RECEIVED
DEC 12 2013
NMOCD ARTESIA

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-41857	48035	Old Millman Ranch Bone Spring

Property Code	Property Name	Well Number
302161	STATE CV COM	2H

OGRID No.	Operator Name	Elevation
192463	OXY USA WTP LP	3274.7'

Surface Location

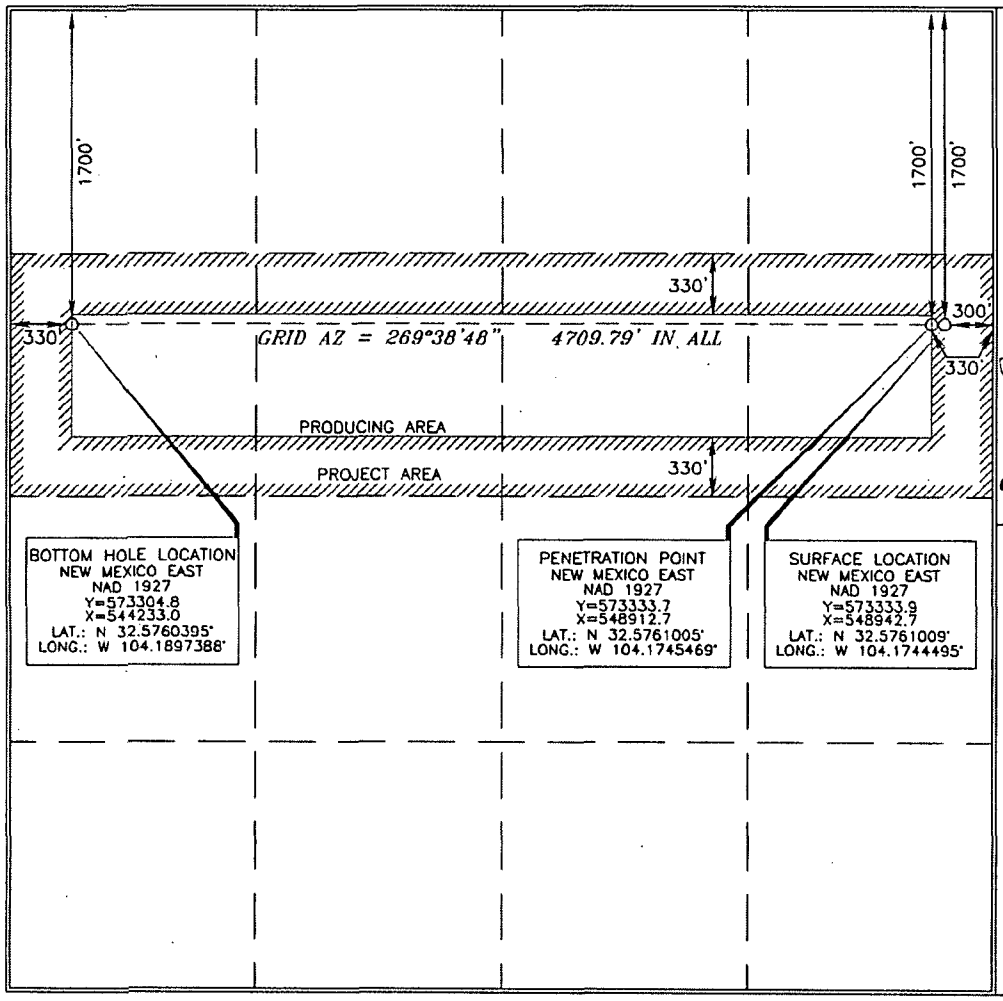
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	16	20 SOUTH	28 EAST, N.M.P.M.		1700'	NORTH	300'	EAST	EDDY

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
E	16	20 SOUTH	28 EAST, N.M.P.M.		1700'	NORTH	330'	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40 160 ac.			

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.

Jennifer Duarte 12/11/13
Signature Date

Jennifer Duarte
Printed Name

jennifer_duarte@oxy.com
E-mail Address

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.

15079

SEPTEMBER 22, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

Terry J. Asel 10/10/2013
Certificate Number 15079

WO# 130922WL (KA)

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API Number	Pool Code	Pool Name
	48035	Old Millman Ranch Bone Spring Assoc

Property Code	Property Name	Well Number
302161	STATE CV COM	2H

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192463	OXY USA WTP LP	3274.7'

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UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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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
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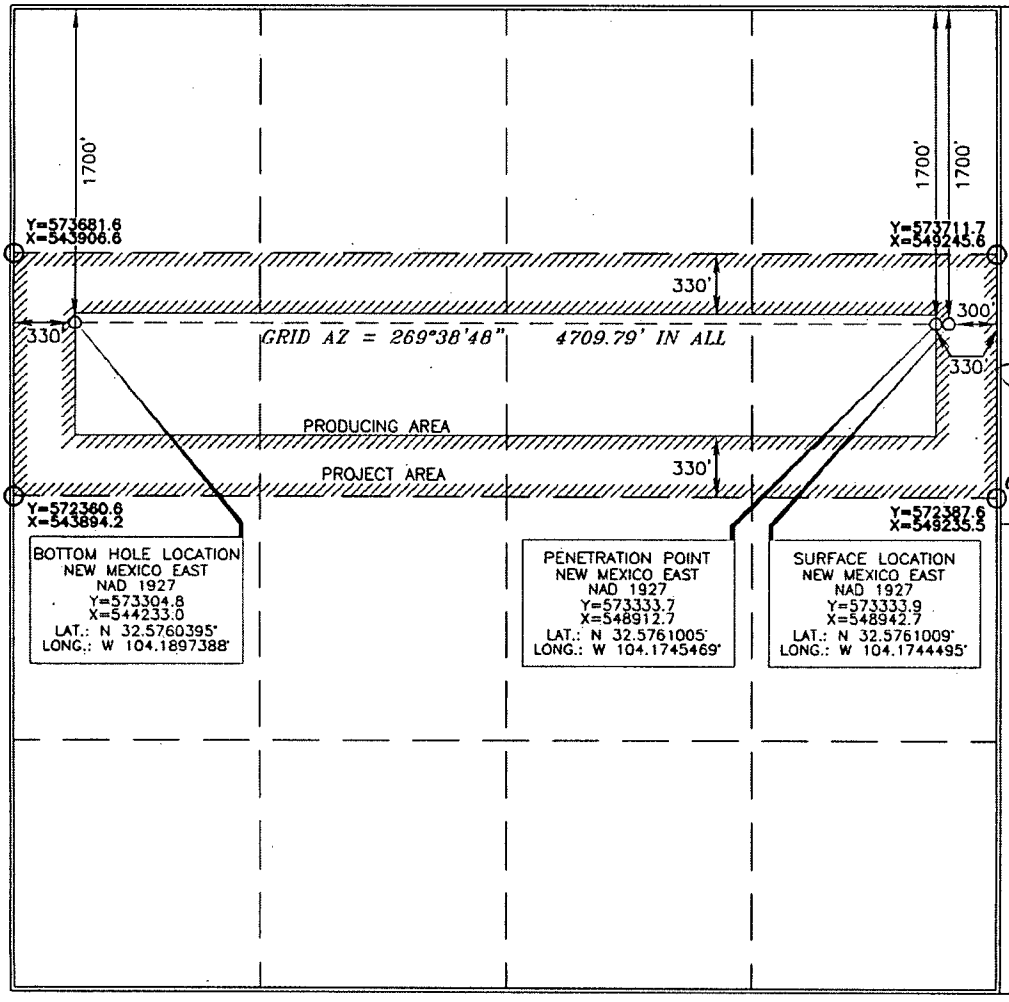
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

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.



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Signature — Date: 12/11/13

Printed Name: Jennifer Duarte

E-mail Address: jennifer_duarte@oxy.com

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 22, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

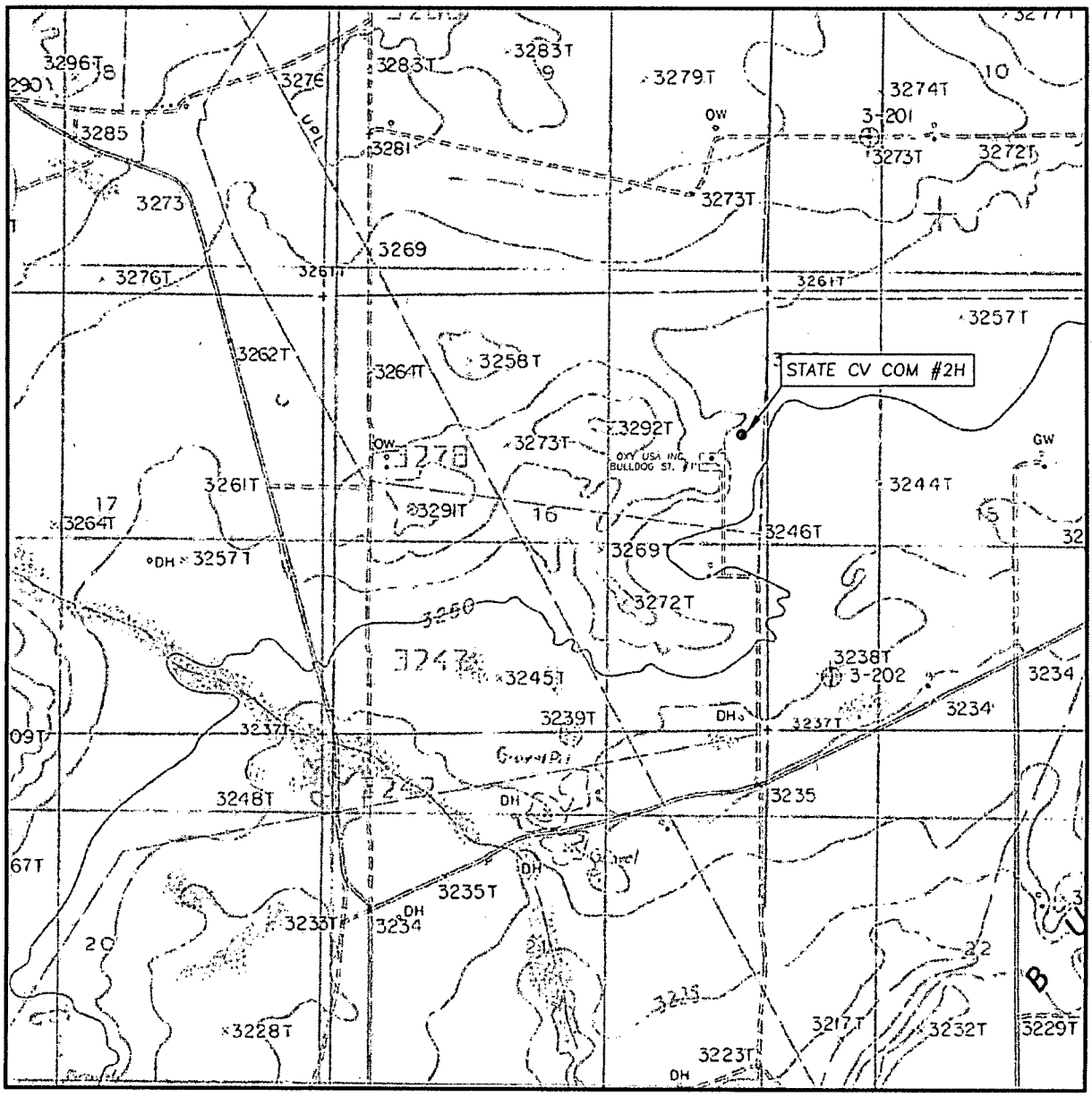
GERRY JASO
NEW MEXICO
15079
PROFESSIONAL LAND SURVEYOR

10/10/2013

Certificate Number 15079

WO# 130922WL-XY (KA)

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: .10'

SEC. 16 TWP. 20-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1700' FNL & 300' FEL

ELEVATION 3274.7'

OPERATOR OXY USA WTP

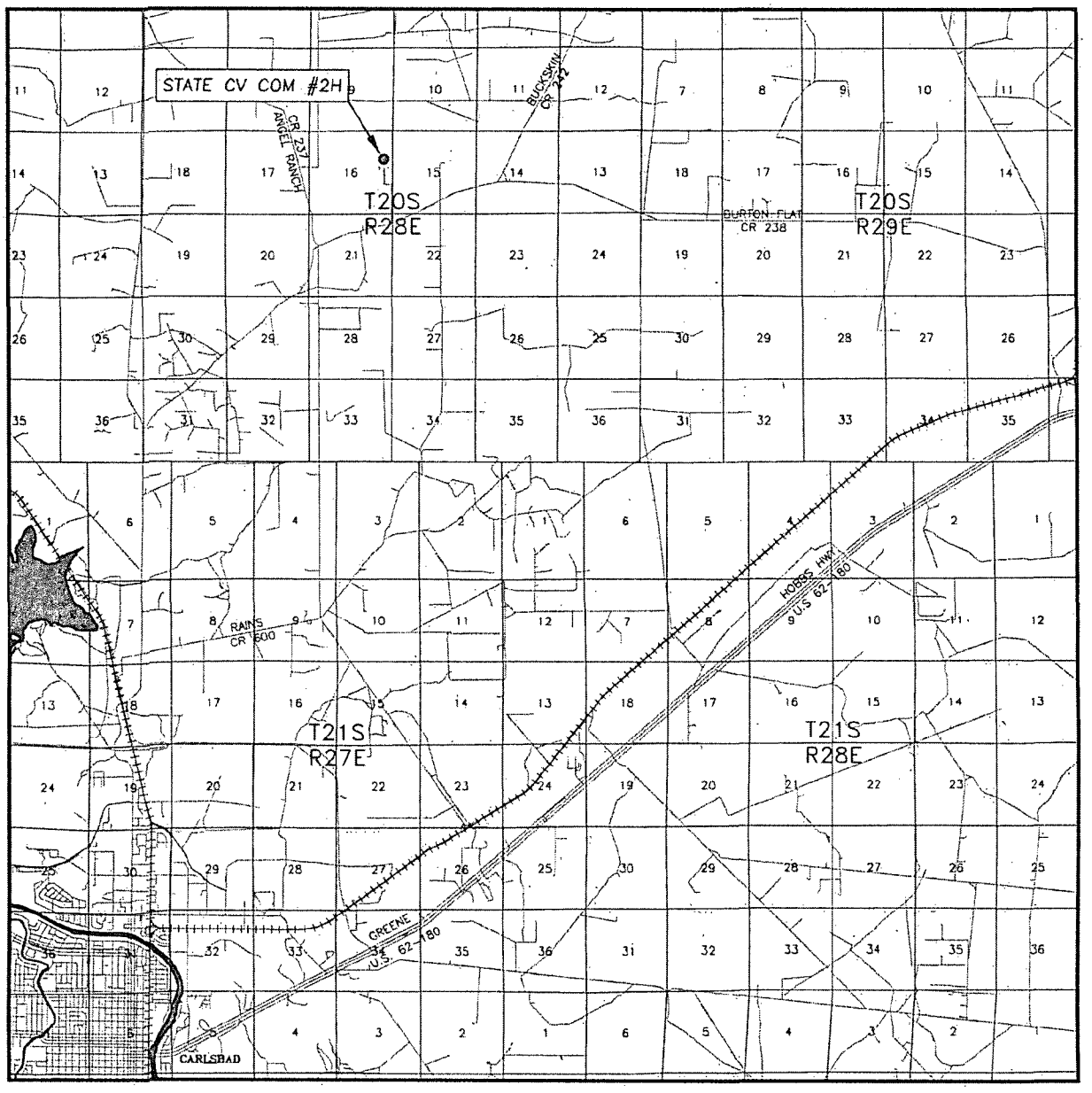
LEASE STATE CV COM #2H

U.S.G.S. TOPOGRAPHIC MAP
ANGEL DRAW, N.M.

Asel Surveying

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

VICINITY MAP



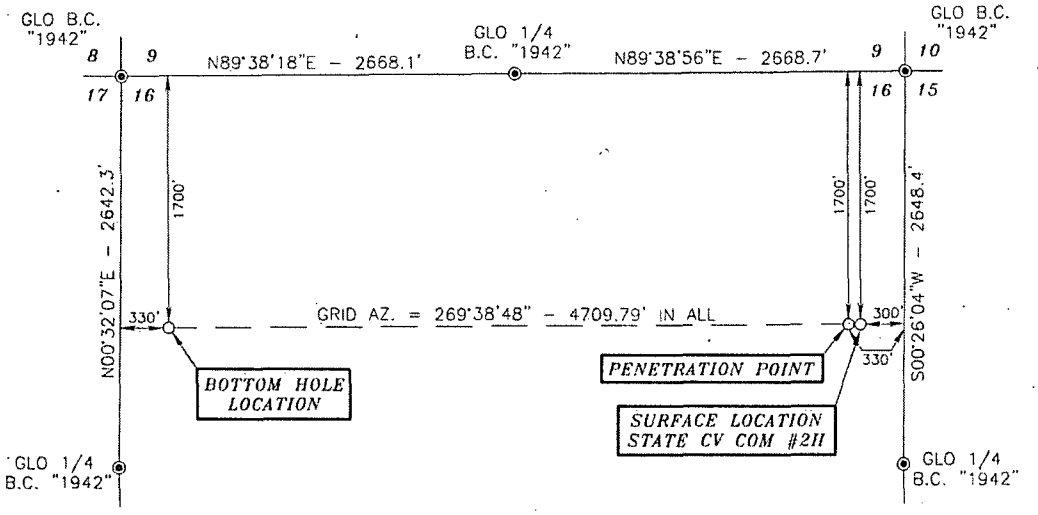
SEC. 16 TWP. 20-S RGE. 28-E
SURVEY N.M.P.M.
COUNTY EDDY
DESCRIPTION 1700' FNL & 300' FEL
ELEVATION 3274.7'
OPERATOR OXY USA WTP LP
LEASE STATE CV COM #2H

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. #62 AND EDDY COUNTY ROAD #238 BURTON FLAT ROAD), GO NORTH ON EDDY COUNTY ROAD #238 FOR 2.1 MILES, GO WEST FOR 8.2 MILES, TURN RIGHT ON CALICHE ROAD AND GO NORTH FOR 0.5 MILES, GO WEST FOR 0.1 MILES, GO NORTH FOR 0.3 MILES, CONTINUE NORTH/NORTHEAST ON PROPOSED ROAD FOR 80.0 FEET TO LOCATION.

SECTION 16, TOWNSHIP 20 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY NEW MEXICO



DRIVING DIRECTIONS:
BEGINNING AT THE INTERSECTION OF U.S. HWY. #62 AND EDDY COUNTY ROAD #238 (BURTON FLAT ROAD), GO NORTH ON EDDY COUNTY ROAD #238 FOR 2.1 MILES, GO WEST FOR 8.2 MILES, TURN RIGHT ON CALICHE ROAD AND GO NORTH FOR 0.5 MILES, GO WEST FOR 0.1 MILES, GO NORTH FOR 0.3 MILES, CONTINUE NORTH/NORTHEAST ON PROPOSED ROAD FOR 80.0 FEET TO LOCATION.

TERRY J ASEL NEW MEXICO 15079 PROFESSIONAL LAND SURVEYOR

LEGEND

◉ - DENOTES FOUND MONUMENT AS NOTED

1000' 0 1000' 2000' FEET

SCALE: 1"=1000'

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 10/10/2013

Terry J. Asel N.M. R.P.L.S. No. 15079

Asel Surveying

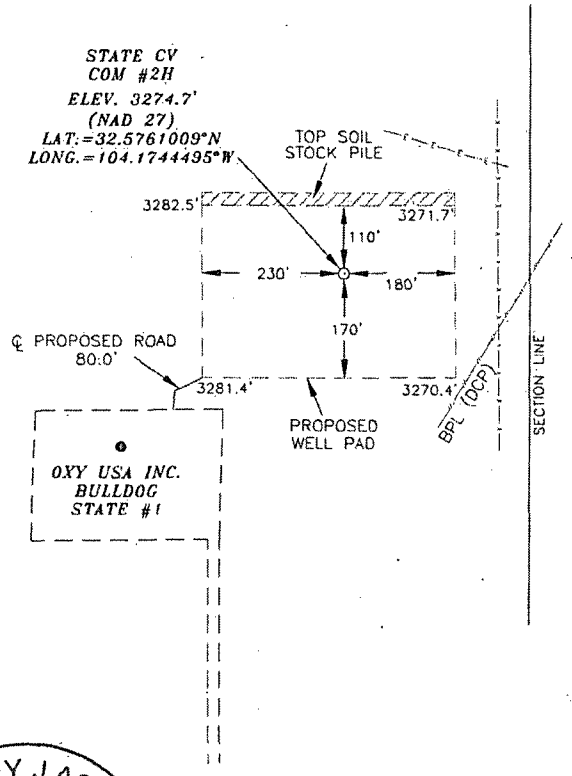
P.O. BOX 393 - 310 W. TAYLOR
HOBBS, NEW MEXICO - 575-393-9146

OXY USA WTP LP

STATE CV COM #2H LOCATED AT
1700' FNL & 300' FEL IN SECTION 16,
TOWNSHIP 20 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 09/22/13	Sheet 1 of 1 Sheets	
W.O. Number: 130922WL	Drawn By: KA	Rev:
Date: 10/07/13	130922WL	Scale:1"=1000'

OXY USA INC.
STATE CV COM #2H
SITE PLAN



TERRY J ASEL
NEW MEXICO
15079
PROFESSIONAL LAND SURVEYOR

LEGEND

- – – – – DENOTES PROPOSED WELL PAD
- — — — — DENOTES PROPOSED ROAD
- ▨ DENOTES STOCK PILE AREA

300' 0 300' 600' FEET

SCALE: 1"=300'

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 10/10/2013

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

OXY USA WTP LP

STATE CV COM #2H WELL PAD LOCATED AT 1700' FNL & 300' FEL IN SECTION 16, TOWNSHIP 20 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 09/22/13	Sheet 1 of 1 Sheets	
W.O. Number: 130922WL	Drawn By: KA	Rev:
Date: 10/07/13	130922WL	Scale: 1"=300'

OXY USA WTP LP
STATE CV COM #2H
APD Data

OPERATOR NAME / NUMBER: OXY USA WTP LP 192463

LEASE NAME / NUMBER: STATE CV COM #2H

STATE: NM **COUNTY:** Eddy

SURFACE LOCATION: 1700' FNL & 300' FEL, Sec 16, T20S, R28E

BOTTOM HOLE LOCATION: 1700' FNL & 330' FWL, Sec 16, T20S, R28E

APPROX GR ELEV: 3275'

EST KB ELEV: 3299' (24' KB-GL)

1. **GEOLOGIC NAME OF SURFACE FORMATION**
   a. Permian

2. **ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS**

Formation	TVD - RKB	Expected Fluids
T. Rustler	25	--
T. Salt	310	--
B. Salt	575	--
T. Yates	975	--
T. Capitan Reef	1100	--
B. Anhydrite / T. Lamar	3110	
T. Brushy Canyon	3975	Oil/Gas
T. 1st BSPG	5880	Oil/Gas
T. 2nd BSPG	6520	Oil/Gas
Target 2nd BSPG Sand	**7369**	**Oil/Gas**
T. 3rd BSPG	7480	Oil/Gas

- **Fresh water may be present above the Rustler formation. Surface casing will be set below the top of the Rustler to protect any possible fresh water.**

GREATEST PROJECTED TD "LATERAL": 11863' MD / 7369' TVD **OBJECTIVE:** 2nd BSPG

3. CASING PROGRAM

Surface Casing ran in 18-1/2" hole filled with 8.6 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
18.500	285	16	75	J55	BTC	15.124	New	2635	1017	1.43	9.61	10.06

Intermediate1 Casing ran in 14-3/4" hole filled with 10.2 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
14.750	1050	11.75	47	J55	BTC	11.000	New	3072	1514	1.37	4.53	5.23

Intermediate2 Casing ran in 10-5/8" hole filled with 8.6 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
10.625	3150	8.625	32	J55	LTC	7.921*	New	3928	2533	1.37	2.12	2.24

Production Casing ran in 7-7/8" hole filled with 9.2 ppg mud

Hole Size (in)	Interval (ft)	OD (in)	Wt (ppf)	Grade	Conn	ID (in)	Condition	Burst (psi)	Collapse (psi)	**Burst SF**	**Coll SF**	**Ten SF**
7.875	11863	5.5	17	L80	BTC	4.892	New	7738	6285	1.22	1.78	1.90

*SPECIAL DRIFT TO 7.875"

Casing Design Assumptions:

Burst Loads

CSG Test (Surface)

- Internal: Displacement fluid + 70% CSG Burst rating
- External: Pore Pressure from section TD to surface

CSG Test (Intermediate)

- Internal: Displacement fluid + 70% CSG Burst rating
- External: Pore Pressure from the Intermediate hole TD to Surface CSG shoe and MW of the drilling mud that was in the hole when the CSG was run to surface

CSG Test (Production)

- Internal: Displacement fluid + 80% CSG Burst rating
- External: Pore Pressure from the well TD the Intermediate CSG shoe and MW of the drilling mud that was in the hole when the CSG was run to surface

Gas Kick (Surface/Intermediate)

- Internal: Gas Kick based on Pore Pressure or Fracture Gradient @ CSG shoe with a gas 0.115psi/ft Gas gradient to surface while drilling the next hole section (e.g. Gas Kick while drilling the production hole section is a burst load used to design the intermediate CSG)
- External: Pore Pressure from section TD to previous CSG shoe and MW of the drilling mud that was in the hole when the CSG was run to surface

Stimulation (Production)

- Internal: Displacement fluid + Max Frac treating pressure (not to exceed 80% CSG Burst rating)
- External: Pore Pressure from the well TD to the Intermediate CSG shoe and 8.5 ppg MWE to surface

Collapse Loads

Lost Circulation (Surface/Intermediate)

- Internal: Losses experienced while drilling the next hole section (e.g. losses while drilling the production hole section are used as a collapse load to design the intermediate CSG). After losses there will be a column of mud inside the CSG with an equivalent weight to the Pore Pressure of the lost circulation zone
- External: MW of the drilling mud that was in the hole when the CSG was run

Cementing (Surface/Intermediate/Production)

- Internal: Displacement Fluid
- External: Cement Slurries to TOC, MW to surface

Full Evacuation (Production)

- Internal: Atmospheric Pressure
- External: MW of the drilling mud that was in the hole when the CSG was run

Tension Loads

Running CSG (Surface/Intermediate/Production)

- Axial load of the buoyant weight of the string plus either 100 klb over-pull or string weight in air, whichever is less

Green Cement (Surface/Intermediate/Production)

- Axial load of the buoyant weight of the string plus the cement plug bump pressure (Final displacement pressure + 500 psi)

Burst, Collapse and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software.

4. CEMENT PROGRAM

Surface Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
0' – 285' (160% OH Excess)	200	285	Premium Plus Cement, with 4% Bentonite, 2% Calcium Chloride, & 0.125 lb/sk Poly-E-Flake	9.18	13.5	1.75	1069 psi

Intermediate1 Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
Lead: 0' - 500' (120% OH Excess)	200	2250	Light Premium Plus Cement, with 5% Salt, 5 lb/sk Kol-Seal, & 0.125 lb/sk Poly-E-Flake	9.87	12.9	1.90	760 psi
Tail: 500' – 1050' (120% OH Excess)	400	550	Premium Plus cement with 1% Calcium Chloride	6.36	14.8	1.34	2032 psi

Intermediate2 Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
Lead: 0' – 2650' (150% OH Excess)	600	2650	Light Premium Plus Cement, with 5% Salt, 5 lb/sk Kol-Seal, & 0.125 lb/sk Poly-E-Flake	9.99	12.9	1.91	625 psi
Tail: 2650' – 3150' (150% OH Excess)	200	500	Premium Plus cement with 2% Calcium Chloride	6.39	14.8	1.35	1746 psi
CONTINGENCY DV TOOL WITH EXTERNAL CASING PACKER SET AT 1100'. If cement circulates to surface during primary cementing operation, DV cancellation cone will be run and 2nd stage cancelled. Contingency recipe for 2nd stage as follows:							
Lead: 0' – 600' (10% OH Excess)	100	600	Light Premium Plus Cement with 3lbs/sk Salt	11.39	12.4	2.05	450 psi (500psi in 26 hrs)
Tail: 600' – 1100' (200% OH Excess)	120	500	Premium Plus cement with 2% Calcium Chloride	6.39	14.8	1.35	1746 psi

Production Interval

Interval	Amount sx	Ft of Fill	Type	Gal/Sk	PPG	Ft^3/sk	24 Hr Comp
Lead: 2000' – 7000' (100% Excess)	550	5000	TUNED LIGHT (TM) SYSTEM 3 lbm/sk Kol-Seal, 0.125 lbm/sk Poly-E-Flake, 0.25 lbm/sk HR-800	14.05	10.2	2.95	900
Tail: 7000' – 11863' (40% OH Excess)	700	4863	Super H Cement, 0.5 % Halad(R)-344, 0.4 % CFR-3, 3 lbm/sk Salt, 0.3 % HR-601, 0.125 lbm/sk Poly-E-Flake, 5 lbm/sk Kol-Seal	8.33	13.2	1.68	1527

*Description of Cement Additives:
Bentonite: Light Weight Additive
Calcium Chloride: Accelerator
CFR-3: Dispersant
Halad-344: Low Fluid Loss Control
HR-601: Retarder
HR-800: Retarder
Kol-Seal: Lost Circulation Additive
Poly-E-Flake: Lost Circulation Additive

5. DIRECTIONAL PLAN

Please see attached directional plan

6. PRESSURE CONTROL EQUIPMENT

Surface: 0' – 285' None.

Intermediate1: 285' - 1050' First intermediate hole will be drilled with a 2M Annular Diverter system. The Annular will be tested to 1400psi (70% of working pressure.)

Intermediate2 and Production: 1050' MD/TVD – 11863' MD / 7369' TVD. Intermediate and Production hole will be drilled with a 13-5/8" 10M three ram stack with a 5M annular preventer and a 5M Choke Manifold.

- **a.** All BOP's and associated equipment will be tested in accordance with Onshore Order #2 (250/5000 psi on rams for 10 minutes each and 250/3500 psi for 10 minutes for annular preventer, equal to 70% of working pressure) with a third party BOP testing service before drilling out the surface casing shoe. A Multibowl wellhead system will be used in this well therefore the BOPE test will cover the test requirements for the Intermediate and Production sections.
- **b.** The Surface and Intermediate casings strings will be tested to 70% of their burst rating for 30 minutes. This will also test the seals of the lock down pins that hold the pack-off in place in the Multibowl wellhead system.
- **c.** Pipe rams will be function tested every 24 hours and blind rams will be tested 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.
- **d.** The BOPE test will be repeated within 21 days of the original test, on the first trip, if drilling the intermediate or production section takes more time than planned.
- **e.** Other accessory BOP equipment will include a floor safety valve, choke lines, and choke manifold having a 5000 psi working pressure rating and tested to 5000 psi.
- **f.** The Operator also requests a variance to connect the BOP choke outlet to the choke manifold using a co-flex hose manufactured by Contitech Rubber Industrial KFT. It is a 3" ID x 35' flexible hose with a 10,000 psi working pressure. It has been tested to 15,000 psi and is built to API Spec 16C. Once the flex line is installed it will be tied down with safety clamps (certifications attached).
- **g.** BOP & Choke manifold diagrams attached.

7. MUD PROGRAM

Depth	Mud Wt ppg	Vis Sec	Fluid Loss	Type System
0' – 285'	8.5	28 – 38	NC	Fresh Water / Spud Mud
285' – 1050'	10.2	28 – 32	NC	Fresh Water / NaCl Brine
1050' – 3150'	8.5	28 – 32	NC	Fresh Water
3150' – 11863'	9.2	28 – 34	NC	Cut Brine / Sweeps

Remarks: 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.

8. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS

Road and location construction will begin after the APD approval. Move in operations and drilling is expected to take 40 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.

9. WIRELINE LOGGING / MUD LOGGING / LWD

a. Wireline logging: PEX-CMR From KOP to Int Casing Shoe
b. Mud loggers to be rigged up from surface casing shoe to TD.
c. Acquire GR while drilling, from Int casing shoe to TD.

COMPANY PERSONNEL:

Name	Title	Office Phone	Mobile Phone
Anar Khalilov	Drilling Engineer	(713)985-6959	(832) 205-6365
Sebastian Millan	Drilling Engineer Supervisor	(713)350-4950	(832) 528-3268
Roger Allen	Drilling Superintendent	(713)215-7617	(281) 682-3919
Oscar Quintero	Drilling Manager	(713)985-6343	(713) 689-4946

OXY Permian

OXY

Eddy County, New Mexico
State CV Com 2H
State CV Com 2H

Original Wellbore

Plan: Design #1

Standard Planning Report

22 October, 2013

Scientific Drilling

OXY Permian

State CV Com 2H
Eddy County, New Mexico
Northing: 573333.90
Easting: 548942.70
Design #1

Scientific Drilling

Azimuths to Grid North
True North: -0.09°
Magnetic North: 7.51°

To convert a Magnetic Direction to a Grid Direction, Add 7.52°
To convert a True Direction to a Grid Direction, Subtract 0.09°

Magnetic Field
Strength: 48527.5snT
Dip Angle: 60.35°
Date: 10/22/2013
Model: IGRF2010

KB @ 3299.0usft
Gr @ 3274.7

WELL DETAILS State CV Com 2H
Ground Level: 3274.7

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	573333.90	548942.70	32° 34' 33.964 N	104° 10' 28.019 W

DESIGN TARGET DETAILS

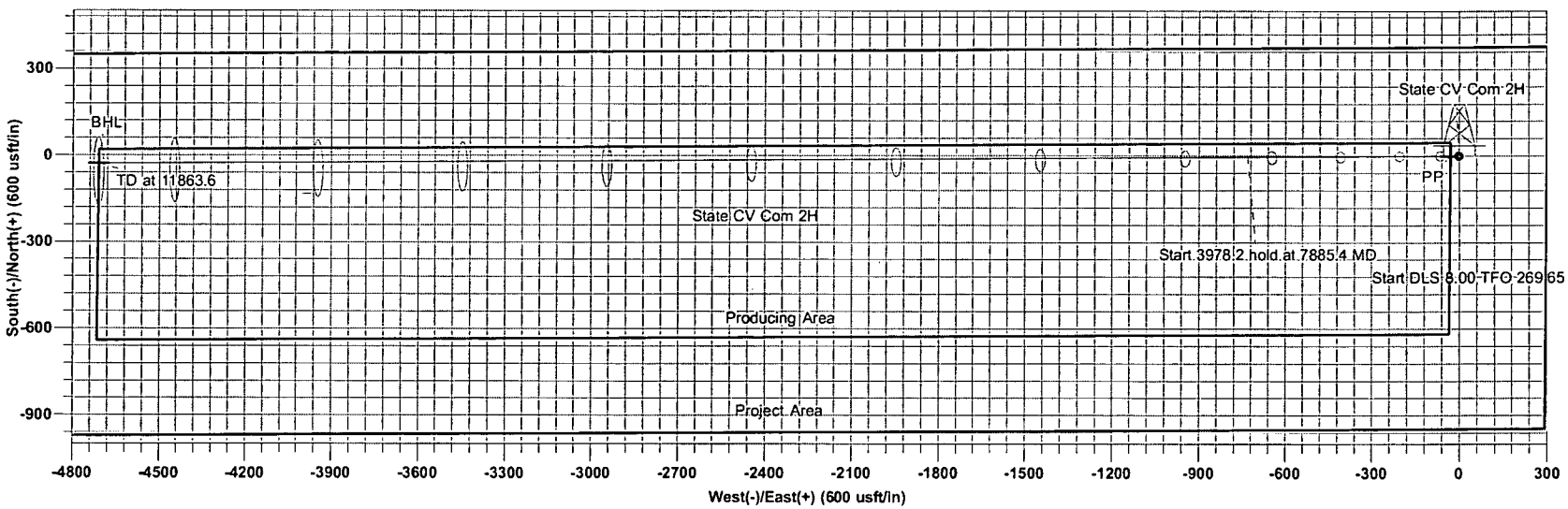
Name	TVD	+N/-S	+E/-W	Northing	Easting
SCVCom 2H PP	6949.1	-0.2	-30.0	573333.70	548912.70
SCVCom 2H BHL	7369.0	-29.1	-4709.7	573304.80	544233.00

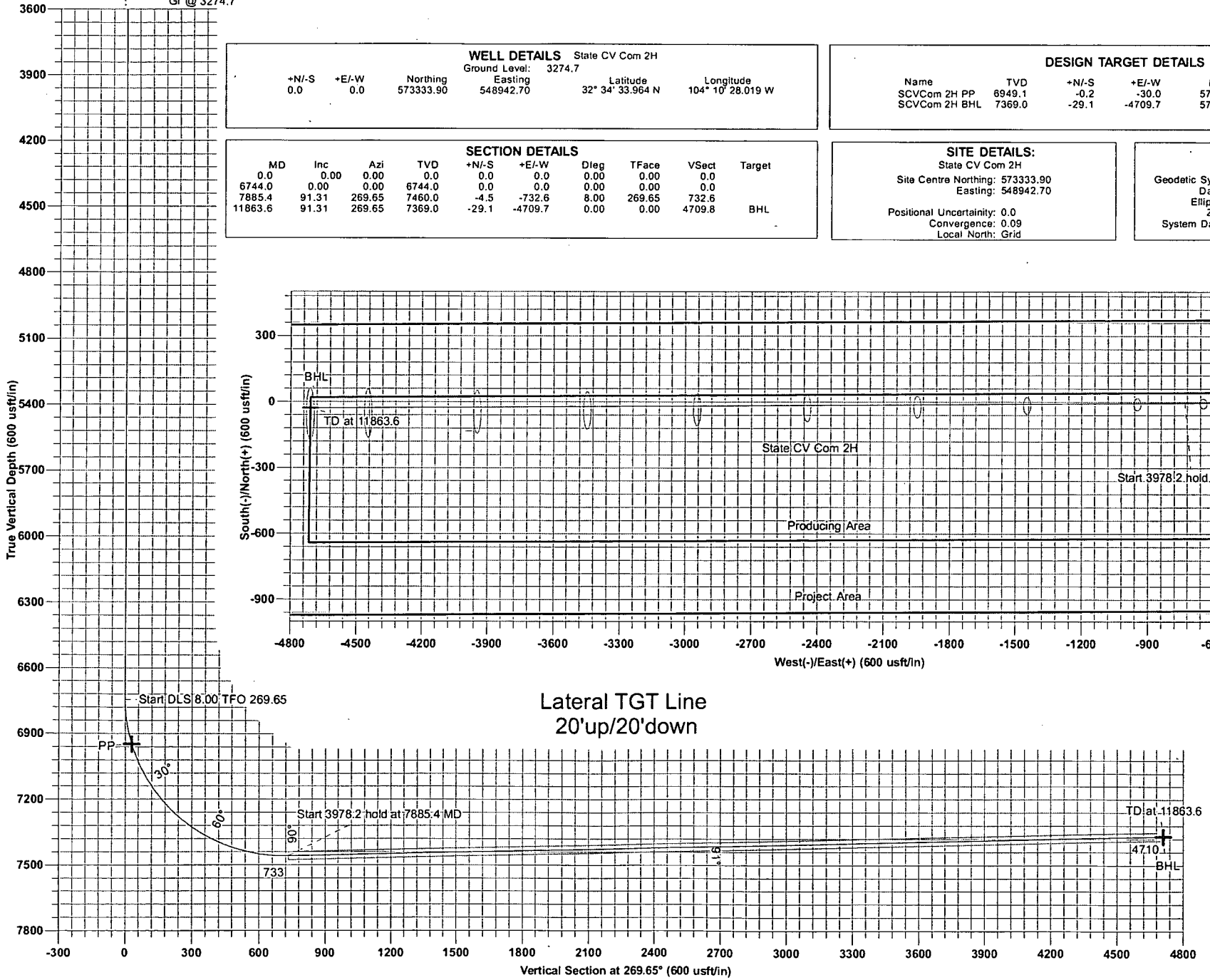
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
6744.0	0.00	0.00	6744.0	0.0	0.0	0.00	0.00	0.0	
7885.4	91.31	269.65	7460.0	-4.5	-732.6	8.00	269.65	732.6	
11863.6	91.31	269.65	7369.0	-29.1	-4709.7	0.00	0.00	4709.8	BHL

SITE DETAILS:
State CV Com 2H
Site Centre Northing: 573333.90
Easting: 548942.70
Positional Uncertainity: 0.0
Convergence: 0.09
Local North: Grid

PROJECT DETAILS:
Eddy 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
16:49, October 22 2013

Scientific Drilling
2740 N. Highway 287
Decatur, TX 76234

Database:	CompassC	**Local Co-ordinate Reference:**	Well State CV Com 2H
Company:	OXY	**TVD Reference:**	KB @ 3299.0usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3299.0usft
Site:	State CV Com 2H	**North Reference:**	Grid
Well:	State CV Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Project Eddy County, New Mexico, 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 State CV Com 2H

Site Position:		**Northing:**	573,333.90 usft	**Latitude:**	32° 34' 33.964 N
From:	Map	**Easting:**	548,942.70 usft	**Longitude:**	104° 10' 28.019 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.09 °

Well State CV Com 2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	573,333.90 usft	**Latitude:**	32° 34' 33.964 N
	+E/-W	0.0 usft	**Easting:**	548,942.70 usft	**Longitude:**	104° 10' 28.019 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,274.7 usft

Wellbore Original Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/22/2013	7.60	60.35	48,528

Design Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	269.65

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,744.0	0.00	0.00	6,744.0	0.0	0.0	0.00	0.00	0.00	0.00	
7,885.4	91.31	269.65	7,460.0	-4.5	-732.6	8.00	8.00	-7.92	269.65	
11,863.6	91.31	269.65	7,369.0	-29.1	-4,709.7	0.00	0.00	0.00	0.00	SCVCom 2H BHL

Database:	CompassC	**Local Co-ordinate Reference:**	Well State CV Com 2H
Company:	OXY	**TVD Reference:**	KB @ 3299.0usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3299.0usft
Site:	State CV Com 2H	**North Reference:**	Grid
Well:	State CV Com 2H	**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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	CompassC	**Local Co-ordinate Reference:**	Well State CV Com 2H
Company:	OXY	**TVD Reference:**	KB @ 3299.0usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3299.0usft
Site:	State CV Com 2H	**North Reference:**	Grid
Well:	State CV Com 2H	**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)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,744.0	0.00	0.00	6,744.0	0.0	0.0	0.0	0.00	0.00	0.00
6,750.0	0.48	269.65	6,750.0	0.0	0.0	0.0	8.00	8.00	0.00
6,800.0	4.48	269.65	6,799.9	0.0	-2.2	2.2	8.00	8.00	0.00
6,850.0	8.48	269.65	6,849.6	0.0	-7.8	7.8	8.00	8.00	0.00
6,900.0	12.48	269.65	6,898.8	-0.1	-16.9	16.9	8.00	8.00	0.00
6,950.0	16.48	269.65	6,947.2	-0.2	-29.4	29.4	8.00	8.00	0.00
7,000.0	20.48	269.65	6,994.6	-0.3	-45.3	45.3	8.00	8.00	0.00
7,050.0	24.48	269.65	7,040.8	-0.4	-64.4	64.4	8.00	8.00	0.00
7,100.0	28.48	269.65	7,085.5	-0.5	-86.7	86.7	8.00	8.00	0.00
7,150.0	32.48	269.65	7,128.6	-0.7	-112.0	112.0	8.00	8.00	0.00
7,200.0	36.48	269.65	7,169.8	-0.9	-140.3	140.3	8.00	8.00	0.00
7,250.0	40.48	269.65	7,208.9	-1.1	-171.4	171.4	8.00	8.00	0.00
7,300.0	44.48	269.65	7,245.8	-1.3	-205.2	205.2	8.00	8.00	0.00
7,350.0	48.48	269.65	7,280.2	-1.5	-241.4	241.4	8.00	8.00	0.00
7,400.0	52.48	269.65	7,312.0	-1.7	-280.0	280.0	8.00	8.00	0.00
7,450.0	56.48	269.65	7,341.1	-2.0	-320.7	320.7	8.00	8.00	0.00
7,500.0	60.48	269.65	7,367.2	-2.2	-363.3	363.3	8.00	8.00	0.00
7,550.0	64.48	269.65	7,390.3	-2.5	-407.6	407.6	8.00	8.00	0.00
7,600.0	68.48	269.65	7,410.3	-2.8	-453.5	453.5	8.00	8.00	0.00
7,650.0	72.48	269.65	7,427.0	-3.1	-500.6	500.6	8.00	8.00	0.00
7,700.0	76.48	269.65	7,440.4	-3.4	-548.8	548.8	8.00	8.00	0.00
7,750.0	80.48	269.65	7,450.3	-3.7	-597.7	597.7	8.00	8.00	0.00
7,800.0	84.48	269.65	7,456.9	-4.0	-647.3	647.3	8.00	8.00	0.00
7,850.0	88.48	269.65	7,459.9	-4.3	-697.2	697.2	8.00	8.00	0.00
7,885.4	91.31	269.65	7,460.0	-4.5	-732.6	732.6	8.00	8.00	0.00
7,900.0	91.31	269.65	7,459.7	-4.6	-747.2	747.2	0.00	0.00	0.00
8,000.0	91.31	269.65	7,457.4	-5.2	-847.1	847.2	0.00	0.00	0.00
8,100.0	91.31	269.65	7,455.1	-5.9	-947.1	947.1	0.00	0.00	0.00
8,200.0	91.31	269.65	7,452.8	-6.5	-1,047.1	1,047.1	0.00	0.00	0.00
8,300.0	91.31	269.65	7,450.5	-7.1	-1,147.1	1,147.1	0.00	0.00	0.00
8,400.0	91.31	269.65	7,448.2	-7.7	-1,247.0	1,247.1	0.00	0.00	0.00
8,500.0	91.31	269.65	7,445.9	-8.3	-1,347.0	1,347.0	0.00	0.00	0.00
8,600.0	91.31	269.65	7,443.7	-8.9	-1,447.0	1,447.0	0.00	0.00	0.00
8,700.0	91.31	269.65	7,441.4	-9.6	-1,547.0	1,547.0	0.00	0.00	0.00
8,800.0	91.31	269.65	7,439.1	-10.2	-1,646.9	1,647.0	0.00	0.00	0.00
8,900.0	91.31	269.65	7,436.8	-10.8	-1,746.9	1,746.9	0.00	0.00	0.00
9,000.0	91.31	269.65	7,434.5	-11.4	-1,846.9	1,846.9	0.00	0.00	0.00
9,100.0	91.31	269.65	7,432.2	-12.0	-1,946.8	1,946.9	0.00	0.00	0.00
9,200.0	91.31	269.65	7,429.9	-12.6	-2,046.8	2,046.9	0.00	0.00	0.00
9,300.0	91.31	269.65	7,427.6	-13.3	-2,146.8	2,146.8	0.00	0.00	0.00

Database:	CompassC	**Local Co-ordinate Reference:**	Well State CV Com 2H
Company:	OXY	**TVD Reference:**	KB @ 3299.0usft
Project:	Eddy County, New Mexico	**MD Reference:**	KB @ 3299.0usft
Site:	State CV Com 2H	**North Reference:**	Grid
Well:	State CV Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Wellbore		
Design:	Design #1		

Planned Survey

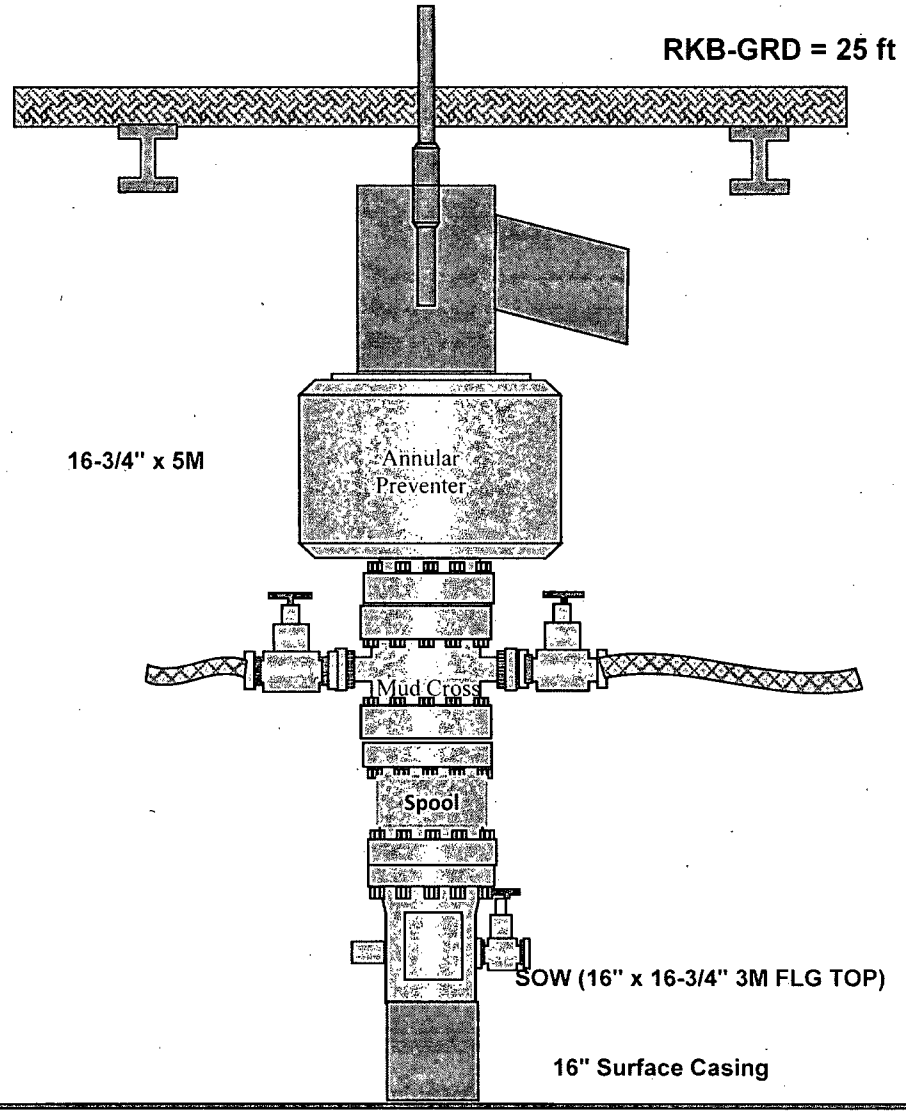
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,400.0	91.31	269.65	7,425.4	-13.9	-2,246.8	2,246.8	0.00	0.00	0.00
9,500.0	91.31	269.65	7,423.1	-14.5	-2,346.7	2,346.8	0.00	0.00	0.00
9,600.0	91.31	269.65	7,420.8	-15.1	-2,446.7	2,446.7	0.00	0.00	0.00
9,700.0	91.31	269.65	7,418.5	-15.7	-2,546.7	2,546.7	0.00	0.00	0.00
9,800.0	91.31	269.65	7,416.2	-16.4	-2,646.6	2,646.7	0.00	0.00	0.00
9,900.0	91.31	269.65	7,413.9	-17.0	-2,746.6	2,746.7	0.00	0.00	0.00
10,000.0	91.31	269.65	7,411.6	-17.6	-2,846.6	2,846.6	0.00	0.00	0.00
10,100.0	91.31	269.65	7,409.3	-18.2	-2,946.6	2,946.6	0.00	0.00	0.00
10,200.0	91.31	269.65	7,407.1	-18.8	-3,046.5	3,046.6	0.00	0.00	0.00
10,300.0	91.31	269.65	7,404.8	-19.4	-3,146.5	3,146.6	0.00	0.00	0.00
10,400.0	91.31	269.65	7,402.5	-20.1	-3,246.5	3,246.5	0.00	0.00	0.00
10,500.0	91.31	269.65	7,400.2	-20.7	-3,346.4	3,346.5	0.00	0.00	0.00
10,600.0	91.31	269.65	7,397.9	-21.3	-3,446.4	3,446.5	0.00	0.00	0.00
10,700.0	91.31	269.65	7,395.6	-21.9	-3,546.4	3,546.5	0.00	0.00	0.00
10,800.0	91.31	269.65	7,393.3	-22.5	-3,646.4	3,646.4	0.00	0.00	0.00
10,900.0	91.31	269.65	7,391.0	-23.1	-3,746.3	3,746.4	0.00	0.00	0.00
11,000.0	91.31	269.65	7,388.8	-23.8	-3,846.3	3,846.4	0.00	0.00	0.00
11,100.0	91.31	269.65	7,386.5	-24.4	-3,946.3	3,946.4	0.00	0.00	0.00
11,200.0	91.31	269.65	7,384.2	-25.0	-4,046.3	4,046.3	0.00	0.00	0.00
11,300.0	91.31	269.65	7,381.9	-25.6	-4,146.2	4,146.3	0.00	0.00	0.00
11,400.0	91.31	269.65	7,379.6	-26.2	-4,246.2	4,246.3	0.00	0.00	0.00
11,500.0	91.31	269.65	7,377.3	-26.9	-4,346.2	4,346.2	0.00	0.00	0.00
11,600.0	91.31	269.65	7,375.0	-27.5	-4,446.1	4,446.2	0.00	0.00	0.00
11,700.0	91.31	269.65	7,372.7	-28.1	-4,546.1	4,546.2	0.00	0.00	0.00
11,800.0	91.31	269.65	7,370.5	-28.7	-4,646.1	4,646.2	0.00	0.00	0.00
11,863.6	91.31	269.65	7,369.0	-29.1	-4,709.7	4,709.8	0.00	0.00	0.00

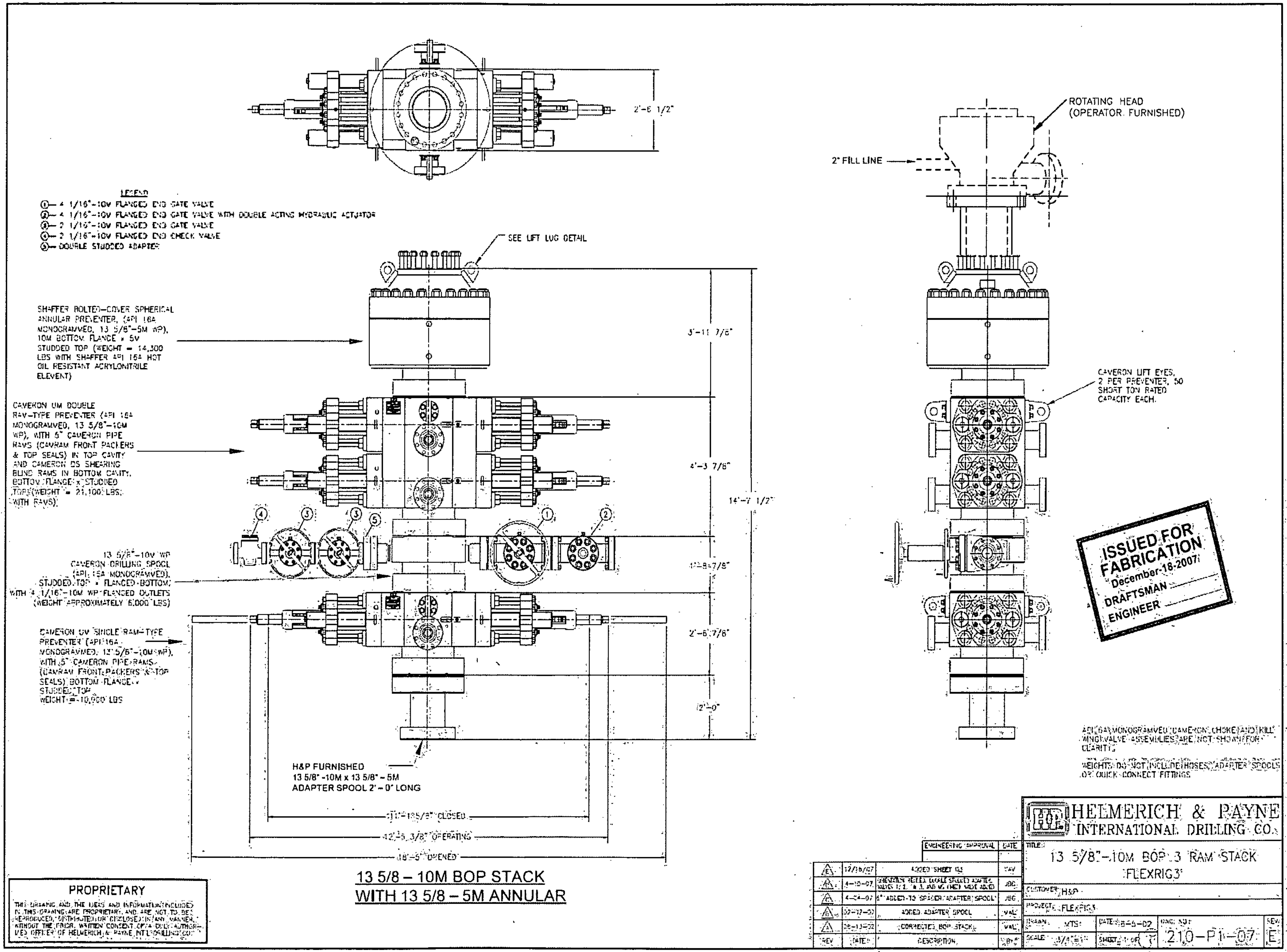
Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SCVCom 2H PP - plan hits target center - Point	0.00	0.00	6,949.1	-0.2	-30.0	573,333.70	548,912.70	32° 34' 33.962 N	104° 10' 28.369 W
SCVCom 2H BHL - plan hits target center - Point	0.00	0.00	7,369.0	-29.1	-4,709.7	573,304.80	544,233.00	32° 34' 33.742 N	104° 11' 23.060 W

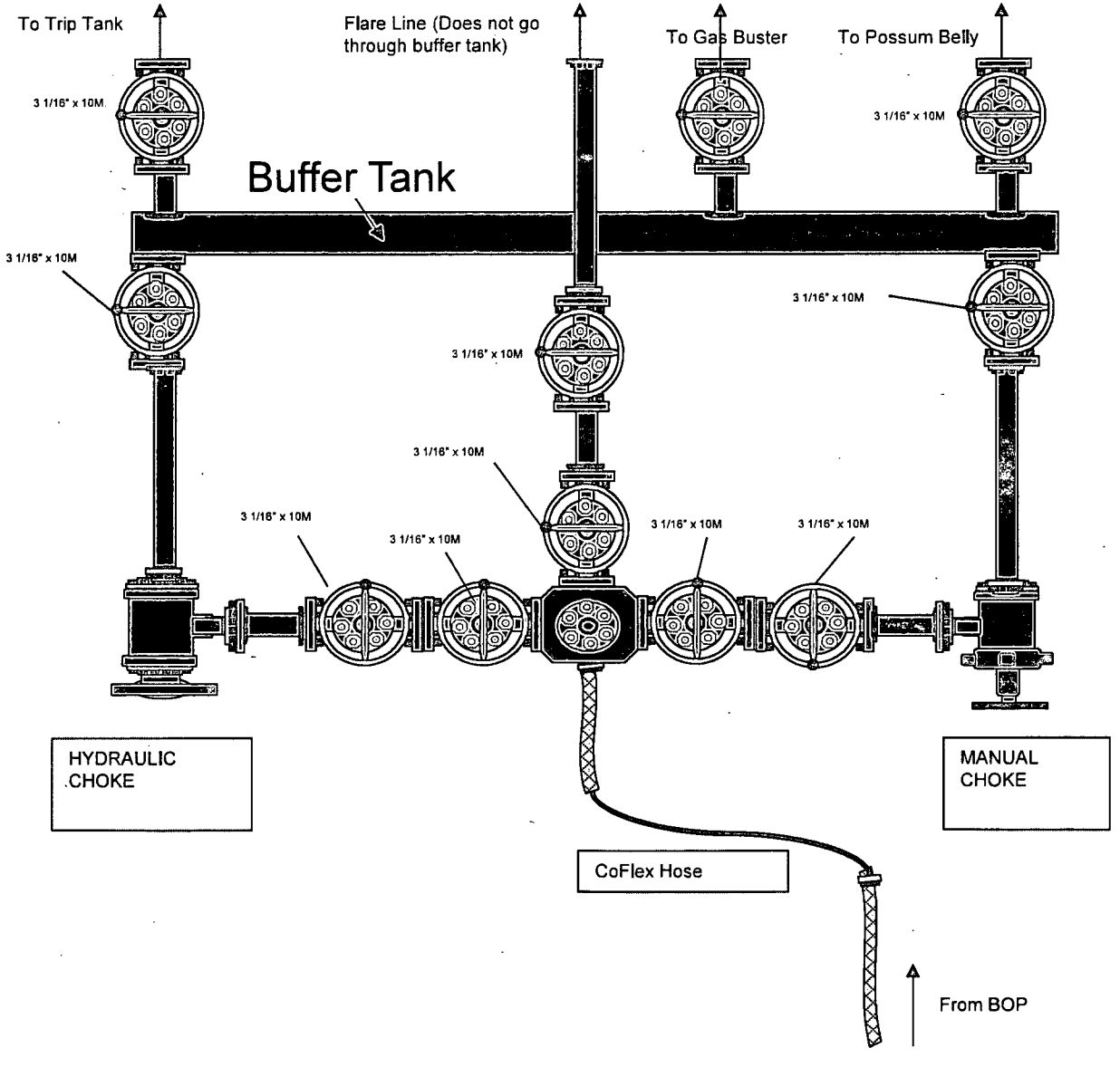
BOP STACK for 16" Surface Casing

16-3/4" 5M BOP Stack



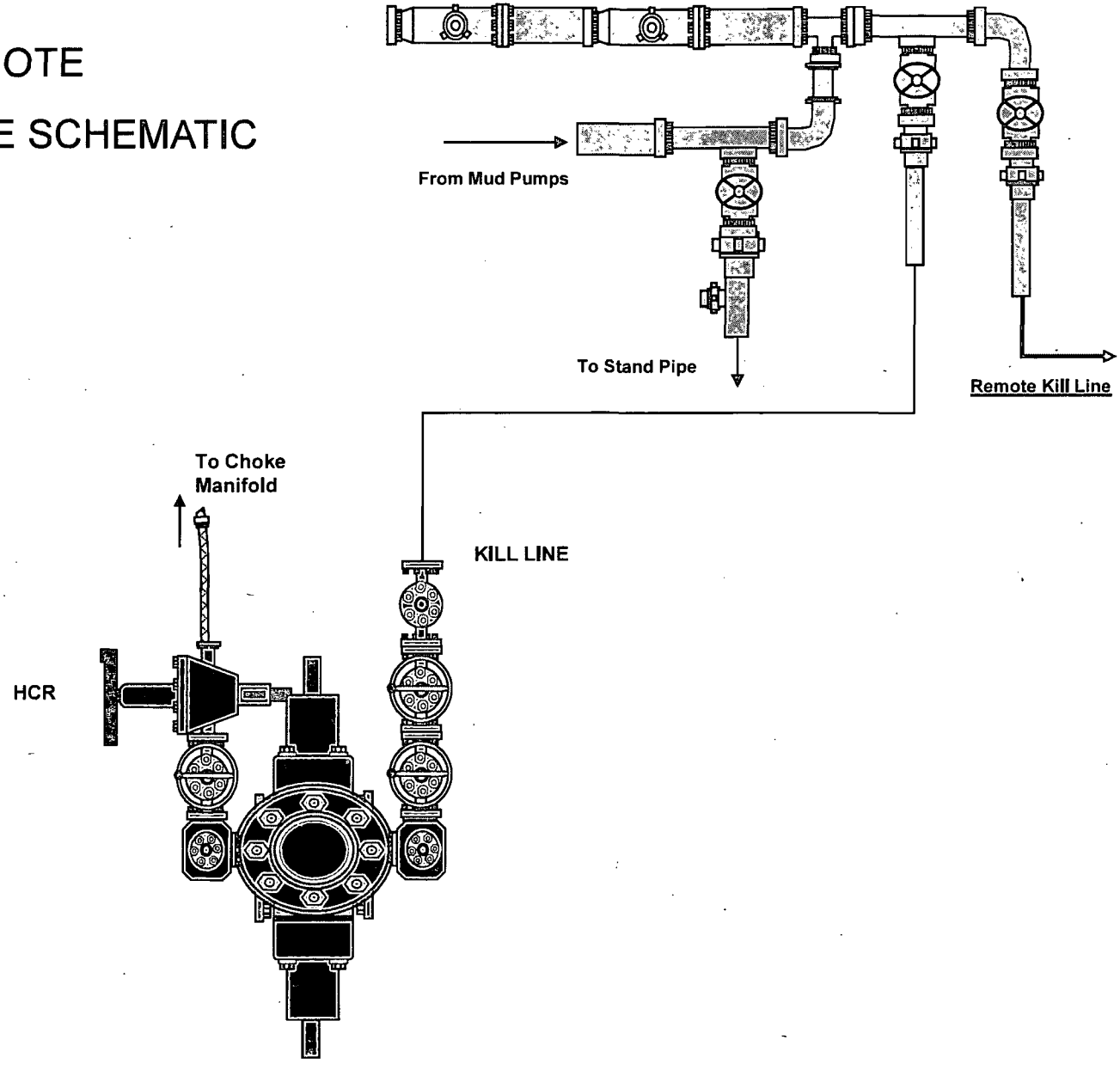

2'-6 1/2"
ROTATING HEAD (OPERATOR FURNISHED)
2" FILL LINE
LEGEND
1 — 4 1/16"-10M FLANGED END GATE VALVE
2 — 4 1/16"-10M FLANGED END GATE VALVE WITH DOUBLE ACTING HYDRAULIC ACTUATOR
3 — 2 1/16"-10M FLANGED END GATE VALVE
4 — 2 1/16"-10M FLANGED END CHECK VALVE
5 — DOUBLE STUDDED ADAPTER
SEE LIFT LUG DETAIL
SHAFFER 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 SHAFFER 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
CAMERON LIFT EYES, 2 PER PREVENTER, 50 SHORT TON RATED CAPACITY EACH.
3'-11 7/8"
4'-3 7/8"
14'-7 1/2"
2'-6 7/8"
2'-0"
H&P FURNISHED
13 5/8" -10M x 13 5/8" - 5M
ADAPTER SPOOL 2' - 0" LONG
11'-13 5/8" CLOSED
12'-5 3/8" OPERATING
18'-5" OPENED
ISSUED FOR FABRICATION
December-18-2007
DRAFTSMAN
ENGINEER
API 16A MONOGRAMMED CAMERON CHOKE AND KILL LINE VALVE ASSEMBLIES ARE NOT SHOWN FOR CLARITY
WEIGHTS DO NOT INCLUDE HOSES, ADAPTER SPOOLS OR QUICK CONNECT FITTINGS
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, DISTRIBUTED OR DISCLOSED IN ANY MANNER WITHOUT THE PRIOR WRITTEN CONSENT OF A DULY AUTHORIZED OFFICER OF HELMERICH & PAYNE INT'L DRILLING CO.
HELMERICH & PAYNE INTERNATIONAL DRILLING CO.
ENGINEERING APPROVAL | DATE
E | 12/18/07 | ADDED SHEET 03 | DAV
D | 4-10-07 | ORIENTATION REVISED, DOUBLE STUDDED ADAPTER, VALVES ... ADDED | JBG
C | 4-04-07 | 6" ADDED TO SPACER/ADAPTER SPOOL | JBG
B | 02-12-02 | ADDED ADAPTER SPOOL | VAL
A | 06-13-02 | CORRECTED BOP STACK | VAL
REV | DATE | DESCRIPTION | BY
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 1

FLEX3 STD CHOKE MANIFOLD (COMPREHENSIVE)



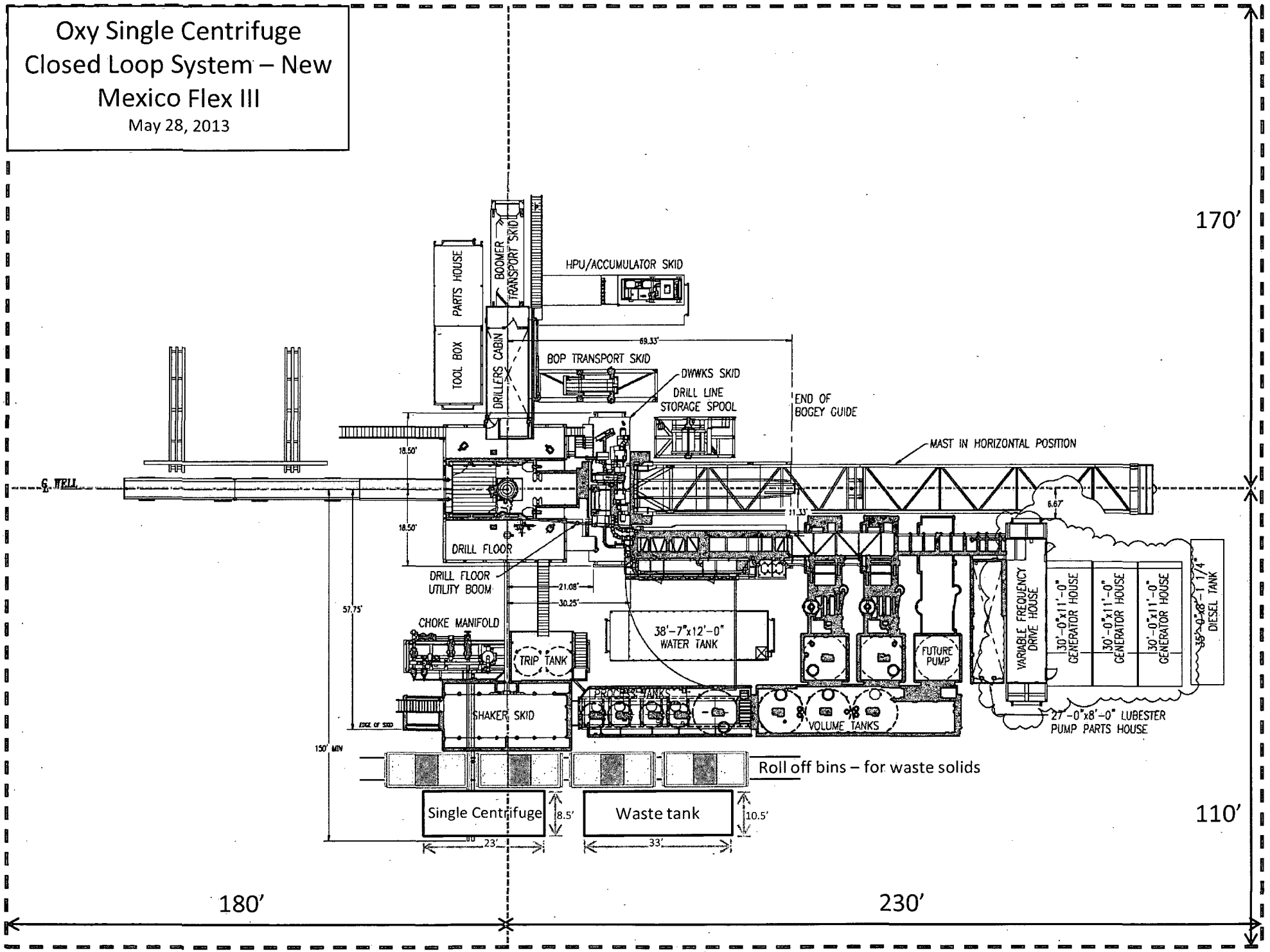
10M REMOTE

KILL LINE SCHEMATIC

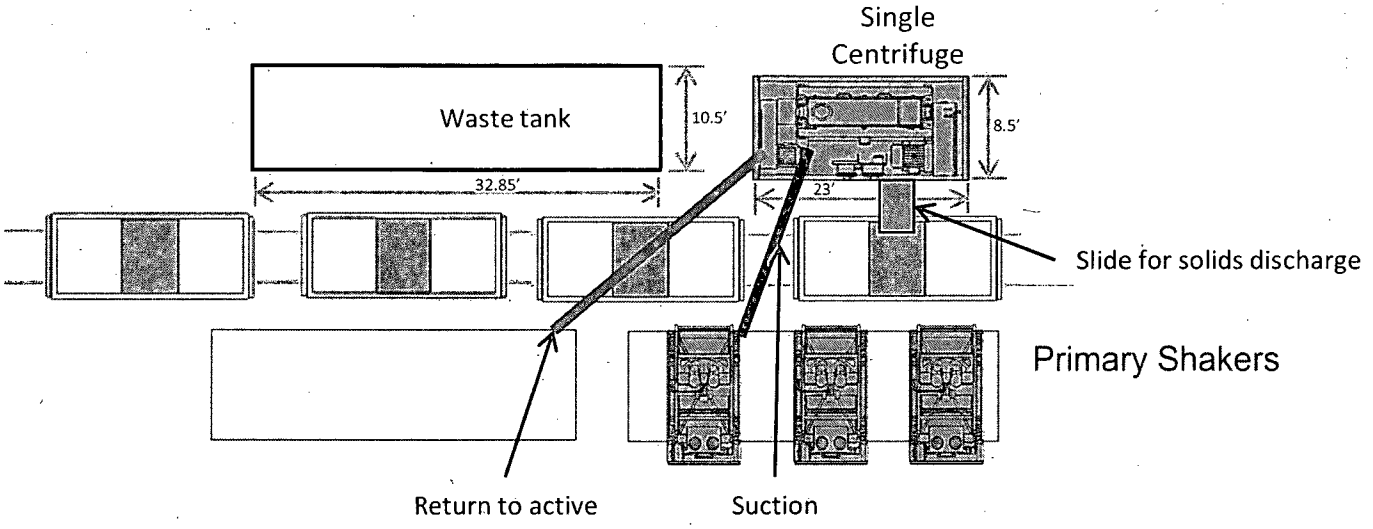


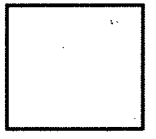
Oxy Single Centrifuge Closed Loop System – New Mexico Flex III

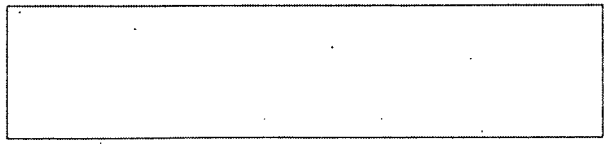
May 28, 2013



Oxy







Oxy Single Centrifuge Closed Loop System – New Mexico Flex III

May 28, 2013

Continental CONTITECH

Fluid Technology

Quality Document

CERTIFICATE OF CONFORMITY

Supplier : CONTITECH RUBBER INDUSTRIAL KFT.
Equipment : 6 pcs. Choke and Kill Hose with installed couplings
Type : **3" x 10,67 m WP: 10000 psi**
Supplier File Number : 412638
Date of Shipment : April. 2008
Customer : Phoenix Beattie Co.
Customer P.o. : 002491
Referenced Standards / Codes / Specifications : API Spec 16 C
Serial No.: 52754,52755,52776,52777,52778,52782

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

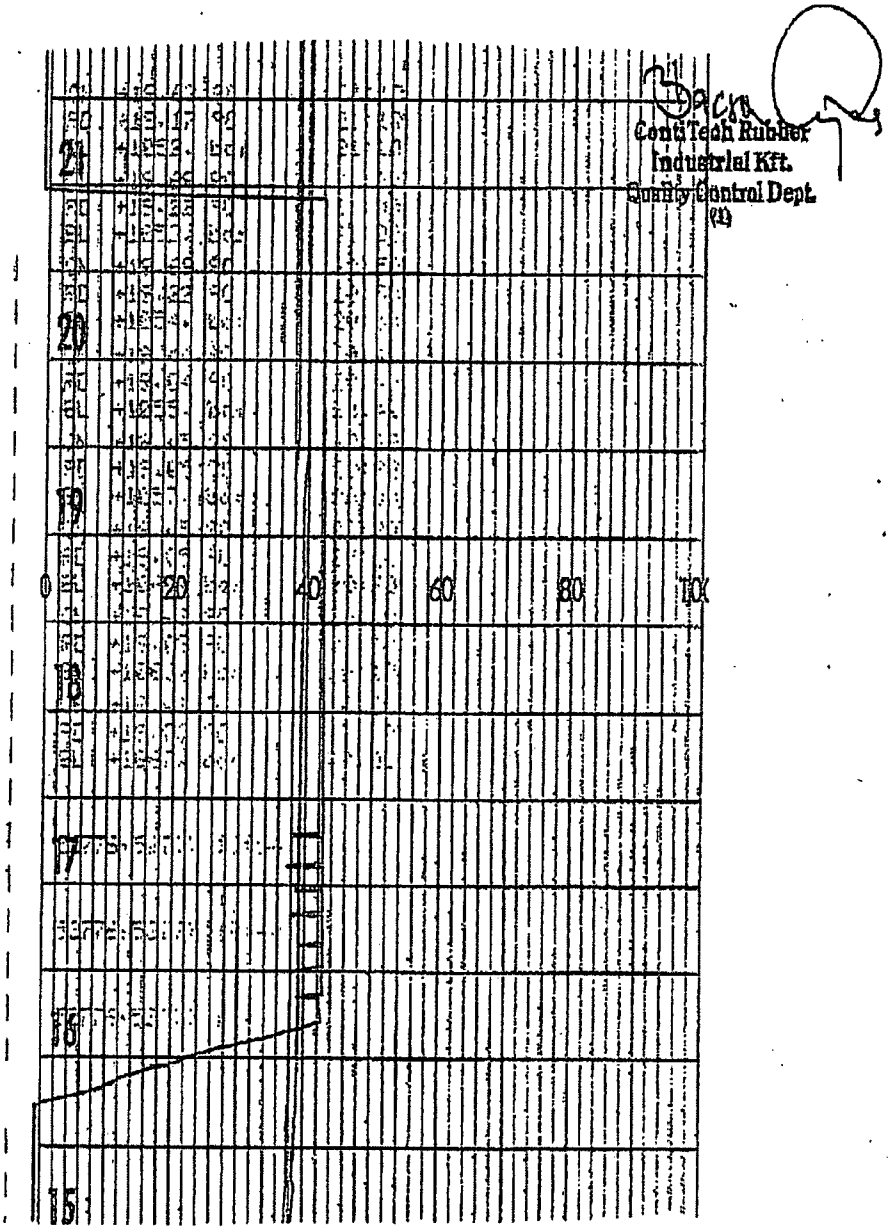
Signed : .....

ContiTech Rubber Industrial Kft. Quality Control Dept. (1)

Date: 04. April. 2008

Position: Q.C. Manager

Coflex Hose Certification



PHOENIX Beattie

Material Identification Certificate

PA No	006330	Client	HELMERICH & PAYNE INT'L DRILLING	Client Ref	370-369-001	Page	1

Part No	Description	Material Desc	Material Spec	Qty	WO No	Batch No	Test Cert No	Bin No	Drg No	Issue No
HP10CK3A-35-4F1	3" 10K 16C C&K HOSE x 35ft OAL			1	2491	52777/H884		WATER		
SECK3-HPF3	LIFTING & SAFETY EQUIPMENT TO			1	2440	002440		N/STK		
SC725-200CS	SAFETY CLAMP 200MM 7.25T	CARBON STEEL		1	2519	H665		22C		
SC725-132CS	SAFETY CLAMP 132MM 7.25T	CARBON STEEL		1	2242	H139		22		

We hereby certify that these goods have been inspected by our Quality Management System, and to the best of our knowledge are found to conform to relevant industry standards within the requirements of the purchase order as issued to Phoenix Beattie Corporation.

05/12/08

Coflex Hose Certification

Coflex Hose Certification

Form No 100/12

PHOENIX Beattie

Phoenix Beattie Corp
11535 Brittmoore Park Drive
Houston, TX 77041
Tel: (832) 327-0141
Fax: (832) 327-0148
E-mail mail@phoenixbeattie.com
www.phoenixbeattie.com

Delivery Note

Customer Order Number	370-369-001	Delivery Note Number	003078	Page	1

Customer / Invoice Address
HELMERICH & PAYNE INT'L DRILLING CO
1437 SOUTH BOULDER
TULSA, OK
74119

Delivery / Address
HELMERICH & PAYNE IDC
ATTN: JOE STEPHENSON - RIG 370
13609 INDUSTRIAL ROAD
HOUSTON, TX
77015

Customer Acc No	Phoenix Beattie Contract Manager	Phoenix Beattie Reference	Date
H01	JJL	006330	05/23/2008

Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
1	HP10CK3A-35-4F1 3" 10K 16C C&K HOSE x 35ft OAL CW 4.1/16" API SPEC FLANGE E/ End 1: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange End 2: 4.1/16" 10Kpsi API Spec 6A Type 6BX Flange c/w BX155 Standard ring groove at each end Suitable for H2S Service Working pressure: 10,000psi Test pressure: 15,000psi Standard: API 16C Full specification Armor Guarding: Included Fire Rating: Not Included Temperature rating: -20 Deg C to +100 Deg C	1	1	0
2	SECK3-HPF3 LIFTING & SAFETY EQUIPMENT TO SUIT HP10CK3-35-F1 2 x 160mm ID Safety Clamps 2 x 244mm ID Lifting Collars & element C's 2 x 7ft Stainless Steel wire rope 3/4" OD 4 x 7.75t Shackles	1	1	0
3	SC725-200CS SAFETY CLAMP 200MM 7.25T C/S GALVANISED	1	1	0

Continued...

Coflex Hose Certification

Continental CONTITECH

Fluid Technology

Quality Document

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°:	746
PURCHASER:	Phoenix Beattie Co.			P.O. N°:	002491
CONTITECH ORDER N°:	412638	HOSE TYPE:	3" ID	Choke and Kill Hose	
HOSE SERIAL N°:	52777	NOMINAL / ACTUAL LENGTH:		10,67 m	
W.P. 68,96 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 = 25 MPa

COUPLINGS

Type	Serial N°	Quality	Heat N°
3" coupling with	917 913	AISI 4130	T7998A
4 1/16" Flange end		AISI 4130	26984

INFOCHIP INSTALLED

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 AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

Date:	Inspector	Quality Control
04. April. 2008		ContiTech Rubber Industrial Kft. Quality Control Dept. (1)

Coflex Hose Certification

Form No 100/12

PHOENIX Beattie

Phoenix Beattie Corp
11535 Brittmoore Park Drive
Houston, TX 77041
Tel: (832) 327-0141
Fax: (832) 327-0148
E-mail mail@phoenixbeattie.com
www.phoenixbeattie.com

Delivery Note

Customer Order Number	370-369-001	Delivery Note Number	003078	Page	2

Customer / Invoice Address
HELMERICH & PAYNE INT'L DRILLING CO
1437 SOUTH BOULDER
TULSA, OK
74119

Delivery / Address
HELMERICH & PAYNE IDC
ATTN: JOE STEPHENSON - RIG 370
13609 INDUSTRIAL ROAD
HOUSTON, TX
77015

Customer Acc No	Phoenix Beattie Contract Manager	Phoenix Beattie Reference	Date
H01	JJL	006330	05/23/2008

Item No	Beattie Part Number / Description	Qty Ordered	Qty Sent	Qty To Follow
4	SC725-132CS SAFETY CLAMP 132MM 7.25T C/S GALVANIZED C/W BOLTS	1	1	0
5	00CERT-HYDRO HYDROSTATIC PRESSURE TEST CERTIFICATE	1	1	0
6	00CERT-LOAD LOAD TEST CERTIFICATES	1	1	0
7	00FREIGHT INBOUND / OUTBOUND FREIGHT PRE-PAY & ADD TO FINAL INVOICE NOTE: MATERIAL MUST BE ACCOMPANIED BY PAPERWORK INCLUDING THE PURCHASE ORDER, RIG NUMBER TO ENSURE PROPER PAYMENT	1	1	0

Phoenix Beattie Inspection Signature : _____

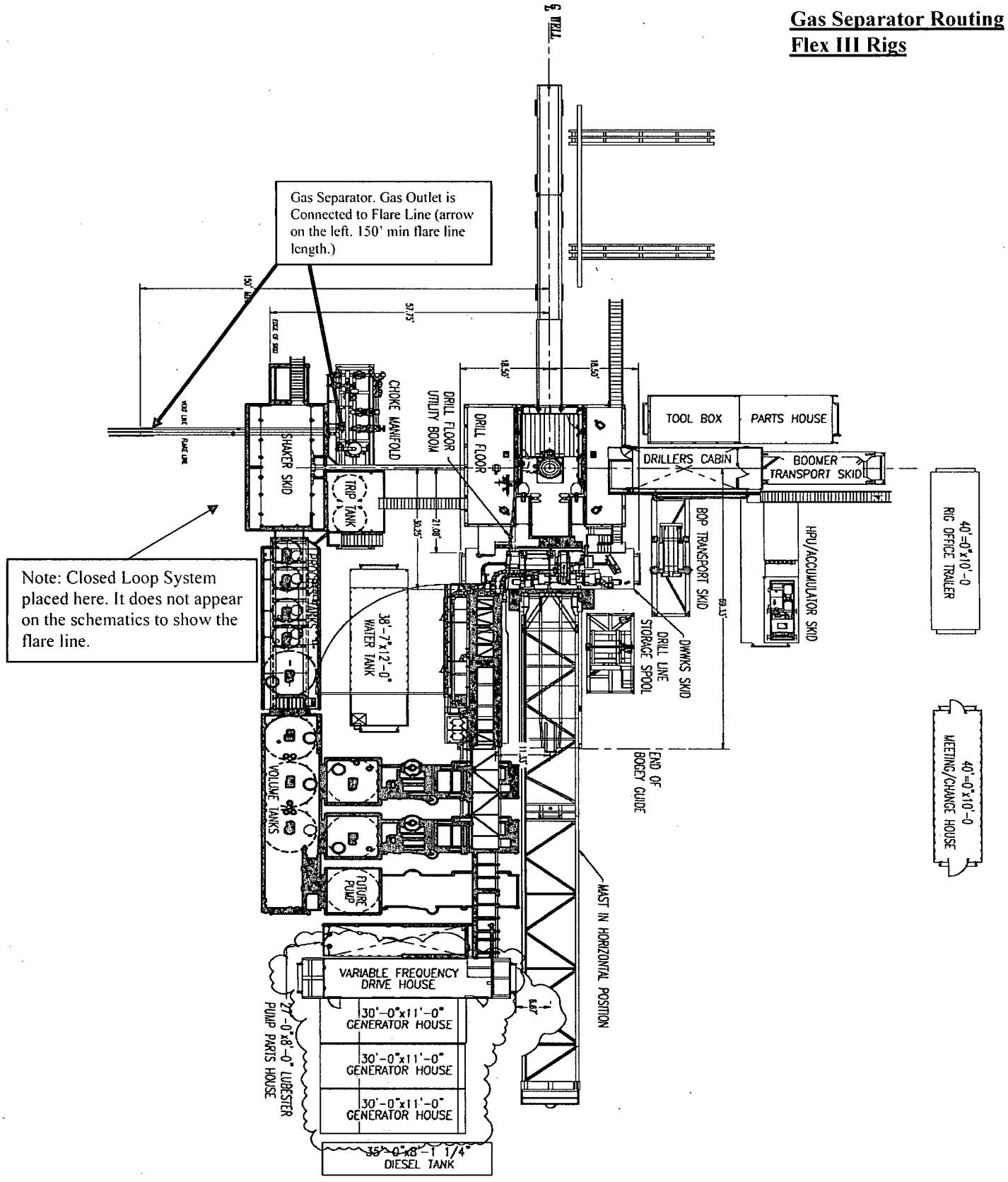
Received In Good Condition : Signature _____

Print Name _____

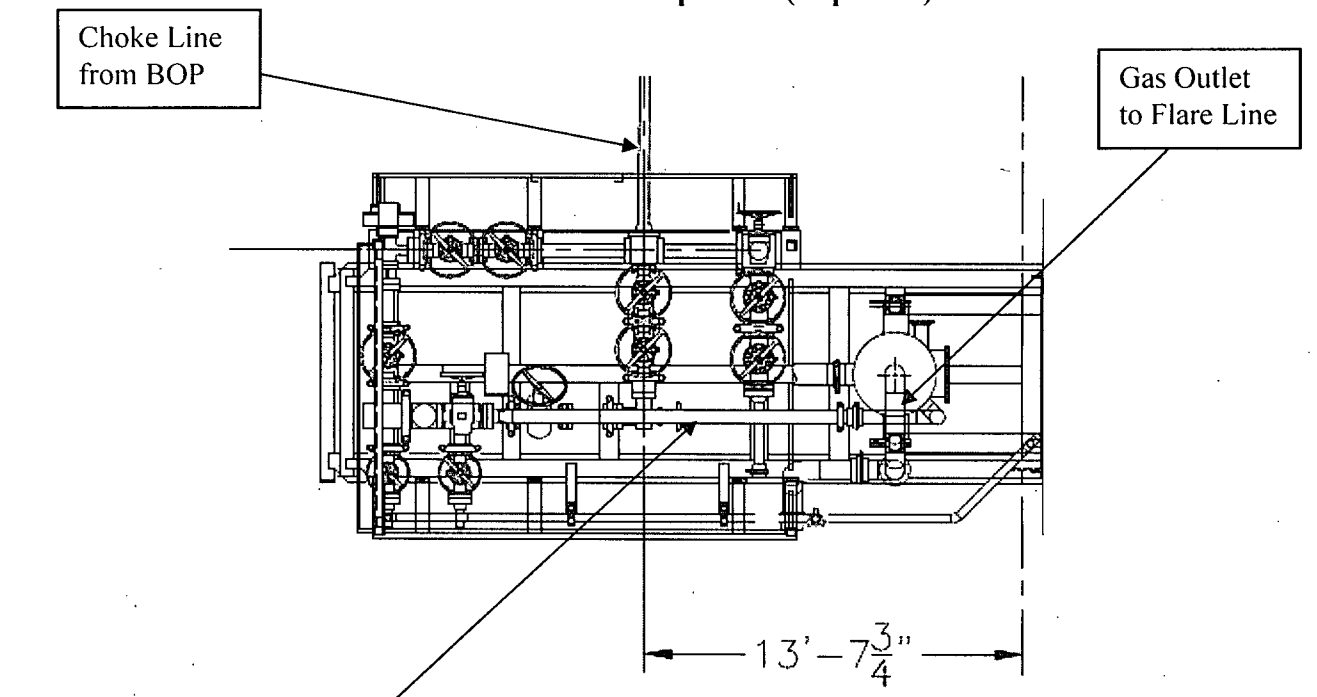
Date _____

All goods remain the property of Phoenix Beattie until paid for in full. Any damage or shortage on this delivery must be advised within 5 days. Returns may be subject to a handling charge.

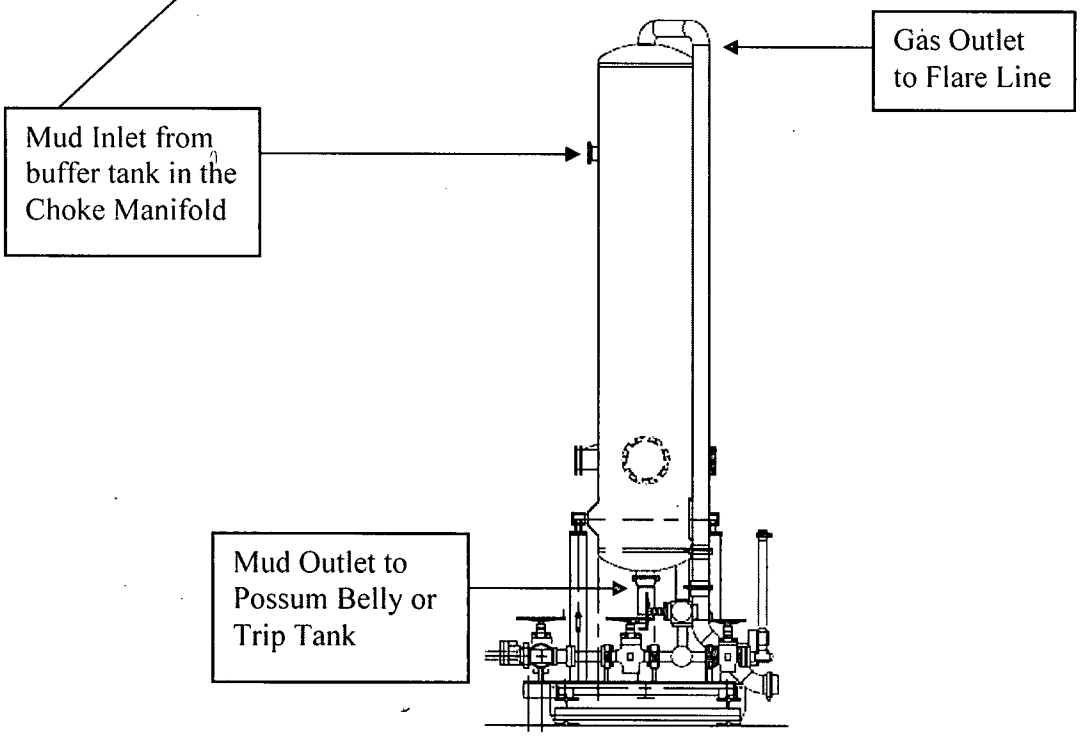
Gas Separator Routing
Flex III Rigs



Choke Manifold – Gas Separator (Top View)



Choke Manifold – Gas Separator (Side View)



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.

Discussion

Implementation:	This plan with all details is to be fully implemented before drilling to commence.
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 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. 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. 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

Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
State CV Com #2H

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.

▲ 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.

Rig Layout