

**Triste Draw 25 Federal Com 15H**  
**Cimarex Energy Co**  
**Lea Cty, NM**

## Casing Assumptions

### Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1270	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.27	2.98	5.28
12 1/4	0	5010	9-5/8"	40.00	J-55	LT&C	1.48	1.49	2.59
8 3/4	0	9348	5-1/2"	17.00	L-80	LT&C	1.41	1.73	2.02
8 3/4	9348	14022	5-1/2"	17.00	L-80	BT&C	1.34	1.65	48.45
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

**1. Geological Formations**

TVD of target 9,830  
MD at TD 14,022

Pilot Hole TD N/A  
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1240	N/A	
Salado	1730	N/A	
Base of Salt	4800	N/A	
Delaware Sands	5030	N/A	
Brushy Canyon	7360	Hydrocarbons	
Bone Spring	8830	Hydrocarbons	
Avalon Shale	9320	Hydrocarbons	
Avalon Target	9830	Hydrocarbons	
1st Bone Spring Sand	10040	Hydrocarbons	

**2. Casing Program**

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17 1/2	0	1270	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.27	2.98	5.28
12 1/4	0	5010	9-5/8"	40.00	J-55	LT&C	1.48	1.49	2.59
8 3/4	0	9348	5-1/2"	17.00	L-80	LT&C	1.41	1.73	2.02
8 3/4	9348	14022	5-1/2"	17.00	L-80	BT&C	1.34	1.65	48.45
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N

**3. Cementing Program**

Casing	# Sks	Wt. lb/gal	Yld ft <sup>3</sup> /sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	563	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	165	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	940	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	292	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	231	9.20	6.18	28.80		Lead: Class C + Extender + Salt + Strength Enhancement + LCM + Fluid Loss + Retarder
	1000	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

Casing String	TOC	% Excess
Surface		45
Intermediate		44
Production	4810	17

**4. Pressure Control Equipment**

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
17 1/2	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
N	Are anchors required by manufacturer?	

**5. Mud Program**

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 1270'	FW Spud Mud	8.30 - 8.80	28	N/C
1270' to 5010'	Brine Water	9.70 - 10.20	30-32	N/C
5010' to 14022'	FW/Cut Brine	8.70 - 9.20	30-32	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

**6. Logging and Testing Procedures**

Logging, Coring and Testing	
X	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

Additional Logs Planned	Interval

**7. Drilling Conditions**

Condition	
BH Pressure at deepest TVD	4702 psi
Abnormal Temperature	No

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

X	H2S is present
X	H2S plan is attached

**8. Other Facets of Operation**

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

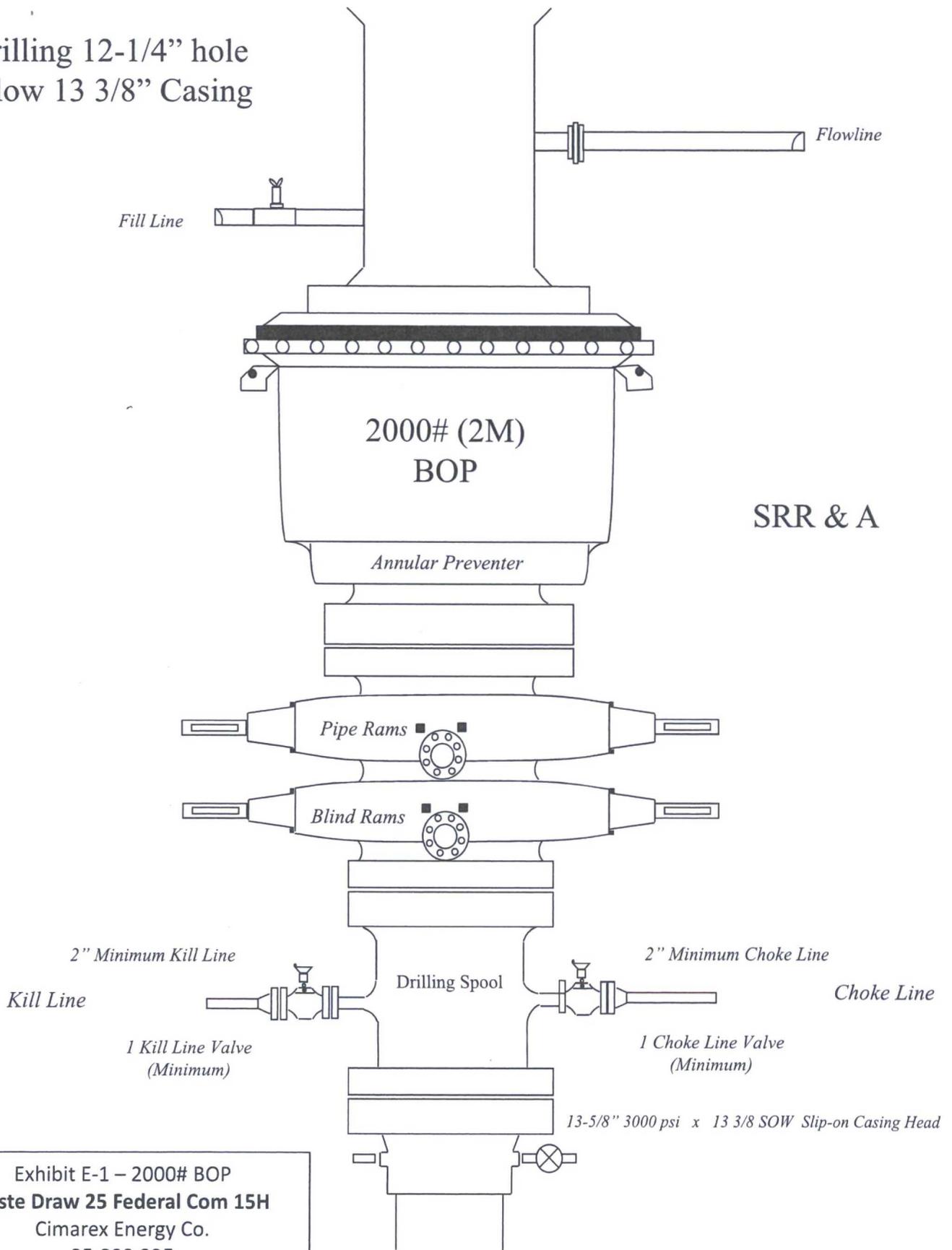
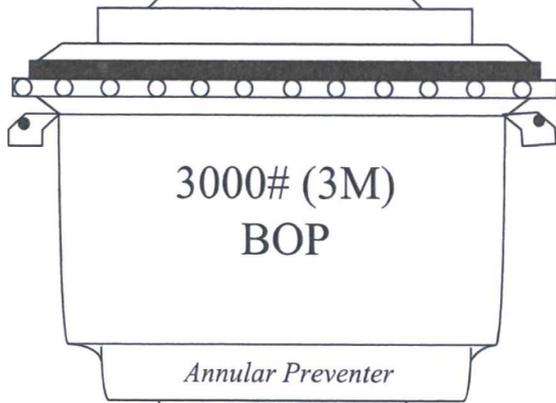


Exhibit E-1 – 2000# BOP  
Triste Draw 25 Federal Com 15H  
Cimarex Energy Co.  
25-23S-32E  
Lea County, NM

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



SRR & A

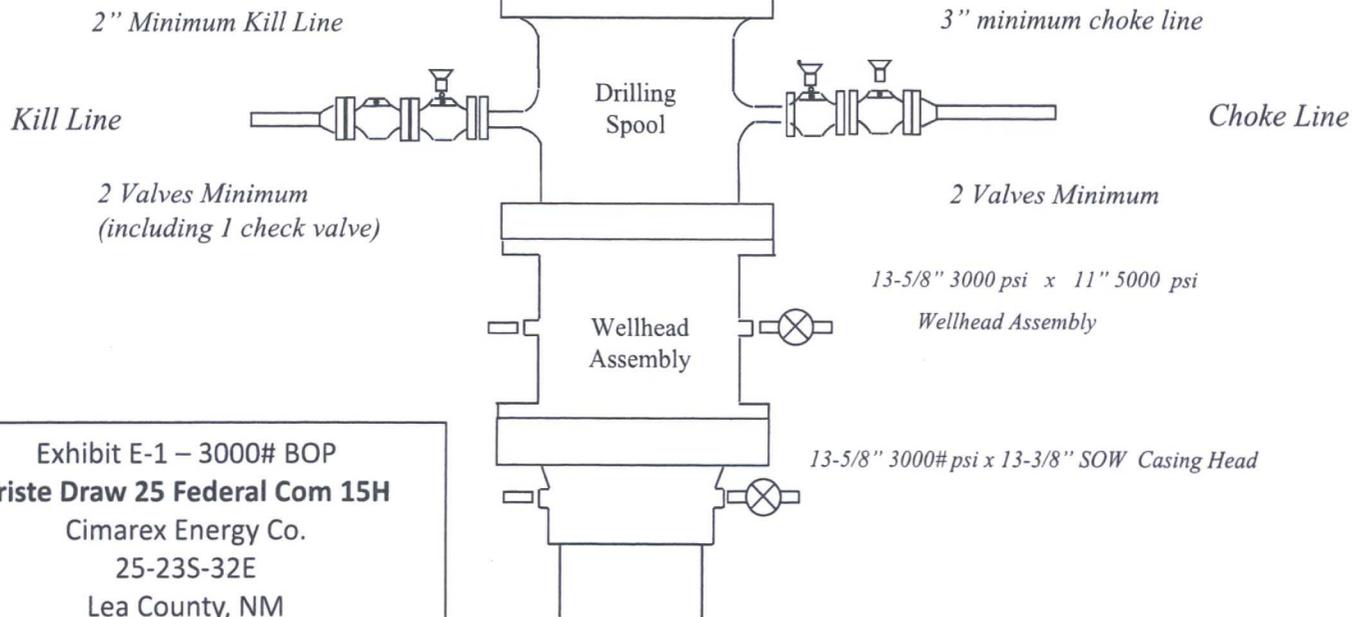
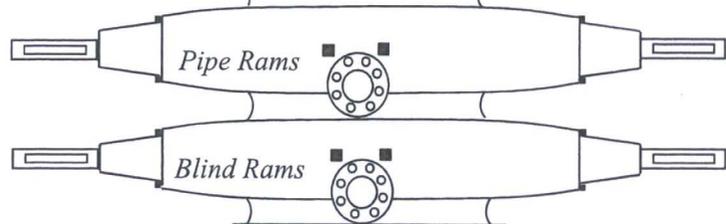
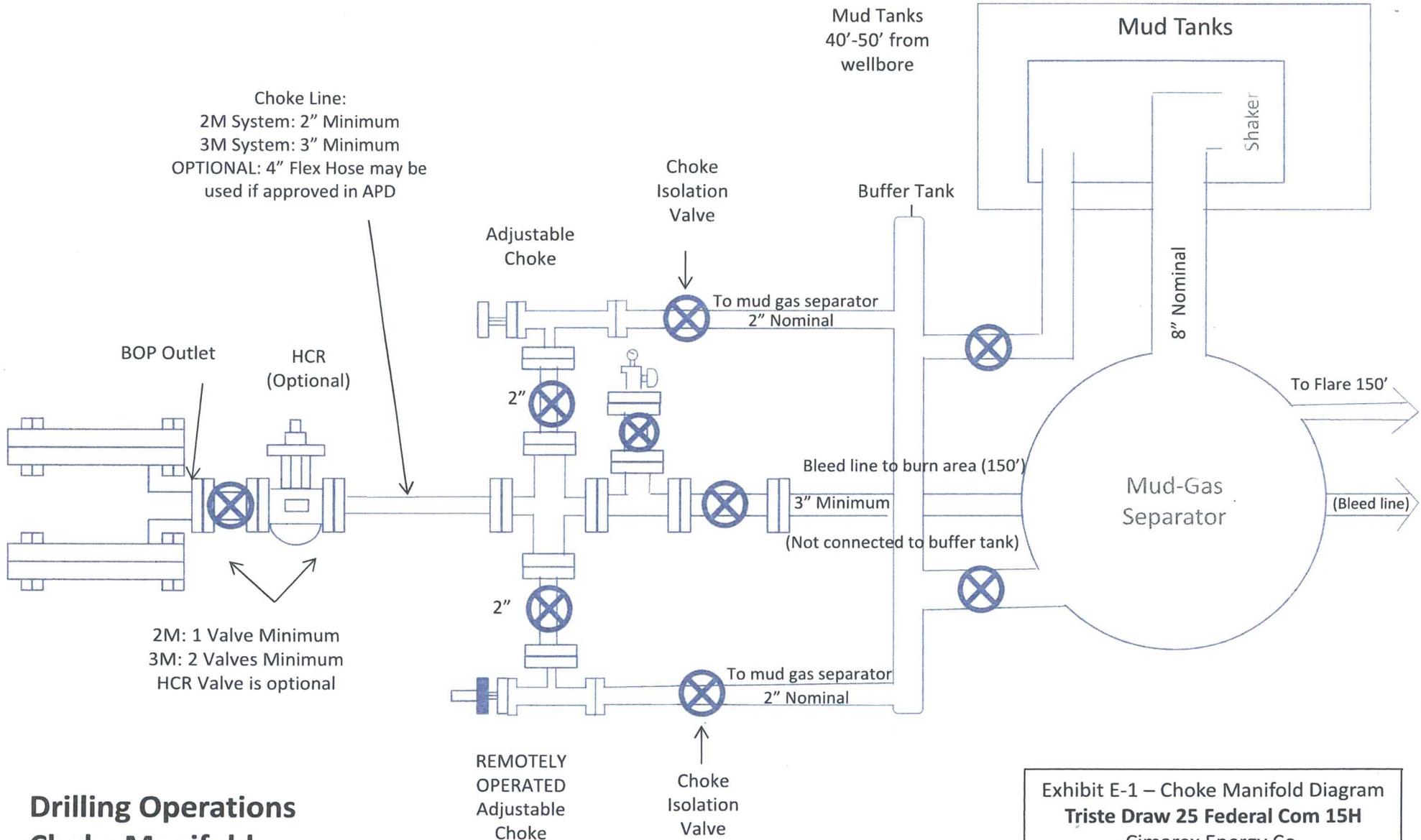


Exhibit E-1 – 3000# BOP  
Triste Draw 25 Federal Com 15H  
Cimarex Energy Co.  
25-23S-32E  
Lea County, NM



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

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

Exhibit E-1 – Choke Manifold Diagram  
 Triste Draw 25 Federal Com 15H  
 Cimarex Energy Co.  
 25-23S-32E  
 Lea County, NM

Exhibit F – Co-Flex Hose  
Triste Draw 25 Federal Com 15H  
Cimarex Energy Co.  
25-23S-32E  
Lea County, NM

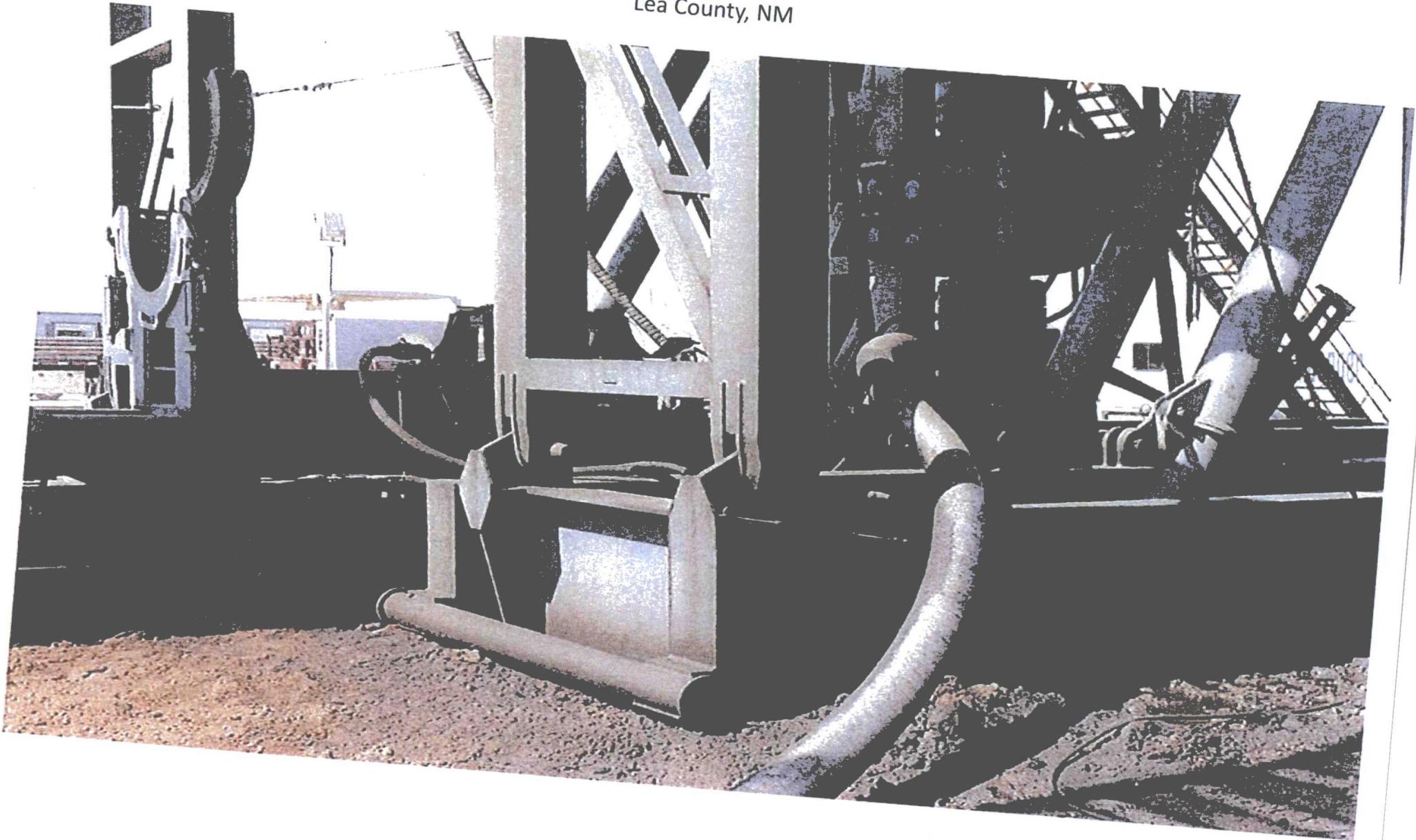
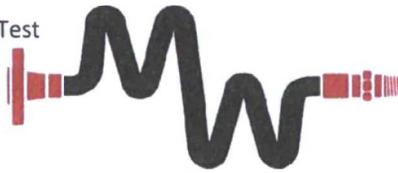


Exhibit F-1 – Co-Flex Hose Hydrostatic Test  
 Triste Draw 25 Federal Com 15H  
 Cimarex Energy Co.  
 25-23S-32E  
 Lea County, NM



## Midwest Hose & Specialty, Inc.

### INTERNAL HYDROSTATIC TEST REPORT

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



Midwest Hose & Specialty, Inc.

### Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

March 3, 2011

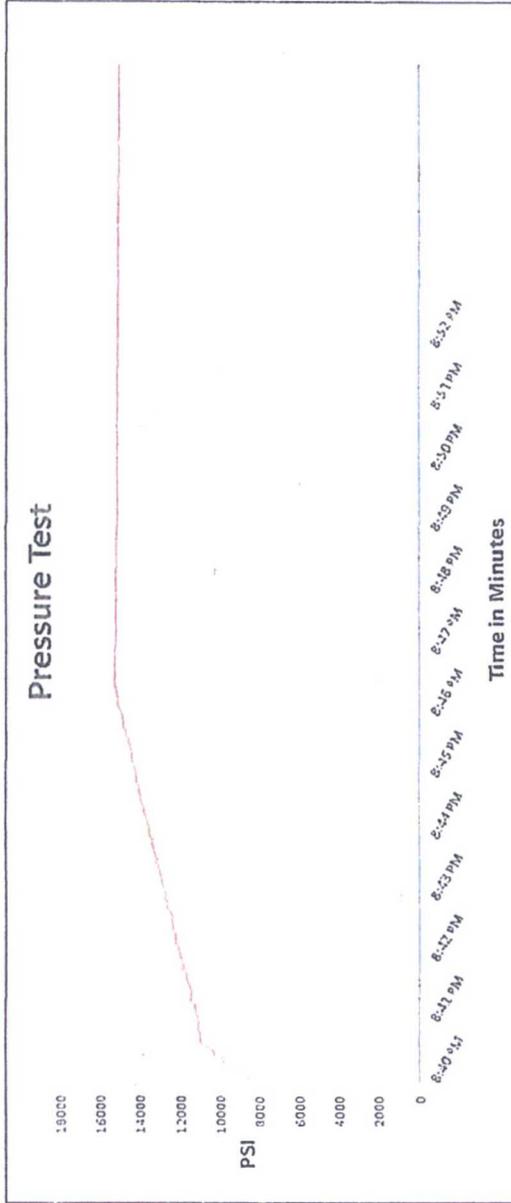
#### Hose Specifications

Hose Type: C S K  
 I.D.: 4"  
 Working Pressure: 10000 PSI  
 Length: 45'  
 O.D.: 6.09"  
 Burst Pressure: Standard Safety Multiplier Applies

#### Verification

Type of Fittings: 41/16 10K  
 Die Size: 6.38"  
 Hose Serial #: 5544  
 Coupling Method: Swage  
 Final O.D.: 6.25"  
 Hose Assembly Serial #: 79783

### Pressure Test



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

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

Tested By: Zac McConnell

Approved By: Kim Thomas

Exhibit F-2 – Co-Flex Hose  
Triste Draw 25 Federal Com 15H  
Cimarex Energy Co.  
25-23S-32E  
Lea County, NM



## Midwest Hose & Specialty, Inc.

### Certificate of Conformity

<b>Customer:</b>		<b>PO</b>
DEM		ODYD-271
<b>SPECIFICATIONS</b>		
<b>Sales Order</b>	<b>Dated:</b>	
79793	3/8/2011	
<p>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</p> <p>Supplier: Midwest Hose &amp; Specialty, Inc. 10640 Tanner Road Houston, Texas 77041</p>		
<b>Comments:</b>		
<b>Approved:</b>	<b>Date:</b>	
<i>Janet Garcia</i>	3/8/2011	



Midwest Hose  
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose  
Triste Draw 25 Federal Com 15H  
Cimarex Energy Co.  
25-23S-32E  
Lea County, NM

## Specification Sheet Choke & Kill Hose

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

<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)