Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMNM06245

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
IVORE 35 FEDERAL COM 2H

2. Name of Operator
OXY USA WTP LP
Contact: JANA MENDIOLA
E-Mail: janalyn_mendiola@oxy.com

9. API Well No.
30-015-41409-00-X1

3a. Address
HOUSTON, TX 77210

3b. Phone No. (include area code)
Ph: 432-685-5936
Fx: 432-685-5742

10. Field and Pool, or Exploratory
LEO

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 35 T18S R30E SENE 1575FNL 75FEL

11. County or Parish, and State
EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original A PD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

OXY USA WTP LP, respectfully requests approval for the following changes to the drilling plan:

Proposed TD - 13025'M 8455'V

1. Request casing design modification, to drill the well with smaller bit sizes:
14-3/4" surface hole w/ 10-3/4" csg, 9-7/8" intermediate hole w/ 7-5/8" csg and 6-3/4" production hole w/ 5-1/2 & 4-1/2" csg. Details are below.

a.Surface Casing
10-3/4" 45.5# J-55 BT&C new csg @ 0-515', 14-3/4" hole w/ 8.4# mud

Coll Rating (psi)-2090 Burst Rating (psi)-3580

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 11 2015
RECEIVED

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Accepted for record
NMOCD 8/12/15

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #309739 verified by the BLM Well Information System
For OXY USA WTP LP, sent to the Carlsbad
Committed to AFMSS for processing by CHRISTOPHER WALLS on 08/06/2015 (15CRW0097SE)

Name *(Printed/Typed)* DAVID STEWART — Title SR. REGULATORY ADVISOR

Signature (Electronic Submission) — Date 07/21/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED
AUG 7 2015
/s/ Chris Walls
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Approved By _____ Title _____ Date

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #309739 that would not fit on the form

32. Additional remarks, continued

SF Coll-9.31 SF Burst-1.42 SF Ten-5.86

b.Intermediate Casing
7-5/8" 26.4# L80 BT&C new csg @ 0-3600', 9-7/8" hole w/ 10.0# mud

Coll Rating (psi)-3400 Burst Rating (psi)-6020
SF Coll-7.29 SF Burst-1.36 SF Ten-3.33

c.Production Casing
5-1/2" 20# P-110 USF new csg @ 0-8882'M, 6-3/4" hole w/ 9.2# mud
Coll Rating (psi)-11100 Burst Rating (psi)-12600
SF Coll-2.67 SF Burst-1.26 SF Ten-2.30

4-1/2" 13.5# P-110 BT&C new csg @ 8882-13025'M, 6-3/4" hole w/ 9.2# mud
Coll Rating (psi)-10670 Burst Rating (psi)-12410
SF Coll-2.57 SF Burst-1.25 SF Ten-2.85

Collapse and burst loads calculated using Stress Check with anticipated loads, see attached for design assumptions

2. Cement program adjustment to the new bit/casing sizes. Cement program modifications detailed below.

a. Surface - Circulate cement to surface w/ 550sx PP cmt w/ 2% CaCl2, 14.8ppg 1.35 yield 1415# 24hr CS 150% Excess.

b. Intermediate - Circulate cement to surface w/ 750sx HES light PP cmt w/ 5% Salt + .1% HR-800, 12.9ppg 1.85 yield 824# 24hs CS 125% Excess followed by 200sx PP cmt, 14.8ppg 1.33 yield 1789# 24hr CS 125% Excess.

c. Production - Cement w/ 160sx Tuned Light (TM) system cmt w/ 3#/sx Kol-Seal + .125#/sx Poly-E-Flake + .8% HR-601, 10.2ppg 3.05 yield 555# 24hr CS 25% Excess followed by 500sx Super H cmt w/ 3#/sx salt + .1% HR-800 + .3% CFR-3 + .5% Halad(R)-344 + 2#/sx Kol-Seal, 13.2ppg 1.65 yield 1462# 24hr CS 25% Excess. Estimated TOC @ 3100'.

Description of Cement Additives: Calcium Chloride, Salt (Accelerator); CFR-3 (Dispersant); Kol-Seal, Poly-E-Flake (Lost Circulation Additive); Halad-344 (Low Fluid Loss Control); HR-601, HR-800 (Retarder)
The above cement volumes could be revised pending the caliper measurement.

3. Mud Program

Depth	Mud WT	Vis Sec	Fluid Loss	Type
0-515'	8.5-9.0	40-55	50-75cc/30min	EnerSeal Spud Mud (MMH)
515-3600'	9.8-10	28-32	NC	NaCl Brine
3600-TD	8.8-9.6	38-50	50-75cc/30min	EnerSeal (MMH)

4. The Operator will connect the BOP choke outlet to the choke manifold using a hose that meets all BLM requirements and will be inspected and approved by BLM personnel prior to spud.

PERFORMANCE DATA

TMK Ultra Premium SF™ **5.500 in** **20.00 lbs/ft** **P-110**
Technical Data Sheet

Tubular Parameters

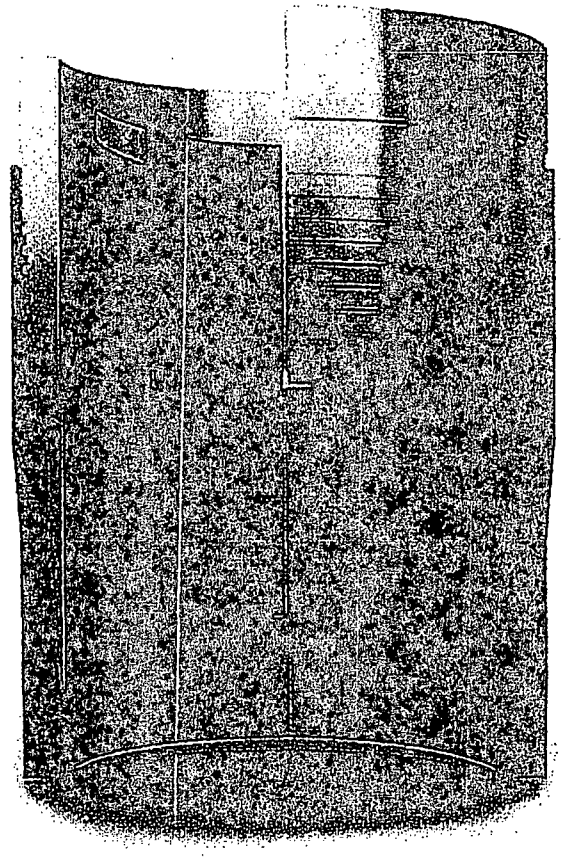
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	728,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,600	psi
Nominal ID	4.778	in	Collapse Pressure	11,100	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in²			

Connection Parameters

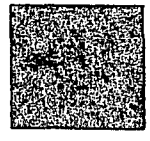
Connection OD	5.646	in
Connection ID	4.734	in
Make-Up Loss	5.526	in
Critical Section Area	5.289	in²
Tension Efficiency	90.5	%
Compression Efficiency	90.5	%
Yield Load In Tension	580,000	lbs
Min. Internal Yield Pressure	12,600	psi
Collapse Pressure	11,100	psi

Make-Up Torques

Min. Make-Up Torque	10,100	ft-lbs
Opt. Make-Up Torque	10,600	ft-lbs
Max. Make-Up Torque	11,700	ft-lbs
Yield Torque	15,600	ft-lbs



Printed on: February-25-2014



Weatherford®

Drilling Services

Proposal

OCCIDENTAL PERMIAN LTD.

IVORE FEDERAL #2H

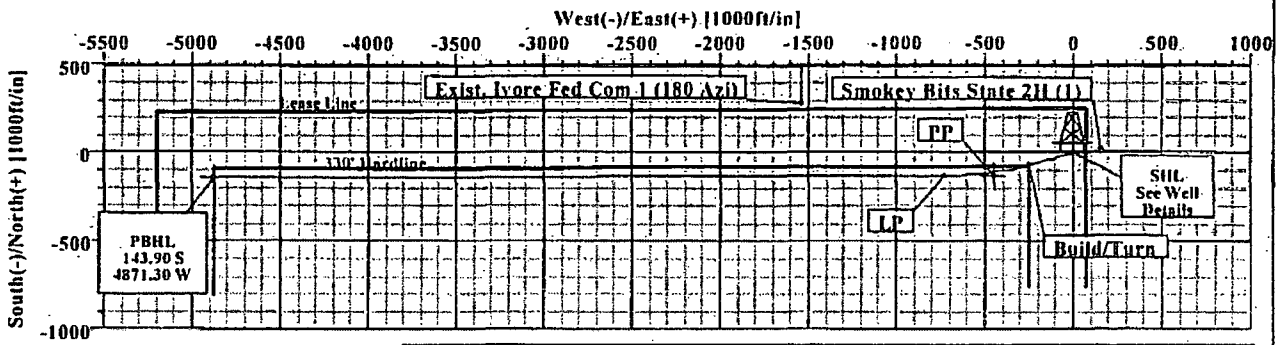
EDDY CO., NM

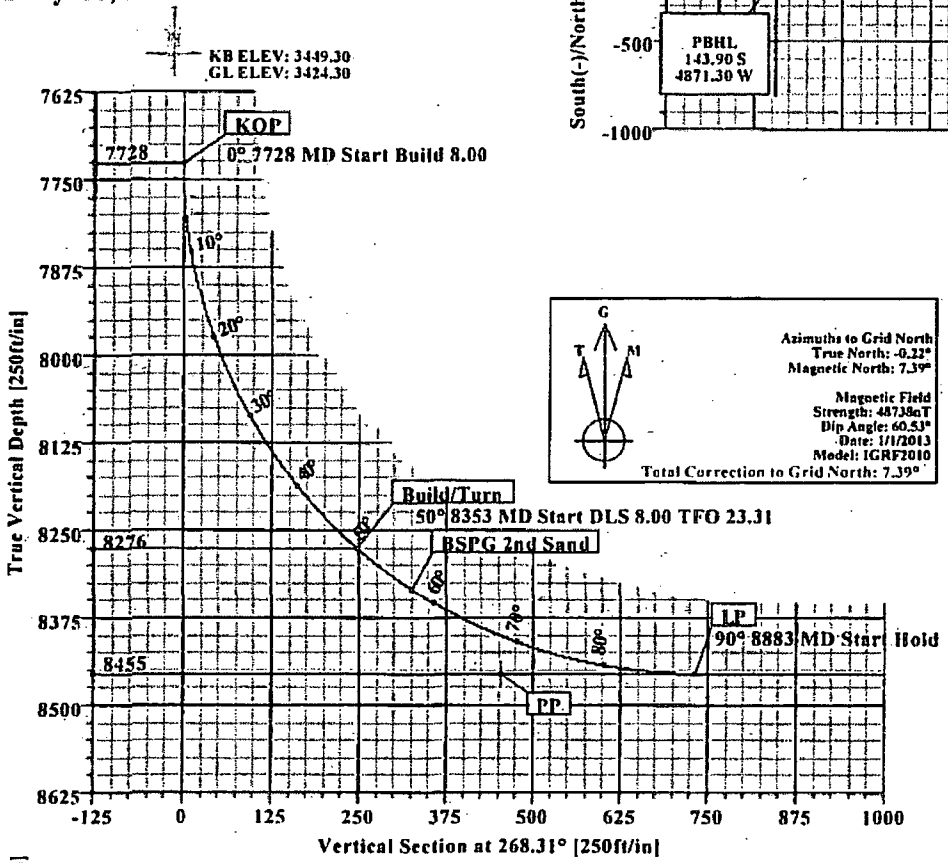
WELL FILE: **PLAN 1**

AUGUST 8, 2012

Weatherford International, Ltd.
P.O. Box 61028
Midland, TX 79711 USA
+1.432.561.8892 Main
+1.432.561.8895 Fax
www.weatherford.com

Ivore Federal #2H
Eddy Co, New Mexico





WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Ivore Federal #2H	0.00	0.00	621044.00	622892.60	32°42'24.160N	103°56'01.700W	N/A

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PP	8455.00	-126.80	-449.60	620917.20	622443.00	Point
PBHL	8455.00	-143.90	-4871.30	620900.10	618021.30	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	7727.72	0.00	0.00	7727.72	0.00	0.00	0.00	0.00	0.00	
3	8352.72	50.00	254.30	8276.36	-69.23	-246.29	8.00	254.30	248.22	
4	8882.93	90.00	269.78	8455.00	-127.91	-729.15	8.00	23.31	732.61	
5	13025.10	90.00	269.78	8455.00	-143.90	-4871.30	0.00	0.00	4873.42	PBHL

FIELD DETAILS

Eddy Co, NM (Nad 27)

Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: NAD27 (Clarke 1866)
Zone: New Mexico, Eastern Zone
Magnetic Model: IGRF2010

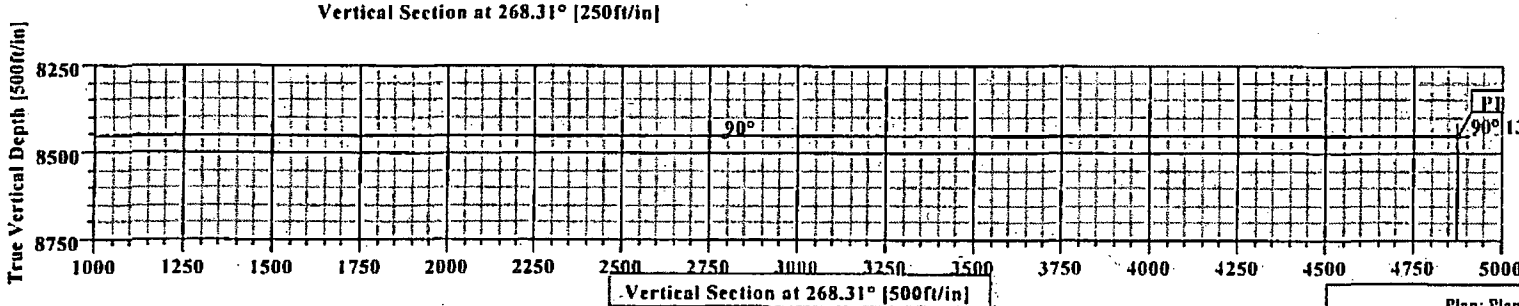
System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Ivore Federal #2H

Site Centre Northing: 621044.00
Easting: 622892.60

Ground Level: 3424.30
Positional Uncertainty: 0.00
Convergence: 0.22



Weatherford

LEGEND

- Exist. Ivore Fed Com 1 (180 Azi)
- Exist. Ivore Fed Com 1 (270 Azi)
- Exist. Ivore Fed Com 1 (90 Azi)
- Smokey Bits State 2H (1)
- 1
- Plan #1

Plan: Plan #1 (Ivore Federal #2H/1)

Created By: Keith Noack Date: 8/9/2012

Weatherford International Ltd.
WFT Plan Report - X & Y's

Company:	Occidental Permian Ltd.	Date: 8/9/2012	Time: 11:26:09	Page:	1
Field:	Eddy Co, NM (Nad 27)	Co-ordinate(NE) Reference:	Well: Ivore Federal #2H, Grid North		
Site:	Ivore Federal #2H	Vertical (TVD) Reference:	SITE 3449.3		
Well:	Ivore Federal #2H	Section (VS) Reference:	Well (0.00N,0.00E,268.31Azi)		
Wellpath:	1	Survey Calculation Method:	Minimum Curvature	Db:	Sybase

Plan:	Plan #1	Date Composed:	8/8/2012
		Version:	1
Principal:	Yes	Tied-to:	From Surface

Field: Eddy Co, NM (Nad 27)

Map System:	US State Plane Coordinate System 1927	Map Zone:	New Mexico, Eastern Zone
Geo Datum:	NAD27 (Clarke 1866)	Coordinate System:	Well Centre
Sys Datum:	Mean Sea Level	Geomagnetic Model:	IGRF2010

Site: Ivore Federal #2H

Site Position:		Northing:	621044.00 ft	Latitude:	32 42 24.160	N
From:	Map	Easting:	622892.60 ft	Longitude:	103 56 1.700	W
Position Uncertainty:	0.00 ft			North Reference:	Grid	
Ground Level:	3424.30 ft			Grid Convergence:	0.22	deg

Well: Ivore Federal #2H — **Slot Name:**

Well Position:	+N/-S	0.00 ft	Northing:	621044.00 ft	Latitude:	32 42 24.160	N
	+E/-W	0.00 ft	Easting:	622892.60 ft	Longitude:	103 56 1.700	W
Position Uncertainty:		0.00 ft					

Wellpath: 1

			Drilled From:	Surface	
			Tie-on Depth:	0.00	ft
Current Datum:	SITE	Height 3449.30 ft	Above System Datum:	Mean Sea Level	
Magnetic Data:	1/1/2013		Declination:	7.60	deg
Field Strength:	48738 nT		Mag Dip Angle:	60.53	deg

Vertical Section:	Depth From (TVD) ft	+N/-S ft	+E/-W ft	Direction deg
	0.00	0.00	0.00	268.31

Plan Section Information

MD ft	Incl deg	Azm deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7727.72	0.00	0.00	7727.72	0.00	0.00	0.00	0.00	0.00	0.00	
8352.72	50.00	254.30	8276.36	-69.23	-246.29	8.00	8.00	0.00	254.30	
8882.93	90.00	269.78	8455.00	-127.91	-729.15	8.00	7.54	2.92	23.31	
13025.10	90.00	269.78	8455.00	-143.90	-4871.30	0.00	0.00	0.00	0.00	PBHL

Survey

MD ft	Incl deg	Azm deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
7700.00	0.00	0.00	7700.00	0.00	0.00	0.00	0.00	621044.00	622892.60	
7727.72	0.00	0.00	7727.72	0.00	0.00	0.00	0.00	621044.00	622892.60	KOP
7800.00	5.78	254.30	7799.88	-0.99	-3.51	3.54	8.00	621043.01	622889.09	
7900.00	13.78	254.30	7898.34	-5.58	-19.85	20.01	8.00	621038.42	622872.75	
8000.00	21.78	254.30	7993.49	-13.84	-49.23	49.62	8.00	621030.16	622843.37	
8100.00	29.78	254.30	8083.46	-25.60	-91.07	91.78	8.00	621018.40	622801.53	
8200.00	37.78	254.30	8166.51	-40.63	-144.55	145.69	8.00	621003.37	622748.05	
8300.00	45.78	254.30	8241.02	-58.65	-208.65	210.28	8.00	620985.35	622683.95	
8352.72	50.00	254.30	8276.36	-69.23	-246.29	248.22	8.00	620974.77	622646.31	Build/Turn
8400.00	53.49	256.16	8305.63	-78.68	-282.19	284.38	8.00	620965.32	622610.41	
8451.75	57.34	258.01	8335.00	-88.18	-323.70	326.16	8.00	620955.82	622568.90	BSPG 2nd Sand
8500.00	60.95	259.60	8359.75	-96.21	-364.33	367.01	8.00	620947.79	622528.27	
8600.00	68.49	262.58	8402.43	-110.13	-453.59	456.64	8.00	620933.87	622439.01	
8700.00	76.07	265.25	8432.86	-120.17	-548.24	551.54	8.00	620923.83	622344.36	
8800.00	83.68	267.76	8450.43	-126.14	-646.42	649.86	8.00	620917.86	622246.18	
8882.93	90.00	269.78	8455.00	-127.91	-729.15	732.61	8.00	620916.09	622163.45	LP

Weatherford International Ltd.
WFT Plan Report - X & Y's

Company:	Occidental Permian Ltd	Date:	8/9/2012	Time:	11:26:09	Page:	2
Field:	Eddy Co. NM (Nad 27)	Co-ordinate(NE) Reference:	Well: Ivore Federal #2H, Grid North				
Site:	Ivore Federal #2H	Vertical (TVD) Reference:	SITE 3449.3				
Well:	Ivore Federal #2H	Section (VS) Reference:	Well (0.00N,0.00E,268.31Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
8900.00	90.00	269.78	8455.00	-127.98	-746.23	749.68	0.00	620916.02	622146.37	
9000.00	90.00	269.78	8455.00	-128.36	-846.23	849.64	0.00	620915.64	622046.37	
9100.00	90.00	269.78	8455.00	-128.75	-946.22	949.61	0.00	620915.25	621946.38	
9200.00	90.00	269.78	8455.00	-129.14	-1046.22	1049.58	0.00	620914.86	621846.38	
9300.00	90.00	269.78	8455.00	-129.52	-1146.22	1149.54	0.00	620914.48	621746.38	
9400.00	90.00	269.78	8455.00	-129.91	-1246.22	1249.51	0.00	620914.09	621646.38	
9500.00	90.00	269.78	8455.00	-130.29	-1346.22	1349.48	0.00	620913.71	621546.38	
9600.00	90.00	269.78	8455.00	-130.68	-1446.22	1449.45	0.00	620913.32	621446.38	
9700.00	90.00	269.78	8455.00	-131.07	-1546.22	1549.41	0.00	620912.93	621346.38	
9800.00	90.00	269.78	8455.00	-131.45	-1646.22	1649.38	0.00	620912.55	621246.38	
9900.00	90.00	269.78	8455.00	-131.84	-1746.22	1749.35	0.00	620912.16	621146.38	
10000.00	90.00	269.78	8455.00	-132.22	-1846.22	1849.31	0.00	620911.78	621046.38	
10100.00	90.00	269.78	8455.00	-132.61	-1946.22	1949.28	0.00	620911.39	620946.38	
10200.00	90.00	269.78	8455.00	-133.00	-2046.22	2049.25	0.00	620911.00	620846.38	
10300.00	90.00	269.78	8455.00	-133.38	-2146.22	2149.22	0.00	620910.62	620746.38	
10400.00	90.00	269.78	8455.00	-133.77	-2246.21	2249.18	0.00	620910.23	620646.39	
10500.00	90.00	269.78	8455.00	-134.15	-2346.21	2349.15	0.00	620909.85	620546.39	
10600.00	90.00	269.78	8455.00	-134.54	-2446.21	2449.12	0.00	620909.46	620446.39	
10700.00	90.00	269.78	8455.00	-134.93	-2546.21	2549.08	0.00	620909.07	620346.39	
10800.00	90.00	269.78	8455.00	-135.31	-2646.21	2649.05	0.00	620908.69	620246.39	
10900.00	90.00	269.78	8455.00	-135.70	-2746.21	2749.02	0.00	620908.30	620146.39	
11000.00	90.00	269.78	8455.00	-136.08	-2846.21	2848.99	0.00	620907.92	620046.39	
11100.00	90.00	269.78	8455.00	-136.47	-2946.21	2948.95	0.00	620907.53	619946.39	
11200.00	90.00	269.78	8455.00	-136.86	-3046.21	3048.92	0.00	620907.14	619846.39	
11300.00	90.00	269.78	8455.00	-137.24	-3146.21	3148.89	0.00	620906.76	619746.39	
11400.00	90.00	269.78	8455.00	-137.63	-3246.21	3248.85	0.00	620906.37	619646.39	
11500.00	90.00	269.78	8455.00	-138.01	-3346.21	3348.82	0.00	620905.99	619546.39	
11600.00	90.00	269.78	8455.00	-138.40	-3446.21	3448.79	0.00	620905.60	619446.39	
11700.00	90.00	269.78	8455.00	-138.79	-3546.20	3548.76	0.00	620905.21	619346.40	
11800.00	90.00	269.78	8455.00	-139.17	-3646.20	3648.72	0.00	620904.83	619246.40	
11900.00	90.00	269.78	8455.00	-139.56	-3746.20	3748.69	0.00	620904.44	619146.40	
12000.00	90.00	269.78	8455.00	-139.94	-3846.20	3848.66	0.00	620904.06	619046.40	
12100.00	90.00	269.78	8455.00	-140.33	-3946.20	3948.62	0.00	620903.67	618946.40	
12200.00	90.00	269.78	8455.00	-140.72	-4046.20	4048.59	0.00	620903.28	618846.40	
12300.00	90.00	269.78	8455.00	-141.10	-4146.20	4148.56	0.00	620902.90	618746.40	
12400.00	90.00	269.78	8455.00	-141.49	-4246.20	4248.53	0.00	620902.51	618646.40	
12500.00	90.00	269.78	8455.00	-141.87	-4346.20	4348.49	0.00	620902.13	618546.40	
12600.00	90.00	269.78	8455.00	-142.26	-4446.20	4448.46	0.00	620901.74	618446.40	
12700.00	90.00	269.78	8455.00	-142.65	-4546.20	4548.43	0.00	620901.35	618346.40	
12800.00	90.00	269.78	8455.00	-143.03	-4646.20	4648.39	0.00	620900.97	618246.40	
12900.00	90.00	269.78	8455.00	-143.42	-4746.20	4748.36	0.00	620900.58	618146.40	
13000.00	90.00	269.78	8455.00	-143.80	-4846.20	4848.33	0.00	620900.20	618046.40	
13025.10	90.00	269.78	8455.00	-143.90	-4871.30	4873.42	0.00	620900.10	618021.30	PBHL

Targets

Name	Description Dip:	Dir:	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude Deg	Min	Sec		Longitude Deg	Min	Sec	
PP			8455.00	-126.80	-449.60	620917.20	622443.00	32	42	22.922	N	103	56	6.967	W
PBHL			8455.00	-143.90	-4871.30	620900.10	618021.30	32	42	22.914	N	103	56	58.717	W

Weatherford International Ltd.
WFT Plan Report - X & Y's

Company:	Occidental Permian Ltd	Date: 8/9/2012	Time: 11:26:09	Page:	3
Field:	Eddy Co. NM (Nad 27)	Co-ordinate(NE) Reference:	Well: Ivore Federal #2H, Grid North		
Site:	Ivore Federal #2H	Vertical (TVD) Reference:	SITE 3449.3		
Well:	Ivore Federal #2H	Section (VS) Reference:	Well (0.00N,0.00E,268.31Azi)		
Wellpath:	1	Survey Calculation Method:	Minimum Curvature	Db:	Sybase

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
515.00	515.00	0.000	0.000	Sfc Csg
1835.00	1835.00	0.000	0.000	Int Csg

Annotation

MD ft	TVD ft	
7727.72	7727.72	KOP
8352.72	8276.36	Build/Turn
8882.93	8455.00	LP
13025.10	8455.00	PBHL

Formations

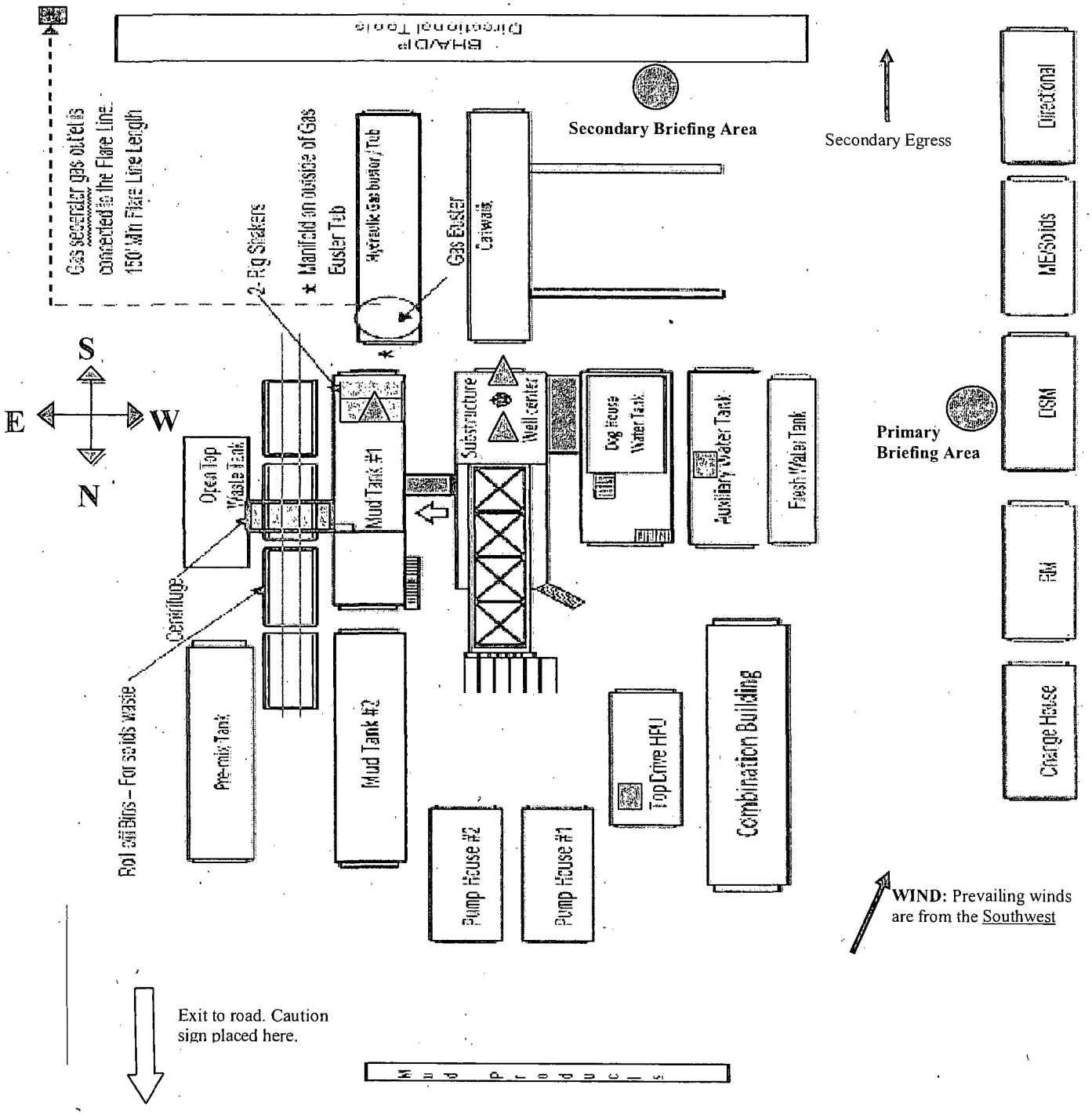
MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
8451.75	8335.00	BSPG 2nd Sand		0.00	0.00

Permian Drilling
Hydrogen Sulfide Drilling Operations Plan
Ivore 35 Fed 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 NORTHEAST 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.

OXY USA Inc.
Ivore 35 Federal Com, #2H

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: Fresh water 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)

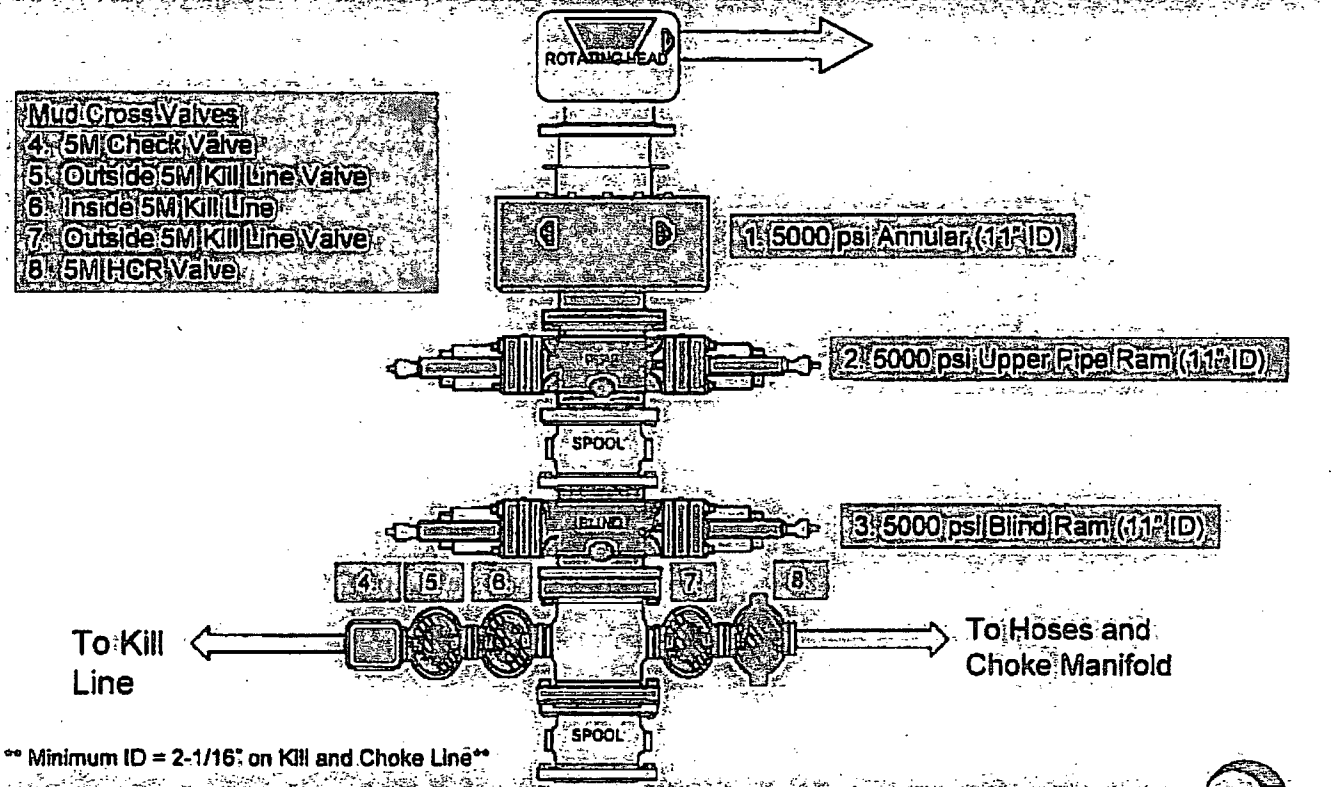
- Axial load of the buoyant weight of the string plus either 100 klb over-pull or string weight in air, whichever is less

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)

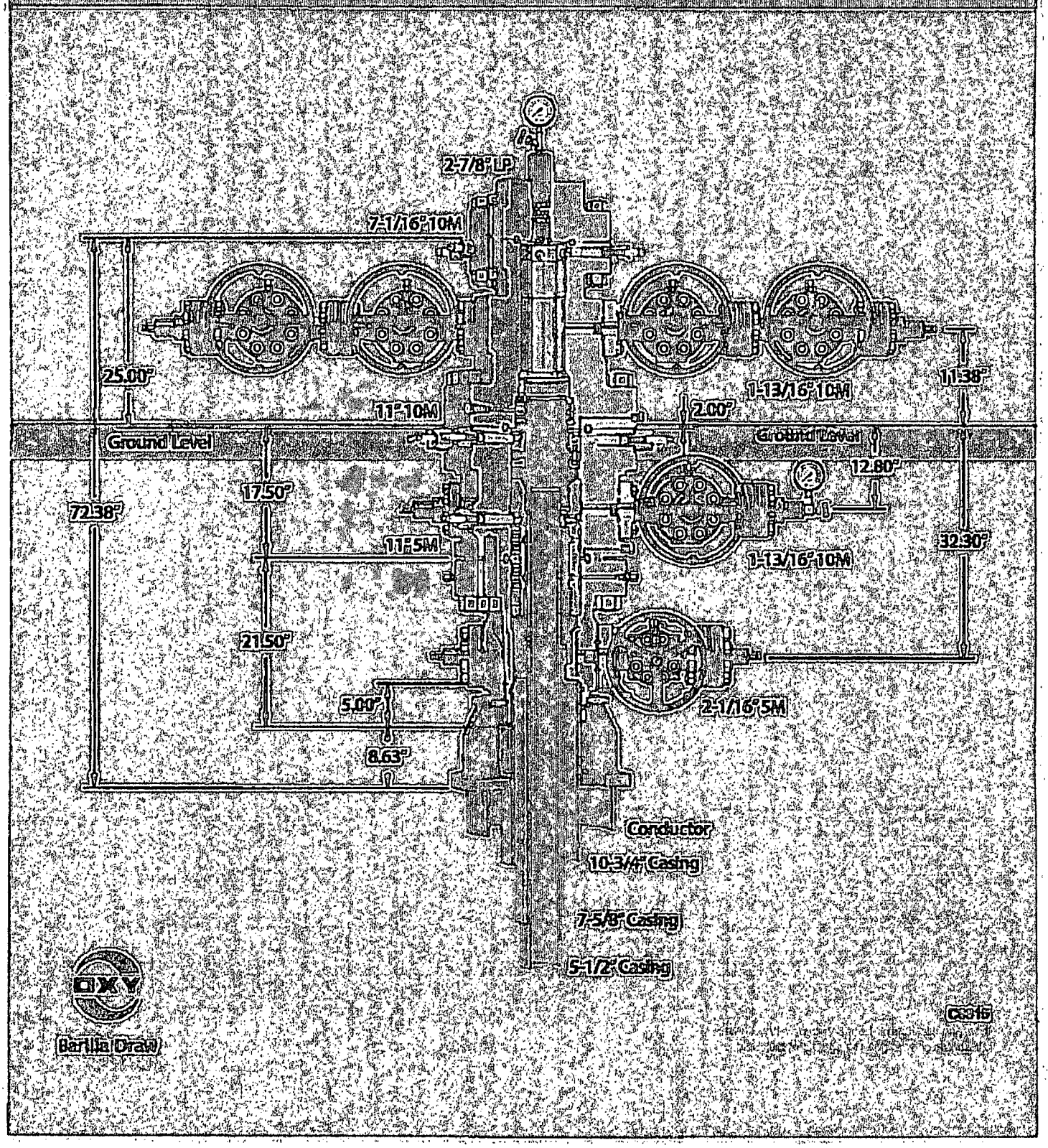
Burst, Collapse and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software.

5M BOP Stack

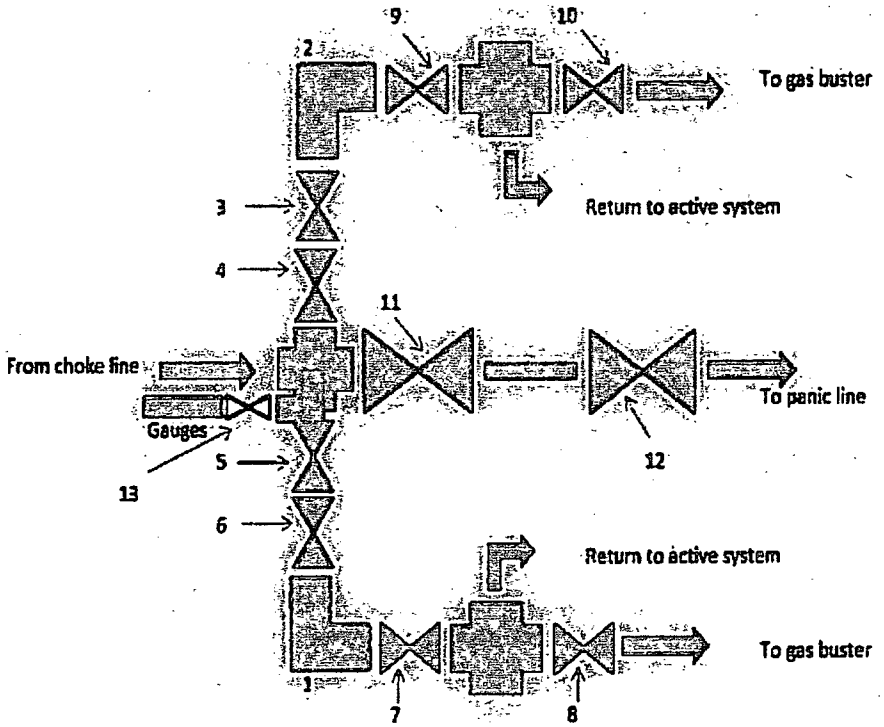

ROTATING HEAD
Mud Cross Valves
4. 5M Check Valve
5. Outside 5M Kill Line Valve
6. Inside 5M Kill Line
7. Outside 5M Kill Line Valve
8. 5M HCR Valve
1. 5000 psi Annular (11" ID)
2. 5000 psi Upper Pipe Ram (11" ID)
PIPE
SPOOL
3. 5000 psi Blind Ram (11" ID)
BLIND
4
5
6
7
8
To Kill Line
To Hoses and Choke Manifold
SPOOL
** Minimum ID = 2-1/16" on Kill and Choke Line**
OXY

CAMERON

11" 10M MBS Wellhead

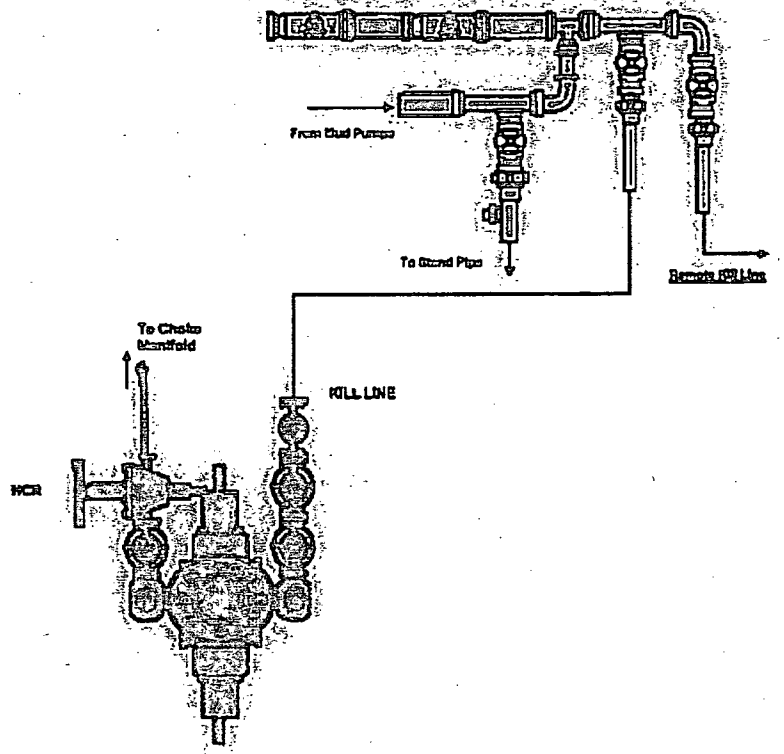


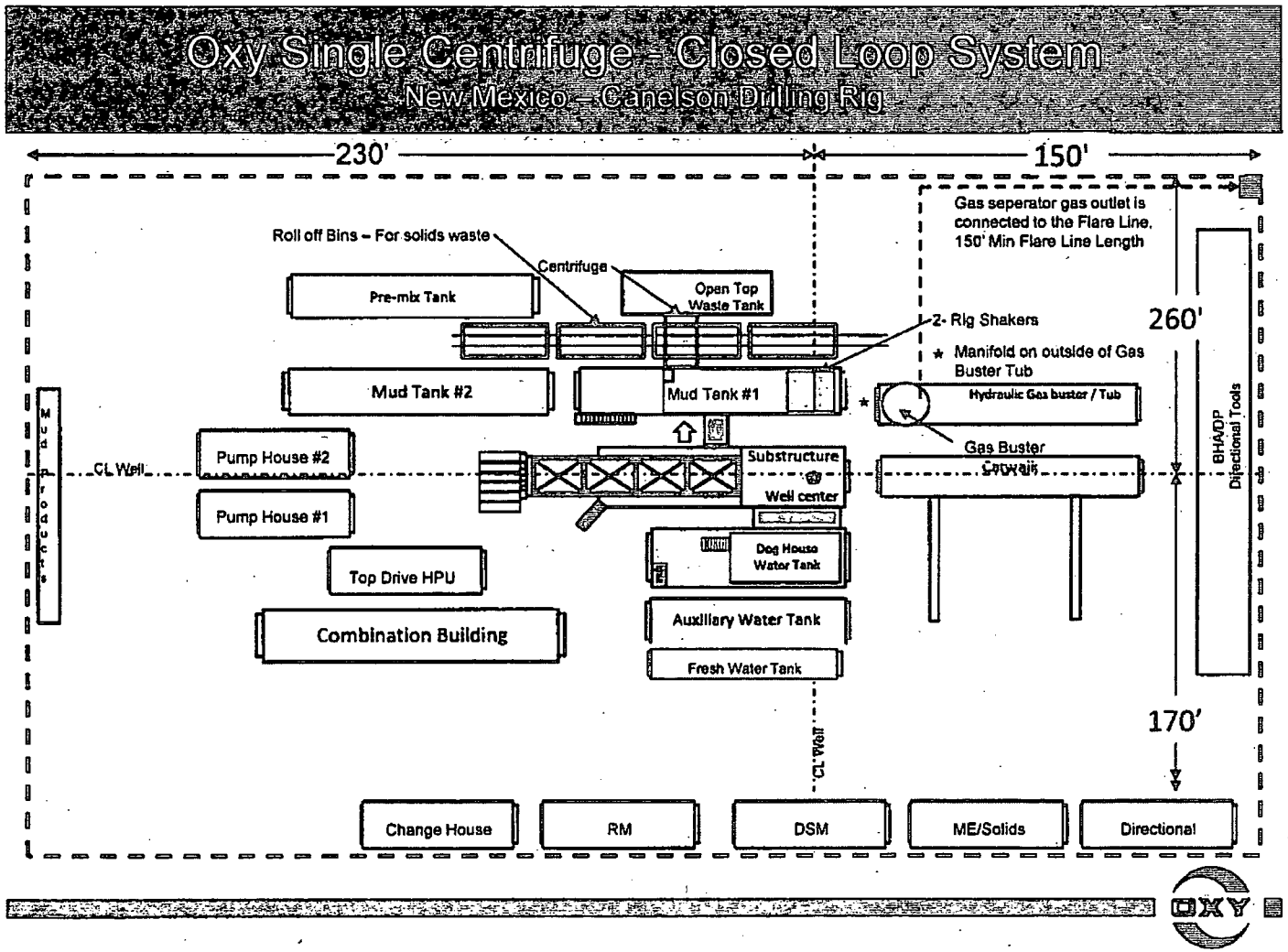
5M Choke Panel



1- POWER CHOKE
2- MANUAL CHOKE
3- 2 1/16" CHOKEMANIFOLD VALVE
4- 2 1/16" CHOKEMANIFOLD VALVE
5- 2 1/16" CHOKEMANIFOLD VALVE
6- 2 1/16" CHOKEMANIFOLD VALVE
7- 2 1/16" CHOKEMANIFOLD VALVE
8- 2 1/16" CHOKEMANIFOLD VALVE
9- 2 1/16" CHOKEMANIFOLD VALVE
10- 2 1/16" CHOKEMANIFOLD VALVE
11- 3" CHOKEMANIFOLD VALVE
12- 3" CHOKEMANIFOLD VALVE
13- 2 1/16 CHOKE MANIFOLD VALVE

10M Remote Kill Line Schematic

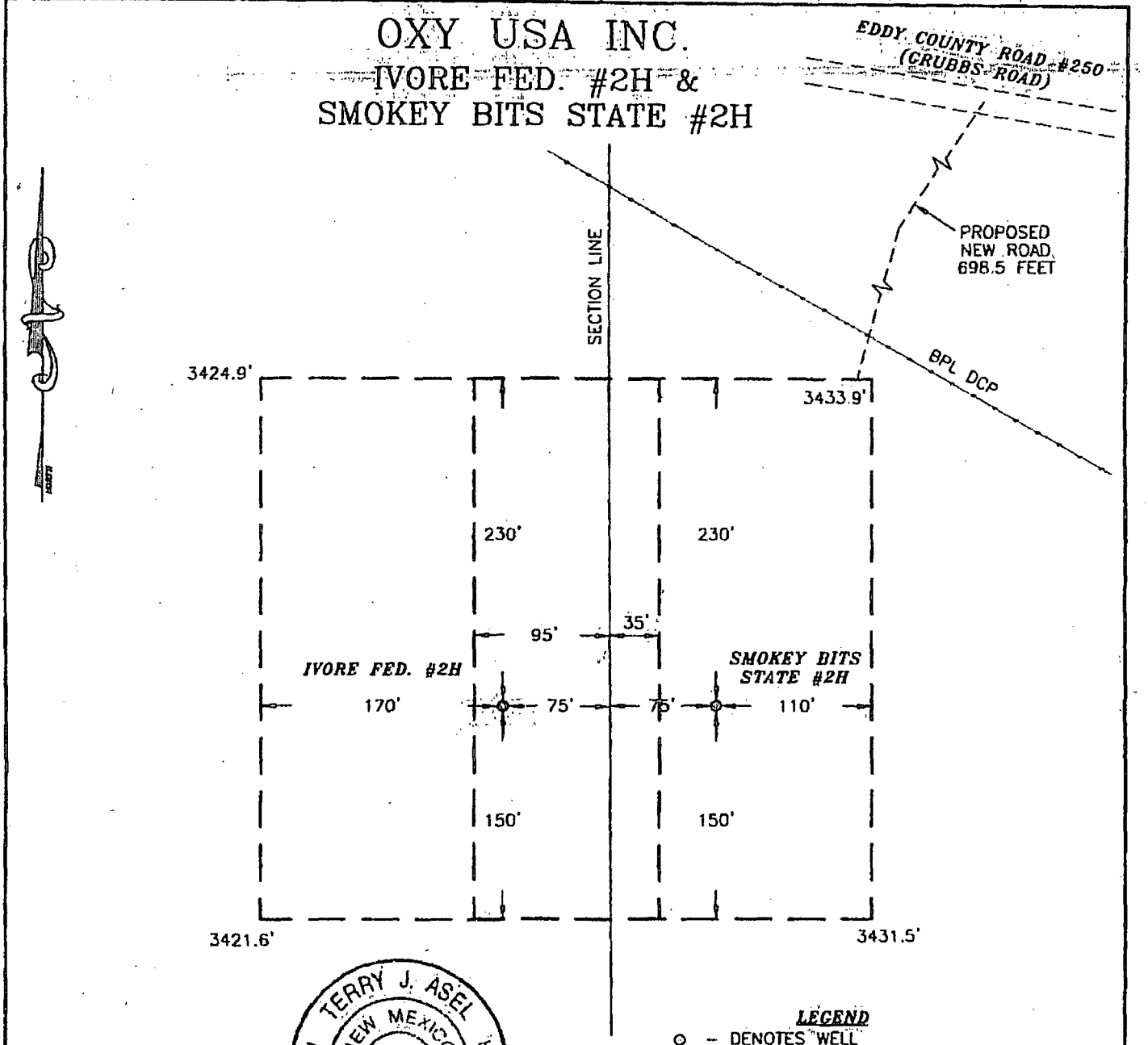




* Shares well pad with Smokey Bits State #24

OXY USA INC.

IVORE FED. #2H & SMOKEY BITS STATE #2H



LEGEND

- o – DENOTES WELL
- – – – DENOTES IVORE WELL PAD
- – – – DENOTES SMOKEY BITS WELL PAD

100' 0 100' 200' FEET

SCALE: 1"=100'

TERRY J. ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEYORS CERTIFICATE

I, TERRY J. ASEL, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15079, DO HEREBY CERTIFY THAT I SUPERVISED 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 1/6/2012

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

Asel Surveying

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

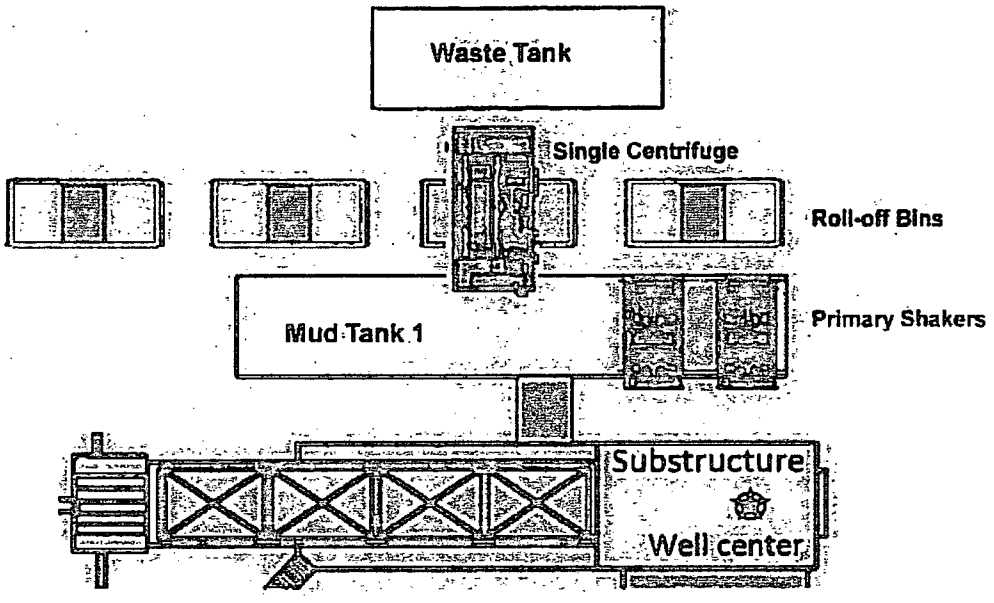
OXY USA INC.

IVORE FED. #2H & SMOKEY BITS STATE #2H LOCATED IN SECTIONS 35 & 36, TOWNSHIP 18 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date: 11/17/10	Sheet 1 of 1 Sheets	
W.O. Number: 120106WL	Drawn By: KA	Rev:
Date: 01/06/12	120106WL	Scale:1"=200'

Oxy Single Centrifuge - Closed Loop System

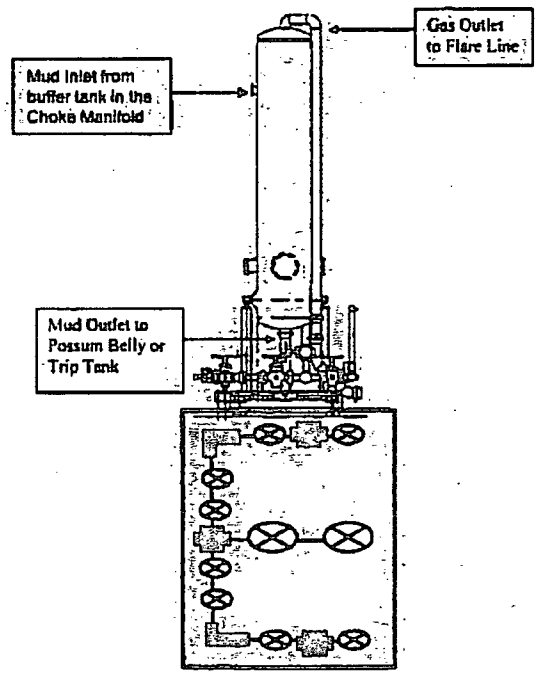
New Mexico – Canelson Drilling Rig



Choke Manifold – Gas Separator

New Mexico – Canelson Drilling Rig

Choke Manifold – Gas Separator (Side View)



PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**OXY USA WTP LP**
LEASE NO.:	**NMNM06245**
WELL NAME & NO.:	**Ivore 35 Federal 2H**
SURFACE HOLE FOOTAGE:	**1575' FNL & 0075' FEL**
BOTTOM HOLE FOOTAGE	**1700' FNL & 0330' FWL**
LOCATION:	**Section 35, T. 18 S., R 30 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Yates** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper**

copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Secretary's Potash
Possibility of water and brine flows in the Artesia and Salado Groups.
Possibility of lost circulation in the Artesia Group.

1. The **10-3/4** inch surface casing shall be set at approximately **515** feet (**in a competent bed <u>below the Magenta Dolomite</u>, which is a <u>Member of the Rustler</u>**) and cemented to the surface. **Freshwater mud to be used to setting depth.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing shall be kept fluid filled while running into hole to meet minimum collapse requirements.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing, which shall be set at approximately **3600** feet, is:

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2 X 4-1/2** inch production casing is:

   ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.**

    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

d. The results of the test shall be reported to the appropriate BLM office.

e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 071414