ATS-12-1050

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R-111-POTASH

Form 3160-3
(April 2004)

OCD Artesia

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM0417696 TCS

6. If Indian, Allotee or Tribe Name 10/3/2012

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. <304879>
Lost Tank 4 Federal #22

2. Name of Operator
OXY USA Inc. 16696

9. API Well No.
30-015- 40774

3a. Address P.O. Box 50250
Midland, TX 79710

3b. Phone No. *(include area code)*
432-685-5717

10. Field and Pool, or Exploratory
Lost Tank Wolfcamp <97573>

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1774 FNL 1480 FEL SWNE(G)
At proposed prod. zone 680 FSL 782 FEL SESE(P)

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 4 T22S R31E

14. Distance in miles and direction from nearest town or post office*
20 miles NW from Loving, NM

12. County or Parish
Eddy

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 680'	16. No. of acres in lease 1238.63ac	17. Spacing Unit dedicated to this well 600ac
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 6-210' 24-448'	19. Proposed Depth 12826'M 12325'V	20. BLM/BIA Bond No. on file ESB000226 + NM2000862
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3454.3' GL	22. Approximate date work will start* 10/01/2012	23. Estimated duration 45days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

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

25. Signature	Name *(Printed/Typed)*	Date
	David Stewart	8/1/12

Title: Regulatory Advisor

david_stewart@oxy.com

Approved by *(Signature)* /s/ Adam L. Seidlitz	Name *(Printed/Typed)*	Date SEP 24 2012
Title STATE DIRECTOR	Office NM STATE OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2) Anticipated BHP @ 8100-9375 psi

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S St. Francis Dr., Santa Fe, NM 87505

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 October 12, 2005
Submit to Appropriate District Office
State Lease- 4 Copies
Fee Lease- 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-40774	97573	Lost Tank Wolfcamp

Property Code	Property Name	Well Number
3048769	LOST TANK "4" FEDERAL	22

OGRID No.	Operator Name	Elevation
16696	OXY USA INC.	3454.3'

Surface Location

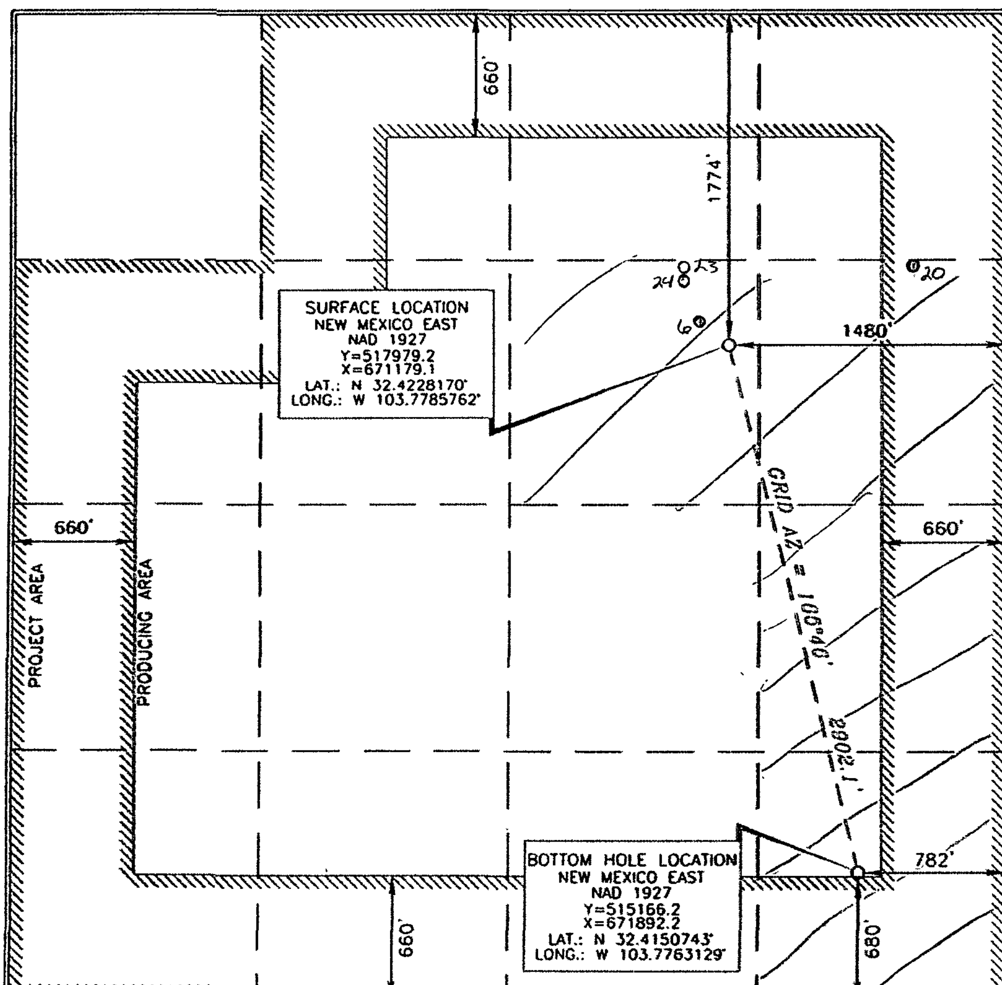
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	4	22 SOUTH	31 EAST, N.M.P.M.		1774'	NORTH	1480'	EAST	EDDY

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	4	22 SOUTH	31 EAST, N.M.P.M.		680'	SOUTH	782'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
600	Y		

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 unleased 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.

[signature] 8/1/12
Signature Date

David Stewart - Reg. Adv.
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 16, 2011
Date of Survey

Signature and Seal of Professional Surveyor

TERRY J. ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

[signature] 8/1/2012

Certificate Number 15079

WO# 110916WL-a (Rev. B) (KA)

United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office
620 East Greene Street
Carlsbad, New Mexico 88220

Attention: Linda Denniston

RE: Lost Tank 4 Federal #22
Eddy County, New Mexico

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

OPERATOR NAME:	OXY USA Inc.
ADDRESS:	P.O. Box 4294 Houston, Texas 77210-4294

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

LEASE NO.:	**NMNM 0417696**
LEGAL DESCRIPTION:	Surface Location: 1,774' FNL & 1,480' FEL - SWNE (G) Bottom Hole Location: 680' FSL & 782' FEL - SESE (P) Section 4-T22S-R31E Eddy County, New Mexico
FORMATIONS:	None
BOND COVERAGE:	Carlsbad Field Office
BLM BOND FILE NO.:	NMB 000862
AUTHORIZED SIGNATURE:	OXY USA Inc. Donna G. Havins Donna G. Havins
TITLE:	Land Negotiator
DATE:	July 12, 2012

cc: David Stewart

OPERATOR CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this _____ day of _____, 2012.

Name: Peter Lawrence

Position: Reservoir Management Team Leader

Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046

Telephone: 713-215-7644

E-mail: (optional): peter_lawrence@oxy.com

Company: OXY USA Inc.

Field Representative (if not above signatory): Dusty Weaver

Address (If different from above): P.O. Box 50250 Midland, TX 79710

Telephone (if different from above): 432-685-5723

E-mail (if different from above): calvin_weaver@oxy.com

DRILLING PROGRAM

Operator Name/Number:	**OXY USA Inc.**		**16696**
Lease Name/Number:	**Lost Tank 4 Federal #22**	**304876**	**Federal Lse No. NMNM0417696**
Pool Name/Number:	**Lost Tank Wolfcamp**		**97573**
Surface Location:	**1774 FNL 1480 FEL SWNE(G) Sec 4 T22S R31E**		
Bottom Hole Location:	**680 FSL 782 FEL SESE(P) Sec 4 T22S R31E**		

Proposed TD: **12862' TMD** **12325' TVD**
SL - Lat: 32.4228170 Long: 103.7785762 **X= 671179.1 Y= 517979.2** **NAD - 1927**
BH - Lat: 32.4150743 Long: 103.7763129 **X= 671892.2 Y= 515166.2** **NAD - 1927**
Elevation: **3454.3' GL**

1. Geologic Name of Surface Formation:

a. Permian

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

Geological Marker	Depth	Type
a. Rustler Anhydrite	663'	Formation
b. Top Salt	919'	Formation
c. Bottom Salt	4157'	Formation
d. Delaware	4163'	Oil/Gas
e. Bell Canyon	4215'	Oil/Gas
f. Cherry Canyon	5143'	Oil/Gas
g. Brushy Canyon	6372'	Oil/Gas
h. Bone Spring	8032'	Oil/Gas
i. Wolfcamp	11213'	Oil/Gas

*Fresh water is expected above the Rustler. Nearest water wells have found fresh water as deep as 450'

3. Casing Program:

Hole Size	Interval	OD Csg	Weight	Collar	Grade	Condition	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17-1/2"	0-700'	13-3/8"	48	ST&C	H-40	New	3.27	7.34	9.58
				Hole filled with 8.8# Mud			770#	1730#	
12-1/4"	0-4300'	9-5/8"	40	LT&C	J-55	New	1.42	2.19	3.02
				Hole filled with 10.2# Mud			2570#	3950#	
8-3/4"	0-11815'	7"	29	BT&C	P-110	New	4.6	6.06	6.39
DVT @ 7000' - POST @ 4400'				Hole filled with 9.4# Mud			8510#	11220#	
6-1/8"	0-12862'	4-1/2"	15	UFJ	P-110	New	1.57	1.32	2.32
ECP @ 11845'				Hole filled with 14.5# Mud			14320#	14420#	

See COA

See COA

Collapse and burst loads calculated using Stress Check with anticipated loads

4. Cement Program

a. 13-3/8" Surface — Circulate cement to surface w/ 490sx PP cmt w/ 2% CaCl2 + 4% Bentonite + .25#/sx Poly E-Flake, 13.5ppg 1.75 yield 589# 24hr CS 150% Excess followed by 300sx PP cmt w/ 2% CaCl2, 14.8ppg 1.35 yield 1608# 24hr CS 150% Excess

b. 9-5/8" Intermediate — Circulate cement to surface w/ 1290sx HES light PP cmt w/ 5% Salt + .125#/sx Poly-E-Flake + 3#/sx Kol-Seal + .5% Halad-344 + 1% CaCl2, 12.9ppg 1.91 yield 851# 24hr CS 10% Excess followed by 300sx PP cmt w/ .5% WellLife-734, 14.8ppg 1.33 yield 2125# 24hr CS 125% Excess

c.	7"	Intermediate	Cement 1st stage w/ 610sx Super H w/ .5% Halad-344 + .4% CFR-3 + 3#/sx Kol-Seal + .3% HR-800 + .125#/sx Poly-E-Flake + 1#/sx salt, 13.2ppg 1.63 yield 1950# 24hr CS 100% Excess Calc TOC-6995' Cement 2nd stage w/ 610sx Super H w/ .5% Halad-344 + .4% CFR-3 + 3#/sx Kol-Seal + 1#/sx salt + .125#/sx Poly-E-Flake, 13.2ppg 1.62 yield 1550# 24hr CS 100% Excess, Calc TOC-4390' Cement 3rd stage w/ 320sx HES Light PP cmt w/ 3#/sx Salt, 12.4ppg 2.08 yield 560# 24hr CS 10% Excess followed by 100sx PP cmt w/ 3#/sx Kol-Seal + .125#/sx Poly-E-Flake, 14.8ppg 1.34 yield 2125# 24hr CS 150% Excess, Circ Surface
d.	4-1/2"	Production	Cement w/ 310sx PP cmt w/ 3#/sx Kol-Seal + .5% Halad-344 + 0.5% CFR-3 + 0.3% Super CBL + 0.2% HR-601, 15.6ppg 1.22 yield 1760# 24hr CS 10% excess, Calc TOC-10000'

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

5. Pressure Control Equipment:

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

All BOP's and associated equipment will be tested in accordance with Onshore Order #2 (250/10000 psi on rams for 10 minutes each and 250/7000 for 10 minutes for annular preventer, equal to 70% of working pressure) with a third party BOP testing service before drilling out the 13-3/8" casing shoe. Wellhead pressure rating will support this test and 13-3/8" casing will be protected from high pressure. Since the wellhead system is a multibowl design, this initial test will cover the requirements prior to drilling out the 9-5/8" and 7" casing shoes.

Pipe Rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily driller's log. A 2" kill line and 3" choke line will be accommodated on the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having a 10000 psi WP rating.

OXY also requests a variance to connect the BOP outlet to the choke manifold using a co-flex hose that is manufactured by Contitech Rubber Industrial KFT. It is a 3" ID X 35' flexible hose rated to 10000psi working pressure. It has been tested to 15000psi and is built to API Spec 16C. Once the flex line is installed, it will be tied down with safety clamps, see attached for certifications.

6. Proposed Mud Circulation System

Depth	Mud Wt. ppg	Visc sec	Fluid Loss	Type System
0 - 700'	8.4-8.8	38-42	NC	Fresh Water/Spud Mud
700 - 4300'	9.8-10.2	28-29	NC	Brine Water
4300 - 11815'	9.0-9.4	28-29	NC	Cut Brine
11815 - 12862'	12.5-14.5	34-36	8-10	Cut Brine Gel/LSND

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.

7. Auxiliary Well Control and Monitoring Equipment:

a. A Kelly cock will be in the drill string at all times.
b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
c. Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM.

8. Logging, Coring and Testing Program: See COA

a. Drill stem tests are not anticipated but if done will be based on geological sample shows.
b. The open hole electrical logging program will consist of GR/RES/DES in Production Section (11815-TD)
c. No coring program is planned but if done will be sidewall rotary cores.
d. Mud logging program will be initiated from 11815' to TD.

9. Potential Hazards:

No abnormal pressures, temperatures or H_2S gas are expected. The highest anticipated pressure gradient would 0.754 psi/ft.
If H2S is encountered the operator will comply with the provisions of Onshore Oil & Gas Order No.6.
No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

10. *Anticipated Starting Date and Duration of Operations:*

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 45 days. If production casing is run, then an additional 30 days will be needed to complete the well and construct surface facilities and/or lay flow lines in order to place well on production.

Scientific Drilling

Project: Lost Tank
Site: Lost Tank 4 Federal 22
Well: LT4F 22
Wellbore: Original Wellbore
Design: Design #1

OXY

DDP-1

PROJECT DETAILS: Lost Tank

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

SITE DETAILS: Lost Tank 4 Federal 22

Northing. 517979.20
Easting: 671179.10
Elevation. 3454.30
Estimated KB @ 3478.30usft (24' KB)

T G M

Azimuths to Grid North
True North: -0.30°
Magnetic North 7.31°

Magnetic Field
Strength: 48640.2snT
Dip Angle: 60.32°
Date: 03/08/2012
Model. IGRF2010

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0 00	
4410.00	0.00	0.00	4410.00	0.00	0.00	0.00	0.00	
5484.43	21.49	165 78	5459.42	-193.02	48.93	2.00	199 13	
12862.89	21.49	165.78	12325.00	-2813.00	713.10	0.00	2901.98	BHL

DESIGN TARGET DETAILS

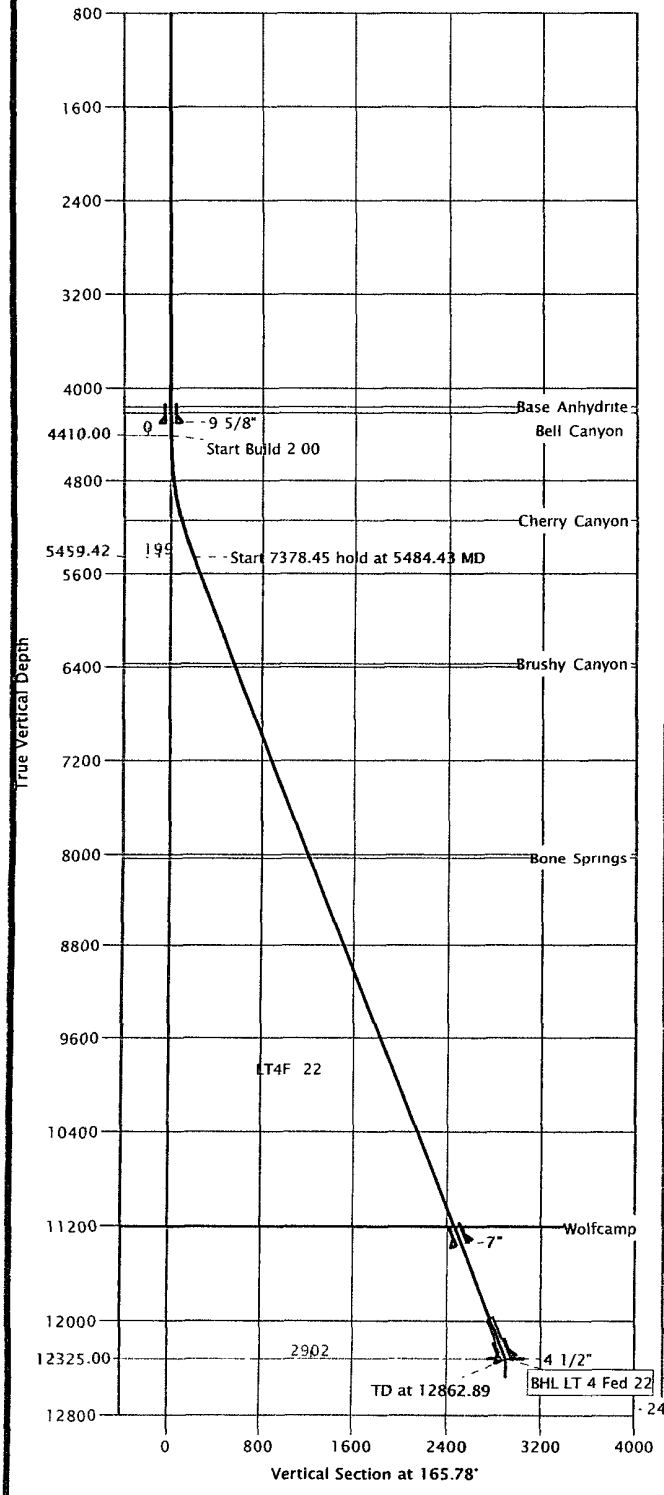
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BHL LT 4 Fed 22 - plan hits target center	12325.00	-2813.00	713.10	515166.20	671892.20	Circle (Radius: 25 00)

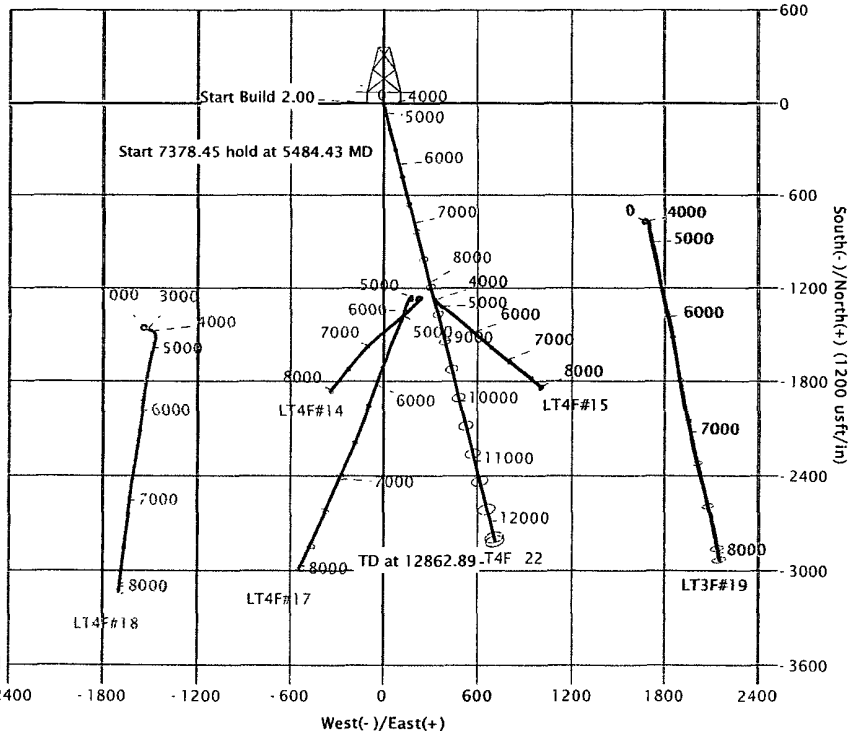
CASING DETAILS

TVD	MD	Size
700 00	700.00	13-3/8
4300 00	4300.00	9-5/8
11350.00	11815.05	7
12325.00	12862.89	4-1/2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4163.00	4163.00	Base Anhydrite
4215.00	4215.00	Bell Canyon
5143.00	5151.24	Cherry Canyon
6372.00	6465.18	Brushy Canyon
8032.00	8249.19	Bone Springs
11213.00	11667.82	Wolfcamp





Database:	EDM-OXY-DB	**Local Co-ordinate Reference:**	Well LT4F 22
Company:	OXY	**TVD Reference:**	Estimated KB @ 3478.30usft (24' KB)
Project:	Lost Tank	**MD Reference:**	Estimated KB @ 3478.30usft (24' KB)
Site:	Lost Tank 4 Federal 22	**North Reference:**	Grid
Well:	LT4F 22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Project Lost Tank, 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 Lost Tank 4 Federal 22

Site Position:		**Northing:**	517,979.20 usft	**Latitude:**	32° 25' 22.141 N
From:	Map	**Easting:**	671,179.10 usft	**Longitude:**	103° 46' 42.874 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.30 °

Well LT4F 22

Well Position	**+N/-S**	0.00 usft	**Northing:**	517,979.20 usft	**Latitude:**	32° 25' 22.141 N
	+E/-W	0.00 usft	**Easting:**	671,179.10 usft	**Longitude:**	103° 46' 42.874 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,454.30 usft

Wellbore Original Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/08/12	7.61	60.32	48,640

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	165.78

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	
4,410.00	0.00	0.00	4,410.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,484.43	21.49	165.78	5,459.42	-193.02	48.93	2.00	2.00	0.00	165.78	
12,862.89	21.49	165.78	12,325.00	-2,813.00	713.10	0.00	0.00	0.00	0.00	BHL LT 4 Fed 22

Database:	EDM-OXY-DB	Local Co-ordinate Reference:	Well LT4F 22
Company:	OXY	TVD Reference:	Estimated KB @ 3478.30usft (24' KB)
Project:	Lost Tank	MD Reference:	Estimated KB @ 3478.30usft (24' KB)
Site:	Lost Tank 4 Federal 22	North Reference:	Grid
Well:	LT4F 22	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
13 3/8"									
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
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
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
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
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
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
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
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
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
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,163.00	0.00	0.00	4,163.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Anhydrite									
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,215.00	0.00	0.00	4,215.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,410.00	0.00	0.00	4,410.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	1.80	165.78	4,499.99	-1.37	0.35	1.41	2.00	2.00	0.00
4,600.00	3.80	165.78	4,599.86	-6.11	1.55	6.30	2.00	2.00	0.00

Database:	EDM-OXY-DB	Local Co-ordinate Reference:	Well LT4F 22
Company:	OXY	TVD Reference:	Estimated KB @ 3478.30usft (24' KB)
Project:	Lost Tank	MD Reference:	Estimated KB @ 3478.30usft (24' KB)
Site:	Lost Tank 4 Federal 22	North Reference:	Grid
Well:	LT4F 22	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)
4,700.00	5.80	165.78	4,699.51	-14.22	3.60	14.67	2.00	2.00	0.00
4,800.00	7.80	165.78	4,798.80	-25.69	6.51	26.51	2.00	2.00	0.00
4,900.00	9.80	165.78	4,897.61	-40.52	10.27	41.80	2.00	2.00	0.00
5,000.00	11.80	165.78	4,995.84	-58.68	14.88	60.54	2.00	2.00	0.00
5,100.00	13.80	165.78	5,093.35	-80.16	20.32	82.69	2.00	2.00	0.00
5,151.24	14.82	165.78	5,143.00	-92.44	23.43	95.36	2.00	2.00	0.00
Cherry Canyon									
5,200.00	15.80	165.78	5,190.03	-104.92	26.60	108.24	2.00	2.00	0.00
5,300.00	17.80	165.78	5,285.75	-132.93	33.70	137.14	2.00	2.00	0.00
5,400.00	19.80	165.78	5,380.41	-164.17	41.62	169.36	2.00	2.00	0.00
5,484.43	21.49	165.78	5,459.42	-193.02	48.93	199.13	2.00	2.00	0.00
5,500.00	21.49	165.78	5,473.91	-198.55	50.33	204.83	0.00	0.00	0.00
5,600.00	21.49	165.78	5,566.96	-234.06	59.34	241.47	0.00	0.00	0.00
5,700.00	21.49	165.78	5,660.00	-269.57	68.34	278.10	0.00	0.00	0.00
5,800.00	21.49	165.78	5,753.05	-305.08	77.34	314.73	0.00	0.00	0.00
5,900.00	21.49	165.78	5,846.10	-340.59	86.34	351.36	0.00	0.00	0.00
6,000.00	21.49	165.78	5,939.15	-376.10	95.34	387.99	0.00	0.00	0.00
6,100.00	21.49	165.78	6,032.20	-411.60	104.34	424.62	0.00	0.00	0.00
6,200.00	21.49	165.78	6,125.25	-447.11	113.34	461.26	0.00	0.00	0.00
6,300.00	21.49	165.78	6,218.30	-482.62	122.35	497.89	0.00	0.00	0.00
6,400.00	21.49	165.78	6,311.35	-518.13	131.35	534.52	0.00	0.00	0.00
6,465.18	21.49	165.78	6,372.00	-541.27	137.21	558.40	0.00	0.00	0.00
Brushy Canyon									
6,500.00	21.49	165.78	6,404.40	-553.64	140.35	571.15	0.00	0.00	0.00
6,600.00	21.49	165.78	6,497.45	-589.15	149.35	607.78	0.00	0.00	0.00
6,700.00	21.49	165.78	6,590.49	-624.65	158.35	644.41	0.00	0.00	0.00
6,800.00	21.49	165.78	6,683.54	-660.16	167.35	681.04	0.00	0.00	0.00
6,900.00	21.49	165.78	6,776.59	-695.67	176.35	717.68	0.00	0.00	0.00
7,000.00	21.49	165.78	6,869.64	-731.18	185.36	754.31	0.00	0.00	0.00
7,100.00	21.49	165.78	6,962.69	-766.69	194.36	790.94	0.00	0.00	0.00
7,200.00	21.49	165.78	7,055.74	-802.20	203.36	827.57	0.00	0.00	0.00
7,300.00	21.49	165.78	7,148.79	-837.71	212.36	864.20	0.00	0.00	0.00
7,400.00	21.49	165.78	7,241.84	-873.21	221.36	900.83	0.00	0.00	0.00
7,500.00	21.49	165.78	7,334.89	-908.72	230.36	937.47	0.00	0.00	0.00
7,600.00	21.49	165.78	7,427.94	-944.23	239.36	974.10	0.00	0.00	0.00
7,700.00	21.49	165.78	7,520.99	-979.74	248.37	1,010.73	0.00	0.00	0.00
7,800.00	21.49	165.78	7,614.03	-1,015.25	257.37	1,047.36	0.00	0.00	0.00
7,900.00	21.49	165.78	7,707.08	-1,050.76	266.37	1,083.99	0.00	0.00	0.00
8,000.00	21.49	165.78	7,800.13	-1,086.26	275.37	1,120.62	0.00	0.00	0.00
8,100.00	21.49	165.78	7,893.18	-1,121.77	284.37	1,157.26	0.00	0.00	0.00
8,200.00	21.49	165.78	7,986.23	-1,157.28	293.37	1,193.89	0.00	0.00	0.00
8,249.19	21.49	165.78	8,032.00	-1,174.75	297.80	1,211.91	0.00	0.00	0.00
Bone Springs									
8,300.00	21.49	165.78	8,079.28	-1,192.79	302.37	1,230.52	0.00	0.00	0.00
8,400.00	21.49	165.78	8,172.33	-1,228.30	311.38	1,267.15	0.00	0.00	0.00
8,500.00	21.49	165.78	8,265.38	-1,263.81	320.38	1,303.78	0.00	0.00	0.00
8,600.00	21.49	165.78	8,358.43	-1,299.32	329.38	1,340.41	0.00	0.00	0.00
8,700.00	21.49	165.78	8,451.48	-1,334.82	338.38	1,377.05	0.00	0.00	0.00
8,800.00	21.49	165.78	8,544.52	-1,370.33	347.38	1,413.68	0.00	0.00	0.00
8,900.00	21.49	165.78	8,637.57	-1,405.84	356.38	1,450.31	0.00	0.00	0.00
9,000.00	21.49	165.78	8,730.62	-1,441.35	365.38	1,486.94	0.00	0.00	0.00
9,100.00	21.49	165.78	8,823.67	-1,476.86	374.39	1,523.57	0.00	0.00	0.00
9,200.00	21.49	165.78	8,916.72	-1,512.37	383.39	1,560.20	0.00	0.00	0.00

Database:	EDM-OXY-DB	Local Co-ordinate Reference:	Well LT4F 22
Company:	OXY	TVD Reference:	Estimated KB @ 3478.30usft (24' KB)
Project:	Lost Tank	MD Reference:	Estimated KB @ 3478.30usft (24' KB)
Site:	Lost Tank 4 Federal 22	North Reference:	Grid
Well:	LT4F 22	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)
9,300.00	21.49	165.78	9,009.77	-1,547.87	392.39	1,596.84	0.00	0.00	0.00
9,400.00	21.49	165.78	9,102.82	-1,583.38	401.39	1,633.47	0.00	0.00	0.00
9,500.00	21.49	165.78	9,195.87	-1,618.89	410.39	1,670.10	0.00	0.00	0.00
9,600.00	21.49	165.78	9,288.92	-1,654.40	419.39	1,706.73	0.00	0.00	0.00
9,700.00	21.49	165.78	9,381.97	-1,689.91	428.39	1,743.36	0.00	0.00	0.00
9,800.00	21.49	165.78	9,475.01	-1,725.42	437.40	1,779.99	0.00	0.00	0.00
9,900.00	21.49	165.78	9,568.06	-1,760.93	446.40	1,816.63	0.00	0.00	0.00
10,000.00	21.49	165.78	9,661.11	-1,796.43	455.40	1,853.26	0.00	0.00	0.00
10,100.00	21.49	165.78	9,754.16	-1,831.94	464.40	1,889.89	0.00	0.00	0.00
10,200.00	21.49	165.78	9,847.21	-1,867.45	473.40	1,926.52	0.00	0.00	0.00
10,300.00	21.49	165.78	9,940.26	-1,902.96	482.40	1,963.15	0.00	0.00	0.00
10,400.00	21.49	165.78	10,033.31	-1,938.47	491.40	1,999.78	0.00	0.00	0.00
10,500.00	21.49	165.78	10,126.36	-1,973.98	500.41	2,036.42	0.00	0.00	0.00
10,600.00	21.49	165.78	10,219.41	-2,009.48	509.41	2,073.05	0.00	0.00	0.00
10,700.00	21.49	165.78	10,312.46	-2,044.99	518.41	2,109.68	0.00	0.00	0.00
10,800.00	21.49	165.78	10,405.51	-2,080.50	527.41	2,146.31	0.00	0.00	0.00
10,900.00	21.49	165.78	10,498.55	-2,116.01	536.41	2,182.94	0.00	0.00	0.00
11,000.00	21.49	165.78	10,591.60	-2,151.52	545.41	2,219.57	0.00	0.00	0.00
11,100.00	21.49	165.78	10,684.65	-2,187.03	554.41	2,256.21	0.00	0.00	0.00
11,200.00	21.49	165.78	10,777.70	-2,222.54	563.42	2,292.84	0.00	0.00	0.00
11,300.00	21.49	165.78	10,870.75	-2,258.04	572.42	2,329.47	0.00	0.00	0.00
11,400.00	21.49	165.78	10,963.80	-2,293.55	581.42	2,366.10	0.00	0.00	0.00
11,500.00	21.49	165.78	11,056.85	-2,329.06	590.42	2,402.73	0.00	0.00	0.00
11,600.00	21.49	165.78	11,149.90	-2,364.57	599.42	2,439.36	0.00	0.00	0.00
11,667.82	21.49	165.78	11,213.00	-2,388.65	605.53	2,464.21	0.00	0.00	0.00
Wolfcamp									
11,700.00	21.49	165.78	11,242.95	-2,400.08	608.42	2,475.99	0.00	0.00	0.00
11,800.00	21.49	165.78	11,336.00	-2,435.59	617.42	2,512.63	0.00	0.00	0.00
11,815.05	21.49	165.78	11,350.00	-2,440.93	618.78	2,518.14	0.00	0.00	0.00
7"									
11,900.00	21.49	165.78	11,429.04	-2,471.09	626.43	2,549.26	0.00	0.00	0.00
12,000.00	21.49	165.78	11,522.09	-2,506.60	635.43	2,585.89	0.00	0.00	0.00
12,100.00	21.49	165.78	11,615.14	-2,542.11	644.43	2,622.52	0.00	0.00	0.00
12,200.00	21.49	165.78	11,708.19	-2,577.62	653.43	2,659.15	0.00	0.00	0.00
12,300.00	21.49	165.78	11,801.24	-2,613.13	662.43	2,695.78	0.00	0.00	0.00
12,400.00	21.49	165.78	11,894.29	-2,648.64	671.43	2,732.42	0.00	0.00	0.00
12,500.00	21.49	165.78	11,987.34	-2,684.15	680.44	2,769.05	0.00	0.00	0.00
12,600.00	21.49	165.78	12,080.39	-2,719.65	689.44	2,805.68	0.00	0.00	0.00
12,700.00	21.49	165.78	12,173.44	-2,755.16	698.44	2,842.31	0.00	0.00	0.00
12,800.00	21.49	165.78	12,266.49	-2,790.67	707.44	2,878.94	0.00	0.00	0.00
12,862.89	21.49	165.78	12,325.00	-2,813.00	713.10	2,901.98	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL LT 4 Fed 22 - plan hits target center - Circle (radius 25.00)	21.32	345.78	12,325.00	-2,813.00	713.10	515,166.20	671,892.20	32° 24' 54.268 N	103° 46' 34.726 W

Database:	EDM-OXY-DB	**Local Co-ordinate Reference:**	Well LT4F 22
Company:	OXY	**TVD Reference:**	Estimated KB @ 3478.30usft (24' KB)
Project:	Lost Tank	**MD Reference:**	Estimated KB @ 3478.30usft (24' KB)
Site:	Lost Tank 4 Federal 22	**North Reference:**	Grid
Well:	LT4F 22	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

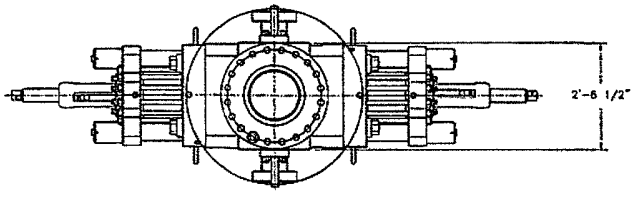
Casing Points

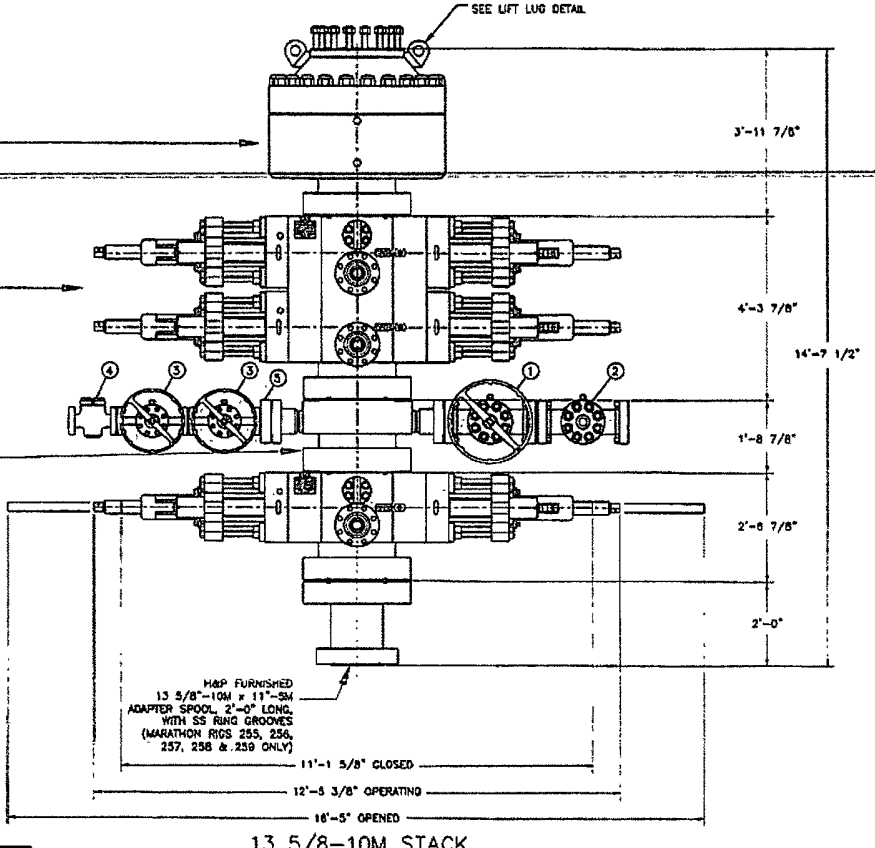
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
700.00	700.00	13 3/8"	13-3/8	17-1/2
4,300.00	4,300.00	9 5/8"	9-5/8	12-1/4
11,815.05	11,350.00	7"	7	8-1/2
12,862.89	12,325.00	4 1/2"	4-1/2	6-1/8

Formations

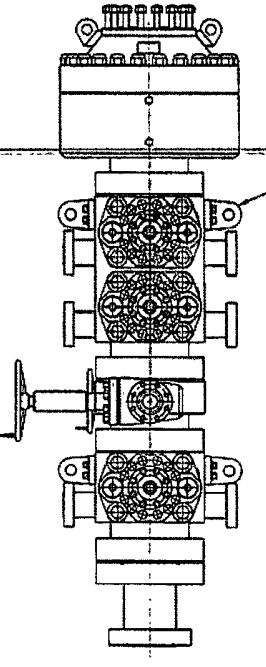
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,163.00	4,163.00	Base Anhydrite		0 00	
4,215.00	4,215.00	Bell Canyon		0.00	
5,151.24	5,143.00	Cherry Canyon		0.00	
6,465.18	6,372.00	Brushy Canyon		0 00	
8,249.19	8,032 00	Bone Springs		0.00	
11,667.82	11,213.00	Wolfcamp		0.00	

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





13 5/8–10M STACK



ISSUED FOR FABRICATION
December-18-2007
DRAFTSMAN
ENGINEER

API 6A MONOGRAMMED CAMERON CHOKE AND KILL WING VALVE ASSEMBLIES ARE NOT SHOWN FOR CLARITY

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

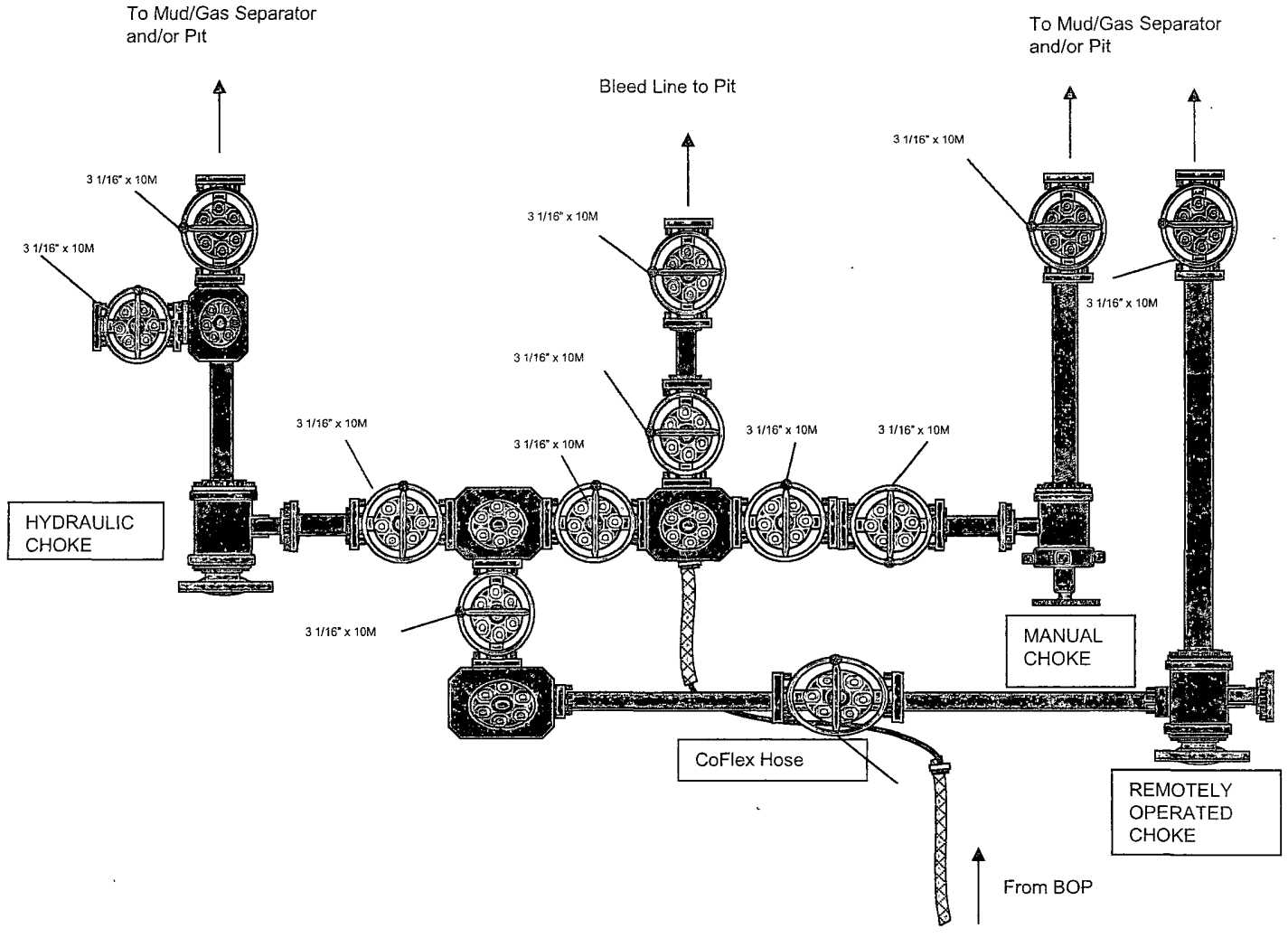
REV	DATE	DESCRIPTION	BY	ENGINEERING APPROVAL	DATE
7	12/18/07	ADDED SHEET 03	JAV		
6	1-10-07	DESIGNATION REVISED, DOUBLE STUDDED ADAPTER (MARKS 1, 2, & 3) AND 90° CHECK VALVE ADDED	JDG		
5	4-04-07	8" ADDED TO SPACER ADAPTER SPOOL	JBG		
4	02-07-07	ADDED ADAPTER SPOOL	MWL		
3	06-13-02	CORRECTED BOP STACK	MWL		

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

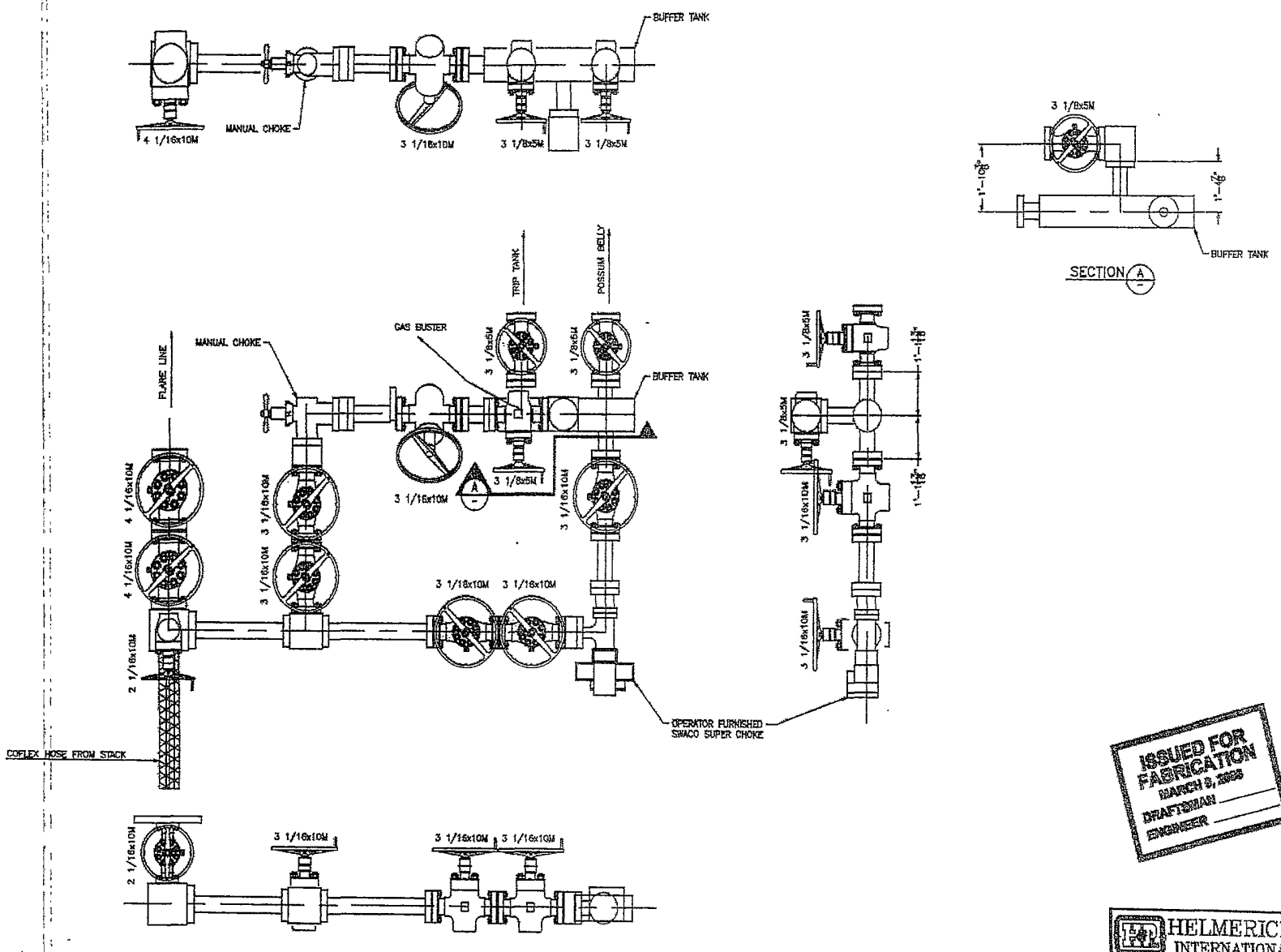
TITLE: 13 5/8"–10M BOP 3 RAM STACK FLEXRIG3

CUSTOMER: H&P
PROJECT: FLEXRIG3
DRAWN: MTS | DATE: 6-5-02 | DWG. NO.: 210–P1–07 | REV: E
SCALE: 3/4"=1' | SHEET: 1 OF 3

10M CHOKE MANIFOLD CONFIGURATION



Chk Manifd-2



ISSUED FOR FABRICATION
MARCH 8, 2002
DRAFTSMAN
ENGINEER

REV	DATE	DESCRIPTION	BY
1	10/15/02	ADJUST DIM TO FIELD CONFIRMED DIM	RAY

ENGINEERING APPROVAL | DATE

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

TITLE: CHOKE MANIFOLD

CUSTOMER: H&P

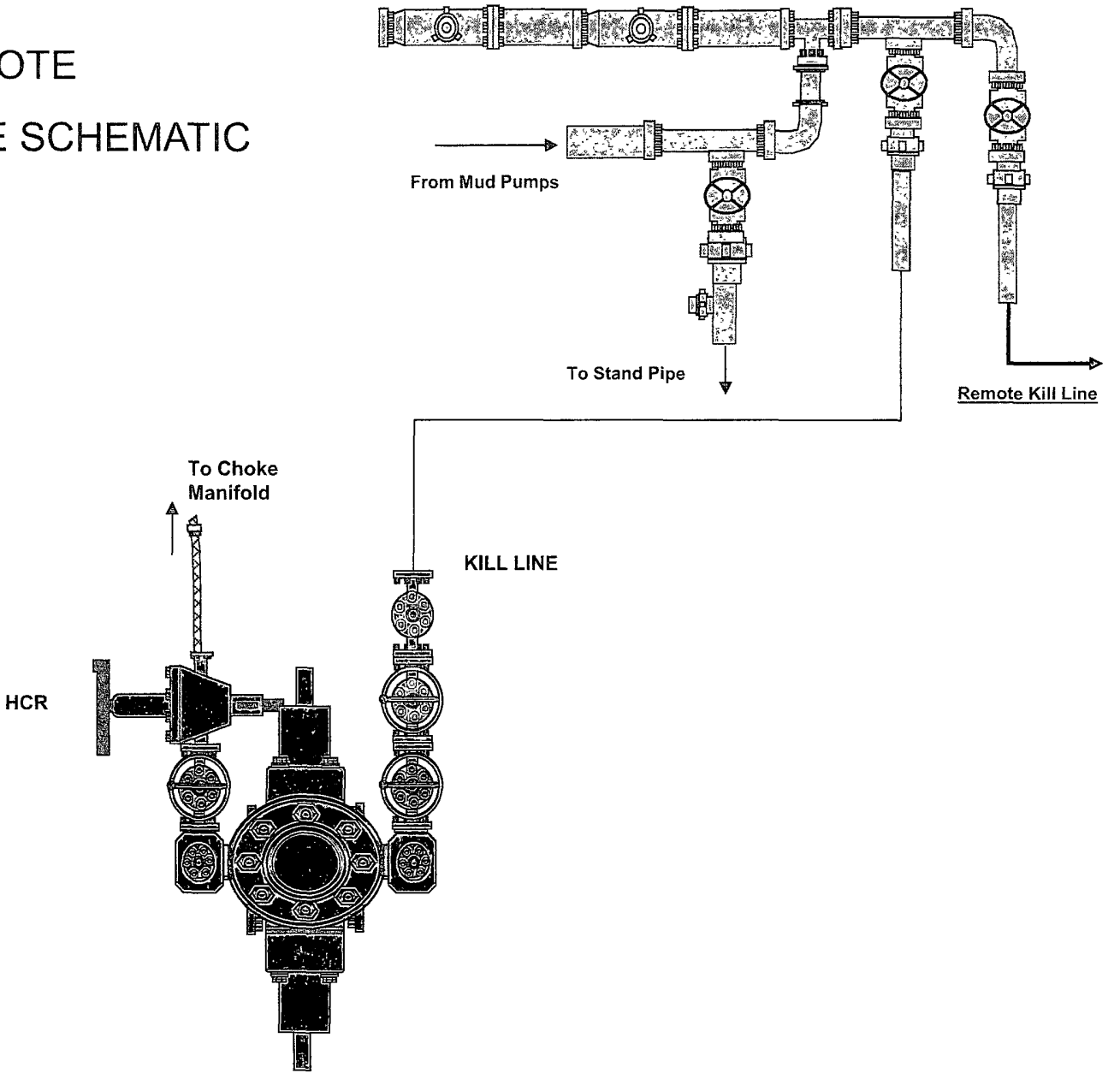
PROJECT: FLEXRIGS

DRAWN: MTS | DATE: 2-28-02 | DWG. NO.: 216-P1-05 | REV: A

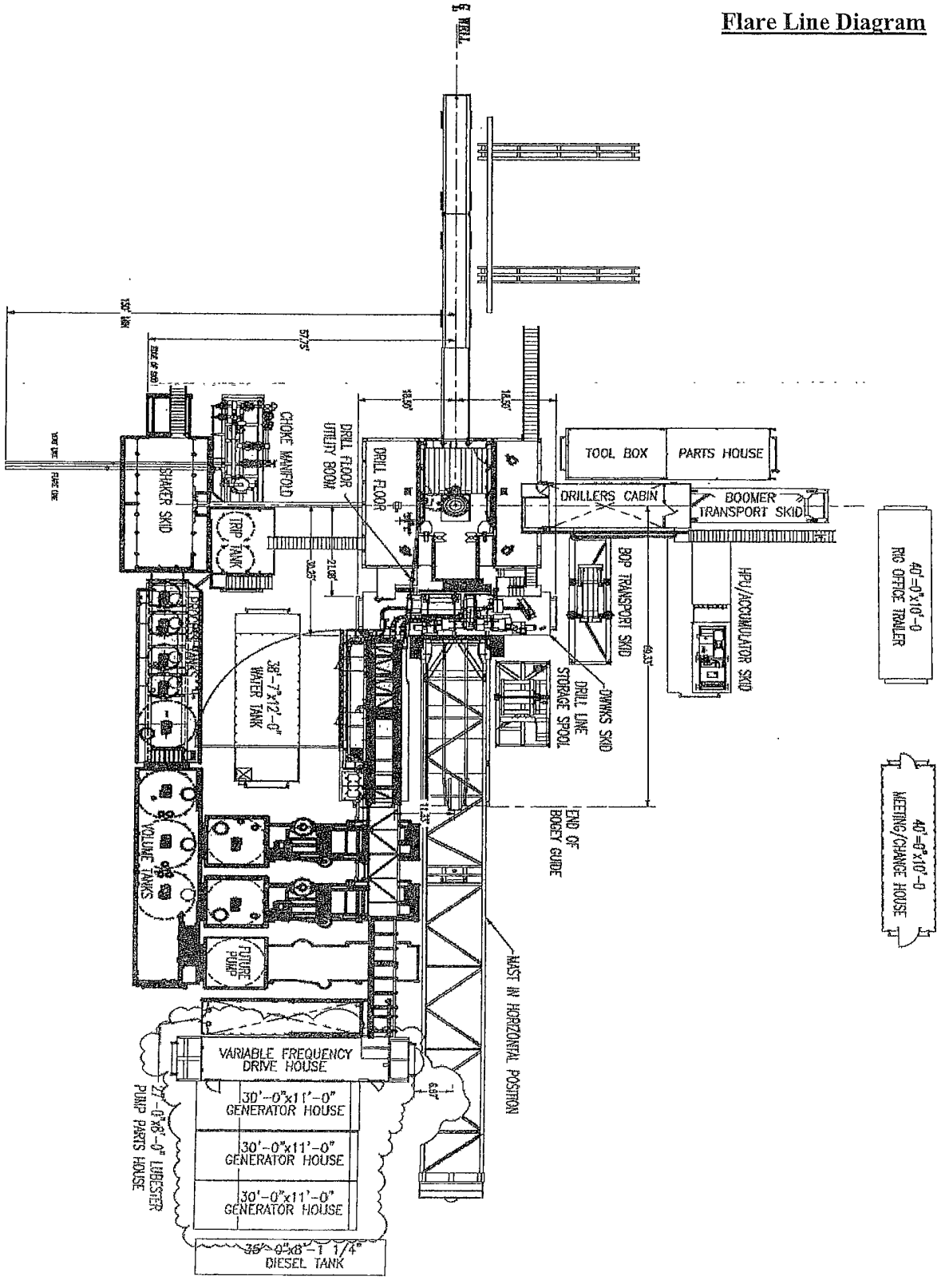
SCALE: 3/4"=1' | SHEET: 1 OF 1

10M REMOTE

KILL LINE SCHEMATIC



Flare Line Diagram



Continental CONTITECH

Fluid Technology

Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE

CERT. N°: 1121

PURCHASER:	ContiTech Beattie Co.	P.O. N°:	005123
CONTITECH ORDER N°:	505591	HOSE TYPE:	3" ID Choke and Kill Hose
HOSE SERIAL N°:	60890	NOMINAL / ACTUAL LENGTH:	10,67 m / 10,72 m

W.P.	68,9	MPa	10000	psi	T.P.	103,4	MPa	15000	psi

Duration: 60 min.

Pressure test with water at ambient temperature

See attachment. (1 page)

↑ 10 mm = 10 Min.

→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°	Quality	Heat N°
3" coupling with	9409 9414	AISI 4130	B3018A H2205
.4 1/16" Flange end		AISI 4130	144004

NOT DESIGNED FOR WELL TESTING

API Spec 16 C

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

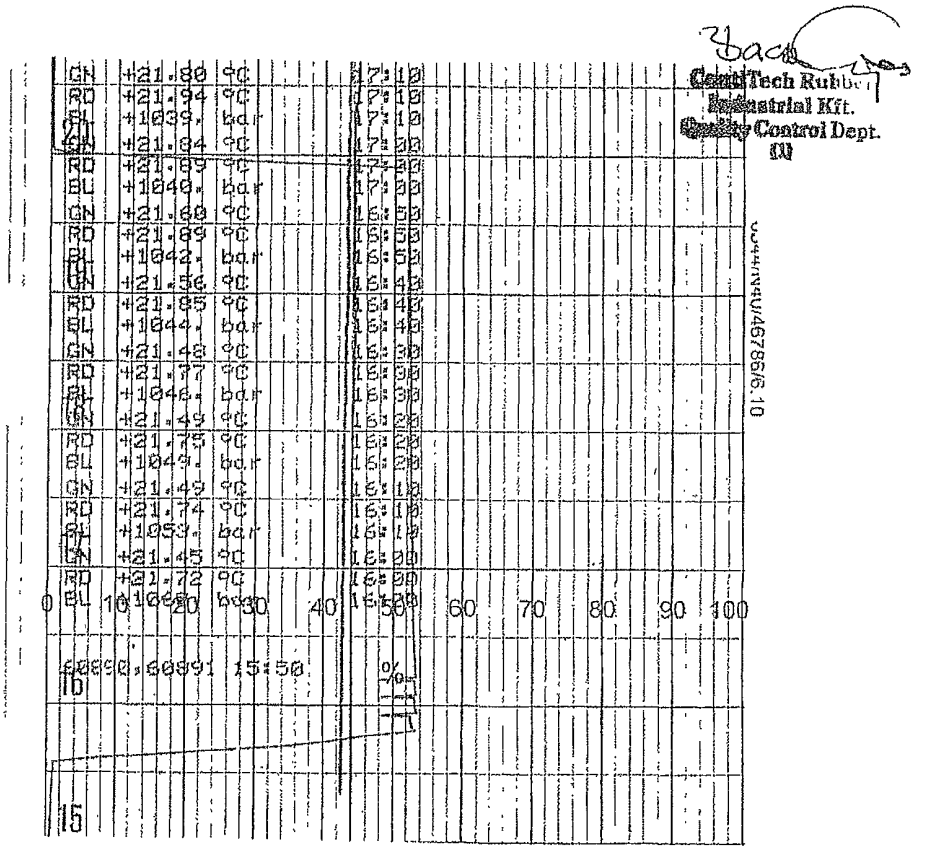
COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
05. November 2011.		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)

FH-2

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No: 1121, 1122*

Page: 1 / 1



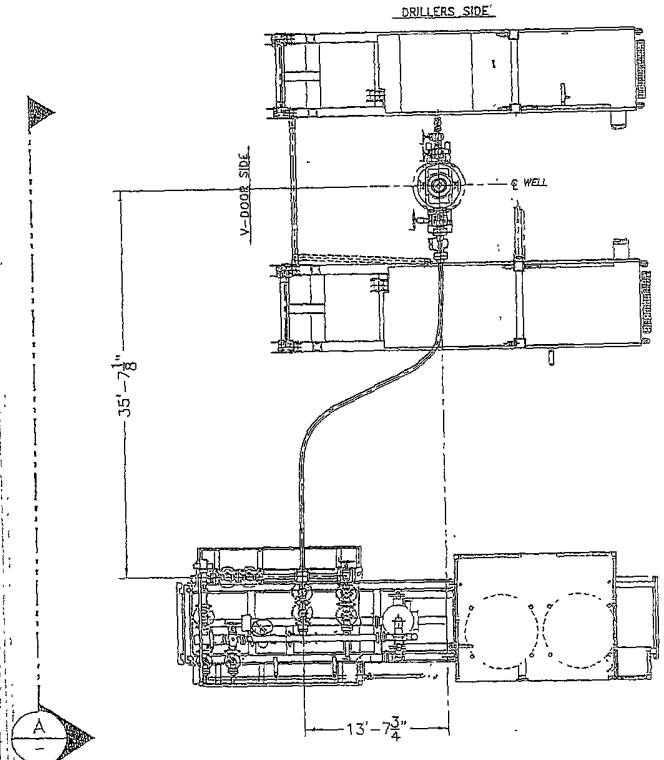
FH-3

Continental CONTITECH

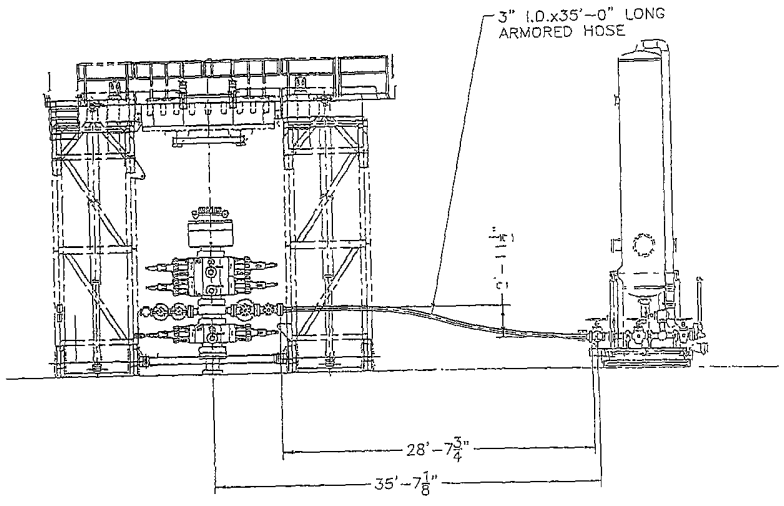
Hose Data Sheet

CRI Order No.	505591
Customer	ContiTech Beattie Co.
Customer Order No	PO5123 STOCK
Item No.	1
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSIBX155 RING GROOVE
Type of coupling other end	FLANGE 4 1/16" API SPEC 6A TYPE 6BX FOR 10000 PSI BX155 RING GROOVE
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL RESISTANT
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
MBR operating [m]	1,60
MBR storage [m]	1,40
Type of packing	WOODEN CRATE ISPM-15

Flex Hose 4



PLAN VIEW



SECTION "A"

ISSUED FOR FABRICATION
December-19-2007
DRAFTSMAN
ENGINEER

REV	DATE	DESCRIPTION	BY
4			
3			
2			
1			
A	12/18/07	REMOVED SHEET TOTAL CALLOUT	JAV

ENGINEERING APPROVAL | DATE

HELMERICH & PAYNE
INTERNATIONAL DRILLING CO.

TITLE: CHOKE LINE SYSTEM FLEXRIG3

CUSTOMER:

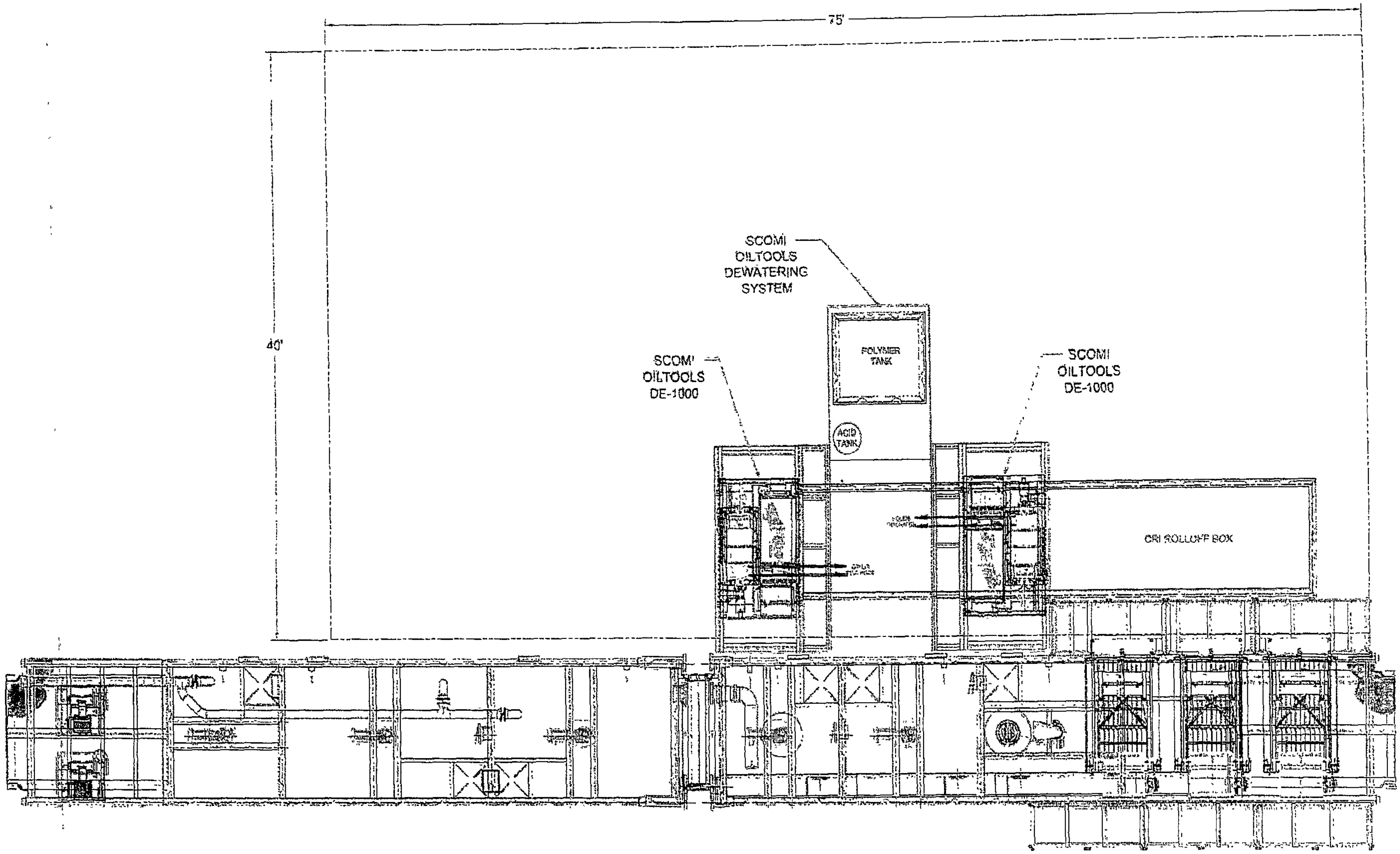
PROJECT

DRAWN: JBG | DATE: 4-10-07 | DWG. NO. 210-P1-07 | REV A

SCALE: 3/16"=1' | SHEET 2 OF 3

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	LENGTH	WEIGHT



1. ALL STRUCTURAL MATERIAL SHALL BE ASTM A 36.
2. ALL PIPE SCH. 40 MATERIAL SA 106 Gr. B
3. ALL FLANGES SHALL BE CORP. 150# & MATERIAL SA 105.
4. ALL FITTINGS SCH. 40 MATERIAL SHALL BE SA 234 Gr. WPB
5. TANK FABRICATION SHALL BE IN ACCORDANCE WITH API-650.

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TITLE: CLOSED LOOP SYSTEM BASIC LAYOUT AND TIE IN OXY - H&P - FLEX RIGS / PG 1 OF 2

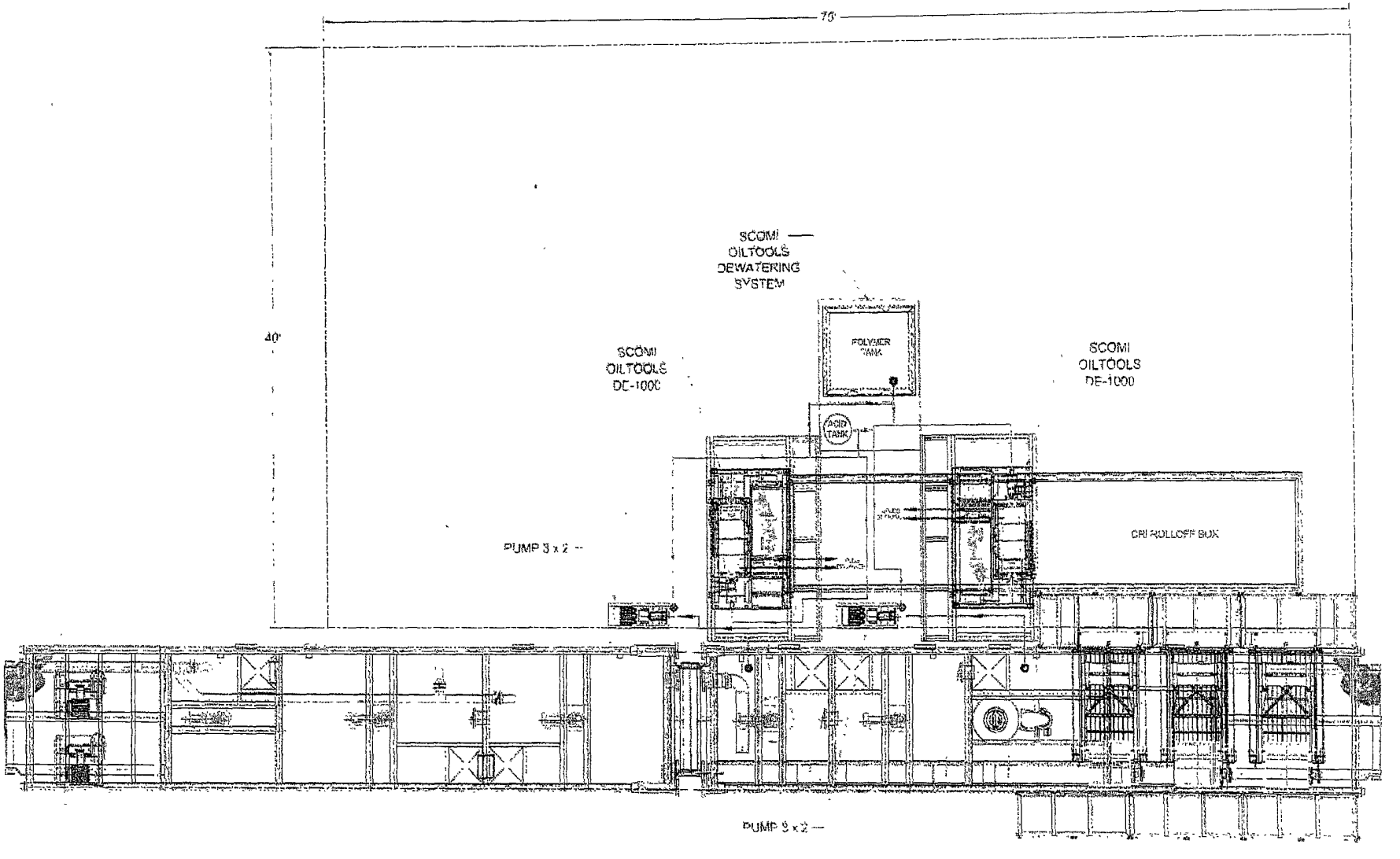
DRAWN BY	DATE	CHECKED BY	DATE
PDL	10/30/08		
APPROVED	DATE	SCALE	SIZE DWG.
		NTS	D

Scomi

Houston, Texas 77060

JOB NO.	DRAWING NO.	REV
	521S-014	A

CL-2

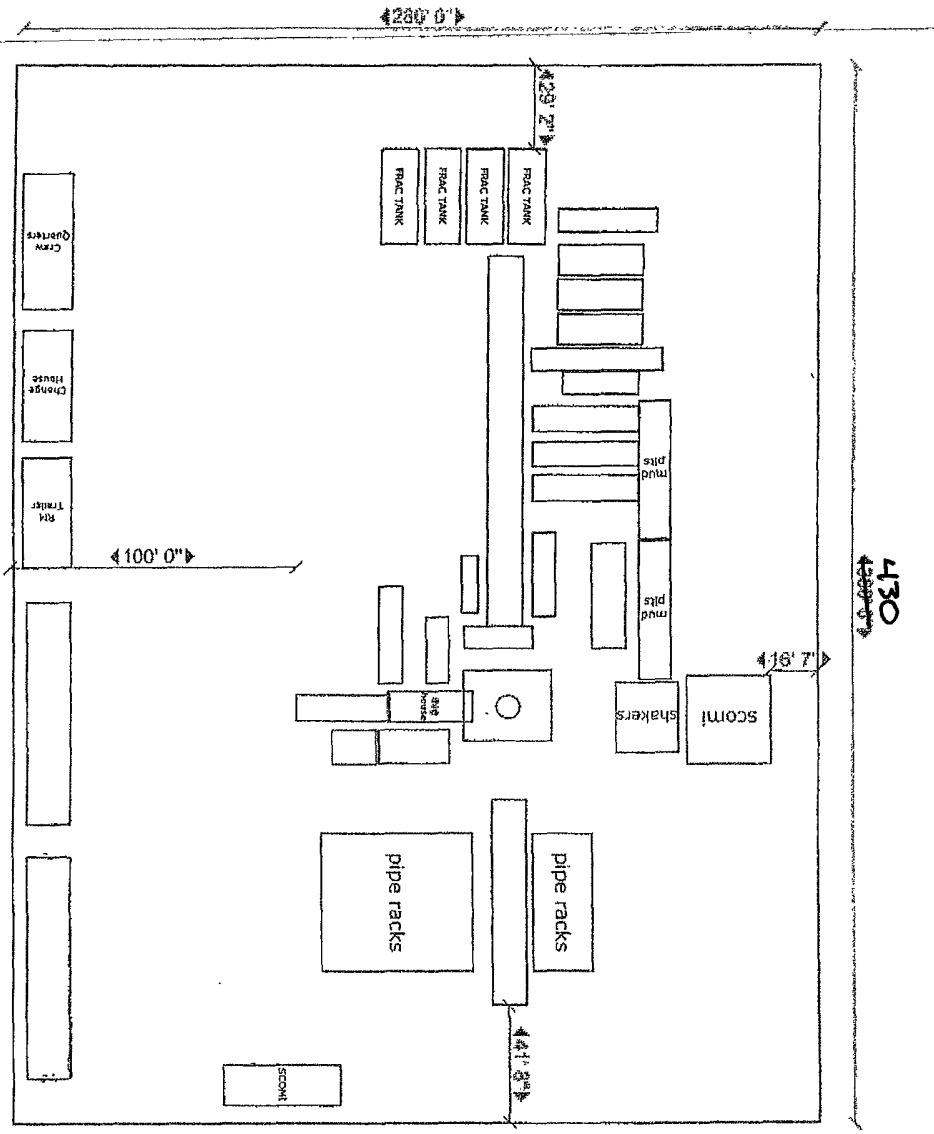


CLOSED LOOP SYSTEM
BASIC LAYOUT AND TIE IN
OXY - H&P - FLEX RIGS / PG 2 OF 2

Scomi

521S-014 A

RL-CL-4


280' 0"
29' 2"
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
Crew Quarters
Change House
Rig Trailer
100' 0"
mud pits
mud pits
16' 7"
scomi
shakers
pipe racks
pipe racks
SCOMI
430

Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
Lost Tank 4 Federal #22

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 Southwest 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.

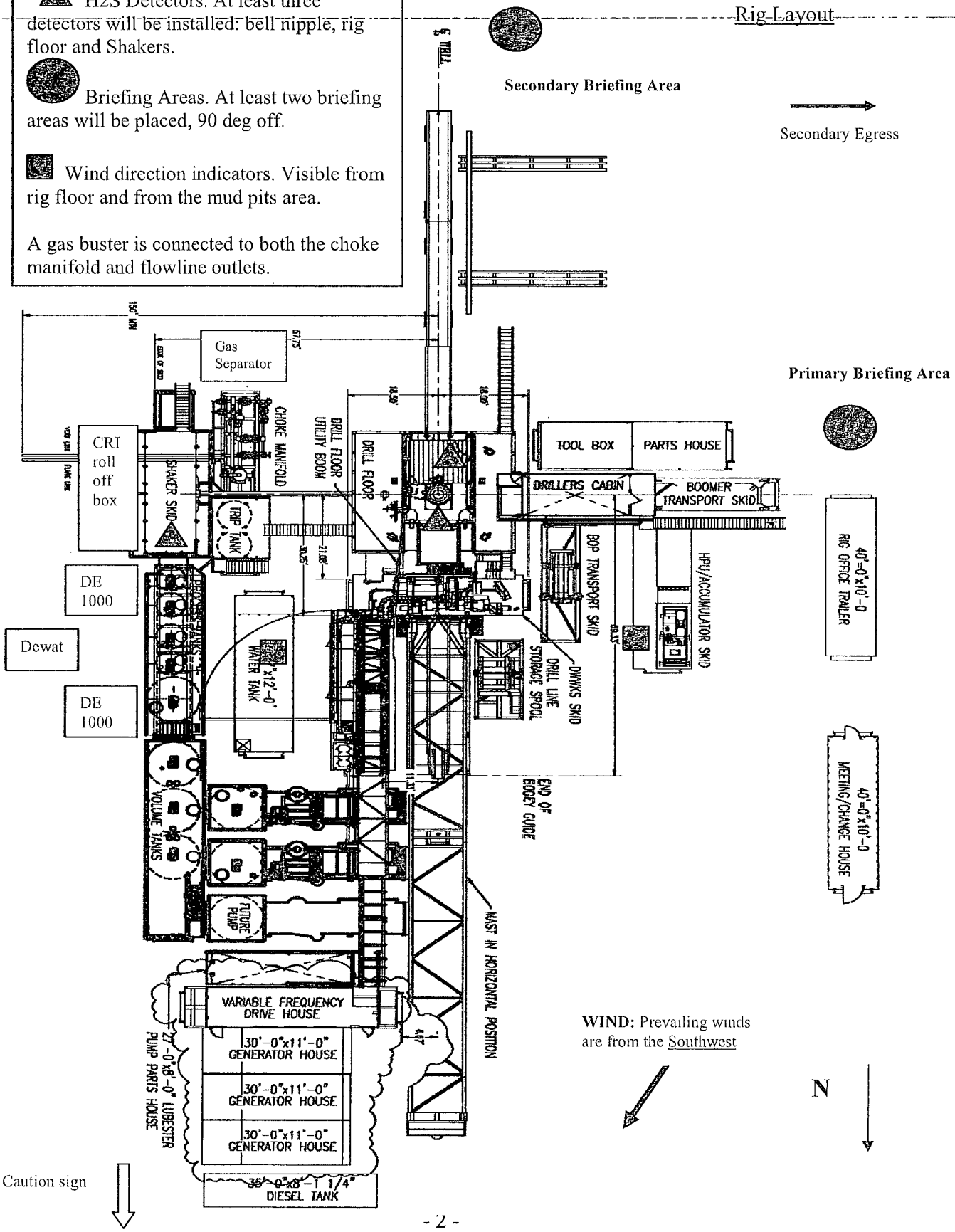
Rig Layout

▲ 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.



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 (H2S) gas.
While drilling this well, it is possible to encounter H2S bearing formations. At all times, the first barrier to control H2S 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 H2S is detected. All H2S 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.

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 H2S.
2. Proper use and maintenance of personal protective equipment and life support systems.
3. H2S detection.
4. Proper use of H2S 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 H2S 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 H2S Drilling Operations Plan.

H2S 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. H2S 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 H2S 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 H2S.

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.
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. H2S 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. H2S 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 H2S 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 H2S 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 H2S 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 H2S 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 H2S 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 H2S 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 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 H2S 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 H2S detection equipment and self-contained breathing equipment will monitor H2S 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

Percent (%)	Ppm	Concentration Grains 100 std. Ft3*	Physical effects
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 H2S.

B. When breaking out any line where H2S can reasonably be expected.

C. When sampling air in areas to determine if toxic concentrations of H2S exists.

D. When working in areas where over 10 ppm H2S has been detected.

E. At any time there is a doubt as to the H2S level in the area to be entered.

Rescue
First aid for H2S 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.

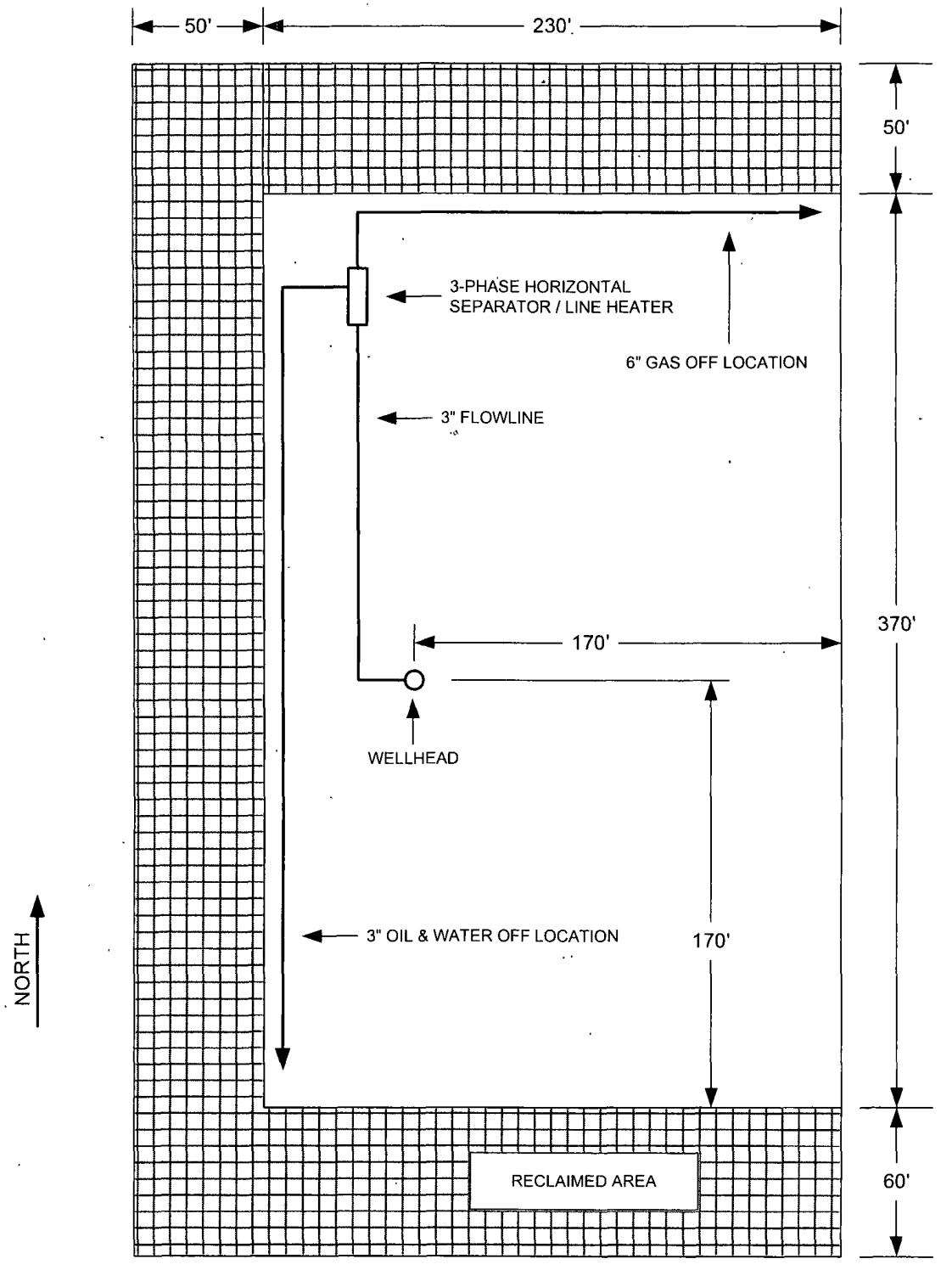
4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.

5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H2S gas poisoning – no matter how remote the possibility is.

6. Notify emergency room personnel that the victim(s) has been exposed to H2S gas.

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

Revised CM 6/27/2012



REVISION BLOCK			
NO	DATE	DESCRIPTION	BY
0	7/11/12	PRELIMINARY DRAFT	JMR
1	8/14/12	REVISED BASED ON NEW WELL PAD DIAGRAM	JMR

PRODUCTION FACILITY LAYOUT

LOST TANK 4 FED #24

EDDY COUNTY, NEW MEXICO

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA Inc
LEASE NO.:	NM0417696
WELL NAME & NO.:	22 Lost Tank 4 Federal
SURFACE HOLE FOOTAGE:	1774' FNL & 1480' FEL
BOTTOM HOLE FOOTAGE	680' FSL & 782' FEL
LOCATION:	Section 4, T.22 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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