APD ID: 10400014897 **Submission Date:** 06/15/2017

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE 18 FEDERAL COM **Well Number:** 3H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER	3572	921	921	SHALE,DOLOMITE,ANHYDRITE	USEABLE WATER	No
2	SALADO	2542	1030	1030	SHALE,DOLOMITE,HALITE,ANHYDRITE	OTHER : SALT	No
3	CASTILE	262	3310	3310	ANHYDRITE	OTHER : Salt	No
4	LAMAR	-1060	4632	4632	LIMESTONE,SANDSTONE,SILTSTONE	NATURAL GAS,OIL,OTHER : BRINE	No
5	BELL CANYON	-1075	4647	4647	SANDSTONE,SILTSTONE	NATURAL GAS,OIL,OTHER : BRINE	No
6	CHERRY CANYON	-1983	5555	5555	SANDSTONE,SILTSTONE	NATURAL GAS,OIL,OTHER : BRINE	No
7	BRUSHY CANYON	-3256	6828	6828	SANDSTONE,SILTSTONE	NATURAL GAS,OIL,OTHER : BRINE	No
8	BONE SPRING	-4905	8477	8493	LIMESTONE,SANDSTONE,SILTSTONE	NATURAL GAS,OIL	Yes
9	BONE SPRING 1ST	-6083	9655	9688	LIMESTONE,SANDSTONE,SILTSTONE	NATURAL GAS,OIL	Yes
10	BONE SPRING 2ND	-6337	9909	9942	LIMESTONE,SANDSTONE,SILTSTONE	NATURAL GAS,OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 10460

Equipment: 13-5/8" 5M Annular, Blind Ram, Double Ram

Requesting Variance? YES

Variance request: Request for the use of a flexible choke line from the BOP to Choke Manifold.

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the

working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. A multibowl wellhead or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system will be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015.

Choke Diagram Attachment:

MesaVerde18FdCom3H_ChkManifold_5M__06-06-2017.pdf

BOP Diagram Attachment:

MesaVerde18FdCom3H_FlexHoseCert_06-06-2017.pdf

MesaVerde18FdCom3H_BOP_5M13_58_Amd_20170918144927.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	10.75	NEW	API	N	0	971	0	971			971	J-55	45.5	BUTT	8.91	1.75	BUOY	3.56	BUOY	3.51
2	PRODUCTION	9.875	7.625	NEW	API	N	0	7500	0	7499			7500	L-80	29.7	BUTT	1.22	1.84	BUOY	2.16	BUOY	4.65
3	PRODUCTION	9.875	7.625	NEW	API	N	7500	9787	7499	9754			2287	HCL-80	29.7	BUTT	1.46	1.95	BUOY	2.15	BUOY	2.13
4	LINER	6.75	4.5	NEW	API	N	9687	15292	9654	10460			5605	P-110	11.6	OTHER - DQX	1.68	1.2	BUOY	2.28	BUOY	2.25

Casing Attachments

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE 18 FEDERAL COM **Well Number:** 3H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerde18FdCom3H_CsgCriteria_06-06-2017.pdf

Casing ID: 2 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerde18FdCom3H_CsgCriteria_06-06-2017.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerde18FdCom3H_CsgCriteria_06-06-2017.pdf

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE 18 FEDERAL COM **Well Number:** 3H

Casing Attachments

Casing ID: 4 **String Type:** LINER

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

MesaVerde18FdCom3H_CsgCriteria_06-06-2017.pdf

MesaVerde18FdCom3H_4.5_11.6_P110_DQX_06-06-2017.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	971	496	1.68	14.2	833	50	Class C	Accelerator
PRODUCTION	Lead	4682	0	4182	770	1.85	12.9	1425	75	Class C	Accelerator, Retarder
PRODUCTION	Tail		4182	4682	142	1.33	14.8	189	75	Class C	none
PRODUCTION	Lead		4582	8787	356	3.05	10.2	1086	20	Pozzolan/C	Retarder
PRODUCTION	Tail		8787	9787	163	1.65	13.2	269	20	Class H	Retarder, Dispersant, Salt
LINER	Lead		9687	15292	548	1.63	13.2	893	15	Class H	Retarder, Dispersant, Salt

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE 18 FEDERAL COM **Well Number:** 3H

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. OXY proposes to drill out the 10-3/4" surface casing shoe with a saturated brine system from 971-4682', which is the base of the salt system. At this point we will swap fluid systems to a high viscosity mixed metal hydroxide system or a fully saturated brine direct emulsion system. We will drill with this system to the production TD @ 9787'.
Describe the mud monitoring system utilized: PVT/MD Totco/Visual Monitoring

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
9787	15292	OIL-BASED MUD	8.8	9.6							
4682	9787	WATER-BASED MUD	8.8	9.6							
0	971	WATER-BASED MUD	8.4	8.6							
971	4682	OTHER : BRINE	9.8	10							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

GR from TD to surface (horizontal well – vertical portion of hole). Mud Log from production shoe to TD.

List of open and cased hole logs run in the well:

GR,MUDLOG

Coring operation description for the well:

No coring is planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5221 **Anticipated Surface Pressure:** 2919.8

Anticipated Bottom Hole Temperature(F): 176

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

MesaVerde18FdCom3H_H2S1_06-06-2017.pdf
MesaVerde18FdCom3H_H2S2_06-06-2017.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

MesaVerde18FdCom3H_DirectPlan_06-06-2017.pdf
MesaVerde18FdCom3H_DirectPlot_06-06-2017.pdf

Other proposed operations facets description:

Well will be drilled with a walking/skidding operation. Plan to drill the two well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.

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

Cement Top and Liner Overlap
1. Oxy is requesting permission to have minimum fill of cement behind the 4-1/2" production liner to be 100' into previous casing string. The reason for this is so that we can come back and develop shallower benches from the same 7-5/8" mainbore in the future.
2. Our plan is to use a whipstock for our exit through the mainbore. Based on our lateral target, we are planning a whipstock cased/hole exit so that kick-off point will allow for roughly 10deg/100' doglegs needed

for the curve.
3. Cement will be brought to the top of this liner hanger.
4. See attached for additional casing tie-back information.

OXY requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that OXY would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.

Per Mustafa Haque 8/29/17 disregard intermediate casing deficiency, the production casing string is serving as both and a production liner is being ran.

Other proposed operations facets attachment:

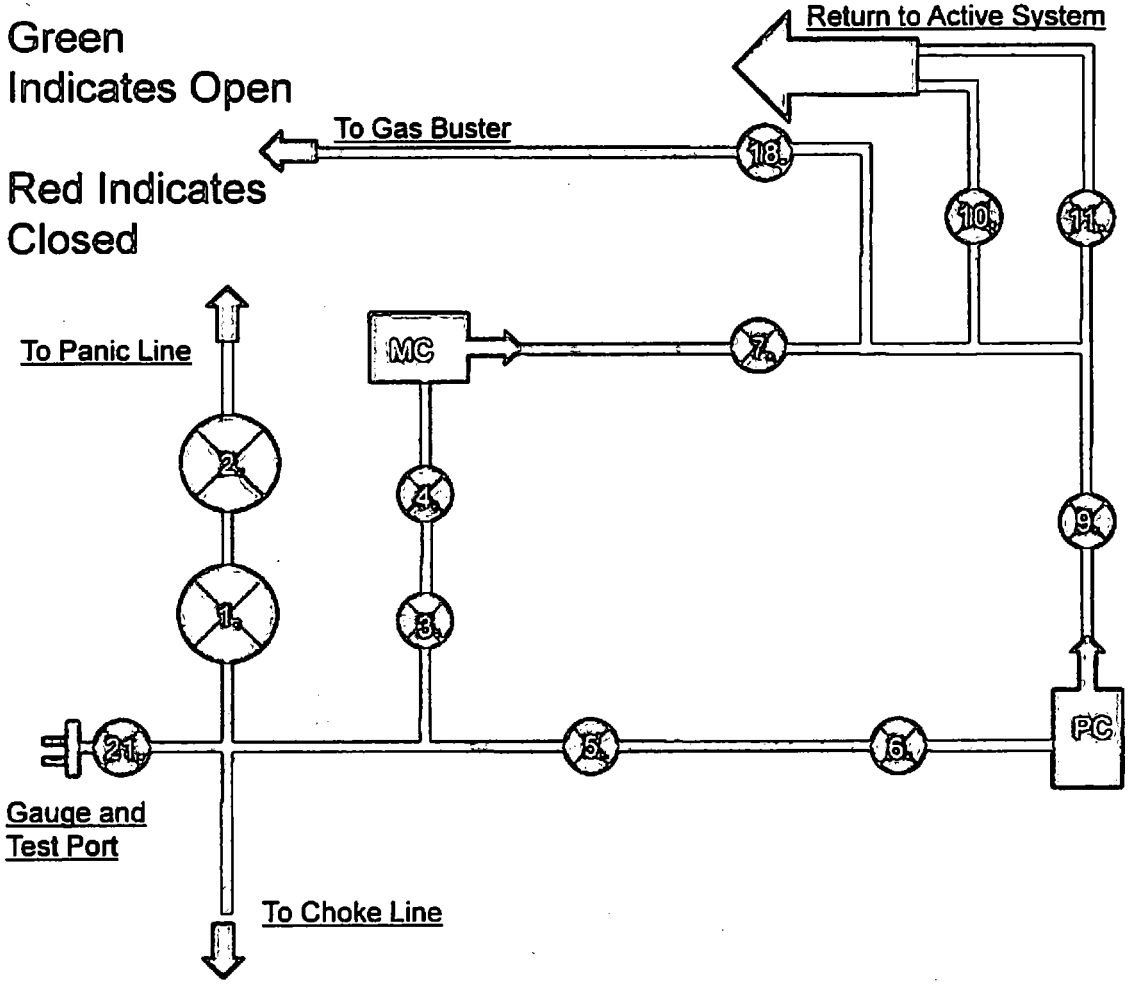
MesaVerde18FdCom3H_SpudRigData_06-06-2017.pdf
MesaVerde18FdCom3H_CsgTieBackDetail_06-15-2017.pdf
MesaVerde18FdCom3H_DrillPlanAmd_20170918150153.pdf

Other Variance attachment:

5M Choke Panel

Green
Indicates Open

Red Indicates
Closed



1. 4" Choke Manifold Valve
2. 4" Choke Manifold Valve
3. 3" Choke Manifold Valve
4. 3" Choke Manifold Valve
5. 3" Choke Manifold Valve
6. 3" Choke Manifold Valve
7. 3" Choke Manifold Valve
8. PC – Power Choke
9. 3" Choke Manifold Valve
10. 3" Choke Manifold Valve
11. Choke Manifold Valve
12. MC – Manual Choke

18. Choke Manifold Valve

21. Vertical Choke Manifold Valve

***All Valves 3" minimum**

OXY USA Inc. - Mesa Verde 18 Federal Com 3H

1. Geologic Formations

TVD of target	10460'	Pilot Hole Depth	N/A
MD at TD:	15292'	Deepest Expected fresh water:	921'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	921	Water/Oil/Gas
Salado	1030	
Castile	3310	
Lamar/Delaware	4632	
Bell Canyon	4647	
Cherry Canyon	5555	
Brushy Canyon	6828	Oil/Gas
Bone Spring	8477	Oil/Gas
1st Bone Spring	9655	Oil/Gas
2nd Bone Spring	**9909**	**Oil/Gas**

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

2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant Body SF Tension	Buoyant Joint SF Tension
	From (ft)	To (ft)								
14.75	0	971	10.75	45.5	J55	BTC	8.91	1.75	3.51	3.56
9.875	0	7500	7.625	29.7	L80	BTC	1.22	1.84	4.65	2.16
9.875	7500	9787	7.625	29.7	HP L80	BTC	1.46	1.95	2.13	2.15
6.75	9687	15292	4.5	11.6	P-110	DQX	1.68	1.20	2.25	2.28

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage we will drop a cancelation cone and not pump the second stage.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y

Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H20 (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface	496	14.2	1.68	6.53	6:50	Class C Cement, Accelerator
Production Casing	356	10.2	3.05	15.63	15:07	Pozzolan Cement, Retarder
	163	13.2	1.65	8.45	12:57	Class H Cement, Retarder, Dispersant, Salt
DV/ECP Tool @ 4682' (We request the option to cancel the second stage if cement is circulated to surface during the first stage of cement operations)						
2nd Stage	770	12.9	1.85	9.86	12:44	Class C Cement, Accelerator, Retarder
	142	14.8	1.33	6.34	6:31	Class C Cement
Production Liner	548	13.2	1.631	8.37	15:15	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top of Lead (ft)	Bottom of Lead (ft)	Top of Tail (ft)	Bottom of Tail (ft)	% Excess Lead	% Excess Tail
Surface	N/A	N/A	0	971	N/A	50%
Production Casing	4582	8787	8787	9787	20%	20%
2nd Stage Production Casing	0	4182	4182	4682	75%	75%
Production Liner	N/A	N/A	9687	15292	N/A	15%

- **Cement Top and Liner Overlap**
  - Oxy is requesting permission to have minimum fill of cement behind the 4.5" production liner to be 100 ft into previous casing string
    - The reason for this is so that we can come back and develop shallower benches from the same 7.625" mainbore in the future
  - Our plan is to use a whipstock for our exit through the mainbore
    - Based on our lateral target, we are planning a whipstock cased/hole exit so that kick-off point will allow for roughly 10deg/100' doglegs needed for the curve
  - Cement will be brought to the top of this liner hanger

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
9.875" Hole	11"	5M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/5000psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	Y Are anchors required by manufacturer?
	A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port

	that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	971	Water-Based Mud	8.4-8.6	40-60	N/C
971	4682	Brine	9.8-10.0	35-45	N/C
4682	9787	Water-Based Mud	8.8-9.6	38-50	N/C
9787	15292	Oil-Based Mud	8.8-9.6	35-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

Oxy proposes to drill out the 10.75" surface casing shoe with a saturated brine system from 971' - 4682', which is the base of the salt system. At this point we will swap fluid systems to a high viscosity mixed metal hydroxide system or a fully saturated brine direct emulsion system. We will drill with this system to the intermediate TD @ 9787'.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
No	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain

Additional logs planned		Interval
No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	ICP - TD
No	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5221psi
Abnormal Temperature	No
BH Temperature at deepest TVD	176°F

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.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. • We plan to drill the two well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. • Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.	Yes

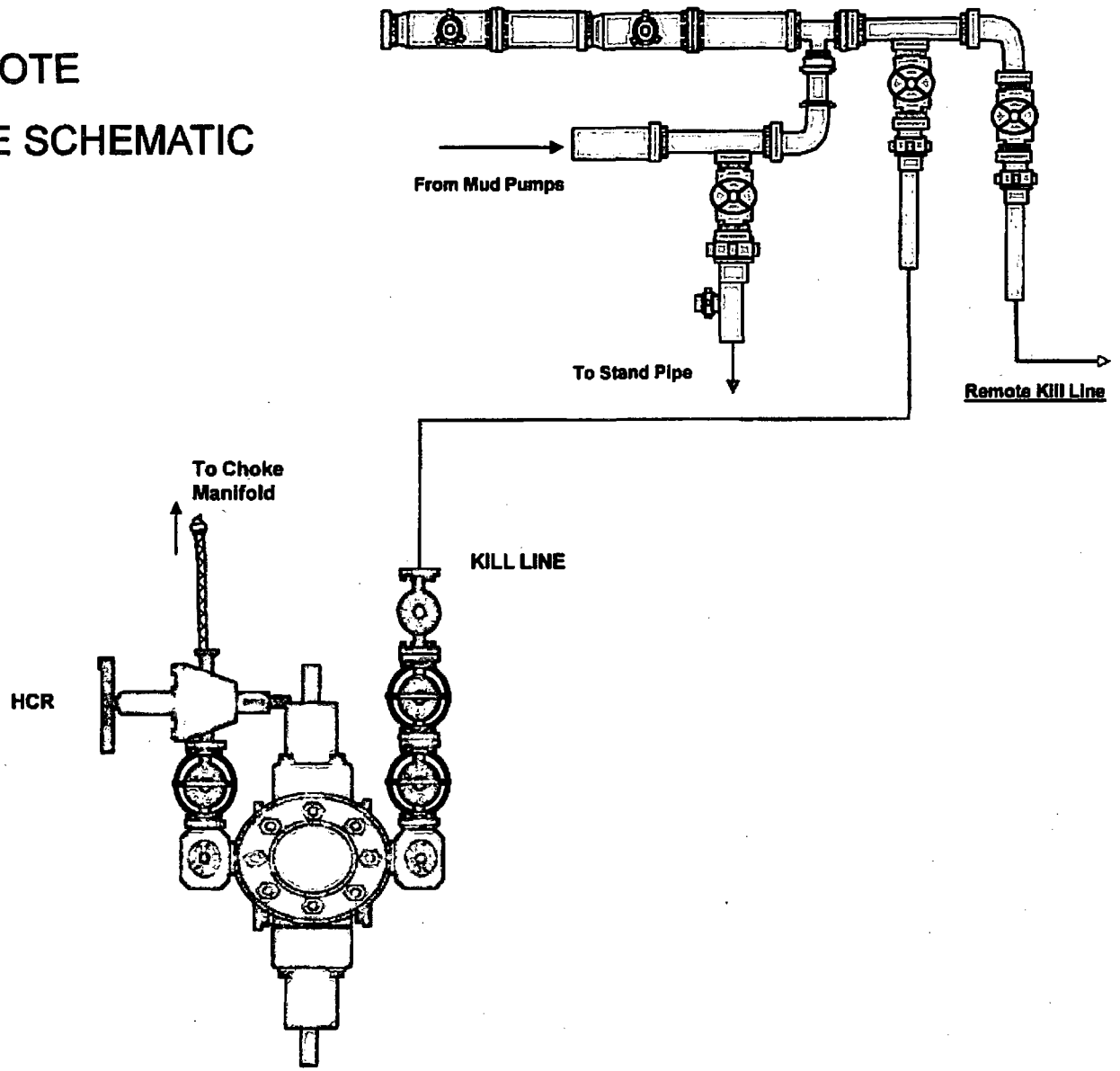
Total estimated cuttings volume: 2526.6 bbls.

9. Company Personnel

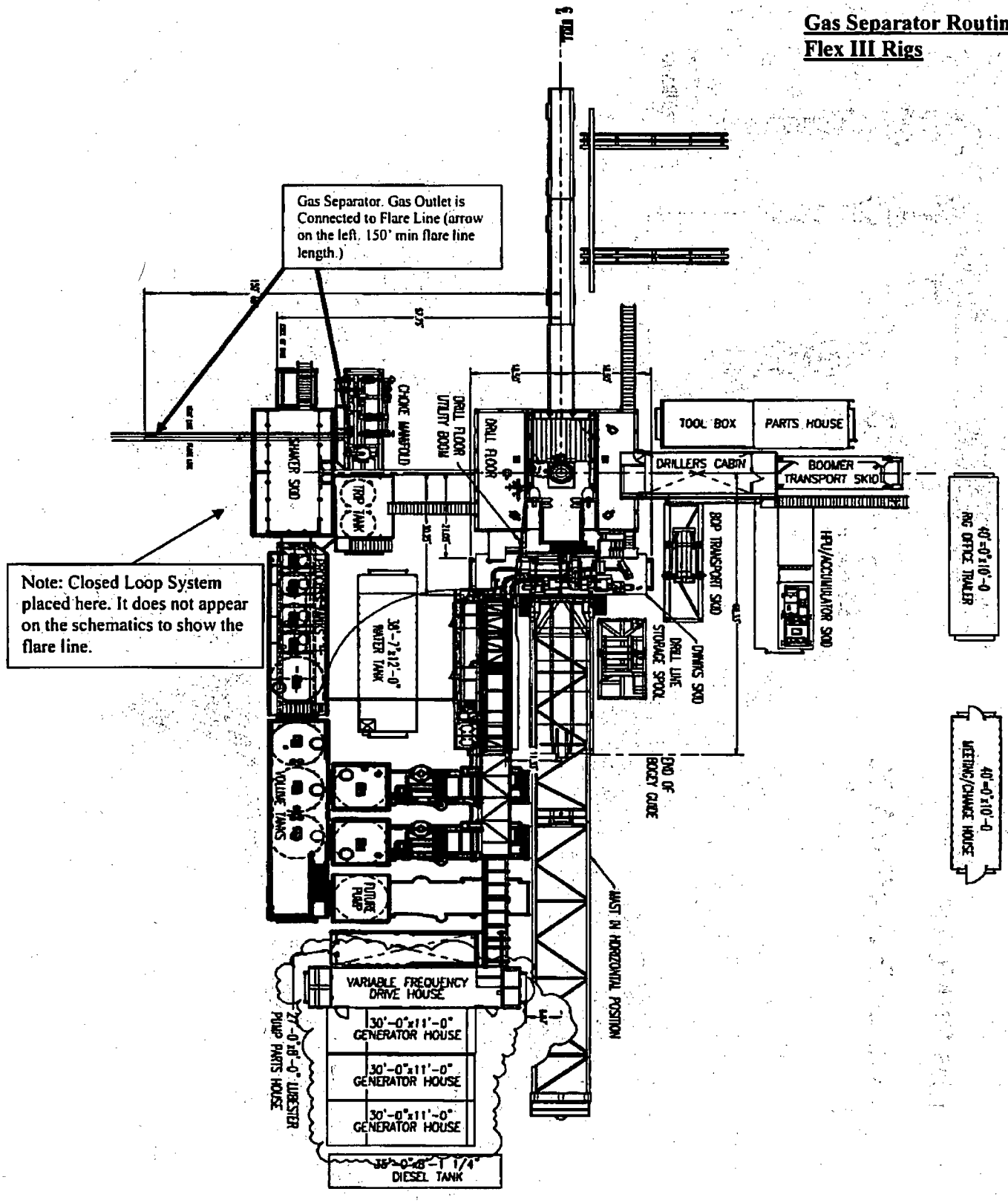
Name	Title	Office Phone	Mobile Phone
Philippe Haffner	Drilling Engineer	713-985-6379	832-767-9047
Diego Tellez	Drilling Engineer Supervisor	713-350-4602	713-303-4932
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
John Willis	Drilling Manager	713-366-5556	713-259-1417

10M REMOTE

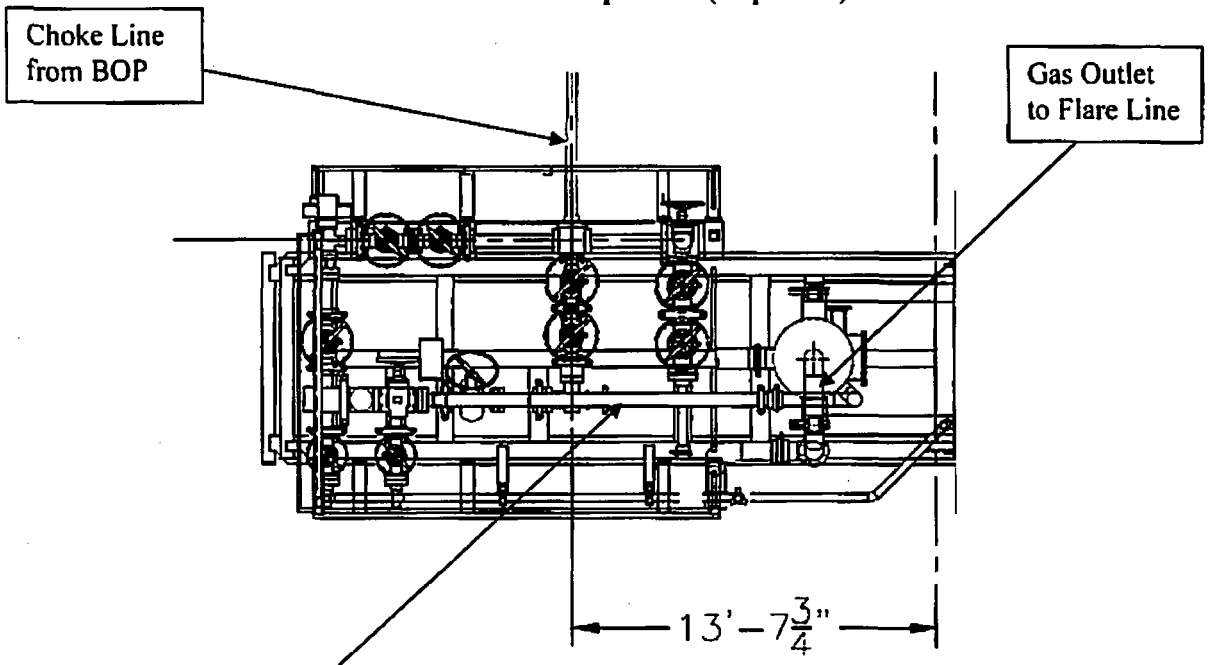
KILL LINE SCHEMATIC



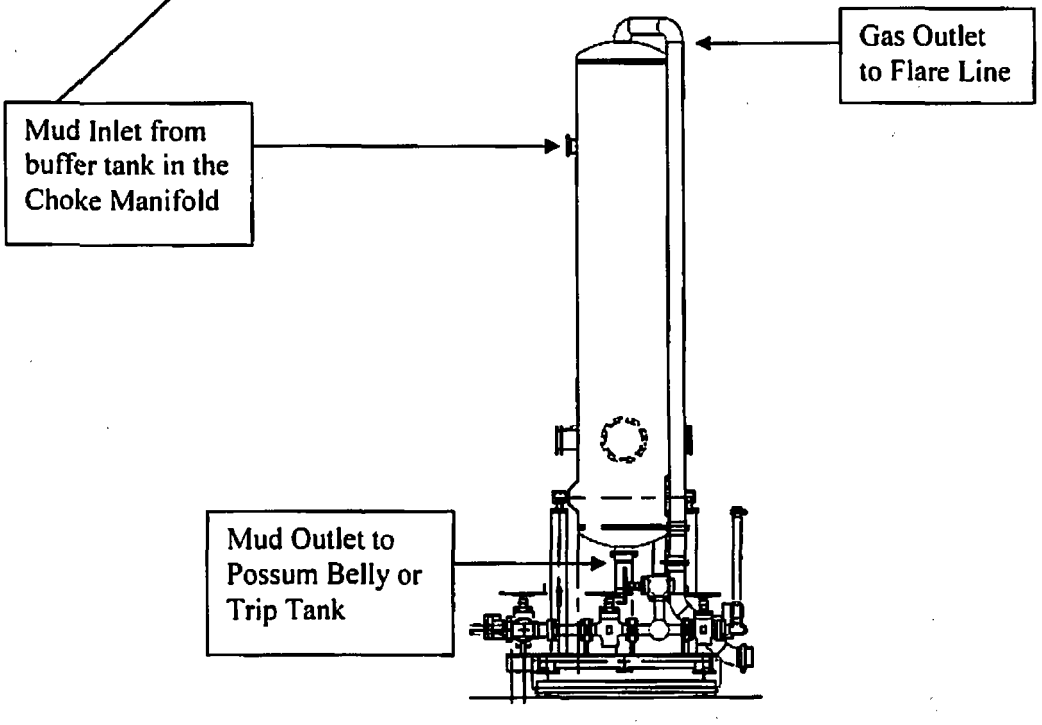
Gas Separator Routing
Flex III Rigs



Choke Manifold – Gas Separator (Top View)



Choke Manifold – Gas Separator (Side View)



Coflex Hose Certification

FH-L

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"

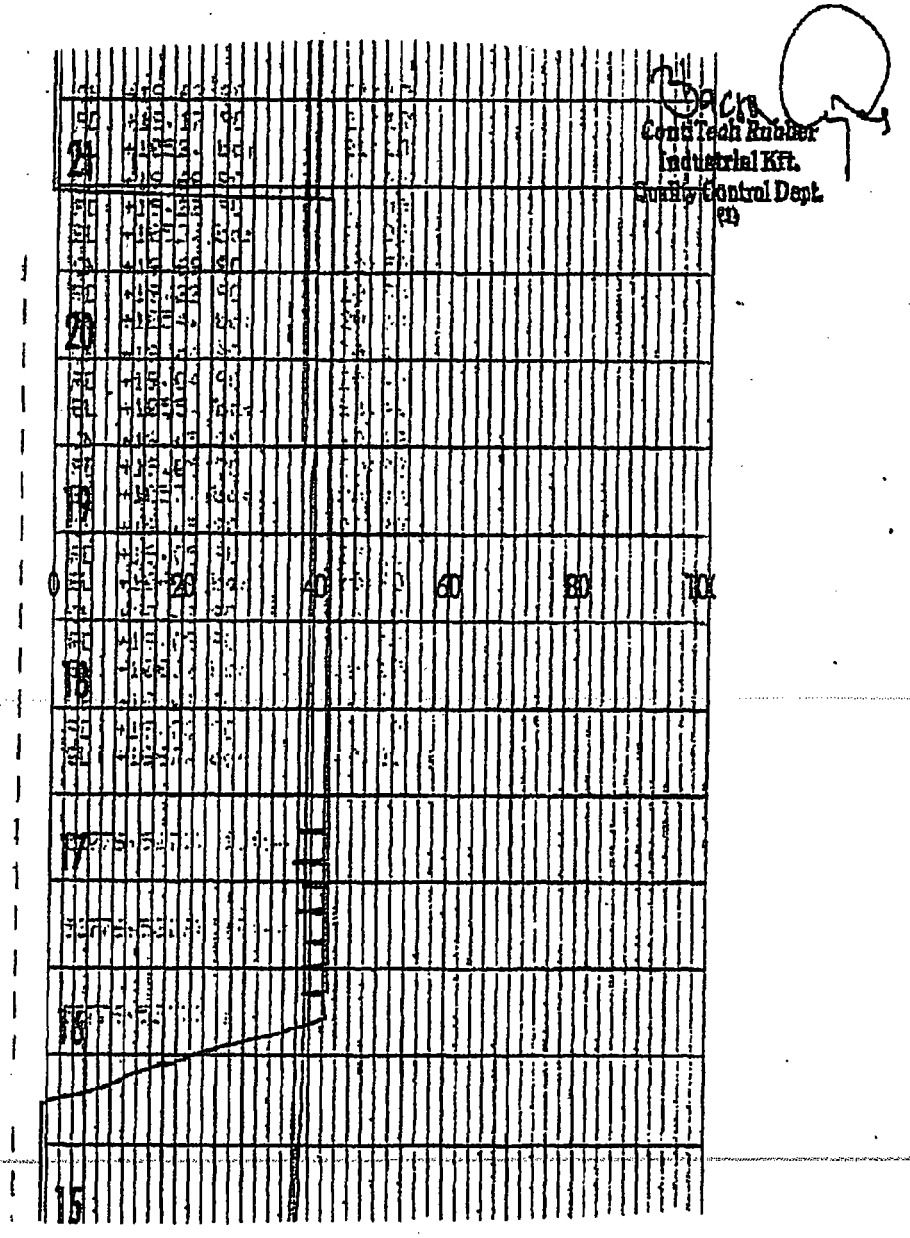
All metal parts are flawless

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)

FH-2

Coflex Hose Certification



FH-3

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...

FH-4

Coflex Hose Certification

Form No 100/12

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

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-HFF3	LIFTING & SAFETY EQUIPMENT TO			1	2440	002440		H/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.

10/27/10

Coflex Hose Certification

FH-5

Continental CONTITECH

Fluid Technology

Quality Document

FH-6

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.

Position: Q.C. Manager

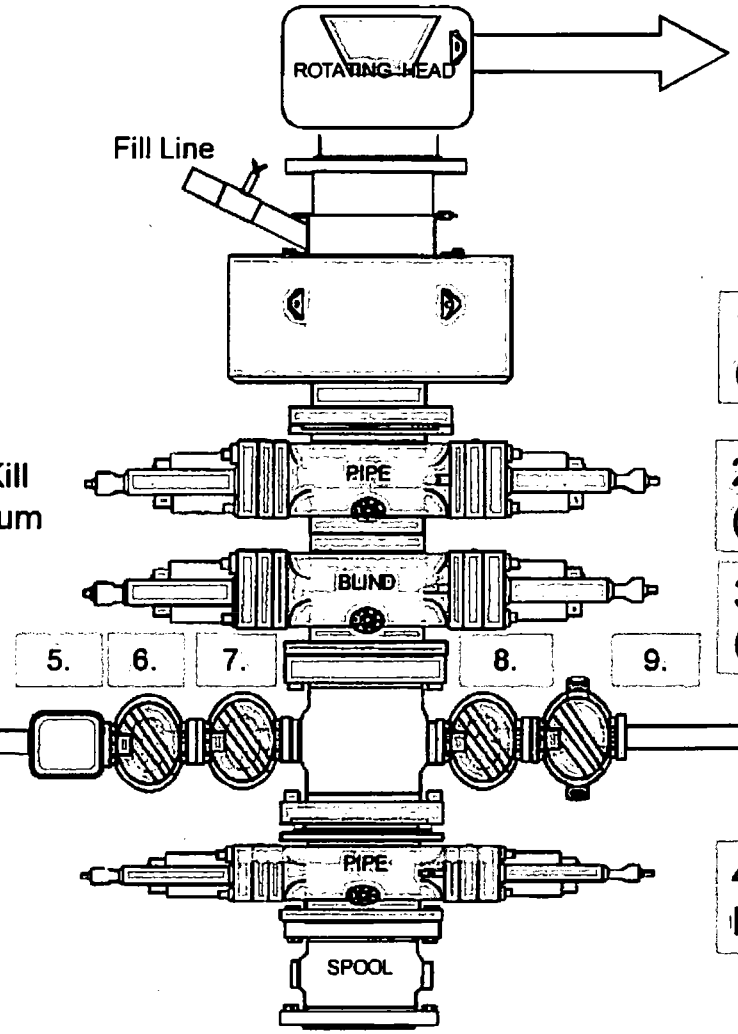
Date: 04. April. 2008

5M BOP Stack

Mud Cross Valves:

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

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



To Kill Line

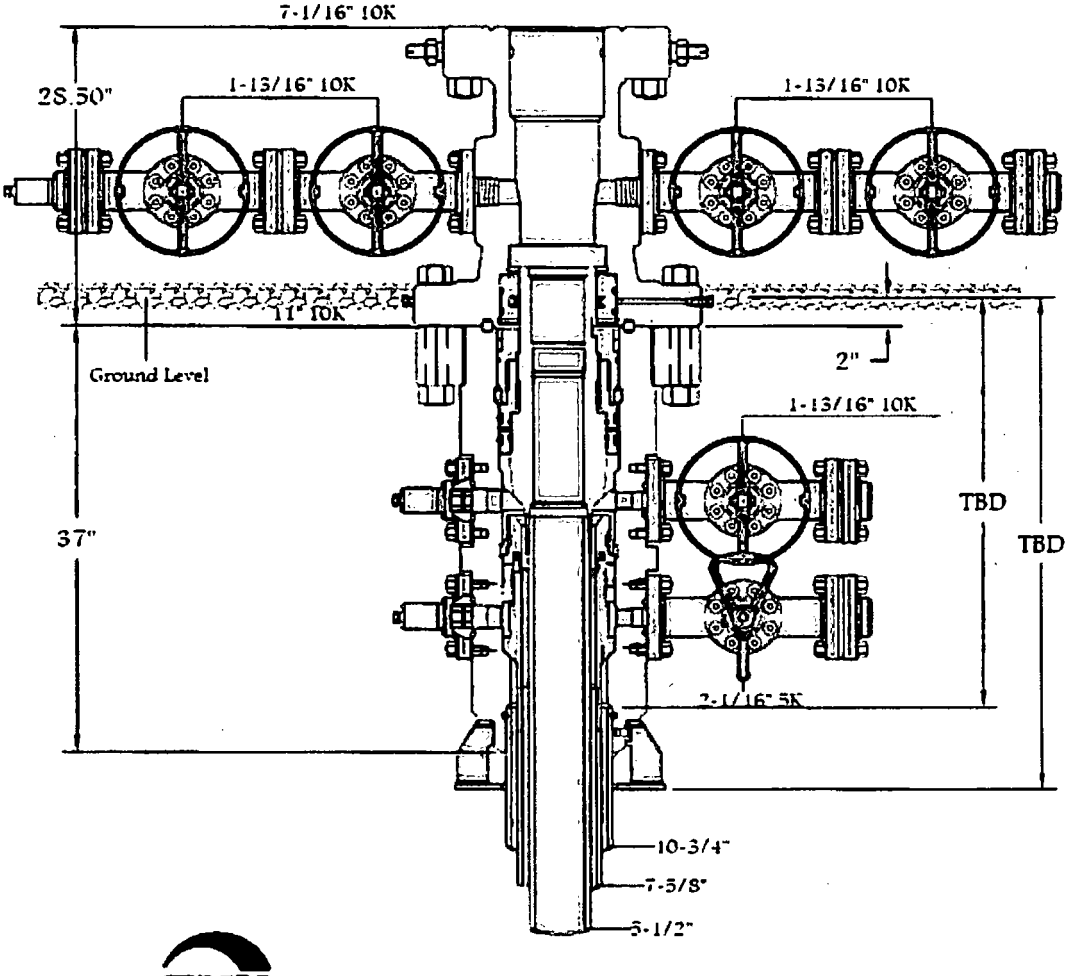
To Co-Flex and Choke Manifold

1. 5000 psi Annular (13-5/8" ID)

2. 5,000 psi Upper Pipe Ram (13-5/8" ID)

3. 5,000 psi Blind Ram (13-5/8" ID)

4. 5,000 psi Lower Pipe Ram (13-5/8" ID)



11" 10K SSD-II

CAMERON
A Schlumberger Company

Brandon	5-3-17	#	1466162

OXY's Minimum Design Criteria

Burst, Collapse, and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software. A sundry will be requested if any lesser grade or different size casing is substituted.

1) Casing Design Assumptions

a) Burst Loads

CSG Test (Surface)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Pore pressure in open hole.

CSG Test (Intermediate)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

CSG Test (Production)

- Internal:
  - For Drilling: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
  - For Production: The design pressure test should be the greater of (1) the planned test pressure prior to stimulation down the casing. (2) the regulatory test pressure, and (3) the expected gas lift system pressure. The design test fluid should be the fluid associated with pressure test having the greatest pressure.
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Gas Column (Surface)

- Internal: Assumes a full column of gas in the casing with a Gas/Oil Gradient of 0.1 psi/ft in the absence of better information. It is limited to the controlling pressure based on the fracture pressure at the shoe or the maximum expected pore pressure within the next drilling interval, whichever results in a lower surface pressure.
- External: Fluid gradient below TOC, pore pressure from the TOC to the Intermediate CSG shoe (if applicable), and MW of the drilling mud that was in the hole when the CSG was run from Intermediate CSG shoe to surface.

Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of 0.02 X MD of the shoe to account for pumping friction pressure.
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- Internal: Influx depth of the maximum pore pressure of 0.55 "gas kick gravity" of gas to surface while drilling the next hole section.
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Tubing Leak Near Surface While Producing (Production)

- Internal: SITP plus a packer fluid gradient to the shoe or top of packer.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

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- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
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Injection / Stimulation Down Casing (Production)

- Internal: Surface pressure plus injection fluid gradient.
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b) Collapse Loads

Lost Circulation (Surface / Intermediate)

- Internal: Lost circulation at the TD of the next hole section, and the fluid level falls to a depth where the hydrostatic of the mud equals pore pressure at the depth of the lost circulation zone.
- External: MW of the drilling mud that was in the hole when the casing was run.

Cementing (Surface / Intermediate / Production)

- Internal: Displacement fluid density.
- External: Mud weight from TOC to surface and cement slurry weight from TOC to casing shoe.

Full Evacuation (Production)

- Internal: Full void pipe.
- External: MW of drilling mud in the hole when the casing was run.

c) Tension Loads

Running Casing (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

- Axial: Buoyant weight of the string plus cement plug bump pressure load.

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- Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

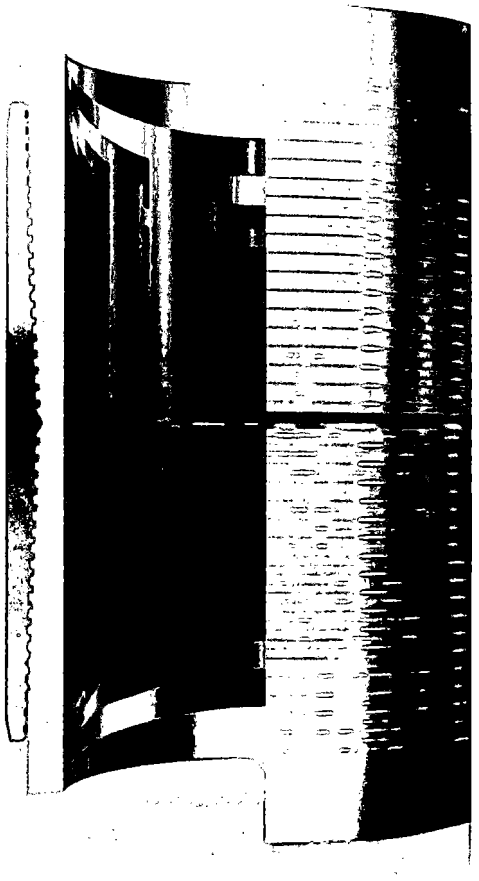
Green Cement (Surface / Intermediate / Production)
- Axial: Buoyant weight of the string plus cement plug bump pressure load.

PERFORMANCE DATA

TMK UP DQX **4.500 in** **11.60 lbs/ft** **P-110**
Technical Data Sheet

Tubular Parameters

Size	4.500	in	Minimum Yield	110,000
Nominal Weight	11.60	lbs/ft	Minimum Tensile	125,000
Grade	P-110		Yield Load	367,000
PE Weight	11.35	lbs/ft	Tensile Load	417,000
Wall Thickness	0.250	in	Min. Internal Yield Pressure	10,700
Nominal ID	4.000	in	Collapse Pressure	7,600
Drift Diameter	3.875	in		
Nom. Pipe Body Area	3.338	in²		



Connection Parameters

Connection OD	5.000	in
Connection ID	4.000	in
Make-Up Loss	3.772	in
Critical Section Area	3.338	in²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	367,000	lbs
Min. Internal Yield Pressure	10,700	psi
Collapse Pressure	7,600	psi

Make-Up Torques

Min. Make-Up Torque	4,800	ft-lbs
Opt. Make-Up Torque	5,400	ft-lbs
Max. Make-Up Torque	5,900	ft-lbs
Yield Torque	8,600	ft-lbs

Printed on: July-29-2014

OXY USA Inc
APD ATTACHMENT: SPUDDER RIG DATA

OPERATOR NAME / NUMBER: OXY USA Inc

1. SUMMARY OF REQUEST:

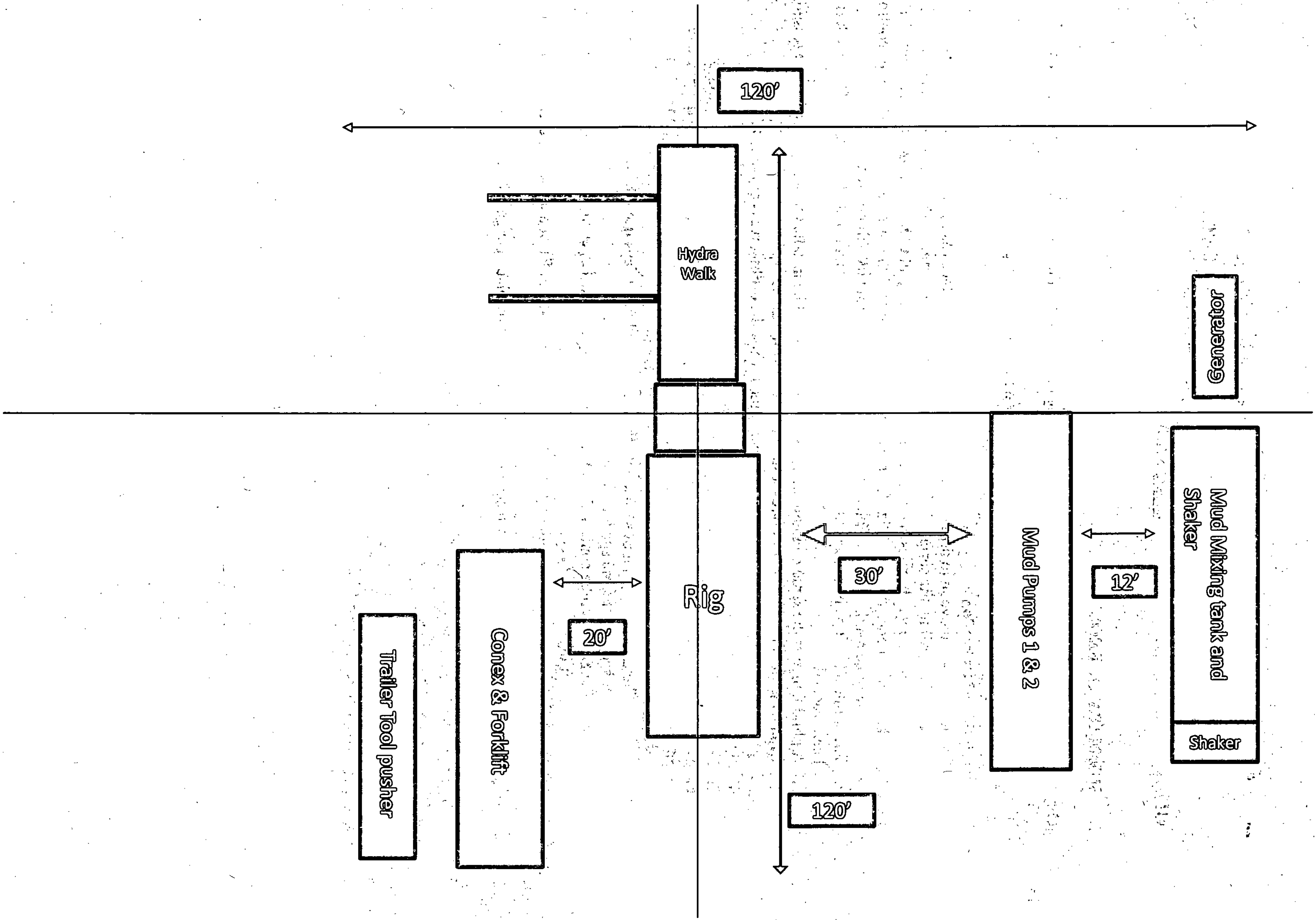
Oxy USA respectfully requests approval for the following operations for the surface hole in the drill plan:

1. Utilize a spudder rig to pre-set surface casing for time and cost savings.

2. Description of Operations

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
    a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
    b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and the WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
    a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nippled up and tested on the wellhead before drilling operations resume on each well.
    a. The larger rig will move back onto the location within 90 days from the point at which the wells are secured and the spudder rig is moved off location.
    b. The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations.
7. Oxy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, Oxy will secure the wellhead area by placing a guard rail around the cellar area.

Spudder Rig Layout



5 ½" 17# P110 USF Tie-back string specifications:

PERFORMANCE DATA

TMK UP ULTRA™ SF **5.500 in** **17.00 lbs/ft** **P-110**
Technical Data Sheet

Tubular Parameters

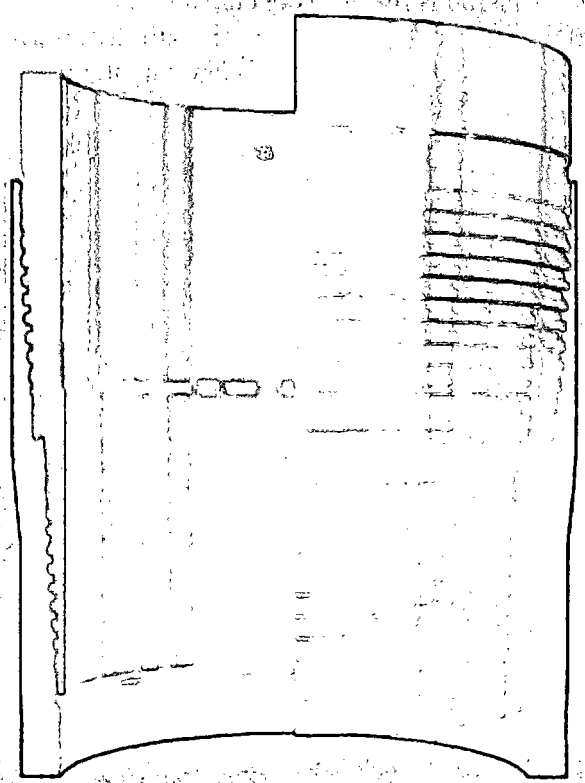
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	17.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	545,000	lbs
PE Weight	16.87	lbs/ft	Tensile Load	620,000	lbs
Wall Thickness	0.304	in	Min. Internal Yield Pressure	10,600	psi
Nominal ID	4.892	in	Collapse Pressure	7,480	psi
Drift Diameter	4.767	in			
Nom. Pipe Body Area	4.962	in²			

Connection Parameters

Connection OD	5.663	in
Connection ID	4.848	in
Make-Up Loss	5.911	in
Critical Section Area	4.559	in²
Tension Efficiency	91.6	%
Compression Efficiency	91.6	%
Yield Load In Tension	499,000	lbs
Min. Internal Yield Pressure	10,600	psi
Collapse Pressure	7,480	psi
Uniaxial Bending	84	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	10,300	ft-lbs
Opt. Make-Up Torque	11,300	ft-lbs
Max. Make-Up Torque	12,400	ft-lbs
Yield Torque	15,500	ft-lbs



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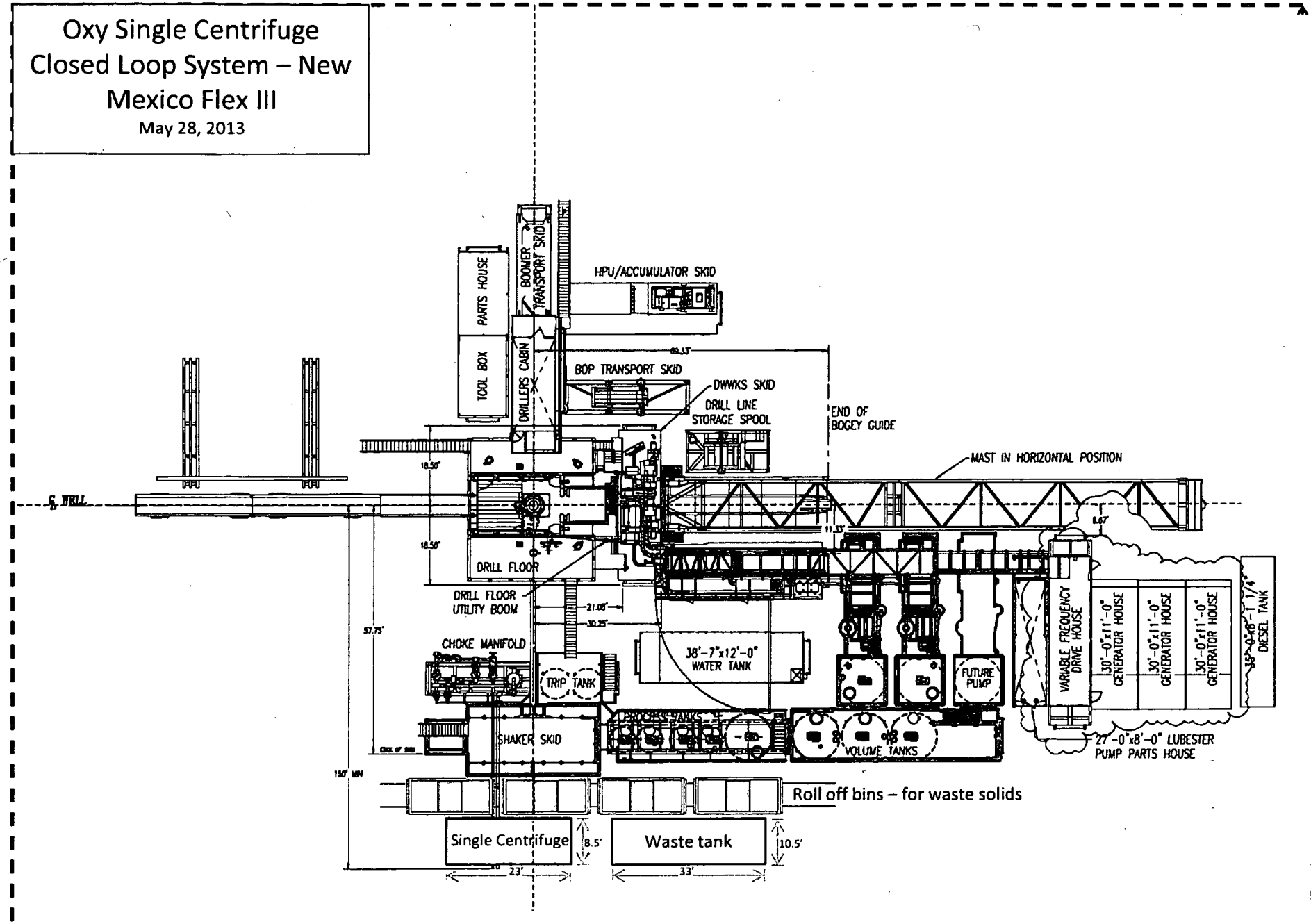
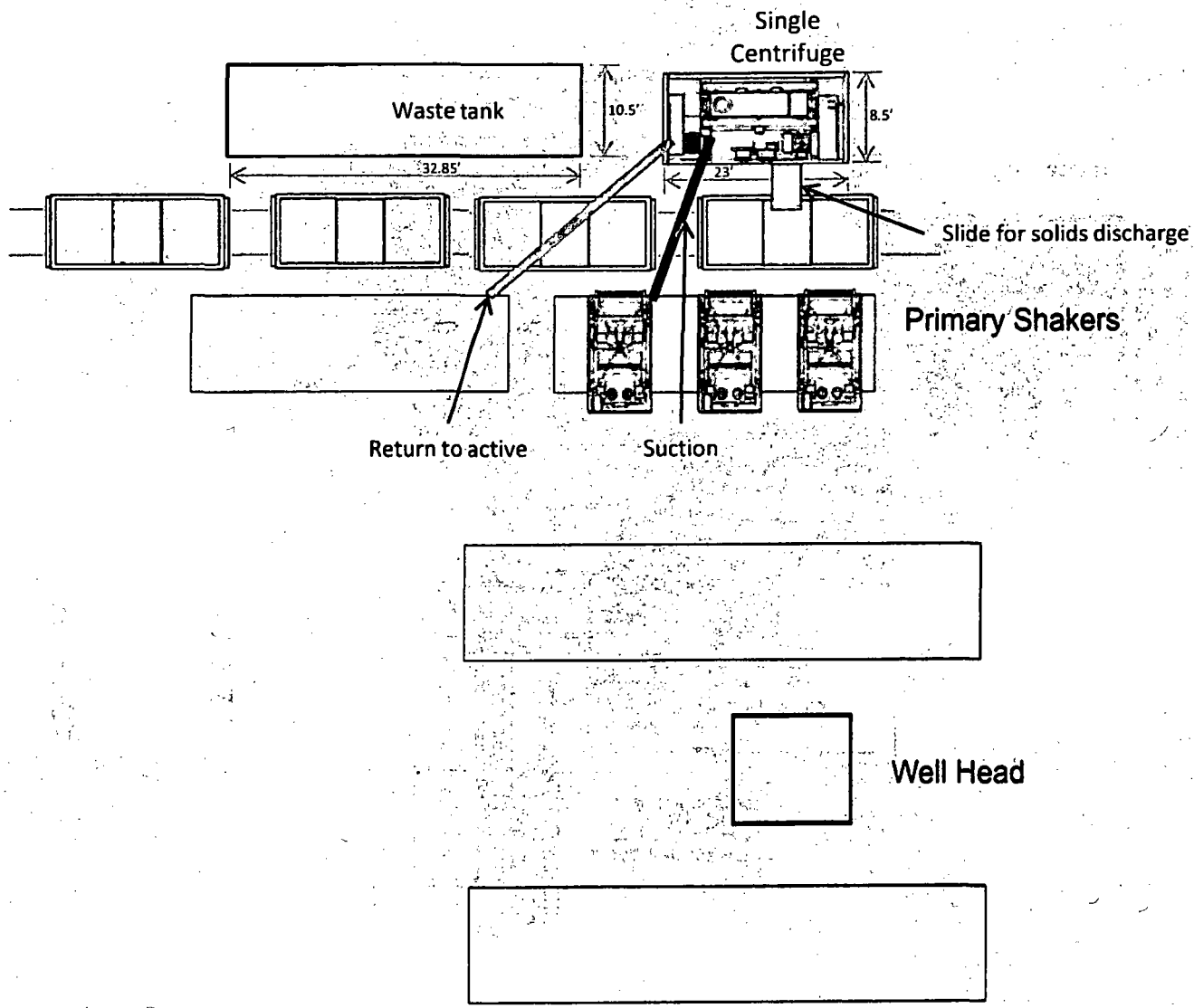
TMK IPSCO

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

OXY USA Inc.
Mesa Verde 18 Federal Com 3H

Below is a summary that describes the general operational steps to drill and complete this well:

- Drill 14-3/4" hole x 10-3/4" casing for surface section. Cement to surface.
- Drill 9-7/8" hole x 7-5/8" casing for intermediate section. Cement to surface.
- Drill 6-3/4" hole x 4-1/2" liner for production section. Cement to top of liner, 100' inside 7-5/8" shoe.
- Release drilling rig from location.
- Move in workover rig and run a 5-1/2" 17# P110 USF tie-back frack string and seal assembly (see connection specs below). Tie into liner hanger Polished Bore Receptacle (PBR) with seal assembly.
- Pump hydraulic fracture job.
- Flowback and produce well.

When a decision is made to develop a secondary bench from this wellbore, a workover rig will be moved to location. The workover rig will then retrieve the tie-back frack string and seal assembly before temporarily abandoning the initial lateral.

General well schematic: