

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 and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

HOBBS OCD Form C-101
Revised July 18, 2013

JAN 10 2014 **AMENDED REPORT**

RECEIVED

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address OXY USA Inc. P.O. Box 50250 Midland, TX 79710		4. OGRID Number 16696	
2. Property Code 305098		5. API Number 30-025-41735	
3. Property Name Copperhead 18 State SWD		6. Well No. 1	

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
G	18	24S	33E		2310	North	2310	east	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County

9. Pool Information

Pool Name SWD Delaware	Pool Code 96100
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Additional Well Information

11. Work Type N	12. Well Type S	13. Cable/Rotary R	14. Lease Type S ✓	15. Ground Level Elevation 3554.4' GL
16. Multiple NO	17. Proposed Depth 6759'	18. Formation Delaware	19. Contractor TBD	20. Spud Date
Depth to Ground water		Distance from nearest fresh-water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17 1/2"	13 3/8"	48# H40	1200'	1165	Surface
Int.	12 1/4"	9 5/8"	36# J55	5050'	1870	Surface
PROD	8 3/4"	7"	29# L80	6759'	420	4000'

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	5000	5000	
Annular	5000	5000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable. Signature: <i>David Stewart</i> Printed name: David Stewart Title: SR. Regulatory Advisor E-mail Address: david_stewart@oxy.com Date: 1/2/14 Phone: 432-685-5717		OIL CONSERVATION DIVISION Approved By: <i>[Signature]</i> Title: <i>[Signature]</i> Approved Date: 03/17/14 Expiration Date: 03/17/16 Conditions of Approval Attached	
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SWD-1467

MAR 18 2014

Operator Name/Number: OXY USA Inc. 16696
 Lease Name/Number: Copperhead 18 State SWD #1 305098
 Pool Name/Number: SWD Delaware
 Surface Location: 2310 FNL 2310 FEL G Sec 18 T24S R33E

C-102 Plats: 8/27/13 9/9/13 12/3/13 Elevation: 3554.4' GL Objective: Delaware

Proposed TD: 6759' TVD

SL - Lat: 32.2184693 Long: 103.6098721 X=723738.3 Y=443951.5 NAD - 1927

Casing Program:

Hole Size	Interval	OD Csg	Weight	Collar	Grade	Condition	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17-1/2"	0-1200'	13-3/8"	48	ST&C	H-40	New	1.56	1.43	2.16
				Hole filled with 8.5# Mud			736#	1727#	
12-1/4"	0-5050'	9-5/8"	36	LT&C	J-55	New	1.22	1.21	1.79
				Hole filled with 10.2# Mud			2024#	3520#	
8-3/4"	0-6759'	7"	29	L-80	BT&C	New	2.18	1.2	2.52
				Hole filled with 9.6# Mud			7026#	8160#	

Collapse and burst loads calculated using Stress Check with anticipated loads

Cement Program:

- 13-3/8" Surface Circulate cement to surface w/ 815sx PPC cmt w/ 1% CaCl₂ + 4% Bentonite + .125#/sx Poly-E-Flake, 13.5ppg 1.73 yield 888# 24hr CS 125% Excess followed by 350sx PPC w/ 1% CaCl₂, 14.8ppg 1.34 yield 1416# 24hr CS 125% Excess.
- 9-5/8" Intermediate Circulate cement to surface w/ 1410sx HES Light PPC cmt w/ 5% salt + .25% HR-800, 12.9ppg 1.85 yield 771# 24hr CS 125% Excess followed by 460sx PPC cmt, 14.8ppg 1.33 yield 1779# 24hr CS 125% Excess
- 7" Production Cement w/ 100sx HES Light PPC cmt, 12.4ppg 2.10 yield 511# 24hr CS 10% excess followed by 320sx Super H cmt w/ .4% CFR-3 + .5% Halad(R)-344 + .3% HR-800 + .125#/sx Poly-E-Flake, 13.2ppg 1.66 yield 615# 24hr CS 100% Excess. Calc TOC-4000'

Description of Cement Additives: Calcium Chloride, Salt (Accelerator); CFR-3 (Dispersant); Bentonite (Light Weight Additive); Kol-Seal, Poly-E-Flake (Lost Circulation Additive); Halad(R)-344 (Low Fluid Loss Control); HR-800 (Retarder)

The above cement volumes could be revised pending the caliper measurement.

Proposed Mud Circulation System:

Depth	Mud Wt. ppg	Visc sec	Fluid Loss	Type System
0 - 1200'	8.5	28-38	NC	Fresh Water/Spud Mud
1200 - 5050'	10.2	28-32	NC	Fresh water/NaCl Brine
5050 - 6759'	9.2	28-34	NC	Cut Brine/Sweeps

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.

BOP Program:

Surface None
 Intermediate/Production 13-5/8" 10M three ram stack w/ 5M annular preventer, 5M Choke Manifold

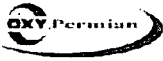
Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:

Geological Marker	Depth	Type
a. Rustler	1177'	Formation
b. Top Salt	1536'	Formation
c. Bottom Salt	5006'	Formation
d. Delaware	5016'	Formation
e. Delaware-Bell Canyon	5043'	Oil/Gas
f. Delaware-Cherry Canyon	5936'	Oil/Gas
g. Delaware-Brushy Canyon	7302'	Oil/Gas

Fresh water may be present above the Rustler formation. Surface casing will be set below the top of the Rustler, which will cover potential fresh water sources.

A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins.

Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility.



Azimuths to Grid
True North: ()
Magnetic North: ()

Magnetic
Strength: 48372.1
Dip Angle: 61
Date: 10/23/
Model: IGRF:

To convert a Magnetic Direction to a Grid Direction, Add 5.93°
To convert a True Direction to a Grid Direction, Subtract 0.39°

KB @ 3578.40'
Gr @ 3554.40'

Copperhead 18 SWD 1
Lea County, New Mexico
Northing: 443951.50
Easting: 723738.30
Design #1

WELL DETAILS Copperhead 18 SWD 1

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	443951.50	723738.30	32.218	-103.610

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
6759.00	0.00	0.00	6759.00	0.00	0.00	0.00	0.00	0.00	0.00

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
BHL TGT	6759.00	0.00	0.00	443951.50	723738.30

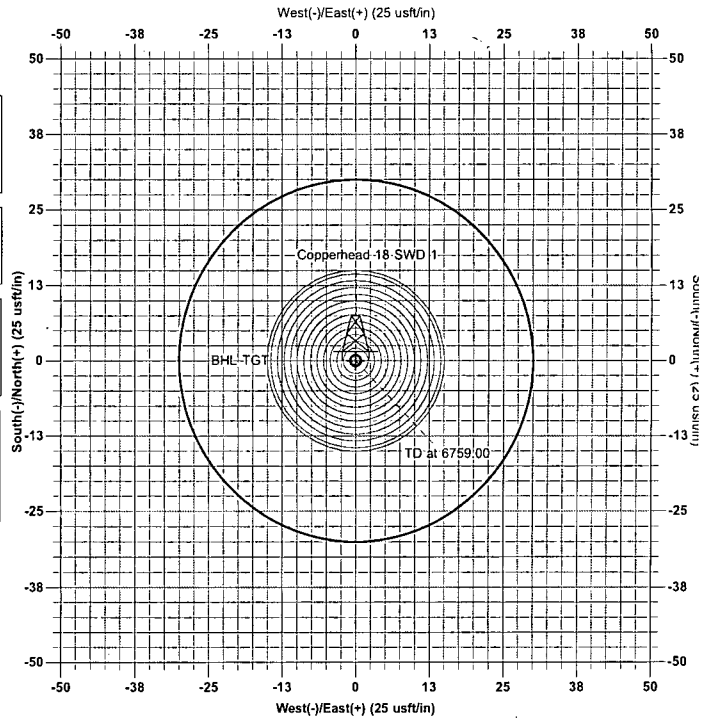
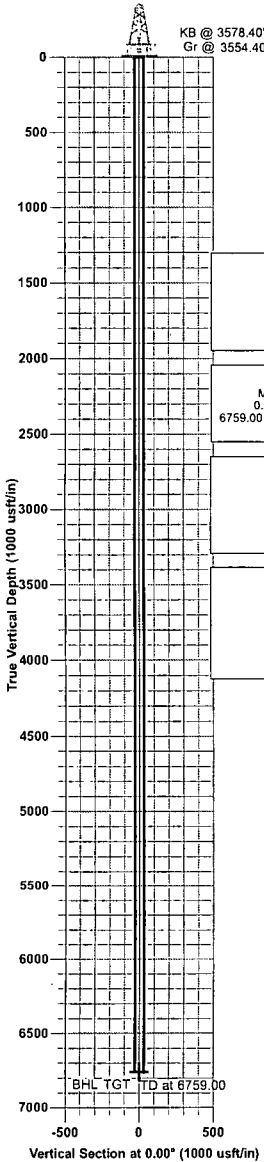
SITE DETAILS:

Copperhead 18 SWD 1
Site Centre Northing: 443951.50
Easting: 723738.30

Positional Uncertainty: 0.00
Convergence: 0.39
Local North: Grid

PROJECT DETAILS:

Lea County, New Mexico
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level



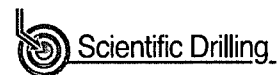
Jody Barclay
11:26, October 23 2011

Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234



Scientific Drilling

Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well Copperhead 18 SWD 1
Company:	OXY	TVD Reference:	KB @ 3578.40usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3578.40usft
Site:	Copperhead 18 SWD 1	North Reference:	Grid
Well:	Copperhead 18 SWD 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Project	Lea County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Copperhead 18 SWD 1				
Site Position:		Northing:	443,951.50 usft	Latitude:	32.218
From:	Map	Easting:	723,738.30 usft	Longitude:	-103.610
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.39

Well	Copperhead 18 SWD 1					
Well Position	+N/-S	0.00 usft	Northing:	443,951.50 usft	Latitude:	32.218
	+E/-W	0.00 usft	Easting:	723,738.30 usft	Longitude:	-103.610
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,554.40 usft

Wellbore	Original Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/23/2013	7.31	60.12	48,372

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	0.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,759.00	0.00	0.00	6,759.00	0.00	0.00	0.00	0.00	0.00	0.00	



Scientific Drilling

Planning Report



Database:	CompassC	Local Co-ordinate Reference:	Well Copperhead 18 SWD 1
Company:	OXY	TVD Reference:	KB @ 3578.40usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3578.40usft
Site:	Copperhead 18 SWD 1	North Reference:	Grid
Well:	Copperhead 18 SWD 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

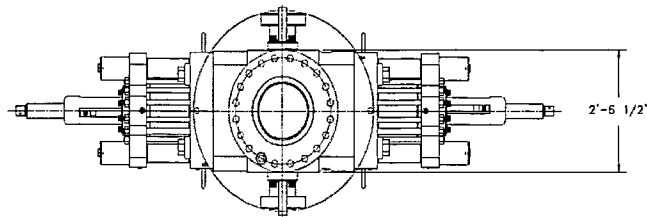
Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
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2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
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2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
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3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
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3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
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3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
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4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
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4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00



Database:	CompassC	Local Co-ordinate Reference:	Well Copperhead 18 SWD 1
Company:	OXY	TVD Reference:	KB @ 3578.40usft
Project:	Lea County, New Mexico	MD Reference:	KB @ 3578.40usft
Site:	Copperhead 18 SWD 1	North Reference:	Grid
Well:	Copperhead 18 SWD 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,759.00	0.00	0.00	6,759.00	0.00	0.00	0.00	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
BHL TGT	0.00	0.00	6,759.00	0.00	0.00	443,951.50	723,738.30	32.218	-103.610	
- plan hits target center										
- Circle (radius 30.00)										



LEGEND

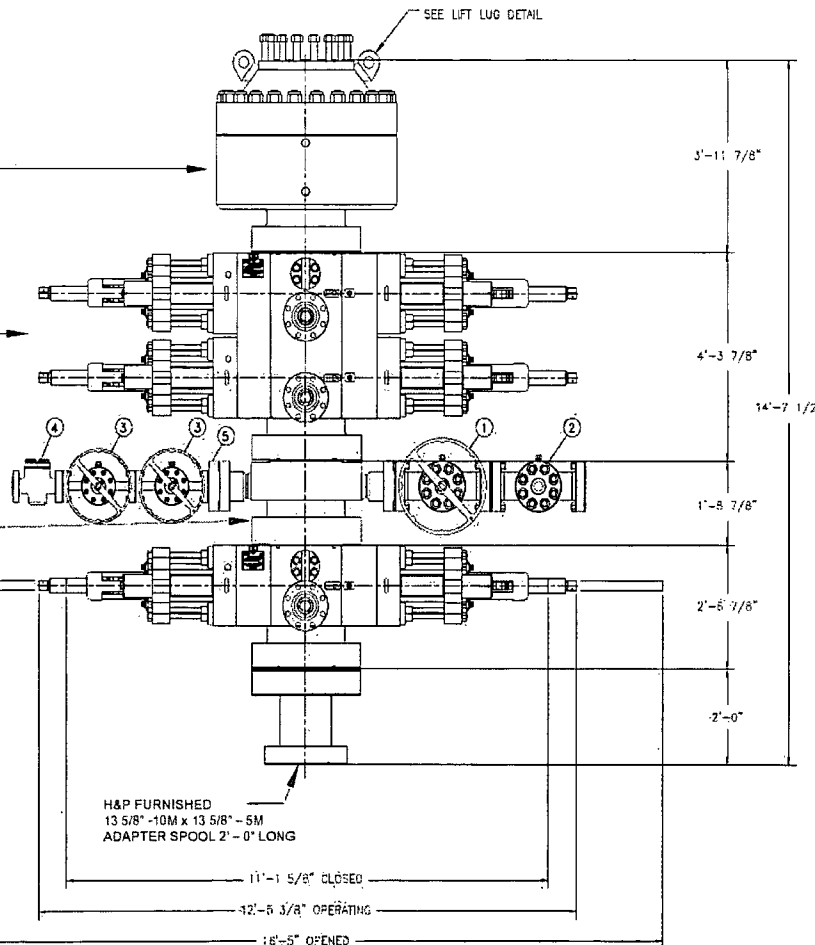
- ① - 4 1/16"-10M FLANGED END GATE VALVE
- ② - 4 1/16"-10M FLANGED END GATE VALVE WITH DOUBLE ACTING HYDRAULIC ACTUATOR
- ③ - 2 1/16"-10M FLANGED END GATE VALVE
- ④ - 2 1/16"-10M FLANGED END CHECK VALVE
- ⑤ - DOUBLE STUDDED ADAPTER

SHAFTER BOLTED-COVER SPHERICAL ANNULAR PREVENTER, (API 16A MONOGRAMMED, 13 5/8"-5M WP), 10M BOTTOM FLANGE x 5M STUDDED TOP (WEIGHT = 14,300 LBS WITH SHAFTER API 16A HOT OIL RESISTANT ACRYLONITRILE ELEMENT)

CAMERON UM DOUBLE RAM-TYPE PREVENTER (API 16A MONOGRAMMED, 13 5/8"-10M WP), WITH 5" CAMERON PIPE RAMS (CAMRAM FRONT PACKERS & TOP SEALS) IN TOP CAVITY AND CAMERON DS SHEARING BLIND RAMS IN BOTTOM CAVITY. BOTTOM FLANGE x STUDDED TOP (WEIGHT = 21,100 LBS; WITH RAMS)

13 5/8"-10M WP CAMERON DRILLING SPOOL (API 16A MONOGRAMMED), STUDDED TOP x FLANGED BOTTOM, WITH 4 1/16"-10M WP FLANGED OUTLETS (WEIGHT APPROXIMATELY 6,000 LBS)

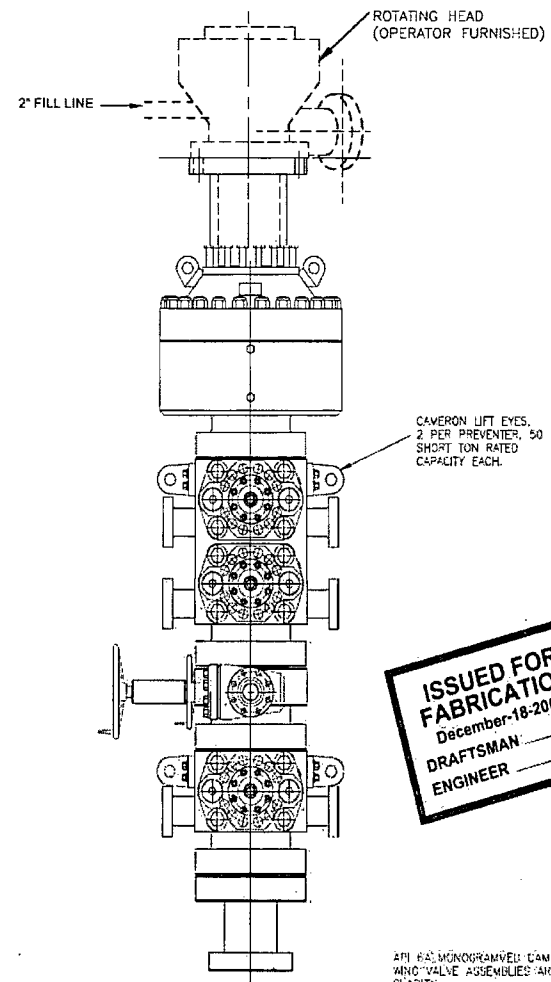
CAMERON UM SINGLE RAM-TYPE PREVENTER (API 16A MONOGRAMMED, 13 5/8"-10M WP), WITH 5" CAMERON PIPE RAMS (CAMRAM FRONT PACKERS & TOP SEALS) BOTTOM FLANGE x STUDDED TOP (WEIGHT = 10,900 LBS)



13 5/8 - 10M BOP STACK WITH 13 5/8 - 5M ANNULAR

PROPRIETARY

THIS DRAWING AND THE IDEAS AND INFORMATION INCLUDED IN THIS DRAWING ARE PROPRIETARY AND ARE NOT TO BE REPRODUCED, DISTRIBUTION OR DISCLOSED IN ANY MANNER WITHOUT THE PRIOR WRITTEN CONSENT OF A DULY AUTHORIZED OFFICE OF HELMERICH & PAYNE INTL DRILLING CO.



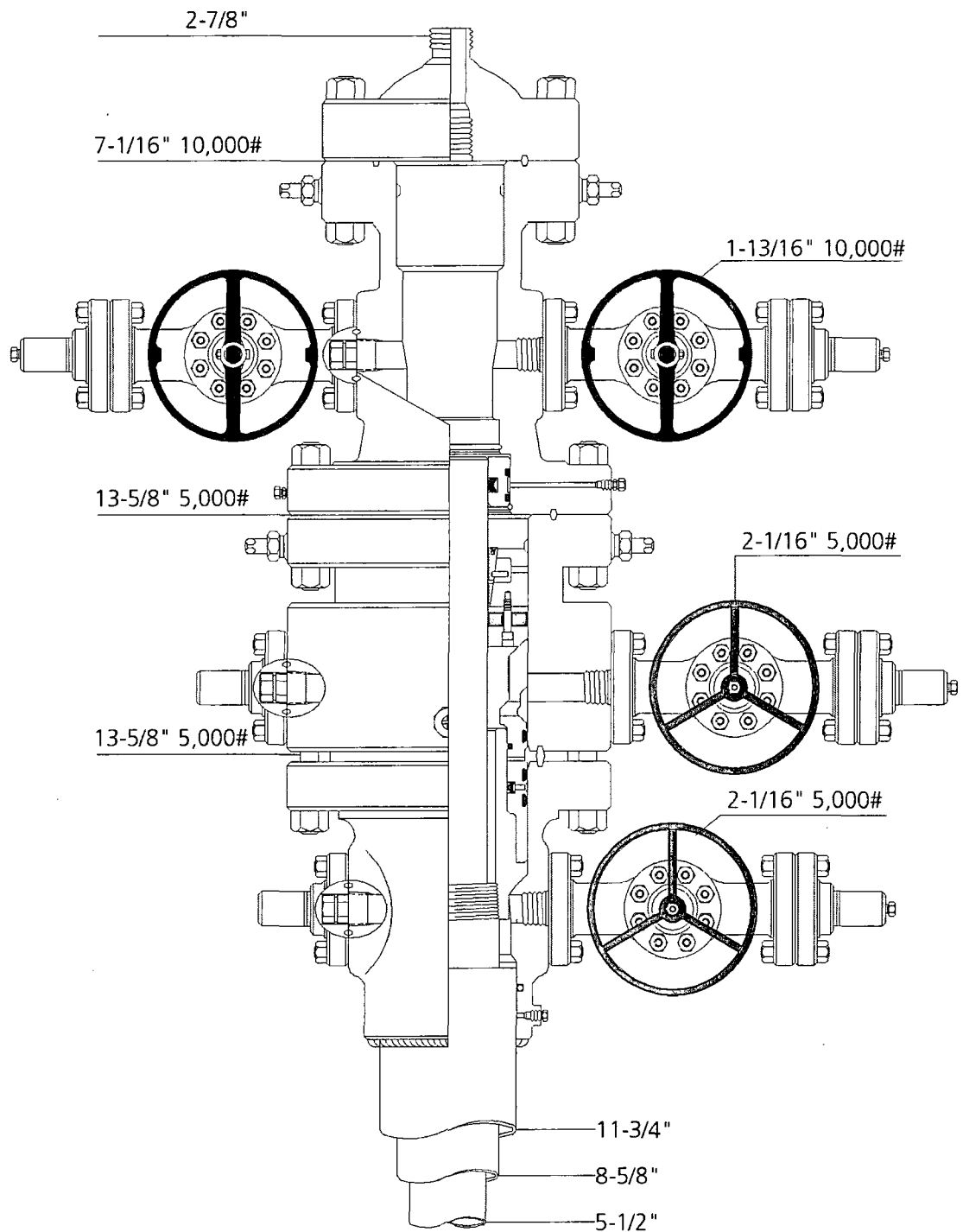
**ISSUED FOR
FABRICATION**
December-18-2007
DRAFTSMAN
ENGINEER

API 16A MONOGRAMMED CAMERON CHOKER AND KILL AND VALVE ASSEMBLIES ARE NOT SHOWN FOR CLARITY

WEIGHTS DO NOT INCLUDE HOSES, ADAPTER SPOOLS OR QUICK CONNECT FITTINGS

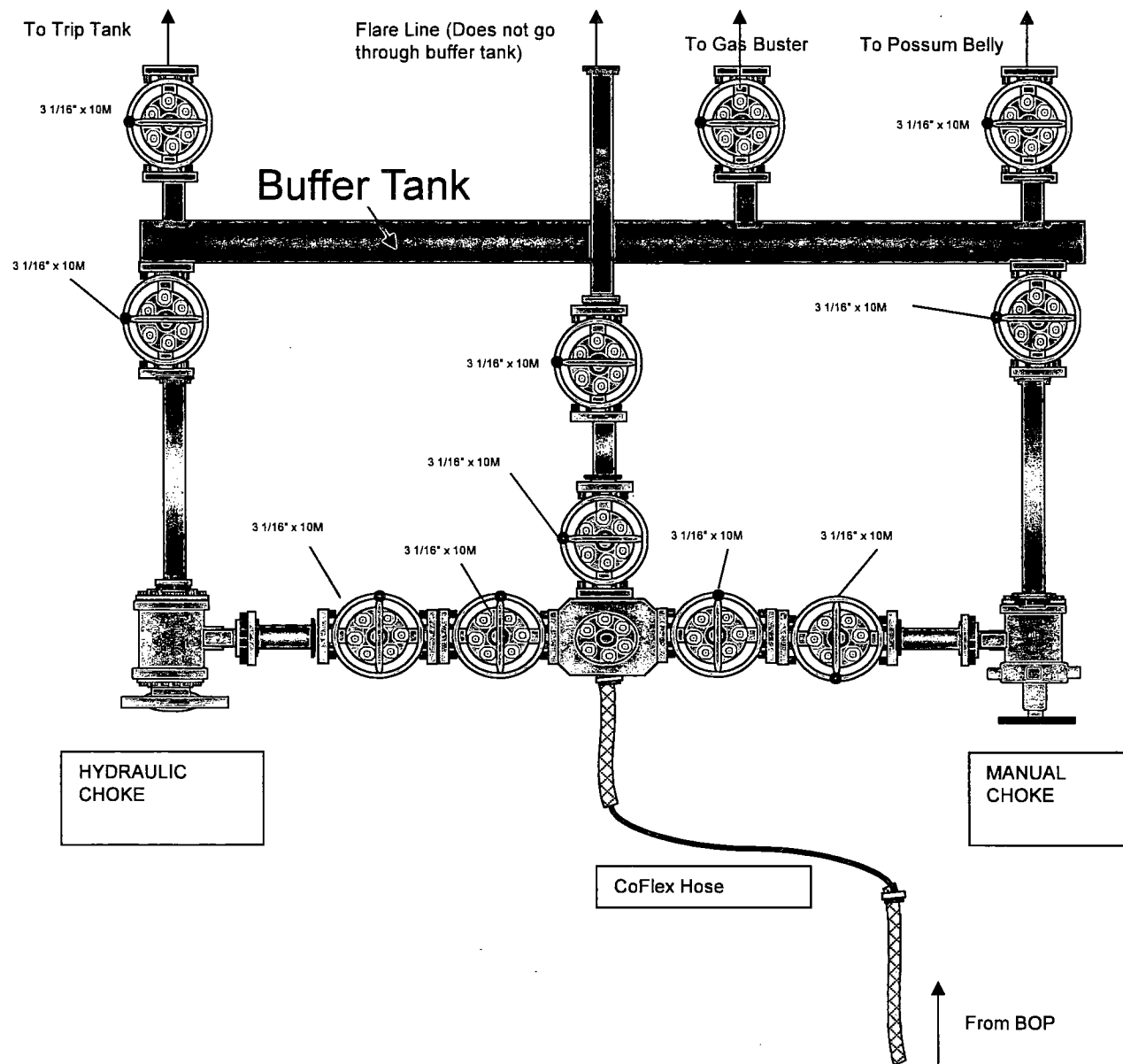
HELMERICH & PAYNE
INTERNATIONAL DRILLING CO.

ENGINEERING APPROVAL	DATE	TITLE
12/18/07	ADDED SHEET 03	13 5/8"-10M BOP 3 RAM STACK
4-10-07	HELMERICH NOTED BOP STACKS LOWER RAMS 1, 2, 3 & 4 AND NO OTHER VALVE ADDED	'FLEXRIG3'
4-24-07	2" ADDED TO SPIDER ADAPTER SPOOL	CUSTOMER: H&P
02-07-07	ADDED ADAPTER SPOOL	PROJECT: FLEXRIG3
06-13-02	CORRECTED BOP STACK	DRAWN: MTS
REV	DATE	DESCRIPTION
1	12-18-07	ADDED SHEET 03
2	4-10-07	HELMERICH NOTED BOP STACKS LOWER RAMS 1, 2, 3 & 4 AND NO OTHER VALVE ADDED
3	4-24-07	2" ADDED TO SPIDER ADAPTER SPOOL
4	02-07-07	ADDED ADAPTER SPOOL
5	06-13-02	CORRECTED BOP STACK
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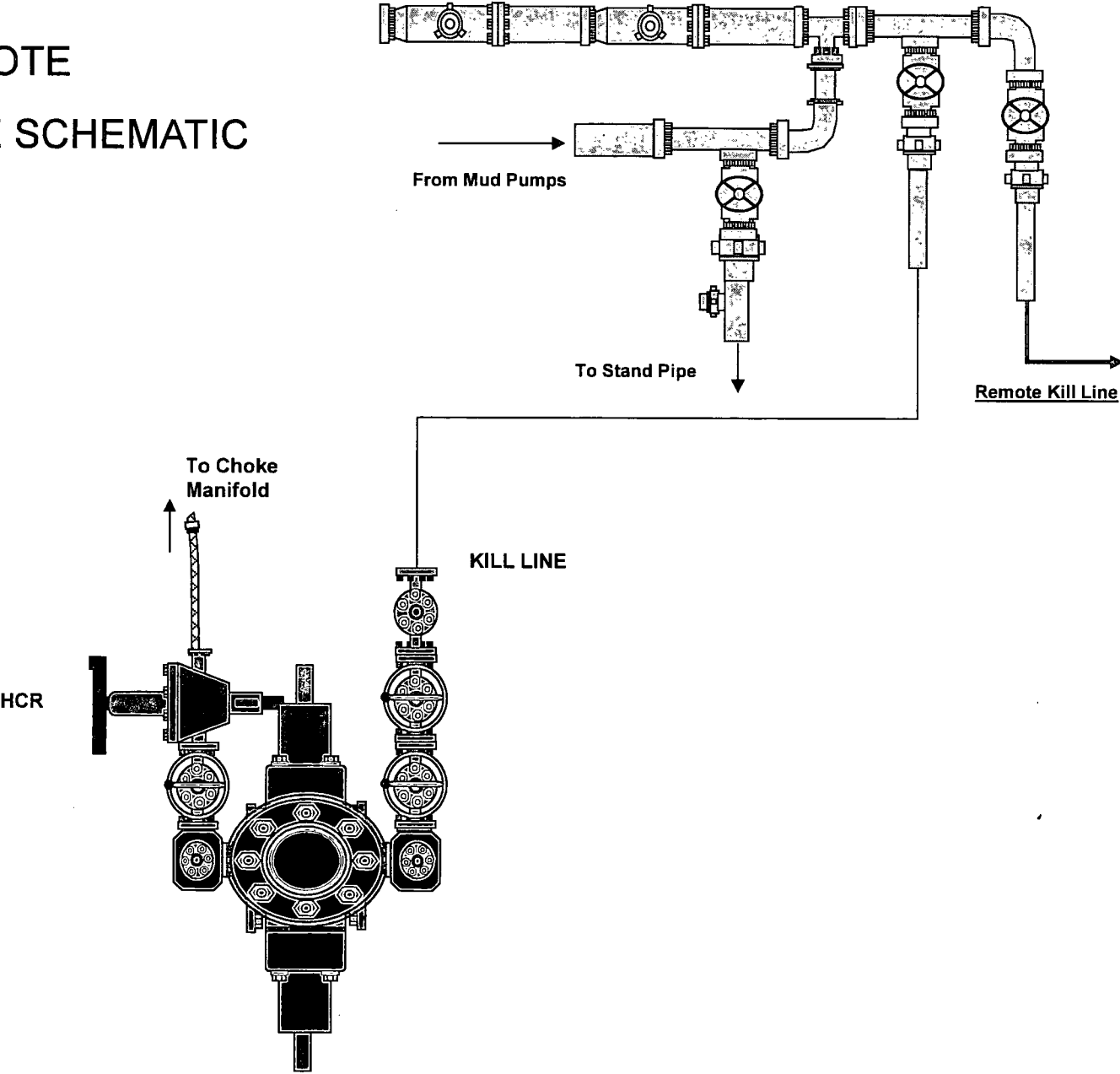


Name: Jeanette	Date: 1-31-13	Working / Issue: #	21073221
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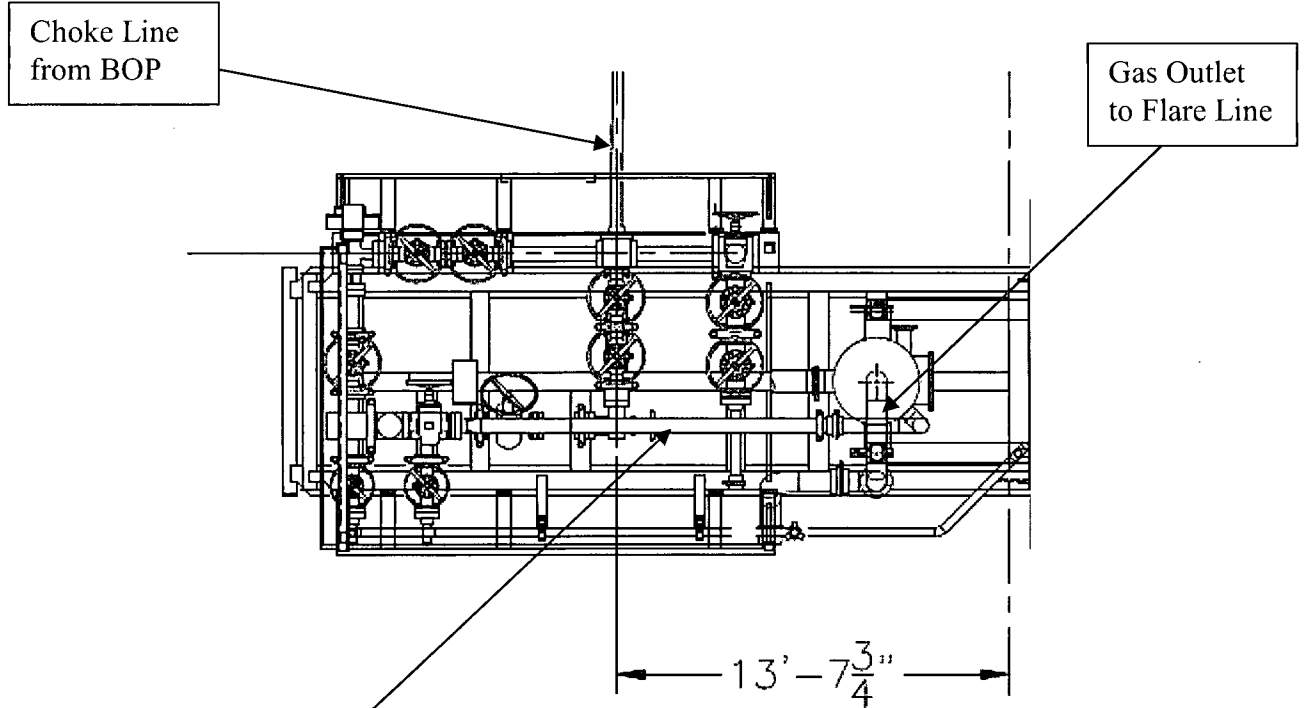
FLEX3 STD CHOKE MANIFOLD (COMPREHENSIVE)



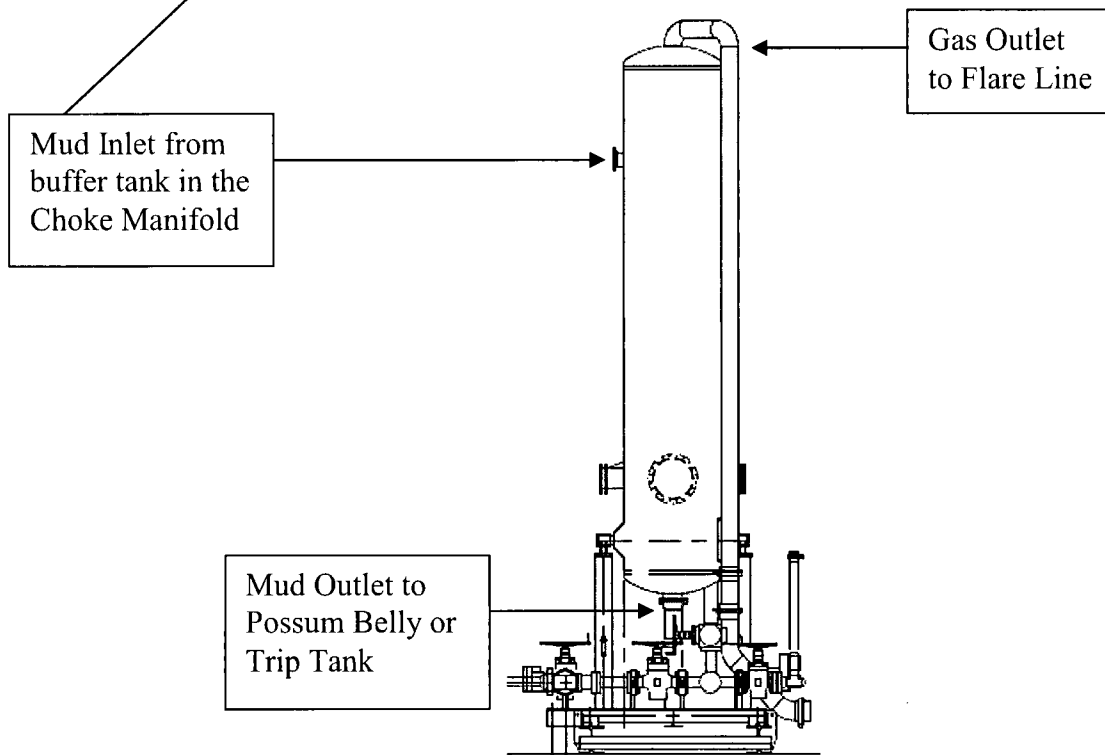
10M REMOTE
KILL LINE SCHEMATIC



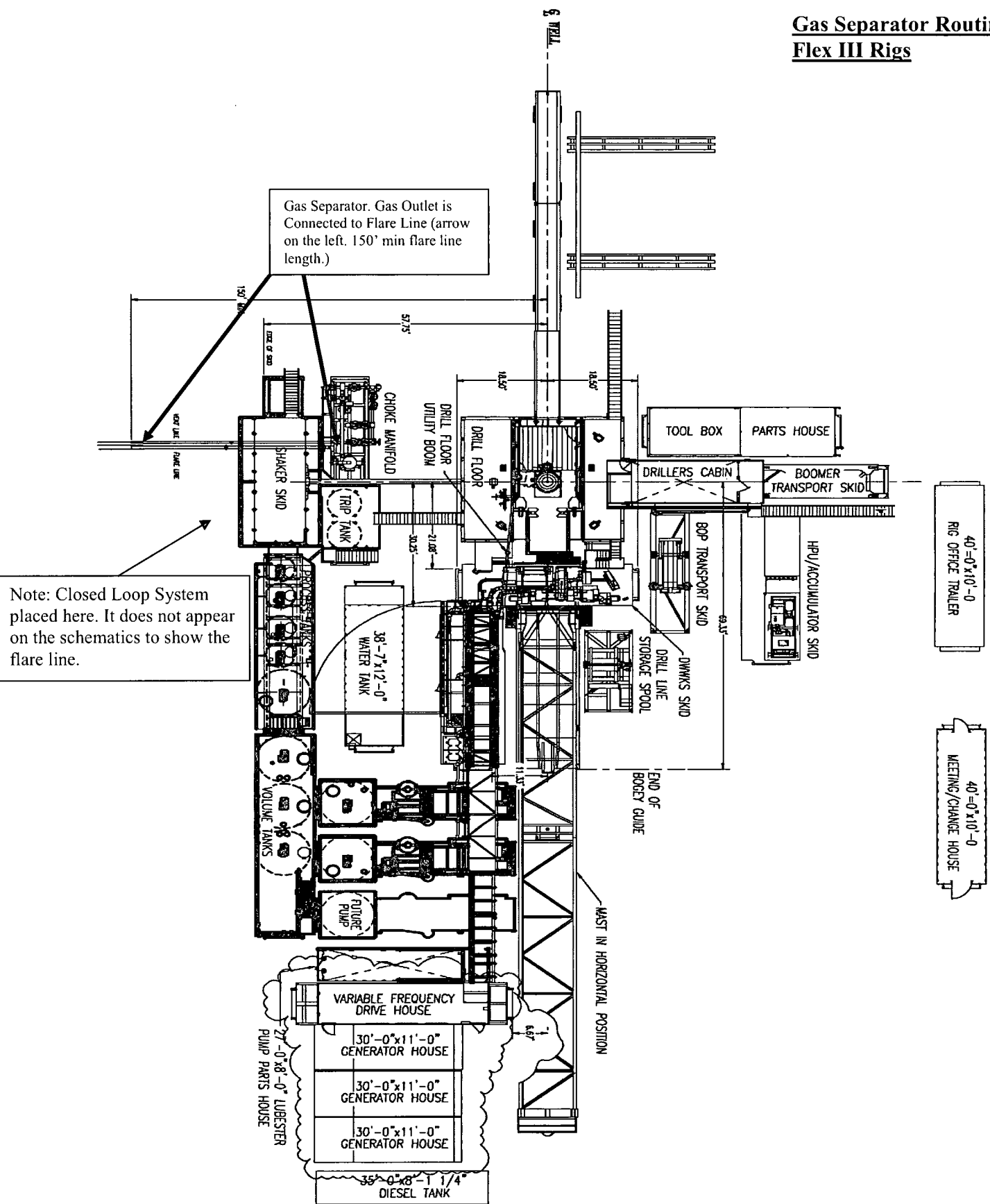
Choke Manifold – Gas Separator (Top View)



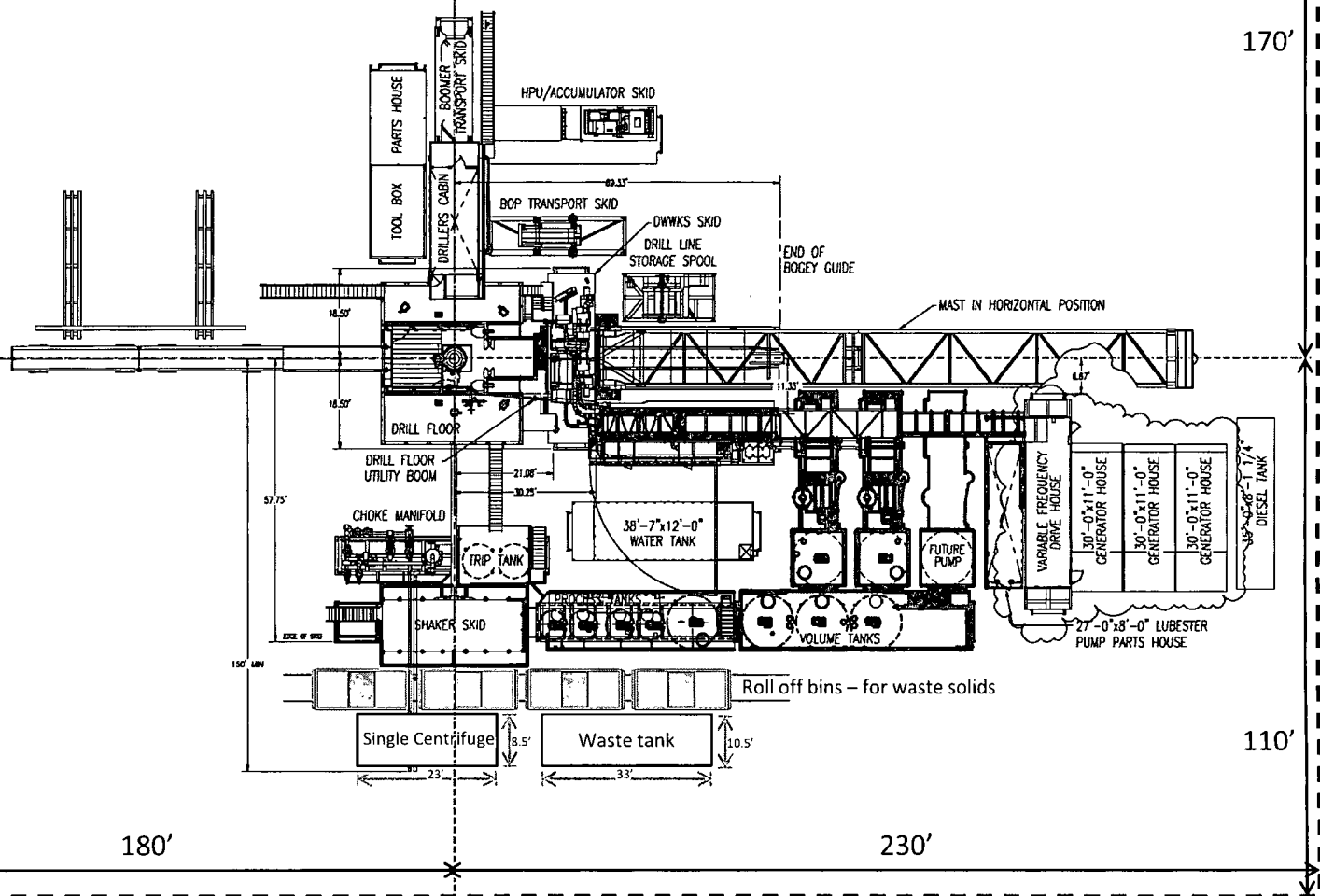
Choke Manifold – Gas Separator (Side View)



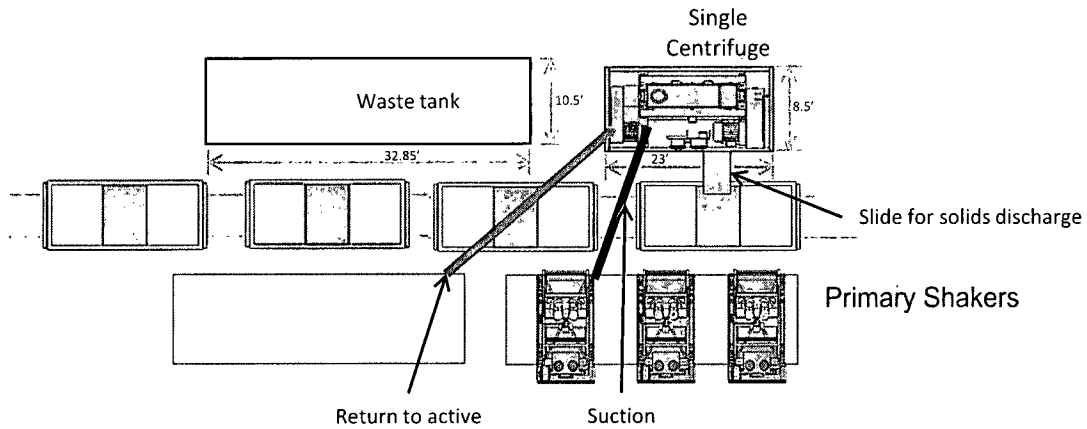
Gas Separator Routing
Flex III Rigs



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



Oxy



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