Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM105560

6. If Indian, Allotee or Tribe Name

1a. Type of work: [✓] DRILL [ ] REENTER

1b. Type of Well: [ ] Oil Well [ ] Gas Well [✓] Other INJ-DIS

1c. Type of Completion: [ ] Hydraulic Fracturing [ ] Single Zone [✓] Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
RED HILLS WEST SWD
2 [38647]

2. Name of Operator
MEWBOURNE OIL COMPANY [14744]

9. API Well No.
30-025-45469

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory [97869]
PO Box 5270 Hobbs NM 88240	(575)393-5905	SWD; DEVONIAN-SILURIAN / DEVONIAI

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface SWSW / 1100 FSL / 900 FWL / LAT 32.0531182 / LONG -103.702479

At proposed prod. zone SWSW / 1100 FSL / 900 FWL / LAT 32.0531182 / LONG -103.702479

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 8 / T26S / R32E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
20 miles	LEA	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
185 feet	200	320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
1012 feet	19350 feet / 19350 feet	FED: NM1693

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3208 feet	09/29/2018	60 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Bradley Bishop / Ph: (575)393-5905	07/05/2018
Title: Regulatory		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 12/21/2018
Title: Assistant Field Manager Lands & Minerals	Office: CARLSBAD	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

May not inject prior to C-108 approval (SWD order approval)

APPROVED WITH CONDITIONS

KZ 01/07/2019

Approval Date: 12/21/2018

(Continued on page 2)

*(Instructions on page 2)

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

01/04/2019

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Bradley Bishop **Signed on:** 07/05/2018

Title: Regulatory

Street Address: PO Box 5270

City: Hobbs **State:** NM **Zip:** 88240

Phone: (575)393-5905

Email address: bbishop@mewbourne.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

01/04/2019

APD ID: 10400031772 **Submission Date:** 07/05/2018

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Well Type: INJECTION - DISPOSAL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400031772 **Tie to previous NOS?** **Submission Date:** 07/05/2018

BLM Office: CARLSBAD **User:** Bradley Bishop **Title:** Regulatory

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

Lease number: NMNM105560 **Lease Acres:** 200

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:** MEWBOURNE OIL COMPANY

Operator letter of designation: RedHillWestSWD_2_operatorletterofdesignation_20180629135336.pdf

Operator Info

Operator Organization Name: MEWBOURNE OIL COMPANY

Operator Address: PO Box 5270

Zip: 88240

Operator PO Box:

Operator City: Hobbs **State:** NM

Operator Phone: (575)393-5905

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: RED HILLS WEST SWD **Well Number:** 2 **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** SWD; DEVONIAN-SILURIAN **Pool Name:** DEVONIAN

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

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

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: SINGLE WELL **Multiple Well Pad Name:** **Number:**

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

Well Work Type: Drill

Well Type: INJECTION - DISPOSAL

Describe Well Type:

Well sub-Type: INJECTION - DISPOSAL

Describe sub-type:

Distance to town: 20 Miles **Distance to nearest well:** 1012 FT **Distance to lease line:** 185 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: RedHillWestSWD_2_wellplat_20180629141128.pdf

Well work start Date: 09/29/2018 **Duration:** 60 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

	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	1100	FSL	900	FWL	26S	32E	8	Aliquot SWSW	32.0531182	-103.702479	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 105560	3208	0	0
BHL Leg #1	1100	FSL	900	FWL	26S	32E	8	Aliquot SWSW	32.0531182	-103.702479	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 105560	-16142	19350	19350

United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office
620 E Greene Street
Carlsbad, New Mexico 88201-1287

Statement Accepting Responsibility for Operations

Operator Name:	Mewbourne Oil Company
Street or Box:	P.O. Box 5270
City, State:	Hobbs, New Mexico
Zip Code:	88241

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted of the leased land or portion thereof, as described below.

Lease Number:	NMNM 105560
Legal Description of Land:	Section 8, T26S, R32E, Lea County, New Mexico. Location @ 1100 FSL & 900 FWL
Formation (if applicable):	Devonian
Bond Coverage:	$150,000
BLM Bond File:	NM1693 nationwide, NMB000919

Authorized Signature: Bradley C Bishop

Name: Bradley Bishop
Title: Regulatory Manager

Date: 6-29-18

APD ID: 10400031772 **Submission Date:** 07/05/2018

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Well Type: INJECTION - DISPOSAL **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	UNKNOWN	3270	27	27		NONE	No
2	RUSTLER	2230	1040	1040	DOLOMITE,ANHYDRITE	USEABLE WATER	No
3	SALADO	1940	1330	1330	SALT	NONE	No
4	BOTTOM SALT	-880	4150	4150	SALT	NONE	No
5	LAMAR	-1080	4350	4350	LIMESTONE	NATURAL GAS,OIL	No
6	BONE SPRING	-5120	8390	8390	LIMESTONE,SHALE	NATURAL GAS,OIL	No
7	WOLFCAMP	-8370	11640	11640	LIMESTONE,SHALE,SANDSTONE	NATURAL GAS,OIL	No
8	STRAWN	-10920	14190	14190	SANDSTONE	NATURAL GAS,OIL	No
9	ATOKA	-11020	14290	14290	SANDSTONE	NATURAL GAS,OIL	No
10	MISSISSIPPIAN	-13580	16850	16850		NONE	No
11	WOODFORD	-13900	17170	17170	SHALE	NONE	No
12	DEVONIAN	-14030	17300	17300		NONE	Yes
13	SIMPSON	-16030	19300	19300		NONE	Yes
14	ELLENBURGER	-16530	19800	19800		NONE	No

Section 2 - Blowout Prevention

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Pressure Rating (PSI): 10M **Rating Depth:** 11650

Equipment: Annular, Pipe Ram, Blind Ram

Requesting Variance? YES

Variance request: A variance is requested for the use of a diverter while drilling the 17.5" hole. A variance is requested for the use of a 5000 psi annular BOP with the 10,000 psi BOP stack. A variance is requested for the use of a flexible choke line from the BOP to the choke manifold. Anchors are not required by the manufacturer. See attachments for schematics
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 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.

Choke Diagram Attachment:

Red_Hills_West_SWD_2_10M_BOPE_Choke_Diagram_20180702164602.pdf

Red_Hills_West_SWD_2_Flex_Line_Specs_20180702164604.pdf

BOP Diagram Attachment:

Red_Hills_West_SWD_2_10M_Annular_BOP_Variance_20180702164819.doc

Red_Hills_West_SWD_2_10M_BOPE_Schematic_20180702164820.pdf

Red_Hills_West_SWD_2_Diverter_Variance_20180702164821.doc

Red_Hills_West_SWD_2_20in_Diverter_Schematic_20180702164821.xlsx

---

Pressure Rating (PSI): 10M **Rating Depth:** 19350

Equipment: Annular, Pipe Rams, Blind Ram

Requesting Variance? YES

Variance request: A variance is requested for the use of a 5000 psi annular BOP with the 10,000 psi BOP stack. A variance is requested for the use of a flexible choke line from the BOP to the choke manifold. Anchors are not required by the manufacturer. See attachments for schematics
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 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.

Choke Diagram Attachment:

Red_Hills_West_SWD_2_10M_BOPE_Choke_Diagram_20180702165129.pdf

Red_Hills_West_SWD_2_Flex_Line_Specs_20180702165129.pdf

BOP Diagram Attachment:

Red_Hills_West_SWD_2_10M_BOPE_Schematic_20180702165141.pdf

Red_Hills_West_SWD_2_10M_Annular_BOP_Variance_20180702165140.doc

---

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

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	26	20.0	NEW	API	Y	0	1100	0	1100	3335		1100	J-55	94	BUTT	1.13	4.56	DRY	13.01	DRY	13.73
2	INTERMEDIATE	17.5	13.375	NEW	API	Y	0	4275	0	4275	3335		4275	J-55	54.5	STC	1.13	3.01	DRY	1.98	DRY	3.28
3	INTERMEDIATE	12.25	9.625	NEW	API	Y	0	11650	0	11650	3335		11650	HCL-80	40	LTC	2.09	1	DRY	1.8	DRY	1.96
4	LINER	8.5	7.625	NEW	API	N	11450	17300	11450	17300			5850	P-110	39	FJ	2.8	1.08	DRY	3.79	DRY	5.4
5	OPEN HOLE	6.125	4.5	NEW	API	N	17300	19350	10275	10753	-17167	-17645	2050	P-110	13.5	LTC	1.47	1.71	DRY	2.42	DRY	3.02

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Red_Hills_West_SWD_2_TaperedSurf_20180702172001.pdf

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_SWD_2_Csg_Assumptions_v2_20181129110305.pdf

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Red_Hills_West_SWD_2_TaperedInter1_20180702172207.pdf

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_SWD_2_Csg_Assumptions_v2_20181129110313.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Red_Hills_West_SWD_2_TaperedInter2_v2_20181129110957.pdf

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_SWD_2_Csg_Assumptions_v2_20181129110350.pdf

Casing ID: 4 **String Type:** LINER

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Red_Hills_West_SWD_2_Technical_Data_Sheet_VAM_HDL_7.625_x_39_P110_20181129105247.pdf

Red_Hills_West_SWD_2_Csg_Assumptions_v2_20181129110405.pdf

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Casing Attachments

Casing ID: 5 **String Type:** OPEN HOLE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1011	1550	1.97	12.9	3054	100	Class C	Salt, Gel, Defoamer, LCM
SURFACE	Tail		1011	1100	200	1.34	14.8	268	100	Class C	Retarder
INTERMEDIATE	Lead		0	4009	1600	2.45	11.8	3920	25	Lite Class C	Salt, Defoamer, Dispersant
INTERMEDIATE	Tail		4009	4275	200	1.3	14.2	260	25	Lite Class C	Salt, Defoamer, LCM, Retarder
INTERMEDIATE	Lead	4400	0	4117	1190	1.63	12.5	1940	25	Lite Class C	Salt, Gel, Extender, LCM
INTERMEDIATE	Tail		4117	4400	100	1.33	14.8	133	25	Class C	Retarder
INTERMEDIATE	Lead	4400	4400	10356	910	2.57	11.5	2339	25	Lite Class C	Defoamer, Dispersant, Extender, LCM
INTERMEDIATE	Tail		10356	11650	400	1.27	14.3	508	25	Lite Class H	Salt
LINER	Lead		11450	14823	115	2.96	11.2	340	25	Lite Class H (50:40:0)	Salt, Defoamer, Extender, Gel
LINER	Tail		14823	17300	200	1.25	14.3	250	25	Lite Class H (50:50:2)	Salt, Defoamer, Retarder
OPEN HOLE	Lead		17300	19350	0	0	0	0	0	None	None

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

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: Lost circulation material Sweeps Mud scavengers in surface hole

Describe the mud monitoring system utilized: Pason, PVT, Visual Monitoring

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
0	1100	SPUD MUD	8.4	8.7							
1100	4275	SALT SATURATED	10	10							
4275	11650	WATER-BASED MUD	8.7	10							
11650	17300	WATER-BASED MUD	10	13							
17300	19350	WATER-BASED MUD	9	9							

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Section 6 - Test, Logging, Coring

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

Will run GR/CNL from TD (19350') to surface.

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

CBL,CNL,GR,MUDLOG

Coring operation description for the well:

None

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 9056

Anticipated Surface Pressure: 4799

Anticipated Bottom Hole Temperature(F): 180

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

Red_Hills_West_SWD_2_H2S_Plan_20180703093611.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Red_Hills_West_SWD_2_Diagram_20181129111834.xls

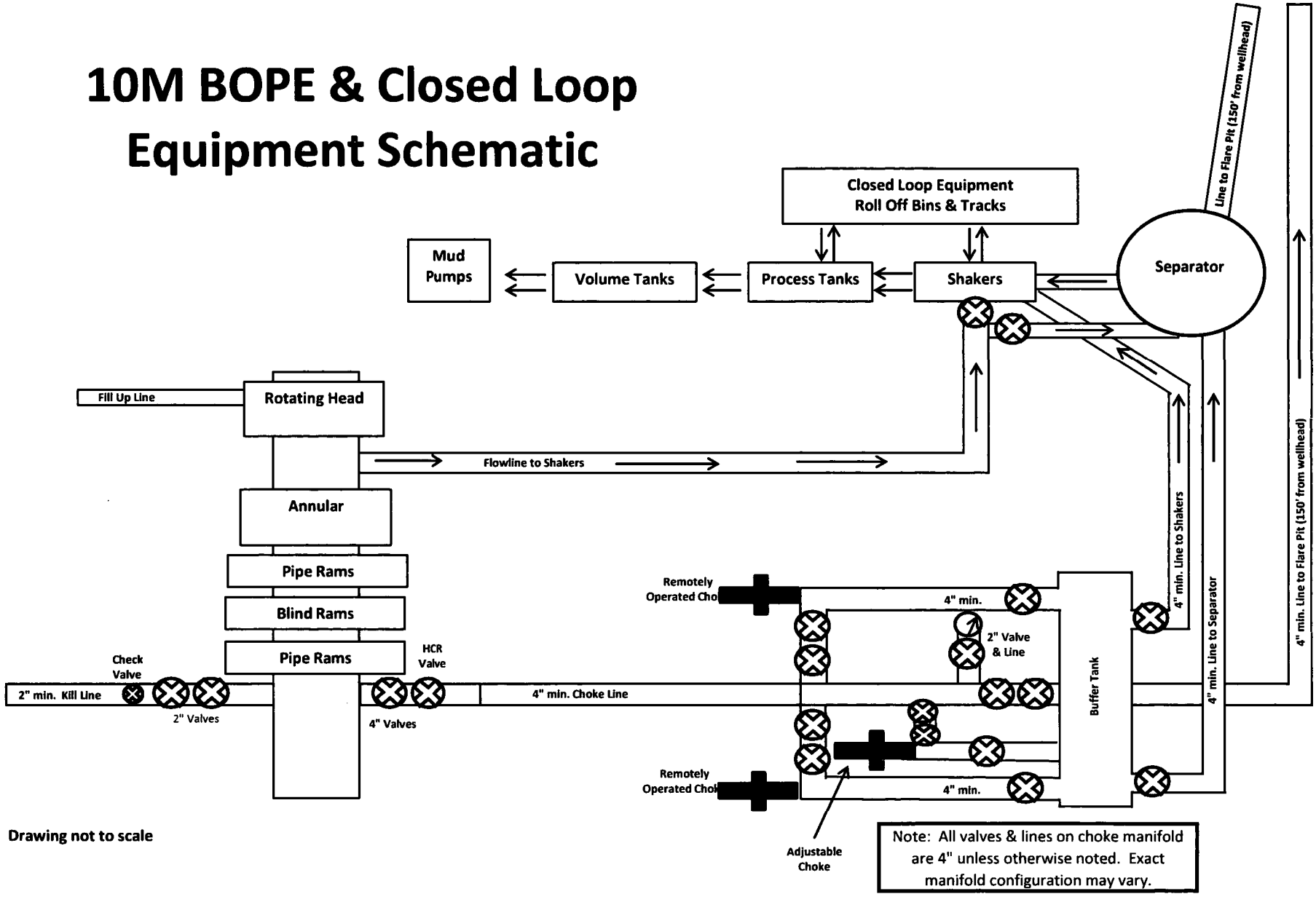
Other proposed operations facets description:

Other proposed operations facets attachment:

Red_Hills_West_SWD_2_Drlg_Program_v2_20181129111025.doc

Other Variance attachment:

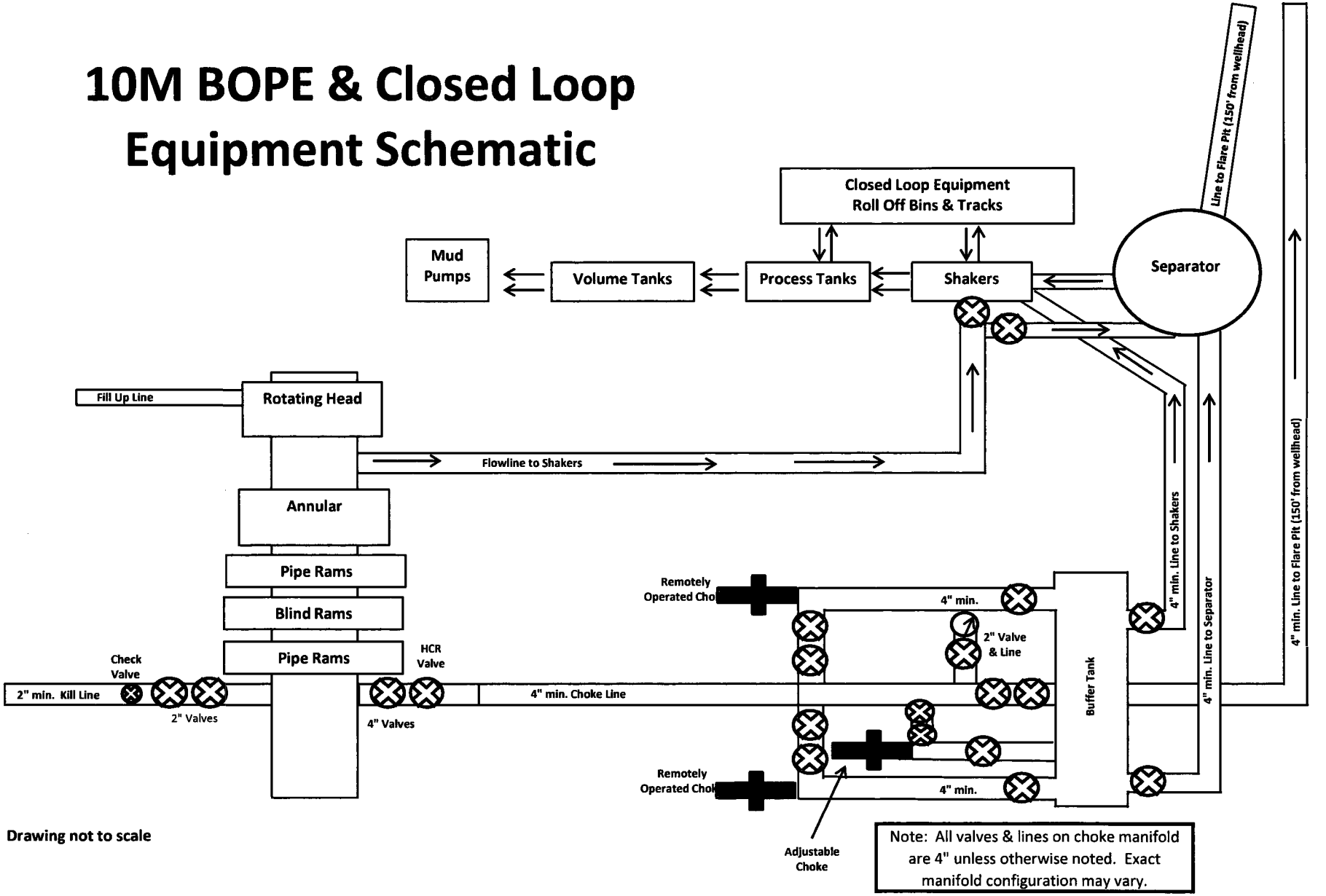
10M BOPE & Closed Loop Equipment Schematic



Drawing not to scale

Note: All valves & lines on choke manifold are 4" unless otherwise noted. Exact manifold configuration may vary.

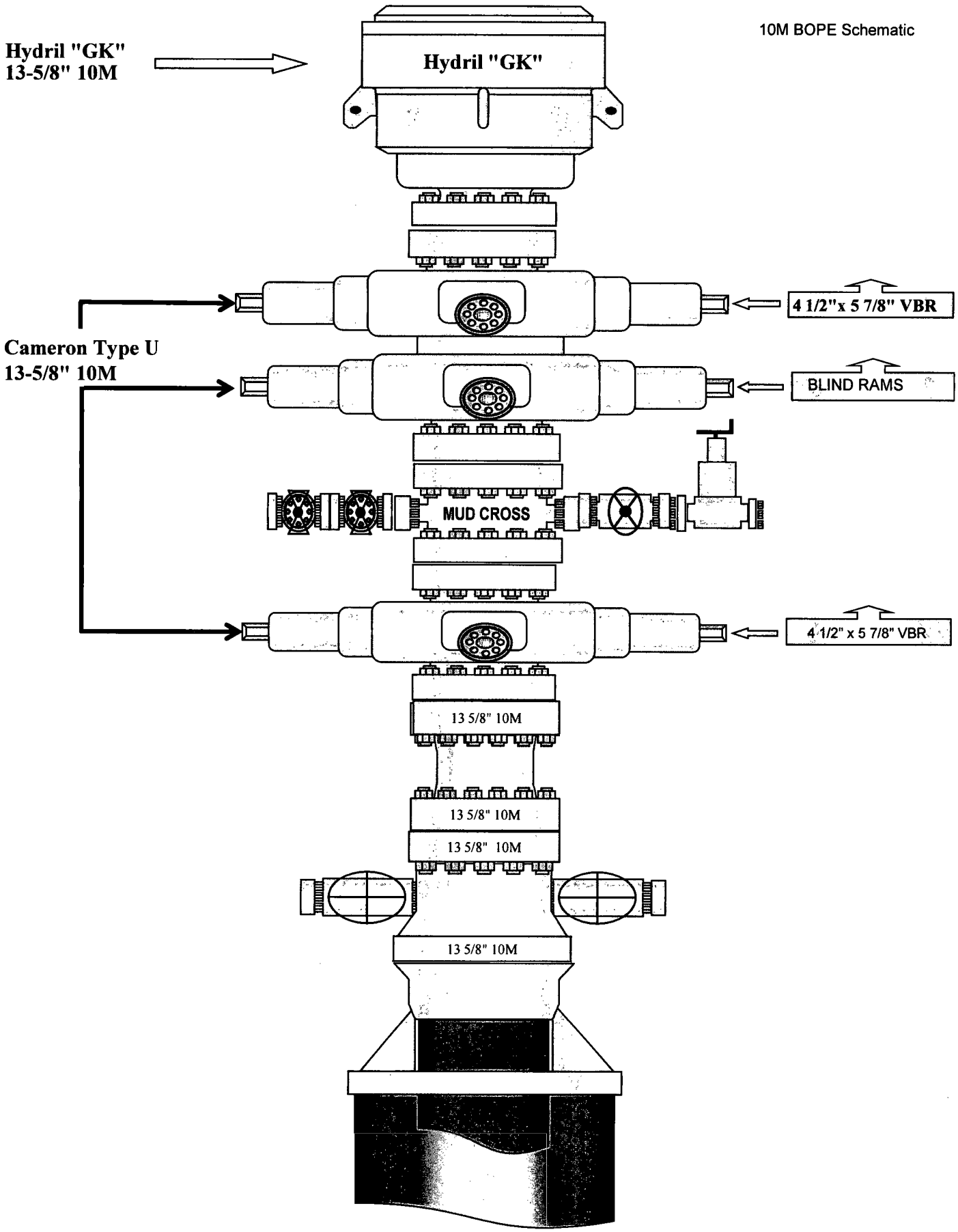
10M BOPE & Closed Loop Equipment Schematic



Drawing not to scale

Note: All valves & lines on choke manifold are 4" unless otherwise noted. Exact manifold configuration may vary.

10M BOPE Schematic



10,000 PSI Annular BOP Variance Request

Mewbourne Oil Company request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOP).

1. Component and Preventer Compatibility Tables

The tables below outline the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

12-1/4" Intermediate Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"-8.000"	Annular	5M	-	-
Mud Motor	8.000"-9.625"	Annular	5M	-	-
Intermediate Casing	9.625"	Annular	5M	-	-
Open-Hole	-	Blind Rams	10M	-	-

8-3/4" Production Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"-8.000"	Annular	5M	-	-
Mud Motor	6.750"-8.000"	Annular	5M	-	-
Production Casing	7"	Annular	5M	-	-
Open-Hole	-	Blind Rams	10M	-	-

6-1/8" Lateral Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
DCs and MWD tools	4.750"-5.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Mud Motor	4.750"-5.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Production Casing	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Upper 3.5"-5.5" VBR	10M 10M
Open-Hole	-	Blind Rams	10M	-	-

VBR = Variable Bore Ram

2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the Mewbourne Oil Company drilling supervisor's office on location and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 70% of its RWP.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan

9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full-opening safety valve & close
3. Space out drill string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Running Production Casing

1. Sound alarm (alert crew)
2. Stab crossover and full-opening safety valve and close
3. Space out string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams (HCR & choke will already be in the closed position)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA Through Stack

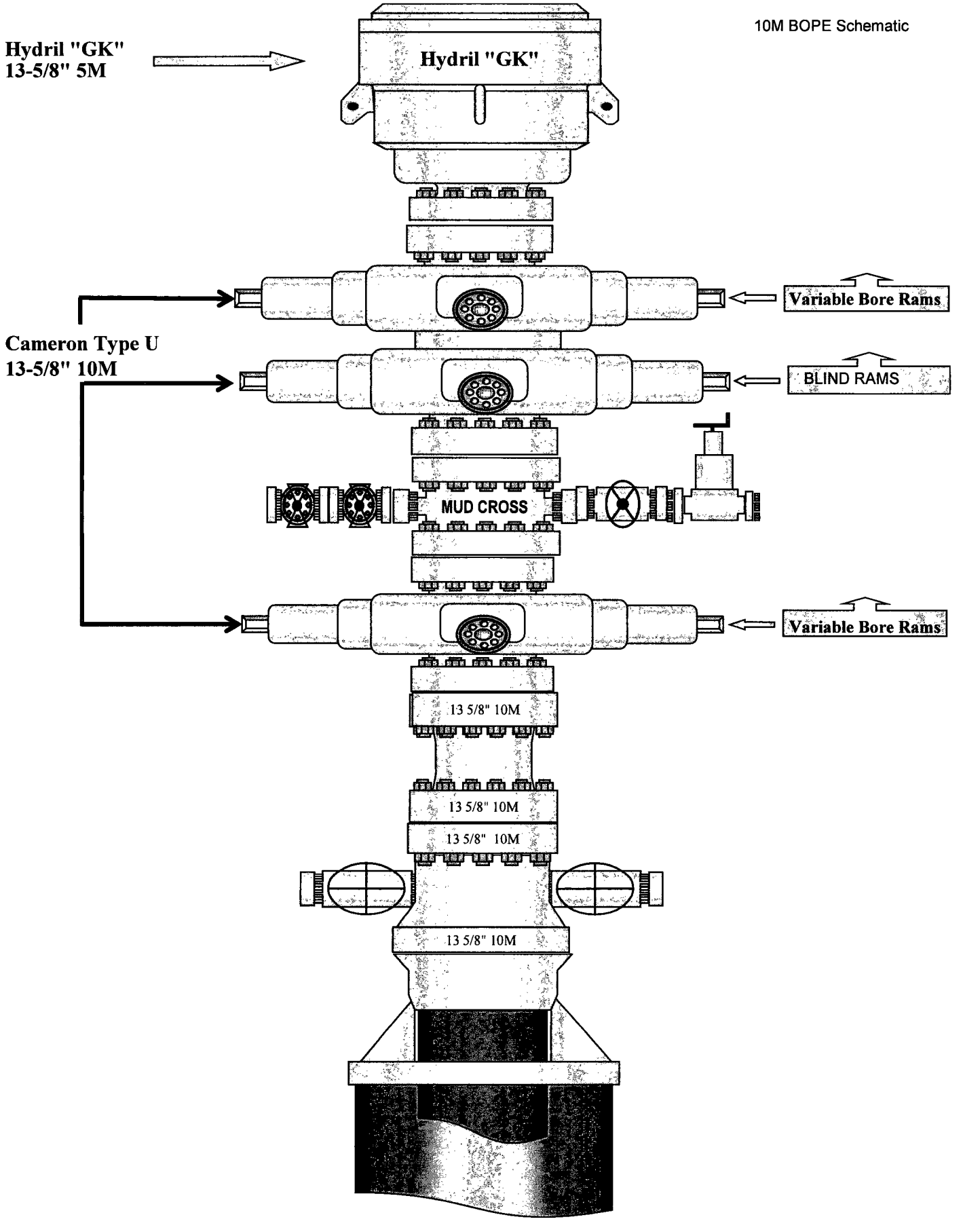
1. PRIOR to pulling last joint of drillpipe through stack:
    a. Perform flow check. If flowing, continue to (b).
    b. Sound alarm (alert crew)
    c. Stab full-opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams
    e. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combination immediately available:
    a. Sound alarm (alert crew)
    b. Stab crossover and full-opening safety valve and close
    c. Space out drill string with upset just beneath the upper variable bore rams
    d. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP & SICP

ii. Pit gain
iii. Time

h. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combination immediately available:
   a. Sound alarm (alert crew)
   b. If possible, pull string clear of the stack and follow "Open Hole" procedure.
   c. If impossible to pull string clear of the stack:
   d. Stab crossover, make up one joint/stand of drillpipe and full-opening safety valve and close
   e. Space out drill string with tooljoint just beneath the upper variable bore ram
   f. Shut-in using upper variable bore ram (HCR & choke will already be in the closed position)
   g. Confirm shut-in
   h. Notify toolpusher/company representative
   i. Read and record the following:
      i. SIDPP & SICP
      ii. Pit gain
      iii. Time
   j. Regroup and identify forward plan

10M BOPE Schematic



10,000 PSI Annular BOP Variance Request

Mewbourne Oil Company request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOPL).

1. Component and Preventer Compatibility Tables

The tables below outline the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

12-1/4" Intermediate Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"- 8.000"	Annular	5M	-	-
Mud Motor	8.000"- 9.625"	Annular	5M	-	-
Intermediate Casing	9.625"	Annular	5M	-	-
Open-Hole	-	Blind Rams	10M	-	-

8-1/2" Liner Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"- 8.000"	Annular	5M	-	-
Mud Motor	6.750"- 8.000"	Annular	5M	-	-
Production Casing	7"	Annular	5M	-	-

Open-Hole	-	Blind Rams	10M	-	-

6-1/8" Open Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
DCs and MWD tools	4.750"- 5.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Mud Motor	4.750"- 5.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Production Casing	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Upper 3.5"-5.5" VBR	10M 10M
Open-Hole	-	Blind Rams	10M	-	-

VBR = Variable Bore Ram

2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the Mewbourne Oil Company drilling supervisor's office on location and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 70% of its RWP.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)

5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full-opening safety valve & close
3. Space out drill string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Running Production Casing

1. Sound alarm (alert crew)

2. Stab crossover and full-opening safety valve and close
3. Space out string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams (HCR & choke will already be in the closed position)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA Through Stack

1. PRIOR to pulling last joint of drillpipe through stack:
    a. Perform flow check. If flowing, continue to (b).
    b. Sound alarm (alert crew)
    c. Stab full-opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams
    e. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combination immediately available:
    a. Sound alarm (alert crew)
    b. Stab crossover and full-opening safety valve and close
    c. Space out drill string with upset just beneath the upper variable bore rams
    d. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain

iii. Time

h. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combination immediately available:

   a. Sound alarm (alert crew)

   b. If possible, pull string clear of the stack and follow "Open Hole" procedure.

   c. If impossible to pull string clear of the stack:

   d. Stab crossover, make up one joint/stand of drillpipe and full-opening safety valve and close

   e. Space out drill string with tooljoint just beneath the upper variable bore ram

   f. Shut-in using upper variable bore ram (HCR & choke will already be in the closed position)

   g. Confirm shut-in

   h. Notify toolpusher/company representative

   i. Read and record the following:

      i. SIDPP & SICP

      ii. Pit gain

      iii. Time

   j. Regroup and identify forward plan

10,000 PSI Annular BOP Variance Request

Mewbourne Oil Company request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOPL).

1. Component and Preventer Compatibility Tables

The tables below outline the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

12-1/4" Intermediate Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"- 8.000"	Annular	5M	-	-
Mud Motor	8.000"- 9.625"	Annular	5M	-	-
Intermediate Casing	9.625"	Annular	5M	-	-
Open-Hole	-	Blind Rams	10M	-	-

8-1/2" Liner Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"- 8.000"	Annular	5M	-	-
Mud Motor	6.750"- 8.000"	Annular	5M	-	-
Production Casing	7"	Annular	5M	-	-

Open-Hole	-	Blind Rams	10M	-	-

6-1/8" Open Hole Section 10M psi Requirement					
Component	**OD**	**Primary Preventer**	**RWP**	**Alternate Preventer(s)**	**RWP**
Drillpipe	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
DCs and MWD tools	4.750"- 5.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Mud Motor	4.750"- 5.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Production Casing	4.500"	Annular	5M	Upper 3.5"-5.5" VBR Upper 3.5"-5.5" VBR	10M 10M
Open-Hole	-	Blind Rams	10M	-	-

VBR = Variable Bore Ram

2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the Mewbourne Oil Company drilling supervisor's office on location and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 70% of its RWP.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)

5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full-opening safety valve & close
3. Space out drill string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure While Running Production Casing

1. Sound alarm (alert crew)

2. Stab crossover and full-opening safety valve and close
3. Space out string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
    a. SIDPP & SICP
    b. Pit gain
    c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams (HCR & choke will already be in the closed position)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
    a. SICP
    b. Pit gain
    c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA Through Stack

1. PRIOR to pulling last joint of drillpipe through stack:
    a. Perform flow check. If flowing, continue to (b).
    b. Sound alarm (alert crew)
    c. Stab full-opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams
    e. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    f. Confirm shut-in
    g. Notify toolpusher/company representative
    h. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain
        iii. Time
    i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combination immediately available:
    a. Sound alarm (alert crew)
    b. Stab crossover and full-opening safety valve and close
    c. Space out drill string with upset just beneath the upper variable bore rams
    d. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
    e. Confirm shut-in
    f. Notify toolpusher/company representative
    g. Read and record the following:
        i. SIDPP & SICP
        ii. Pit gain

iii. Time

h. Regroup and identify forward plan

3. With BHA in the stack and NO compatible ram preventer and pipe combination immediately available:

   a. Sound alarm (alert crew)

   b. If possible, pull string clear of the stack and follow "Open Hole" procedure.

   c. If impossible to pull string clear of the stack:

   d. Stab crossover, make up one joint/stand of drillpipe and full-opening safety valve and close

   e. Space out drill string with tooljoint just beneath the upper variable bore ram

   f. Shut-in using upper variable bore ram (HCR & choke will already be in the closed position)

   g. Confirm shut-in

   h. Notify toolpusher/company representative

   i. Read and record the following:

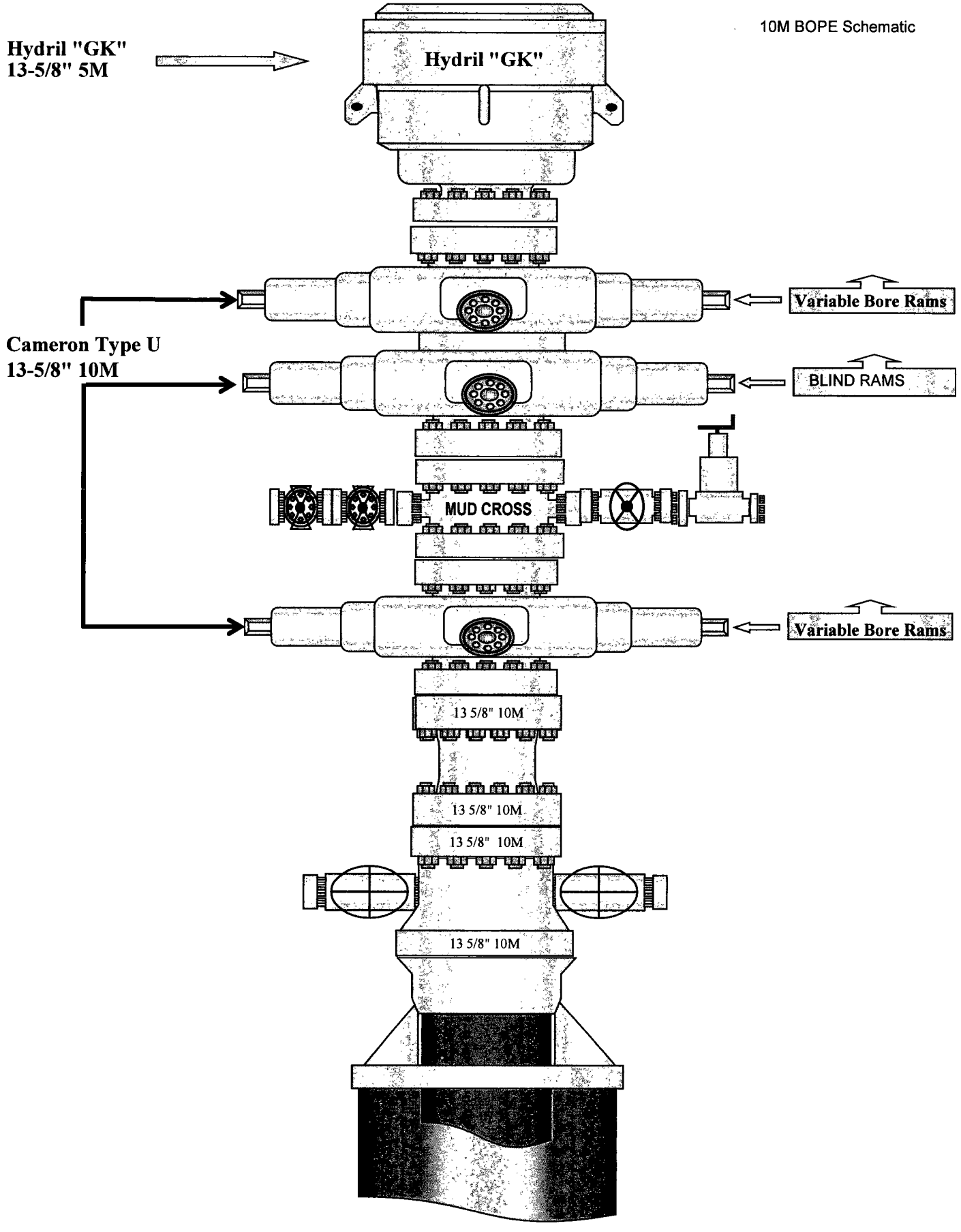
      i. SIDPP & SICP

      ii. Pit gain

      iii. Time

   j. Regroup and identify forward plan

10M BOPE Schematic

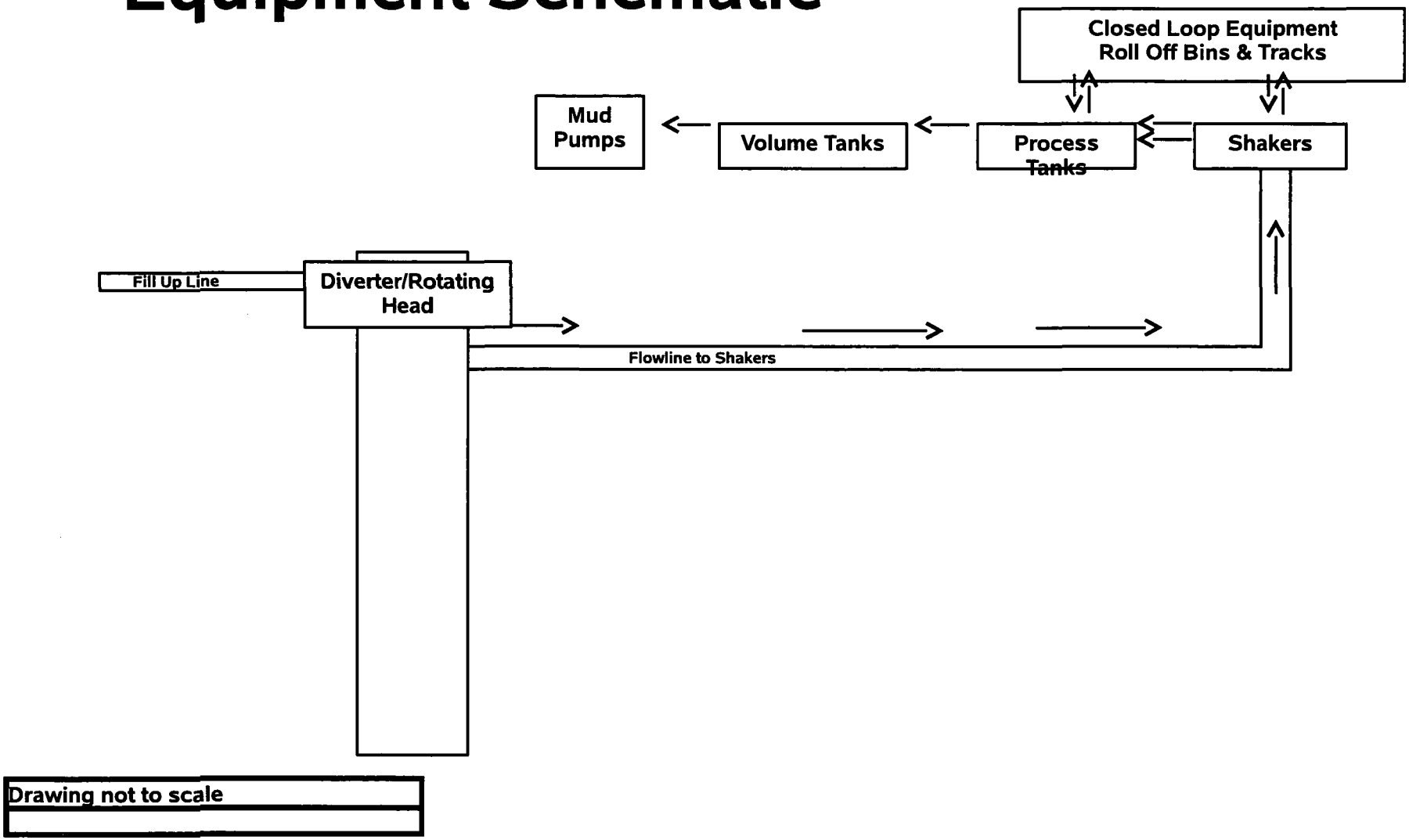


Red Hills West SWD #2

20" Diverter

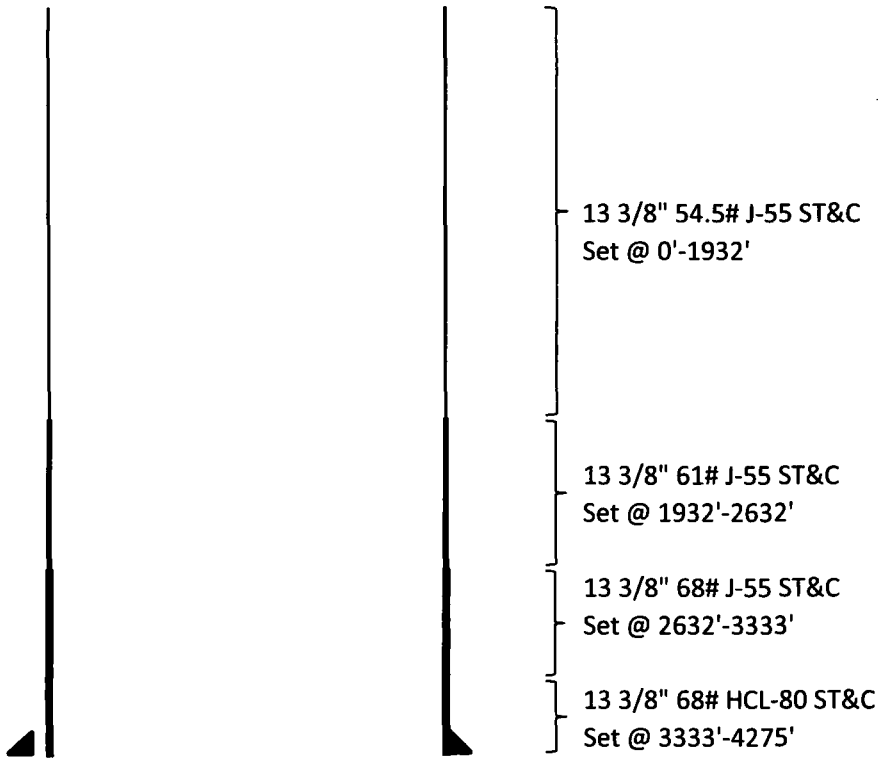
Mewbourne Oil Company requests a variance for the use of a 20" weld-on diverter to drill the 17 ½" hole to a depth of 4275'. We have drilled several wells in the area and have not encountered any flammable gas deposits through this interval. Air pockets are common in the salt section and the diverter allows them to blow down safely to the pits without causing damage to the surface casing or cement.

20" Diverter & Closed Loop Equipment Schematic



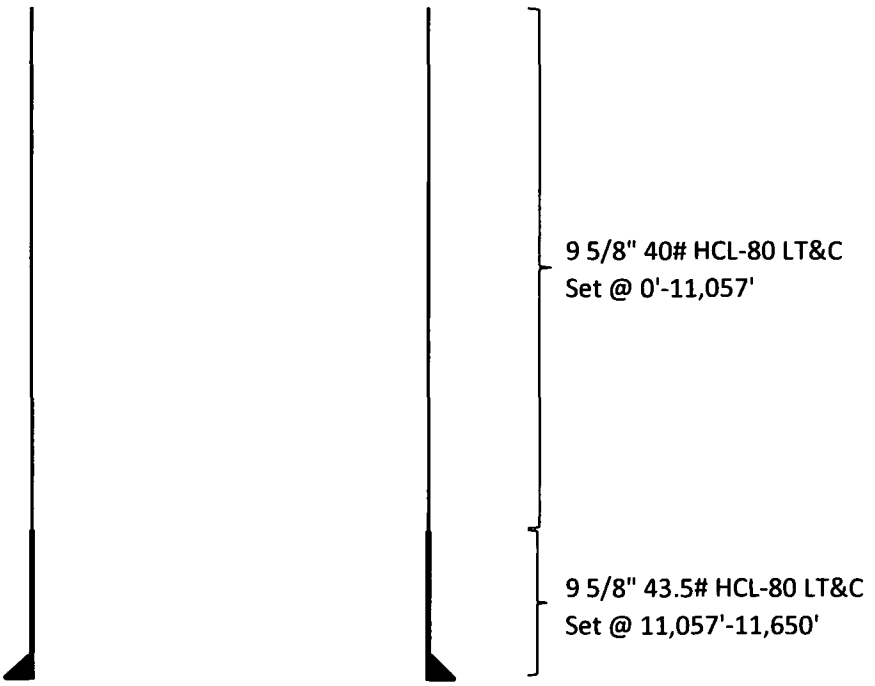
Drawing not to scale

Red Hills West SWD #2
Intermediate Casing 1



Casing	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
54.5# J-55	1.125	3.01	1.98	3.28
61# J-55	1.125	2.5	3.85	6.23
68# J-55	1.125	1.76	6.04	9.57
68# HCL-80	1.31	2.26	17.06	24.29

Red Hills West SWD #2
Intermediate Casing



Casing	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
40# HCL-80	4.07	1.00	1.79	1.96
43.5# HCL-80	5.38	1.04	36.29	38.96

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
26"	0'	988'	20"	94	J55	BTC	1.13	4.56	13.01	13.73
26"	988'	1100'	20"	106.5	J55	BTC	1.50	4.68	133.80	141.26
17.5"	0'	1932'	13.375"	54.5	J55	STC	1.13	3.01	1.98	3.28
17.5"	1932'	2632'	13.375"	61	J55	STC	1.13	2.50	3.85	6.23
17.5"	2632'	3333'	13.375"	68	J55	STC	1.13	1.76	6.04	9.57
17.5"	3333'	4275'	13.375"	68	HCL80	STC	1.31	2.26	17.06	24.29
12.25"	0'	11,057'	9.625"	40	HCL80	LTC	4.07	1	1.79	1.96
12.25"	11,057'	11,650'	9.625"	43.5	HCL80	LTC	5.38	1.04	36.29	38.96
8.5"	11,450'	17,300'	7.625"	39	P110	FJ	8.20	1.08	3.79	5.40
6.125"	17,300'	19,350'	OPEN HOLE							
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Collapse Design

	Surf	Inter	Inter 2	Liner
Partial Evacuation P external: Mud Weight Gradient P internal: Dry Gas to 2000'; Mud Weight Gradient Below			X	X
Full Evacuation P external: Mud Weight Gradient P internal: None	X	X		
Cementing P external: Wet Cement P internal: Displacement Fluid (Water)	X	X	X	X

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? 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 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.	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
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?	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
26"	0'	988'	20"	94	J55	BTC	1.13	4.56	13.01	13.73
26"	988'	1100'	20"	106.5	J55	BTC	1.50	4.68	133.80	141.26
17.5"	0'	1932'	13.375"	54.5	J55	STC	1.13	3.01	1.98	3.28
17.5"	1932'	2632'	13.375"	61	J55	STC	1.13	2.50	3.85	6.23
17.5"	2632'	3333'	13.375"	68	J55	STC	1.13	1.76	6.04	9.57
17.5"	3333'	4275'	13.375"	68	HCL80	STC	1.31	2.26	17.06	24.29
12.25"	0'	11,057'	9.625"	40	HCL80	LTC	4.07	1	1.79	1.96
12.25"	11,057'	11,650'	9.625"	43.5	HCL80	LTC	5.38	1.04	36.29	38.96
8.5"	11,450'	17,300'	7.625"	39	P110	FJ	8.20	1.08	3.79	5.40
6.125"	17,300'	19,350'	OPEN HOLE							
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Collapse Design

	Surf	Inter	Inter 2	Liner
Partial Evacuation P external: Mud Weight Gradient P internal: Dry Gas to 2000'; Mud Weight Gradient Below			X	X
Full Evacuation P external: Mud Weight Gradient P internal: None	X	X		
Cementing P external: Wet Cement P internal: Displacement Fluid (Water)	X	X	X	X

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? 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 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.	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

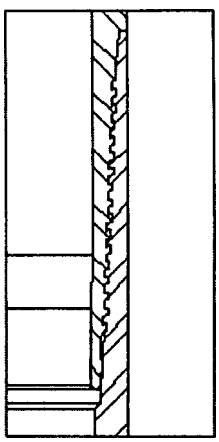
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
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?	

Technical Specifications

Connection Type:	Size(O.D.):	Weight (Wall):	Grade:
HD-L Casing STANDARD	7-5/8 in	39.00 lb/ft (0.5 in)	P-110

	Material
P-110	Grade
110,000	Minimum Yield Strength (psi.)
125,000	Minimum Ultimate Strength (psi.)
	Pipe Dimensions
7.625	Nominal Pipe Body O.D. (in.)
6.625	Nominal Pipe Body I.D. (in.)
0.500	Nominal Wall Thickness (in.)
39.00	Nominal Weight (lbs./ft.)
38.08	Plain End Weight (lbs./ft.)
11.192	Nominal Pipe Body Area (sq. in.)
	Pipe Body Performance Properties
1,231,000	Minimum Pipe Body Yield Strength (lbs.)
11,080	Minimum Collapse Pressure (psi.)
12,620	Minimum Internal Yield Pressure (psi.)
11,500	Hydrostatic Test Pressure (psi.)
	Connection Dimensions
7.625	Connection O.D. (in.)
6.551	Connection I.D. (in.)
6.500	Connection Drift Diameter (in.)
4.51	Make-up Loss (in.)
6.939	Critical Area (sq. in.)
62.0	Joint Efficiency (%)
	Connection Performance Properties
763,000 (1)	Joint Strength (lbs.)
867,000 (2)	Reference Minimum Parting Load (lbs.)
14,310	Reference String Length (ft) 1.4 Design Factor
763,000	Compression Rating (lbs.)
11,080	Collapse Pressure Rating (psi.)
12,620	Internal Pressure Rating (psi.)
41.0	Maximum Uniaxial Bend Rating [degrees/100 ft]
	Recommended Torque Values
8,500 (3)	Minimum Final Torque (ft.-lbs.)
9,800 (3)	Maximum Final Torque (ft.-lbs.)

VAM USA
4424 W. Sam Houston Pkwy. Suite 150
Houston, TX 77041
Phone: 713-479-3200
Fax: 713-479-3234
E-mail: VAMUSAsales@vam-usa.com



(1) Joint strength is the elastic limit or yield strength of the connection.
(2) Reference minimum parting load is the ultimate strength or parting load of the connection.
(3) Torque values are recommended and can be affected by field conditions.

11/28/2018 3:33 PM

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
26"	0'	988'	20"	94	J55	BTC	1.13	4.56	13.01	13.73
26"	988'	1100'	20"	106.5	J55	BTC	1.50	4.68	133.80	141.26
17.5"	0'	1932'	13.375"	54.5	J55	STC	1.13	3.01	1.98	3.28
17.5"	1932'	2632'	13.375"	61	J55	STC	1.13	2.50	3.85	6.23
17.5"	2632'	3333'	13.375"	68	J55	STC	1.13	1.76	6.04	9.57
17.5"	3333'	4275'	13.375"	68	HCL80	STC	1.31	2.26	17.06	24.29
12.25"	0'	11,057'	9.625"	40	HCL80	LTC	4.07	1	1.79	1.96
12.25"	11,057'	11,650'	9.625"	43.5	HCL80	LTC	5.38	1.04	36.29	38.96
8.5"	11,450'	17,300'	7.625"	39	P110	FJ	8.20	1.08	3.79	5.40
6.125"	17,300'	19,350'	OPEN HOLE							
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Collapse Design

	Surf	Inter	Inter 2	Liner
Partial Evacuation P external: Mud Weight Gradient P internal: Dry Gas to 2000'; Mud Weight Gradient Below			X	X
Full Evacuation P external: Mud Weight Gradient P internal: None	X	X		
Cementing P external: Wet Cement P internal: Displacement Fluid (Water)	X	X	X	X

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? 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 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.	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
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?	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
26"	0'	988'	20"	94	J55	BTC	1.13	4.56	13.01	13.73
26"	988'	1100'	20"	106.5	J55	BTC	1.50	4.68	133.80	141.26
17.5"	0'	1932'	13.375"	54.5	J55	STC	1.13	3.01	1.98	3.28
17.5"	1932'	2632'	13.375"	61	J55	STC	1.13	2.50	3.85	6.23
17.5"	2632'	3333'	13.375"	68	J55	STC	1.13	1.76	6.04	9.57
17.5"	3333'	4275'	13.375"	68	HCL80	STC	1.31	2.26	17.06	24.29
12.25"	0'	11,057'	9.625"	40	HCL80	LTC	4.07	1	1.79	1.96
12.25"	11,057'	11,650'	9.625"	43.5	HCL80	LTC	5.38	1.04	36.29	38.96
8.5"	11,450'	17,300'	7.625"	39	P110	FJ	8.20	1.08	3.79	5.40
6.125"	17,300'	19,350'	OPEN HOLE							
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Collapse Design

	Surf	Inter	Inter 2	Liner
Partial Evacuation P external: Mud Weight Gradient P internal: Dry Gas to 2000'; Mud Weight Gradient Below			X	X
Full Evacuation P external: Mud Weight Gradient P internal: None	X	X		
Cementing P external: Wet Cement P internal: Displacement Fluid (Water)	X	X	X	X

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? 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 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.	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
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?	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

1. Geologic Formations

TVD of target	19,350'	Pilot hole depth	NA
MD at TD:	19,350'	Deepest expected fresh water:	350'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	1040		
Salado	1330		
Base of Salt	4150		
Lamar	4350	Oil	
Bell Canyon			
Cherry Canyon			
Manzanita Marker			
Brushy Canyon			
Bone Spring	8390	Oil/Gas	
1st Bone Spring Sand			
2nd Bone Spring Sand			
3rd Bone Spring Sand			
Wolfcamp	11,640	Oil/Gas	
Canyon Shale			
Strawn	14,190	Oil/Gas	
Atoka	14,290	Oil/Gas	
Morrow			
Top Mississippian	16,850		
Woodford	17,170		
Top Devonian	17,300		
Simpson	19,300		
Ellenburger	19,800		

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

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
26"	0'	988'	20"	94	J55	BTC	1.13	4.56	13.01	13.73
26"	988'	1100'	20"	106.5	J55	BTC	1.50	4.68	133.80	141.26
17.5"	0'	1932'	13.375"	54.5	J55	STC	1.13	3.01	1.98	3.28
17.5"	1932'	2632'	13.375"	61	J55	STC	1.13	2.50	3.85	6.23
17.5"	2632'	3333'	13.375"	68	J55	STC	1.13	1.76	6.04	9.57
17.5"	3333'	4275'	13.375"	68	HCL80	STC	1.31	2.26	17.06	24.29
12.25"	0'	11,057'	9.625"	40	HCL80	LTC	4.07	1	1.79	1.96
12.25"	11,057'	11,650'	9.625"	43.5	HCL80	LTC	5.38	1.04	36.29	38.96
8.5"	11,450'	17,300'	7.625"	39	P110	FJ	8.20	1.08	3.79	5.40
6.125"	17,300'	19,350'	OPEN HOLE							
BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet				

Collapse Design

	Surf	Inter	Inter 2	Liner
Partial Evacuation P external: Mud Weight Gradient P internal: Dry Gas to 2000'; Mud Weight Gradient Below			X	X
Full Evacuation P external: Mud Weight Gradient P internal: None	X	X		
Cementing P external: Wet Cement P internal: Displacement Fluid (Water)	X	X	X	X

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? 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 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.	

Mewbourne Oil Company, Red Hills West SWD #2
Sec 8, T26S, R32E
SL: 1100' FSL & 900' FWL

Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
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	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	1550	12.9	1.97	11	10	Lead: Class C + Salt + Gel + Defoamer + LCM
	200	14.8	1.34	6.3	5	Tail: Class C + Retarder
Inter.	1600	11.8	2.45	11	10	Lead: Lite Class C (50:50:10) + Salt + Defoamer + Dispersant
	200	14.2	1.30	6.3	5	Tail: Lite Class C (50:50:1) + Salt + Defoamer + LCM + Retarder
Prod. Stg 1	910	11.5	2.57	11	10	Lead: Lite Class C (60:40:0) + Defoamer + Dispersant + Extender + LCM
	400	14.3	1.27	5.2	10	Tail: Lite Class H (50:50:2) + Salt
ECP/DV Tool @ 4400'						
Prod. Stg 2	1190	12.5	1.63	9	10	Lead: Lite Class C (60:40:0) + Salt + Gel + Extender + LCM
	100	14.8	1.33	8	6	Tail: Class H + Retarder
Liner	115	11.2	2.96	11	10	Lead: Lite Class H (60:40:0) + Salt + Gel + Defoamer + Extender
	200	14.3	1.25	5.2	10	Tail: Lite Class H (50:50:2) + Salt + Defoamer + Retarder

A copy of cement test will be available on location at time of cement job providing pump times & compressive strengths.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	0'	25%
Liner	11,450'	25%

4. Pressure Control Equipment

Y	Variance: A variance is requested for the use of a diverter while drilling the 17.5" hole. See attached for schematic.
Y	Variance: A variance is requested for use of a 5000 psi annular BOP with the 10,000 psi BOP stack. Please see attached description and procedure.

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	10M	Annular	X	5000#
			Blind Ram	X	10000#
			Pipe Ram		
			Double Ram	X	
			Other*		
8-1/2"	13-5/8"	10M	Annular	X	5000#
			Blind Ram	X	10000#
			Pipe Ram		
			Double Ram	X	
			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.

X	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?
N	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. • Provide description here: See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1100'	Spud Mud	8.4-8.7	28	N/C
1100'	4275'	Saturated Brine	10.0	29	N/C
4275'	11,650'	Cut Brine	8.7-10.0	30-40	<20
11,650'	17,300'	Cut Brine	10.0-13.0	30-40	<10
17,300'	19,350'	Cut Brine	9.0	29	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.

What will be used to monitor the loss or gain of fluid?	Pason/PVT/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
X	Gamma Ray	0' – 19,350'
	Density	
X	CBL	0' – 17,300'
	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	9056 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers in surface hole. Weighted mud for possible over-pressure in Wolfcamp formation.

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.	
	H2S is present
X	H2S Plan attached

8. Other facets of operation

Is this a walking operation? If yes, describe.
Will be pre-setting casing? If yes, describe.

Attachments
___ Directional Plan
___ Other, describe

APD ID: 10400031772 **Submission Date:** 07/05/2018

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Well Type: INJECTION - DISPOSAL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

RedHillWestSWD_2_existingroadmap_20180629135614.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

RedHillWestSWD_2_newroadmap_20180629135644.pdf

New road type: RESOURCE

Length: 372.83 Feet **Width (ft.):** 20

Max slope (%): 3 **Max grade (%):** 3

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: None

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: OFFSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth:

Offsite topsoil source description: Stored onsite, on edge of slope.

Onsite topsoil removal process:

Access other construction information: None

Access miscellaneous information: None

Number of access turnouts: 1 **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: None

Road Drainage Control Structures (DCS) description: None

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

RedHillWestSWD_2_existingwellmap_20180629135739.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: Production facility will be located on the west side of location.

Production Facilities map:

RedHillWestSWD_2_productionfacilitymap_20180629135958.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Water source use type: CAMP USE, DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING **Water source type:** IRRIGATION

Describe type:

Source latitude: 32.204 **Source longitude:** -103.40123

Source datum: NAD83

Water source permit type: WATER WELL

Source land ownership: FEDERAL

Water source transport method: TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 3510 **Source volume (acre-feet):** 0.45241478

Source volume (gal): 147420

Water source use type: DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE CASING **Water source type:** IRRIGATION

Describe type:

Source latitude: 32.430565 **Source longitude:** -103.66579

Source datum: NAD83

Water source permit type: WATER WELL

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 3510 **Source volume (acre-feet):** 0.45241478

Source volume (gal): 147420

Water source and transportation map:

RedHillWestSWD_2_watersourcetransmap_20180629140156.pdf

Water source comments:

New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: See map attached

Construction Materials source location attachment:

RedHillWestSWD_2_calichesourcetransmap_20180629140700.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttings

Amount of waste: 3510 barrels

Waste disposal frequency : One Time Only

Safe containment description: Drill cuttings will be properly contained in steel tanks (20 yard roll off bins.)

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: NMOCD approved waste disposal locations are CRI or Lea Land, both facilities are located on HWY 62/180, Sec. 27 T20S R32E.

Waste type: SEWAGE

Waste content description: Human waste & grey water

Amount of waste: 1500 gallons

Waste disposal frequency : Weekly

Safe containment description: 2,000 gallon plastic container

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Disposal location description: City of Carlsbad Water Treatment facility

Waste type: GARBAGE

Waste content description: Garbage & trash

Amount of waste: 1500 pounds

Waste disposal frequency : One Time Only

Safe containment description: Enclosed trash trailer

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: Waste Management facility in Carlsbad.

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? NO

Description of cuttings location

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

RedHillWestSWD_2_wellsitelayout_20180629140731.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name:

Multiple Well Pad Number:

Recontouring attachment:

Drainage/Erosion control construction: None

Drainage/Erosion control reclamation: None

Well pad proposed disturbance (acres): 4.59
Road proposed disturbance (acres): 0.257
Powerline proposed disturbance (acres): 0
Pipeline proposed disturbance (acres): 0
Other proposed disturbance (acres): 0
Total proposed disturbance: 4.847

Well pad interim reclamation (acres): 0.93
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 0.93

Well pad long term disturbance (acres): 3.66
Road long term disturbance (acres): 0
Powerline long term disturbance (acres): 0
Pipeline long term disturbance (acres): 0
Other long term disturbance (acres): 0
Total long term disturbance: 3.66

Disturbance Comments: In areas to be heavily disturbed, the top 6 inches of soil material, will be stripped and stockpiled on the perimeter of the well location to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil should include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils. Contaminated soil will not be stockpiled, but properly treated and handled prior to topsoil salvaging.
Reconstruction method: The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.
Topsoil redistribution: Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts & fills. To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used.

Soil treatment: NA

Existing Vegetation at the well pad: Various brush & grasses

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Various brush & grasses

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: NA

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: NA

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Bradley **Last Name:** Bishop

Phone: (575)393-5905 **Email:** bbishop@mewbourne.com

Seedbed prep: Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
Seed BMP: To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used.

Seed method: drilling or broadcasting seed over entire reclaimed area.

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: NA

Weed treatment plan attachment:

Monitoring plan description: vii. All reclaimed areas will be monitored periodically to ensure that revegetation occurs, that the area is not redisturbed, and that erosion and invasive/noxious weeds are controlled.
Monitoring plan attachment:

Success standards: regrowth within 1 full growing season of reclamation.

Pit closure description: NA

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: EXISTING ACCESS ROAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

Operator Name: MEWBOURNE OIL COMPANY

Well Name: RED HILLS WEST SWD **Well Number:** 2

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: NONE

Use a previously conducted onsite? YES

Previous Onsite information: MAY 25 2016 Met with Vance Wolf & Kelley Reid (BLM) & RRC Surveying & staked location @ 1100' FSL & 900' FWL, Sec 8, T26S, R32E, Lea Co., NM. (Elevation @ 3206'). This appears to be a drillable location with pit area to the N. Topsoil stockpiled 30' wide on E side. Reclaim 60' N & E. New road will be off NE corner offset by 60' W of corner. Battery will be on W side. This will be a 340' x 340' pad. Straw wattles and water diversion of draw needed on NE corner. Location is in MOA/PA.

Other SUPO Attachment

RedHillWestSWD_2_interimreclamationdiagram_20180629140907.pdf

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

01/04/2019

Bond Information

Federal/Indian APD: FED

BLM Bond number: NM1693

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: