APD ID: 10400030793 **Submission Date:** 06/15/2018

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400030793 **Tie to previous NOS?** **Submission Date:** 06/15/2018

BLM Office: CARLSBAD **User:** Melissa Luke **Title:** Sr. Regulatory Analyst

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM126972 **Lease Acres:** 80

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** CENTENNIAL RESOURCE PRODUCTION LLC

Operator letter of designation:

Operator Info

Operator Organization Name: CENTENNIAL RESOURCE PRODUCTION LLC

Operator Address: 1001 17th Street, Suite 1800

Zip: 80202

Operator PO Box:

Operator City: Denver **State:** CO

Operator Phone: (720)499-1400

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: SOLOMON FEDERAL **Well Number:** 505H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** OJO CHISO, BONE SPRING SOUTH **Pool Name:**

Is the proposed well in an area containing other mineral resources? USEABLE WATER

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** JULIET FEDERAL **Number:** 1

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 18.5 Miles **Distance to nearest well:** 420 FT **Distance to lease line:** 100 FT

Reservoir well spacing assigned acres Measurement: 80 Acres

Well plat: WELL_PLAT_ATTACHMENT_Solomon_Federal_Com_505H_06.15.18_20180615113105.pdf

Well work start Date: 12/01/2018 **Duration:** 25 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 23782

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	400	FNL	2190	FWL	24S	34E	22	Tract C	32.209188	-103.45931	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 077090	3522	0	0
KOP Leg #1	400	FNL	2190	FWL	24S	34E	22	Tract C	32.209188	-103.45931	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 077090	-7118	10708	10640
PPP Leg #1	350	FNL	2120	FEL	24S	34E	22	Tract B	32.209323	-103.456131	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 126972	-6478	10919	10000

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	100	FSL	2120	FEL	24S	34E	22	Tract O	32.196057	-103.456136	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-7691	18800	11213
BHL Leg #1	100	FSL	2120	FEL	24S	34E	22	Tract O	32.196057	-103.456136	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-7691	18800	11213

APD ID: 10400030793 **Submission Date:** 06/15/2018

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

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	-1989	1160	1160	SANDSTONE	NONE	No
2	BELL CANYON	-7537	5548	5577	SANDSTONE	NONE	No
3	AVALON SAND	-11333	9344	9407	SHALE	OIL	No
4	FIRST BONE SPRING SAND	-12319	10330	10399	SANDSTONE	OIL	No
5	BONE SPRING 2ND	-12908	10919	11000	SANDSTONE	OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 11213

Equipment: The BOP and related equipment will meet or exceed the requirements of a 5M-psi system as set forth in On Shore Order No. 2. See attached BOP Schematic. A. Casinghead: 13 5/8" – 5,000 psi SOW x 13" – 5,000 psi WP Intermediate Spool: 13" – 5,000 psi WP x 11" – 5,000 psi WP Tubinghead: 11" – 5,000 psi WP x 7 1/16" – 15,000 psi WP B. Minimum Specified Pressure Control Equipment • Annular preventer • One Pipe ram, One blind ram • Drilling spool, or blowout preventer with 2 side outlets. Choke side will be a 3-inch minimum diameter, kill line shall be at least 2-inch diameter • 3 inch diameter choke line • 2 – 3 inch choke line valves • 2 inch kill line • 2 chokes with 1 remotely controlled from rig floor (see Figure 2) • 2 – 2 inch kill line valves and a check valve • Upper kelly cock valve with handle available • When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed) • Lower kelly cock valve with handle available • Safety valve(s) and subs to fit all drill string connections in use • Inside BOP or float sub available • Pressure gauge on choke manifold • All BOPE connections subjected to well pressure shall be flanged, welded, or clamped • Fill-up line above the uppermost preventer. C. Auxiliary Equipment • Audio and visual mud monitoring equipment shall be placed to detect volume changes indicating loss or gain of circulating fluid volume. (OOS 1, III.C.2) • Gas Buster will be used below intermediate casing setting depth. • Upper and lower kelly cocks with handles, safety valve and subs to fit all drill string connections and a pressure gauge installed on choke manifold.

Requesting Variance? NO

Variance request:

Testing Procedure: The BOP test shall be performed before drilling out of the surface casing shoe and will occur at a minimum: a. when initially installed b. whenever any seal subject to test pressure is broken c. following related repairs d. at 30 day intervals e. checked daily as to mechanical operating conditions. The ram type preventer(s) will be tested using a test plug to 250 psi (low) and 5,000 psi (high) (casinghead WP) with a test plug upon its installation onto the 13" surface casing. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing. The annular type preventer(s) shall be tested to 50% of its working pressure. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer. • A Sundry Notice (Form 3160 5), along with a copy of the

BOP test report, shall be submitted to the local BLM office within 5 working days following the test. • If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure. • The BLM office will be provided with a minimum of four (4) hours' notice of BOP testing to allow witnessing. The BOP Configuration, choke manifold layout, and accumulator system, will be in compliance with Onshore Order 2 for a 5,000 psi system. A remote accumulator will be used. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM 'witnessed BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible

Choke Diagram Attachment:

Choke_Diagram_20180601121301.pdf

BOP Diagram Attachment:

BOP_Schematic_5K__BS__20180601121311.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	CONDUCTOR	26	20.0	NEW	API	N	0	120	0	120	3524	3404	120	H-40	94	OTHER - WELD						
2	SURFACE	17.5	13.375	NEW	API	N	0	1300	0	1300	3524	2224	1300	J-55	54.5	OTHER - BTC	1.76	4.26	DRY	7.25	DRY	12.04
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5501	0	5501	3524	-1977	5501	J-55	40	LTC	1.27	1.38	DRY	2.36	DRY	2.86
4	PRODUCTION	8.5	5.5	NEW	API	N	0	18800	0	11213	3524	-7689	18800	P-110	20	OTHER - TMK UP DQX	1.64	1.87	DRY	2.86	DRY	2.86

Casing Attachments

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

Casing Attachments

Casing ID: 1 **String Type:** CONDUCTOR

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing ID: 2 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20180601122235.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20180601122242.pdf

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CASING_ASSUMPTIONS_WORKSHEET_20180601122250.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
CONDUCTOR	Lead		0	120	121	1.49	12.9	181		Grout	Bentonite 4% BWOC, Cellophane #/sx, CaCl2 2% BWOC.
SURFACE	Lead		0	800	798	1.74	13.5	1389	150	Class C Premium	Premium Gel Bentonite 4%, C-45 Econolite 0.25%, Phenoseal 0.25#/sk, CaCl 1%, Defoamer C-41P 0.75%
SURFACE	Tail		800	1300	522	1.33	14.8	695	100	Class C Premium	C-45 Econolite 0.10%, CaCl 2.%
INTERMEDIATE	Lead	2100	0	1800	369	3.4	10.7	1256	100	TXI Lightweight	Salt 1.74#/sk, C-45 Econolite 2.25%, Phenoseal 1.50#/sk, STE 6.0%, Citric Acid 0.05%, C-19 Fluid Loss Add've 0.10%, CSA-1000 Fluid Loss Add've 0.20%, Kol Seal 6.0#/sk, Defoamer C-503P 0.30%, Gyp seal 8
INTERMEDIATE	Tail		1800	2100	106	1.33	14.8	141	50	Class H Premium	C-51 Susp Agent 0.05%, C-503P Defoamer 0.30%

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead	2100	2100	5151	562	3.4	10.7	1911	100	TXI Lightweight	Salt 0.81#/sk, C-45 Econolite 0.80%, Phenoseal 1.50#/sk, STE 6.0%, Citric Acid 0.20%, C-19 Fluid Loss Add've 0.10%, CSA-1000 Fluid Loss Add've 0.25%, Kol Seal 6.0#/sk, Defoamer C-41P 0.75%.
INTERMEDIATE	Tail		5151	5501	124	1.33	14.8	164	50	Class H Premium	C-51 Susp Agent 0.05%, Retarder C-20 0.10%, C-503P Defoamer 0.30%
PRODUCTION	Lead		0	9210	811	3.51	10.6	2848	35	TXI Lightweight	Salt 9.0#/sk, Phenoseal 2.50#/sk, STE 6.0%, Citric Acid 0.20%, CSA-1000 Fluid Loss Add've 0.28%, Kol Seal 6.0#/sk, C-47B Fluid Loss Add've 0.10%, Defoamer C-503P 0.30%.
PRODUCTION	Tail		9210	18800	2034	1.35	14.2	2746	25	Class H Premium	CSA-1000 Fluid Loss Add've 0.07%, C47B Fluid Loss Add've 0.25%, Retarder C-20 0.15%

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 quantities of mud materials will be on the well site at all times for the purpose of assuring well control and maintaining wellbore integrity. Surface interval will employ fresh water mud. The intermediate hole will utilize a diesel emulsified brine fluid to inhibit salt washout and prevent severe fluid losses. The production hole will employ oil base fluid to inhibit formation reactivity and of the appropriate density to maintain well control.

Describe the mud monitoring system utilized: Centrifuge separation system. Open tank monitoring with EDR will be used for drilling fluids and return volumes. Open tank monitoring will be used for cement and cuttings return volumes. Mud properties will be monitored at least every 24 hours using industry accepted mud check practices.

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

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
5501	18800	OTHER : Brine/OBM	8.8	11.6							
0	1300	OTHER : Fresh Water	8.6	9.5							
1300	5501	OTHER : Brine	9	10							

Section 6 - Test, Logging, Coring

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

Will utilize MWD/LWD (Gamma ray logging) from intermediate hole to TD of the well.

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

GR

Coring operation description for the well:

n/a

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6751 **Anticipated Surface Pressure:** 4284.13

Anticipated Bottom Hole Temperature(F): 170

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? NO

Hydrogen sulfide drilling operations plan:

Operator Name: CENTENNIAL RESOURCE PRODUCTION LLC

Well Name: SOLOMON FEDERAL **Well Number:** 505H

Section 8 - Other Information

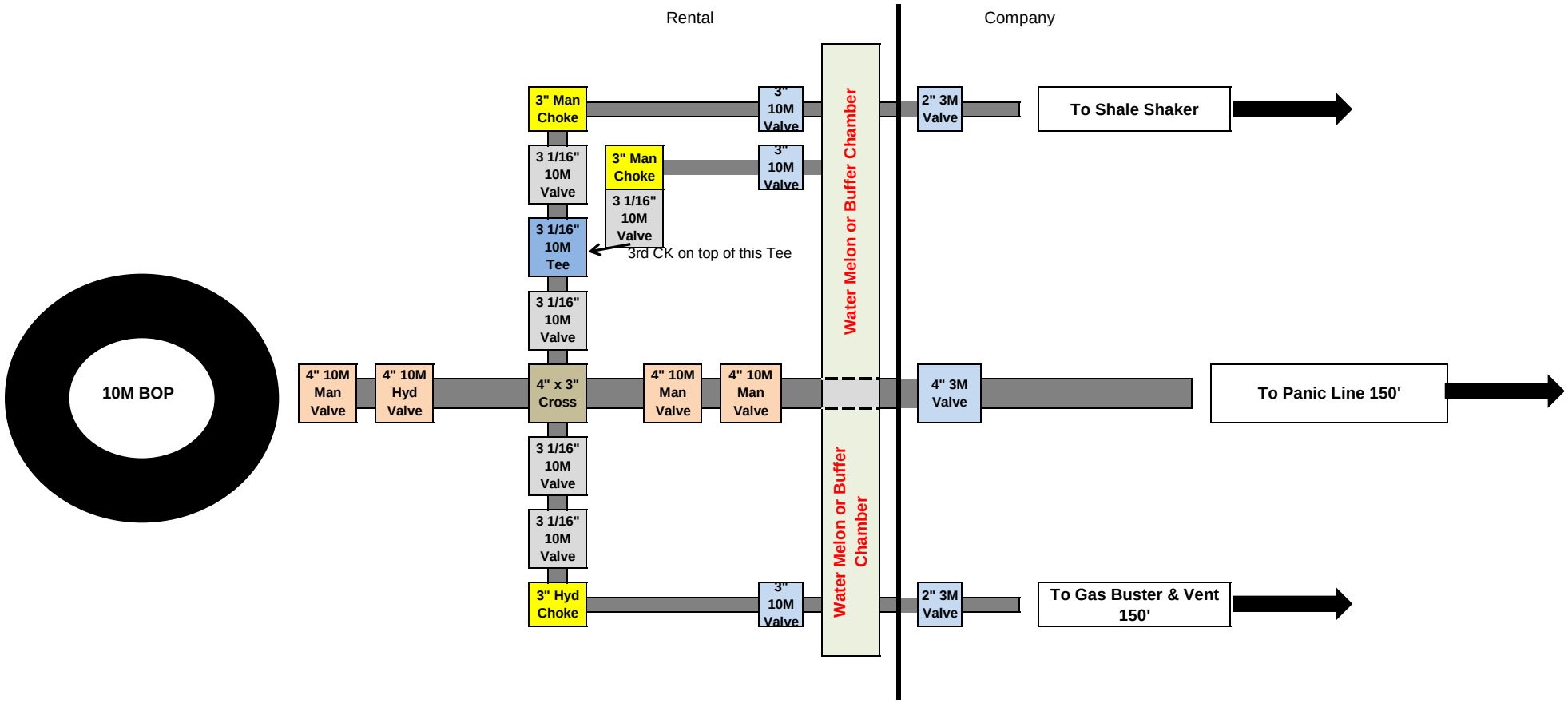
Proposed horizontal/directional/multi-lateral plan submission:

H_P_650___Solomon_Federal_Com_505H_Plan__2_20180601124403.pdf

Other proposed operations facets description:

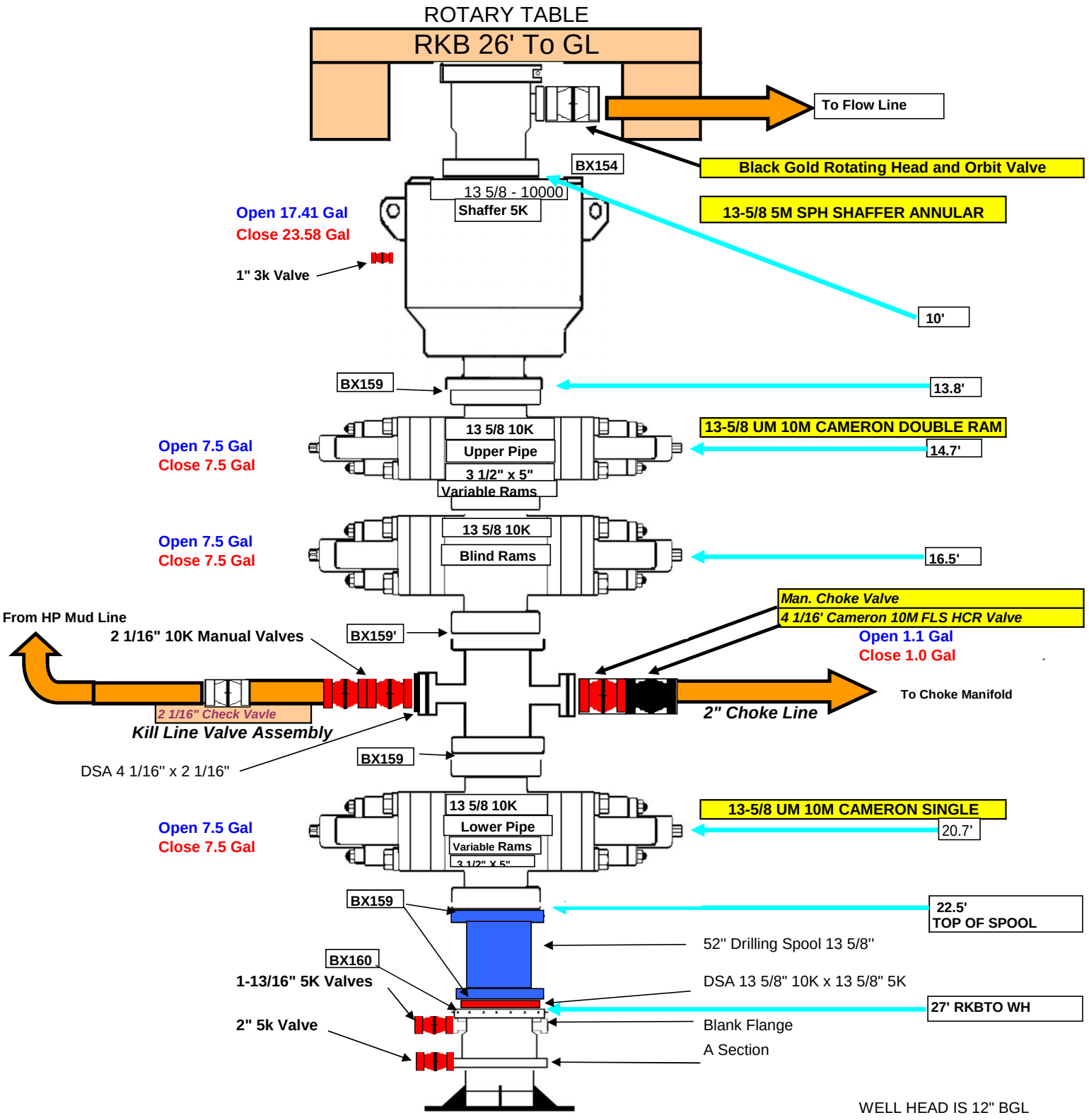
Other proposed operations facets attachment:

Other Variance attachment:


Rental
Company
10M BOP
3" Man Choke
3" 10M Valve
2" 3M Valve
To Shale Shaker
3 1/16" 10M Valve
3" Man Choke
3" 10M Valve
3 1/16" 10M Valve
3 1/16" 10M Tee
3rd CK on top of this Tee
Water Melon or Buffer Chamber
3 1/16" 10M Valve
4" 10M Man Valve
4" 10M Hyd Valve
4" x 3" Cross
4" 10M Man Valve
4" 10M Man Valve
4" 3M Valve
To Panic Line 150'
3 1/16" 10M Valve
3 1/16" 10M Valve
Water Melon or Buffer Chamber
3" Hyd Choke
3" 10M Valve
2" 3M Valve
To Gas Buster & Vent 150'

H&P 650

Lea County, NM BOP Configuration



CASING ASSUMPTIONS WORKSHEET:

Centralizer Program:

Surface: - 3 welded bow spring centralizers, one on each of the bottom 3 joints, plus one on the shoe joint (4 minimum)
- No Cement baskets will be run

Production: - 1 welded bow spring centralizer on a stop ring 6' above float shoe
- 1 centralizer every other joint to the top of the tail cement
- 1 centralizer every 4 joints to 500' below the top of the lead cement
- The actual number and placement of centralizers will be determined from hole deviation and potential production zones. Centralizers will be run for maximum practical standoff and through all potential productive zones.

- All casing strings below the conductor shall be tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing. If pressure declines more than 10 percent in 30 minutes, corrective action will be taken.

  No freshly hard banded pipe will be rotated in the surface casing

  - CENTENNIAL RESOURCE DEVELOPOMENT will not employ an air-drill rig for the surface casing. The casing shoe will be tested by drilling 5'-10' out from under the shoe and pressure testing to the maximum expected mud weight equivalent as shown in the mud program listed in the drilling plan.

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