

**APD ID:** 10400032712

**Submission Date:** 08/02/2018

Highlighted data  
reflects the most  
recent changes

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

[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	---	3315	0	0	OTHER : Surface	NONE	No
2	RUSTLER	2424	891	891	SANDSTONE	NONE	No
3	TOP SALT	2064	1251	1251	SALT	NONE	No
4	BELL CANYON	-1646	4961	4961	SANDSTONE	NATURAL GAS,OIL	No
5	BASE OF SALT	-1646	4961	4961	LIMESTONE	NONE	No
6	CHERRY CANYON	-2986	6301	6301	SANDSTONE	NATURAL GAS,OIL	No
7	BRUSHY CANYON	-4616	7931	7931	SANDSTONE	NATURAL GAS,OIL	No
8	BONE SPRING	-6126	9441	9441	SHALE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-7066	10381	10381	SANDSTONE	NATURAL GAS,OIL	No
10	BONE SPRING 2ND	-7606	10921	10921	SANDSTONE	NATURAL GAS,OIL	No
11	BONE SPRING 3RD	-8756	12071	12071	SANDSTONE	NATURAL GAS,OIL	No
12	WOLFCAMP	-9176	12491	12491	SHALE	NATURAL GAS,OIL	Yes
13	STRAWN	-11696	15011	15011	LIMESTONE	NATURAL GAS,OIL	No

## Section 2 - Blowout Prevention

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

**Pressure Rating (PSI):** 10M

**Rating Depth:** 12830

**Equipment:** BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below intermediate casing, a 13-5/8" BOP/BOPE system with a minimum rating of 10M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

**Requesting Variance?** YES

**Variance request:** A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart. Devon requests a variance to run a 5M annular on a 10M BOP system. See separately attached variance request and support documents in AFMSS.

**Testing Procedure:** A multibowl wellhead may be 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. 5M annular on 10M system will be tested to 100% of rated working pressure.

**Choke Diagram Attachment:**

10M\_BOPE\_DR\_CLS\_RKL\_20181205141538.pdf

**BOP Diagram Attachment:**

10M\_BOPE\_DR\_CLS\_RKL\_20181205141549.pdf

---

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

**Rating Depth:** 12706

**Equipment:** BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

**Requesting Variance?** YES

**Variance request:** A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

**Testing Procedure:** A multibowl wellhead may be 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.

**Choke Diagram Attachment:**

Jayhawk\_6\_7\_Fed\_9H\_5M\_BOPE\_\_CK\_20180802123126.pdf

**BOP Diagram Attachment:**

Jayhawk\_6\_7\_Fed\_9H\_5M\_BOPE\_\_CK\_20180802123137.pdf

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

### 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	900	0	900			900	J-55	40.5	STC	1.125	1.25	BUOY	1.6	BUOY	1.6
2	INTERMEDIATE	9.875	7.625	NEW	API	N	0	12274	0	12257			12274	P-110	29.7	OTHER - BTC	1.125	1.25	BUOY	1.6	BUOY	1.6
3	INTERMEDIATE	8.75	7.625	NEW	API	N	12274	12723	12257	12706			449	P-110	29.7	OTHER - FLUSHMAX	1.125	1.25	BUOY	1.6	BUOY	1.6
4	PRODUCTION	6.75	5.5	NEW	API	N	0	17729	0	12830			17729	P-110	20	OTHER - VAM SG	1.125	1.25	BUOY	1.6	BUOY	1.6

#### Casing Attachments

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

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Jayhawk\_6\_7\_Fed\_9H\_Surf\_Csg\_Ass\_20180802123500.pdf

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

#### Casing Attachments

---

**Casing ID:** 2      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Jayhawk\_6\_7\_Fed\_9H\_Int\_Csg\_Ass\_20180802123552.pdf

---

**Casing ID:** 3      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Jayhawk\_6\_7\_Fed\_9H\_Int\_Csg\_Ass\_20180802123729.pdf

---

**Casing ID:** 4      **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Jayhawk\_6\_7\_Fed\_9H\_Prod\_Csg\_Ass\_20180802123805.pdf

---

#### Section 4 - Cement

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	0	0	0	0	0		SEE DRLG PLAN	N/A

SURFACE	Lead		0	900	560	1.34	14.8	750	50	CLASS C	1% Calcium Chloride
---------	------	--	---	-----	-----	------	------	-----	----	---------	---------------------

INTERMEDIATE	Lead		0	8723	348	3.27	9	1138	30	TUNED	Tuned Light
INTERMEDIATE	Tail		8723	12723	656	1.6	13.2	1049	30	CLASS H	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		12523	17729	408.31	1.33	13.2	543	25	Class H	0.125 lbs/sack Poly-E-Flake

## 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 will be kept on location at all times.

**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring

## Circulating Medium Table

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

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
0	900	SPUD MUD	8.33	9				2			
900	1272 3	SALT SATURATED	9	10				2			
900	1272 3	SALT SATURATED	9	10				2			
1272 3	1772 9	OIL-BASED MUD	10	12				12			

## Section 6 - Test, Logging, Coring

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

Will run GRMWD from TD to from KOP. Cement bond logs will be run in vertical to determine top of cement. Stated logs run will be in the Completion Report and submitted to the BLM.

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

CALIPER,CBL,DS,GR,MUDLOG

**Coring operation description for the well:**

N/A

## Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 8006

**Anticipated Surface Pressure:** 5183.39

**Anticipated Bottom Hole Temperature(F):** 180

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

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

Jayhawk\_6\_7\_Fed\_9H\_H2S\_Plan\_20180802124010.pdf

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** JAYHAWK 6-7 FED

**Well Number:** 9H

## Section 8 - Other Information

### Proposed horizontal/directional/multi-lateral plan submission:

Jayhawk\_6\_7\_FED\_09H\_DIR\_SVY\_20180802124029.pdf

### Other proposed operations facets description:

MULTI-BOWL VERBIAGE  
MULTI-BOWL WELLHEAD - 2 VARIATIONS OF 10M  
10M ANNULAR VARIANCE REQUEST DOC & SCHEMATIC  
CLOSED LOOP DESIGN PLAN  
DRILLING PLAN  
AC REPORT  
CO-FLEX HOSE  
SPUDDER RIG REQUEST  
GCP FORM  
SPEC SHEETS - 5

### Other proposed operations facets attachment:

5.5\_x\_20\_P110\_EC\_VAMSG\_20180802124328.pdf  
5.5\_x\_20\_P110\_EC\_VAMTOP\_HT\_20180802124328.pdf  
7.625\_29.70\_P110\_Flushmax\_20180802124329.pdf  
Jayhawk\_6\_7\_FED\_09H\_AC\_Report\_20180802124330.pdf  
8.625\_32\_P110EC\_VAM\_FJL\_NA\_7.875\_SD\_20180802124329.PDF  
8.625\_32\_P110EC\_7.875\_SD\_20180802124329.pdf  
Jayhawk\_6\_7\_FED\_09H\_Plot\_20180802124331.pdf  
Jayhawk\_6\_7\_Fed\_9H\_Clsd\_Loop\_20180802124333.pdf  
Jayhawk\_6\_7\_Fed\_9H\_GCP\_Form\_20180802124335.pdf  
Jayhawk\_6\_7\_Fed\_9H\_MB\_Wellhd\_5M\_Use\_for\_Wolfcamp\_5M\_Only\_20180802124337.pdf  
Jayhawk\_6\_7\_Fed\_9H\_MB\_Wellhd\_10M\_2\_20180802124338.PDF  
Jayhawk\_6\_7\_Fed\_9H\_Spudder\_Rig\_Info\_20180802124340.pdf  
Jayhawk\_6\_7\_Fed\_9H\_MB\_Wellhd\_10M\_20180802124339.pdf  
MB\_Verb\_5M\_Alt\_20181212155507.pdf  
10M\_BOPE\_DR\_CLS\_RKL\_20181212155508.pdf  
Jayhawk\_6\_7\_Fed\_9H\_MB\_Verb\_10M\_R\_20181217150913.pdf  
Jayhawk\_6\_7\_Fed\_9H\_Drilling\_Doc\_R3\_20190114130240.pdf  
MB\_Verb\_5M\_Alt\_R\_20190114130612.pdf

### Other Variance attachment:

Jayhawk\_6\_7\_Fed\_9H\_Co\_flex\_20180802125346.pdf  
Jayhawk\_6\_7\_Fed\_9H\_10M\_BOPE\_DR\_and\_CLS\_Exc\_Schem\_Ann\_Exc\_20190104120523.pdf  
Jayhawk\_6\_7\_Fed\_9H\_Annular\_Variance\_Request\_20190104122500.pdf





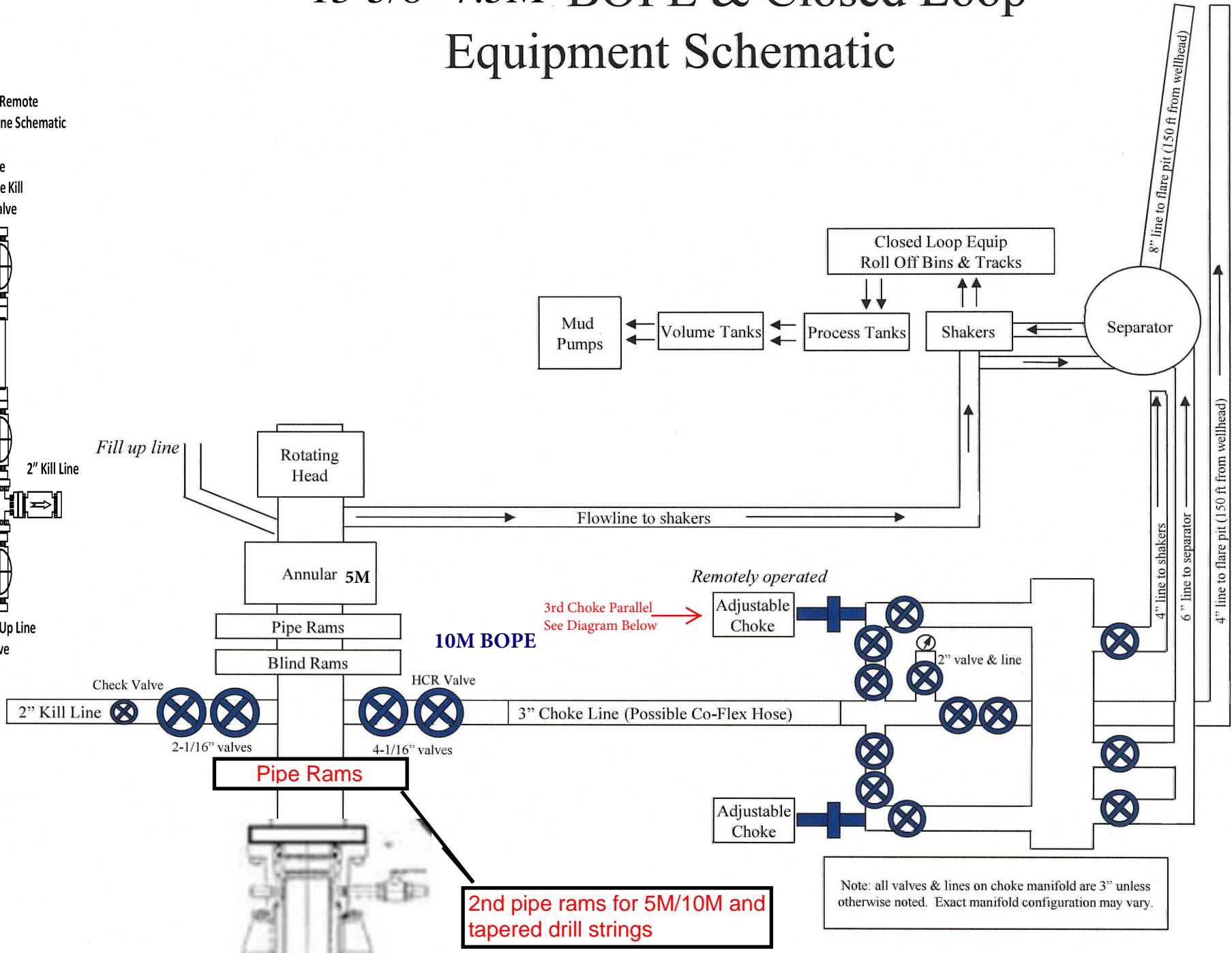
# 13-5/8" 7.5M BOPE & Closed Loop Equipment Schematic

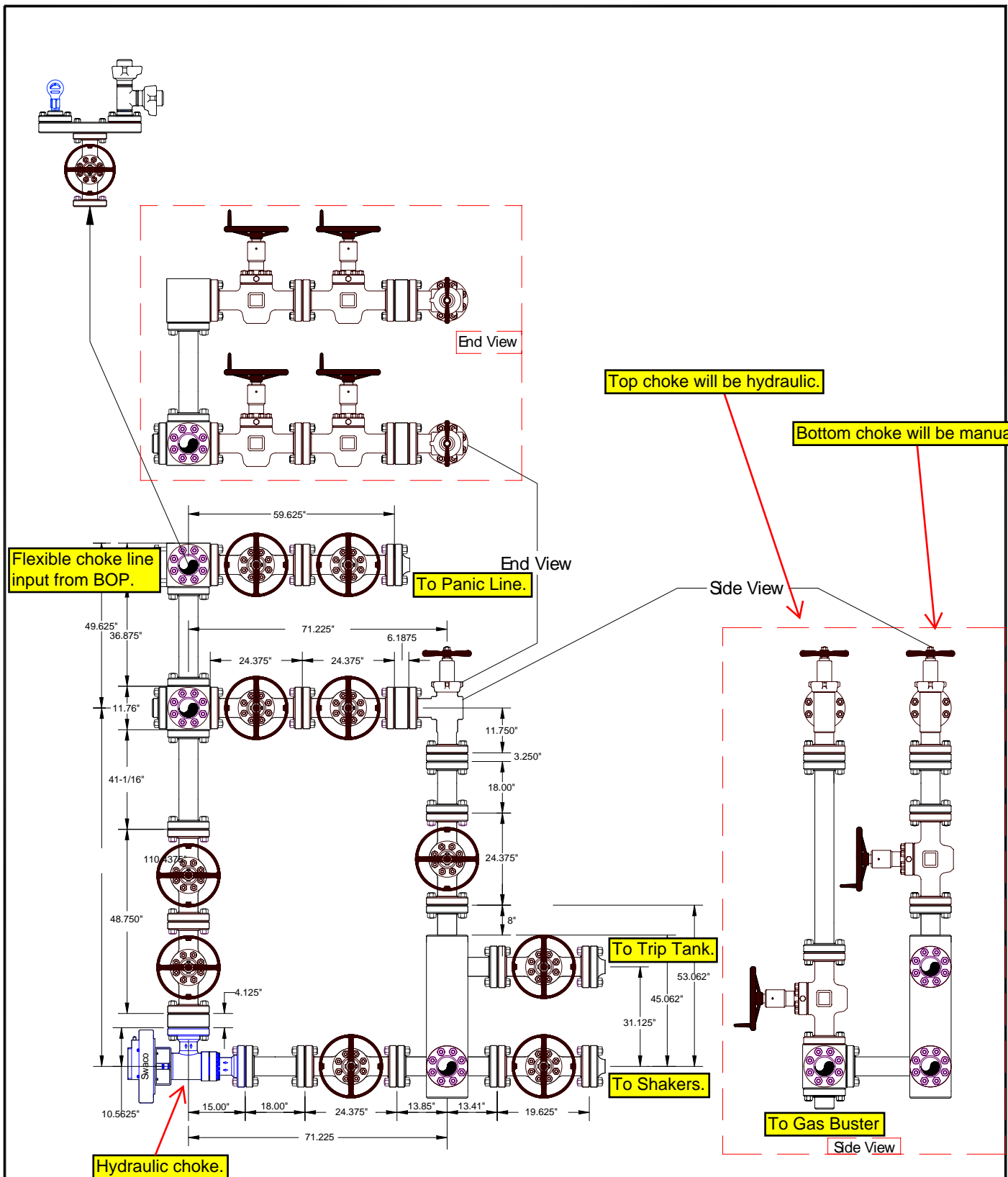
10M Remote  
Kill Line Schematic

Outside  
Remote Kill  
Line Valve



Fill Up Line  
Valve



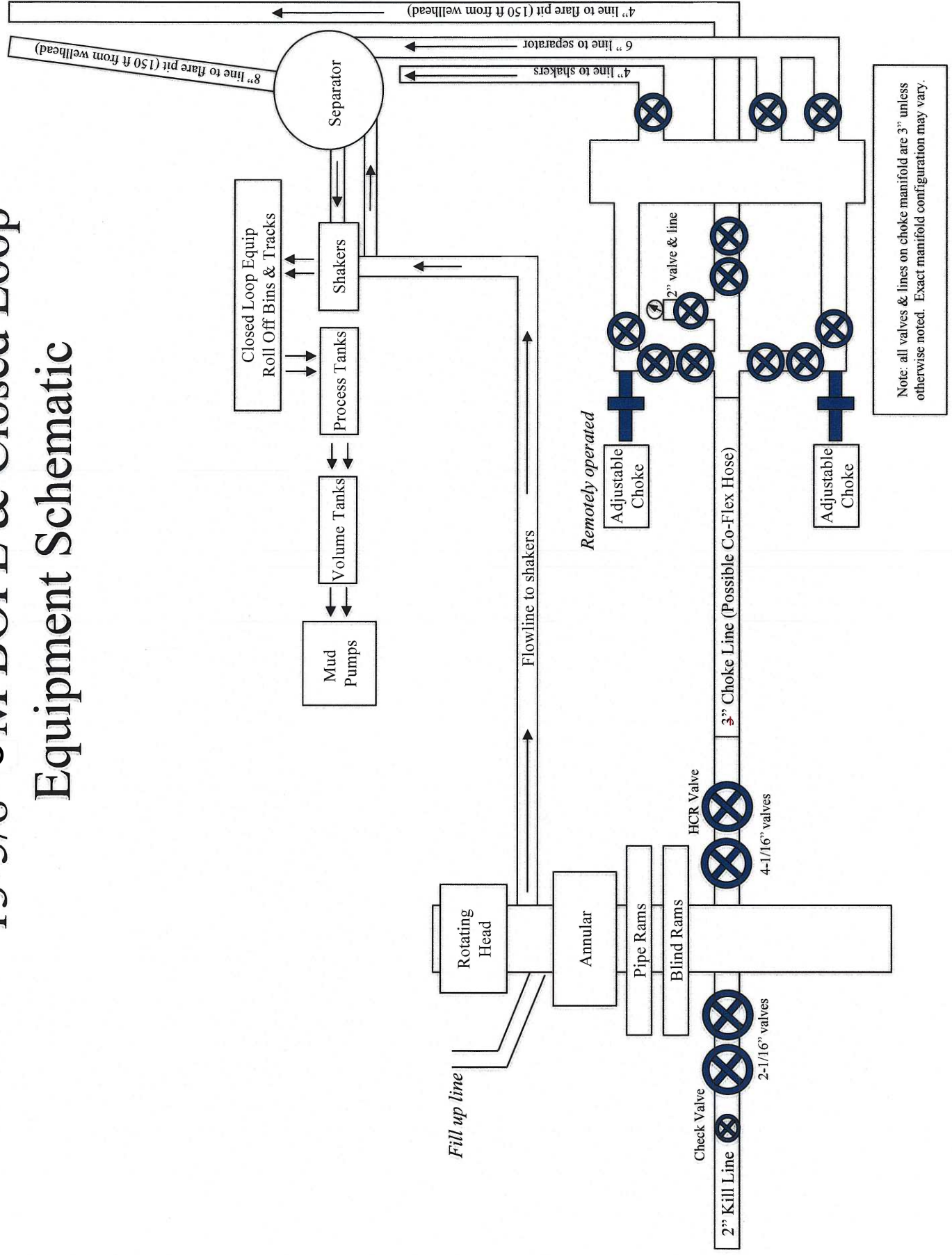


Helmerich & Payne  
Flex 3 Rig w/ 3 Chokes



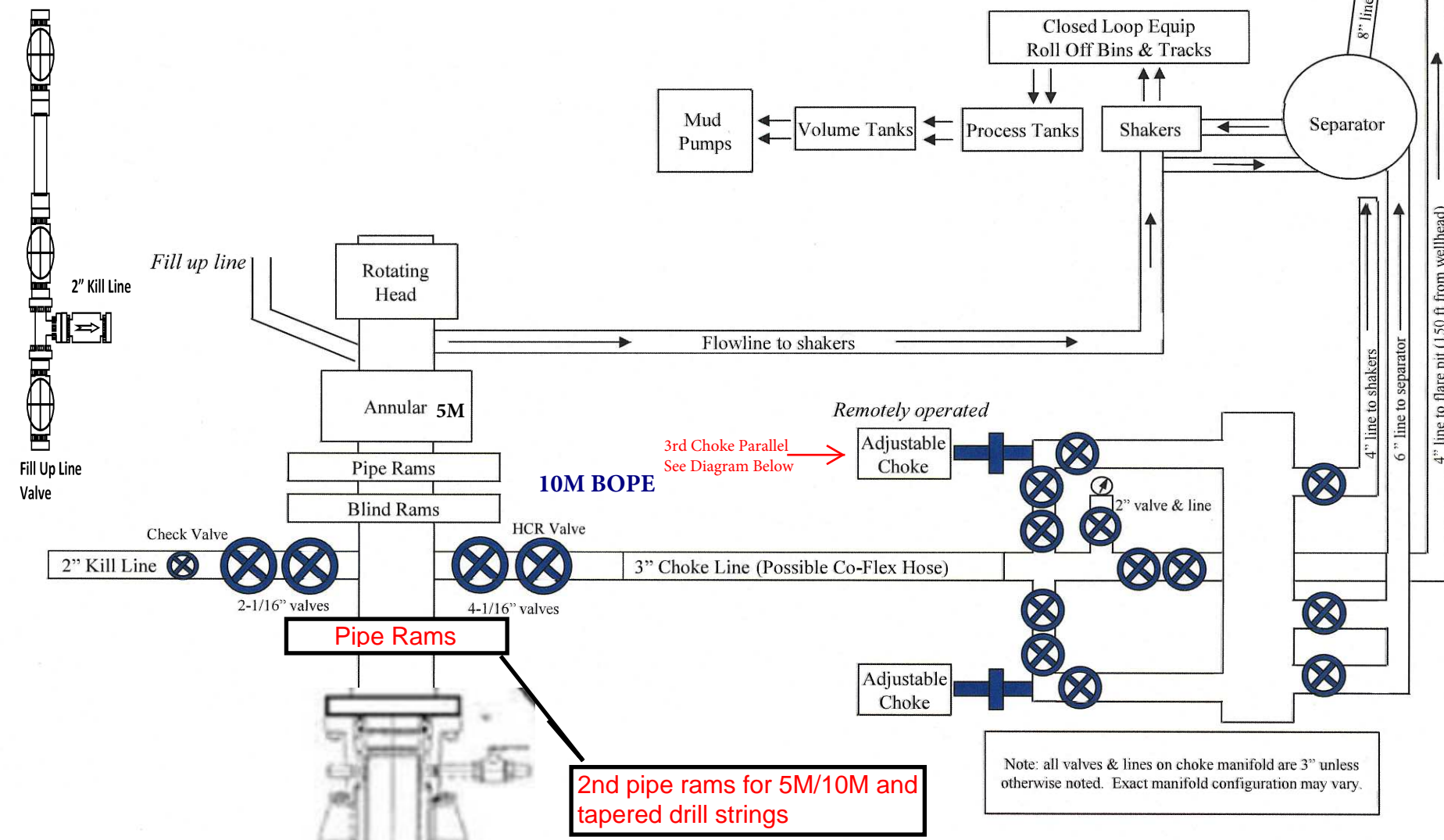
Name: Mike Potts	Date: 6-23-2010	Working Pressure: 10M	J-5132-E
------------------	-----------------	-----------------------	----------

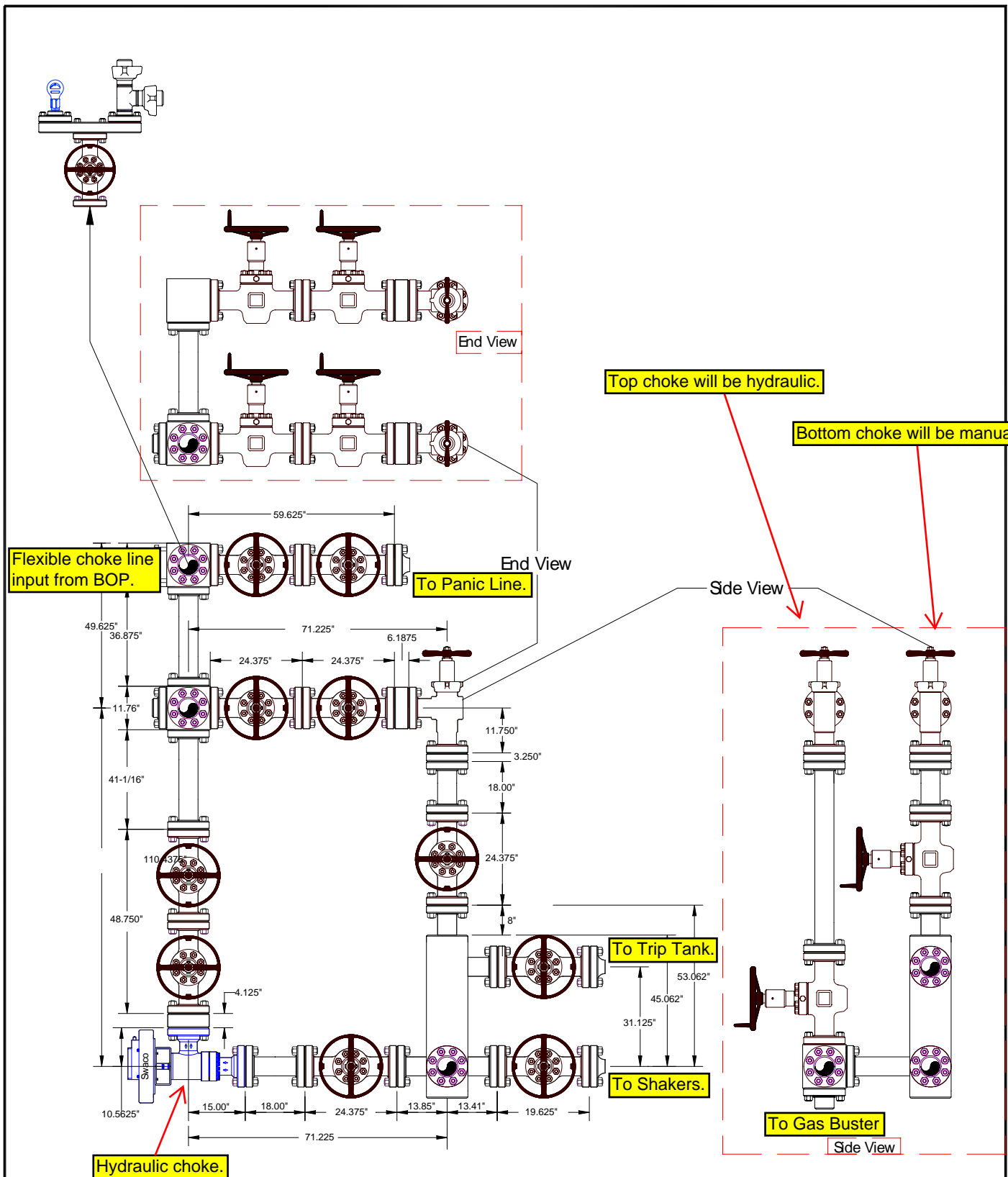
# 13-5/8" 5M BOPE & Closed Loop Equipment Schematic



## 10M Remote Kill Line Schematic

Outside  
Remote Kill  
Line Valve





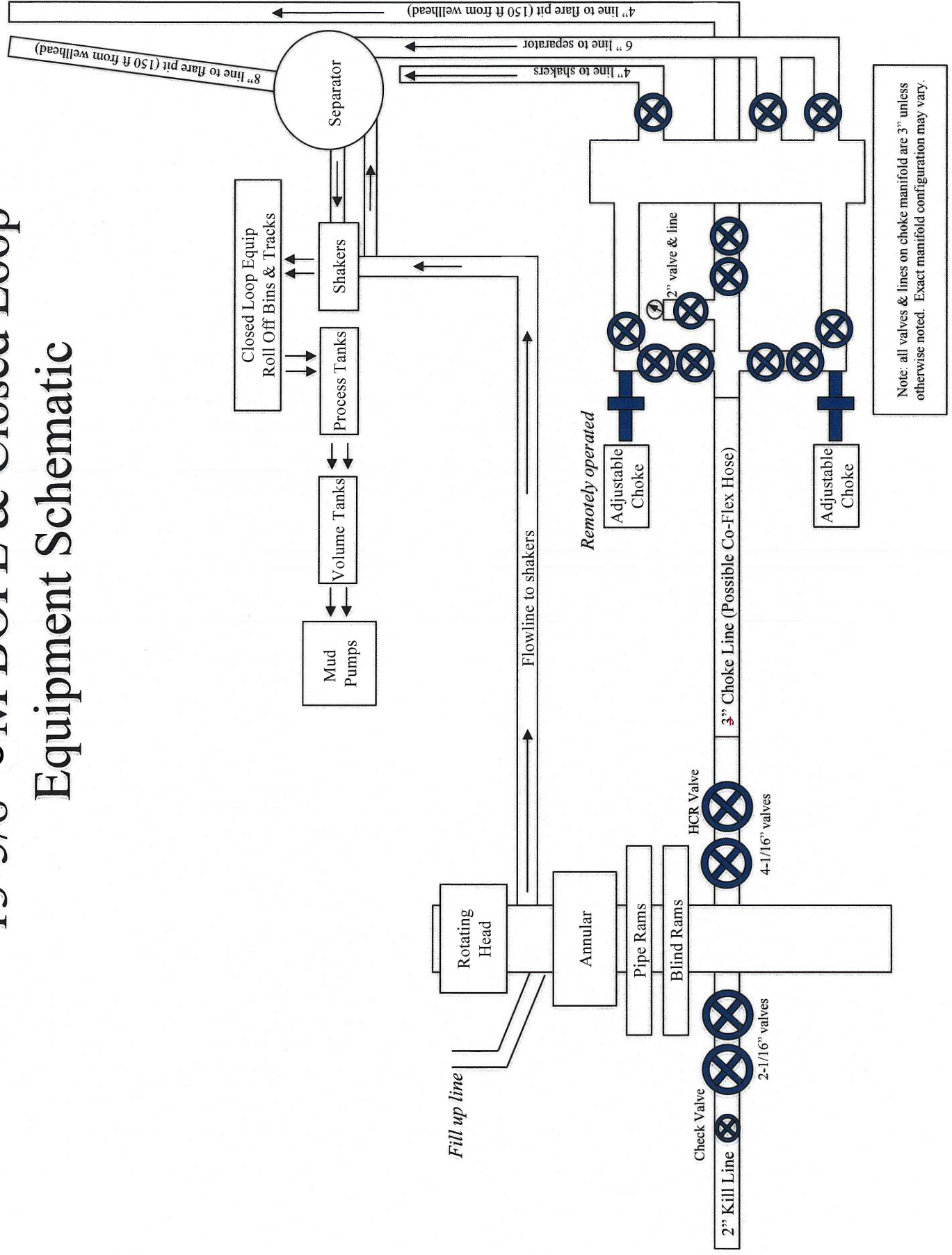
Helmerich & Payne  
Flex 3 Rig w/ 3 Chokes



Name: Mike Potts	Date: 6-23-2010	Working Pressure: 10M	J-5132-E
------------------	-----------------	-----------------------	----------



# 13-5/8" 5M BOPE & Closed Loop Equipment Schematic



## Devon Energy, Jayhawk 6-7 Fed 9H

### 1. Geologic Formations

TVD of target	12,830'	Pilot hole depth	N/A
MD at TD:	17,729'	Deepest expected fresh water:	890'

### Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
RUSTLER	891		
TOP SALT	1251		
BASE OF SALT	4961		
BELL CANYON	4961		
CHERRY CANYON	6301		
BRUSHY CANYON	7931		
BONE SPRING	9441		
BONE SPRING 1ST	10381		
BONE SPRING 2ND	10921		
BONE SPRING 3RD	12071		
WOLFCAMP	12491		
STRAWN	15011		

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

## Devon Energy, Jayhawk 6-7 Fed 9H

### 2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
14.75"	0	900'	10.75"	40.5	J-55	STC	1.125	1.25	1.6
9.875"	0	12,257'	7.625"	29.7	P110	BTC	1.125	1.25	1.6
8.75"	12,257'	12,706'	7.625"	29.7	P110	Flushmax III	1.125	1.25	1.6
6.75"	0	17,729'	5.5"	20	P110	Vam SG	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 7-5/8" flush casing in the 8-3/4" hole and the 5-1/2" SF/Flush casing in the 6-3/4" hole.

#### Casing Program (Alternate Design)

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	900'	13.375"	48	H-40	STC	1.125	1.25	1.6
10.625"	0	5000'	8.625"	32	P110EC	BTC	1.125	1.25	1.6
9.875"	5000'	12,706'	8.625"	32	P110EC	VAM FJL	1.125	1.25	1.6
7.875"	0	17,729'	5.5"	20	P110	Vam SG	1.125	1.25	1.6

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Rustler top will be validated via drilling parameters (i.e. reduction in ROP) and surface casing setting depth revised accordingly if needed.

A variance is requested to wave the centralizer requirement for the 8-5/8" flush casing in the 9-7/8" hole and the 5-1/2" SF/Flush casing in the 7-7/8" hole.

8-5/8" Intermediate casing will be kept fluid filled.

	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.	N
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



## Devon Energy, Jayhawk 6-7 Fed 9H

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 <sup>rd</sup> 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 <sup>nd</sup> 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 (Primary Design)

Casing	# Sks	Wt. lb/ gal	H <sub>2</sub> O gal/sk	Yld ft <sup>3</sup> / sack	Slurry Description
Surface	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Int	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Intermediate Two-Stage (Bradenhead)	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS
Production	See AFMSS	See AFMSS	See AFMSS	See AFMSS	See AFMSS

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
10-3/4" Surface	0'	50%
7-5/8" Intermediate	0'	30%
5-1/2" Production Casing	200' Tie-Back to intermediate	25%

## Devon Energy, Jayhawk 6-7 Fed 9H

### Cementing Program (Alternate Design)

Casing	# Sk	Wt. lb/ gal	H <sub>2</sub> O gal/sk	Yld ft <sup>3</sup> / sack	Slurry Description
Surface	823	14.8	6.34	1.34	Tail: Class C Cement + 1% Calcium Chloride
Int	436	9	13.5	3.27	Lead: Tuned Light® Cement
	482	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Intermediate Two-Stage (Bradenhead)	1000	14.8	6.32	1.33	Class C Cement + 0.125 lbs/sack Poly-E-Flake
	482	13.2	5.31	1.6	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
Production	800	14.8	6.32	1.33	Class H Cement + 0.125 lbs/sack Poly-E-Flake

If a DV tool is used, depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	50%
8-5/8" Intermediate	0'	30%
5-1/2" Production Casing	200' Tie-Back to intermediate	25%

#### 4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
---	--

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Intermediate	13-5/8"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram	X	
			Double Ram	X	
			Other*		
Production	13-5/8"	10M	Annular (5M)	X	100% of rated working pressure

## Devon Energy, Jayhawk 6-7 Fed 9H

			Blind Ram	X	10M
			Pipe Ram	X	
			Double Ram	X	
			Other*		
			Annular		
			Blind Ram		

\*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.

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.
Y	Are anchors required by manufacturer?
Y	<p>A multibowl wellhead may be 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.</p> <p>Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.</p> <ul style="list-style-type: none"> <li>Wellhead will be installed by wellhead representatives.</li> <li>If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.</li> <li>Wellhead representative will install the test plug for the initial BOP test.</li> <li>Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered</li> </ul>

## Devon Energy, Jayhawk 6-7 Fed 9H

	<p>whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.</p> <ul style="list-style-type: none"> <li>• If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.</li> <li>• Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.</li> <li>• Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.</li> </ul> <p>After running surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.</p> <p>13-5/8" BOP/BOPE system will have been tested to 10M rating prior to drilling out intermediate casing.</p> <p>The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 10,000 psi WP.</p> <p>Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.</p> <p>Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns.</p> <p>Devon requests a variance to run a 5M annular on a 10M BOP system. See separately attached variance request and support documents in AFMSS.</p>
--	---

### 5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surface Casing Shoe	FW Gel	8.6-8.8	28-34	N/C
Surface Casing Shoe	Intermediate Casing Shoe	DBE/Brine	9-10	34-65	N/C - 6
Intermediate Casing Shoe	TD	Oil Based Mud	10-12	45-65	N/C - 6

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

## Devon Energy, Jayhawk 6-7 Fed 9H

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

### 6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL 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.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned	Interval
	Resistivity
	Density
X	CBL
X	Mud log
	PEX

### 7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7000 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H <sub>2</sub> S) monitors will be installed prior to drilling out the surface shoe. If H <sub>2</sub> S 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	H <sub>2</sub> S is present
Y	H <sub>2</sub> S Plan attached

### 8. Other facets of operation

Is this a walking operation? Potentially

1. In the event the spudder rig is unable to drill the surface holes the drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.

## Devon Energy, Jayhawk 6-7 Fed 9H

2. The drilling rig will then batch drill the intermediate sections with either OBM or cut brine and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

1. Spudder rig will move in and drill surface hole.
  - a. Rig will utilize fresh water based mud to drill 14 3/4" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. 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).
3. The wellhead will be installed and tested once the 10-3/4" surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
  - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

☒ Directional Plan

☐ Other, describe

A multibowl wellhead may be 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.

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

- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 5M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 5M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a 10M system will be installed and tested, with 5M annular being tested to 100% of rated working pressure."

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 10,000 psi WP.

Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.