

Oxy USA Inc. - Turkey Track 4-3 State 21H

1. Geologic Formations

TVD of target	7927'	Pilot Hole Depth	N/A
MD at TD:	18040'	Deepest Expected fresh water:	250'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	250	Water/Oil/Gas
Salado	353	
Tansill	968	
Yates	1085	
Seven Rivers	1495	
Queen	2,054	
Grayburg	2,470	
San Andres	2,805	
Delaware	2,928	
Bone Spring	3,875	Oil/Gas
2nd Bone Spring	7,575	Oil/Gas

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

2. Casing Program

Buoyant Buoyant										
17.5	0	400	13.375	54.5	J55	BTC	6.23	1.33	2.44	2.61
12.25	0	3000	9.625	36	J55	BTC	2.32	1.40	1.99	2.27
8.75	0	18040	5.5	20	P-110	DQX	2.09	1.28	2.21	2.39

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.

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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 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?	

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3. Cementing Program

Surface	307	14.2	1.48	7.405	7:20	Class C Cement, Accelerator
Intermediate Casing	767	12.9	1.69	9.009	10:50	Class C: Pozzolan Cement, Retarder, Dispersant
	156	14.8	1.33	6.366	8:56	Class C Cement, Retarder, Dispersant, Extenders
Production Casing	843	11.9	2.2	12.163	19:37	Class H Cement Pozzolan, Extenders, Dispersant, Retarder
	2352	13.2	1.38	6.686	11:06	LW Cement, Extender, Retarder, Dispersant

Surface	N/A	N/A	0	400	N/A	50%
Intermediate Casing	0	2500	2500	3000	75%	20%
Production Casing	2500	6888	6888	18040	75%	15%

Include Pilot Hole Cementing specs:

Pilot hole depth: N/A

KOP: N/A

N/A						
N/A						

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4. Pressure Control Equipment

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 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.

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5. Mud Program

Depth (ft)	Depth (ft)	Mud Type	Viscosity (cP)	Weight (ppm)	Other
0	400	Water-Based Mud	8.4-8.6	40-60	N/C
400	3000	Brine	9.8-10.0	35-45	N/C
3000	7388	Water-Based Mud	8.8-9.6	38-50	N/C
7388	18040	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 13.375" surface casing shoe with a saturated brine system from 400' - 3000', which is the intermediate casing point. At this point we will drill out the intermediate casing with a high viscosity mixed metal hydroxide system. We will drill with this system to the production casing TD @ 7388'.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
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6. Logging and Testing Procedures

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

No	Resistivity	
No	Density	
No	CBL	
Yes	Mud log	ICP - TD
No	PEX	

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7. Drilling Conditions

BH Pressure at deepest TVD	4468 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	152°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 three 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: 2037.3 bbls.

Attachments

- Directional Plan
- H2S Contingency Plan
- Flex III Attachments
- Spudder Rig Attachment
- Premium Connection Specs

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9. Company Personnel

<u>Name</u>	<u>Title</u>	<u>Office Phone</u>	<u>Mobile Phone</u>
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