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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**

API Number <b>30015-43.839</b>	Pool Code <b>96473</b>	Pool Name <b>Piece Crossing Bone Spring East</b>
Property Code <b>316370</b>	Property Name <b>CORRAL FLY "2" STATE</b>	Well Number <b>8H</b>
OGRID No. <b>192463</b>	Operator Name <b>OXY USA W.P. LP</b>	Elevation <b>3073.3'</b>

**Surface Location**

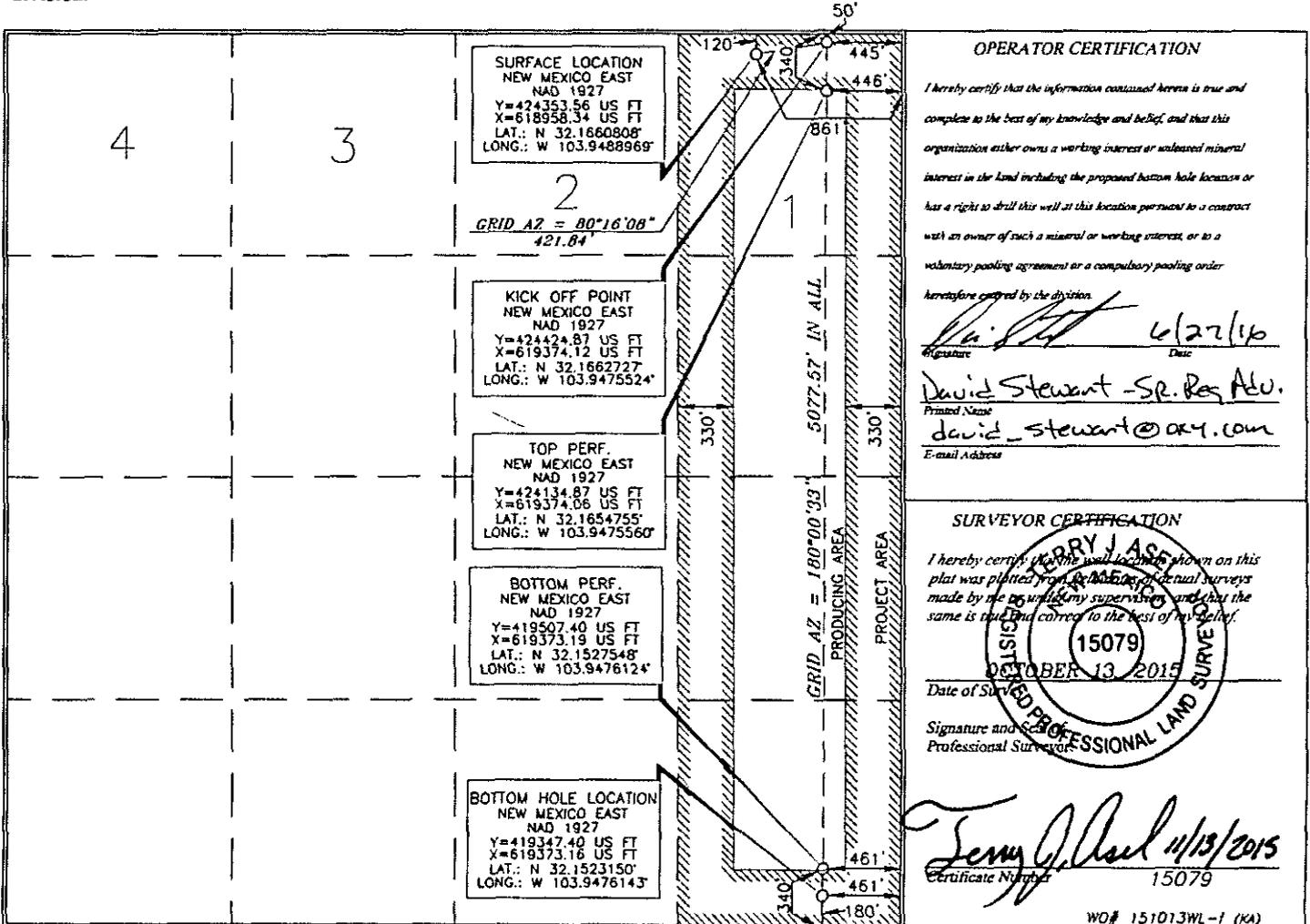
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	2	25 SOUTH	29 EAST, N.M.P.M.		120'	NORTH	861'	EAST	EDDY

**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
P	2	25 SOUTH	29 EAST, N.M.P.M.		180'	SOUTH	461'	EAST	EDDY

Dedicated Acres <b>160</b>	Joint or Infill <b>Yes</b>	Consolidation Code	Order No.
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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.



**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*David Stewart* 6/22/16  
Signature Date  
David Stewart - Sr. Reg. Adv.  
Printed Name  
david\_stewart@oxy.com  
E-mail Address

**SURVEYOR CERTIFICATION**

I hereby certify that the well locations shown on this plat was plotted from the original of actual surveys made by me or my duly supervised assistants and that the same is true and correct to the best of my belief.

15079  
OCTOBER 13, 2015  
Date of Survey  
Signature and Seal of Professional Surveyor

*Terry J. Paul* 11/13/2015  
Certificate Number Date

WO# 151013WL-1 (KA)

## OXY USA WTP LP - Corral Fly 2 State 8H

### 1. Geologic Formations

TVD of target	9007'	Pilot Hole Depth	N/A
MD at TD:	13704'	Deepest Expected fresh water:	418'

### Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	418	
Salado	928	
Lamar/Delaware	3238	Oil/Gas
Bell Canyon*	3285	Water/Oil/Gas
Cherry Canyon*	3994	Oil/Gas
Brushy Canyon*	5400	Oil/Gas
1st Bone Spring	6987	Oil/Gas
2nd Bone Spring	8295	Oil/Gas
<b>2nd Bone Spring (Target)</b>	8988	Oil/Gas

\*H2S, water flows, loss of circulation, abnormal pressures, etc.

### 2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF	SF Burst	SF
	From (ft)	To (ft)					Collapse		Tension
14.75	0	468	10.75	40.5	J55	BTC	7.6	1.54	2.89
9.875	0	7059	7.625	26.4	L80	BTC	1.19	1.29	1.88
9.875	7059	8359	7.625	29.7	L80	BTC	1.13	1.43	3.43
6.75	8259	13704	5.5	17	P-110	UltraSF	1.62	1.2	2.3
BLM Minimum Safety Factor							1.125	1.2	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

\*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run in case a contingency second stage is required for cement to reach surface. If cement circulated to surface during first stage we will drop a cancellation cone and not pump the second stage.

	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.	Y
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?	
Is well within the designated 4 string boundary.	

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Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

**3. Cementing Program**

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	307	14.8	1.35	6.53	6:50	Premium Plus Cement 2% Calcium Chloride – Flake (Accelerator)
Production Casing	725	10.2	3.05	15.63	15:07	TUNED LIGHT (TM) SYSTEM 0.80% HR-601(Retarder), 3 lbm/sk Kol-Seal (Lost Circulation Additive), 0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)
	367	13.2	1.65	8.45	12:57	Super H Cement, 0.1 % HR-800 (Retarder), 0.5 % Halad(R)-344 (Low Fluid Loss Control), 0.3 % CFR-3 (Dispersant), 2 lbm Kol-Seal (Lost Circulation Additive), 3 lbm Salt (Salt)
DV/ECP Tool @ 3288' (We request the option to cancel the second stage if cement is circulated to surface during the first stage of cement operations)						
2nd Stage	531	12.9	1.85	9.86	12:44	Halliburton Light Premium Plus Cement with 5% Salt (Accelerator), 0.125 lbs/sk Poly-E-Flake (Lost Circulation Additive), 5 lbs/sk Kol-Seal (Lost Circulation Additive), 0.35% HR-800 (Retarder)
	182	14.8	1.33	6.34	6:31	Premium Plus cement
Production Liner	324	13.2	1.631	8.37	15:15	Super H Cement, 0.1 % HR-800 (Retarder), 0.5 % Halad(R)-344 (Low Fluid Loss Control), 0.4 % CFR-3 (Dispersant), 3 lbm Salt (Salt)

Casing String	TOC (ft)	% Excess Lead	% Excess Tail
Surface	0		50%
Production Casing	0	75%	20%
2nd Stage Production Casing	0	75%	125%
Production Liner	8259		15%

**OXY USA WTP LP - Corral Fly 2 State 8H**

**4. Pressure Control Equipment**

<b>BOP installed and tested before drilling which hole?</b>	<b>Size?</b>	<b>Min. Required WP</b>	<b>Type</b>	<b>✓</b>	<b>Tested to:</b>
9.875" Intermediate	13-5/8"	5M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/5000psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

\*Specify if additional ram is utilized.

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.
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.
Y Are anchors required by manufacturer?
A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.  See attached schematic.  We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015.

**OXY USA WTP LP - Corral Fly 2 State 8H**

**5. Mud Program**

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	468	EnerSeal (MMH)	8.4-8.6	40-60	N/C
468	3288	Brine	9.8-10.0	35-45	N/C
3288	8359	EnerSeal (MMH)	8.8-9.6	38-50	N/C
8359	13704	Oil-Based Mud	10.0-12.0	35-50	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.

Oxy proposes to drill out the 10.75" surface casing shoe with a saturated brine system from 468' - 3288', which is the base of the salt system. At this point we will swap fluid systems to a high viscosity mixed metal hydroxide system. We will drill with this system to the intermediate TD @ 8359'.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
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**6. Logging and Testing Procedures**

Logging, Coring and Testing.		
Yes	Will run GR 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.	
No	Drill stem test? If yes, explain	
No	Coring? If yes, explain	
Additional logs planned	Interval	
No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	Surface Shoe - TD
No	PEX	

**7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	4171 psi
Abnormal Temperature	No

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

**OXY USA WTP LP - Corral Fly 2 State 8H**

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.	
N	H2S is present
Y	H2S Plan attached

**8. Other facets of operation**

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. <ul style="list-style-type: none"> <li>• We plan to drill the two well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.</li> </ul>	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe.	No

Attachments

- Directional Plan
- H2S Contingency Plan
- Flex III Attachments

**9. Company Personnel**

<u>Name</u>	<u>Title</u>	<u>Office Phone</u>	<u>Mobile Phone</u>
Ludwing Franco	Drilling Engineer	713-366-5174	832-523-6392
Tim Barnard	Drilling Engineer Team Lead	713-366-5706	281-740-3084
Amrut Athavale	Drilling Engineer Supervisor	713-350-4747	281-740-4448
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Angie Contreras	Drilling & Completions Manager	713-497-2012	832-605-4882
Daniel Holderman	Drilling Manager	713-497-2006	832-525-9029



Oxy Corral Fly 2 State 8H Rev0 MA 07Dec15 Proposal Geodetic Report

(Non-Def Plan)

Report Date: December 07, 2015 - 07:05 PM  
 Client: OXY  
 Field: NM Eddy County (NAD 27)  
 Structure / Slot: Oxy Corral Fly 2 State 8H / Oxy Corral Fly 2 State 8H  
 Well: Oxy Corral Fly 2 State 8H  
 Borehole: Original Borehole  
 UWI / API#: Unknown / Unknown  
 Survey Name: Oxy Corral Fly 2 State 8H Rev0 MA 07Dec15  
 Survey Date: December 07, 2015  
 Tort / AHD / DDI / ERD Ratio: 104.300 ° / 5339.730 ft / 5.928 / 0.593  
 Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet  
 Location Lat / Long: N 32° 9' 57.89083", W 103° 56' 56.02877"  
 Location Grid N/E Y/X: N 424353.560 ftUS, E 618958.340 ftUS  
 CRS Grid Convergence Angle: 0.2047 °  
 Grid Scale Factor: 0.9999253  
 Version / Patch: 2.8.572.0

Survey / DLS Computation: Minimum Curvature / Lubinski  
 Vertical Section Azimuth: 175.107 ° (Grid North)  
 Vertical Section Origin: 0.000 ft, 0.000 ft  
 TVD Reference Datum: RKB  
 TVD Reference Elevation: 3099.800 ft above MSL  
 Seabed / Ground Elevation: 3073.300 ft above MSL  
 Magnetic Declination: 7.213 °  
 Total Gravity Field Strength: 998.4534mgm (9.80665 Based)  
 Gravity Model: GARM  
 Total Magnetic Field Strength: 48265.115 nT  
 Magnetic Dip Angle: 59.999 °  
 Declination Date: December 07, 2015  
 Magnetic Declination Model: HDGM 2015  
 North Reference: Grid North  
 Grid Convergence Used: 0.2047 °  
 Total Corr Mag North->Grid North: 7.0086 °  
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Oxy Corral Fly 2 State 8H SHL	0.00	0.00	80.27	0.00	0.00	0.00	0.00	N/A	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	100.00	0.00	80.27	100.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	200.00	0.00	80.27	200.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	300.00	0.00	80.27	300.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	400.00	0.00	80.27	400.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	500.00	0.00	80.27	500.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	600.00	0.00	80.27	600.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	700.00	0.00	80.27	700.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	800.00	0.00	80.27	800.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	900.00	0.00	80.27	900.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1000.00	0.00	80.27	1000.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1100.00	0.00	80.27	1100.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1200.00	0.00	80.27	1200.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1300.00	0.00	80.27	1300.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1400.00	0.00	80.27	1400.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1500.00	0.00	80.27	1500.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1600.00	0.00	80.27	1600.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1700.00	0.00	80.27	1700.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1800.00	0.00	80.27	1800.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	1900.00	0.00	80.27	1900.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2000.00	0.00	80.27	2000.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2100.00	0.00	80.27	2100.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2200.00	0.00	80.27	2200.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2300.00	0.00	80.27	2300.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2400.00	0.00	80.27	2400.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2500.00	0.00	80.27	2500.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2600.00	0.00	80.27	2600.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2700.00	0.00	80.27	2700.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2800.00	0.00	80.27	2800.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	2900.00	0.00	80.27	2900.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3000.00	0.00	80.27	3000.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3100.00	0.00	80.27	3100.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3200.00	0.00	80.27	3200.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3300.00	0.00	80.27	3300.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3400.00	0.00	80.27	3400.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3500.00	0.00	80.27	3500.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3600.00	0.00	80.27	3600.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3700.00	0.00	80.27	3700.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3800.00	0.00	80.27	3800.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	3900.00	0.00	80.27	3900.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
Backbuild 2"/100" DLS to 7" Inc	4000.00	0.00	80.27	4000.00	0.00	0.00	0.00	0.00	424353.56	618958.34	N 32 9 57.89	W 103 56 56.03
	4100.00	2.00	80.27	4099.98	-0.15	0.30	1.72	2.00	424353.85	618960.06	N 32 9 57.89	W 103 56 56.01
	4200.00	4.00	80.27	4199.84	-0.59	1.18	6.88	2.00	424354.74	618965.22	N 32 9 57.90	W 103 56 55.95
	4300.00	6.00	80.27	4299.45	-1.32	2.65	15.47	2.00	424356.21	618973.81	N 32 9 57.92	W 103 56 55.85
Hold 7" Inc	4350.16	7.00	80.27	4349.29	-1.80	3.61	21.07	2.00	424357.17	618979.40	N 32 9 57.93	W 103 56 55.78
	4400.00	7.00	80.27	4399.76	-2.32	4.64	27.05	0.00	424358.20	618985.39	N 32 9 57.94	W 103 56 55.71
	4500.00	7.00	80.27	4499.01	-3.34	6.70	39.07	0.00	424360.26	618997.41	N 32 9 57.96	W 103 56 55.57
	4600.00	7.00	80.27	4597.26	-4.37	8.75	51.09	0.00	424362.32	619009.42	N 32 9 57.98	W 103 56 55.43
	4700.00	7.00	80.27	4696.52	-5.40	10.82	63.11	0.00	424364.38	619021.44	N 32 9 58.00	W 103 56 55.29
	4800.00	7.00	80.27	4795.77	-6.43	12.88	75.12	0.00	424366.44	619033.46	N 32 9 58.02	W 103 56 55.15
	4900.00	7.00	80.27	4895.03	-7.46	14.95	87.14	0.00	424368.50	619045.47	N 32 9 58.04	W 103 56 55.01
	5000.00	7.00	80.27	4994.28	-8.49	17.01	99.16	0.00	424370.56	619057.49	N 32 9 58.06	W 103 56 54.87
	5100.00	7.00	80.27	5093.53	-9.52	19.07	111.17	0.00	424372.63	619069.50	N 32 9 58.08	W 103 56 54.73
	5200.00	7.00	80.27	5192.79	-10.54	21.13	123.19	0.00	424374.69	619081.52	N 32 9 58.10	W 103 56 54.59
	5300.00	7.00	80.27	5292.04	-11.57	23.19	135.21	0.00	424376.75	619093.54	N 32 9 58.12	W 103 56 54.45
	5400.00	7.00	80.27	5391.30	-12.60	25.25	147.22	0.00	424378.81	619105.55	N 32 9 58.14	W 103 56 54.32
	5500.00	7.00	80.27	5490.55	-13.63	27.31	159.24	0.00	424380.87	619117.57	N 32 9 58.16	W 103 56 54.18
	5600.00	7.00	80.27	5589.80	-14.66	29.37	171.26	0.00	424382.93	619129.58	N 32 9 58.18	W 103 56 54.04
	5700.00	7.00	80.27	5689.06	-15.69	31.43	183.27	0.00	424384.99	619141.60	N 32 9 58.20	W 103 56 53.90
	5800.00	7.00	80.27	5788.31	-16.72	33.49	195.29	0.00	424387.05	619153.62	N 32 9 58.22	W 103 56 53.76
	5900.00	7.00	80.27	5887.57	-17.74	35.56	207.31	0.00	424389.11	619165.63	N 32 9 58.24	W 103 56 53.62
	6000.00	7.00	80.27	5986.82	-18.77	37.62	219.33	0.00	424391.17	619177.65	N 32 9 58.26	W 103 56 53.48
	6100.00	7.00	80.27	6086.07	-19.80	39.68	231.34	0.00	424393.23	619189.66	N 32 9 58.28	W 103 56 53.34
	6200.00	7.00	80.27	6185.33	-20.83	41.74	243.36	0.00	424395.30	619201.68	N 32 9 58.30	W 103 56 53.20
	6300.00	7.00	80.27	6284.58	-21.86	43.80	255.38	0.00	424397.36	619213.70	N 32 9 58.32	W 103 56 53.06
	6400.00	7.00	80.27	6383.84	-22.89	45.86	267.39	0.00	424399.42	619225.71	N 32 9 58.34	W 103 56 52.92
	6500.00	7.00	80.27	6483.09	-23.92	47.92	279.41	0.00	424401.48	619237.73	N 32 9 58.36	W 103 56 52.78
	6600.00	7.00	80.27	6582.34	-2							

Comments	MD (ft)	Incl (°)	Azim Grld (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6800.00	7.00	80.27	6780.85	-27.00	54.10	315.46	0.00	424407.66	619273.78	N 32 9 58.42	W 103 56 52.36
	6900.00	7.00	80.27	6880.11	-28.03	56.17	327.48	0.00	424409.72	619285.79	N 32 9 58.44	W 103 56 52.22
	7000.00	7.00	80.27	6979.36	-29.06	58.23	339.49	0.00	424411.78	619297.81	N 32 9 58.45	W 103 56 52.08
	7100.00	7.00	80.27	7078.61	-30.09	60.29	351.51	0.00	424413.84	619309.82	N 32 9 58.47	W 103 56 51.84
	7200.00	7.00	80.27	7177.87	-31.12	62.35	363.53	0.00	424415.90	619321.84	N 32 9 58.49	W 103 56 51.80
	7300.00	7.00	80.27	7277.12	-32.14	64.41	375.55	0.00	424417.96	619333.86	N 32 9 58.51	W 103 56 51.66
	7400.00	7.00	80.27	7376.38	-33.17	66.47	387.56	0.00	424420.03	619345.87	N 32 9 58.53	W 103 56 51.52
Drop 2"/100' DLS to Vertical	7459.78	7.00	80.27	7435.71	-33.79	67.70	394.75	0.00	424421.26	619353.06	N 32 9 58.55	W 103 56 51.43
	7500.00	6.20	80.27	7475.66	-34.18	68.48	399.30	2.00	424422.04	619357.61	N 32 9 58.55	W 103 56 51.38
	7600.00	4.20	80.27	7575.25	-34.94	70.02	408.23	2.00	424423.57	619366.54	N 32 9 58.57	W 103 56 51.28
	7700.00	2.20	80.27	7675.09	-35.41	70.96	413.73	2.00	424424.51	619372.04	N 32 9 58.58	W 103 56 51.21
	7800.00	0.20	80.27	7775.06	-35.59	71.31	415.79	2.00	424424.87	619374.10	N 32 9 58.58	W 103 56 51.19
Hold Vertical	7809.94	0.00	80.27	7785.00	-35.59	71.32	415.81	2.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	7900.00	0.00	80.27	7875.06	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	8000.00	0.00	80.27	7975.06	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	8100.00	0.00	80.27	8075.06	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	8200.00	0.00	80.27	8175.06	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	8300.00	0.00	80.27	8275.06	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	8400.00	0.00	80.27	8375.06	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
KOP - Build 10"/100' DLS Curve	8459.07	0.00	80.27	8434.13	-35.59	71.32	415.81	0.00	424424.87	619374.12	N 32 9 58.58	W 103 56 51.19
	8500.00	4.09	180.01	8475.02	-34.13	69.85	415.81	10.00	424423.41	619374.12	N 32 9 58.57	W 103 56 51.19
	8600.00	14.09	180.01	8573.64	-18.41	54.07	415.81	10.00	424407.63	619374.12	N 32 9 58.41	W 103 56 51.19
	8700.00	24.09	180.01	8668.02	14.14	21.40	415.80	10.00	424374.96	619374.11	N 32 9 58.09	W 103 56 51.19
	8800.00	34.09	180.01	8755.29	62.52	-27.16	415.79	10.00	424326.40	619374.10	N 32 9 57.61	W 103 56 51.19
	8900.00	44.09	180.01	8832.81	125.27	-90.14	415.78	10.00	424263.43	619374.09	N 32 9 56.98	W 103 56 51.20
	9000.00	54.09	180.01	8888.21	200.48	-165.62	415.77	10.00	424187.95	619374.08	N 32 9 56.24	W 103 56 51.20
	9100.00	64.09	180.01	8949.51	285.85	-251.31	415.75	10.00	424102.27	619374.06	N 32 9 55.39	W 103 56 51.20
	9200.00	74.09	180.01	8985.15	378.81	-344.61	415.73	10.00	424008.98	619374.04	N 32 9 54.47	W 103 56 51.21
	9300.00	84.09	180.01	9004.05	476.52	-442.68	415.71	10.00	423910.92	619374.02	N 32 9 53.50	W 103 56 51.21
Landing Point @ 90 29' Inc	9362.01	90.29	180.01	9007.08	538.20	-504.58	415.70	10.00	423849.02	619374.01	N 32 9 52.88	W 103 56 51.21
	9400.00	90.29	180.01	9006.88	576.05	-542.57	415.70	0.00	423811.03	619374.00	N 32 9 52.51	W 103 56 51.22
	9500.00	90.29	180.01	9006.37	675.68	-642.57	415.68	0.00	423711.04	619373.98	N 32 9 51.52	W 103 56 51.22
	9600.00	90.29	180.01	9005.86	775.31	-742.57	415.66	0.00	423611.05	619373.97	N 32 9 50.53	W 103 56 51.22
	9700.00	90.29	180.01	9005.35	874.95	-842.57	415.64	0.00	423511.06	619373.95	N 32 9 49.54	W 103 56 51.23
	9800.00	90.29	180.01	9004.83	974.58	-942.56	415.62	0.00	423411.07	619373.93	N 32 9 48.55	W 103 56 51.23
	9900.00	90.29	180.01	9004.32	1074.21	-1042.56	415.60	0.00	423311.08	619373.91	N 32 9 47.56	W 103 56 51.24
	10000.00	90.29	180.01	9003.81	1173.84	-1142.56	415.58	0.00	423211.09	619373.89	N 32 9 46.57	W 103 56 51.24
	10100.00	90.29	180.01	9003.29	1273.48	-1242.56	415.56	0.00	423111.10	619373.87	N 32 9 45.58	W 103 56 51.25
	10200.00	90.29	180.01	9002.78	1373.11	-1342.56	415.54	0.00	423011.11	619373.85	N 32 9 44.59	W 103 56 51.25
	10300.00	90.29	180.01	9002.27	1472.74	-1442.56	415.53	0.00	422911.11	619373.83	N 32 9 43.60	W 103 56 51.26
	10400.00	90.29	180.01	9001.75	1572.38	-1542.56	415.51	0.00	422811.12	619373.81	N 32 9 42.61	W 103 56 51.26
	10500.00	90.29	180.01	9001.24	1672.01	-1642.56	415.49	0.00	422711.13	619373.80	N 32 9 41.62	W 103 56 51.26
	10600.00	90.29	180.01	9000.73	1771.64	-1742.55	415.47	0.00	422611.14	619373.78	N 32 9 40.63	W 103 56 51.27
	10700.00	90.29	180.01	9000.21	1871.27	-1842.55	415.45	0.00	422511.15	619373.76	N 32 9 39.64	W 103 56 51.27
	10800.00	90.29	180.01	8999.70	1970.91	-1942.55	415.43	0.00	422411.16	619373.74	N 32 9 38.65	W 103 56 51.28
	10900.00	90.29	180.01	8999.19	2070.54	-2042.55	415.41	0.00	422311.17	619373.72	N 32 9 37.66	W 103 56 51.28
	11000.00	90.29	180.01	8998.67	2170.17	-2142.55	415.39	0.00	422211.18	619373.70	N 32 9 36.67	W 103 56 51.29
	11100.00	90.29	180.01	8998.16	2269.80	-2242.55	415.37	0.00	422111.18	619373.68	N 32 9 35.68	W 103 56 51.29
	11200.00	90.29	180.01	8997.65	2369.44	-2342.55	415.36	0.00	422011.19	619373.66	N 32 9 34.70	W 103 56 51.29
	11300.00	90.29	180.01	8997.14	2469.07	-2442.55	415.34	0.00	421911.20	619373.64	N 32 9 33.71	W 103 56 51.30
	11400.00	90.29	180.01	8996.62	2568.70	-2542.54	415.32	0.00	421811.21	619373.63	N 32 9 32.72	W 103 56 51.30
	11500.00	90.29	180.01	8996.11	2668.33	-2642.54	415.30	0.00	421711.22	619373.61	N 32 9 31.73	W 103 56 51.31
	11600.00	90.29	180.01	8995.60	2767.97	-2742.54	415.28	0.00	421611.23	619373.59	N 32 9 30.74	W 103 56 51.31
	11700.00	90.29	180.01	8995.08	2867.60	-2842.54	415.26	0.00	421511.24	619373.57	N 32 9 29.75	W 103 56 51.32
	11800.00	90.29	180.01	8994.57	2967.23	-2942.54	415.24	0.00	421411.25	619373.55	N 32 9 28.76	W 103 56 51.32
	11900.00	90.29	180.01	8994.06	3066.87	-3042.54	415.22	0.00	421311.26	619373.53	N 32 9 27.77	W 103 56 51.33
	12000.00	90.29	180.01	8993.54	3166.50	-3142.54	415.20	0.00	421211.27	619373.51	N 32 9 26.78	W 103 56 51.33
	12100.00	90.29	180.01	8993.03	3266.13	-3242.53	415.19	0.00	421111.27	619373.49	N 32 9 25.79	W 103 56 51.33
	12200.00	90.29	180.01	8992.52	3365.76	-3342.53	415.17	0.00	421011.28	619373.47	N 32 9 24.80	W 103 56 51.34
	12300.00	90.29	180.01	8992.00	3465.40	-3442.53	415.15	0.00	420911.29	619373.46	N 32 9 23.81	W 103 56 51.34
	12400.00	90.29	180.01	8991.49	3565.03	-3542.53	415.13	0.00	420811.30	619373.44	N 32 9 22.82	W 103 56 51.35
	12500.00	90.29	180.01	8990.98	3664.66	-3642.53	415.11	0.00	420711.31	619373.42	N 32 9 21.83	W 103 56 51.35
	12600.00	90.29	180.01	8990.46	3764.29	-3742.53	415.09	0.00	420611.32	619373.40	N 32 9 20.84	W 103 56 51.36
	12700.00	90.29	180.01	8989.95	3863.93	-3842.53	415.07	0.00	420511.33	619373.38	N 32 9 19.85	W 103 56 51.36
	12800.00	90.29	180.01	8989.44	3963.56	-3942.53	415.05	0.00	420411.34	619373.36	N 32 9 18.86	W 103 56 51.36
	12900.00	90.29	180.01	8988.93	4063.19	-4042.52	415.03	0.00	420311.35	619373.34	N 32 9 17.87	W 103 56 51.37
	13000.00	90.29	180.01	8988.41	4162.82	-4142.52	415.01	0.00	420211.35	619373.32	N 32 9 16.88	W 103 56 51.37
	13100.00	90.29	180.01	8987.90	4262.46	-4242.52	415.00	0.00	420111.36	619373.30	N 32 9 15.89	W 103 56 51.38
	13200.00	90.29	180.01	8987.39	4362.09	-4342.52	414.98	0.00	420011.37	619373.29	N 32 9 14.90	W 103 56 51.38
	13300.00	90.29	180.01	8986.87	4461.72	-4442.52	414.96	0.00	419911.38	619373.27	N 32 9 13.92	W 103 56 51.39
	13400.00	90.29	180.01	8986.36	4561.36	-4542.52	414.94	0.00	419811.39	619373.25	N 32 9 12.93	W 103 56 51.39
	13500.00	90.29	180.01	8985.85	4660.99	-4642.52	414.92	0.00	419711.40	619373.23	N 32 9 11.94	W 103 56 51.40
	13600.00	90.29	180.01	8985.33	4760.62	-4742.51	414.90	0.00	419611.41	619373.21	N 32 9 10.95	W 103 56 51.40
	13700.00	90.29	180.01	8984.82	4860.25	-4842.51	414.88	0.00	419511.42	619373.19	N 32 9 9.96	W 103 56 51.40
Oxy Corral Fly 2 State 8H LTP	13704.02	90.29	180.01	8984.80	4864.26	-4846.53	414.88	0.00	419507.40	619373.19	N 32 9 9.92	W 103 56 51.40

Survey Type: Non-Def Plan

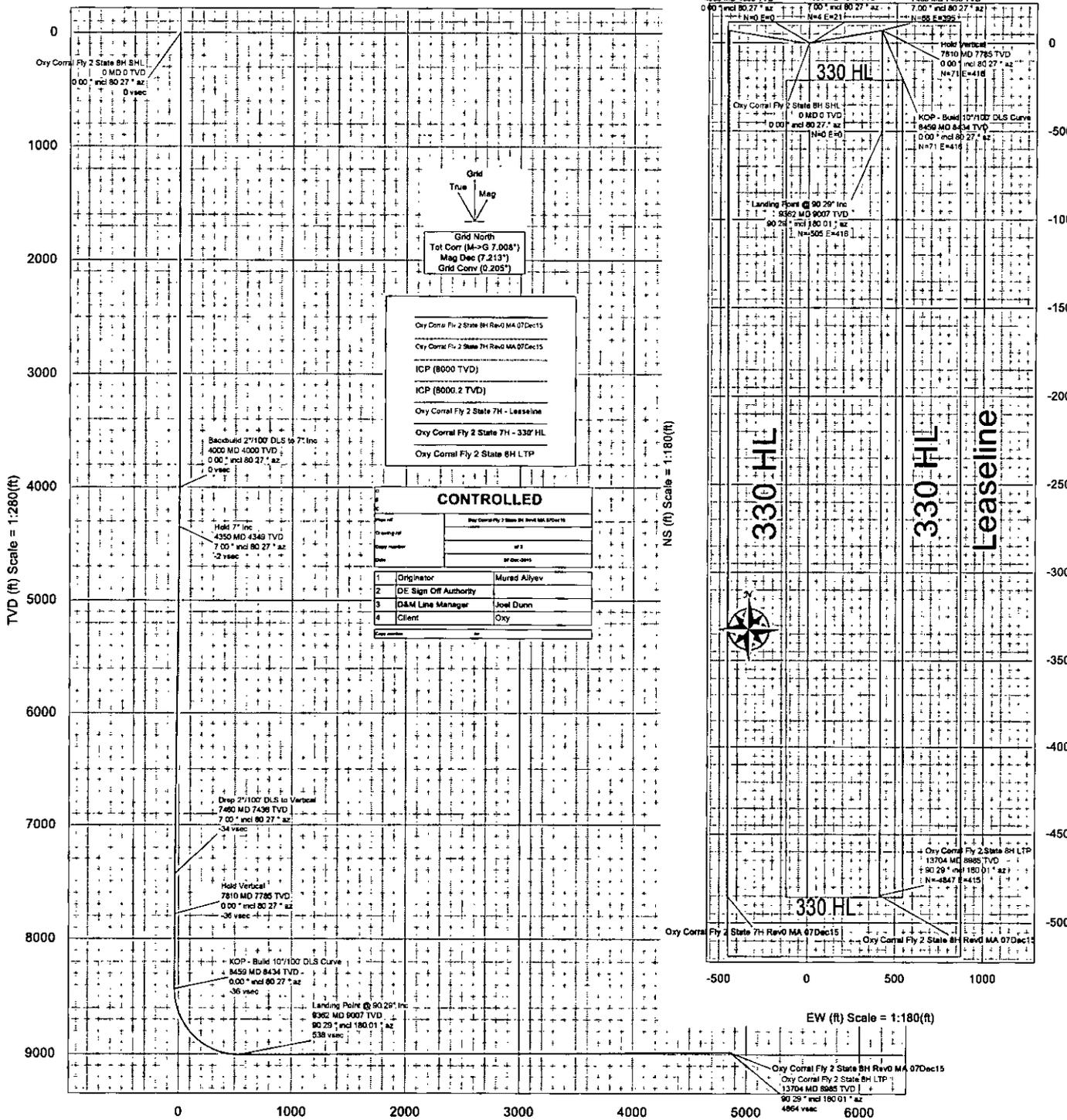
Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma

Survey Program:



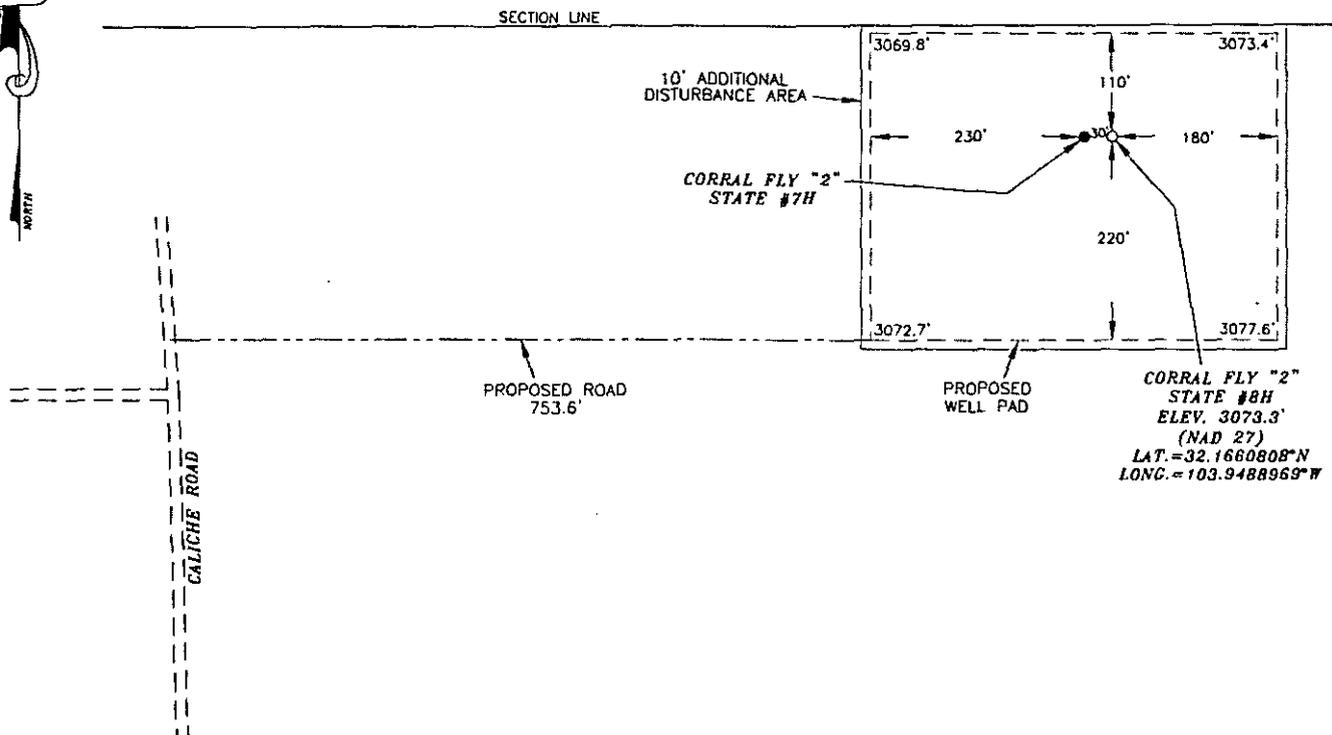
<b>Borehole:</b> Original Borehole	<b>Well:</b> Corral Fly 2 State 8H	<b>Field:</b> NM Eddy County (NAD 27)	<b>Structure:</b> H&P 615
<b>Gravity &amp; Magnetic Parameters</b> Model: HOGM 2915 Dp: 59 899 Date: 07-Dec-2015 MagDec: 7.213 PB: 42045.115N1 Gravity PS: 998.433mg (8 80885 Based)	<b>Surface Location</b> Lat. N 32 8 57.89 Northing: 424353.561US Lon. W 103 56 56.03 Easting: 618958.346US	<b>Grid Conversion</b> Grid Conv: 6.2047 Scale Fact: 8.599253	<b>Miscellaneous</b> Corral Fly 2 State TVD Ref: R(8)3099.8R above MSLL Plan: Rev0 MA 07Dec15

Comments	Survey MD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sea TVD	Critical Points						Tool Face(deg)		
						VS(ft)	NS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	Easting(ftUS)		Northing(ftUS)	DLS*/100(ft)
Oxy Corral Fly 2 State 8H SHL	0.00	0.00	80.27	0.00	-3099.80	0.00	0.00	0.00	N 32 9 57.891	W 103 56 56.029	618958.34	424353.56	0.00	80.27
Backbuild 2°/100' DLS to 7° Inc	4000.00	0.00	80.27	4000.00	900.20	0.00	0.00	0.00	N 32 9 57.891	W 103 56 56.029	618958.34	424353.56	0.00	80.27
Hold 7° Inc	4350.16	7.00	80.27	4349.29	1245.49	-1.80	3.61	21.07	N 32 9 57.926	W 103 56 55.784	618979.40	424357.17	2.00	80.27
Drop 2°/100' DLS to Vertical	7459.78	7.00	80.27	7435.71	4335.91	-33.79	67.70	394.75	N 32 9 58.647	W 103 56 51.434	619363.06	424421.26	0.00	80.27
Hold Vertical	7809.94	0.00	80.27	7785.00	4685.20	-35.59	71.32	415.81	N 32 9 58.582	W 103 56 51.189	619374.12	424424.87	0.00	80.27
ICP	8024.94	0.00	80.27	8000.00	4900.20	-35.59	71.32	415.81	N 32 9 58.582	W 103 56 51.189	619374.12	424424.87	0.00	80.27
ICOP - Build 10°/100' DLS Curve	8459.07	0.00	80.27	8434.13	5334.33	-35.59	71.32	415.81	N 32 9 58.582	W 103 56 51.189	619374.12	424424.87	0.00	180.01
Landing Point @ 90.29° Inc	9362.01	90.29	180.01	9007.08	5907.28	539.20	-504.56	415.70	N 32 9 52.883	W 103 56 51.214	619374.01	423849.02	10.00	0.00
Oxy Corral Fly 2 State 8H LTP	13704.02	90.29	180.01	8984.80	5885.00	4864.26	-4846.53	414.88	N 32 9 9.917	W 103 56 51.404	619373.19	419507.40	0.00	0.00



Vertical Section (ft) Azim = 175.11° Scale = 1:280(R) Origin = 0N/-S, 0E/-W

# OXY USA INC. CORRAL FLY "2" STATE #8H SITE PLAN



**CORRAL FLY "2" STATE #8H**  
ELEV. 3073.3'  
(NAD 27)  
LAT. = 32.1660808°N  
LONG. = 103.9488969°W



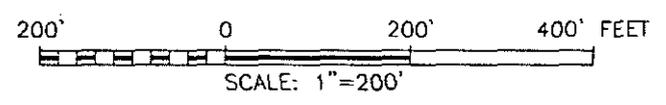
**LEGEND**

- DENOTES PROPOSED WELL PAD
- DENOTES PROPOSED ROAD

**SURVEYORS CERTIFICATE**

I, TERRY J. ASEEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

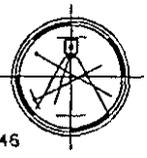
*Terry J. Aseel* 11/13/2015  
Terry J. Aseel N.M. R.P.L.S. No. 15079



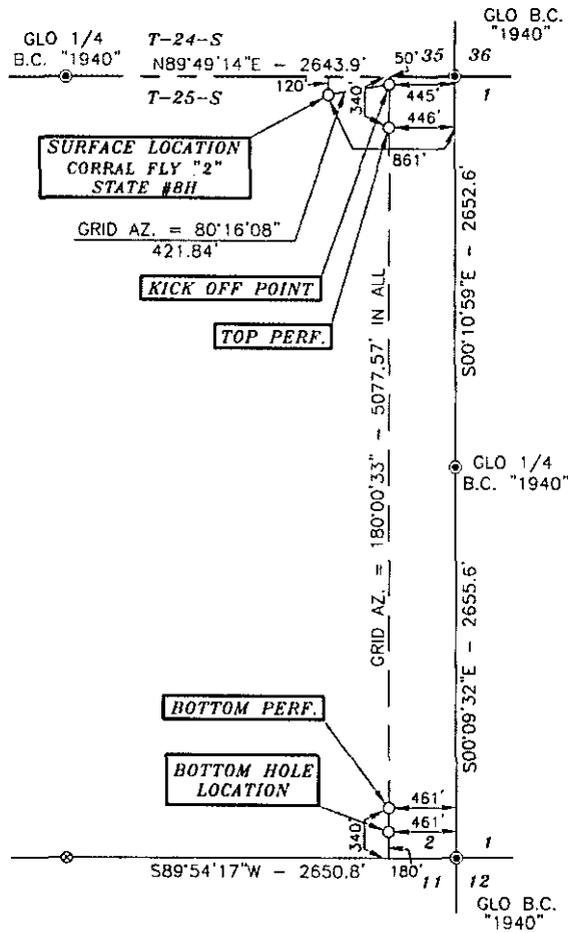
<b>OXY USA INC.</b>		
CORRAL FLY "2" STATE #8H LOCATED AT 120' FNL & 861' FEL IN SECTION 2, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO		
Survey Date: 10/13/15	Sheet 1 of 1 Sheets	
W.O. Number: 151013WL-f	Drawn By: KA	Rev:
Date: 11/06/15	151013WL-f	Scale: 1"=200'

**Asel Surveying**

P.O. BOX 393 - 310 W. TAYLOR  
HOBBS, NEW MEXICO - 575-393-9146



SECTION 2, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.,  
EDDY COUNTY  
NEW MEXICO



Basis of Bearings - GPS Geodetic Measurements  
 NAD East Zone (83) North American Datum of 1983

**DRIVING DIRECTIONS:**  
 BEGINNING AT THE INTERSECTION OF U.S. HWY. #285 AND BLACK RIVER VILLAGE ROAD IN MALAGA,, GO EAST ON COUNTY ROAD #720 FOR 1.3 MILES, TURN RIGHT ON COUNTY ROAD #746 (MCDONALD ROAD) AND GO SOUTH FOR 0.8 MILES, CONTINUE SOUTHEAST/EAST FOR 4.8 MILES, CURVE TO THE LEFT FOR 0.4 MILES, TURN LEFT AND GO WEST FOR 0.1 MILES, TURN RIGHT AND GO NORTH FOR 0.7 MILES, TURN RIGHT AND GO EAST FOR 0.9 MILES, TURN RIGHT AND GO SOUTHEAST FOR 3.3 MILES, TURN RIGHT AND GO SOUTHWEST FOR 0.1 MILES, TURN LEFT AND GO SOUTHEAST FOR 1.6 MILES, TURN RIGHT AND GO SOUTHWEST FOR 2.1 MILES, TURN RIGHT AND GO EAST FOR 0.6 MILES, TURN RIGHT AND GO NORTHWEST FOR 1.7 MILES, TURN RIGHT AND GO NORTH FOR 0.1 MILES, TURN RIGHT ON PROPOSED ROAD AND GO EAST FOR 753.6 FEET TO LOCATION.



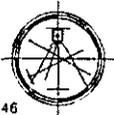
**SURVEYORS CERTIFICATE**

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND MEETS THE "MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO" AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND SURVEYORS.

*Terry J. Asel* 11/13/2015  
 Terry J. Asel N.M. R.P.L.S. No. 15079

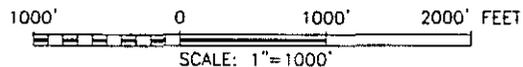
Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR  
 HOBBS, NEW MEXICO - 575-393-9146



**LEGEND**

- ⊙ - DENOTES FOUND MONUMENT AS NOTED
- ⊗ - DENOTES CALCULATED CORNER

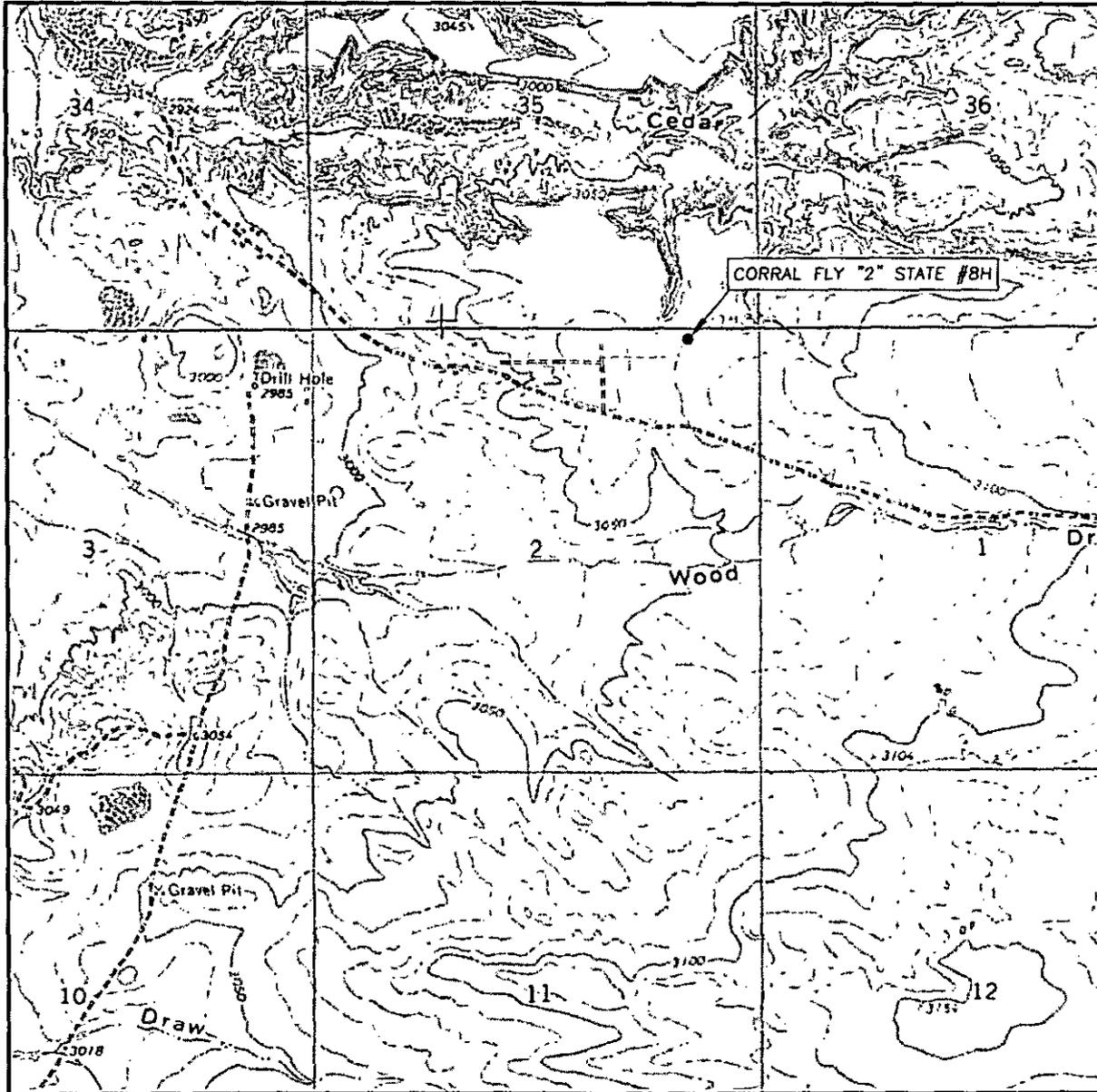


**OXY USA INC.**

CORRAL FLY "2" STATE #8H LOCATED AT  
 120' FNL & 861' FEL IN SECTION 2,  
 TOWNSHIP 25 SOUTH, RANGE 29 EAST,  
 N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 10/13/15	Sheet 1 of 1 Sheets
W.O. Number: 151013WL-f	Drawn By: KA Rev:
Date: 11/12/15	151013WL-f Scale: 1"=1000'

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 2 TWP. 25-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 120' FNL & 861' FEL

ELEVATION 3073.3'

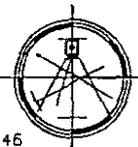
OPERATOR OXY USA INC.

LEASE CORRAL FLY "2" STATE #8H

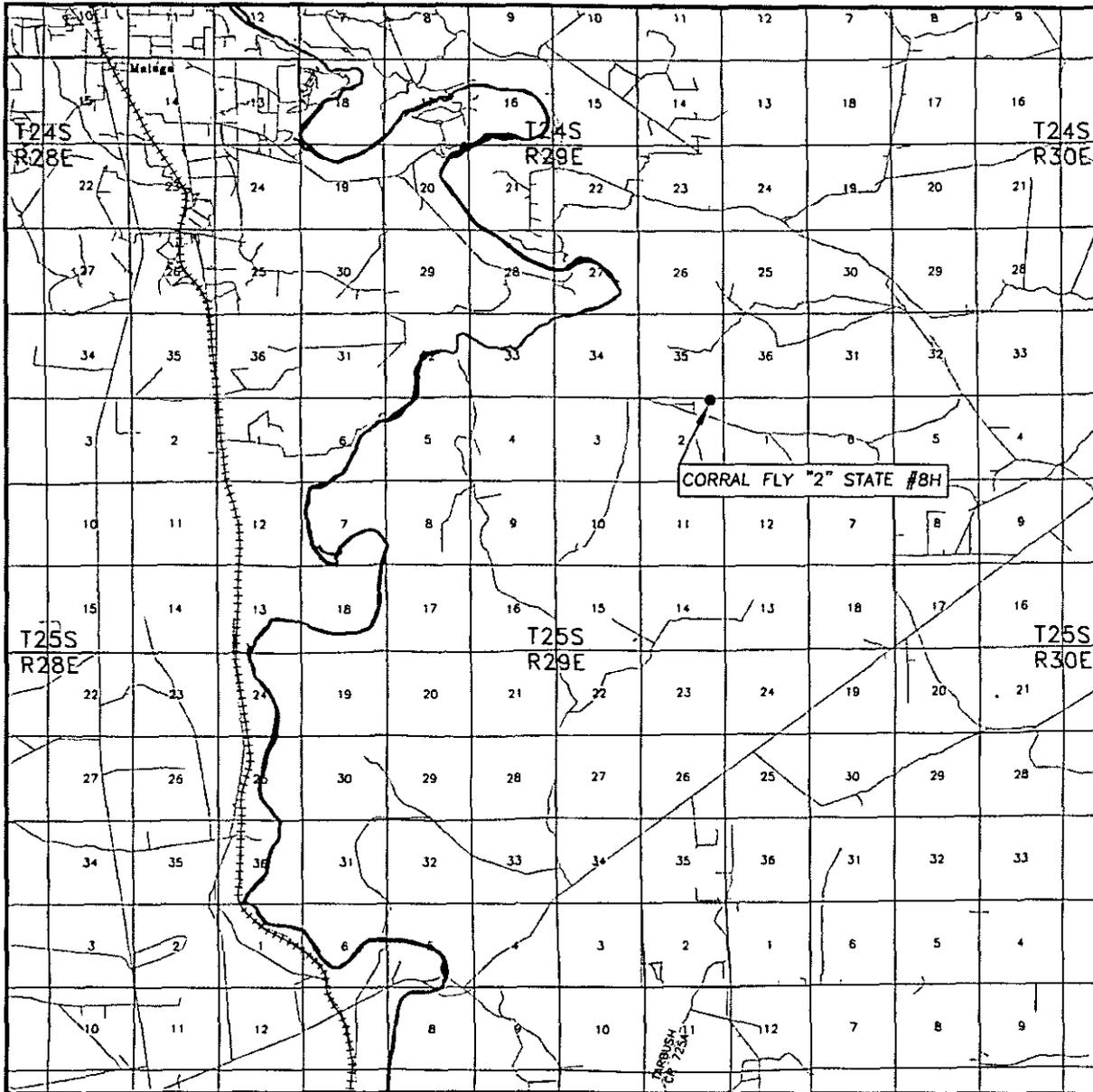
U.S.G.S. TOPOGRAPHIC MAP  
PIERCE CANYON, N.M.

Asel Surveying

P.O. BOX 393 - 310 W. TAYLOR  
HOBBS, NEW MEXICO - 575-393-9146



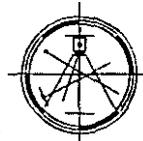
# VICINITY MAP



SEC. 2 TWP. 25-S RGE. 29-E  
 SURVEY N.M.P.M.  
 COUNTY EDDY  
 DESCRIPTION 120' FNL & 861' FEL  
 ELEVATION 3073.3'  
 OPERATOR OXY USA INC.  
 LEASE CORRAL FLY "2" STATE #8H

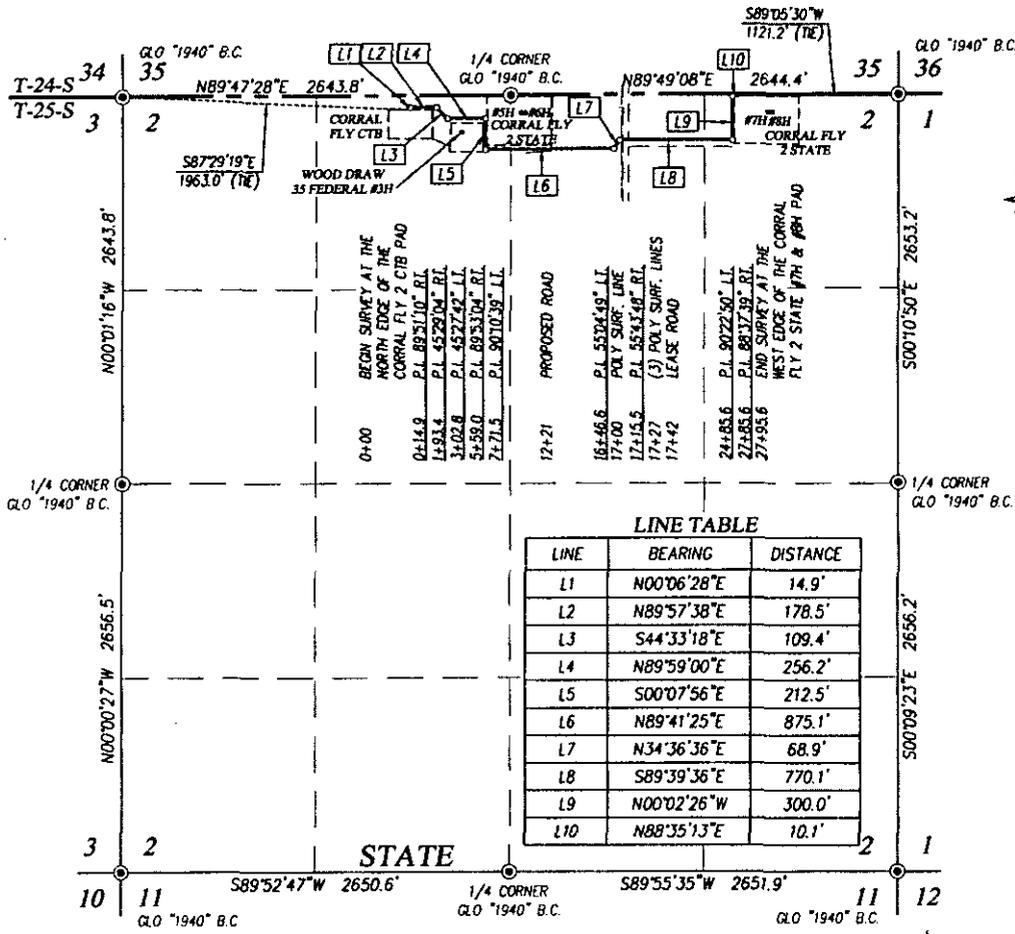
SCALE: 1" = 2 MILES

Asel Surveying



P.O. BOX 393 - 310 W. TAYLOR  
 HOBBS, NEW MEXICO - 575-393-9146

DIRECTIONS BEGINNING AT THE INTERSECTION OF U.S. HWY. #285 AND BLACK RIVER VILLAGE ROAD IN MALAGA, GO EAST ON COUNTY ROAD #720 FOR 1.3 MILES, TURN RIGHT ON COUNTY ROAD #746 (MCDONALD ROAD) AND GO SOUTH FOR 0.8 MILES, CONTINUE SOUTHEAST/EAST FOR 4.8 MILES, CURVE TO THE LEFT FOR 0.4 MILES, TURN LEFT AND GO WEST FOR 0.1 MILES, TURN RIGHT AND GO NORTH FOR 0.7 MILES, TURN RIGHT AND GO EAST FOR 0.9 MILES, TURN RIGHT AND GO SOUTHEAST FOR 3.3 MILES, TURN RIGHT AND GO SOUTHWEST FOR 0.1 MILES, TURN LEFT AND GO SOUTHEAST FOR 1.6 MILES, TURN RIGHT AND GO SOUTHWEST FOR 2.1 MILES, TURN RIGHT AND GO EAST FOR 0.6 MILES, TURN RIGHT AND GO NORTHWEST FOR 1.7 MILES, TURN RIGHT AND GO NORTH FOR 0.1 MILES, TURN RIGHT ON PROPOSED ROAD AND GO EAST FOR 753.6 FEET TO LOCATION.



**LINE TABLE**

LINE	BEARING	DISTANCE
L1	N00°06'28"E	14.9'
L2	N89°57'38"E	178.5'
L3	S44°33'18"E	109.4'
L4	N89°59'00"E	256.2'
L5	S00°07'56"E	212.5'
L6	N89°41'25"E	875.1'
L7	N34°36'36"E	68.9'
L8	S89°39'36"E	770.1'
L9	N00°02'26"W	300.0'
L10	N88°35'13"E	10.1'

**DESCRIPTION**

A STRIP OF LAND 30.0 FEET WIDE CROSSING STATE OF NEW MEXICO LAND IN SECTION 2, TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO, AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT IN THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER, WHICH LIES S87°29'19"E 1963.0 FEET FROM THE NORTHWEST CORNER; THEN N00°06'28"E 14.9 FEET; THEN N89°57'38"E 178.5 FEET; THEN S44°33'18"E 109.4 FEET; THEN N89°59'00"E 256.2 FEET; THEN S00°07'56"E 212.5 FEET; THEN N89°41'25"E 875.1 FEET; THEN N34°36'36"E 68.9 FEET; THEN S89°39'36"E 770.1 FEET; THEN N00°02'26"W 300.0 FEET; THEN N88°35'13"E 10.1 FEET TO A POINT, WHICH LIES S89°05'30"W 1121.2 FEET FROM THE NORTHEAST CORNER.

SAID STRIP OF LAND BEING 2795.7 FEET OR 169.44 RODS IN LENGTH, CONTAINING 1.925 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

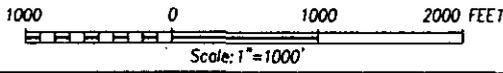
- NE/4 NW/4 57.15 RODS OR 0.649 ACRES
- NW/4 NE/4 81.95 RODS OR 0.931 ACRES
- NE/4 NE/4 30.34 RODS OR 0.345 ACRES

**NOTE**

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

**LEGEND**

⊙ DENOTES FOUND CORNER AS NOTED



I, RONALD J. EIDSON, NEW MEXICO PROFESSIONAL SURVEYOR No. 3239, DO HEREBY CERTIFY THAT THIS SURVEY PLAT AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RONALD J. EIDSON *Ronald J. Eidson*  
 DATE: 12/03/2015

PROVIDING SURVEYING SERVICES  
SINCE 1946

**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO HOBBS, N.M. 88240  
 (575) 393-3117 www.jwsc.biz  
 TBPLS# 10021000

**OXY U.S.A. INC.**

SURVEY FOR A SURFACE PIPELINE TO  
THE CORRAL FLY 2 STATE #7H & #8H  
CROSSING SECTION 2,  
TOWNSHIP 25 SOUTH, RANGE 29 EAST, N.M.P.M.  
EDDY COUNTY, NEW MEXICO

Survey Date: 10/12/15	CAD Date: 12/1/15	Drawn By: LSL
W.O. No.: 15111046	Rev. :	Rel. W.O.:

Sheet 1 of 1

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit Original  
to Appropriate  
District Office

**GAS CAPTURE PLAN**

Date: 5-17-2016

Original

Operator & OGRID No.: OXY USA WTP Limited Partnership - 192463

Amended - Reason for Amendment: \_\_\_\_\_

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

*Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).*

**Well(s)/Production Facility – Name of facility**

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Corral Fly 2 State #3H	Pending	Unit D / Lot 4, Sec. 2, T25S, R29E	110FNL 867FWL	2,741	0	
Corral Fly 2 State #4H	Pending	Unit D / Lot 4, Sec. 2, T25S, R29E	110FNL 897FWL	2,741	0	
Corral Fly 2 State #5H	Pending	Unit C / Lot 3, Sec. 2, T25S, R29E	110FNL 2632FWL	2,741	0	
Corral Fly 2 State #6H	Pending	Unit B / Lot 2, Sec. 2, T25S, R29E	110FNL 2625FEL	2,741	0	
Corral Fly 2 State #7H	Pending	Unit A / Lot 1, Sec. 2, T25S, R29E	110FNL 891FEL	2,741	0	
Corral Fly 2 State #8H	Pending	Unit A / Lot 1, Sec. 2, T25S, R29E	110FNL 861FEL	2,741	0	

**Gathering System and Pipeline Notification**

Well(s) will be connected to a production facility after flowback operations are complete, where a gas transporter system is expected be in place. OXY USA WTP Limited Partnership (“OXY”) has begun discussion with third-party gas processors and currently has two (2) potential gas gathering pipeline options. The gas produced from the production facility will be connected to a low/high pressure gathering system and processed at a processing plant. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

**Flowback Strategy**

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gatherer system at that time. Based on current information, it is OXY’s belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

**Alternatives to Reduce Flaring**

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease

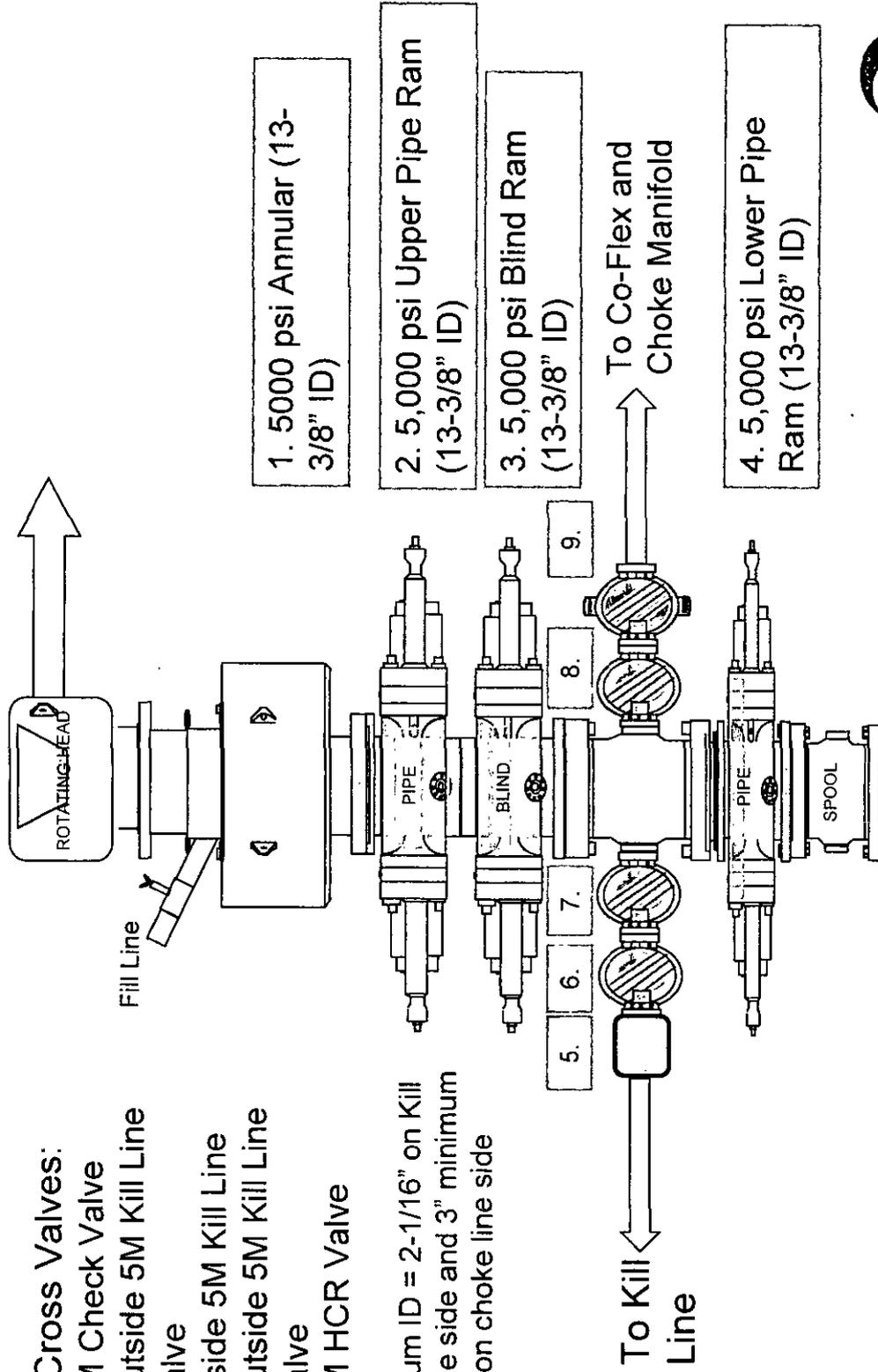
- Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

# 5M BOP Stack

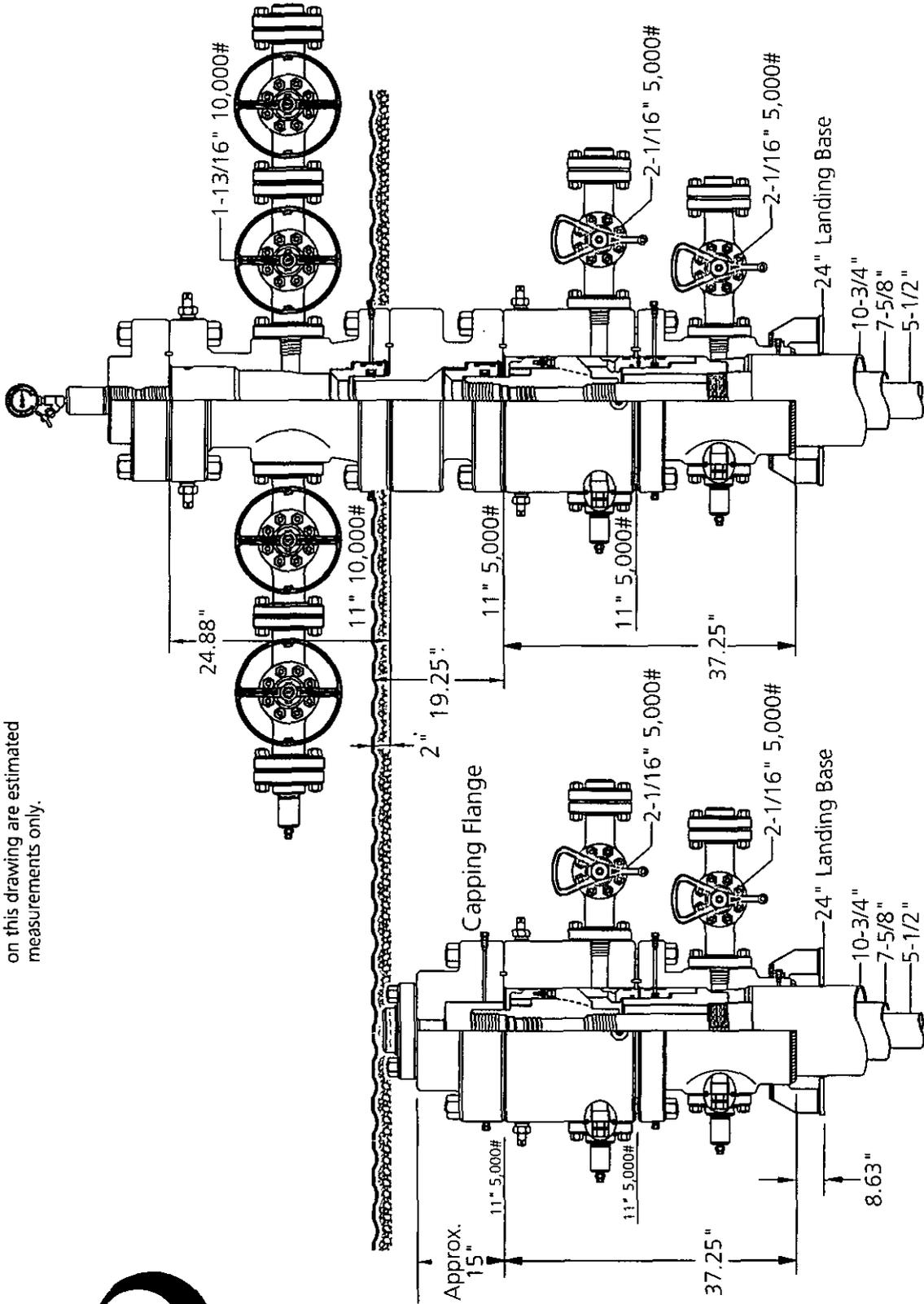
## Mud Cross Valves:

5. 5M Check Valve
6. Outside 5M Kill Line Valve
7. Inside 5M Kill Line Valve
8. Outside 5M Kill Line Valve
9. 5M HCR Valve

\*Minimum ID = 2-1/16" on Kill Line side and 3" minimum ID on choke line side



Note: Dimensional information reflected on this drawing are estimated measurements only.



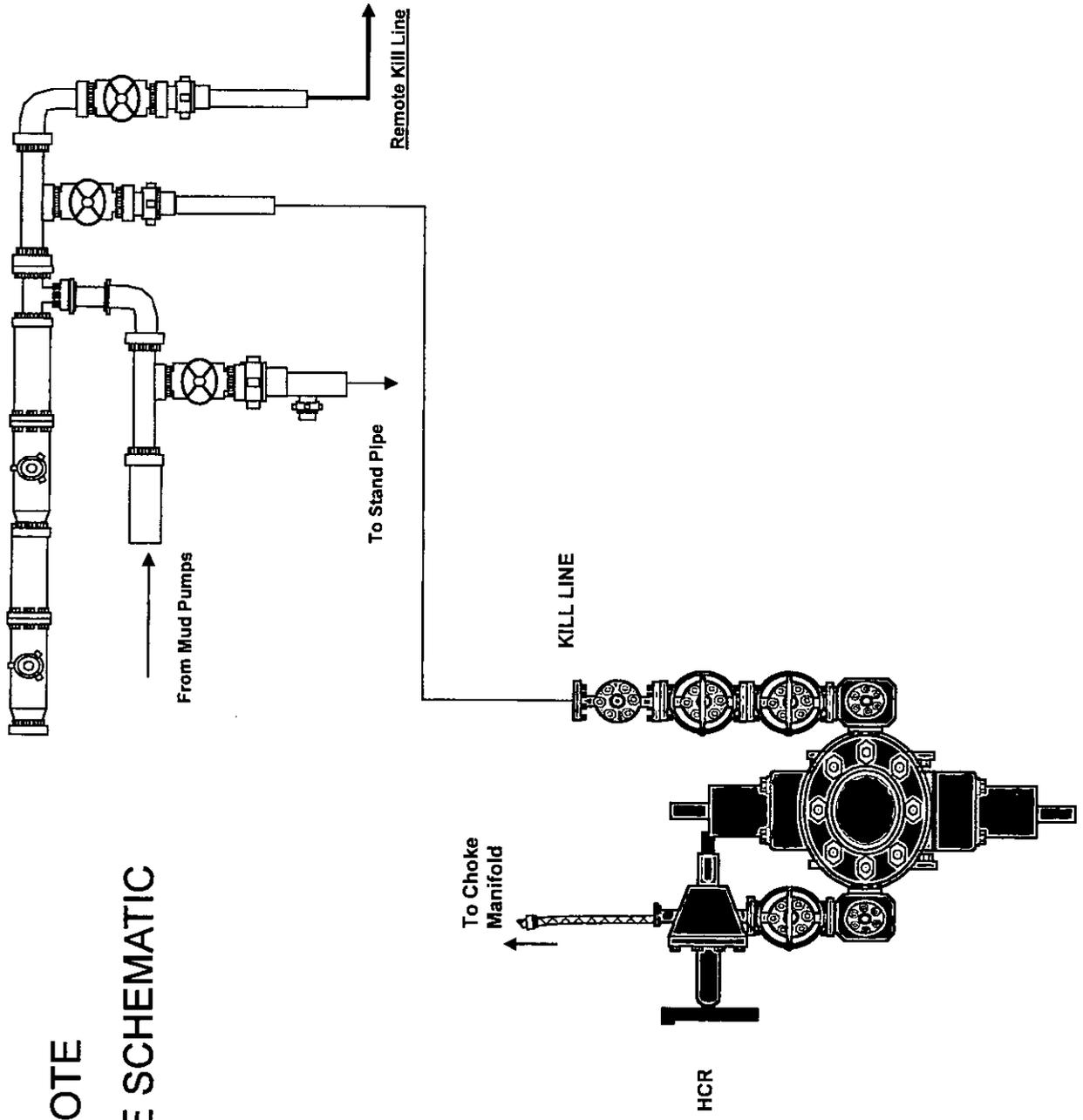
11" 10K MBS w/ 5.5" Mandrel



Name	leanette	Date	8-5-15	Working Pressure	#	J-9579-4
------	----------	------	--------	------------------	---	----------

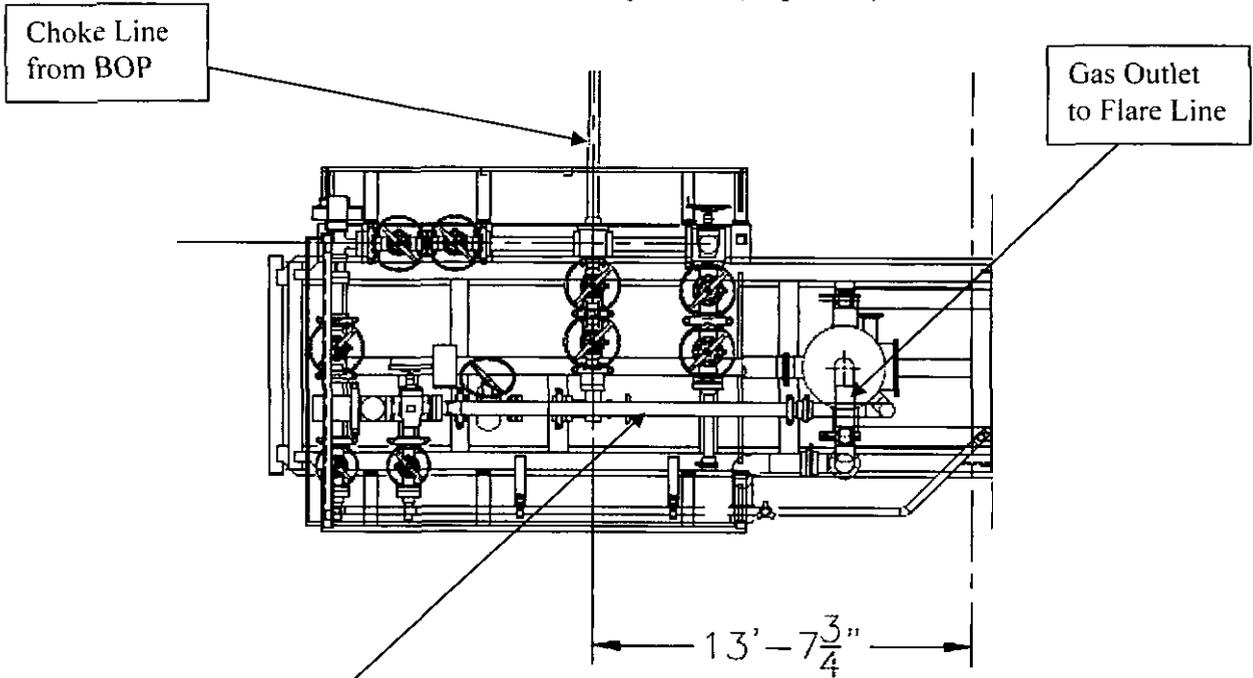


# 10M REMOTE KILL LINE SCHEMATIC

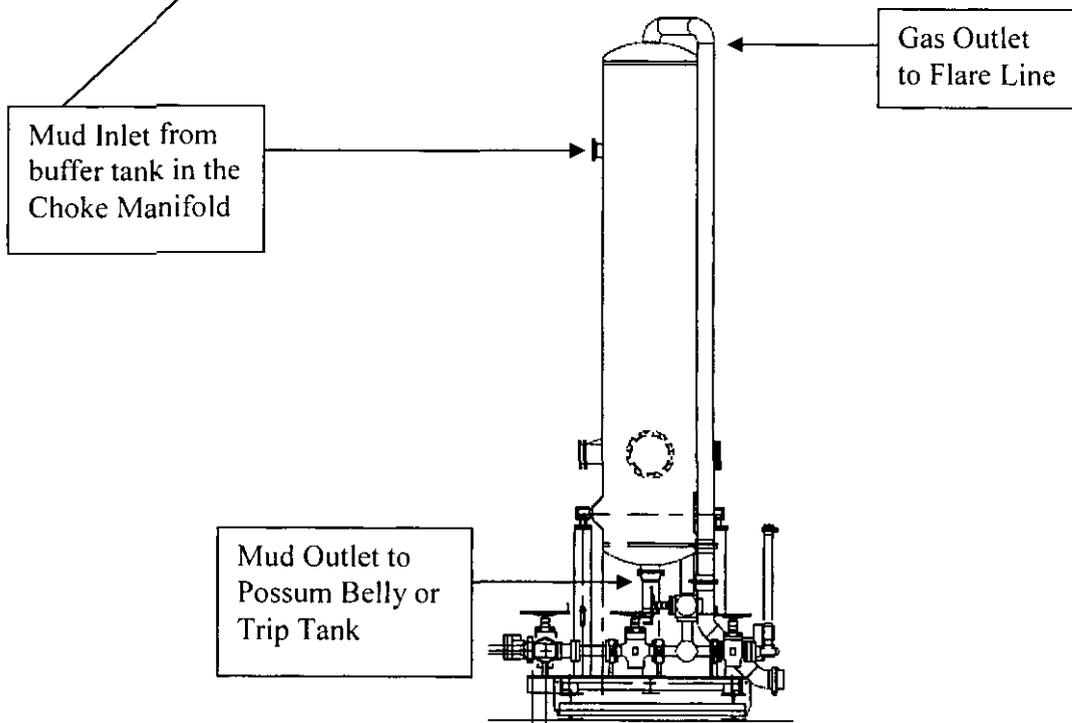




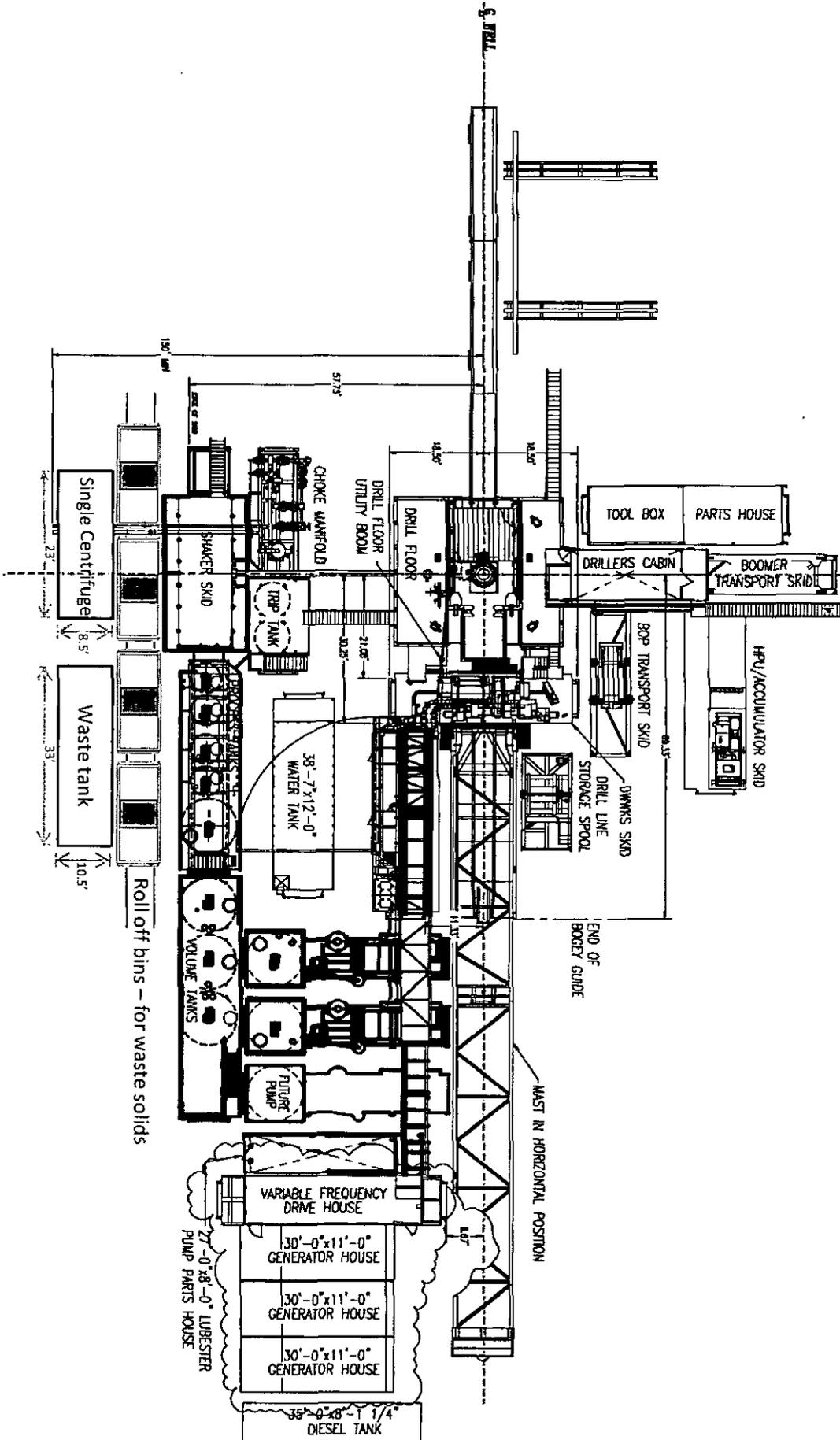
**Choke Manifold – Gas Separator (Top View)**

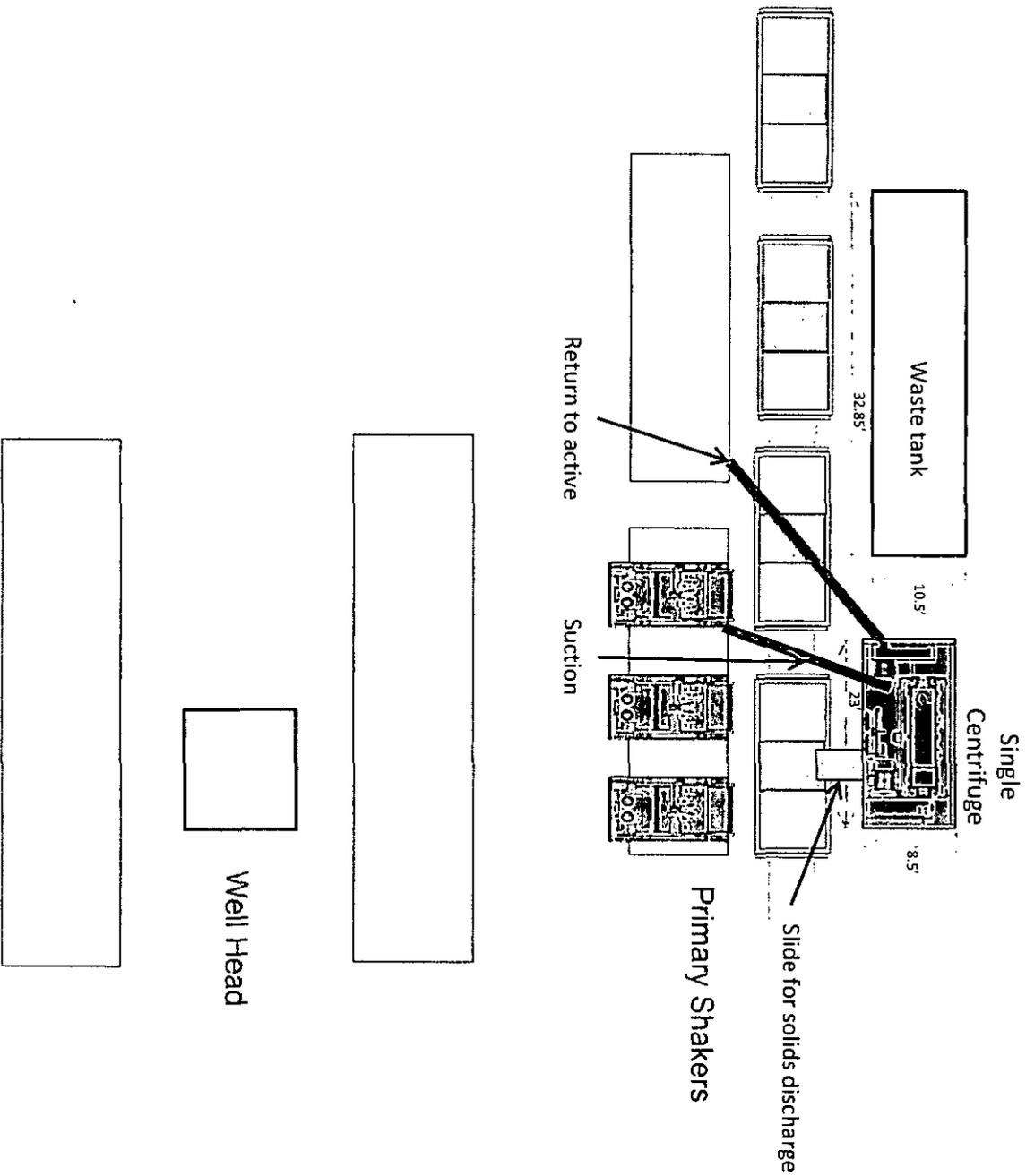


**Choke Manifold – Gas Separator (Side View)**



Oxy Single Centrifuge  
 Closed Loop System – New  
 Mexico Flex III  
 May 28, 2013





Oxy Single Centrifuge  
Closed Loop System – New

Mexico Flex III

May 28, 2013



## **Permian Drilling Hydrogen Sulfide Drilling Operations Plan Corral Fly 2 State 8H**

Open drill site. No homes or buildings are near the proposed location.

### 1. Escape

Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction, then a secondary egress route should be taken.

▲ H2S Detectors. At least three detectors will be installed: bell nipple, rig floor and Shakers.

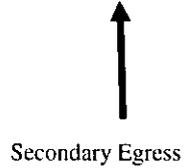
● Briefing Areas. At least two briefing areas will be placed, 90 deg off.

■ Wind direction indicators. Visible from rig floor and from the mud pits area.

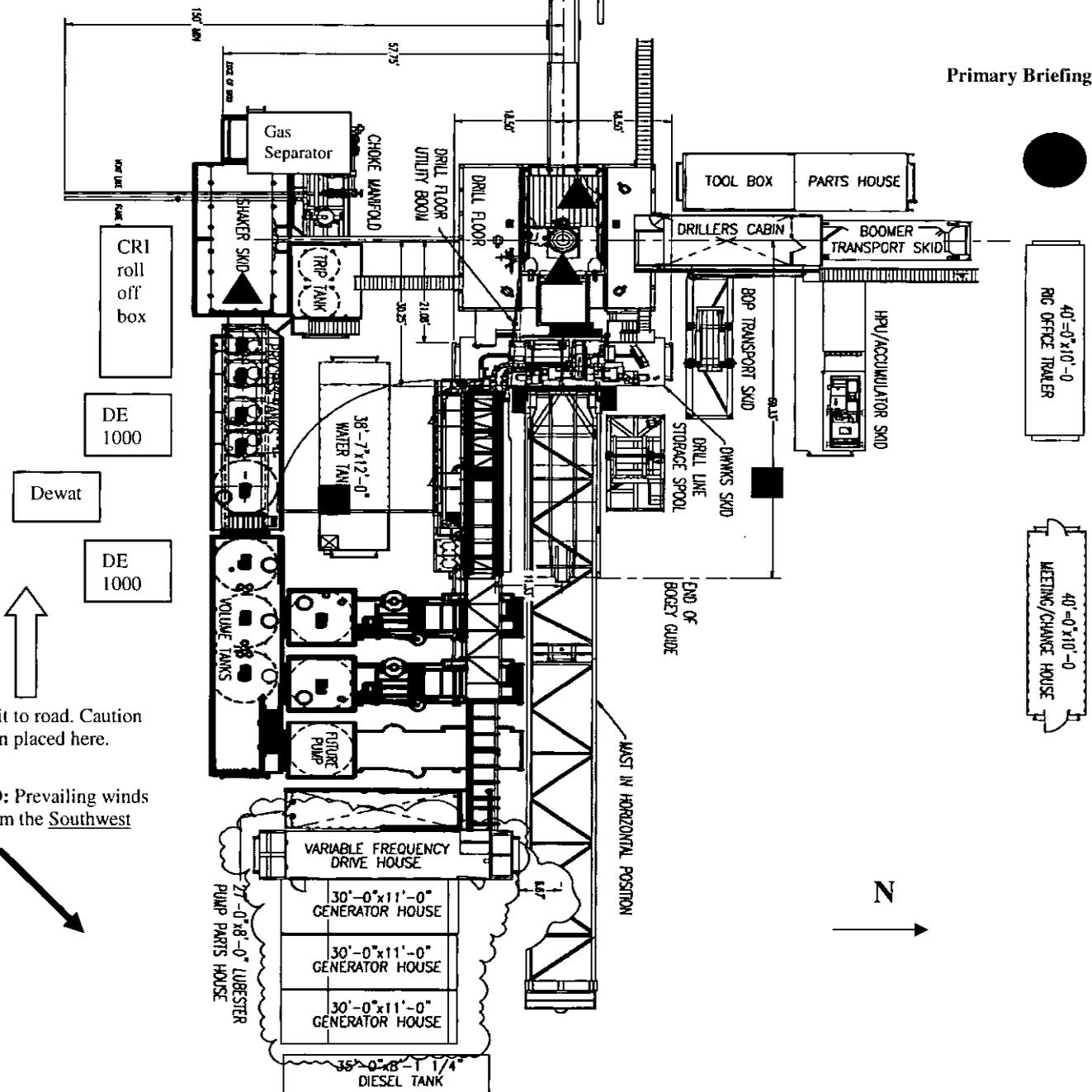
A gas buster is connected to both the choke manifold and flowline outlets.

Secondary Briefing Area

Rig Layout



Primary Briefing Area





## **Permian Drilling Hydrogen Sulfide Drilling Operations Plan New Mexico**

### **Scope**

This contingency plan establishes guidelines for the public, all company employees, and contract employees who's work activities may involve exposure to hydrogen sulfide (H<sub>2</sub>S) gas.

While drilling this well, it is possible to encounter H<sub>2</sub>S bearing formations. At all times, the first barrier to control H<sub>2</sub>S emissions will be the drilling fluid, which will have a density high enough to control influx.

### **Objective**

1. Provide an immediate and predetermined response plan to any condition when H<sub>2</sub>S is detected. All H<sub>2</sub>S detections in excess of 10 parts per million (ppm) concentration are considered an Emergency.
2. Prevent any and all accidents, and prevent the uncontrolled release of hydrogen sulfide into the atmosphere.
3. Provide proper evacuation procedures to cope with emergencies.
4. Provide immediate and adequate medical attention should an injury occur.

## Discussion

Implementation:	This plan with all details is to be fully implemented before drilling to <u>commence</u> .
Emergency response Procedure:	This section outlines the conditions and denotes steps to be taken in the event of an emergency.
Emergency equipment Procedure:	This section outlines the safety and emergency equipment that will be required for the drilling of this well.
Training provisions:	This section outlines the training provisions that must be adhered to prior to drilling.
Drilling emergency call lists:	Included are the telephone numbers of all persons to be contacted should an emergency exist.
Briefing:	This section deals with the briefing of all people involved in the drilling operation.
Public safety:	Public safety personnel will be made aware of any potential evacuation and any additional support needed.
Check lists:	Status check lists and procedural check lists have been included to insure adherence to the plan.
General information:	A general information section has been included to supply support information.

## **Hydrogen Sulfide Training**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on the well:

1. The hazards and characteristics of H<sub>2</sub>S.
2. Proper use and maintenance of personal protective equipment and life support systems.
3. H<sub>2</sub>S detection.
4. Proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
5. Proper techniques for first aid and rescue procedures.
6. Physical effects of hydrogen sulfide on the human body.
7. Toxicity of hydrogen sulfide and sulfur dioxide.
8. Use of SCBA and supplied air equipment.
9. First aid and artificial respiration.
10. Emergency rescue.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H<sub>2</sub>S on metal components. If high tensile strength tubular is to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling a well, blowout prevention and well control procedures.
3. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan.

H<sub>2</sub>S training refresher must have been taken within one year prior to drilling the well. Specifics on the well to be drilled will be discussed during the pre-spud meeting. H<sub>2</sub>S and well control (choke) drills will be performed while drilling the well, at least on a weekly basis. This plan shall be available in the well site. All personnel will be required to carry the documentation proving that the H<sub>2</sub>S training has been taken.

### **Service company and visiting personnel**

- A. Each service company that will be on this well will be notified if the zone contains H<sub>2</sub>S.
- B. Each service company must provide for the training and equipment of their employees before they arrive at the well site.
- C. Each service company will be expected to attend a well site briefing

## Emergency Equipment Requirements

### 1. Well control equipment

The well shall have hydraulic BOP equipment for the anticipated pressures. Equipment is to be tested on installation and follow Oxy Well Control standard, as well as BLM Onshore Order #2.

*Special control equipment:*

- A. Hydraulic BOP equipment with remote control on ground. Remotely operated choke.
- B. Rotating head
- C. Gas buster equipment shall be installed before drilling out of surface pipe.

### 2. Protective equipment for personnel

- A. Four (4) 30-minute positive pressure air packs (2 at each briefing area) on location.
- B. Adequate fire extinguishers shall be located at strategic locations.
- C. Radio / cell telephone communication will be available at the rig.
  - Rig floor and trailers.
  - Vehicle.

### 3. Hydrogen sulfide sensors and alarms

- A. H<sub>2</sub>S sensor with alarms will be located on the rig floor, at the bell nipple, and at the flow line. These monitors will be set to alarm at 10 ppm with strobe light, and audible alarm.
- B. Hand operated detectors with tubes.
- C. H<sub>2</sub>S monitor tester (to be provided by contract Safety Company.)
- D. There shall be one combustible gas detector on location at all times.

### 4. Visual Warning Systems

- A. One sign located at each location entrance with the following language:

**Caution – potential poison gas  
Hydrogen sulfide  
No admittance without authorization**

*Wind sock – wind streamers:*

- A. One 36" (in length) wind sock located at protection center, at height visible from rig floor.
- B. One 36" (in length) wind sock located at height visible from pit areas.

*Condition flags*

- A. One each condition flag to be displayed to denote conditions.

**green – normal conditions**  
**yellow – potential danger**  
**red – danger, H2S present**

- B. Condition flag shall be posted at each location sign entrance.

5. Mud Program

The mud program is designed to minimize the risk of having H2S and other formation fluids at surface. Proper mud weight and safe drilling practices will be applied. H2S scavengers will be used to minimize the hazards while drilling. Below is a summary of the drilling program.

*Mud inspection devices:*

Garrett gas train or hatch tester for inspection of sulfide concentration in mud system.

6. Metallurgy

- A. Drill string, casing, tubing, wellhead, blowout preventers, drilling spools or adapters, kill lines, choke manifold, lines and valves shall be suitable for the H2S service.
- B. All the elastomers, packing, seals and ring gaskets shall be suitable for H2S service.

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

Evacuation routes should be established prior to well spud for each well and discussed with all rig personnel.

9. Designated area

- A. Parking and visitor area: all vehicles are to be parked at a predetermined safe distance from the wellhead.
- B. There will be a designated smoking area.
- C. Two briefing areas on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds perpendicularly, or at a 45-degree angle if wind direction tends to shift in the area.

**Emergency procedures**

- A. In the event of any evidence of H<sub>2</sub>S level above 10 ppm, take the following steps:
  - 1. The Driller will pick up off bottom, shut down the pumps, slow down the pipe rotation.
  - 2. Secure and don escape breathing equipment, report to the upwind designated safe briefing / muster area.
  - 3. All personnel on location will be accounted for and emergency search should begin for any missing, the Buddy System will be implemented.
  - 4. Order non-essential personnel to leave the well site, order all essential personnel out of the danger zone and upwind to the nearest designated safe briefing / muster area.
  - 5. Entrance to the location will be secured to a higher level than our usual "Meet and Greet" requirement, and the proper condition flag will be displayed at the entrance to the location.
  - 6. Take steps to determine if the H<sub>2</sub>S level can be corrected or suppressed and, if so, proceed as required.
- B. If uncontrollable conditions occur:
  - 1. Take steps to protect and/or remove any public in the down-wind area from the rig – partial evacuation and isolation. Notify necessary public safety personnel and appropriate regulatory entities (i.e. BLM) of the situation.

2. Remove all personnel to the nearest upwind designated safe briefing / muster area or off location.
3. Notify public safety personnel of safe briefing / muster area.
4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.
5. Proceed with best plan (at the time) to regain control of the well. Maintain tight security and safety procedures.

C. Responsibility:

1. Designated personnel.
  - a. Shall be responsible for the total implementation of this plan.
  - b. Shall be in complete command during any emergency.
  - c. Shall designate a back-up.

- All personnel:
1. On alarm, don escape unit and report to the nearest upwind designated safe briefing / muster area upw
  2. Check status of personnel (buddy system).
  3. Secure breathing equipment.
  4. Await orders from supervisor.

- Drill site manager:
1. Don escape unit if necessary and report to nearest upwind designated safe briefing / muster area.
  2. Coordinate preparations of individuals to return to point of release with tool pusher and driller (using the buddy system).
  3. Determine H<sub>2</sub>S concentrations.
  4. Assess situation and take control measures.

- Tool pusher:
1. Don escape unit Report to up nearest upwind designated safe briefing / muster area.
  2. Coordinate preparation of individuals to return to point of release with tool pusher drill site manager (using the buddy system).
  3. Determine H<sub>2</sub>S concentration.
  4. Assess situation and take control measures.

- Driller:
1. Don escape unit, shut down pumps, continue

- rotating DP.
  - 2. Check monitor for point of release.
  - 3. Report to nearest upwind designated safe briefing / muster area.
  - 4. Check status of personnel (in an attempt to rescue, use the buddy system).
  - 5. Assigns least essential person to notify Drill Site Manager and tool pusher by quickest means in case of their absence.
  - 6. Assumes the responsibilities of the Drill Site Manager and tool pusher until they arrive should they be absent.
- Derrick man  
Floor man #1  
Floor man #2
- 1. Will remain in briefing / muster area until instructed by supervisor.
- Mud engineer:
- 1. Report to nearest upwind designated safe briefing / muster area.
  - 2. When instructed, begin check of mud for pH and H<sub>2</sub>S level. (Garett gas train.)
- Safety personnel:
- 1. Mask up and check status of all personnel and secure operations as instructed by drill site manager.

### **Taking a kick**

When taking a kick during an H<sub>2</sub>S emergency, all personnel will follow standard Well control procedures after reporting to briefing area and masking up.

### **Open-hole logging**

All unnecessary personnel off floor. Drill Site Manager and safety personnel should monitor condition, advise status and determine need for use of air equipment.

### **Running casing or plugging**

Following the same “tripping” procedure as above. Drill Site Manager and safety personnel should determine if all personnel have access to protective equipment.

### Ignition procedures

The decision to ignite the well is the responsibility of the operator (Oxy Drilling Management). The decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope controlling the blowout under the prevailing conditions at the well.

#### Instructions for igniting the well

1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man (tool pusher or safety engineer) will check the atmosphere for explosive gases with the gas monitor. The other man is responsible for igniting the well.
2. Primary method to ignite: 25 mm flare gun with range of approximately 500 feet.
3. Ignite upwind and do not approach any closer than is warranted.
4. Select the ignition site best for protection, and which offers an easy escape route.
5. Before firing, check for presence of combustible gas.
6. After lighting, continue emergency action and procedure as before.
7. All unassigned personnel will remain in briefing area until instructed by supervisor or directed by the Drill Site Manager.

**Remember:** After well is ignited, burning hydrogen sulfide will convert to sulfur dioxide, which is also highly toxic. **Do not assume the area is safe after the well is ignited.**

**Status check list**

Note: All items on this list must be completed before drilling to production casing point.

1. H2S sign at location entrance.
2. Two (2) wind socks located as required.
3. Four (4) 30-minute positive pressure air packs (2 at each Briefing area) on location for all rig personnel and mud loggers.
4. Air packs inspected and ready for use.
5. Cascade system and hose line hook-up as needed.
6. Cascade system for refilling air bottles as needed.
7. Condition flag on location and ready for use.
8. H2S detection system hooked up and tested.
9. H2S alarm system hooked up and tested.
10. Hand operated H2S detector with tubes on location.
11. 1 – 100' length of nylon rope on location.
12. All rig crew and supervisors trained as required.
13. All outside service contractors advised of potential H2S hazard on well.
14. No smoking sign posted and a designated smoking area identified.
15. Calibration of all H2S equipment shall be noted on the IADC report.

Checked by: \_\_\_\_\_ Date: \_\_\_\_\_

### **Procedural check list during H2S events**

#### **Perform each tour:**

1. Check fire extinguishers to see that they have the proper charge.
2. Check breathing equipment to ensure that it is in proper working order.
3. Make sure all the H2S detection system is operative.

#### **Perform each week:**

1. Check each piece of breathing equipment to make sure that demand or forced air regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you receive air or feel air flow.
2. BOP skills (well control drills).
3. Check supply pressure on BOP accumulator stand by source.
4. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.
5. Check pressure on breathing equipment air bottles to make sure they are charged to full volume. ( Air quality checked for proper air grade "D" before bringing to location)
6. Confirm pressure on all supply air bottles.
7. Perform breathing equipment drills with on-site personnel.
8. Check the following supplies for availability.
  - A. Emergency telephone list.
  - B. Hand operated H2S detectors and tubes.

### General evacuation plan

1. When the company approved supervisor (Drill Site Manager, consultant, rig pusher, or driller) determines the H<sub>2</sub>S gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan.
2. Drill Site Manager or designee will notify local government agency that a hazardous condition exists and evacuation needs to be implemented.
3. Company or contractor safety personnel that have been trained in the use of H<sub>2</sub>S detection equipment and self-contained breathing equipment will monitor H<sub>2</sub>S concentrations, wind directions, and area of exposure. They will delineate the outer perimeter of the hazardous gas area. Extension to the evacuation area will be determined from information gathered.
4. Law enforcement personnel (state police, police dept., fire dept., and sheriff's dept.) Will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.
5. After the discharge of gas has been controlled, company safety personnel will determine when the area is safe for re-entry.

**Important: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.**

### Emergency actions

#### Well blowout – if emergency

1. Evacuate all personnel to “Safe Briefing / Muster Areas” or off location if needed.
2. If sour gas – evacuate rig personnel.
3. If sour gas – evacuate public within 3000 ft radius of exposure.
4. Don SCBA and shut well in if possible using the buddy system.
5. Notify Drilling Superintendent and call 911 for emergency help (fire dept and ambulance) if needed.
6. Implement the Blowout Contingency Plan, and Drilling Emergency Action Plan.
6. Give first aid as needed.

#### Person down location/facility

1. If immediately possible, contact 911. Give location and wait for confirmation.
2. Don SCBA and perform rescue operation using buddy system.

### Toxic effects of hydrogen sulfide

Hydrogen sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 ppm, which is .001% by volume. Hydrogen sulfide is heavier than air (specific gravity – 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in table i. Physical effects at various hydrogen sulfide exposure levels are shown in table ii.

Table i  
Toxicity of various gases

Common name	Chemical formula	Specific gravity (sc=1)	Threshold limit (1)	Hazardous limit (2)	Lethal concentration (3)
Hydrogen Cyanide	Hcn	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H2S	1.18	10 ppm	250 ppm/hr	600 ppm
Sulfur Dioxide	So2	2.21	5 ppm	-	1000 ppm
Chlorine	Cl2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	Co	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	Co2	1.52	5000 ppm	5%	10%
Methane	Ch4	0.55	90,000 ppm	Combustible above 5% in air	

- 1) threshold limit – concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.
- 2) hazardous limit – concentration that will cause death with short-term exposure.
- 3) lethal concentration – concentration that will cause death with short-term exposure.

### Toxic effects of hydrogen sulfide

Table ii  
Physical effects of hydrogen sulfide

<u>Percent (%)</u>	<u>Ppm</u>	<u>Concentration</u> Grains <u>100 std. Ft3*</u>	<u>Physical effects</u>
0.001	<10	00.65	Obvious and unpleasant odor.

0.002	10	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kill smell in 3 – 15 minutes. May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; stings eyes and throat.
0.050	500	32.96	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; followed by death within minutes.

\*at 15.00 psia and 60°f.

### Use of self-contained breathing equipment (SCBA)

1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.
2. SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned, and maintained.
3. Anyone who may use the SCBA's shall be trained in how to insure proper face-piece to face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. (note: such items as facial hair {beard or sideburns} and eyeglasses will not allow proper seal.) Anyone that may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses.
4. Maintenance and care of SCBA's:
  - a. A program for maintenance and care of SCBA's shall include the following:
    1. Inspection for defects, including leak checks.
    2. Cleaning and disinfecting.
    3. Repair.
    4. Storage.
  - b. Inspection, self-contained breathing apparatus for emergency use shall be inspected monthly.
    1. Fully charged cylinders.
    2. Regulator and warning device operation.
    3. Condition of face piece and connections.
    4. Rubber parts shall be maintained to keep them pliable and prevent deterioration.
  - c. Routinely used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.
5. Persons assigned tasks that requires use of self-contained breathing equipment shall be certified physically fit (medically cleared) for breathing equipment usage at least annually.
6. SCBA's should be worn when:
  - A. Any employee works near the top or on top of any tank unless test reveals less than 10 ppm of H<sub>2</sub>S.

- B. When breaking out any line where H<sub>2</sub>S can reasonably be expected.
- C. When sampling air in areas to determine if toxic concentrations of H<sub>2</sub>S exists.
- D. When working in areas where over 10 ppm H<sub>2</sub>S has been detected.
- E. At any time there is a doubt as to the H<sub>2</sub>S level in the area to be entered.

**Rescue**  
**First aid for H<sub>2</sub>S poisoning**

**Do not panic!**

Remain calm – think!

1. Don SCBA breathing equipment.
2. Remove victim(s) utilizing buddy system to fresh air as quickly as possible. (go up-wind from source or at right angle to the wind. Not down wind.)
3. Briefly apply chest pressure – arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.
4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.
5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H<sub>2</sub>S gas poisoning – no matter how remote the possibility is.
6. Notify emergency room personnel that the victim(s) has been exposed to H<sub>2</sub>S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration.

Revised CM 6/27/2012

## NMOCD CONDITION OF APPROVAL

The *New* Gas Capture Plan (GCP) notice is posted on the NMOCD website under Announcements. The Plan became effective May 1, 2016. A copy of the GCP form is included with the NOTICE and is also in our FORMS section under Unnumbered Forms. Please review filing dates for all applicable activities currently approved or pending and submit accordingly. Failure to file a GCP may jeopardize the operator's ability to obtain C-129 approval to flare gas after the initial 60-day completion period.