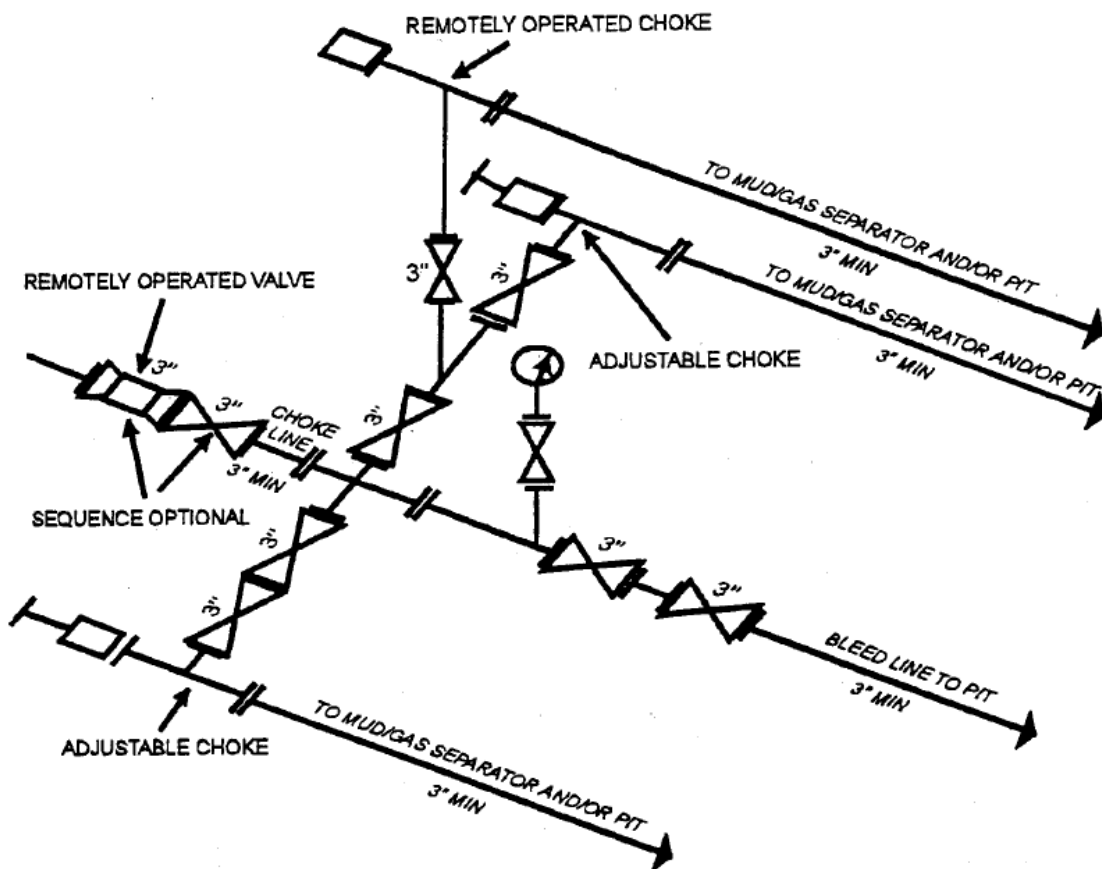
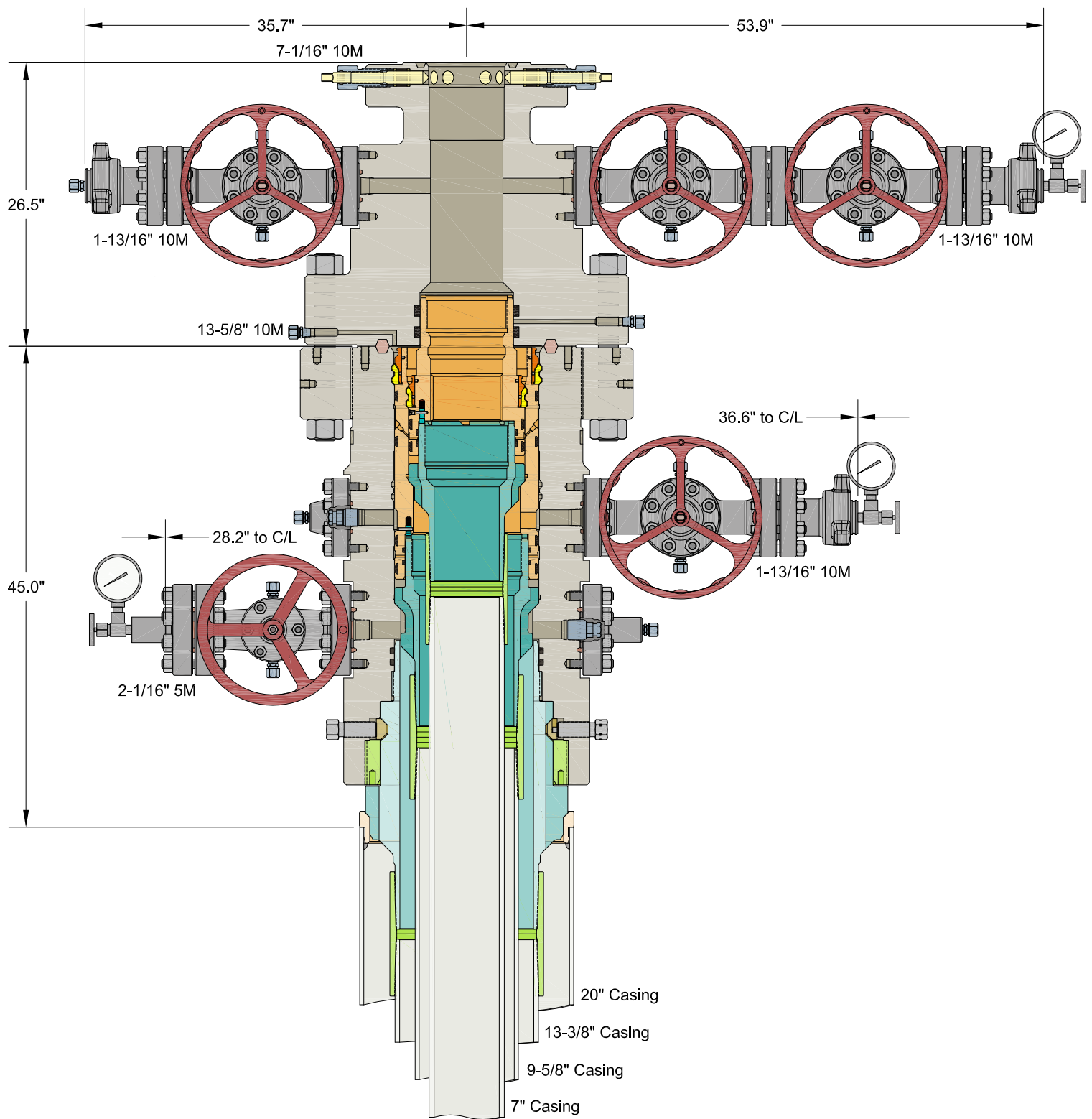


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Marathon Oil Permian LLC.

### 10M Manifold Diagram





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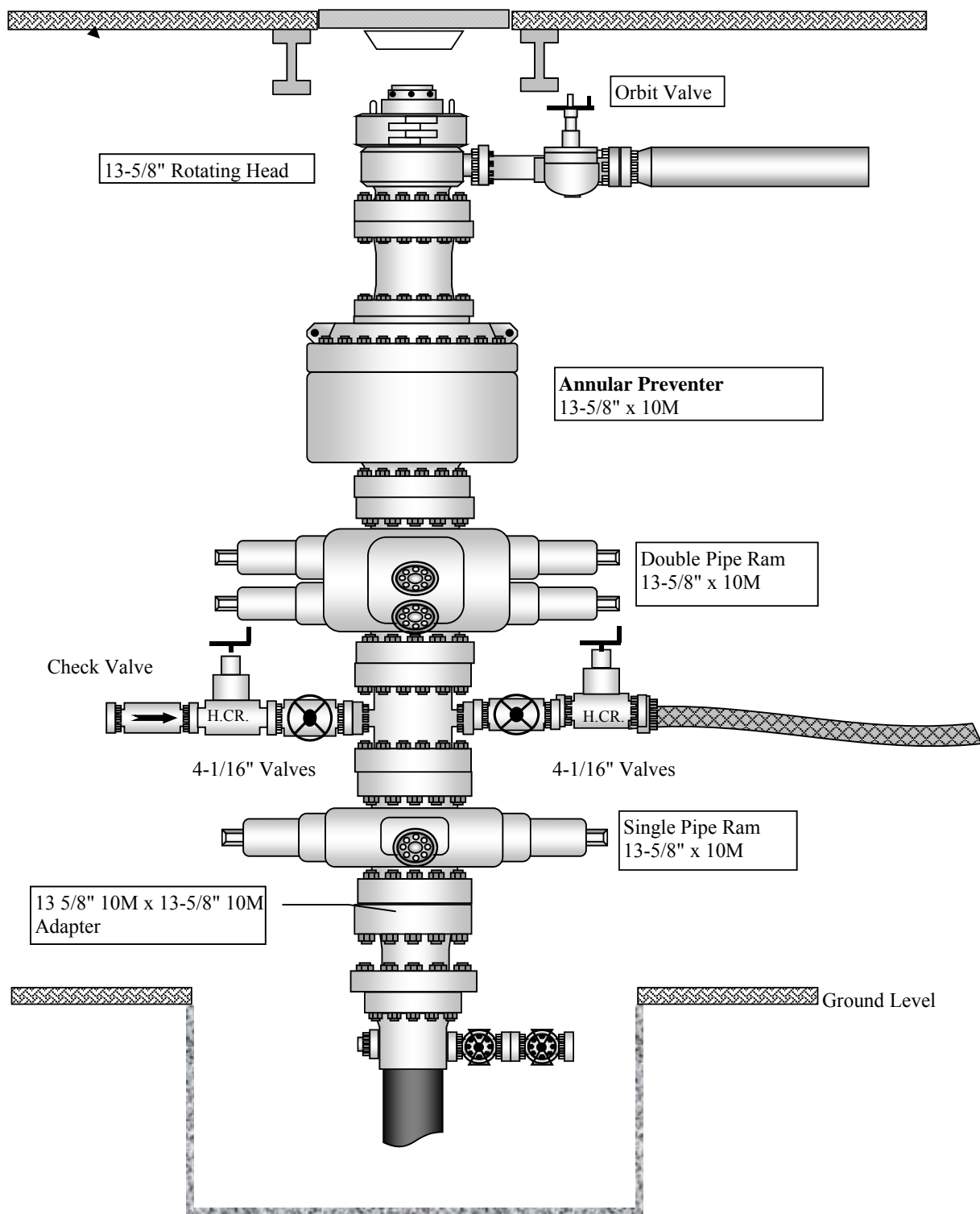
## CACTUS WELLHEAD LLC

## MARATHON OIL COMPANY

20" x 13-3/8" x 9-5/8" x 7" x (4-1/2") 10M MBU-3T-CFL-R Wellhead  
Assembly With 9-5/8" & 7" Rotating Mandrel Hangers With  
13-5/8" 10M x 7-1/16" 10M CTH-DBLHPS Tubing Head

DRAWN	THH	28JUL17
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DRAWING NO.	SDT-1123	

Operator : Marathon Oil



## Operator Name, Well Name/Number

### 4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12.25	13-5/8"	5M	Annular	X	50% of working pressure
			Blind Ram	X	
			Pipe Ram		
			Double Ram	X	
			Other*		
8.75	13-5/8"	10M	Annular	X	50% testing pressure
			Blind Ram	X	
			Pipe Ram		
			Double Ram	X	
			Other *		
6.125	13-5/8"	10M	Annular	X	50% testing pressure
			Blind Ram	X	
			Pipe Ram		
			Double Ram	X	
			Other *		

\*Specify if additional ram is utilized.

Pressure control will not be required for drilling the surface hole section. The section will be drilled with returns into the tinhorn cellar with a cemented bottom then pumped to the rig tanks to maintain a closed loop system with cuttings hauled to disposal. After drilling surface hole a 10M multibowl wellhead will be installed on the 13-3/8" surface casing. The wellhead will have a pressure rating of 5M until the 9-5/8" 1<sup>st</sup> intermediate casing is set to cover the salt interval. A packoff will be installed and tested bringing the wellhead rating to 10M before drilling the 8-3/4" 2<sup>nd</sup> intermediate hole section. The 1<sup>st</sup> intermediate through production section will be drilled using a 10M BOPE configuration. A 10M annular and 10M choke manifold configuration are included in the system per Onshore Order 2. See BOP and choke schematics for details. A load shoulder in the wellhead will allow a standard test plug to be used so the BOP testing can be completed to the 10M specification while the 5M seal is in the wellhead. Once the 9-5/8" casing is set with the packoff tested the system will be fully 10M compliant.

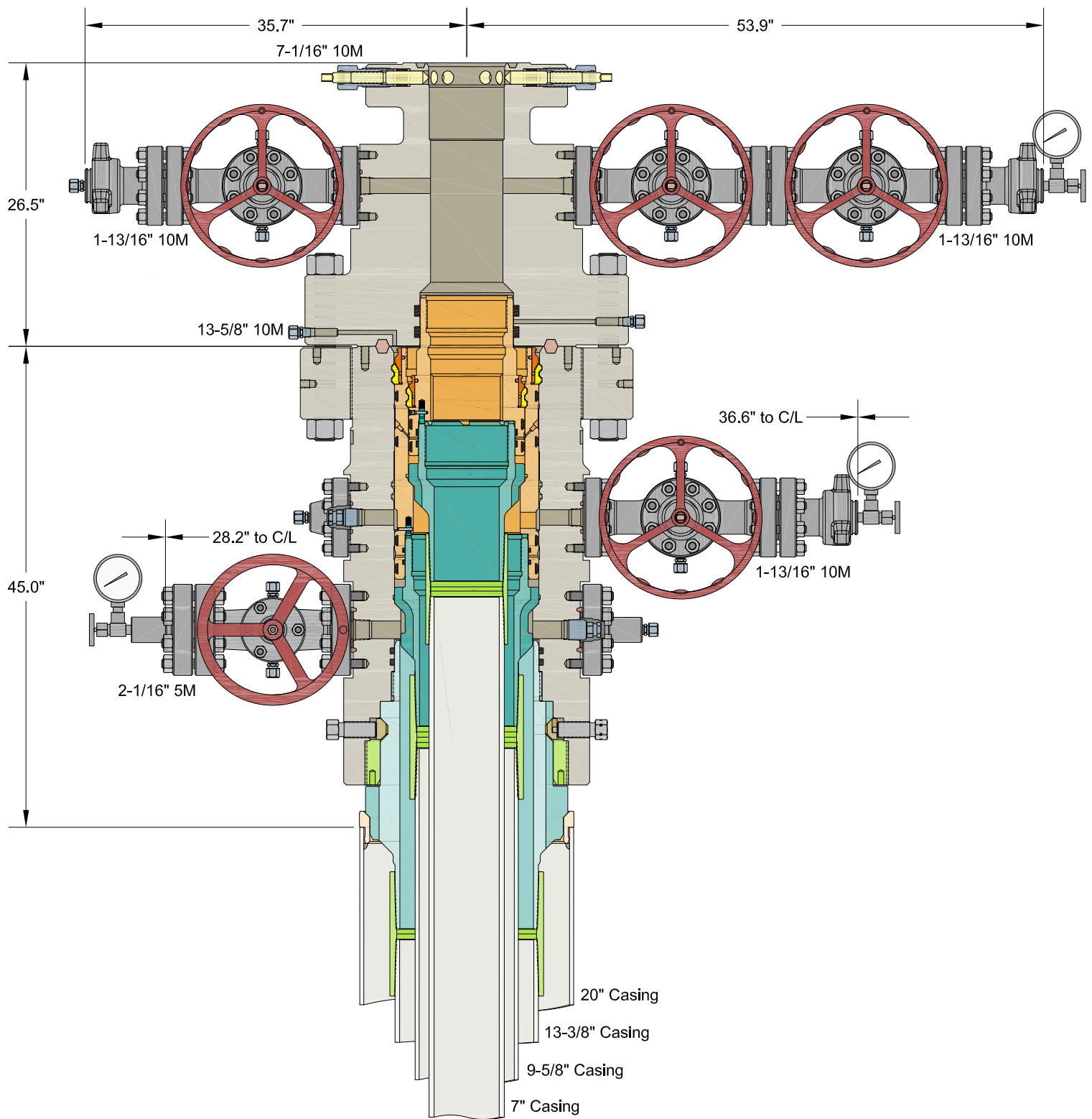
The equipment will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. Durations between tests will be consistent with Onshore order 2.

Pipe rams will be function tested per BLM requirements. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other

## Operator Name, Well Name/Number

accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

Y	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.
Y	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.
N	Are anchors required by manufacturer?
	<p>A variance is requested to use a multibowl wellhead. 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.</p> <p>A landing ring will be installed on the 20" conductor. A hanger will be installed on the surface casing that will land on the landing ring. The hanger will hold the surface casing in tension during the WOC duration. The wellhead will be installed on the surface casing. The 10M multibowl system will have a 10M flange but the seals on the surface casing string will only be rated to 5M. Once the 1<sup>st</sup> intermediate hole has been drilled the 1<sup>st</sup> intermediate casing string will be landed in the wellhead and cemented to surface. A 10M packoff will be landed in the head sealing against the hanger neck and the wellhead sealing area (wear bushings will be run while drilling). The wellhead seals will be tested via standard test ports in the wellhead. With the wellhead and BOP configuration now rated as 10M (with appropriate testing per Onshore order 2) the 2<sup>nd</sup> intermediate hole will be drilled and cased into the top of the Wolfcamp. A 10M packoff will be landed in the head sealing against the 7" casing hanger neck and the wellhead sealing area (wear bushings will be run while drilling). The system will continue to be rated as a 10M system and a 6-1/8" lateral will be drilled to TD.</p> <p>See attached schematic.</p>



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