

# UNORTHODOX LOCATION

Cannot Produce until Non Standard  
Proration Unit & Simultaneous  
Dedication are approved. **OCB**

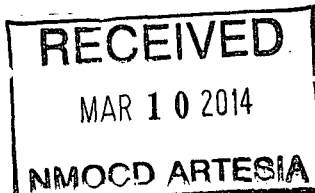
OCB Artesia

14-171

Form 3160-3  
(March 2012)

## Split Estate

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT



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

**TES**  
**3-13-2014**

### APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. SHL: NMNM117116; BHL: NMNM114350	
1b. Type of Well <input checked="" type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Cimarex Energy Co.		7. If Unit or CA Agreement, Name and No.	
3a. Address 202 S. Cheyenne Ave., Ste 1000, Tulsa, OK 74103		8. Lease Name and Well No. Medwick 32 Federal Com #7H <40451>	
3b. Phone No. (include area code) 918-585-1100		9. API Well No. 30-015-42172	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 210 FSL & 2020 FEL; Sec. 32, 26S, 27E At proposed prod. Zone 660 FNL & 2020 FEL; Sec. 29, 26S, 27E Wolfcamp		10. Field and Pool, or Exploratory Wildcat Wolfcamp	
11. Sec., T. R. M. or Bk. and Survey and Area 32, 26S, 27E		12. County or Parish Eddy	
13. State NM		14. Distance in miles and direction from nearest town or post office* Malaga, NM is 17.4 miles Northeasterly of location	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 210	16. No of acres in lease NMNM117116=1365.00 acres NMNM114350=1200.00 acres	17. Spacing Unit dedicated to this well 446.36	
18. Distance from proposed* location to nearest well, drilling, completed, applied for, on this lease, ft. 40' to the # 8H	19. Proposed Depth Pilot Hole TD: 10,500 16,118 MD 9,778 TVD	20. BLM/BIA Bond No. on File NM2575; NMB000835	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3193 GR	22. Approximate date work will start* 4/15/14	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:

- Well plat certified by a registered surveyor
- A Drilling Plan
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator Certification
- Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature <b>Hope Knauls</b>	Name (Printed/Typed) Hope Knauls	Date 10/30/13
Title Regulatory Compliance		

Approved By (Signature) <b>STEPHEN J. CAFFEY</b>	Name (Printed/Typed) CARLSBAD FIELD OFFICE	Date MAR 3 2014
Title FIELD MANAGER		

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)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Operator Certification Statement

**Medwick 32 Federal Com #7H**

Cimarex Energy Co.

UL: 2, Sec. 32, 26S, 27E

Eddy Co., NM

Operator's Representative

Cimarex Energy Co. of Colorado

600 N. Marienfeld St., Ste. 600

Midland, TX 79701

Office Phone: (432) 571-7800

**CERTIFICATION:** I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 30 day of October, 2013

NAME: Aricka Easterling

Aricka Easterling

**TITLE:** Regulatory Compliance

**ADDRESS:** 202 S. Cheyenne Ave., Ste 1000, Tulsa, OK 74103

**TELEPHONE:** 918-585-1100

**EMAIL:** AEasterling@cimarex.com

**Field Representative:** Same as above

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number 30-015 <b>42172</b>	<sup>2</sup> Pool Code <b>98017</b>	<sup>3</sup> Well Name <b>WC-015 5262728A</b>	<sup>4</sup> Well Number <b>7H</b>
<sup>5</sup> Property Code <b>40451</b>	<sup>6</sup> Property Name <b>MEDWICK 32 FEDERAL COM</b>		<sup>7</sup> Elevation <b>3193'</b>
<sup>8</sup> OGRID No. 215099	<sup>9</sup> Operator Name <b>CIMAREX ENERGY CO.</b>		

**10 Surface Location**

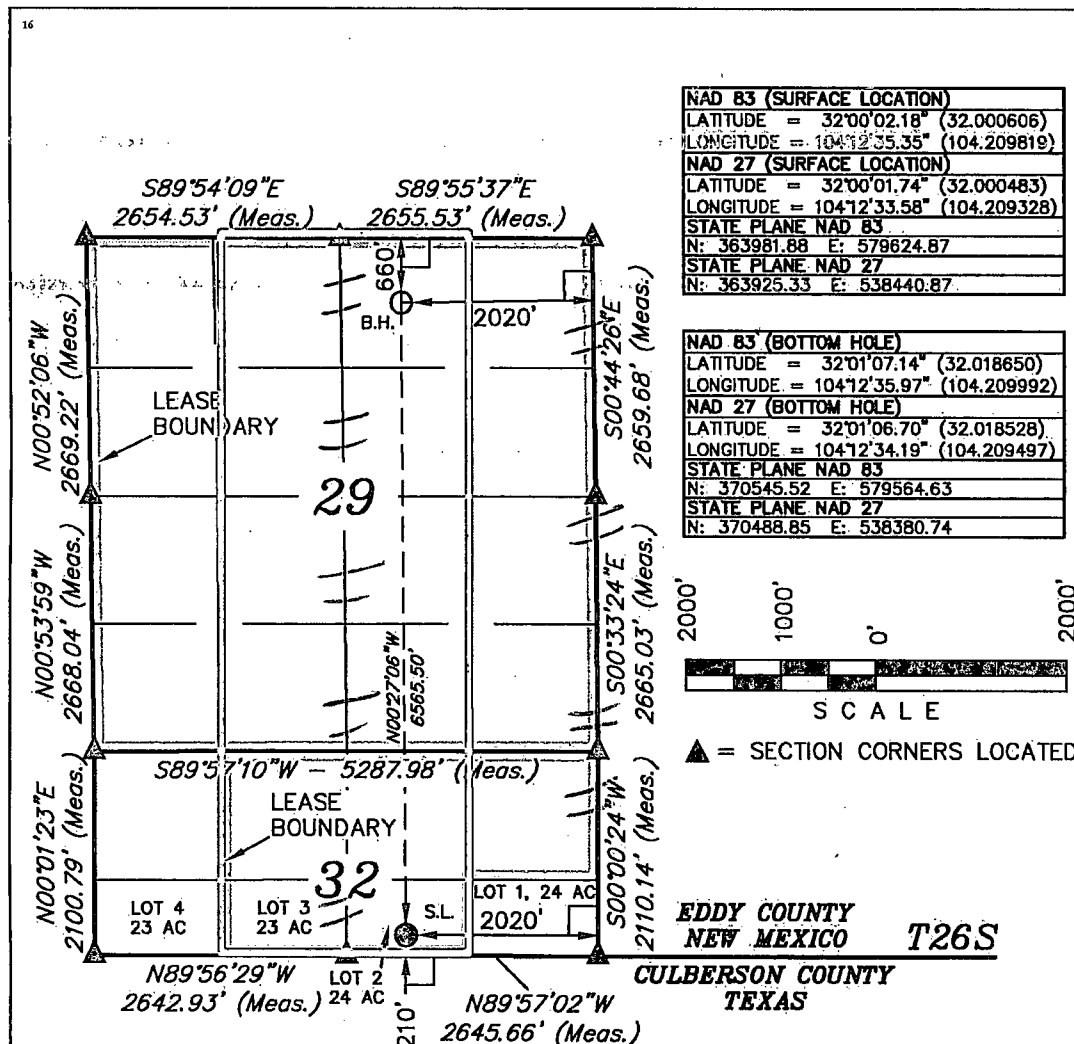
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	32	26S	27E		210	SOUTH	2020	EAST	EDDY

**11 Bottom Hole Location If Different From Surface**

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	29	26S	27E		660	NORTH	2020	EAST	EDDY

<sup>12</sup> Dedicated Acres 446.36	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No. <b>3-3 1618</b>
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



CIMAREX ENERGY CO.  
MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
SECTION 32, T26S, R27E, N.M.P.M.

BEGINNING AT WHITES CITY ROAD PROCEED IN A SOUTHERLY, THEN WESTERLY DIRECTION APPROXIMATELY 9.0 MILES TO THE BEGINNING OF THE PROPOSED ACCESS TO THE NORTH; FOLLOW ROAD FLAGS IN A NORTHERLY, THEN WESTERLY DIRECTION APPROXIMATELY 5,584' TO THE PROPOSED LOCATION.

TOTAL DISTANCE FROM WHITES CITY ROAD TO THE PROPOSED LOCATION IS APPROXIMATELY 10.1 MILES.

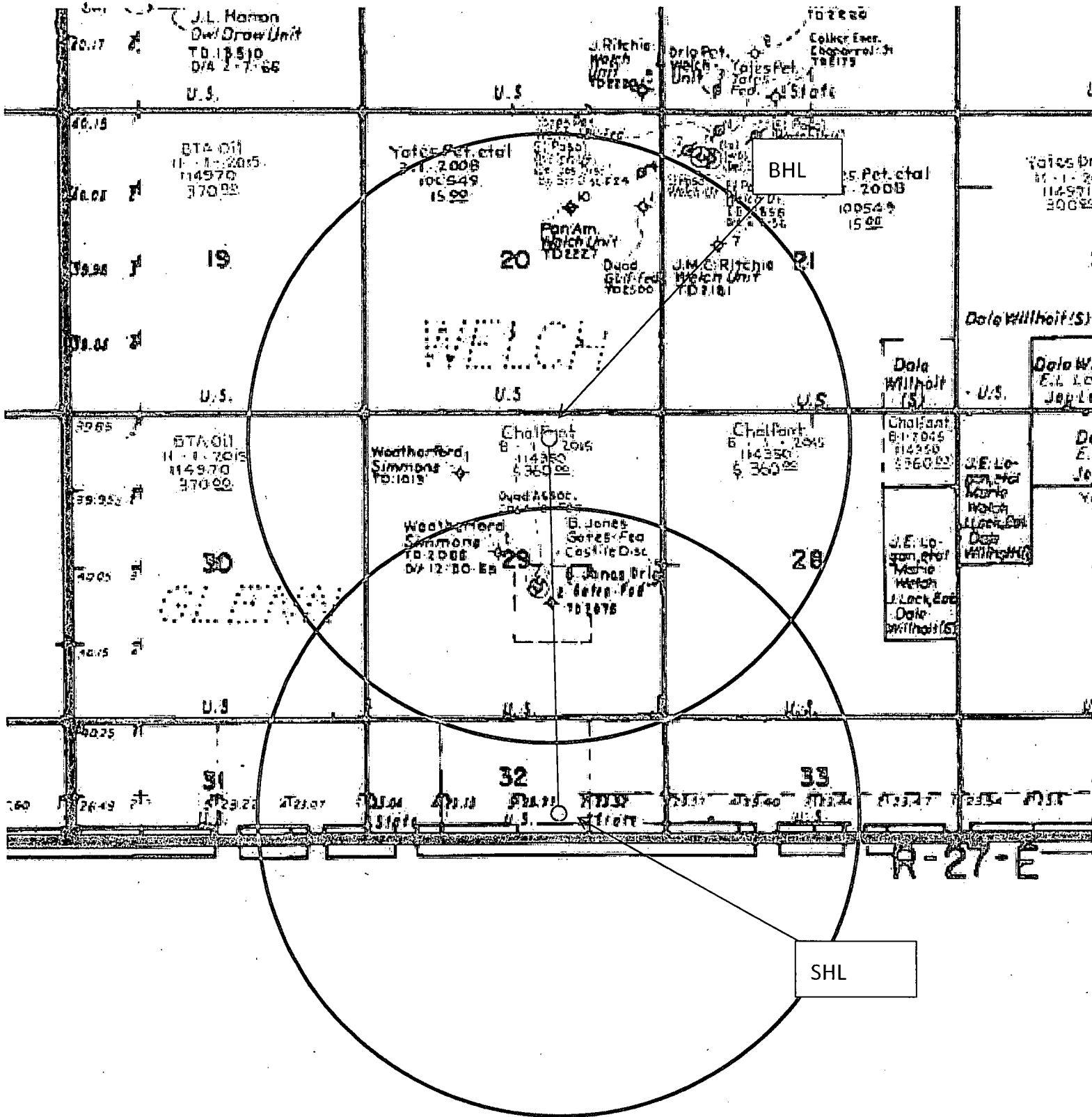


Exhibit A – One Mile Radius Map  
 Medwick 32 Federal Com 7H  
 Cimarex Energy Co.  
 32-26S-27E  
 SHL 210 FSL & 2020 FEL  
 BHL 660 FNL & 2020 FEL  
 Eddy County, NM

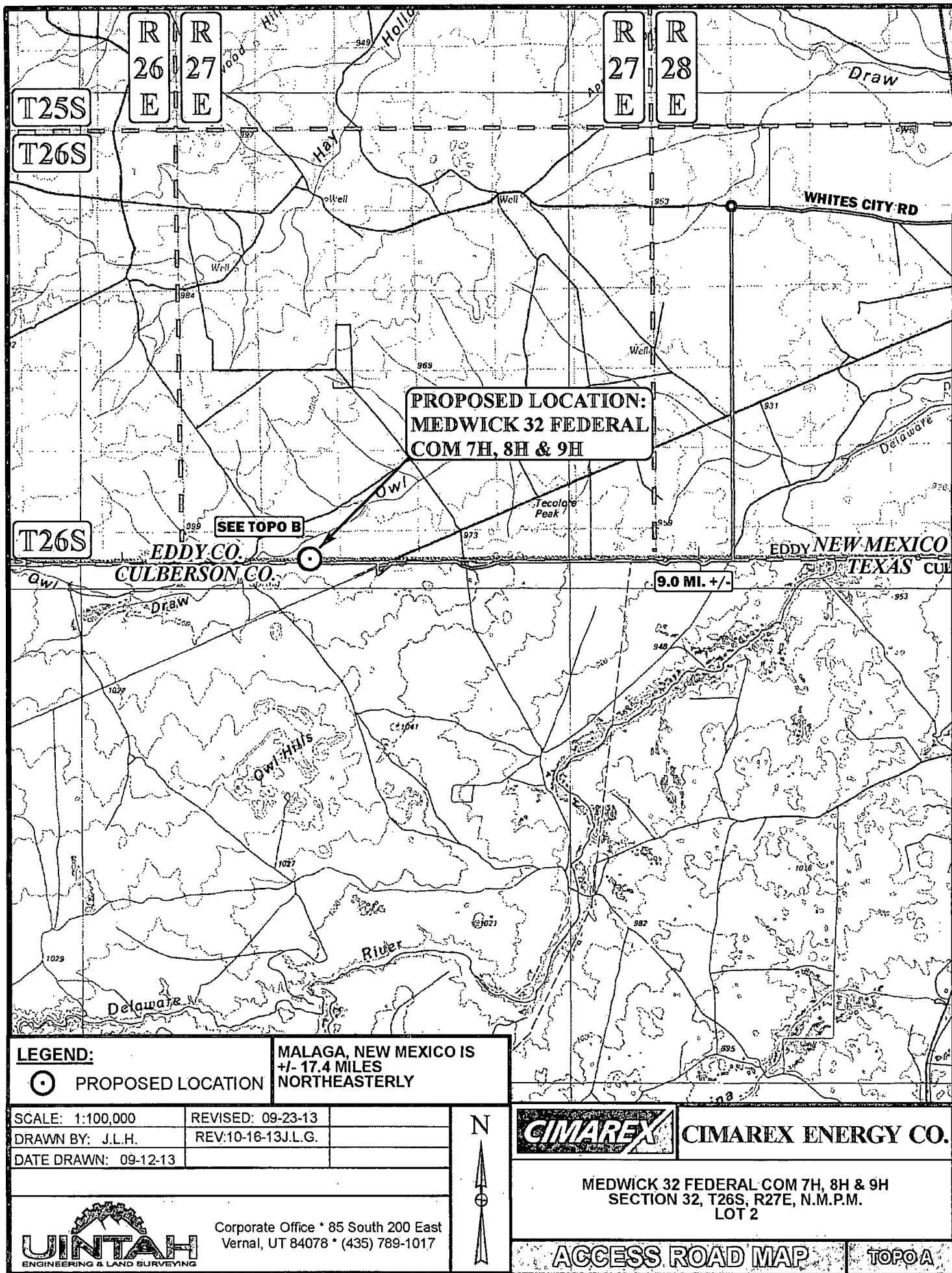


Exhibit B

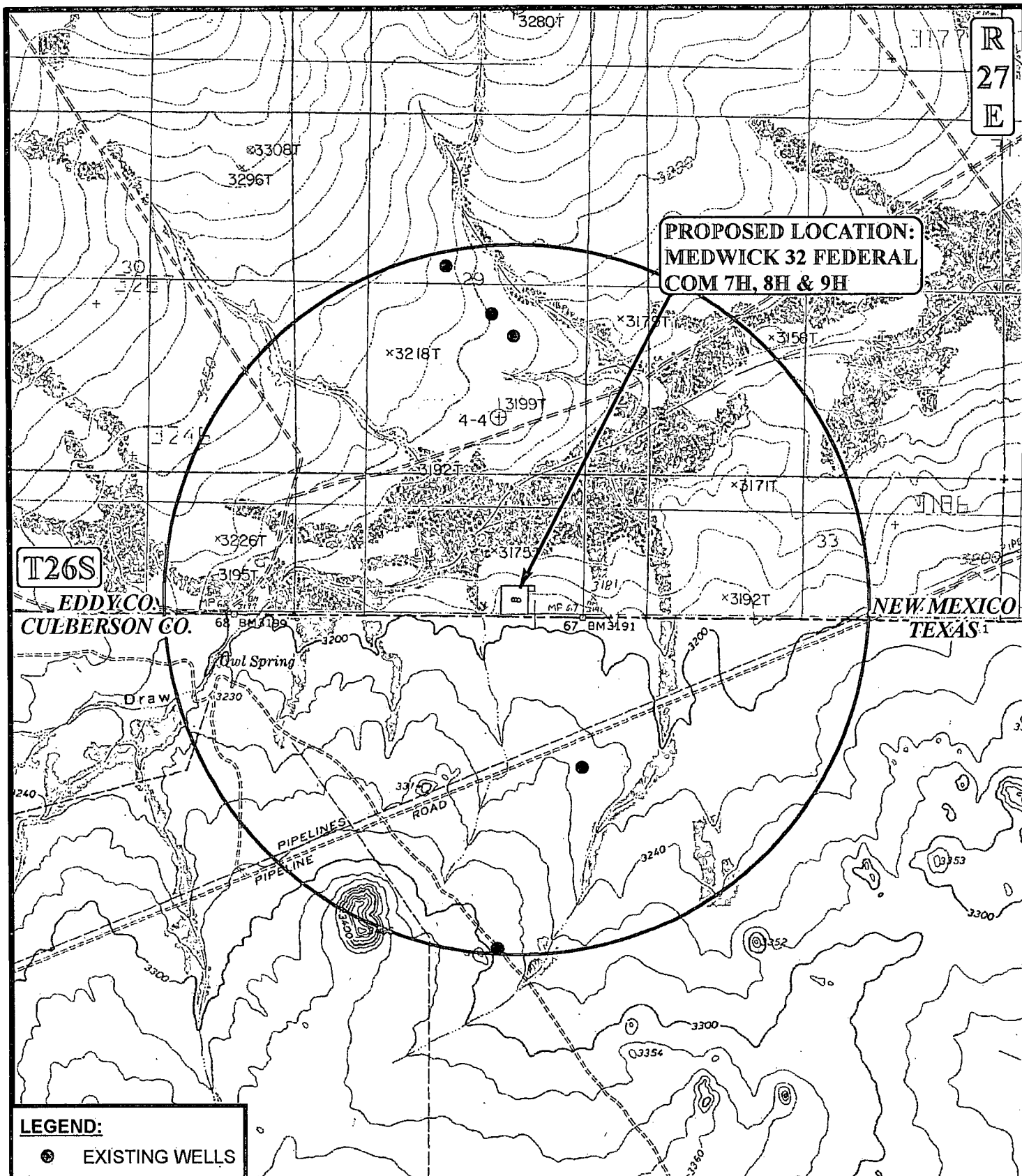


Exhibit C

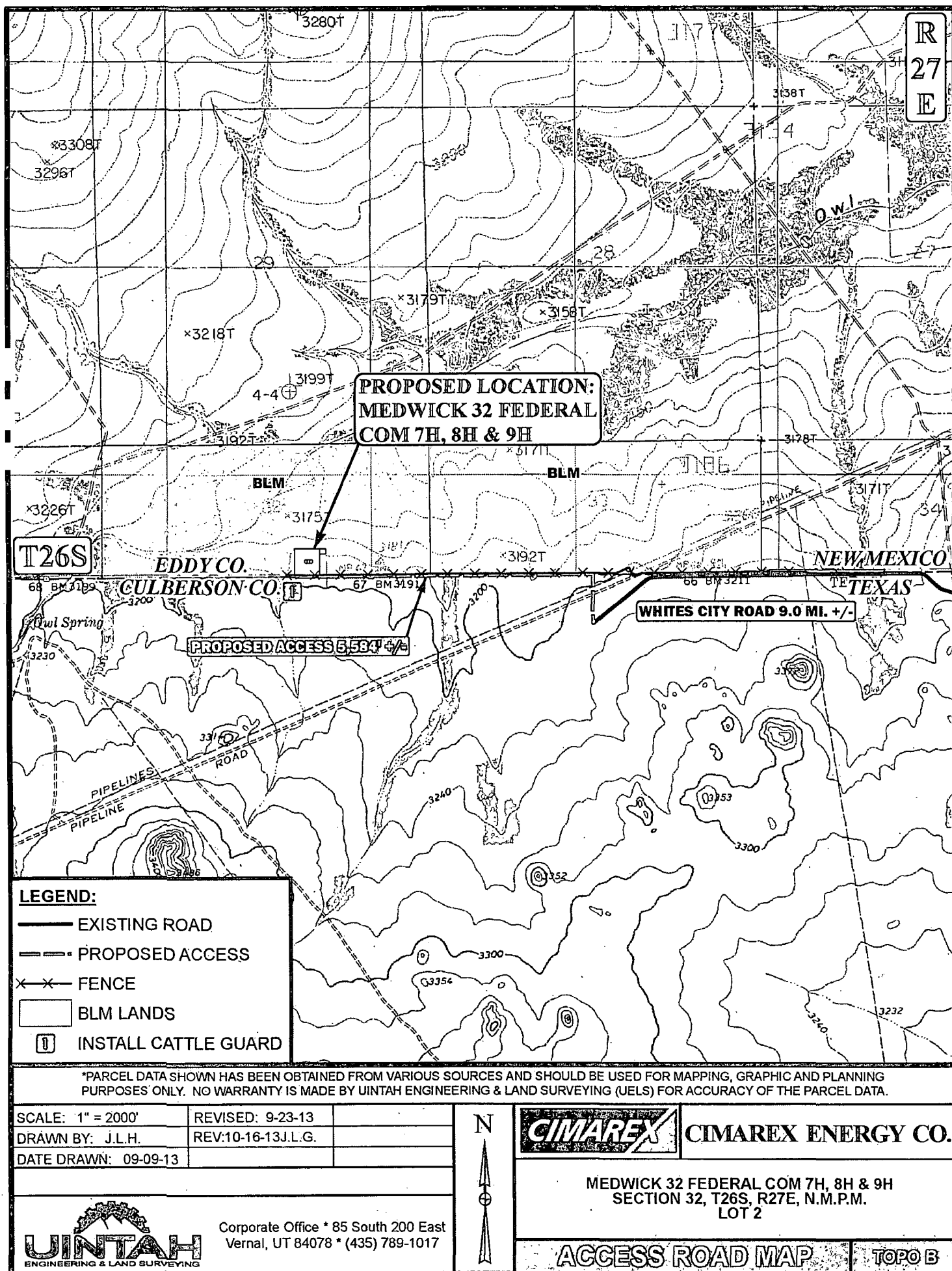


Exhibit C-1



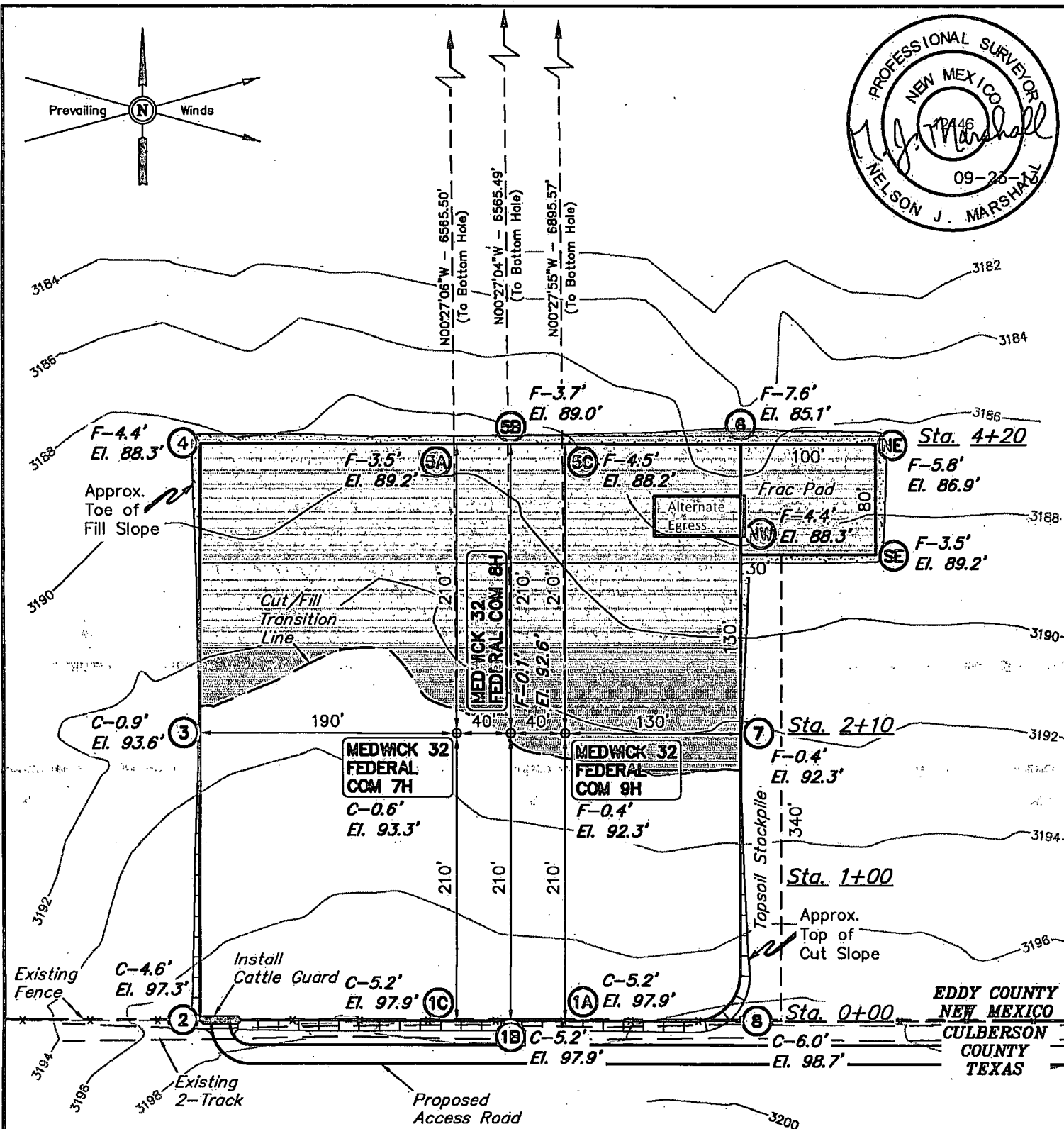
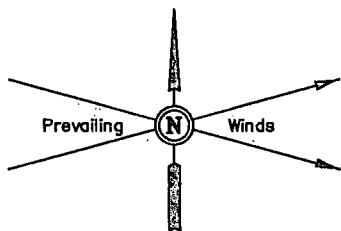


Exhibit C-1

ELEV. UNGRADED GROUND AT COM 7H LOC. STAKE = 3193.3' FINISHED GRADE ELEV. AT COM 7H LOC. STAKE = 3192.7'

NOTES:

- Round corners at 35' radius or as needed.
- Earthwork calculations require a fill @ some of the location stakes for balance. All fill is to be compacted to a minimum of 95% of the maximum dry density obtained by AASHTO method T-99.
- Underground utilities shown on this sheet are for visualization purposes only, actual locations to be determined prior to construction.



CIMAREX ENERGY CO.

MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
SECTION 32, T26S, R27E, N.M.P.M.  
LOT 2

DRAWN BY: J.S.

SCALE: 1" = 100'

DATE: 09-07-13

REVISED: 09-23-13

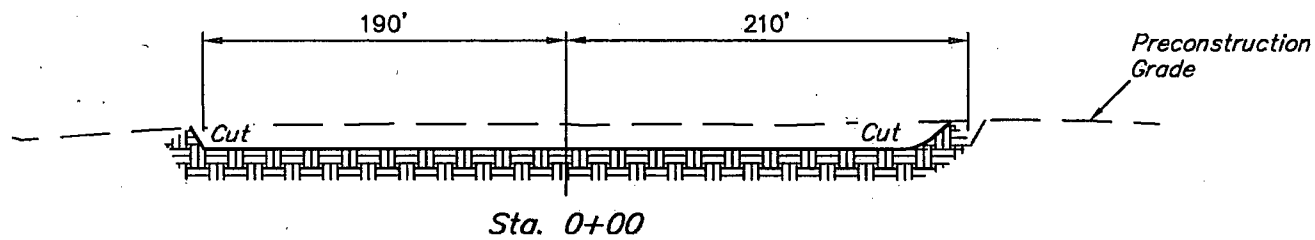
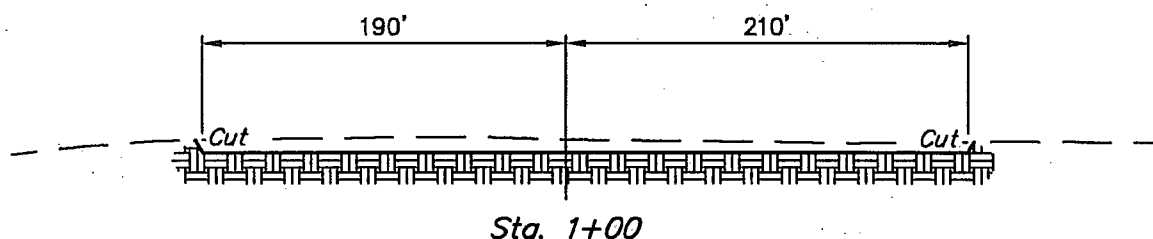
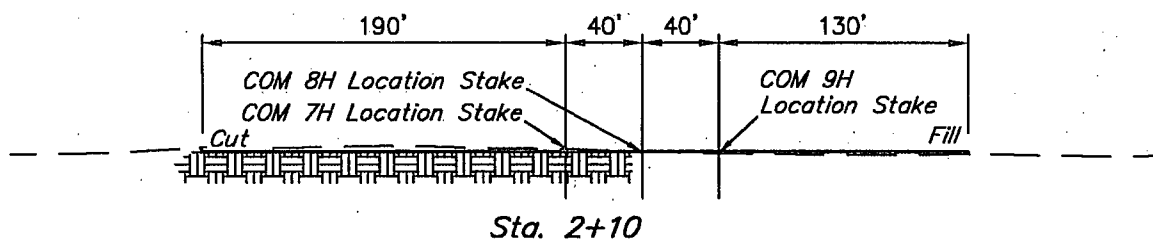
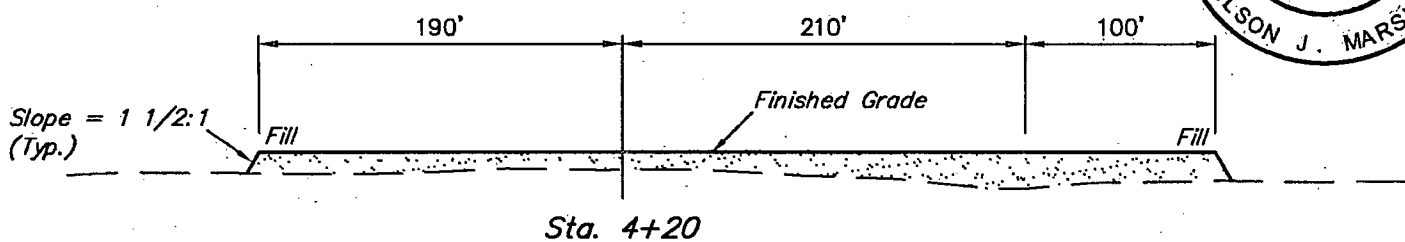
LOCATION LAYOUT

FIGURE #1



Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

1" = 40'  
X-Section  
Scale  
1" = 100'



APPROXIMATE EARTHWORK QUANTITIES		APPROXIMATE SURFACE DISTURBANCE AREAS		
(2") TOPSOIL STRIPPING	1,150 Cu. Yds.		DISTANCE	ACRES
REMAINING LOCATION	8,730 Cu. Yds.	WELL-SITE DISTURBANCE	N/A	±4.493
TOTAL CUT	9,880 Cu. Yds.	30' WIDE ACCESS ROAD R-O-W DISTURBANCE	±5584.33'	±3.846
FILL	8,730 Cu. Yds.	6' WIDE PIPELINE R-O-W DISTURBANCE	±1307.10'	±0.180
EXCESS MATERIAL	1,150 Cu. Yds.	TOTAL SURFACE USE AREA	±6891.43'	±8.519
TOPSOIL	1,150 Cu. Yds.			
EXCESS UNBALANCE (After Interim Rehabilitation)	0 Cu. Yds.			

- NOTES:
- Fill quantity includes 5% for compaction.
  - Topsoil should not be stripped below finished grade on substructure area.

**CIMAREX ENERGY CO.**

**MEDWICK 32 FEDERAL COM 7H, 8H & 9H**  
**SECTION 32, T26S, R27E, N.M.P.M.**  
**LOT 2**

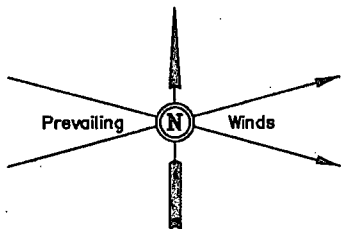
DRAWN BY: J.S.	SCALE: AS SHOWN
DATE: 09-07-13	REVISED: 09-23-13

**TYPICAL CROSS SECTIONS**

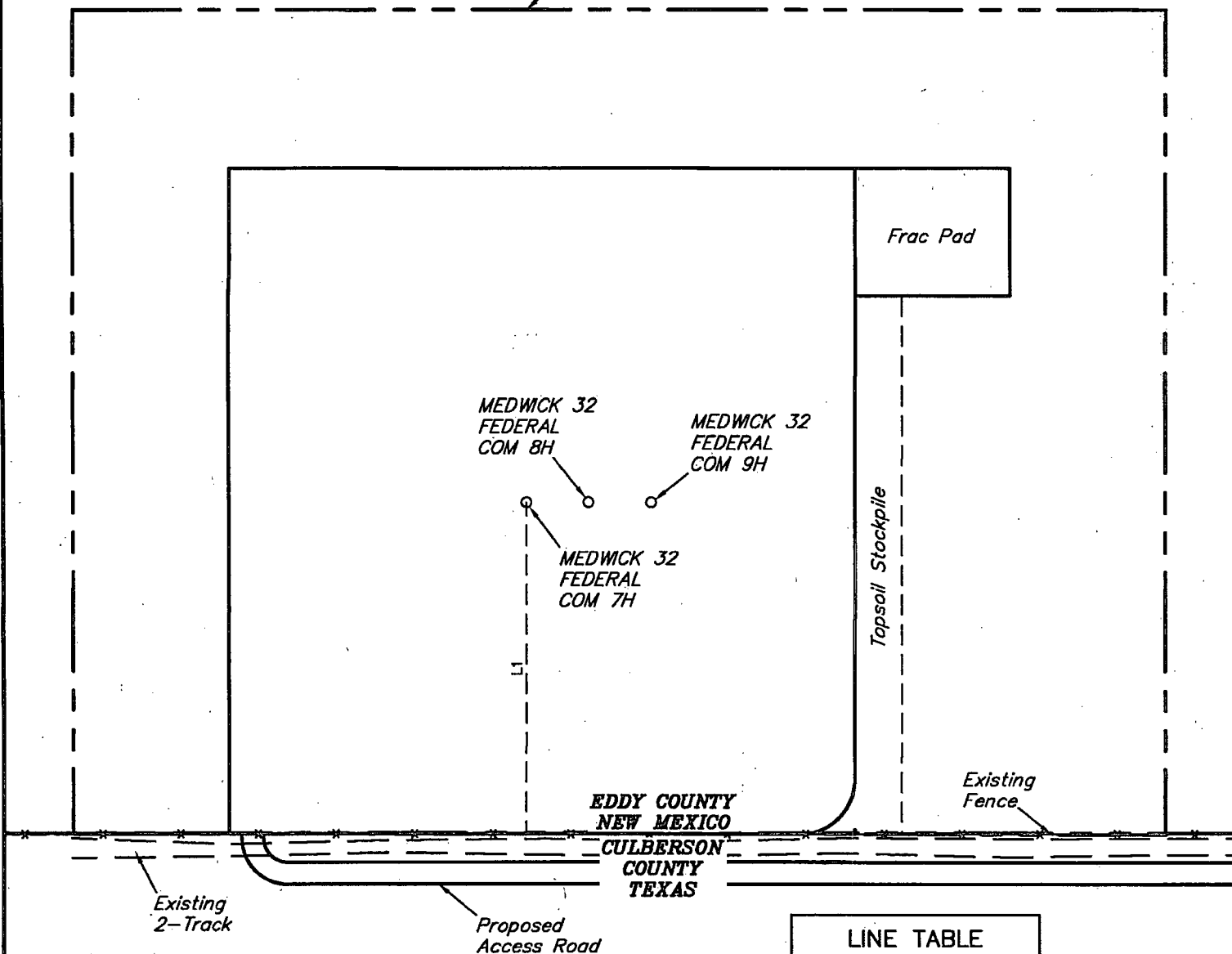
**FIGURE 12**



Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017



520' X 700'  
Archaeological Survey  
Boundary



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	SOUTH	210'

Exhibit C-1

NOTES:



CIMAREX ENERGY CO.

MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
SECTION 32, T26S, R27E, N.M.P.M.  
LOT 2



Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

DRAWN BY: J.S. SCALE: 1" = 100'  
DATE: 09-07-13 REVISED: 09-23-13

ARCHAEOLOGICAL SURVEY  
BOUNDARY

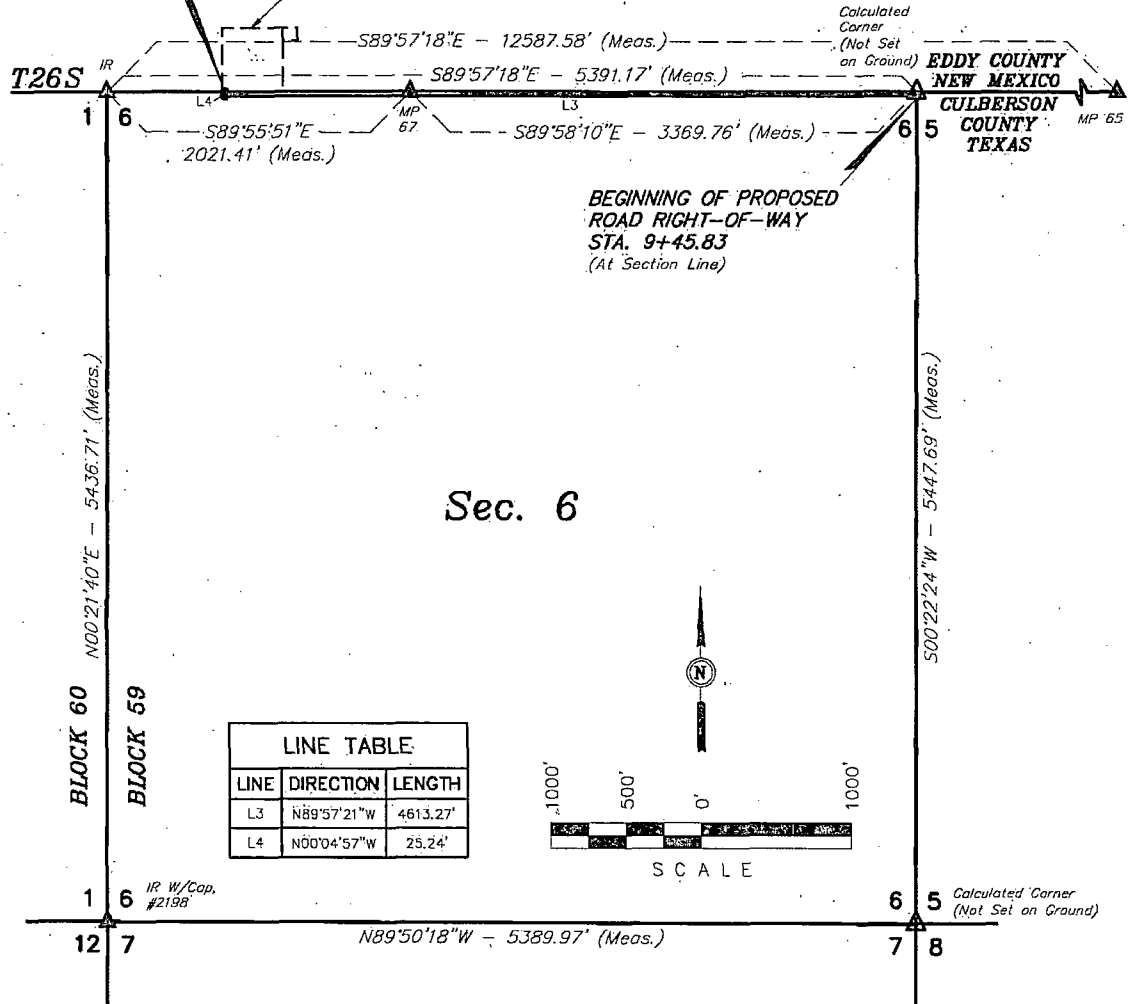
FIGURE #1

END OF PROPOSED  
ROAD RIGHT-OF-WAY  
STA. 55+84.33

(At Edge of MEDWICK 32 FEDERAL  
COM 7H, 8H & 9H Well Pad)

**SECTION 6, BLOCK 59,  
T-1, T.&P.R.R. CO. SURVEY,  
CULBERSON COUNTY, TEXAS**

Proposed MEDWICK 32 FEDERAL  
COM 7H, 8H & 9H Well Pad



**ROAD RIGHT-OF-WAY DESCRIPTION**

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

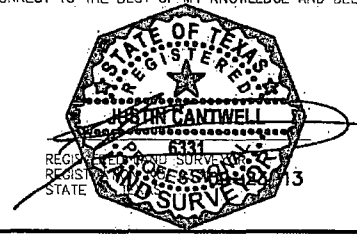
BEGINNING AT A POINT ON THE EAST LINE OF THE NE 1/4 OF SECTION 6, BLOCK 59, T-1, T.&P.R.R. CO. SURVEY, CULBERSON COUNTY, TEXAS, WHICH BEARS S89°32'05"E 3369.70' FROM MP 67, THENCE N89°57'21"W 4613.27'; THENCE N00°04'57"W 25.24' TO A POINT ON THE NORTH LINE OF THE NW 1/4 OF SAID SECTION 6, BLOCK 59, WHICH BEARS S89°55'27"E 777.70' FROM THE NORTHWEST CORNER OF SAID SECTION 6, BLOCK 59. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A G.P.S. OBSERVATION. CONTAINS 3.195 ACRES MORE OR LESS.

BEGINNING OF ROAD STA. 9+45.83 BEARS S89°32'05"E 3369.70' FROM MP 67, CULBERSON COUNTY, TEXAS.

END OF ROAD STA. 55+84.33 BEARS S89°55'27"E 777.70' FROM THE NORTHWEST CORNER OF SECTION 6, BLOCK 59, T-1, T.&P.R.R. CO. SURVEY CULBERSON COUNTY, TEXAS

**CERTIFICATE**

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



RIGHT-OF-WAY LENGTHS			
DESCRIPTION	FEET	ACRES	RODS
SECTION 6, BLOCK 59	4638.50	3.195	281.12

- ▲ = SECTION CORNERS LOCATED.
- △ = SECTION CORNERS CALCULATED.  
(Not Set on Ground.)

**NOTES:**

**Exhibit C-1**



**CIMAREX ENERGY CO.**

MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
SECTION 32, T26S, R27E, N.M.P.M.  
LOT 2

DRAWN BY: J.S.

SCALE: 1" = 1000'

DATE: 09-07-13

REVISED: 09-23-13

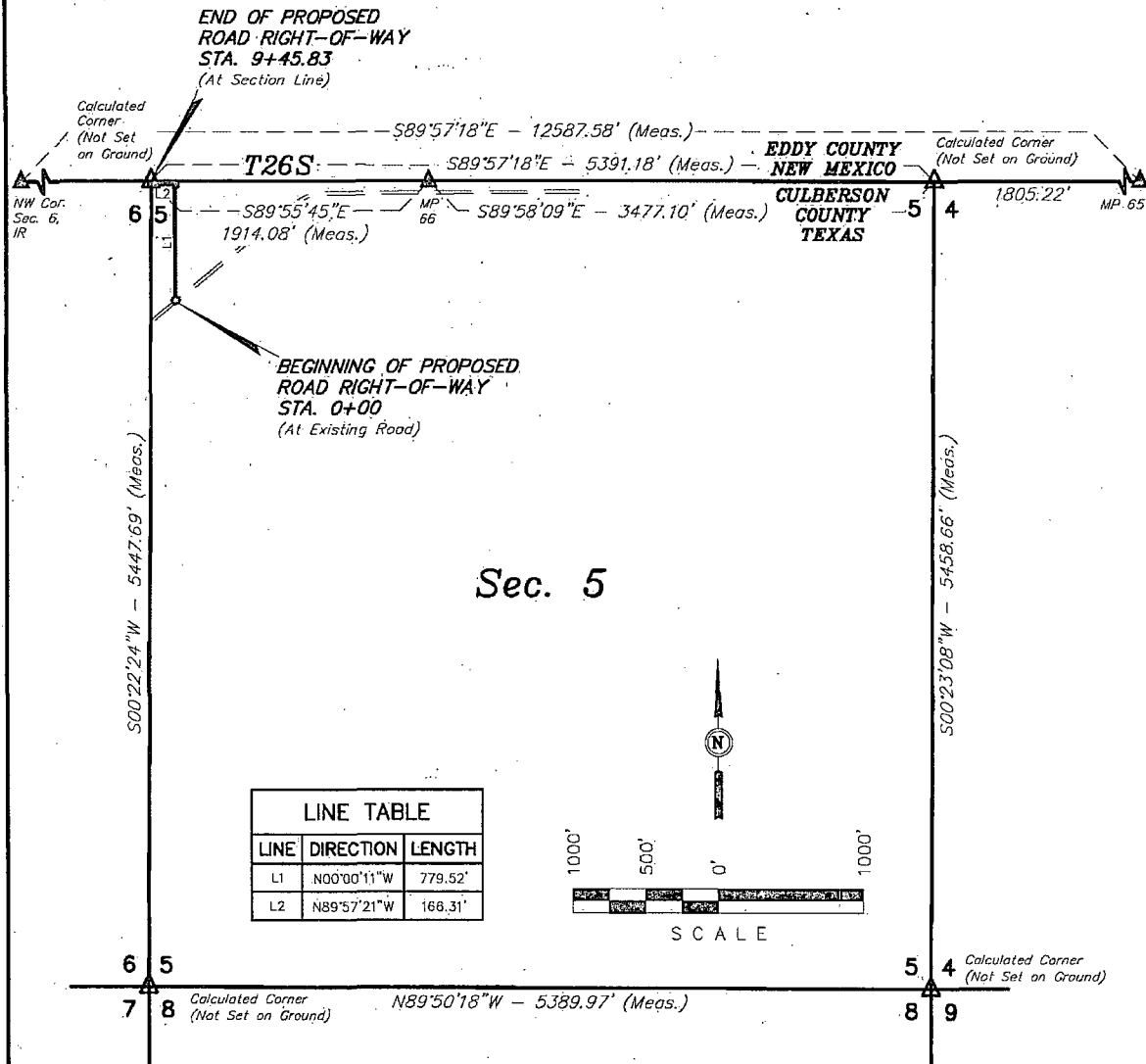
**ACCESS ROAD R-O-W**

**FIGURE #5B**



Corporate Office \* 85 South 200 East.  
Vernal, UT 84078 \* (435) 789-1017

**SECTION 5, BLOCK 59,  
T-1, T.&P.R.R. CO. SURVEY,  
CULBERSON COUNTY, TEXAS**



**ROAD RIGHT-OF-WAY DESCRIPTION**

A 30' WIDE RIGHT-OF-WAY 15' ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE.

BEGINNING AT A POINT IN THE NW 1/4 OF SECTION 5, BLOCK 59, T-1, T.&P.R.R. CO. SURVEY CULBERSON COUNTY, TEXAS, WHICH BEARS S65°19'47\"W 1923.46' FROM MP 66, THENCE N00°00'11\"W 779.52'; THENCE N89°57'21\"W 166.31' TO A POINT ON THE WEST LINE OF THE NW 1/4 OF SAID SECTION 5, BLOCK 59, WHICH BEARS S089°18'20\"W 1914.39' FROM MP 66. THE SIDE LINES OF SAID DESCRIBED RIGHT-OF-WAY BEING SHORTENED OR ELONGATED TO MEET THE GRANTOR'S PROPERTY LINES. BASIS OF BEARINGS IS A G.P.S. OBSERVATION. CONTAINS 0.651 ACRES MORE OR LESS.

BEGINNING OF ROAD STA. 0+00 BEARS S65°19'47\"W 1923.46' FROM MP 66, CULBERSON COUNTY, TEXAS.

END OF ROAD STA. 9+45.83 BEARS S89°18'20\"W 1914.39' FROM MP 66, CULBERSON COUNTY, TEXAS.

**RIGHT-OF-WAY LENGTHS**

DESCRIPTION	FEET	ACRES	RODS
SECTION 5, BLOCK 59	945.83	0.651	57.32

- ▲ = SECTION CORNERS LOCATED.  
 ▲ = SECTION CORNERS CALCULATED.  
 (Not Set on Ground.)

**CERTIFICATE**

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



NOTES:

**Exhibit C-1**



Corporate Office \* 85 South 200 East  
 Vernal, UT 84078 \* (435) 789-1017



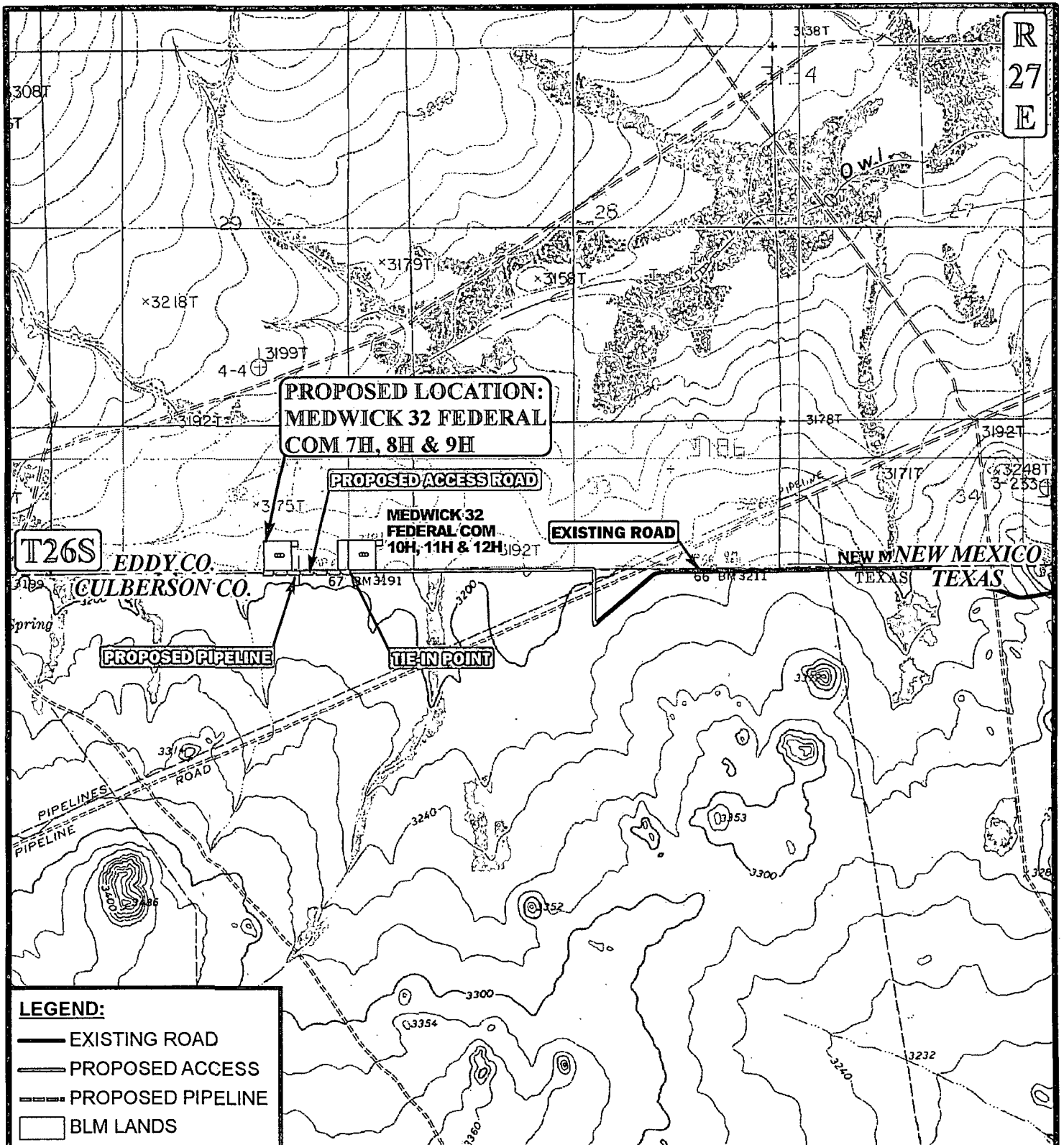
**CIMAREX ENERGY CO.**

MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
 SECTION 32, T26S, R27E, N.M.P.M.  
 LOT 2

DRAWN BY: J.S.      SCALE: 1" = 1000'  
 DATE: 09-07-13      REVISED: 09-23-13

**ACCESS ROAD R-O-W**

**FIGURE #5A**



**APPROXIMATE TOTAL PIPELINE DISTANCE 1,307' +/-**

"PARCEL DATA SHOWN HAS BEEN OBTAINED FROM VARIOUS SOURCES AND SHOULD BE USED FOR MAPPING, GRAPHIC AND PLANNING PURPOSES ONLY. NO WARRANTY IS MADE BY UTAH ENGINEERING & LAND SURVEYING (UELS) FOR ACCURACY OF THE PARCEL DATA.

SCALE: 1" = 2000'

REVISED: 09-23-13

DRAWN BY: J.L.H.

DATE DRAWN: 09-09-13



**CIMAREX ENERGY CO.**

**MEDWICK 32 FEDERAL COM 7H, 8H & 9H**  
**SECTION 32, T26S, R27E, N.M.P.M.**  
**LOT 2**



Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

**PIPELINE MAP**

**TOPO D**

**Exhibit G**

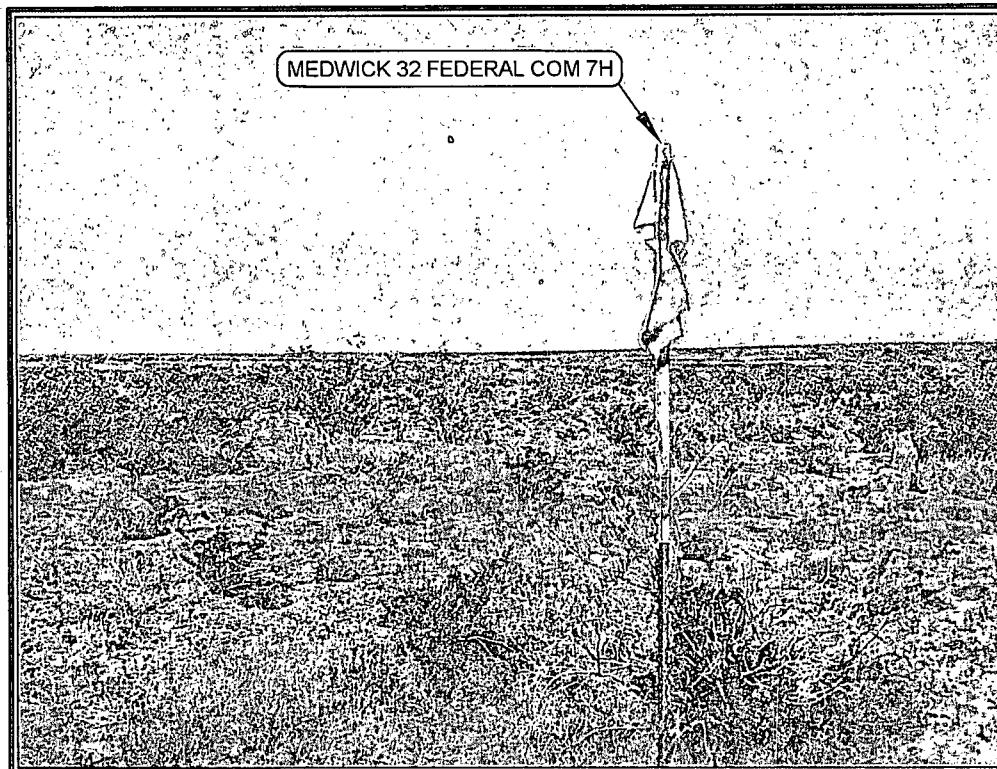


PHOTO: VIEW OF LOCATION STAKES

CAMERA ANGLE: WESTERLY

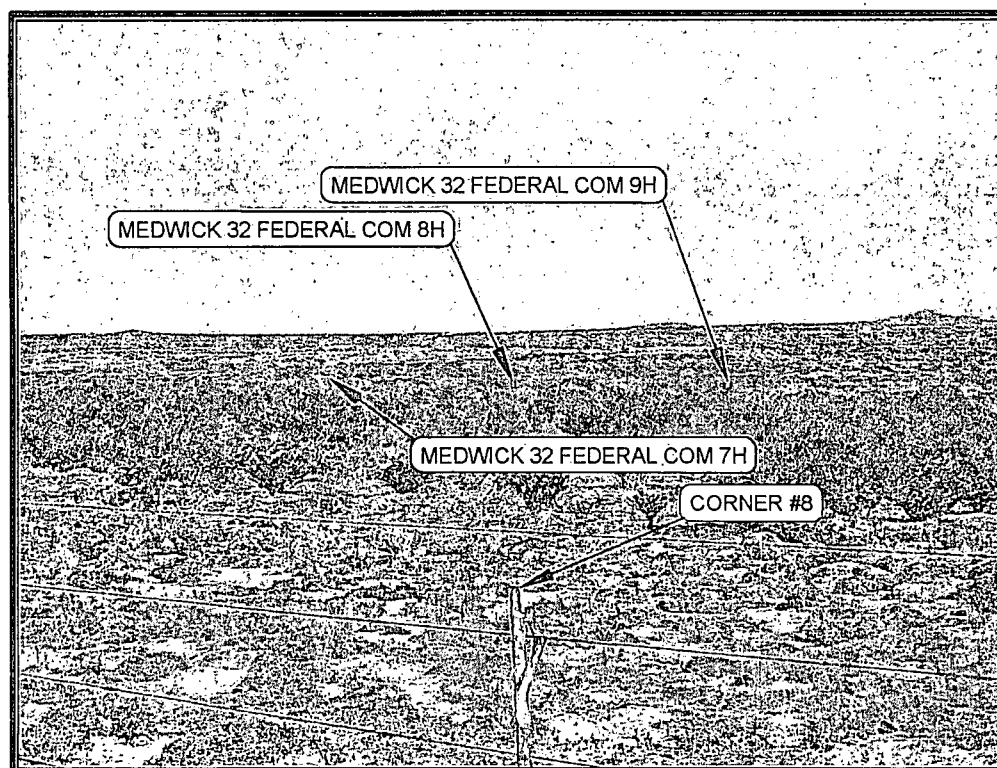


PHOTO: VIEW FROM CORNER #8 TO LOCATION STAKES

CAMERA ANGLE: NORTHEASTERLY

NOTES:



**CIMAREX ENERGY CO.**

MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
SECTION 32, T26S, R27E, N.M.P.M.  
LOT 2

TAKEN BY: J.C.

DRAWN BY: J.L.H.

REVISED: 09-23-13

DATE: 09-04-13

DATE: 09-09-13



Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

**PHOTO SHEET**

Application to Drill  
**Medwick 32 Federal Com #7H**  
 Cimarex Energy Co.  
 UL: 2, Sec. 32, 26S, 27E  
 Eddy Co., 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 210 FSL & 2020 FEL; Sec. 32, 26S, 27E  
 BHL 660 FNL & 2020 FEL; Sec. 29, 26S, 27E

**2. Elevation Above Sea Level:** 3,193' 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:** 16,118 MD 9,778 TVD Pilot Hole TD: 10,500

**6. Estimated Tops of Geological Markers:**

Formation	Est Top	Bearing
Salado	1337	N/A
Castille	1806	N/A
Bell Canyon	1989	N/A
Cherry Canyon	3009	N/A
Brushy Canyon	4149	N/A
Brushy Canyon Lower	5387	N/A
Bone Spring	5582	Hydrocarbons
Bone Spring A Shale	5709	Hydrocarbons
Bone Spring C Shale	6212	Hydrocarbons
1st Bone Spring Ss	6589	Hydrocarbons
2nd Bone Spring Ss	7016	Hydrocarbons
2nd BS Ss Lower	7860	Hydrocarbons
3rd Bone Spring Ss	8327	Hydrocarbons
Wolfcamp	8653	Hydrocarbons
Wolfcamp B	9307	Hydrocarbons
Wolfcamp C	9430	Hydrocarbons
Wolfcamp D	9570	Hydrocarbons
Wolfcamp D Horz Target	9758	Hydrocarbons
Wolfcamp E	10182	Hydrocarbons
TD (Pilot Hole)	10500	Hydrocarbons

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

**7A. OSE Ground Water Estimated Depth:** 100'

**8. Casing Program:**

*See COA*

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	400	400	17 1/2	13-3/8"	48.00	H-40	ST&C	New	172	8.3	4.29		10.02	19,200	16,767	19.20
Intermediate	0	1960	1960	12 1/4	9-5/8"	36.00	J-55	LT&C	New	1019	10.0		1.98	3.45	70,560	59,787	7.58
Production	0	9281	9281	8 3/4	7"	32.00	L-80	LT&C	New	4343	9.0	1.98		2.08	312,896	269,903	2.49
Production	9281	10029	9778	8 3/4	7"	32.00	L-80	BT&C	New	4576	9.0	1.88		1.85	15,904	13,719	54.31
Completion System	9281	16118	9778	6	4-1/2"	11.60	P-110	BT&C	New	5847	11.5	1.30		1.83	79,309	65,385	5.61



Application to Drill  
**Medwick 32 Federal Com #7H**  
 Cimarex Energy Co.  
 UL: 2, Sec. 32, 26S, 27E  
 Eddy 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 and/or Production Completion System	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.

Note: The liner Sft is calculated for the worse case scenario of running in the hole. 4 1/2" completion system will be ran in the hole and cemented from the 4 1/2" shoe up to previous 7" casing shoe with a 10% OH Excess. A liner hanger with an isolation packer or HES versaset liner hanger will be set at the top of the 4 1/2" completion system close to the KOP. The length of liner overlap is to help with the fracture treatment efficiency during the pumping down of guns/plugs.

**9. Cementing Program:**

Casing Type	Type	Sacks	Yield	Weight	Cubic Feet	Cement Blend
Surface <i>See COA</i>	Lead	79	1.75	13.50	138	Class C + Bentonite + Calcium Chloride + LCM, 8.829 gps water
	Tail	195	1.34	14.80	260	Class C + LCM, 6.32 gps water
	TOC: 0		44% Excess		Centralizers per Onshore Order 2.III.B.1f	
Intermediate	Lead	456	1.88	12.90	857	35:65 (poz/C) + Salt + Bentonite + LCM + retarder, 9.65 gps water
	Tail	115	1.34	14.80	153	Class C + retarder + LCM, 6.32 gps water
	TOC: 0		82% Excess			
Production <i>See COA</i>	Lead	547	2.40	11.90	1312	35:65 (poz/H) + salt + Sodium Metasilicate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder, 13.80 gps water
	Tail	190	1.24	14.50	235	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder, 5.55 gps water
	TOC: 1760		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.	
Completion System <i>See COA</i>	Tail	527	1.24	14.50	653	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder, 5.55 gps water
	TOC: 10029		10% Excess		No centralizers planned in the lateral section.	

**Cement volumes will be adjusted depending on hole size**

**9a. Proposed Drilling Plan:**

Pilot Hole TD: 10,500'                      KOP: 9,281'                      EOC: 10,029'

Set OH mechanical whipstock w/ 1169 ft of 2.875 tubing and pump 30'bbls of Mudpush @ 12 ppg, followed by 542 sks Type H cement, dispersant 0.080 gals/sk, retarder 0.045 gals/sk @ 17.50 ppg, 0.94 cuft/sk, & 0% excess from pilot hole TD to KOP. KO lateral and drill through the curve to TD. Run production csg to TD and cement.

Application to Drill  
**Medwick 32 Federal Com #7H**

Cimarex Energy Co.  
UL: 2, Sec. 32, 26S, 27E  
Eddy Co., NM

**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. Below the Production Casing, a 5M 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. On the production casing, pressure tests will be made to 250 psi low and 5000 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, and 250 low and 2500 high on the production 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.

*See COA*

**11. Proposed Mud Circulating System:**

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 400'	8.30	28	NC	FW Spud Mud
400' to 1900'	10.00	30-32	NC	Brine Water
1900' to 10029'	9.00	30-32	NC	FW/Cut Brine
10029' to 16118'	11.50	50-70	5-15	Oil Based Mud

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 1960 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 H<sub>2</sub>S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H<sub>2</sub>S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H<sub>2</sub>S Safety package on all wells, attached is an "H<sub>2</sub>S 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: 4725 psi

Estimated BHT: 158°

**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.

Application to Drill  
**Medwick 32 Federal Com #7H**

Cimarex Energy Co.  
UL: 2, Sec. 32, 26S, 27E  
Eddy Co., NM

**15. Other Facets of Operations:**

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

Wolfcamp pay will be perforated and stimulated.

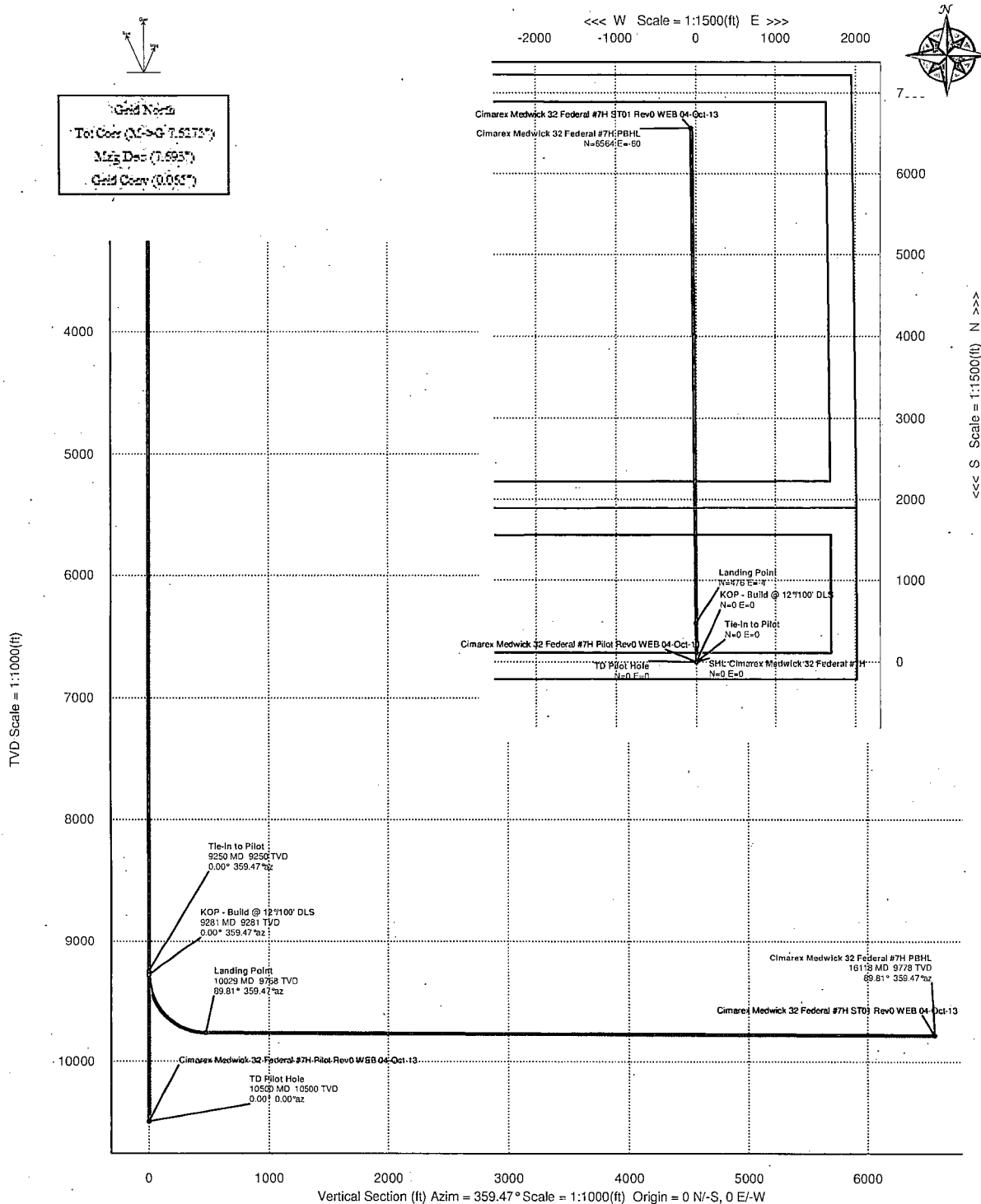
The proposed well will be tested and potential as **Oil**



Cimarex

**PATHFINDER**  
A Schlumberger Company

WELL	Medwick 32 Federal #7H	FIELD	NM Eddy County	STRUCTURE	TBD
Magnetic Parameters Model: BGGM-2013 Dip: 59.794° Mag Dec: 7.693° Date: September 25, 2013 FB: -48152.8mT Surface Location Lat: N 32 0 2.182 Lon: W 104 12 35.353 Northing: 383981.88 EUS Easting: 576624.87 EUS Scale Factor: 0.99991077 Miscellaneous MDDB New Mexico State Plane, Eastern Zone, US Foot Grid Cont: 0.163° Plan: Cimarex Medwick 32 Federal #7H Rd. Ground Level(3153ft above) ST01 Rev0 WEB 04-Oct-13 Env Date: September 25, 2013					



#### Critical Points

Critical Point MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
Tie-in to Pilot	9250.00	0.00	359.47	9250.00	0.00	0.00	
KOP - Build @ 12°/100' DLS	9280.50	0.00	359.47	9280.50	0.00	0.00	0.00
Landing Point	10028.98	89.81	359.47	9758.00	475.92	475.90	-4.37
Cimarex Medwick 32 Federal #7H PBHL	16117.60	89.81	359.47	9778.00	6564.52	6564.24	-60.25



**Cimarex Medwick 32 Federal #7H ST01 Rev0 WEB 04-Oct-13 Proposal**  
**Report 100' Interpolated**  
 (Non-Def Plan)



Report Date: October 04, 2013 - 04:01 PM  
 Client: Cimarex  
 Field: NM Eddy County (NAD 83)  
 Structure / Slot: TBD / Cimarex Medwick 32 Federal #7H  
 Well: Cimarex Medwick 32 Federal #7H  
 Borehole: ST01 Borehole  
 UWI / API#: Unknown / Unknown  
 Survey Name: Cimarex Medwick 32 Federal #7H ST01 Rev0 WEB 04-Oct-13  
 Survey Date: September 25, 2013  
 Tort / AHD / PDI / ERD Ratio: 89.814 ° / 6564.515 ft / 5.988 / 0.671  
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet  
 Location Lat / Long: N 32° 0' 2.18195", W 104° 12' 35.35259"  
 Location Grid N/E Y/X: N 363981.880 ftUS, E 579624.870 ftUS  
 CRS Grid Convergence Angle: 0.0655 °  
 Grid Scale Factor: 0.99991077

Survey / DLS Computation: Minimum Curvature / Lubinski  
 Vertical Section Azimuth: 359.474 ° (Grid North)  
 Vertical Section Origin: 0.000 ft, 0.000 ft  
 TVD Reference Datum: Ground Level  
 TVD Reference Elevation: 3193.000 ft above  
 Seabed / Ground Elevation: 3193.000 ft above  
 Magnetic Declination: 7.693 °  
 Total Gravity Field Strength: 998.4890mgn (9.80665 Based)  
 Total Magnetic Field Strength: 48162.837 nT  
 Magnetic Dip Angle: 59.794 °  
 Declination Date: September 25, 2013  
 Magnetic Declination Model: BGM 2013  
 North Reference: Grid North  
 Grid Convergence Used: 0.0655 °  
 Total Corr Mag North->Grid North: 7.6275 °  
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
SHL Cimarex Medwick 32 Federal #7H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	N/A
	100.00	0.00	359.47	100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	200.00	0.00	359.47	200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	300.00	0.00	359.47	300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	400.00	0.00	359.47	400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	500.00	0.00	359.47	500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	600.00	0.00	359.47	600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	700.00	0.00	359.47	700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	800.00	0.00	359.47	800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	900.00	0.00	359.47	900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1000.00	0.00	359.47	1000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1100.00	0.00	359.47	1100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1200.00	0.00	359.47	1200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1300.00	0.00	359.47	1300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1400.00	0.00	359.47	1400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1500.00	0.00	359.47	1500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1600.00	0.00	359.47	1600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1700.00	0.00	359.47	1700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1800.00	0.00	359.47	1800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	1900.00	0.00	359.47	1900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2000.00	0.00	359.47	2000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2100.00	0.00	359.47	2100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2200.00	0.00	359.47	2200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2300.00	0.00	359.47	2300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2400.00	0.00	359.47	2400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2500.00	0.00	359.47	2500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2600.00	0.00	359.47	2600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2700.00	0.00	359.47	2700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	2800.00	0.00	359.47	2800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	2900.00	0.00	359.47	2900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3000.00	0.00	359.47	3000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3100.00	0.00	359.47	3100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3200.00	0.00	359.47	3200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3300.00	0.00	359.47	3300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3400.00	0.00	359.47	3400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3500.00	0.00	359.47	3500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3600.00	0.00	359.47	3600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3700.00	0.00	359.47	3700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3800.00	0.00	359.47	3800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	3900.00	0.00	359.47	3900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4000.00	0.00	359.47	4000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4100.00	0.00	359.47	4100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4200.00	0.00	359.47	4200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4300.00	0.00	359.47	4300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4400.00	0.00	359.47	4400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4500.00	0.00	359.47	4500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4600.00	0.00	359.47	4600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4700.00	0.00	359.47	4700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4800.00	0.00	359.47	4800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	4900.00	0.00	359.47	4900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5000.00	0.00	359.47	5000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5100.00	0.00	359.47	5100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5200.00	0.00	359.47	5200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5300.00	0.00	359.47	5300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5400.00	0.00	359.47	5400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5500.00	0.00	359.47	5500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5600.00	0.00	359.47	5600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5700.00	0.00	359.47	5700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5800.00	0.00	359.47	5800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	5900.00	0.00	359.47	5900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6000.00	0.00	359.47	6000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6100.00	0.00	359.47	6100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6200.00	0.00	359.47	6200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6300.00	0.00	359.47	6300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6400.00	0.00	359.47	6400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6500.00	0.00	359.47	6500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6600.00	0.00	359.47	6600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6700.00	0.00	359.47	6700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6800.00	0.00	359.47	6800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	6900.00	0.00	359.47	6900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7000.00	0.00	359.47	7000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7100.00	0.00	359.47	7100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7200.00	0.00	359.47	7200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7300.00	0.00	359.47	7300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7400.00	0.00	359.47	7400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7500.00	0.00	359.47	7500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7600.00	0.00	359.47	7600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7700.00	0.00	359.47	7700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7800.00	0.00	359.47	7800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	7900.00	0.00	359.47	7900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8000.00	0.00	359.47	8000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8100.00	0.00	359.47	8100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8200.00	0.00	359.47	8200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	8300.00	0.00	359.47	8300.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8400.00	0.00	359.47	8400.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8500.00	0.00	359.47	8500.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8600.00	0.00	359.47	8600.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8700.00	0.00	359.47	8700.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8800.00	0.00	359.47	8800.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	8900.00	0.00	359.47	8900.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	9000.00	0.00	359.47	9000.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	9100.00	0.00	359.47	9100.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	9200.00	0.00	359.47	9200.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	9250.00	0.00	359.47	9250.00	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
Tie-in to Pilot KOP - Build @ 12"/100' DLS	9280.50	0.00	359.47	9280.50	0.00	0.00	0.00	363981.88	579624.87	N 32 0 2.18	W 104 12 35.35	0.00	0.00	0.00
	9300.00	2.34	359.47	9299.99	0.40	0.40	0.00	363982.28	579624.87	N 32 0 2.19	W 104 12 35.35	0.40	359.47	12.00
	9400.00	14.34	359.47	9398.76	14.88	14.87	-0.14	363996.75	579624.73	N 32 0 2.33	W 104 12 35.35	14.88	359.47	12.00
	9500.00	26.34	359.47	9492.35	49.57	49.57	-0.46	364031.44	579624.41	N 32 0 2.67	W 104 12 35.36	49.57	359.47	12.00
	9600.00	38.34	359.47	9576.69	102.96	102.96	-0.95	364084.83	579623.92	N 32 0 3.20	W 104 12 35.36	102.96	359.47	12.00
	9700.00	50.34	359.47	9648.08	172.72	172.71	-1.59	364154.58	579623.28	N 32 0 3.89	W 104 12 35.37	172.72	359.47	12.00
	9800.00	62.34	359.47	9703.41	255.80	255.79	-2.35	364237.64	579622.52	N 32 0 4.71	W 104 12 35.38	255.80	359.47	12.00
	9900.00	74.33	359.47	9740.26	348.56	348.55	-3.20	364330.40	579621.67	N 32 0 5.63	W 104 12 35.39	348.56	359.47	12.00
	10000.00	86.33	359.47	9757.03	446.96	446.95	-4.10	364428.78	579620.77	N 32 0 6.60	W 104 12 35.39	446.96	359.47	12.00
Landing Point	10028.98	89.81	359.47	9758.00	475.92	475.90	-4.37	364457.74	579620.50	N 32 0 6.89	W 104 12 35.40	475.92	359.47	12.00
	10100.00	89.81	359.47	9758.24	546.94	546.92	-5.02	364528.75	579619.85	N 32 0 7.59	W 104 12 35.40	546.94	359.47	0.00
	10200.00	89.81	359.47	9758.57	646.94	646.92	-5.94	364628.74	579618.93	N 32 0 8.58	W 104 12 35.41	646.94	359.47	0.00
	10300.00	89.81	359.47	9758.90	746.94	746.91	-6.86	364728.72	579618.01	N 32 0 9.57	W 104 12 35.42	746.94	359.47	0.00
	10400.00	89.81	359.47	9759.23	846.94	846.91	-7.78	364828.71	579617.10	N 32 0 10.56	W 104 12 35.43	846.94	359.47	0.00
	10500.00	89.81	359.47	9759.56	946.94	946.90	-8.69	364928.69	579616.18	N 32 0 11.55	W 104 12 35.44	946.94	359.47	0.00
	10600.00	89.81	359.47	9759.89	1046.94	1046.90	-9.61	365028.68	579615.26	N 32 0 12.54	W 104 12 35.45	1046.94	359.47	0.00
	10700.00	89.81	359.47	9760.22	1146.94	1146.89	-10.53	365128.67	579614.34	N 32 0 13.53	W 104 12 35.46	1146.94	359.47	0.00
	10800.00	89.81	359.47	9760.55	1246.94	1246.89	-11.45	365228.65	579613.42	N 32 0 14.52	W 104 12 35.47	1246.94	359.47	0.00
	10900.00	89.81	359.47	9760.88	1346.94	1346.88	-12.36	365328.64	579612.51	N 32 0 15.51	W 104 12 35.48	1346.94	359.47	0.00
	11000.00	89.81	359.47	9761.22	1446.94	1446.88	-13.28	365428.62	579611.59	N 32 0 16.50	W 104 12 35.49	1446.94	359.47	0.00
	11100.00	89.81	359.47	9761.55	1546.94	1546.87	-14.20	365528.61	579610.67	N 32 0 17.49	W 104 12 35.50	1546.94	359.47	0.00
	11200.00	89.81	359.47	9761.88	1646.94	1646.87	-15.12	365628.60	579609.75	N 32 0 18.48	W 104 12 35.51	1646.94	359.47	0.00
	11300.00	89.81	359.47	9762.21	1746.94	1746.86	-16.04	365728.58	579608.83	N 32 0 19.47	W 104 12 35.52	1746.94	359.47	0.00
	11400.00	89.81	359.47	9762.54	1846.94	1846.86	-16.95	365828.57	579607.92	N 32 0 20.46	W 104 12 35.52	1846.94	359.47	0.00
	11500.00	89.81	359.47	9762.87	1946.94	1946.85	-17.87	365928.56	579607.00	N 32 0 21.45	W 104 12 35.53	1946.94	359.47	0.00
	11600.00	89.81	359.47	9763.20	2046.93	2046.85	-18.79	366028.54	579606.08	N 32 0 22.44	W 104 12 35.54	2046.93	359.47	0.00
	11700.00	89.81	359.47	9763.53	2146.93	2146.84	-19.71	366128.53	579605.16	N 32 0 23.43	W 104 12 35.55	2146.93	359.47	0.00
	11800.00	89.81	359.47	9763.86	2246.93	2246.84	-20.63	366228.51	579604.25	N 32 0 24.42	W 104 12 35.56	2246.93	359.47	0.00
	11900.00	89.81	359.47	9764.19	2346.93	2346.83	-21.54	366328.50	579603.33	N 32 0 25.41	W 104 12 35.57	2346.93	359.47	0.00
	12000.00	89.81	359.47	9764.52	2446.93	2446.83	-22.46	366428.49	579602.41	N 32 0 26.39	W 104 12 35.58	2446.93	359.47	0.00
	12100.00	89.81	359.47	9764.85	2546.93	2546.82	-23.38	366528.47	579601.49	N 32 0 27.38	W 104 12 35.59	2546.93	359.47	0.00
	12200.00	89.81	359.47	9765.18	2646.93	2646.82	-24.30	366628.46	579600.57	N 32 0 28.37	W 104 12 35.60	2646.93	359.47	0.00
	12300.00	89.81	359.47	9765.50	2746.93	2746.82	-25.22	366728.44	579599.66	N 32 0 29.36	W 104 12 35.61	2746.93	359.47	0.00
	12400.00	89.81	359.47	9765.83	2846.93	2846.81	-26.13	366828.43	579598.74	N 32 0 30.35	W 104 12 35.62	2846.93	359.47	0.00
	12500.00	89.81	359.47	9766.16	2946.93	2946.81	-27.05	366928.42	579597.82	N 32 0 31.34	W 104 12 35.63	2946.93	359.47	0.00
	12600.00	89.81	359.47	9766.49	3046.93	3046.80	-27.97	367028.40	579596.90	N 32 0 32.33	W 104 12 35.64	3046.93	359.47	0.00
	12700.00	89.81	359.47	9766.82	3146.93	3146.80	-28.89	367128.39	579595.99	N 32 0 33.32	W 104 12 35.65	3146.93	359.47	0.00
	12800.00	89.81	359.47	9767.15	3246.93	3246.79	-29.80	367228.38	579595.07	N 32 0 34.31	W 104 12 35.66	3246.93	359.47	0.00
	12900.00	89.81	359.47	9767.48	3346.93	3346.79	-30.72	367328.36	579594.15	N 32 0 35.30	W 104 12 35.66	3346.93	359.47	0.00
	13000.00	89.81	359.47	9767.81	3446.93	3446.78	-31.64	367428.35	579593.23	N 32 0 36.29	W 104 12 35.67	3446.93	359.47	0.00
	13100.00	89.81	359.47	9768.14	3546.93	3546.78	-32.56	367528.33	579592.32	N 32 0 37.28	W 104 12 35.68	3546.93	359.47	0.00
	13200.00	89.81	359.47	9768.46	3646.93	3646.77	-33.47	367628.32	579591.40	N 32 0 38.27	W 104 12 35.69	3646.93	359.47	0.00
	13300.00	89.81	359.47	9768.79	3746.93	3746.77	-34.39	367728.31	579590.48	N 32 0 39.26	W 104 12 35.70	3746.93	359.47	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	13400.00	89.81	359.47	9769.12	3846.92	3846.76	-35.31	367828.29	579589.56	N 32 0 40.25	W 104 12 35.71	3846.92	359.47	0.00
	13500.00	89.81	359.47	9769.45	3946.92	3946.76	-36.23	367928.28	579588.65	N 32 0 41.24	W 104 12 35.72	3946.92	359.47	0.00
	13600.00	89.81	359.47	9769.78	4046.92	4046.75	-37.15	368028.26	579587.73	N 32 0 42.23	W 104 12 35.73	4046.92	359.47	0.00
	13700.00	89.81	359.47	9770.10	4146.92	4146.75	-38.06	368128.25	579586.81	N 32 0 43.22	W 104 12 35.74	4146.92	359.47	0.00
	13800.00	89.81	359.47	9770.43	4246.92	4246.74	-38.98	368228.24	579585.89	N 32 0 44.21	W 104 12 35.75	4246.92	359.47	0.00
	13900.00	89.81	359.47	9770.76	4346.92	4346.74	-39.90	368328.22	579584.98	N 32 0 45.20	W 104 12 35.76	4346.92	359.47	0.00
	14000.00	89.81	359.47	9771.09	4446.92	4446.73	-40.82	368428.21	579584.06	N 32 0 46.18	W 104 12 35.77	4446.92	359.47	0.00
	14100.00	89.81	359.47	9771.41	4546.92	4546.73	-41.73	368528.19	579583.14	N 32 0 47.17	W 104 12 35.78	4546.92	359.47	0.00
	14200.00	89.81	359.47	9771.74	4646.92	4646.72	-42.65	368628.18	579582.22	N 32 0 48.16	W 104 12 35.79	4646.92	359.47	0.00
	14300.00	89.81	359.47	9772.07	4746.92	4746.72	-43.57	368728.17	579581.31	N 32 0 49.15	W 104 12 35.80	4746.92	359.47	0.00
	14400.00	89.81	359.47	9772.40	4846.92	4846.72	-44.49	368828.15	579580.39	N 32 0 50.14	W 104 12 35.80	4846.92	359.47	0.00
	14500.00	89.81	359.47	9772.72	4946.92	4946.71	-45.40	368928.14	579579.47	N 32 0 51.13	W 104 12 35.81	4946.92	359.47	0.00
	14600.00	89.81	359.47	9773.05	5046.92	5046.71	-46.32	369028.13	579578.55	N 32 0 52.12	W 104 12 35.82	5046.92	359.47	0.00
	14700.00	89.81	359.47	9773.38	5146.92	5146.70	-47.24	369128.11	579577.64	N 32 0 53.11	W 104 12 35.83	5146.92	359.47	0.00
	14800.00	89.81	359.47	9773.70	5246.92	5246.70	-48.16	369228.10	579576.72	N 32 0 54.10	W 104 12 35.84	5246.92	359.47	0.00
	14900.00	89.81	359.47	9774.03	5346.92	5346.69	-49.07	369328.08	579575.80	N 32 0 55.09	W 104 12 35.85	5346.92	359.47	0.00
	15000.00	89.81	359.47	9774.36	5446.92	5446.69	-49.99	369428.07	579574.88	N 32 0 56.08	W 104 12 35.86	5446.92	359.47	0.00
	15100.00	89.81	359.47	9774.68	5546.92	5546.68	-50.91	369528.06	579573.97	N 32 0 57.07	W 104 12 35.87	5546.92	359.47	0.00
	15200.00	89.81	359.47	9775.01	5646.92	5646.68	-51.83	369628.04	579573.05	N 32 0 58.06	W 104 12 35.88	5646.92	359.47	0.00
	15300.00	89.81	359.47	9775.34	5746.91	5746.67	-52.74	369728.03	579572.13	N 32 0 59.05	W 104 12 35.89	5746.91	359.47	0.00
	15400.00	89.81	359.47	9775.66	5846.91	5846.67	-53.66	369828.01	579571.21	N 32 1 0.04	W 104 12 35.90	5846.91	359.47	0.00
	15500.00	89.81	359.47	9775.99	5946.91	5946.66	-54.58	369928.00	579570.30	N 32 1 1.03	W 104 12 35.91	5946.91	359.47	0.00
	15600.00	89.81	359.47	9776.31	6046.91	6046.66	-55.50	370027.99	579569.38	N 32 1 2.02	W 104 12 35.92	6046.91	359.47	0.00
	15700.00	89.81	359.47	9776.64	6146.91	6146.65	-56.41	370127.97	579568.46	N 32 1 3.01	W 104 12 35.93	6146.91	359.47	0.00
	15800.00	89.81	359.47	9776.97	6246.91	6246.65	-57.33	370227.96	579567.54	N 32 1 4.00	W 104 12 35.94	6246.91	359.47	0.00
	15900.00	89.81	359.47	9777.29	6346.91	6346.64	-58.25	370327.95	579566.63	N 32 1 4.99	W 104 12 35.94	6346.91	359.47	0.00
	16000.00	89.81	359.47	9777.62	6446.91	6446.64	-59.17	370427.93	579565.71	N 32 1 5.98	W 104 12 35.95	6446.91	359.47	0.00
	16100.00	89.81	359.47	9777.94	6546.91	6546.63	-60.08	370527.92	579564.79	N 32 1 6.96	W 104 12 35.96	6546.91	359.47	0.00
Cimarex Medwick 32 Federal #7H PBHL	16117.60	89.81	359.47	9778.00	6564.52	6564.24	-60.25	370545.52	579564.63	N 32 1 7.14	W 104 12 35.97	6564.52	359.47	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	9250.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Pilot Hole / Cimarex Medwick 32 Federal #7H Pilot Rev0 WEB 04-
	9250.000	16117.605	1/100.000	30.000	30.000	SLB_MWD-STD	ST01 Borehole / Cimarex Medwick 32 Federal #7H ST01



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

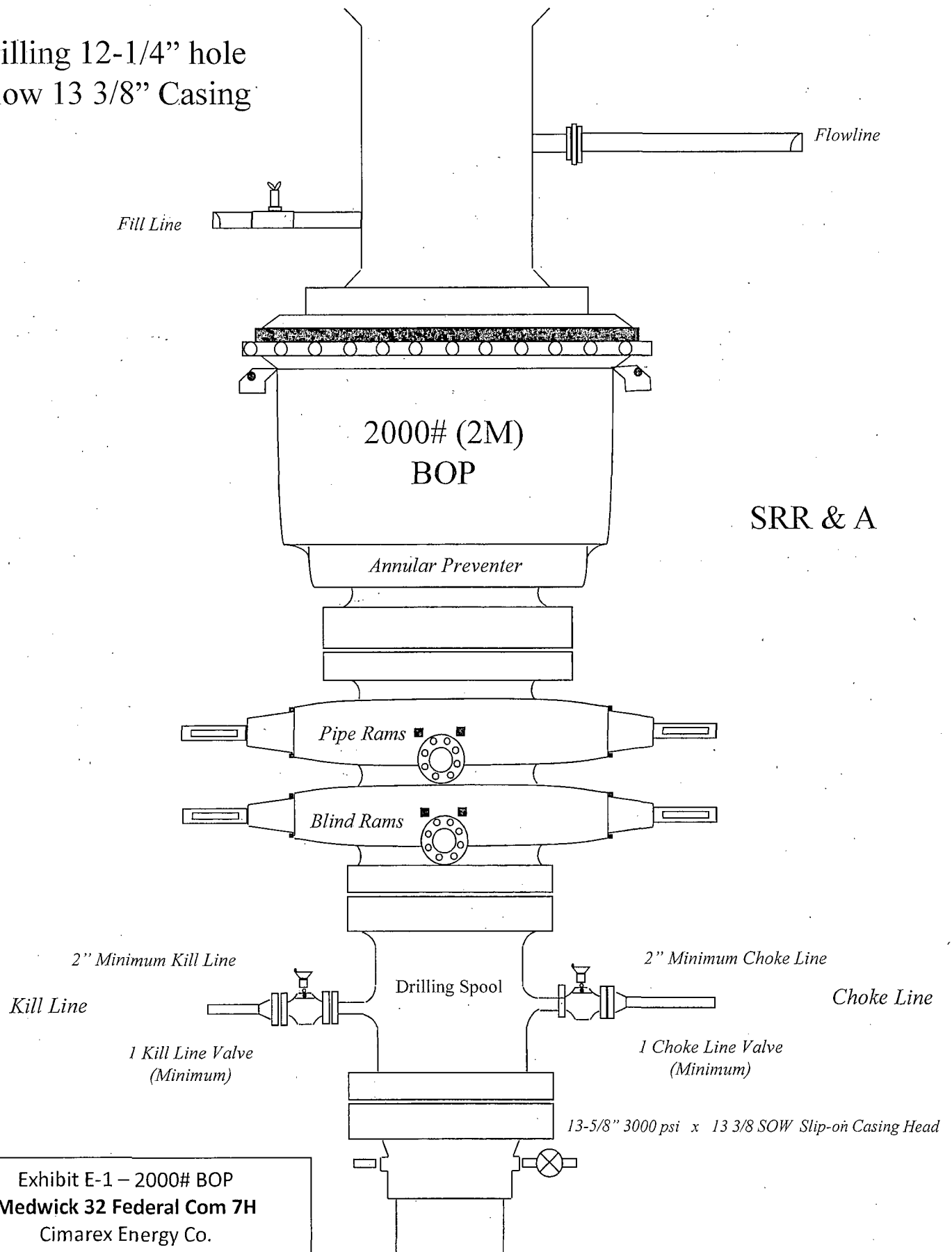
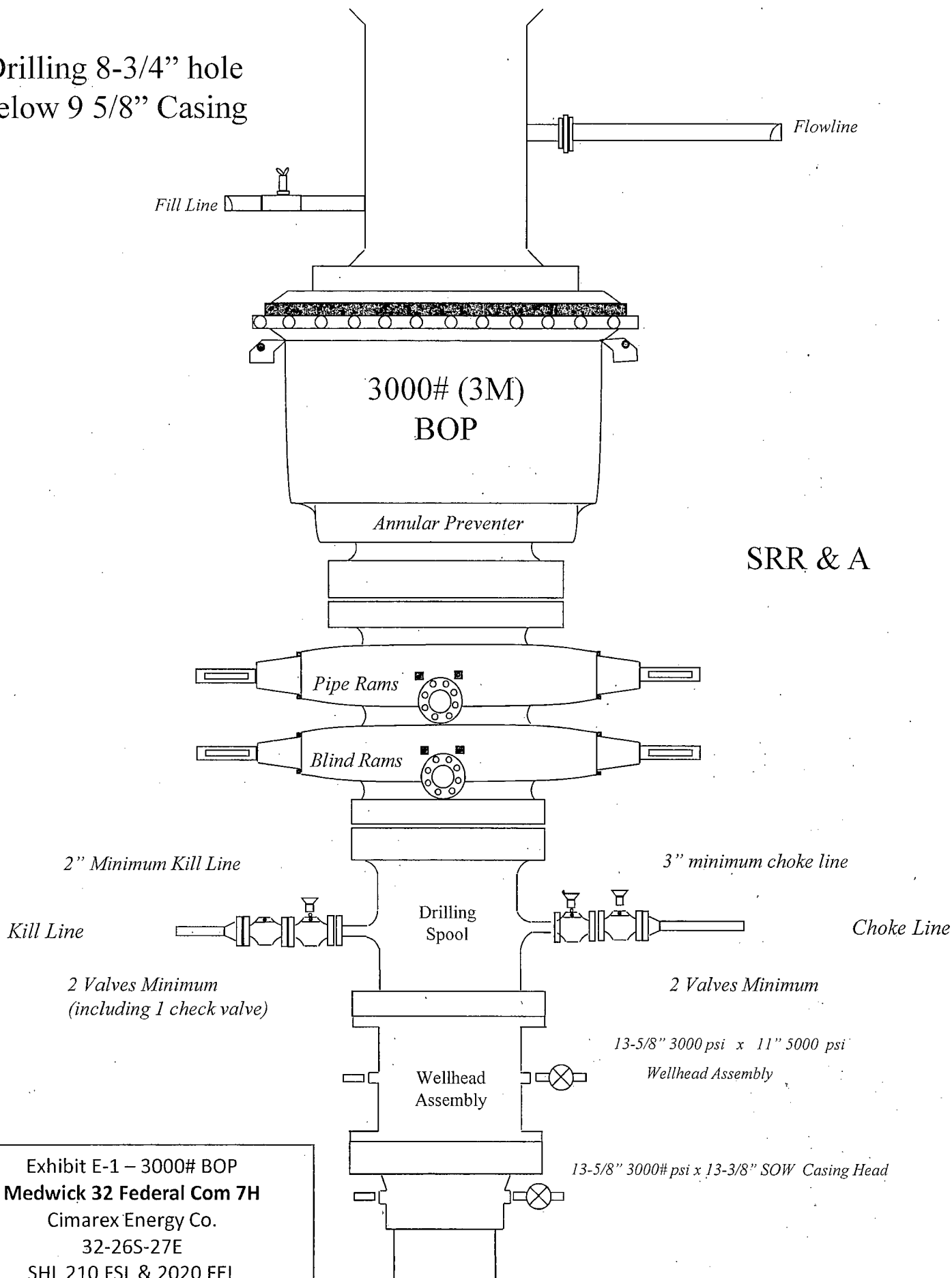


Exhibit E-1 – 2000# BOP  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM

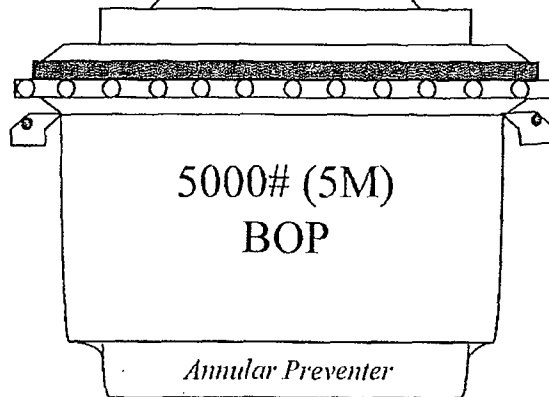
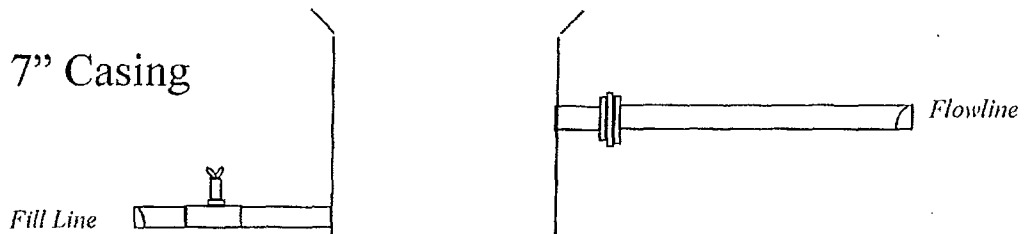
Drilling 8-3/4" hole  
below 9 5/8" Casing



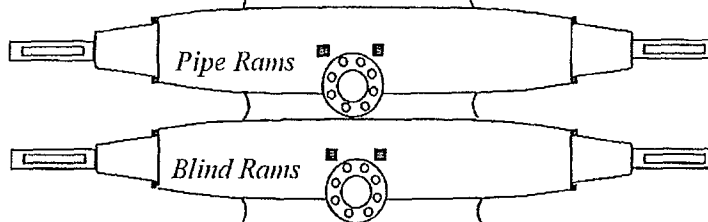
SRR & A

Exhibit E-1 – 3000# BOP  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM

Drilling below 7" Casing



SRR & A



2" Minimum Kill Line

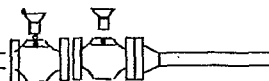
Kill Line



2 Valves and a check valve

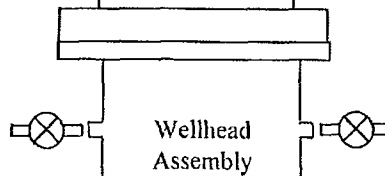
Drilling Spool

3" minimum choke line

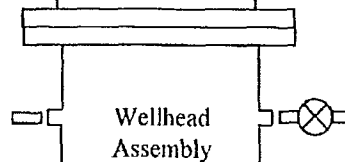


Choke Line

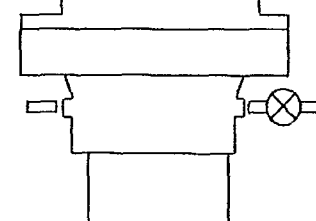
2 Valves Minimum  
(HCR Required)



11" 5000 psi x 7-1/16" 10,000 psi  
Wellhead Assembly



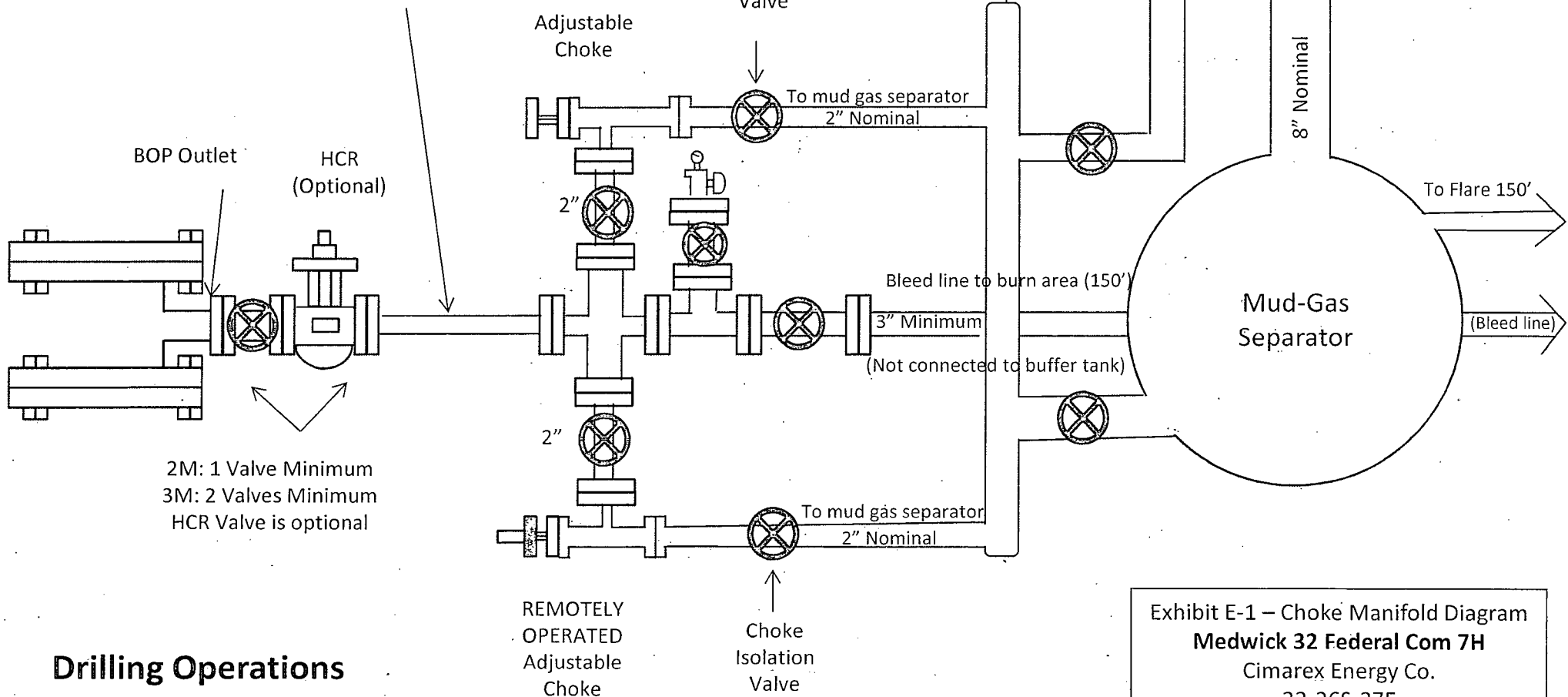
13-5/8" 3000 psi x 11" 5000 psi  
Wellhead Assembly



13-5/8" 3000# psi x 13-3/8" SOIW Casing Head

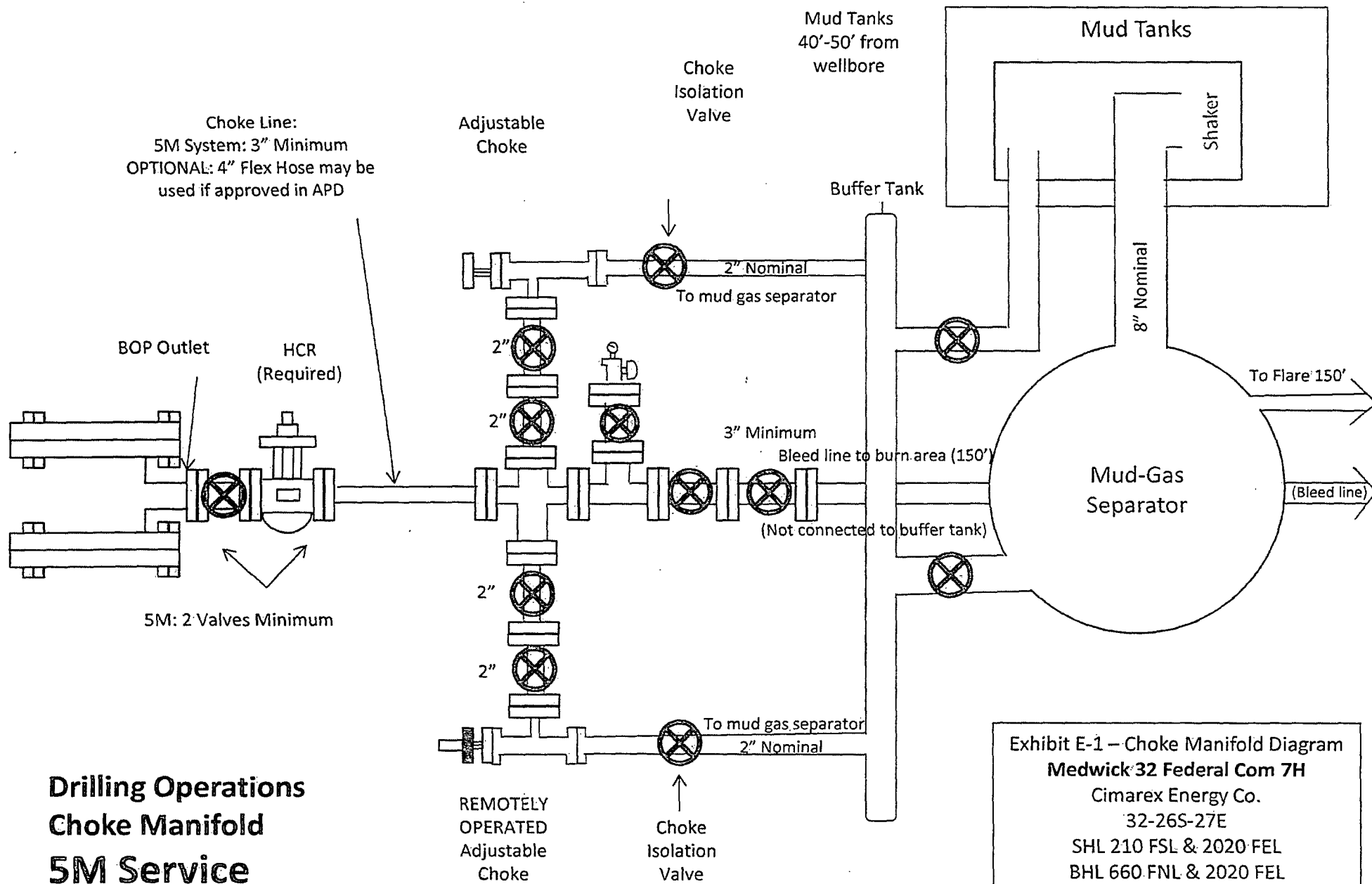
Exhibit E-1 – 5000# BOP  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM

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



## Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold Diagram  
**Medwick 32 Federal Com 7H**  
 Cimarex Energy Co.  
 32-26S-27E  
 SHL 210 FSL & 2020 FEL  
 BHL 660 FNL & 2020 FEL  
 Eddy County, NM



# Drilling Operations Choke Manifold 5M Service

Exhibit E-1 – Choke Manifold Diagram  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM

Exhibit F-1 – Co-Flex Hose Hydrostatic Test

Medwick 32 Federal Com 7H

Cimarex Energy Co.

32-26S-27E

SHL 210 FSL & 2020 FEL

BHL 660 FNL & 2020 FEL

Eddy County, NM



## Midwest Hose & Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT		
Customer: Oderco Inc		P.O. Number: 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 10,000 PSI	TEST PRESSURE 15,000 PSI	BURST PRESSURE 0 PSI
COUPLINGS		
Stem Part No. OKC OKC	Ferrule No. OKC OKC	
Type of Coupling: Swage-It		
PROCEDURE		
<u>Hose assembly pressure tested with water at ambient temperature.</u>		
TIME HELD AT TEST PRESSURE 15 MIN.		ACTUAL BURST PRESSURE: 0 PSI
Hose Assembly Serial Number: 79793	Hose Serial Number: OKC	
Comments:		
Date: 3/8/2011	Tested: <i>A. Jaime Gomez</i>	Approved: <i>Kevin J. [Signature]</i>



Midwest Hose  
& Specialty, Inc.

## Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

### Hose Specifications

Hose Type  
C & K

I.D.  
4"

O.D.  
6.09"

Length  
45'

Working Pressure  
10000 PSI

Burst Pressure  
Standard Static Multiplier Applies

### Verification

Type of Fitting  
41/1610K

Die Size  
6.38"

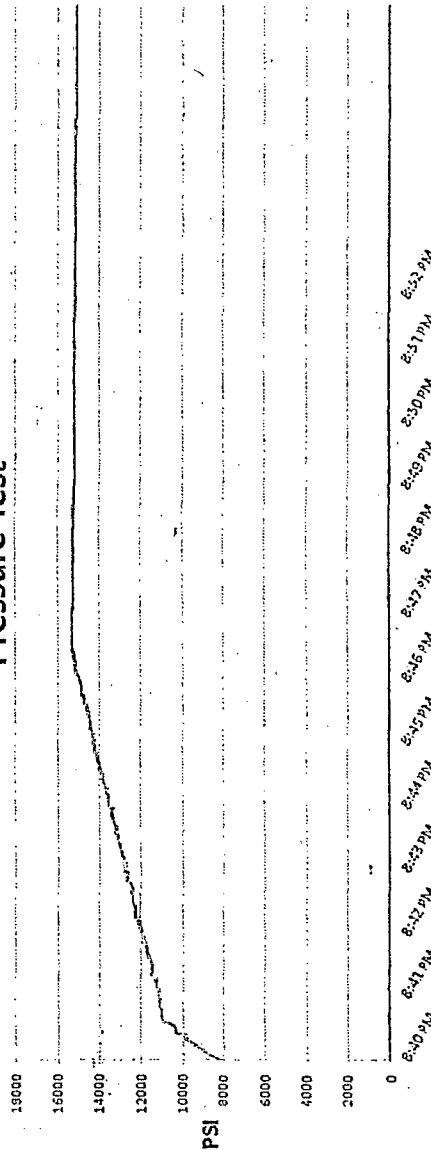
Hose Serial #  
5544

Cauling Method  
Swage

Final O.D.  
6.25"

Hose Assembly Serial #  
79793

### Pressure Test



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

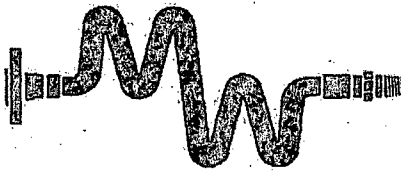
*[Signature]*

*[Signature]*

March 3, 2011

Exhibit F-1 – Co-Flex Hose Hydrostatic Test  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM

Exhibit F-2 – Co-Flex Hose  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy 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.

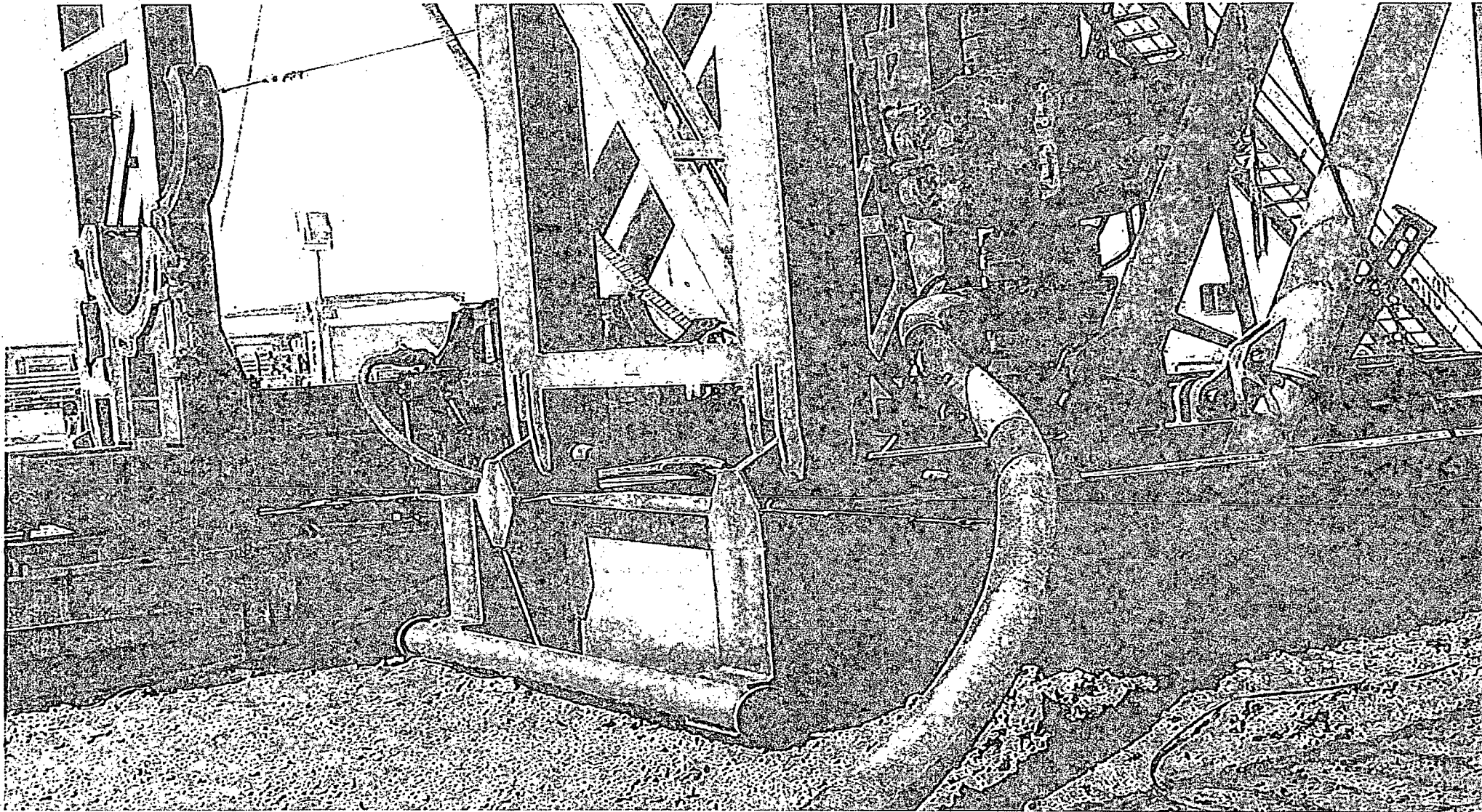
Exhibit F -3- Co-Flex Hose  
Medwick 32 Federal Com 7H  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM

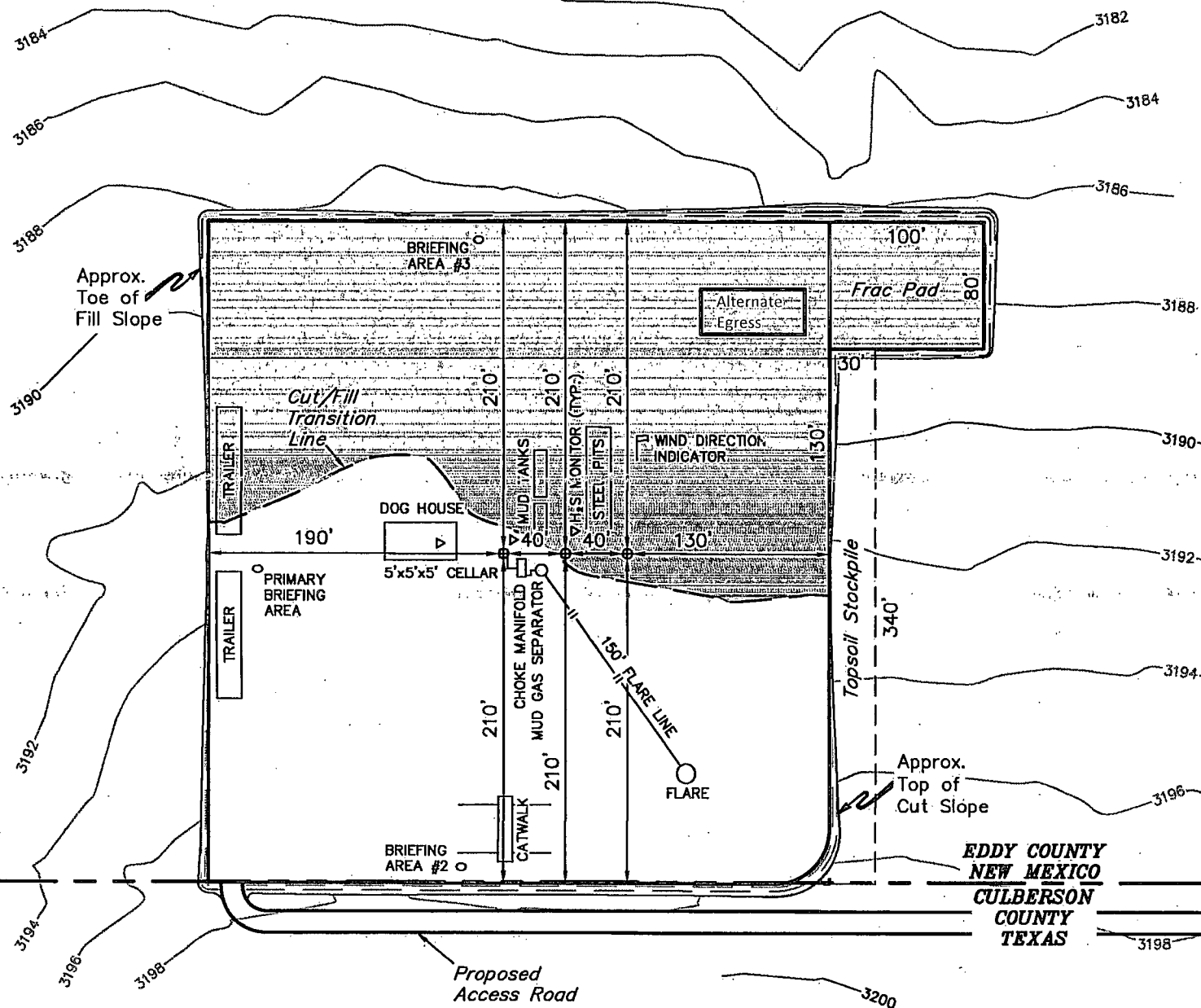
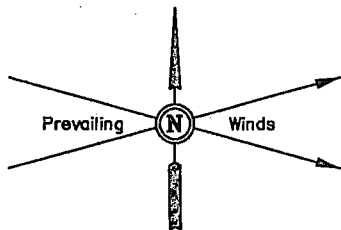
## Specification Sheet Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium componets. 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.

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

Exhibit F – Co-Flex Hose  
**Medwick 32 Federal Com 7H**  
Cimarex Energy Co.  
32-26S-27E  
SHL 210 FSL & 2020 FEL  
BHL 660 FNL & 2020 FEL  
Eddy County, NM





EDDY COUNTY  
NEW MEXICO  
CULBERSON  
COUNTY  
TEXAS

## Exhibit D

### NOTES:

- Flare pit is to be located a min. of 150' from the well head.



**CIMAREX ENERGY CO.**

MEDWICK 32 FEDERAL COM 7H, 8H & 9H  
SECTION 32, T26S, R27E, N.M.P.M.  
LOT 2

DRAWN BY: J.S.

SCALE: 1" = 100'

DATE: 09-07-13

REVISED: 10-08-13

**TYPICAL RIG LAYOUT**

**FIGURE #3**



Corporate Office \* 85 South 200 East  
Vernal, UT 84078 \* (435) 789-1017

**Medwick 32 Federal Com 7H**

Cimarex Energy Co.

UL: 2, Sec. 32-26S-27E

Eddy Co., NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S
  - B. Physical effects and hazards
  - C. Principal and operation of H<sub>2</sub>S detectors, warning system and briefing areas.
  - D. Evacuation procedure, routes and first aid.
  - E. Proper use of safety equipment & life support systems
  - F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.
- 2 H<sub>2</sub>S Detection and Alarm Systems:
  - A. H<sub>2</sub>S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H<sub>2</sub>S detectors may be placed as deemed necessary.
  - B. An audio alarm system will be installed on the derrick floor and in the top doghouse.
- 3 Windsock and/or wind streamers:
  - A. Windsock at mudpit area should be high enough to be visible.
  - B. Windsock on the rig floor and / or top doghouse should be high enough to be visible.
- 4 Condition Flags and Signs
  - A. Warning sign on access road to location.
  - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H<sub>2</sub>S present in dangerous concentration). Only H<sub>2</sub>S trained and certified personnel admitted to location.
- 5 Well control equipment:
  - A. See exhibit "E-1"
- 6 Communication:
  - A. While working under masks chalkboards will be used for communication.
  - B. Hand signals will be used where chalk board is inappropriate.
  - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H<sub>2</sub>S has on tubular goods and other mechanical equipment.
- 9 If H<sub>2</sub>S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H<sub>2</sub>S scavengers if necessary.

H<sub>2</sub>S Contingency Plan  
**Medwick 32 Federal Com 7H**  
Cimarex Energy Co.  
UL: 2, Sec. 32-26S-27E  
Eddy Co., NM

**Emergency Procedures**

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must:

- « Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- « Evacuate any public places encompassed by the 100 ppm ROE.
- « Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- « Use the "buddy system" to ensure no injuries occur during the response.
- « Take precautions to avoid personal injury during this operation.
- « Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- « Have received training in the:
  - Detection of H<sub>2</sub>S, and
  - Measures for protection against the gas,
  - Equipment used for protection and emergency response.

**Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

**Characteristics of H<sub>2</sub>S and SO<sub>2</sub>**

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air=1	2 ppm	N/A	1000 ppm

**Contacting Authorities**

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H<sub>2</sub>S Contingency Plan Emergency Contacts

**Medwick 32 Federal Com 7H**

Cimarex Energy Co.

UL: 2, Sec. 32-26S-27E

Eddy Co., NM

**Company Office**

Cimarex Energy Co. of Colorado 800-969-4789

Co. Office and After-Hours Menu

**Key Personnel**

Name	Title	Office	Mobile
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8485
Doug McQuitty	Drilling Superintendent	432-620-1933	806-640-2605
Scott Lucas	Drilling Superintendent	432-620-1989	432-894-5572
Conner Cromeens	Construction Foreman		432-270-0313
Roy Shirley	Construction Superintendent		432-634-2136

**Artesia**

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
<b>Fire Department</b>	<b>575-746-2701</b>
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

**Carlsbad**

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
<b>Fire Department</b>	<b>575-887-3798</b>
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

**Santa Fe**

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

**National**

National Emergency Response Center (Washington, D.C.)	800-424-8802
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**Medical**

Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

**Other**

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		

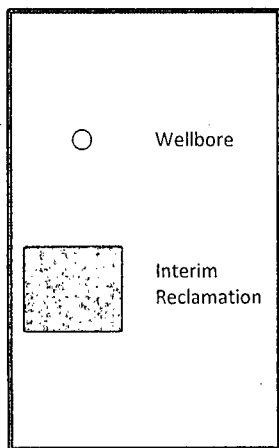
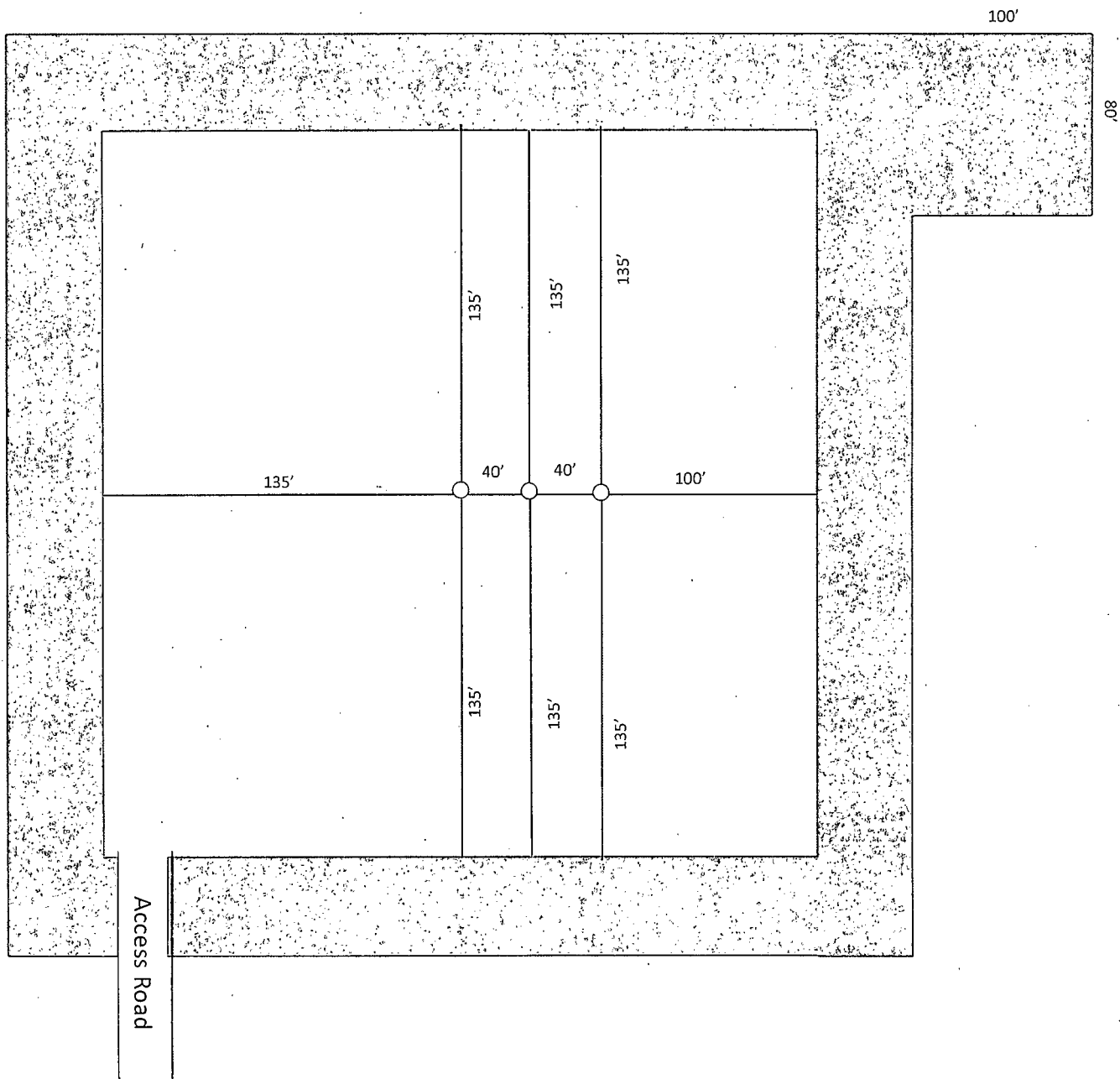


Exhibit D-1  
 Interim Reclamation Diagram  
**Medwick 32 Federal Com 7H**  
 Cimarex Energy Co.  
 32-26S-27E  
 SHL 210 FSL & 2020 FEL  
 BHL 660 FNL & 2020 FEL  
 Eddy County, NM

Surface Use Plan  
**Medwick 32 Federal Com #7H**  
Cimarex Energy Co.  
UL: 2, Sec. 32, 26S, 27E  
Eddy Co., NM

The following surface use plan of operations will be followed and carried out once the APD is approved. No other disturbance will be created other than what is submitted in this surface use plan without approval. If any other disturbance is needed after the APD is approved, a BLM approved sundry notice or right of way application will be submitted for approval prior to any new surface disturbance.

**1. Existing Roads:**

Area access roads and general road maps:

- Exhibit B: General Highway Map
- Exhibit C: USGS Topographic Map
- Exhibit C-1: Public Access Road Map
- Exhibit C-2: Existing and proposed access roads plat

The maximum width of the driving surface will be 14'. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.

Existing access road route to the proposed project is depicted on the public access point map if applicable. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done, unless otherwise noted in the New or Reconstructed Access Roads section of the surface use plan.

BEGINNING AT WHITES CITY ROAD PROCEED IN A SOUTHERLY, THEN WESTERLY DIRECTION APPROXIMATELY 9.0 MILES TO THE BEGINNING OF THE PROPOSED ACCESS TO THE NORTH; FOLLOW ROAD FLAGS IN A NORTHERLY, THEN WESTERLY DIRECTION APPROXIMATELY 5,584' TO THE PROPOSED LOCATION.

If existing roads are used, the operator will improve or maintain existing roads in a condition the same as or better than before the operations began. The operator will repair pot holes, etc. All existing structures on the entire access route such as cattleguards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use.

The operator will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or other events. The operator will obtain written BLM approval prior to the application of surfactants, binding agents, or other dust suppression chemicals on the roadways.

**2. New or Reconstructed Access Roads:**

A new road will be constructed for this project.

*Cimarex Energy plans to construct 5584' of off-lease access road to service the well. The proposed access road does cross lease boundaries, a right of way grant will be submitted to and obtained from the BLM.*

The maximum width of the driving surface will be 14'. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.

Proposed and existing access road route to the proposed wellsite is depicted on Exhibit C-2. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done without prior approval from the BLM.

The operator will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or other events.

**3. Planned Electric Line:**

No new electric lines are planned.

**4. Location of Existing Well in a One-Mile Radius -Exhibit A:**

- Water Wells - None known
- Disposal Wells - None known
- Drilling Wells - None known
- Producing Wells - As shown on Exhibit A
- Abandoned Wells - As shown on Exhibit A



Surface Use Plan  
**Medwick 32 Federal Com #7H**  
Cimarex Energy Co.  
UL: 2, Sec. 32, 26S, 27E  
Eddy Co., NM

**5. Location of Existing or Proposed Production Facilities:**

If on completion this well is a producer, a tank battery will be used and the necessary production equipment will be installed and production will be sent to the Medwick 32 Federal Com 12H. Cimarex Energy proposes to install two 4 inch buried HP polylines down existing lease road to the Medwick 32 Federal Com 12H battery.

Cimarex Energy plans to construct on lease flowlines to service the well.

Specifications of Polyline: 1 HP polyline for oil, gas, and water production. 1 HP polyline for gas lift.

Both lines will be buried 25'-35' North of the access road.

Length: 1307'

MAOP: 1500 psi. Anticipated working pressure: 200-300 psi.

Allocation will be based on well test. Route is on lease, please see Exhibit G & H. Any changes to on lease route will be submitted via sundry notice. If route is off lease, a right of way will be submitted to the BLM for approval.

**6. Location and Type of Water Supply:**

Water will be purchased locally from a commercial source and trucked over the access roads.

**7. Source of Construction Material:**

If possible, native caliche will be obtained from the excavation of drill site. The primary way of obtaining caliche will be by "turning over" the location. This means caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cu yds is the max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

- The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.
- An approximate 120' x 120' area is used within the proposed well site to remove caliche.
- Subsoil is removed and piled alongside the 120' by 120' area within the pad site.
- When caliche is found, material will be stockpiled within the pad site to build the location and road.
- Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
- Once well is drilled, the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in Exhibit D – Rig Layout Diagram.

In the event that no caliche is found onsite, caliche will be hauled in from a BLM-approved caliche pit.

**8. Methods of Handling Waste**

- Drilling fluids, produced oil, and water from the well during drilling and completion operations will be stored safely and disposed of properly in a NMOCD approved disposal facility.
- Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around well site will be collected for disposal.
- Human waste and grey water will be properly contained and disposed of properly at a state approved disposal site.
- After drilling and completion operations, trash, chemicals, salts, frac sand and other waste will be removed and disposed of properly at a state approved disposal site.
- The well will be drilled utilizing a closed loop system. Drill cuttings will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

**9. Ancillary Facilities:**

No camps or airstrips to be constructed.

**10. Well Site Layout:**

- Exhibit D: Rig Layout
- Exhibit D-2: Well Site layout plat
- Mud pits in the closed circulation system will be steel pits and the cuttings will be stored in steel containment pits.
- Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- If the well is a producer, those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements. Exhibit D-1: Interim Reclamation Diagram.

Surface Use Plan  
**Medwick 32 Federal Com #7H**  
Cimarex Energy Co.  
UL: 2, Sec. 32, 26S, 27E  
Eddy Co., NM

**11. Plans for Restoration of Surface:**

Rehabilitation of the location will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

In areas planned for interim and final reclamation, surfacing materials will be removed and returned to a mineral pit or recycled to repair or build roads and well pads.

Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, those areas of the location not essential to production facilities and operations will be reclaimed and seeded per BLM requirements. Exhibit D-1 illustrates the proposed Interim Reclamation.

**12. Other Information:**

- Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- The wellsite is on surface owned by Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- An archaeological survey will be conducted on the location and proposed roads and this report will be filed with the Bureau of Land Management.
- There are no known dwellings within 1½ miles of this location.

**13. On Site Notes and Information:**

OnSite Results: Legion Brumley w/ BLM on Site 8/23/13. V-Door South. Frac pad at northeast corner (East). Top soil East. Interim reclamation: all sides. Access Road from the Southwest corner, South, to new road to be built in Texas. Production/ Frac line to follow new road in Texas, East to Battery at #12. Texas Road & flowline route surface owner: Rustler Hills II Limited Partnership, Draper Brantley, 1304 W. Riverside Drive, Carlsbad, New Mexico 88220; Phone 575.706.3169

## PECOS DISTRICT CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>Cimarex Energy Co. of Colorado</b>
<b>LEASE NO.:</b>	<b>NMNM-114350</b>
<b>WELL NAME &amp; NO.:</b>	<b>Medwick 32 Federal Com 7H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>0210' FSL &amp; 2020' FEL</b>
<b>BOTTOM HOLE FOOTAGE</b>	<b>0660' FNL &amp; 2020' FEL Sec. 29, T. 26 S., R 27 E</b>
<b>LOCATION:</b>	<b>Section 32, T. 26 S., R 27 E., NMPM</b>
<b>COUNTY:</b>	<b>Eddy County, New Mexico</b>

### TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Cattleguard
  - Communitization Agreement
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
  - Cement Requirements
  - Medium Cave/Karst
  - Logging Requirements
  - Waste Material and Fluids
- ☒ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## **V. SPECIAL REQUIREMENT(S)**

### **Cattleguard**

Cattleguard will be gated and closed at all times except for vehicles entering or exiting throughout the life of the wells.

### **Communitization Agreement**

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

**G. ON LEASE ACCESS ROADS****Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**

Ditching shall be required on both sides of the road.

**Turnouts**

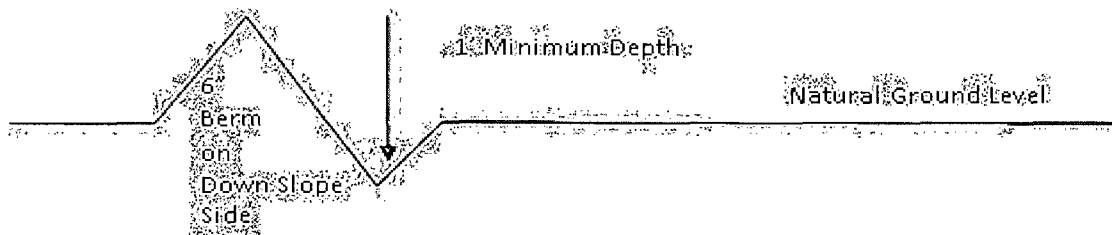
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

### **Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### **Cattleguards**

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

### **Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

### **Public Access**

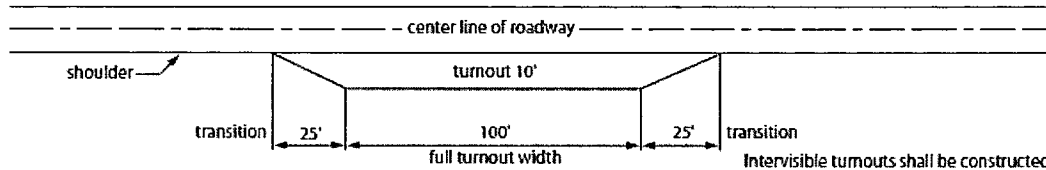
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.



## Construction Steps

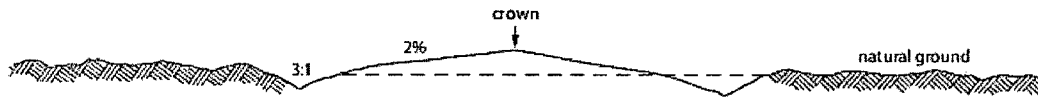
1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

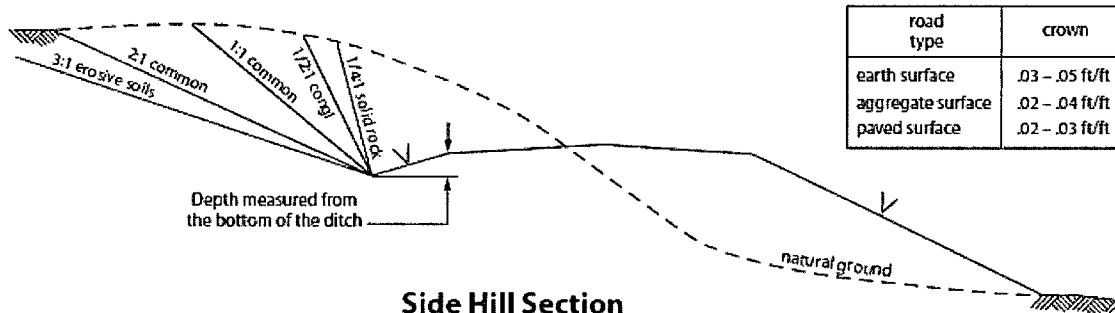


**Typical Turnout Plan**

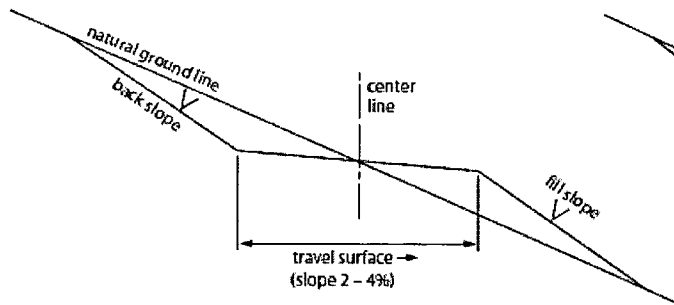
Intervisible turnouts shall be constructed on all single lane roads on all blind curves with additional turnouts as needed to keep spacing below 1000 feet.



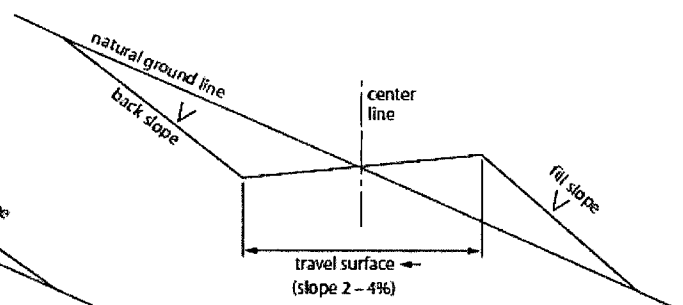
**Level Ground Section**



**Side Hill Section**



**Typical Outslope Section**



**Typical Inslope Section**

Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The top and bottom of Salt are to be recorded on the Completion Report.**

### B. CASING

**Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Medium Cave/Karst**

**Possibility of water flows in the Castile and Delaware.**

**Possibility of lost circulation in the Salado and Delaware.**

**Abnormal pressures may be encountered within the 3<sup>rd</sup> Bone Spring and Wolfcamp formations.**

1. The 13-3/8 inch surface casing shall be set at approximately 400 feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt. Excess calculates to 20% - Additional cement may be required.**
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing, which shall be set at approximately 1900 feet, is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

**If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.**

**Centralizers approved as written.**

**The pilot hole plugging procedure is approved as written. Note plug top on Subsequent Report sundry of drilling activities.**

3. The minimum required fill of cement behind the 7 inch production casing is:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 23% - Additional cement may be required.**

**Formation below the 7" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.**

4. The minimum required fill of cement behind the 4-1/2 inch production Liner is:

☒ Cement as proposed by operator. Operator shall provide method of verification. **Excess calculates to 24% - Additional cement may be required.**

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

## **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
  - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M)** psi.
5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7** production casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
6. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

#### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

#### **E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**JAM 021214**

## VIII. PRODUCTION (POST DRILLING)

### A. WELL STRUCTURES & FACILITIES

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the



largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## **B. PIPELINES**

### **BURIED PIPELINE STIPULATIONS**

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to

repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> seed mixture 1 | <input type="checkbox"/> seed mixture 3          |
| <input type="checkbox"/> seed mixture 2            | <input type="checkbox"/> seed mixture 4          |
| <input type="checkbox"/> seed mixture 2/LPC        | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

**C. ELECTRIC LINES (not applied for in APD)**

**IX. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

**X. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by

drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

### Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass ( <i>Eragrostis intermedia</i> )	0.5
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sideoats grama ( <i>Bouteloua curtipendula</i> )	5.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed