

OXY USA Inc. - Mesa Verde 18-7 Federal Com 6H

1. Geologic Formations

| | | | |
|---------------|--------|-------------------------------|------|
| TVD of target | 10517' | Pilot Hole Depth | N/A |
| MD at TD: | 20667' | Deepest Expected fresh water: | 909' |

Delaware Basin

| Formation | TVD - RKB | Expected Fluids |
|------------------------|-------------|-----------------|
| Rustler | 909 | Water/Oil/Gas |
| Salado | 1005 | |
| Castile | 3292 | |
| Lamar/Delaware | 4662 | |
| Bell Canyon* | 4677 | |
| Cherry Canyon* | 5555 | |
| Brushy Canyon* | 6896 | Oil/Gas |
| Bone Spring | 8489 | Oil/Gas |
| 1st Bone Spring | 9662 | Oil/Gas |
| 2nd Bone Spring | 9934 | Oil/Gas |

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

2. Casing Program

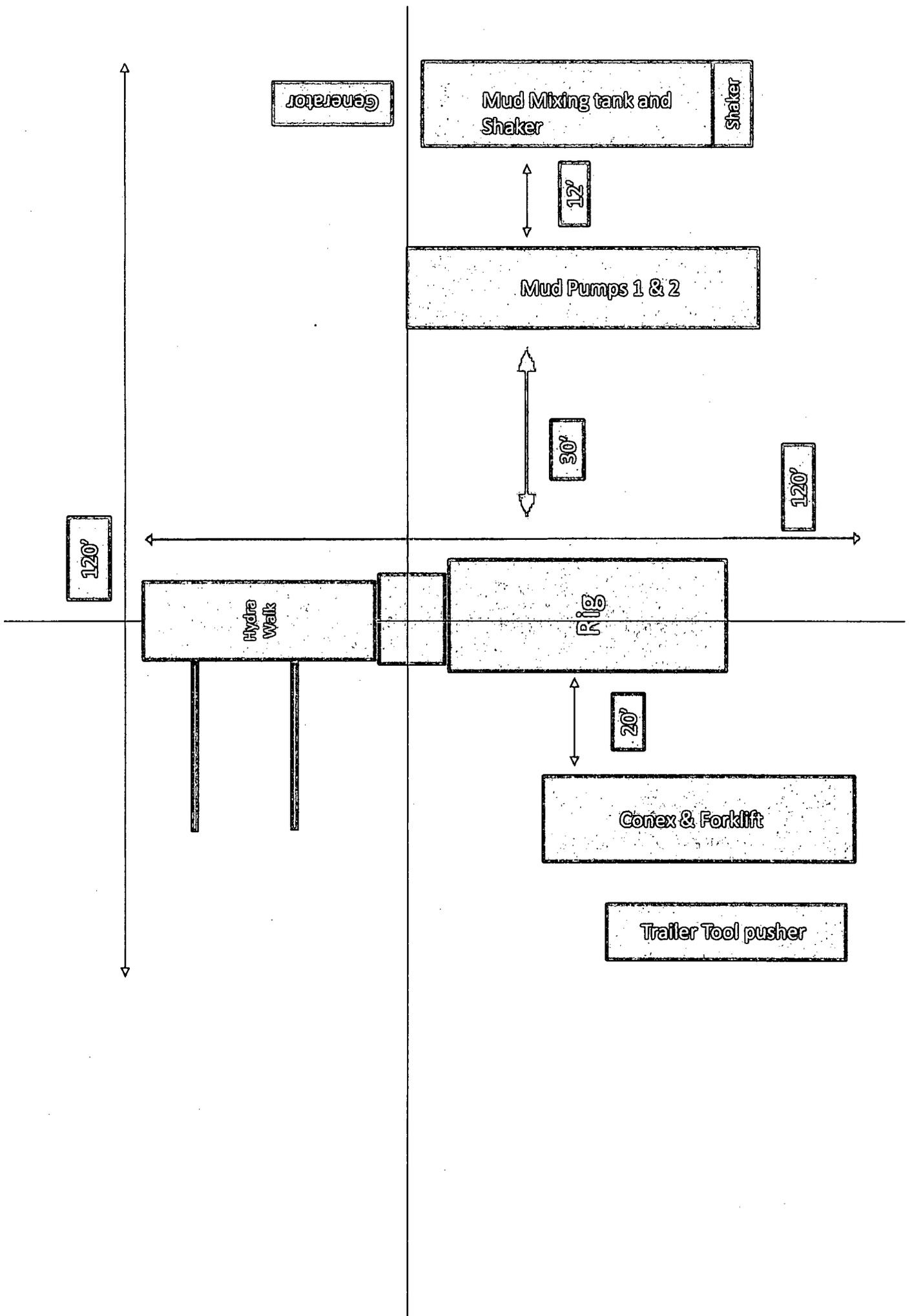
| Hole Size (in) | Casing Interval | | Csg. Size (in) | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | Buoyant Buoyant | |
|----------------|-----------------|---------|----------------|--------------|--------|-------|-------------|----------|-----------------|------------------|
| | From (ft) | To (ft) | | | | | | | Body SF Tension | Joint SF Tension |
| 17.5 | 0 | 959 | 13.375 | 54.5 | J55 | BTC | 2.19 | 1.31 | 2.41 | 2.59 |
| 12.25 | 0 | 7500 | 9.625 | 47 | L80 | BTC | 1.21 | 1.43 | 1.84 | 1.93 |
| 12.25 | 7500 | 9903 | 9.625 | 47 | HP L80 | BTC | 1.19 | 1.48 | 3.54 | 4.39 |
| 8.5 | 9803 | 20667 | 5.5 | 20 | P-110 | DQX | 1.98 | 1.20 | 2.31 | 2.54 |

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 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.

| | 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. | |

Spudder Rig Layout



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 nipped 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.

PERFORMANCE DATA

TMK UP DQX
Technical Data Sheet

5.500 in

20.00 lbs/ft

P-110

Tubular Parameters

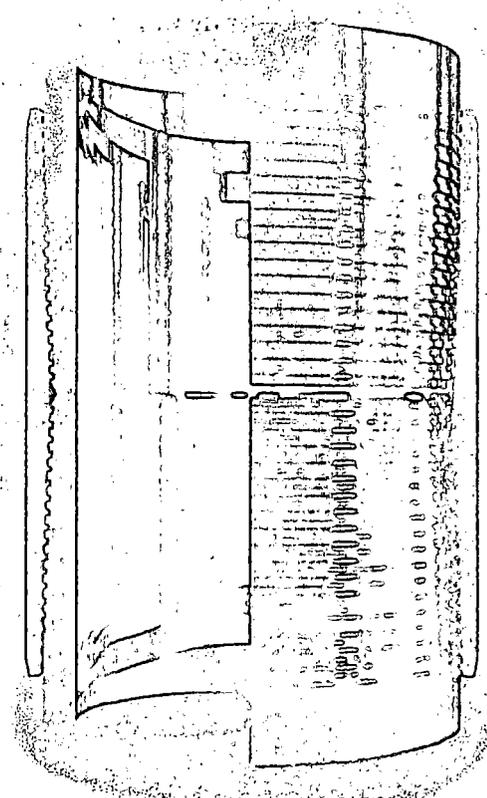
| | | | | | |
|---------------------|-------|-----------------|------------------------------|---------|-----|
| Size | 5.500 | in | Minimum Yield | 110,000 | psi |
| Nominal Weight | 20.00 | lbs/ft | Minimum Tensile | 125,000 | psi |
| Grade | P-110 | | Yield Load | 641,000 | lbs |
| PE Weight | 19.81 | lbs/ft | Tensile Load | 729,000 | 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 | in ² | | | |

Connection Parameters

| | | |
|------------------------------|---------|-----------------|
| Connection OD | 6.050 | in |
| Connection ID | 4.778 | in |
| Make-Up Loss | 4.122 | in |
| Critical Section Area | 5.828 | in ² |
| Tension Efficiency | 100.0 | % |
| Compression Efficiency | 100.0 | % |
| Yield Load In Tension | 641,000 | lbs |
| Min. Internal Yield Pressure | 12,600 | psi |
| Collapse Pressure | 11,100 | psi |

Make-Up Torques

| | | |
|---------------------|--------|--------|
| Min. Make-Up Torque | 11,600 | ft-lbs |
| Opt. Make-Up Torque | 12,900 | ft-lbs |
| Max. Make-Up Torque | 14,100 | ft-lbs |
| Yield Torque | 20,600 | ft-lbs |



Printed on: July-29-2014

NOTE

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OXY USA Inc. - Mesa Verde 18-7 Federal Com 6H

| | |
|--|---|
| Is well located in SOPA but not in R-111-P? | N |
| If yes, are the first 2 strings cemented to surface and 3 rd 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 2 nd 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 | H2O gal/sk | 500# Comp. Strength (hours) | Slurry Description |
|---|-------|----------------|------------------|------------|-----------------------------------|--|
| Surface | 768 | 14.8 | 1.35 | 6.53 | 6:50 | Class C Cement, Accelerator |
| Production | 1542 | 10.2 | 3.05 | 15.63 | 15:07 | Pozzolan Cement, Retarder |
| Casing | 239 | 13.2 | 1.65 | 8.45 | 12:57 | Class H Cement, Retarder, Dispersant, Salt |
| DV/ECP Tool @ 4712' (We request the option to cancel the second stage if cement is circulated to surface during the first stage of cement operations) | | | | | | |
| 2nd Stage | 1152 | 12.9 | 1.85 | 9.86 | 12:44 | Class C Cement, Accelerator, Retarder |
| | 265 | 14.8 | 1.33 | 6.34 | 6:31 | Class C Cement |
| Production Liner | 1758 | 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 | 959 | N/A | 50% |
| Production Casing | 0 | 8903 | 8903 | 9903 | 75% | 20% |
| 2nd Stage Production Casing | 0 | 4212 | 4212 | 4712 | 75% | 125% |
| Production Liner | N/A | N/A | 9803 | 20667 | N/A | 15% |

• **Cement Top and Liner Overlap**

- OXY is requesting permission to have minimum fill of cement behind the 5-1/2" 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 9-5/8" 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

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4. Pressure Control Equipment

| BOP installed and tested before drilling which hole? | Size? | Min. Required WP | Type | ✓ | Tested to: |
|---|--------------|-------------------------|-------------|----------|-------------------------|
| 12.25" Production | 13-5/8" | 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 wellhead is being used. 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 schematic. | |

OXY USA Inc. - Mesa Verde 18-7 Federal Com 6H

5. Mud Program

| Depth | | Type | Weight (ppg) | Viscosity | Water Loss |
|-----------|---------|-----------------|--------------|-----------|------------|
| From (ft) | To (ft) | | | | |
| 0 | 959 | Water-Based Mud | 8.4-8.6 | 40-60 | N/C |
| 959 | 4712 | Brine | 9.8-10.0 | 35-45 | N/C |
| 4712 | 9903 | Water-Based Mud | 8.8-9.6 | 38-50 | N/C |
| 9903 | 20667 | 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 13-3/8" surface casing shoe with a saturated brine system from 959-4712', 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 direct emulsion system. We will drill with this system to the production TD @ 9903'.

| | |
|---|--------------------------------|
| 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 Surface Shoe - TD |
| No | PEX |

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7. Drilling Conditions

| Condition | Specify what type and where? |
|-------------------------------|-------------------------------------|
| BH Pressure at deepest TVD | 5251 psi |
| Abnormal Temperature | No |
| BH Temperature at deepest TVD | 165°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. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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: 2344.6 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 |

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.
- External:
 - For Drilling: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.
 - For Production: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

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 $0.02 \times MD$ of the shoe to account for pumping friction pressure.
- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- Internal: Influx depth of the maximum pore pressure of 0.55 "gas kick gravity" of gas to surface while drilling the next hole section.
- External: Mud weight to the TOC, cement mix water gradient below TOC, and pore pressure in open hole.

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.

Tubing Leak Near Surface While Stimulating (Production)

- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Injection / Stimulation Down Casing (Production)

- Internal: Surface pressure plus injection fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

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.

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

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- 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.
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- 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 $0.02 \times MD$ of the shoe to account for pumping friction pressure.
- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- 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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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.
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- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- Internal: Influx depth of the maximum pore pressure of 0.55 "gas kick gravity" of gas to surface while drilling the next hole section.
- External: Mud weight to the TOC, cement mix water gradient below TOC, and pore pressure in open hole.

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.

Tubing Leak Near Surface While Stimulating (Production)

- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Injection / Stimulation Down Casing (Production)

- Internal: Surface pressure plus injection fluid gradient.
- External: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

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.

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.
- External:
 - For Drilling: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.
 - For Production: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

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 $0.02 \times MD$ of the shoe to account for pumping friction pressure.
- External: Mud weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
- 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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- External: MW of the drilling mud that was in the hole when the casing was run.

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- 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.

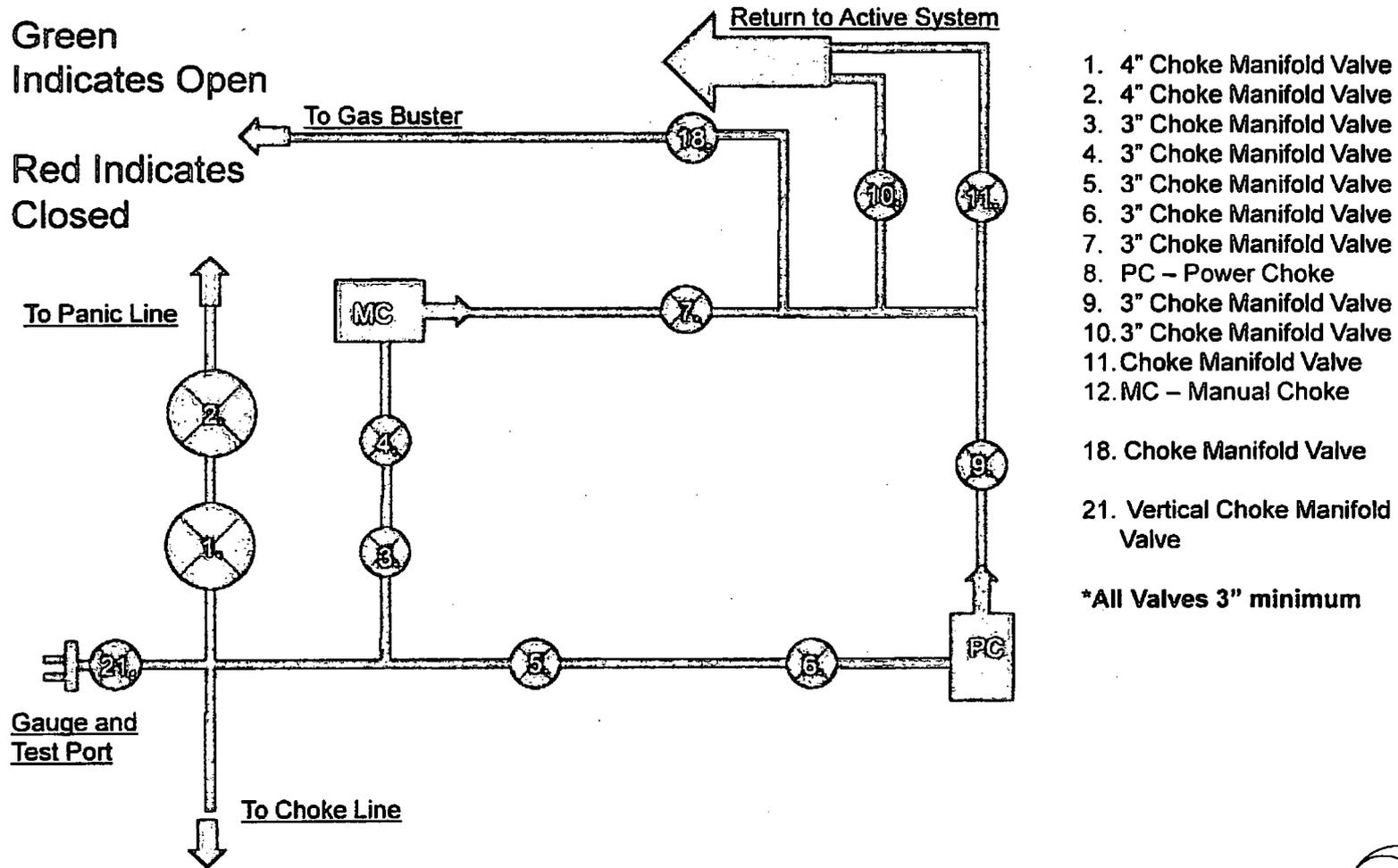
Green Cement (Surface / Intermediate / Production)

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

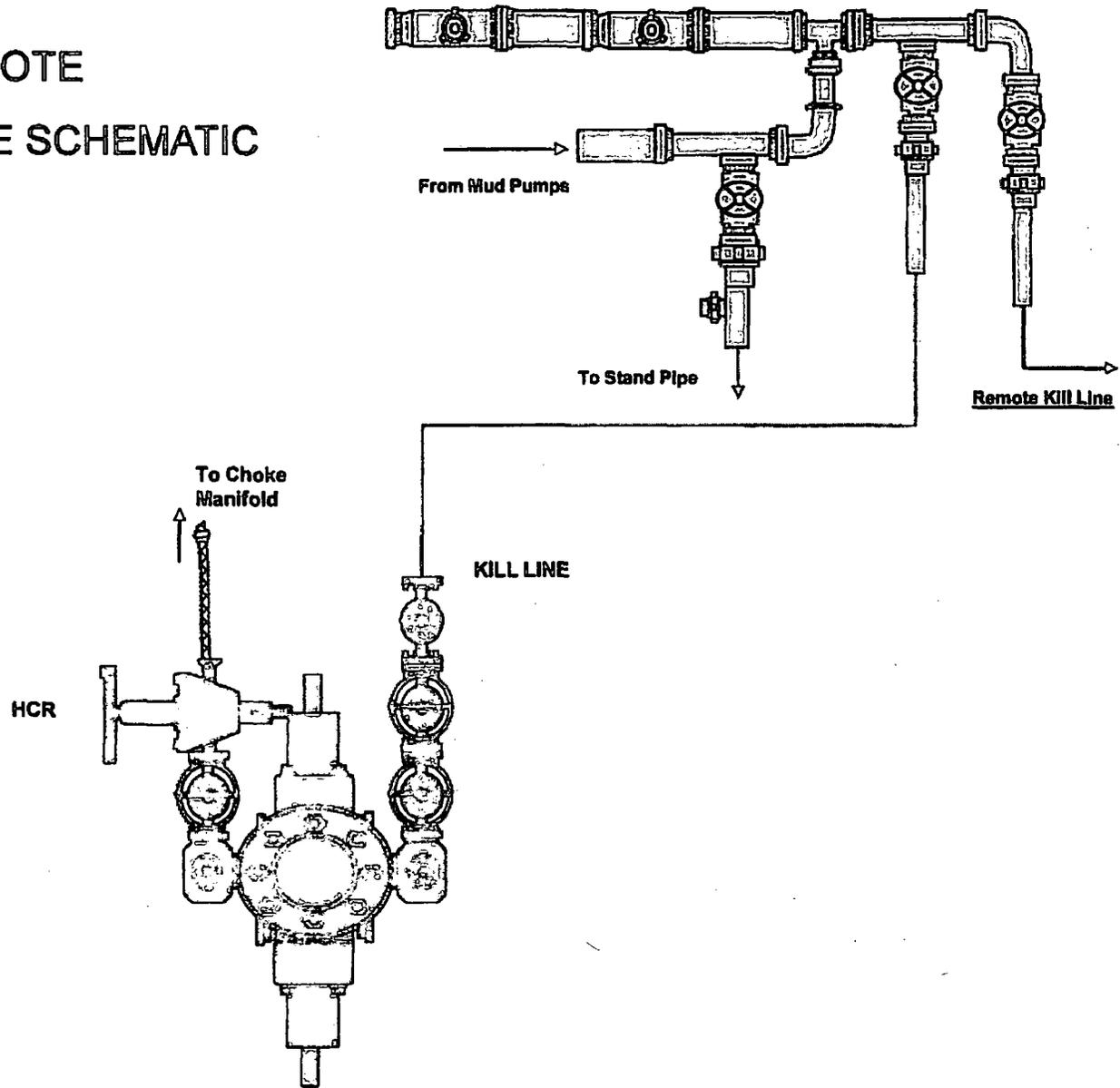
5M Choke Panel

Green
Indicates Open

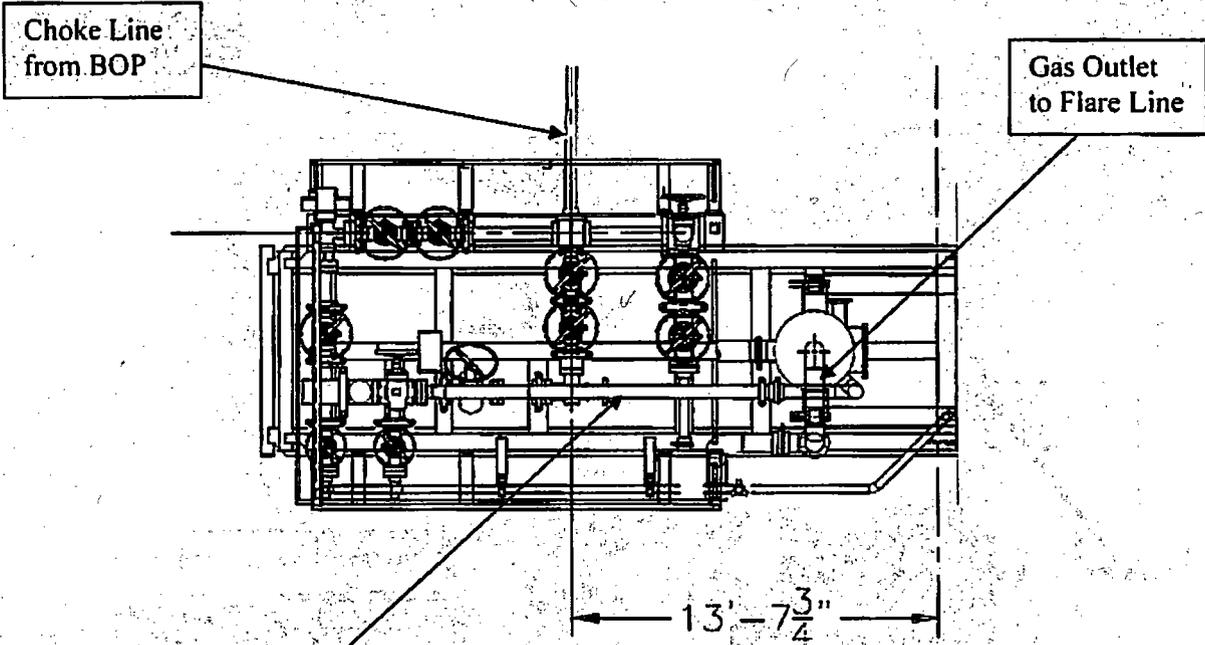
Red Indicates
Closed



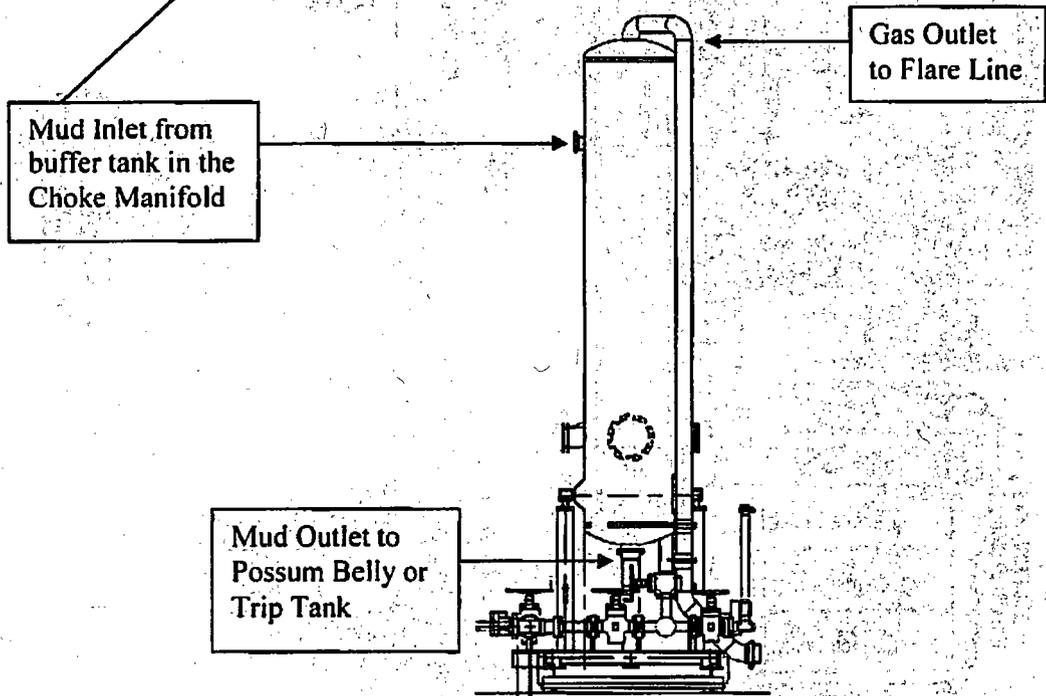
10M REMOTE KILL LINE SCHEMATIC



Choke Manifold - Gas Separator (Top View)



Choke Manifold - Gas Separator (Side View)

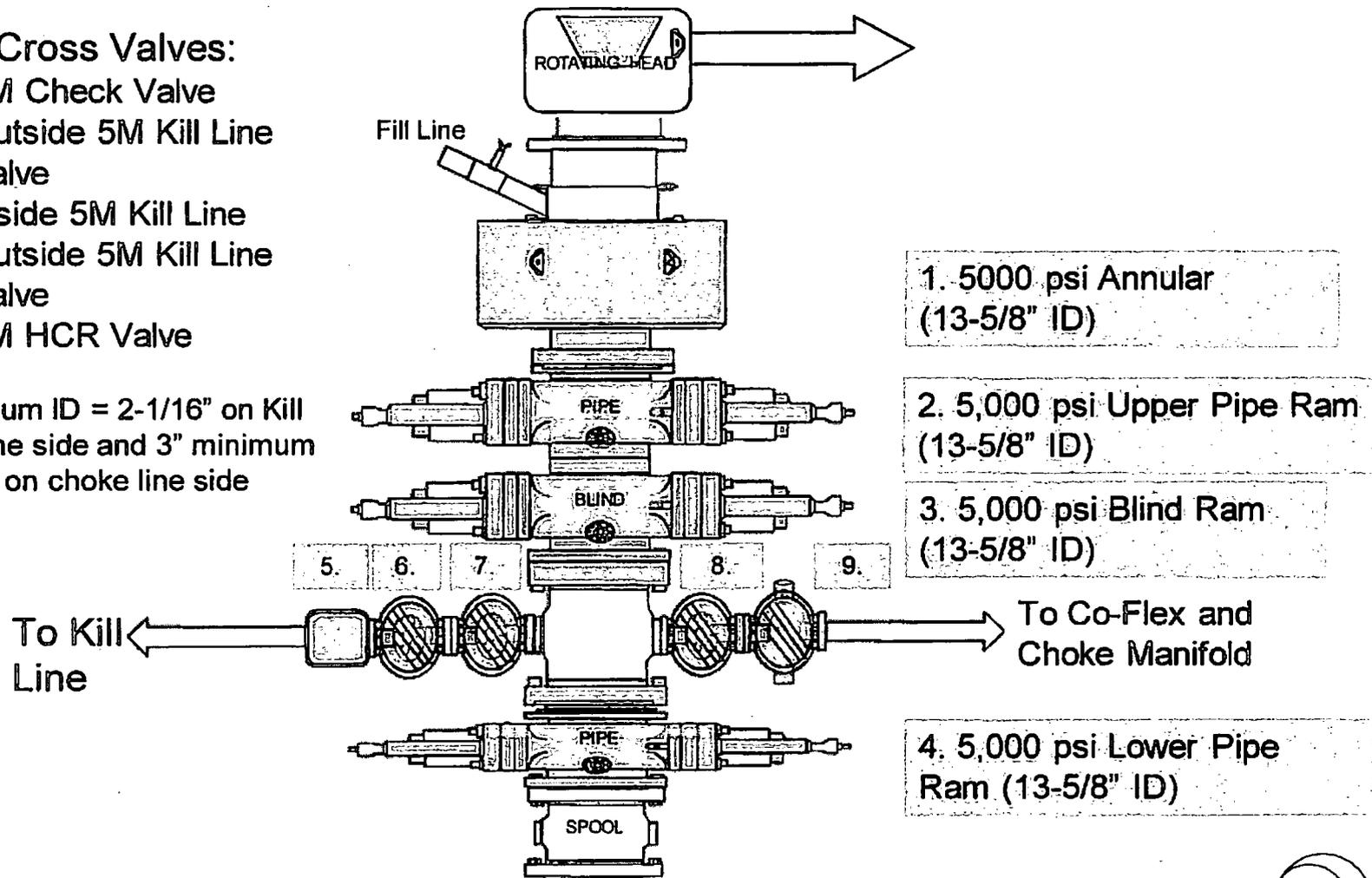


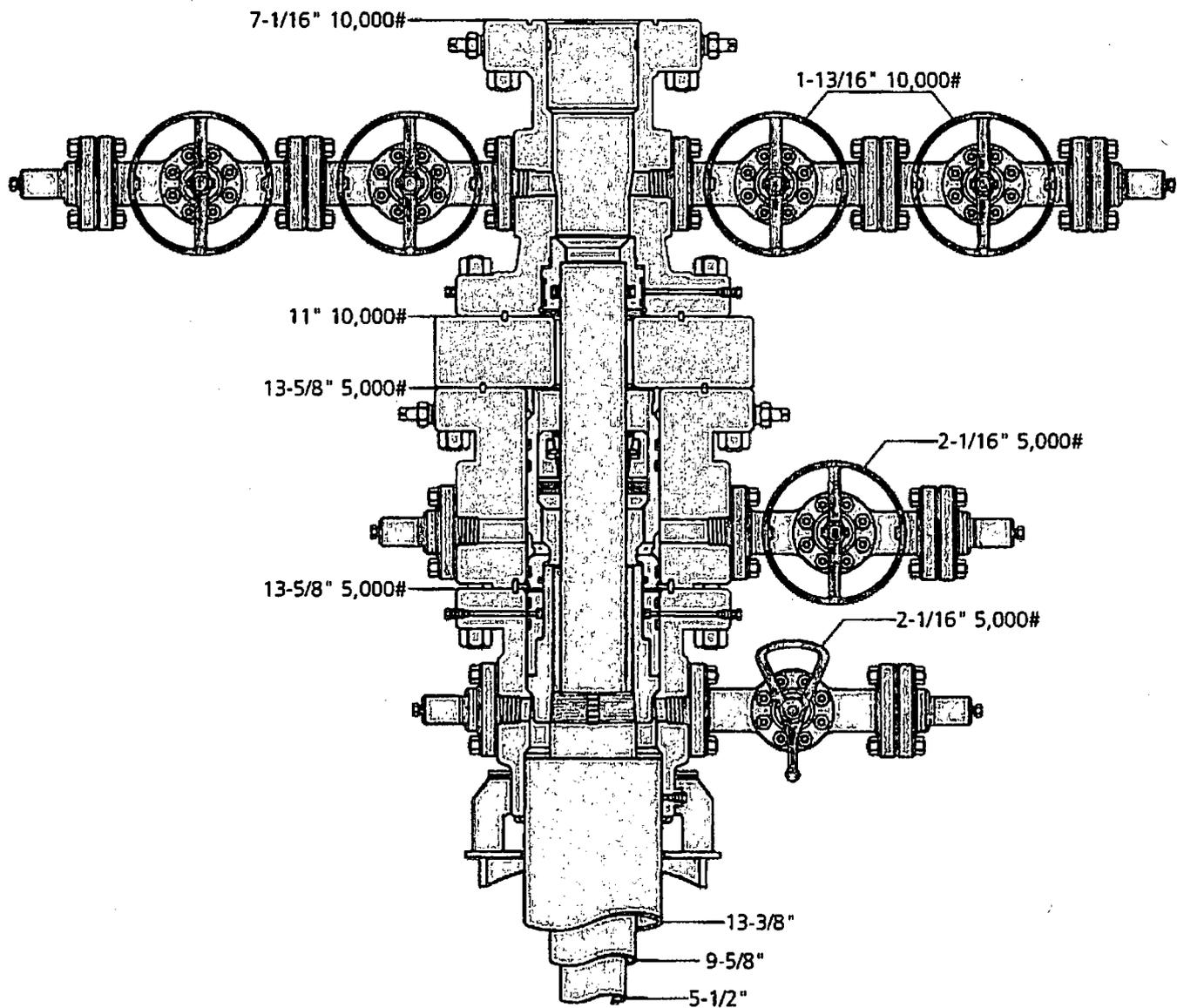
5M BOP Stack

Mud Cross Valves:

5. 5M Check Valve
6. Outside 5M Kill Line Valve
7. Inside 5M Kill Line Valve
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





13" 5K MBS SL2 Wellhead

CAMERON
A Schlumberger Company

| | | | |
|----------|---------|---------------|----------|
| NAME | DATE | WORKING PARTY | # |
| Jeanette | 7-12-16 | | J-9786-4 |



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 4 1/16" Flange end | 917 | 913 | AISI 4130 | T7998A | |
| | | | 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 Kit Quality Control Dept. (3) | | |

Coflex Hose Certification

Form No 100/12



Phoenix Beattie Corp

11525 Brittsboro Park Drive
Houston, TX 77041
Tel: (832) 327-0141
Fax: (832) 327-0148
E-mail: sa@phoenixbeattie.com
www.phoenixbeattie.com

Delivery Note

| | | | | | |
|---|-------------|-----------------------------|--|-------------|---|
| Customer Order Number | 370-369-001 | Delivery Note Number | 003078 | Page | 1 |
| Customer / Invoice Address | | | Delivery / Address | | |
| HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER TULSA, OK 74119 | | | 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...

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

Coflex Hose Certification

FH-4

Form No 100/12



Phoenix Beattie Corp

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

Delivery Note

| | | | | | |
|---|-------------|----------------------|--|------|---|
| Customer Order Number | 370-369-001 | Delivery Note Number | 003078 | Page | 2 |
| Customer / Invoice Address | | | Delivery / Address | | |
| HELMERICH & PAYNE INT'L DRILLING CO 1437 SOUTH BOULDER TULSA, OK 74119 | | | 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.

CERTIFICATE OF CONFORMITY

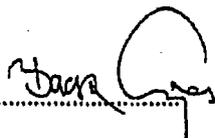
Supplier : CONTITECH RUBBER INDUSTRIAL KFT.
Equipment : 6 pcs. Choke and Kill Hose with installed couplings
Type : 3" x 10,67 m WP: 10000 psi
Supplier File Number : 412638
Date of Shipment : April. 2008
Customer : Phoenix Beattie Co.
Customer P.o. : 002491
Referenced Standards
/ Codes / Specifications : 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.
01

Date: 04. April. 2008

Position: Q.C. Manager

PERFORMANCE DATA

TMK UP DQX
Technical Data Sheet

5.500 in

20.00 lbs/ft

P-110

Tubular Parameters

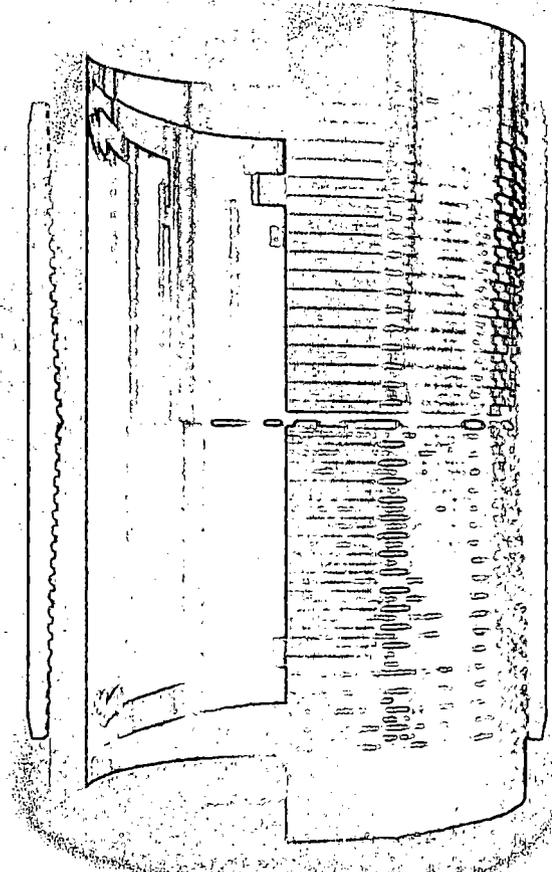
| | | | | | |
|---------------------|-------|-----------------|------------------------------|---------|-----|
| Size | 5.500 | in | Minimum Yield | 110,000 | psi |
| Nominal Weight | 20.00 | lbs/ft | Minimum Tensile | 125,000 | psi |
| Grade | P-110 | | Yield Load | 641,000 | lbs |
| PE Weight | 19.81 | lbs/ft | Tensile Load | 729,000 | 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 | in ² | | | |

Connection Parameters

| | | |
|------------------------------|---------|-----------------|
| Connection OD | 6.050 | in |
| Connection ID | 4.778 | in |
| Make-Up Loss | 4.122 | in |
| Critical Section Area | 5.828 | in ² |
| Tension Efficiency | 100.0 | % |
| Compression Efficiency | 100.0 | % |
| Yield Load In Tension | 641,000 | lbs |
| Min. Internal Yield Pressure | 12,600 | psi |
| Collapse Pressure | 11,100 | psi |

Make-Up Torques

| | | |
|---------------------|--------|--------|
| Min. Make-Up Torque | 11,600 | ft-lbs |
| Opt. Make-Up Torque | 12,900 | ft-lbs |
| Max. Make-Up Torque | 14,100 | ft-lbs |
| Yield Torque | 20,600 | ft-lbs |



Printed on: July-29-2014

NOTE:

The content of this Technical Data Sheet is for general information only and does not guarantee performance or imply fitness for a particular purpose, which only a competent drilling professional can determine considering the specific installation and operation parameters. Information that is printed or downloaded is no longer controlled by TMK IPSCO and might not be the latest information. Anyone using the information herein does so at their own risk. To verify that you have the latest TMK IPSCO technical information, please contact TMK IPSCO Technical Sales toll-free at 1-888-258-2000.





APD ID: 10400014735

Submission Date: 06/14/2017

Highlighted data reflects the most recent changes

Operator Name: OXY USA INCORPORATED

Well Name: MESA VERDE 18-7 FEDERAL COM

Well Number: 6H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

| Formation ID | Formation Name | Elevation | True Vertical Depth | Measured Depth | Lithologies | Mineral Resources | Producing Formation |
|--------------|-----------------|-----------|---------------------|----------------|------------------------------------|---------------------------------|---------------------|
| 1 | RUSTLER | 3570 | 909 | 909 | SHALE, DOLOMITE, ANHYDRITE | USEABLE WATER | No |
| 2 | SALADO | 2565 | 1005 | 1005 | SHALE, DOLOMITE, HALITE, ANHYDRITE | OTHER : SALT | No |
| 3 | CASTILE | 278 | 3292 | 3292 | ANHYDRITE | OTHER : salt | No |
| 4 | LAMAR | -1092 | 4662 | 4662 | LIMESTONE, SANDSTONE, SILTSTONE | NATURAL GAS, OIL, OTHER : BRINE | No |
| 5 | BELL CANYON | -1107 | 4677 | 4677 | SANDSTONE, SILTSTONE | NATURAL GAS, OIL, OTHER : BRINE | No |
| 6 | CHERRY CANYON | -1985 | 5555 | 5555 | SANDSTONE, SILTSTONE | NATURAL GAS, OIL, OTHER : BRINE | No |
| 7 | BRUSHY CANYON | -3326 | 6896 | 6913 | LIMESTONE, SANDSTONE, SILTSTONE | NATURAL GAS, OIL, OTHER : BRINE | No |
| 8 | BONE SPRING | -4919 | 8489 | 8531 | LIMESTONE, SANDSTONE, SILTSTONE | NATURAL GAS, OIL | Yes |
| 9 | BONE SPRING 1ST | -6092 | 9662 | 9721 | LIMESTONE, SANDSTONE, SILTSTONE | NATURAL GAS, OIL | Yes |
| 10 | BONE SPRING 2ND | -6364 | 9934 | 9993 | LIMESTONE, SANDSTONE, SILTSTONE | NATURAL GAS, OIL | Yes |

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 10517

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

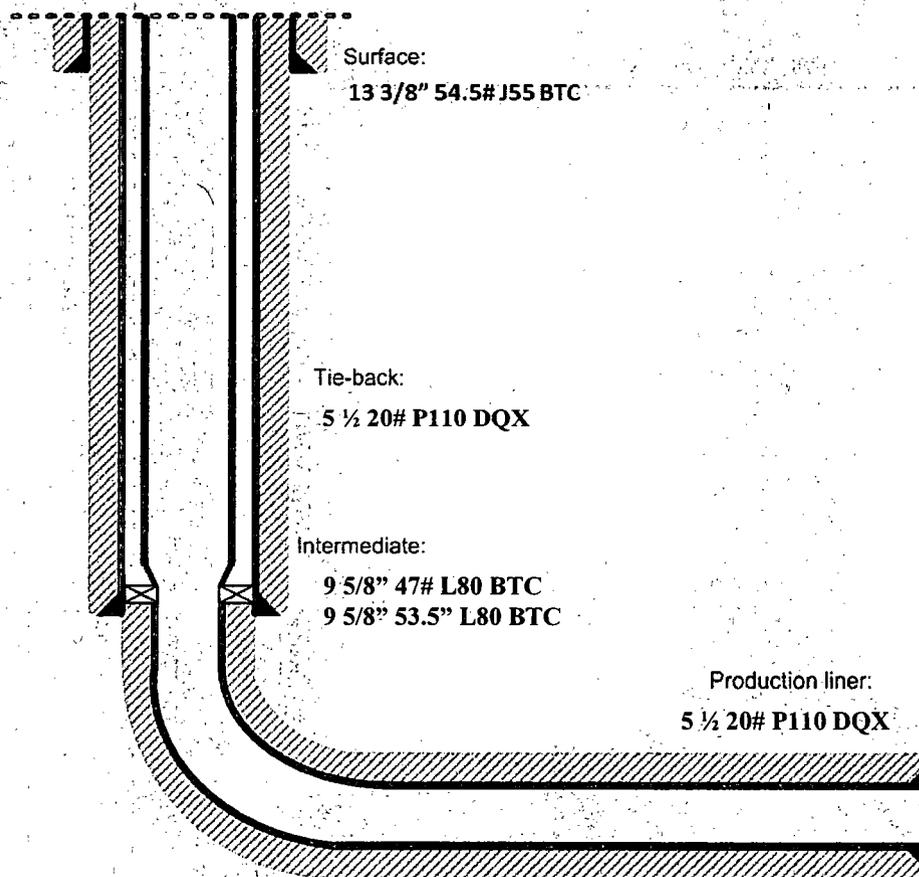
OXY USA Inc.
Mesa Verde 18-7 Federal Com 6H

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

- Drill 17-1/2" hole x 13-3/8" casing for surface section. Cement to surface.
- Drill 12-1/4" hole x 9-5/8" casing for intermediate section. Cement to surface.
- Drill 8-1/2" hole x 5-1/2" liner for production section. Cement to top of liner, 100' inside 9-5/8" shoe.
- Release drilling rig from location.
- Move in workover rig and run a 5-1/2" 20# P110 DQX 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:



5 1/2" 17# P110 DQX Tie-back string specifications: