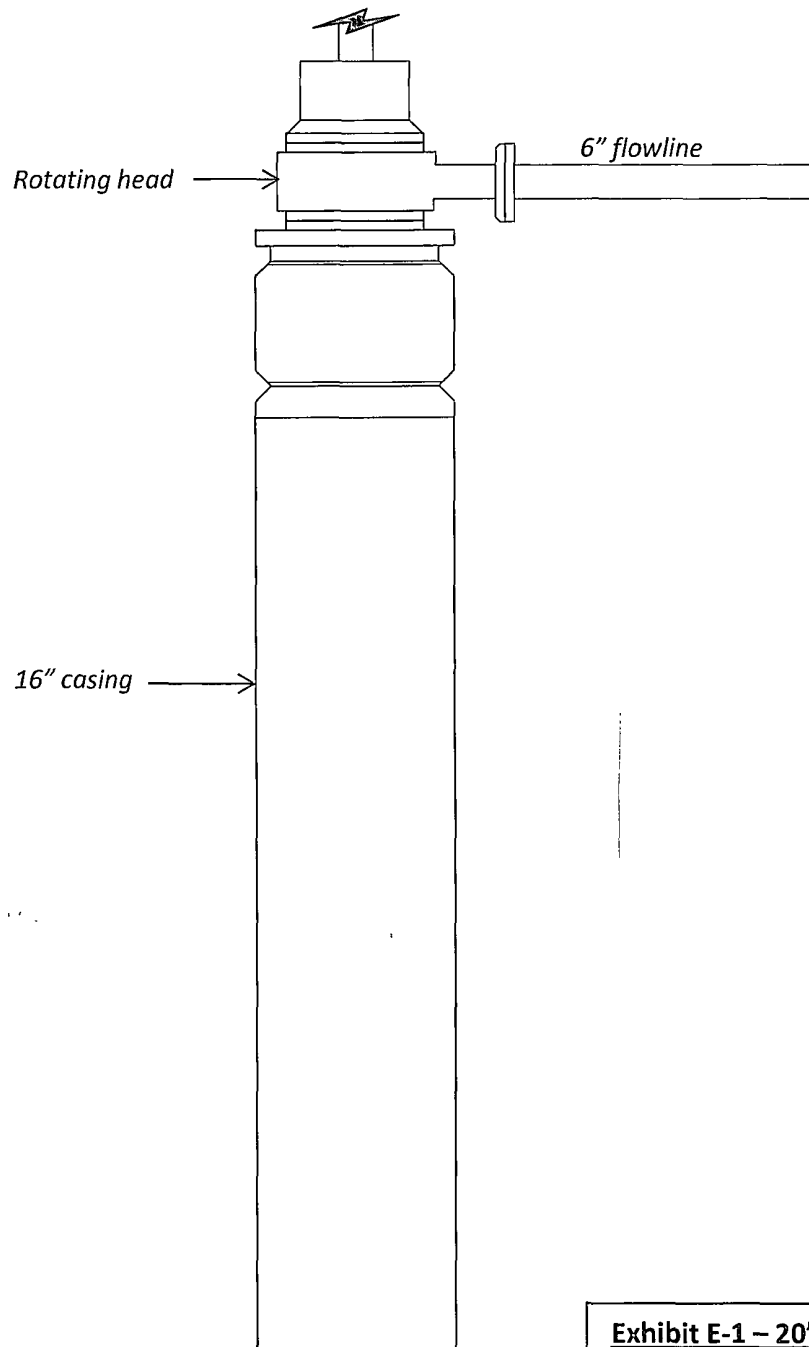


Exhibit E-1 – 20" Diverter System

Snoddy Federal No. 21H

Cimarex Energy Co. of Colorado

26-20S-32E

SHL 797' FNL & 596' FEL

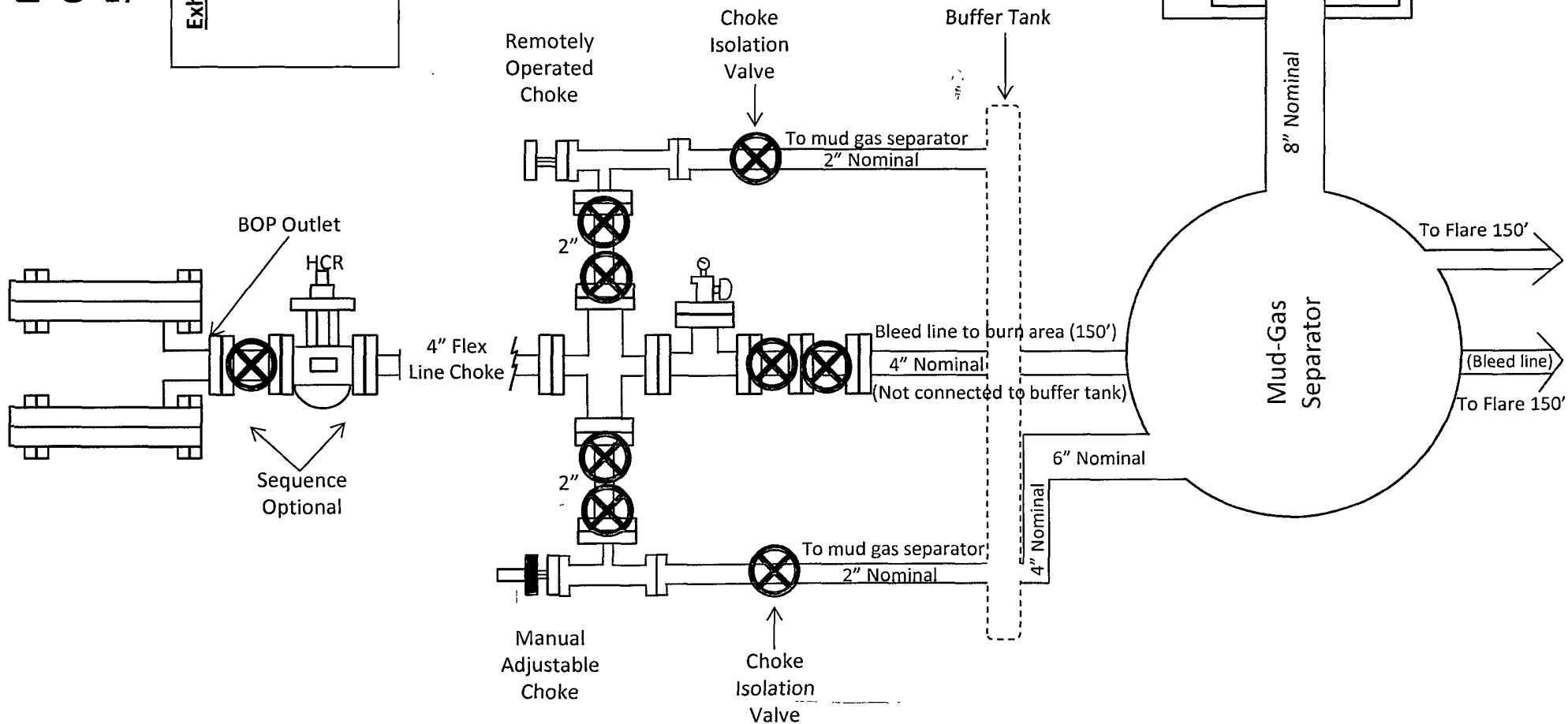
BHL 2310' FSL & 330' FWL

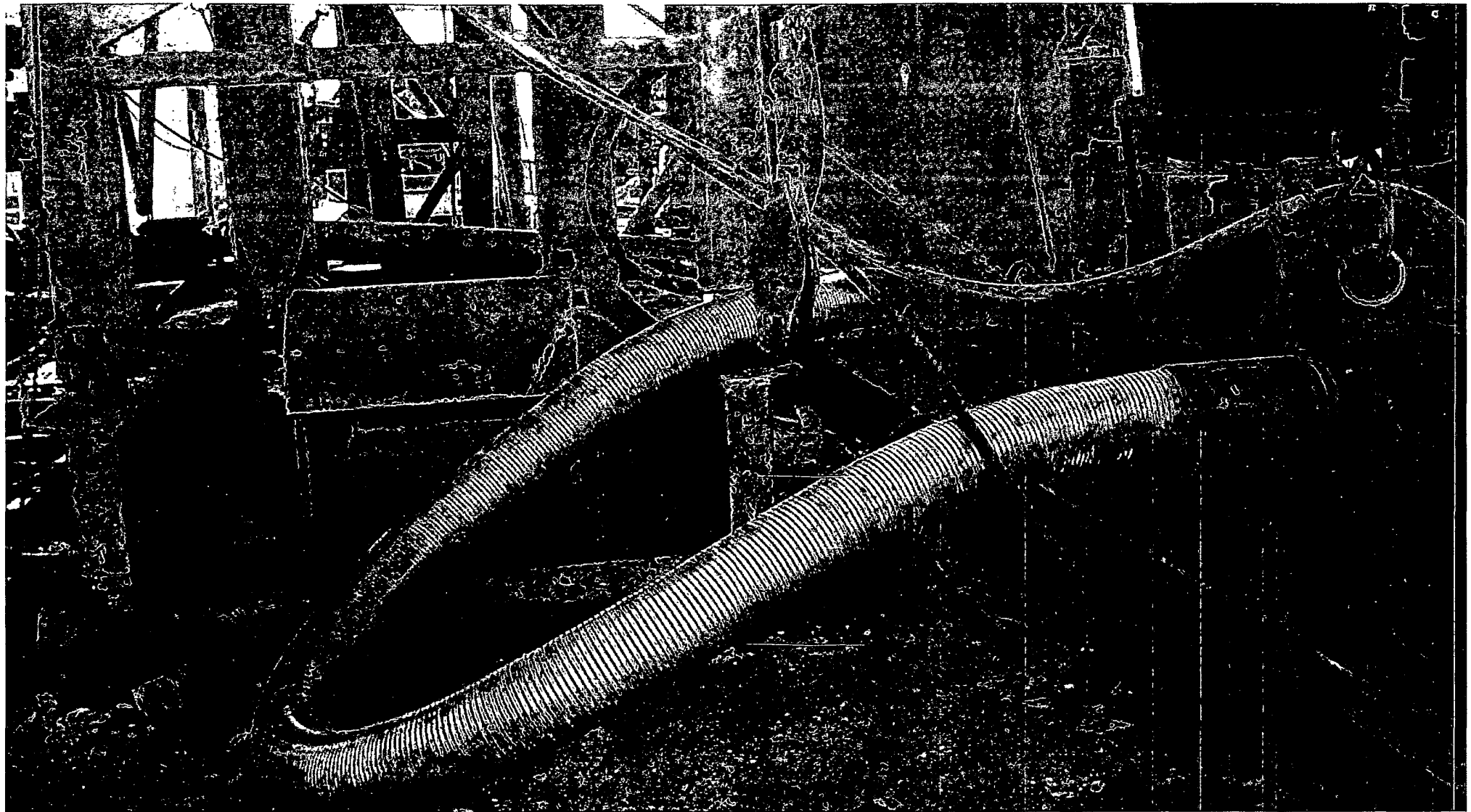
Lea County, NM

Drilling Operations Choke Manifold 5M Service

Exhibit E-1 – Choke Manifold Diagram

Snoddy Federal No. 21H
Cimarex Energy Co. of Colorado
26-20S-32E
SHL 797' FNL & 596' FEL
BHL 2310' FNL & 330' FWL
Lea County, NM





Cactus Rig 115
Serial # 63270

MIDWEST
HOSE AND SPECIALTY INC.

INTERNAL HYDROSTATIC TEST REPORT		
Customer: CACTUS DRILLING		P.O. Number: RIG#147
HOSE SPECIFICATIONS		
Type: CHOK & KILL		Length: 35'
I.D. 4" INCHES		O.D. 8"
WORKING PRESSURE 10,000 PSI	TEST PRESSURE 15,000	BURST PRESSURE
COUPLINGS		
Stem Part No. E4.0X64WB		Ferrule No. FERRULE-128
Type of Coupling: 4-1/16 10K FLANGE(BX-155)		Die Size:
PROCEDURE		
<i>Hose assembly pressure tested with water at ambient temperature.</i>		
TIME HELD AT TEST PRESSURE 15 MIN.		ACTUAL BURST PRESSURE: 0 PSI
COMMENTS: SERIAL#63270		
Date: 7/14/2010	Tested By: BOBBY FINK	Approved: BRENT BURNETT



Midwest Hose
& Specialty, Inc.

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)

Cimarex Energy Co. of Colorado – Closed-Loop System Design Plan

Equipment List

- Primary Shakers
- Mud Cleaner – hydro-cyclones
- 1 or 2 Centrifuges (depending on well depth)
- De-watering system with pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing (may not be necessary for shallower wells)
- Drying Augur
- Sump Drying Augur
- Sump
- Cuttings Boxes
- Reserve Fluids Tank Farm
- Wire Mesh Trash Enclosure (spent motor oils kept in separate containers and later sent to approved landfill)

Operation and Maintenance

The Cimarex Zero Discharge system is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This ensures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

These closed loop operations can be monitored by our service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

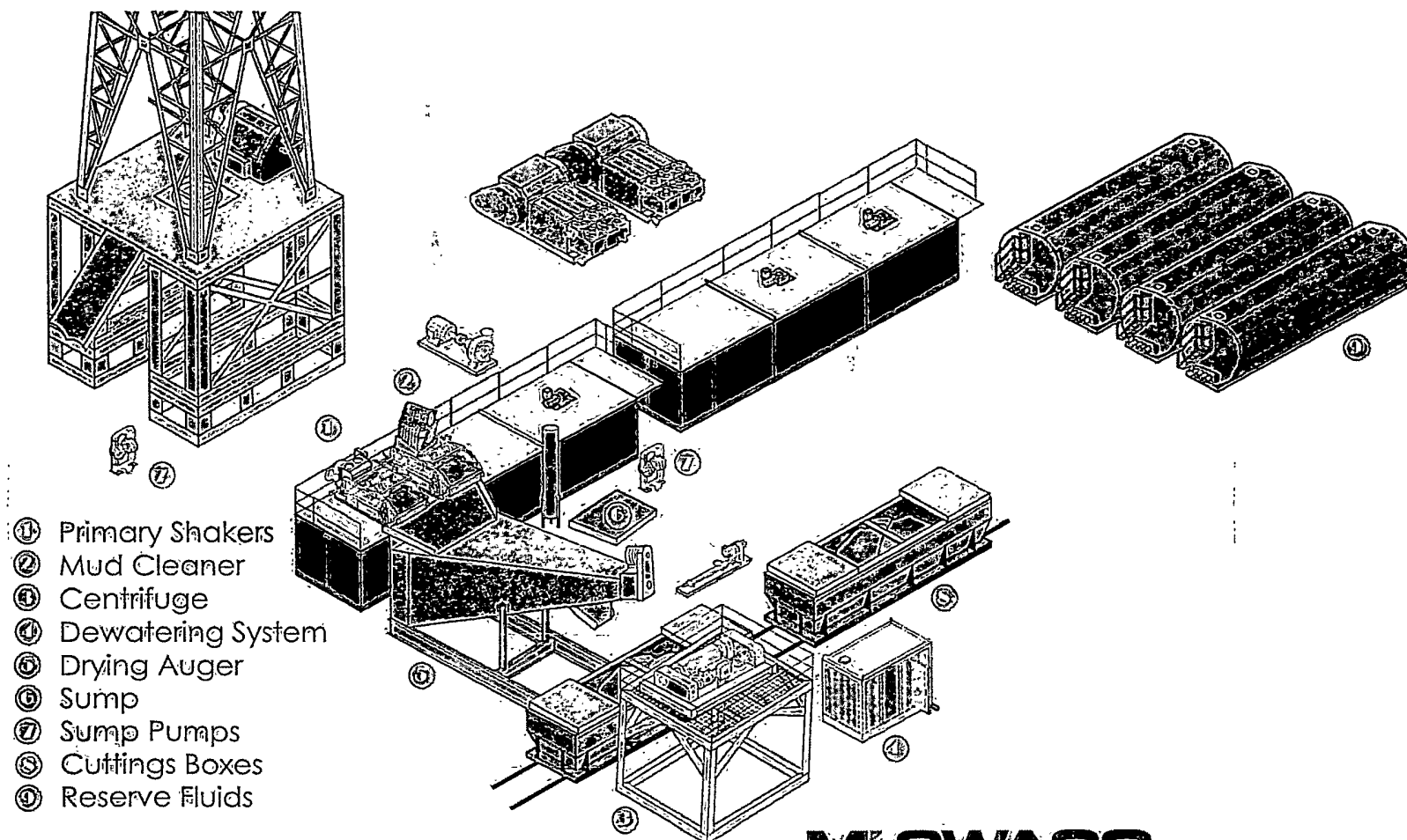
Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and tested for all regulated toxic materials. If found they are removed and disposed of per regulatory requirements.

Closure Plan

During drilling operations, all liquids, drilling fluids, and cuttings will be hauled off via CRI (Controlled Recovery Incorporated, Permit R-9166).



Closed Loop with Drying Auger and Dewatering System



MISWACO

Cactus 115

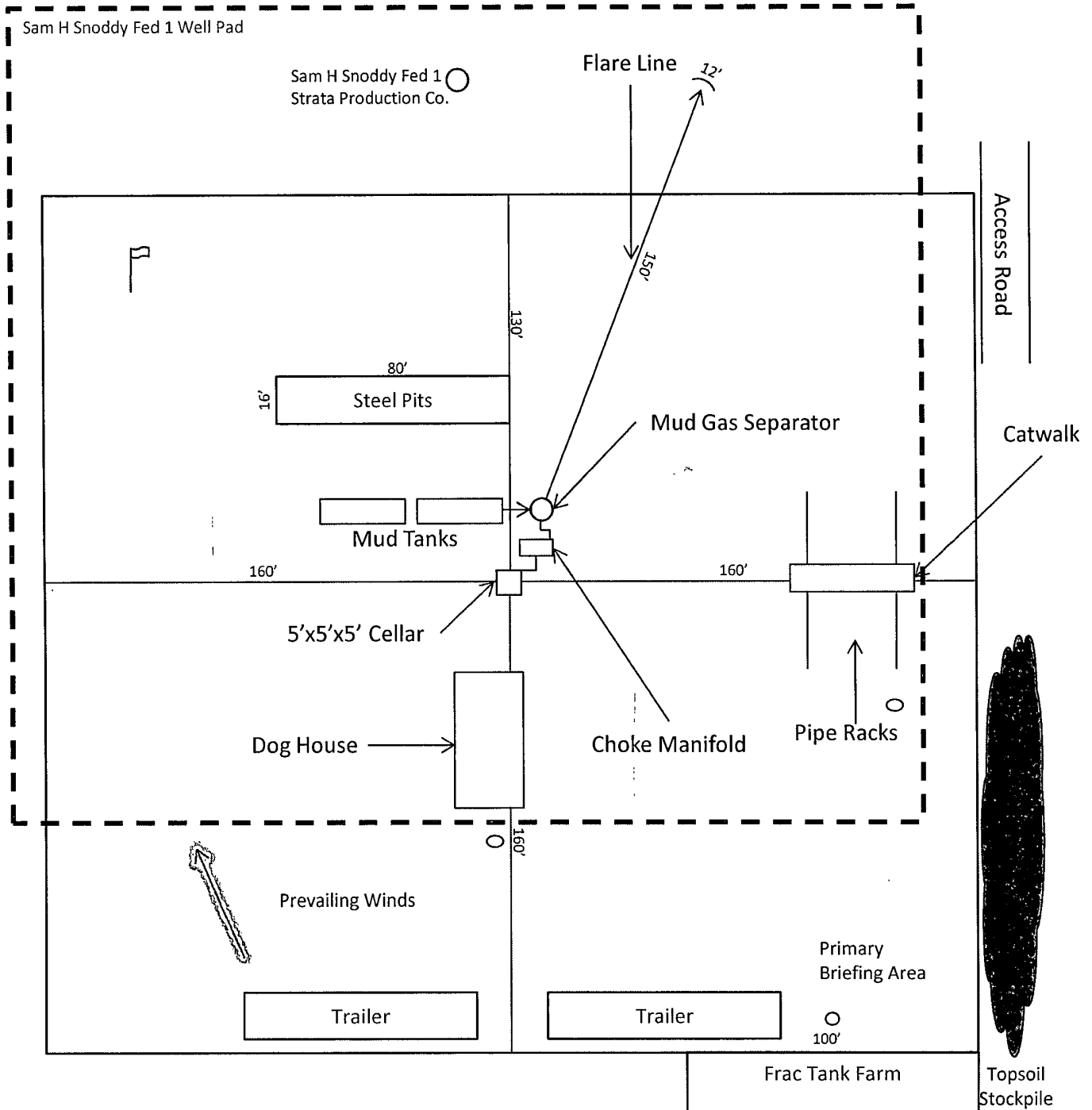


Exhibit D – Rig Diagram

Snoddy Federal No. 21H

Cimarex Energy Co of Colorado

26-20S-32E

SHL 797' FNL & 596' FEL

BHL 2310' FSL & 330' FWL

Lea County, NM



Wind Direction Indicators
(wind sock or streamers)



• H2S Monitors
(alarms at bell nipple and shale
shaker)



Briefing Areas

N

