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Carlsbad Field Office
OCD Hobbs

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SEP 12 2018
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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.
NMNM086150

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other

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.
BRAD DYER FEDERAL 322432
202H

2. Name of Operator
MATADOR PRODUCTION COMPANY 228937

9. API Well No
30-025-

3a. Address
5400 LBJ Freeway, Suite 1500 Dallas TX 75240

3b. Phone No *(include area code)*
(972)371-5200

10. Field and Pool, or Exploratory
WILDCAT / WOLFCAMP 98297

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

At surface SESW / 330 FSL / 2159 FWL / LAT 32.3418697 / LONG -103.6469928

At proposed prod. zone NENW / 240 FNL / 1650 FWL / LAT 32.3548168 / LONG -103.648646

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 35 / T22S / R32E / NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish

13. State

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
330 feet	320	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**
2299 feet	12170 feet / 16940 feet	FED: NMB001079
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3731 feet	06/01/2018	90 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)	Brian Wood / Ph: (505)466-8120	03/31/2018
Title: President		
Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	08/23/2018
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.

GCP Rec 08/12/18

KZ 09/14/18

Double sided

APPROVED WITH CONDITIONS

Approval Date: 08/23/2018

(Continued on page 2)

*(Instructions on page 2)

SL

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: SESW / 330 FSL / 2159 FWL / TWSP: 22S / RANGE: 32E / SECTION: 35 / LAT: 32.3418697 / LONG: -103.6469928 (TVD: 0 feet, MD: 0 feet)
   PPP: SESW / 330 FSL / 2159 FWL / TWSP: 22S / RANGE: 32E / SECTION: 35 / LAT: 32.3418697 / LONG: -103.6469928 (TVD: 0 feet, MD: 0 feet)
   BHL: NENW / 240 FNL / 1650 FWL / TWSP: 22S / RANGE: 32E / SECTION: 35 / LAT: 32.3548168 / LONG: -103.648646 (TVD: 12170 feet, MD: 16940 feet)

BLM Point of Contact

Name: Sipra Dahal
Title: Legal Instruments Examiner
Phone: 5752345983
Email: sdahal@blm.gov

Approval Date: 08/23/2018

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

AFMSS

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

Operator Certification Data Report

08/24/2018

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: Brian Wood **Signed on:** 03/31/2018

Title: President

Street Address: 37 Verano Loop

City: Santa Fe **State:** NM **Zip:** 87508

Phone: (505)466-8120

Email address: afmss@permitswest.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

08/24/2018

APD ID: 10400028976 **Submission Date:** 03/31/2018

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Show Final Text

Section 1 - General

APD ID: 10400028976 **Tie to previous NOS?** **Submission Date:** 03/31/2018

BLM Office: CARLSBAD **User:** Brian Wood **Title:** President

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

Lease number: NMNM086150 **Lease Acres:** 320

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

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

Agreement number:

Agreement name:

Keep application confidential? NO

Permitting Agent? YES **APD Operator:** MATADOR PRODUCTION COMPANY

Operator letter of designation:

Operator Info

Operator Organization Name: MATADOR PRODUCTION COMPANY

Operator Address: 5400 LBJ Freeway, Suite 1500 **Zip:** 75240

Operator PO Box:

Operator City: Dallas **State:** TX

Operator Phone: (972)371-5200

Operator Internet Address: amonroe@matadorresources.com

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: BRAD DYER FEDERAL **Well Number:** 202H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WILDCAT **Pool Name:** WOLFCAMP

Is the proposed well in an area containing other mineral resources? NATURAL GAS,CO2

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

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:** BRAD DYER **Number:** 202H

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

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 29 Miles **Distance to nearest well:** 2299 FT **Distance to lease line:** 330 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: BD_202H_Plat_GasCap_Plan_20180709143810.pdf

Well work start Date: 06/01/2018 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 19642

	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	330	FSL	2159	FWL	22S	32E	35	Aliquot SESW	32.3418697	-103.6469928	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 086150	3731	0	0
KOP Leg #1	330	FSL	2159	FWL	22S	32E	35	Aliquot SESW	32.3418697	-103.6469928	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 086150	-7860	11620	11591
PPP Leg #1	330	FSL	2159	FWL	22S	32E	35	Aliquot SESW	32.3418697	-103.6469928	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 086150	3731	0	0

Operator Name: MATADOR PR CTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

	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	240	FNL	1650	FWL	22S	32E	35	Aliquot NENW	32.3548168	-103.648646	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 086150	-8439	16940	12170
BHL Leg #1	240	FNL	1650	FWL	22S	32E	35	Aliquot NENW	32.3548168	-103.648646	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 086150	-8439	16940	12170

APD ID: 10400028976 **Submission Date:** 03/31/2018

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Well Type: CONVENTIONAL GAS 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	---	3731	0	0	OTHER : Quaternary	USEABLE WATER	No
2	RUSTLER ANHYDRITE	2542	1189	1189		NONE	No
3	SALADO	2066	1665	1667	SALT	NONE	No
4	BASE OF SALT	-1201	4932	4951		NONE	No
5	BELL CANYON	-1203	4934	4953	SANDSTONE	NATURAL GAS,CO2,OIL	No
6	BRUSHY CANYON	-3400	7131	7161	SANDSTONE	NATURAL GAS,CO2,OIL	No
7	BONE SPRING	-4972	8703	8733	LIMESTONE	NATURAL GAS,CO2,OIL	No
8	BONE SPRING 1ST	-6075	9806	9836	OTHER : Carbonate	NATURAL GAS,CO2,OIL	No
9	BONE SPRING 1ST	-6097	9828	9857	SANDSTONE	NATURAL GAS,CO2,OIL	No
10	BONE SPRING 2ND	-6430	10161	10191	OTHER : Carbonate	NATURAL GAS,CO2,OIL	No
11	BONE SPRING 2ND	-6788	10519	10548	SANDSTONE	NATURAL GAS,CO2,OIL	No
12	BONE SPRING 3RD	-7237	10968	10997	OTHER : Carbonate	NATURAL GAS,CO2,OIL	No
13	BONE SPRING 3RD	-8022	11753	11784	SANDSTONE	NATURAL GAS,CO2,OIL	No
14	WOLFCAMP	-8310	12041	12138	OTHER : A Carbonate	NATURAL GAS,CO2,OIL	Yes

Section 2 - Blowout Prevention

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Pressure Rating (PSI): 10M Rating Depth: 12000

Equipment: A 13-5/8" 10,000 psi BOP stack consisting of 2 rams with 2 pipe rams, 1 blind ram, and 1 annular preventer will be tested before surface casing is set. See attached BOP, choke manifold, co-flex hose, and speed head diagrams. An accumulator complying with Onshore Order 2 requirements for the BOP stack pressure rating will be present. Rotating head will be installed as needed.

Requesting Variance? YES

Variance request: Matador requests a variance for drilling this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. Manufacturer does not require the hose to be anchored if the specific hose is not available, then one of equal or higher rating will be used. Operator requests a variance to use a 5M Annular and test to 250 psi low and 5000 psi high. Matador is requesting a variance to use a speed head for setting the Intermediate (9-5/8") casing. In the case of running a speed head with landing mandrel for 9-5/8" casing, BOP test pressures after setting surface casing will be 250 psi low and 5000 psi high. Annular will be tested to 250 psi low and 2500 psi high before drilling below the surface shoe. The BOPs will not be tested again until after setting 7-5/8" x 7" casing unless any seals are separated. A diagram of the speed head is attached.
Testing Procedure: Pressure tests will be conducted before drilling out from under all casing strings. BOP will be inspected and operated as required in Onshore Order 2. Kelly cock and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position. A third party company will test the BOPs. After setting surface casing, a minimum 5M BOPE system will be installed. Test pressures will be 250 psi low and 5000 psi high with the annular being tested to 250 psi low and 2500 psi high before drilling below surface shoe. In the event that the rig drills multiple wells on the pad and the BOPs are removed after setting Intermediate 2 casing, a full BOP test will be performed when the rig returns and the 5M BOPE system is re-installed. After setting 7-5/8" x 7" Casing, pressure tests will be made to 250 psi low and 10,000 psi high. Annular will tested to 250 psi low and 5000 psi high.

Choke Diagram Attachment:

BD_202H_Choke_10M_20180712142833.pdf

BOP Diagram Attachment:

BD_202H_BOP_20180331122102.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	SURFACE	17.5	13.375	NEW	API	N	0	1235	0	1235	3731		1235	J-55	54.5	OTHER - BTC	1.125	1.125	DRY	1.8	DRY	1.8
2	INTERMEDIATE	8.75	7.625	NEW	API	Y	0	4710	0	4692	3731		4710	P-110	29.7	OTHER - BTC	1.125	1.125	DRY	1.8	DRY	1.8
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5010	0	4990	3731		5010	J-55	40	OTHER - BTC	1.125	1.125	DRY	1.8	DRY	1.8
4	PRODUCTION	6.125	5.5	NEW	API	Y	0	11400	0	11371	3731		11400	P-110	20	OTHER - BTC/TXP	1.125	1.125	DRY	1.8	DRY	1.8

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

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
5	INTERMEDIATE	8.75	7.625	NEW	API	Y	4710	11500	4692	11471			6790	P-110	29.7	OTHER - VAM HTF-NR	1.125	1.125	DRY	1.8	DRY	1.8
6	INTERMEDIATE	8.75	7.0	NEW	API	Y	11500	12420	11471	12155			920	P-110	29	OTHER - BTC	1.125	1.125	DRY	1.8	DRY	1.8
7	PRODUCTION	6.125	4.5	NEW	API	Y	11400	16940	11371	12170			5540	P-110	13.5	OTHER - BTC/TXP	1.125	1.125	DRY	1.8	DRY	1.8

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331122511.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

BD_202H_Casing_Design_Assumptions_20180331123219.pdf

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331123229.pdf

Operator Name: MATADOR PROD_ _ION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331122631.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

5.5in_TXP_Casing_Spec_20180331124841.pdf

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331124855.pdf

Casing ID: 5 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

7.625in_VAM_Casing_Spec_20180331124107.pdf

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331124145.pdf

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Casing Attachments

Casing ID: 6 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

BD_202H_Casing_Design_Assumptions_20180331124642.pdf

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331124506.pdf

Casing ID: 7 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

4.5in_P110_ICY_Casing_Spec_20180331145408.pdf

Casing Design Assumptions and Worksheet(s):

BD_202H_Casing_Design_Assumptions_20180331125224.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
SURFACE	Lead		0	1235	700	1.82	12.8	1274	100	Class C	Bentonite + 2% CaCl2 + 3% NaCl + LCM
SURFACE	Tail		0	1235	400	1.38	14.8	552	100	Class C	5% NaCl + LCM
INTERMEDIATE	Lead		0	4710	600	2.36	11.5	1416	75	TXI	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Tail		0	4710	250	1.38	13.2	345	75	TXI	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Lead		0	5010	1070	2.13	12.6	2279	100	Class C	+ Bentonite + 1% CaCl2 + 8% NaCl + LCM

Operator Name: MATADOR PROD[illegible]ION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Tail		0	5010	500	1.38	14.8	690	100	Class C	5% NaCl + LCM
PRODUCTION	Lead		0	11400	0	0	0	0	0	None	None
PRODUCTION	Tail		0	11400	520	1.17	15.8	620	25	Class H	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Lead		4710	11500	600	2.36	11.5	1416	75	TXI	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Tail		4710	11500	250	1.38	13.2	345	75	TXI	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Lead		11500	12420	600	2.36	11.5	1416	75	TXI	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Tail		11500	12429	250	1.38	13.2	345	75	TXI	Fluid Loss + Dispersant + Retarder + LCM
PRODUCTION	Lead		11400	16940	0	0	0	0	0	None	None
PRODUCTION	Tail		11400	16940	530	1.17	15.8	620		Class H	Fluid Loss + Dispersant + Retarder + LCM

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: All necessary mud products (barite, bentonite, LCM) for weight addition and fluid loss control will be on location at all times. Mud program is subject to change due to hole conditions.

Describe the mud monitoring system utilized: An electronic Pason mud monitoring system complying with Onshore Order 1 will be used.

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

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

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	1235	OTHER : Fresh water spud	8.3	8.3							
1235	5010	OTHER : Brine water	10	10							
5010	12420	OTHER : Fresh water & cut brine	9	9							
12420	16940	OIL-BASED MUD	12.5	12.5							

Section 6 - Test, Logging, Coring

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

A 2-person mud logging program will be used from 12,420' to TD. No electric logs are planned at this time. GR will be collected through the MWD tools from intermediate casing to TD. CBL with CCL will be run as far as gravity will let it fall to TOC.

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

CBL,GR

Coring operation description for the well:

No core or drill stem test is planned.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7600 **Anticipated Surface Pressure:** 4922.6

Anticipated Bottom Hole Temperature(F): 160

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:

BD_202H_H2S_Plan_20180331143304.pdf

Operator Name: MATADOR PROD. .ION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

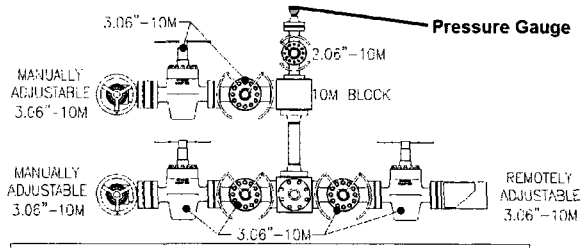
BD_202H_Horizontal_Drill_Plan_20180331143437.pdf

Other proposed operations facets description:

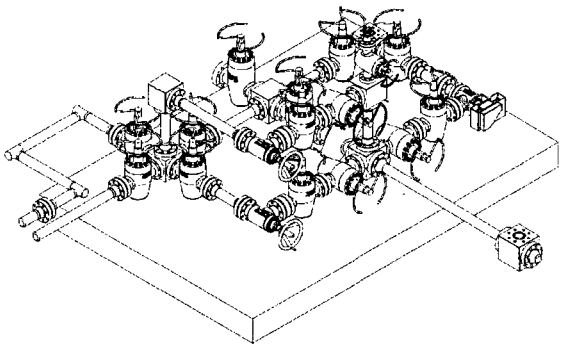
Other proposed operations facets attachment:

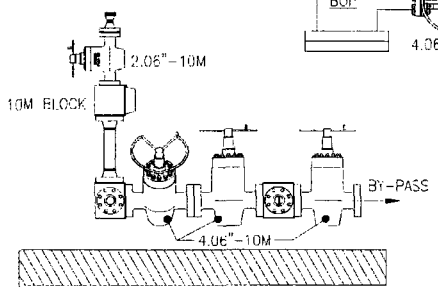
BD_202H_Speedhead_Specs_20180331143517.pdf
BD_202H_General_Drill_Plan_Revised_10M_Choke_20180712142859.pdf
10M_Well_Control_Plan_20180712142916.pdf

Other Variance attachment:

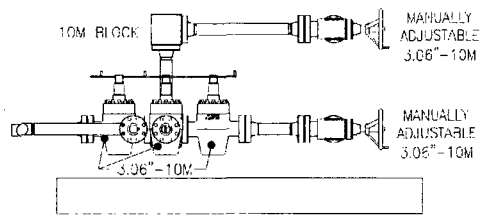


SECTION C-C

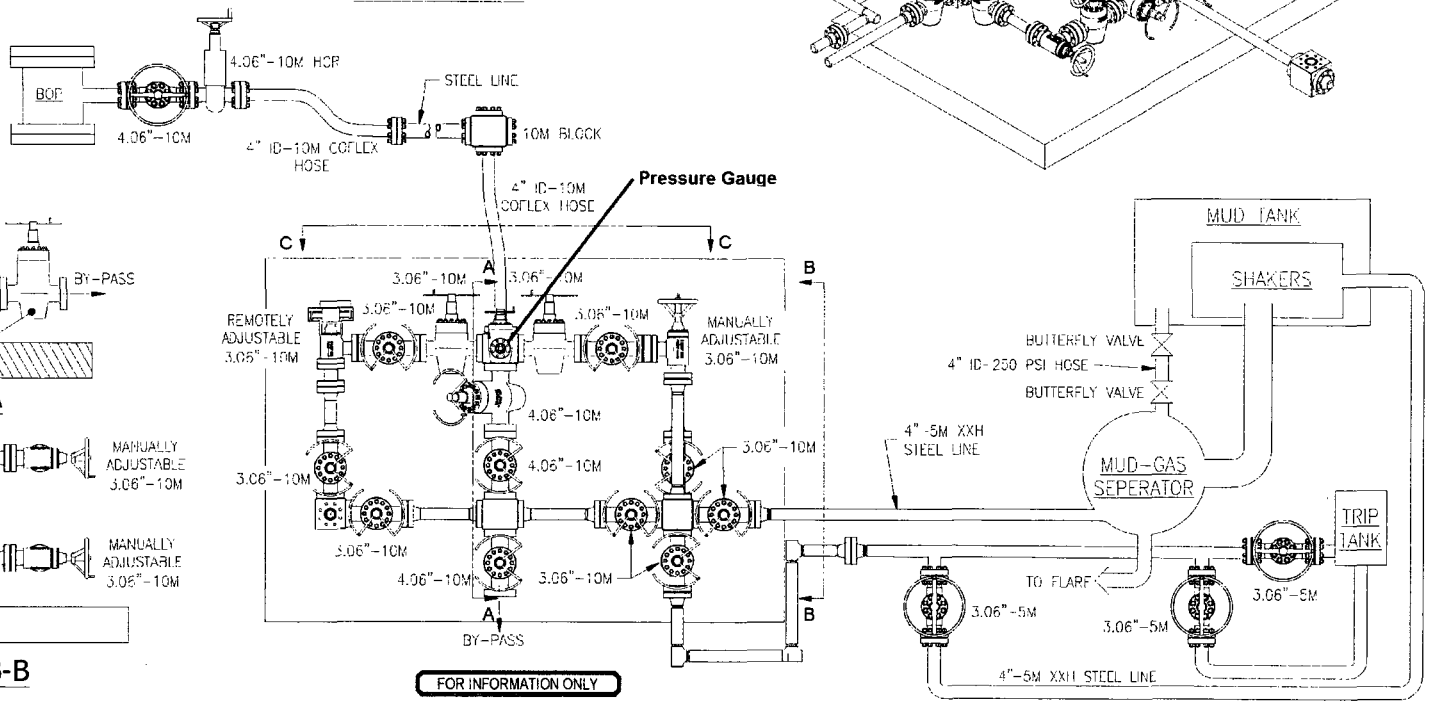




SECTION A-A



SECTION B-B



FOR INFORMATION ONLY

WELDING NOTE & TOLERANCES UNLESS OTHERWISE SPECIFIED.

GENERAL WELDING NOTE:
ALL ACCESSIBLE CONTACT SURFACES SHALL BE JOINED WITH CONTINOUS 45 DEGREE FILLET WELDS. WELD SIZE TO BE 1/16 INCH SMALLER THAN THINNER MEMBER JOINED UP TO 5/16 INCH THICKNESS AND 1/8 INCH SMALLER THAN THINNER MEMBER JOINED UP TO 3/8 INCH THICKNESS
WELDMENT TOLERANCES = +/- 1/16

MACHINING TOLERANCES
1 PLACE DECIMAL = ±.1
2 PLACE DECIMAL = ±.03
3 PLACE DECIMAL = ±.015
FRACTIONAL TOLERANCES = 1/64
INSIDE MACHINED CORNER RADII = ± .031
CHAMFER OUTSIDE CORNERS .03 X 45 DEG
ANGLE TOLERANCES = ±1 DEGREE
MACHINED SURFACE FINISH 125 RMS
ALL UNSPECIFIED DIMENSIONS ARE IN INCHES

REV	DATE	DESCRIPTION	DRWN BY	CHK BY	APRVD ENG
1	04/13/2018	ADDED 3RD CHOKE & MULTIPLE VIEWS	RA	JN	JD
0	12/14/2017	ISSUE FOR INFORMATION	JN		

PATTERSON-UTI DRILLING COMPANY LLC

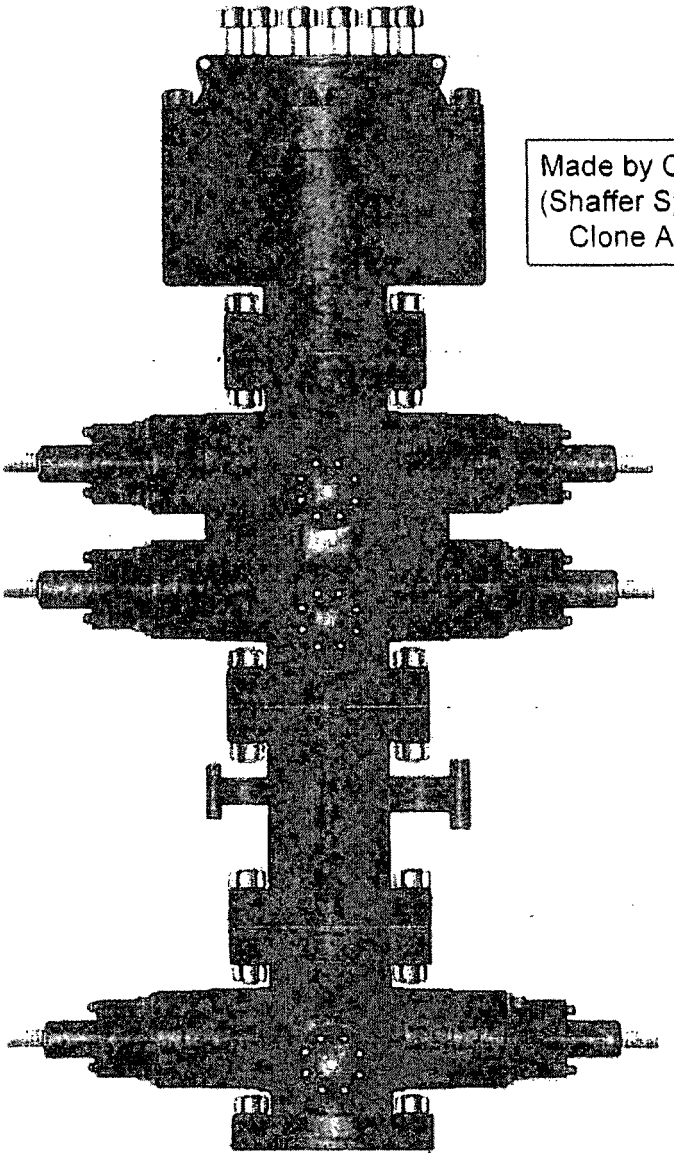
APEX-XK 1500 WALKING

RIG 282
CHOKE ARRANGEMENT

DWG NO. R282-PIP.001 | SHT 1 OF 1 | REV 1

PATTERSON-UTI
Well Control

RIG: 297



Made by Cameron
(Shaffer Spherical)
Clone Annular

PATTERSON-UTI # PS2-628
STYLE: New Shaffer Spherical
BORE 13 5/8" PRESSURE 5,000
HEIGHT: 48 ½" WEIGHT: 13,800 lbs

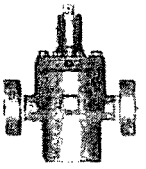
PATTERSON-UTI # PC2-128
STYLE: New Cameron Type U
BORE 13 5/8" PRESSURE 10,000
RAMS: TOP 5" Pipe BTM Blinds
HEIGHT: 66 5/8" WEIGHT: 24,000 lbs

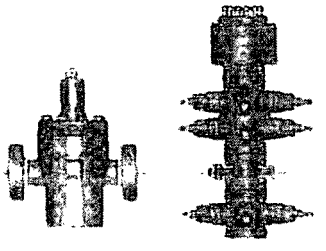
Length 40" Outlets 4" 10M
DSA 4" 10M x 2" 10M

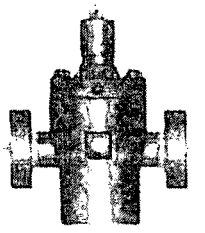
PATTERSON-UTI # PC2-228
STYLE: New Cameron Type U
BORE 13 5/8" PRESSURE 10,000
RAMS: 5" Pipe
HEIGHT: 41 5/8" WEIGHT: 13,000 lbs

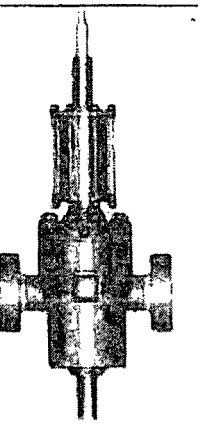
WING VALVES


2" Check Valve


2" Manual Valve


2" Manual Valve


4" Manual Valve


4" Hydraulic Valve

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

December 8, 2014

Customer: Patterson

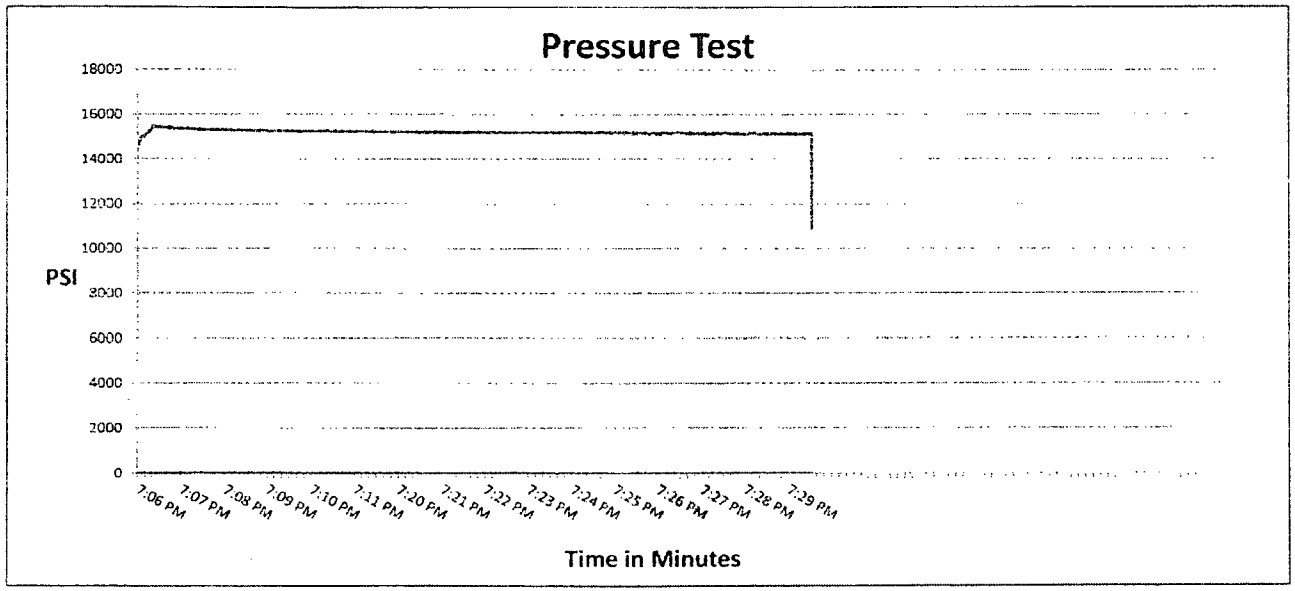
Pick Ticket #: 284918

Hose Specifications

Hose Type	Length
Ck	10'
I.D.	**O.D.**
3"	4.79"
Working Pressure	**Burst Pressure**
10000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4-1/16 10K	Swage
Die Size	**Final O.D.**
5.37"	5.37"
Hose Serial #	**Hose Assembly Serial #**
10490	284918-2



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	15 2/4 Minutes		15732 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Tyler Hill*

Approved By: *Ryan Adams*

Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	PATTERSON B&E	Hose Assembly Type	Choke & Kill
MWH Sales Representative	AMY WHITE	Certification	API 7K
Date Assembled	12/8/2014	Hose Grade	MUD
Location Assembled	OKC	Hose Working Pressure	10000
Sales Order #	236404	Hose Lot # and Date Code	10490-01/13
Customer Purchase Order #	260471	Hose I.D. (Inches)	3"
Assembly Serial # (Pick Ticket #)	287918-2	Hose O.D. (Inches)	5.30"
Hose Assembly Length	10'	Armor (yes/no)	YES

Fittings			
End A		End B	
Stem (Part and Revision #)	R3.0X64WB	Stem (Part and Revision #)	R3.0X64WB
Stem (Heat #)	91996	Stem (Heat #)	91996
Ferrule (Part and Revision #)	RF3.0	Ferrule (Part and Revision #)	RF3.0
Ferrule (Heat #)	37DA5631	Ferrule (Heat #)	37DA5631
Connection (Part #)	4 1/16 10K	Connection (Part #)	4 1/16 10K
Connection (Heat #)		Connection (Heat #)	
Dies Used	5.37	Dies Used	5.37

Hydrostatic Test Requirements		
Test Pressure (psi)	15,000	***Hose assembly was tested with ambient water temperature.***
Test Pressure Hold Time (minutes)	15 1/2	

Date Tested	Tested By	Approved By
12/8/2014		

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer:	**PATTERSON B&E**	*Customer P.O.#*	**260471**
Sales Order #	**236404**	*Date Assembled:*	**12/8/2014**

Specifications

Hose Assembly Type:	**Choke & Kill**		
Assembly Serial #	**287918-2**	*Hose Lot # and Date Code*	**10490-01/13**
Hose Working Pressure (psi)	**10000**	*Test Pressure (psi)*	**15000**

We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.

Supplier:
Midwest Hose & Specialty, Inc.
3312 S I-35 Service Rd
Oklahoma City, OK 73129

Comments:

Approved By	***Date***
	12/9/2014

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

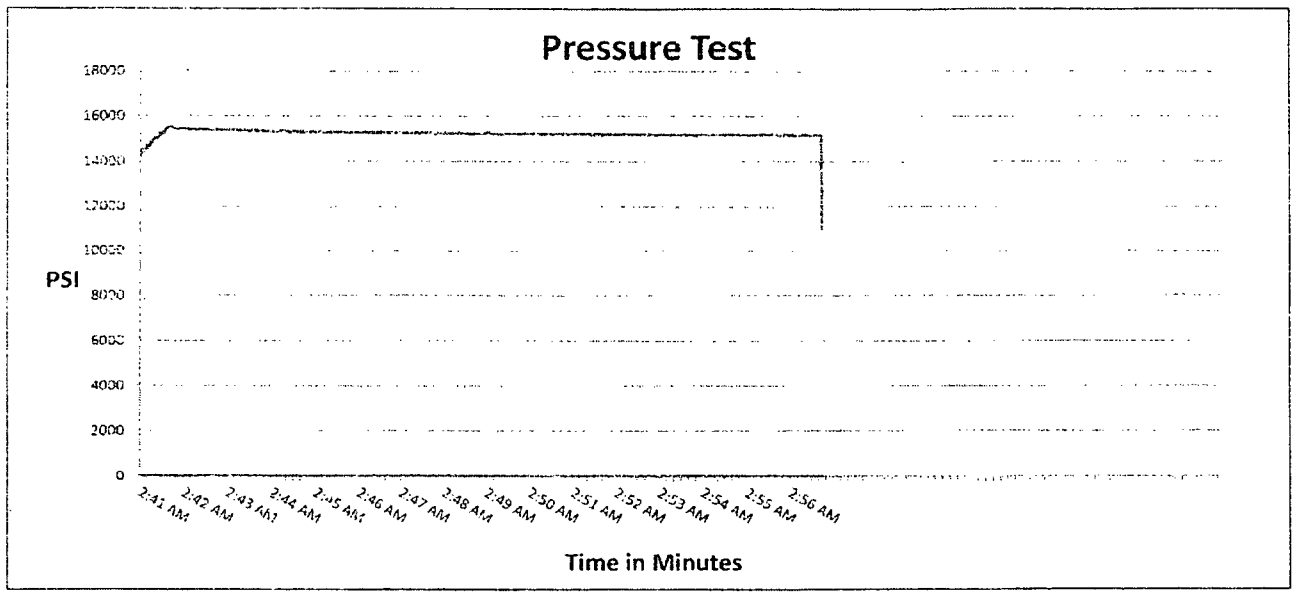
December 9, 2014

Customer: Patterson

Pick Ticket #: 284918

R29

Hose Specifications		Verification	
Hose Type	**Length**	**Type of Fitting**	**Coupling Method**
Ck	20'	4-1/16 10K	Swage
I.D.	**O.D.**	**Die Size**	**Final O.D.**
3"	4.77"	5.37"	5.40"
Working Pressure	**Burst Pressure**	**Hose Serial #**	**Hose Assembly Serial #**
10000 PSI	Standard Safety Multiplier Applies	10490	284918-1



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	15 2/4 Minutes		15893 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Tyler Hill*

Approved By: *Ryan Adams*

Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	PATTERSON B&E	*Hose Assembly Type*	Choke & Kill
MWH Sales Representative	AMY WHITE	*Certification*	API 7K
Date Assembled	12/8/2014	*Hose Grade*	MUD
Location Assembled	OKC	*Hose Working Pressure*	10000
Sales Order #	236404	*Hose Lot # and Date Code*	10490-01/13
Customer Purchase Order #	260471	*Hose I.D. (Inches)*	3"
Assembly Serial # (Pick Ticket #)	287918-1	*Hose O.D. (Inches)*	5.30"
Hose Assembly Length	20'	*Armor (yes/no)*	YES

Fittings			
End A		End B	
Stem (Part and Revision #)	R3.0X64WB	*Stem (Part and Revision #)*	R3.0X64WB
Stem (Heat #)	A141420	*Stem (Heat #)*	A141420
Ferrule (Part and Revision #)	RF3.0	*Ferrule (Part and Revision #)*	RF3.0
Ferrule (Heat #)	37DA5631	*Ferrule (Heat #)*	37DA5631
Connection (Part #)	4 1/16 10K	*Connection (Part #)*	4 1/16 10K
Connection (Heat #)	V3579	*Connection (Heat #)*	V3579
Dies Used	5.37	*Dies Used*	5.37

Hydrostatic Test Requirements		
Test Pressure (psi)	15,000	***Hose assembly was tested with ambient water temperature.***
Test Pressure Hold Time (minutes)	15 1/2	

Date Tested	*Tested By*	*Approved By*
12/9/2014		

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: **PATTERSON B&E**	*Customer P.O.#* **260471**
Sales Order # **236404**	*Date Assembled:* **12/8/2014**

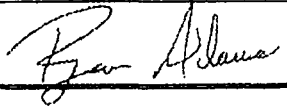
Specifications

Hose Assembly Type:	**Choke & Kill**		
Assembly Serial #	**287918-1**	*Hose Lot # and Date Code*	**10490-01/13**
Hose Working Pressure (psi)	**10000**	*Test Pressure (psi)*	**15000**

We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.

Supplier:
Midwest Hose & Specialty, Inc.
3312 S I-35 Service Rd
Oklahoma City, OK 73129

Comments:

Approved By	***Date***
	**12/9/2014**

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

December 9, 2014

Customer: Patterson

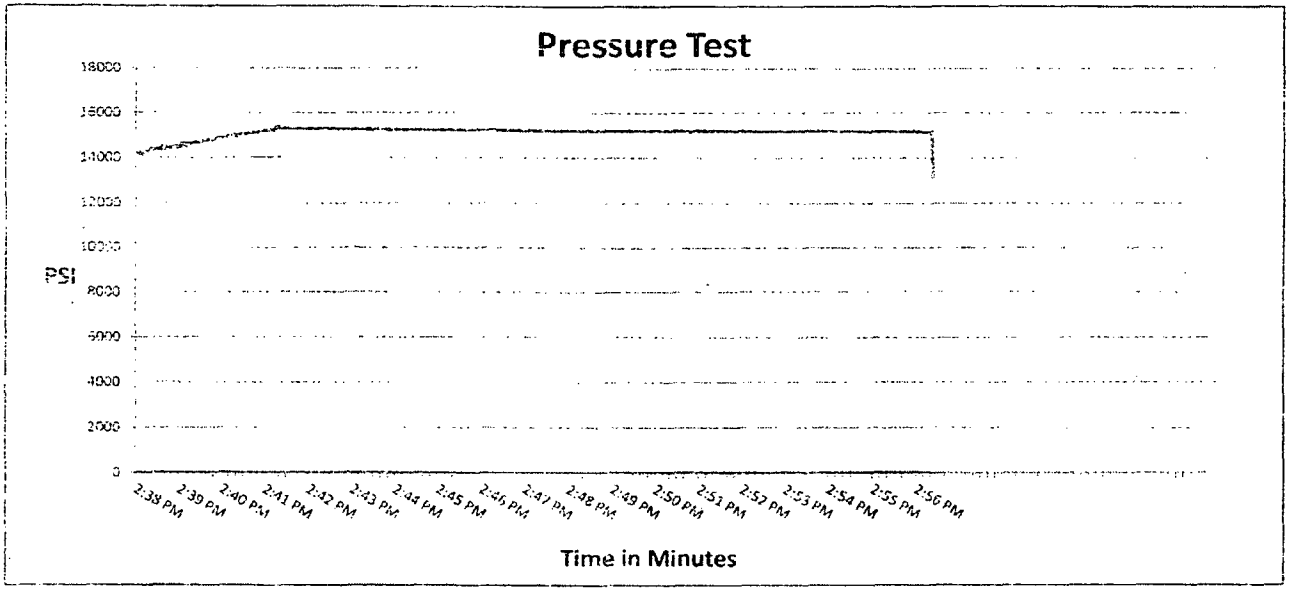
Pick Ticket #: 284918

Hose Specifications

Hose Type	Length
Mud	70'
I.D.	**O.D.**
3"	4.79"
Working Pressure	**Burst Pressure**
10000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4 1/16 10K	Swage
Die Size	**Final O.D.**
5.37"	5.37"
Hose Serial #	**Hose Assembly Serial #**
10490	284918-3



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	16 3/4 Minutes		15410 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Tyler Hill*

Approved By: *Ryan Adams*

Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	PATTERSON B&E	Hose Assembly Type	Choke & Kill
MWH Sales Representative	AMY WHITE	Certification	API 7K
Date Assembled	12/8/2014	Hose Grade	MUD
Location Assembled	OKC	Hose Working Pressure	10000
Sales Order #	236404	Hose Lot # and Date Code	10490-01/13
Customer Purchase Order #	260471	Hose I.D. (Inches)	3"
Assembly Serial # (Pick Ticket #)	287918-3	Hose O.D. (Inches)	5.23"
Hose Assembly Length	70'	Armor (yes/no)	YES

Fittings			
End A		End B	
Stem (Part and Revision #)	R3.0X64WB	Stem (Part and Revision #)	R3.0X64WB
Stem (Heat #)	A141420	Stem (Heat #)	A141420
Ferrule (Part and Revision #)	RF3.0	Ferrule (Part and Revision #)	RF3.0
Ferrule (Heat #)	37DA5631	Ferrule (Heat #)	37DA5631
Connection (Part #)	4 1/16 10K	Connection (Part #)	4 1/16 10K
Connection (Heat #)		Connection (Heat #)	
Dies Used	5.37	Dies Used	5.37

Hydrostatic Test Requirements		
Test Pressure (psi)	15,000	***Hose assembly was tested with ambient water temperature.***
Test Pressure Hold Time (minutes)	16 3/4	

Date Tested	Tested By	Approved By
12/9/2014		

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: **PATTERSON B&E**	*Customer P.O.#* **260471**
Sales Order # **236404**	*Date Assembled:* **12/8/2014**

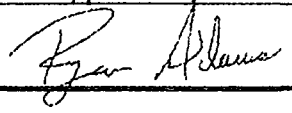
Specifications

Hose Assembly Type:	**Choke & Kill**		
Assembly Serial #	**287918-3**	*Hose Lot # and Date Code*	**10490-01/13**
Hose Working Pressure (psi)	**10000**	*Test Pressure (psi)*	**15000**

We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.

Supplier:
Midwest Hose & Specialty, Inc.
3312 S I-35 Service Rd
Oklahoma City, OK 73129

Comments:

Approved By	*Date*
	**12/9/2014**

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Issued on: 12 Janv. 2017 by T. DELBOSCO

VRCC 16-1177 Rev02 for Houston Field Service

DATA ARE INFORMATIVE ONLY.
BASED ON SI_PD-101836 P&B

VAM® HTF-NR™
Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
7 5/8 in.	29.70 lb/ft	0.375 in.	P110 EC	6.750 in.	VAM® HTF NR

PIPE PROPERTIES	
Nominal OD	7.625 in.
Nominal ID	6.875 in.
Nominal Cross Section Area	8.541 sqin.
Grade Type	Enhanced API
Min. Yield Strength	125 ksi
Max. Yield Strength	140 ksi
Min Ultimate Tensile Strength	135 ksi
Tensile Yield Strength	1 068 klb
Internal Yield Pressure	10 760 psi
Collapse pressure	7 360 psi

CONNECTION PROPERTIES	
Connection Type	Premium Integral Flush
Connection OD (nom)	7.701 in.
Connection ID (nom)	6.782 in.
Make-Up Loss	4.657 in.
Critical Cross Section	4.971 sqin.
Tension Efficiency	58 % of pipe
Compression Efficiency	72.7 % of pipe
Compression Efficiency with Sealability	34.8 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	100 % of pipe

CONNECTION PERFORMANCES	
Tensile Yield Strength	619 klb
Compression Resistance	778 klb
Compression with Sealability	372 klb
Internal Yield Pressure	10 760 psi
External Pressure Resistance	7 360 psi
Max. Bending	44 °/100ft
Max. Bending with Sealability	17 °/100ft

TORQUE VALUES	
Min. Make-up torque	9 600 ft.lb
Opti. Make-up torque	11 300 ft.lb
Max. Make-up torque	13 000 ft.lb
Max. Torque with Sealability	58 500 ft.lb
Max. Torsional Value	73 000 ft.lb

VAM® HTF™ (High Torque Flush) is a flush OD integral connection providing maximum clearance along with torque strength for challenging applications such as extended reach and slim hole wells, drilling liner / casing, liner rotation to acheive better cementation in highly deviated and critical High Pressure / High Temperature wells.

Looking ahea on the outcoming testing industry standards, VAM® decided to create an upgraded design and launch on the market the VAM® HTF-NR as the new standard version of VAM® extreme high torque flush connection. The VAM® HTF-NR has extensive tests as per API RP 5C5:2015 CAL II which include the gas sealability having load points with bending, internal pressure and high temperature at 135°C.

Do you need help on this product? - Remember no one knows VAM® like VAM®

canada@vamfieldservice.com *uk@vamfieldservice.com* *china@vamfieldservice.com*
usa@vamfieldservice.com *dubai@vamfieldservice.com* *baku@vamfieldservice.com*
mexico@vamfieldservice.com *nigeria@vamfieldservice.com* *singapore@vamfieldservice.com*
brazil@vamfieldservice.com *angola@vamfieldservice.com* *australia@vamfieldservice.com*

Over 180 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

Other Connection Data Sheets are available at www.vamservices.com

Vallourec Group

vallourec

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

For the latest performance data, always visit our website: www.tenaris.com

July 15 2015

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110-IC
Min. Wall Thickness: 87.5 %

Connection: TenarisXP™ BTC
Casing/Tubing: CAS
Coupling Option: REGULAR

PIPE BODY DATA

GEOMETRY

Nominal OD	**5.500** in.	Nominal Weight	**20.00** lbs/ft	Standard Drift Diameter	**4.653** in.
Nominal ID	**4.778** in.	Wall Thickness	**0.361** in.	Special Drift Diameter	**N/A**
Plain End Weight	**19.83** lbs/ft				

PERFORMANCE

Body Yield Strength	**641** x 1000 lbs	Internal Yield	**12630** psi	SMYS	**110000** psi
Collapse	**12100** psi				

TENARISXP™ BTC CONNECTION DATA

GEOMETRY

Connection OD	**6.100** in.	Coupling Length	**9.450** in.	Connection ID	**4.766** in.
Critical Section Area	**5.828** sq. in.	Threads per in.	**5.00**	Make-Up Loss	**4.204** in.

PERFORMANCE

Tension Efficiency	**100** %	Joint Yield Strength	**641** x 1000 lbs	Internal Pressure Capacity[1]	**12630** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**641** x 1000 lbs	Structural Bending[2]	**92** °/100 ft
External Pressure Capacity	**12100** psi				

ESTIMATED MAKE-UP TORQUES[3]

Minimum	**11270** ft-lbs	Optimum	**12520** ft-lbs	Maximum	**13770** ft-lbs

OPERATIONAL LIMIT TORQUES

Operating Torque	**21500** ft-lbs	Yield Torque	**23900** ft-lbs		

BLANKING DIMENSIONS

Blanking Dimensions

(1) Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.

(2) Structural rating, pure bending to yield (i.e no other loads applied)

(3) Torque values calculated for API Modified thread compounds with Friction Factor=1. For other thread compounds please contact us at licensees@oilfield.tenaris.com. Torque values may be further reviewed.

For additional information, please contact us at contact-tenarishydril@tenaris.com

For the latest performance data, always visit our website: www.tenaris.com

December 31 2015

Tenaris

Connection: TenarisXP® BTC
Casing/Tubing: CAS
Coupling Option: REGULAR

Size: 4.500 in.
Wall: 0.290 in.
Weight: 13.50 lbs/ft
Grade: P110-ICY
Min. Wall Thickness: 87.5 %

Nominal OD	**4.500** in.	Nominal Weight	**13.50** lbs/ft	Standard Drift Diameter	**3.795** in.
Nominal ID	**3.920** in.	Wall Thickness	**0.290** in.	Special Drift Diameter	**N/A**
Plain End Weight	**13.05** lbs/ft				

Body Yield Strength	**479** x 1000 lbs	Internal Yield	**14100** psi	SMYS	**125000** psi
Collapse	**11620** psi				

Connection OD	**5.000** in.	Coupling Length	**9.075** in.	Connection ID	**3.908** in.
Critical Section Area	**3.836** sq. in.	Threads per in.	**5.00**	Make-Up Loss	**4.016** in.

Tension Efficiency	**100** %	Joint Yield Strength	**479** x 1000 lbs	Internal Pressure Capacity[1]	**14100** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**479** x 1000 lbs	Structural Bending[2]	**127** °/100 ft
External Pressure Capacity	**11620** psi				

Minimum	**6950** ft-lbs	Optimum	**7720** ft-lbs	Maximum	**8490** ft-lbs

Operating Torque	**10500** ft-lbs	Yield Torque	**12200** ft-lbs		

Blanking Dimensions

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.47 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 100 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.65 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.47 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (9.0 ppg).

Production Casing

Collapse: DF_c=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.65 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and mud gradient in which the casing will be run above that (0.65 psi/ft) and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: 8000 psi casing test with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.
- Injection Down Casing: 9500 psi surface injection pressure plus an internal pressure gradient of 0.65 psi/ft with an external force equal to the mud gradient in which the casing will be run (0.65 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (12.5 ppg).

Casing Design Criteria and Load Case Assumptions

Surface Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.43 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.52 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.43 psi/ft), which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (8.3 ppg).

Intermediate #1 Casing

Collapse: DF_C=1.125

- Full Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.52 psi/ft). The effects of axial load on collapse will be considered.
- Cementing: Collapse force equal to the gradient of planned cement slurries to planned depths and an internal force equal to mud gradient of displacement fluid (0.43 psi/ft).

Burst: DF_b=1.125

- Pressure Test: Casing test per Onshore Oil and Gas Order No. 2 with an external force equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Gas Kick Profile: Internal burst force at the shoe will be Fracture Pressure at that depth. Surface burst pressure will be fracture gradient at setting depth less a gas gradient to equivalent height of 50 bbl kick with Drill Pipe inside casing and mud gradient with which the next hole section will be run above that (0.47 psi/ft). External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft), which is a more conservative backup force than pore pressure.
- Fracture at Shoe with 1/3 BHP at Surface: Internal burst force at the shoe will be Fracture Pressure at setting depth. Internal burst force at surface will be 1/3 of pore pressure at setting depth. External force will be equal to the mud gradient in which the casing will be run (0.52 psi/ft) which is a more conservative backup force than pore pressure.

Tensile: DF_t=1.8

- Overpull: A downward force of 100,000 lbs is applied at the shoe along with the weight of the casing string utilizing the effects of buoyancy (10.0 ppg).

Intermediate #2 Casing

Collapse: DF_C=1.125

- Partial Internal Evacuation: Collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft). The effects of axial load on collapse will be considered. Internal force equal to gas gradient over half of setting depth and mud gradient with which the next hole section will be run below that (0.65 psi/ft).

Issued on: 12 Janv. 2017 by T. DELBOSCO

VRCC 16-1177 Rev02 for Houston Field Service

DATA ARE INFORMATIVE ONLY.
BASED ON SI_PD-101836 P&B

VAM® HTF-NR™
Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
7 5/8 in.	29.70 lb/ft	0.375 in.	P110 EC	6.750 in.	VAM® HTF NR

PIPE PROPERTIES	
Nominal OD	7.625 in.
Nominal ID	6.875 in.
Nominal Cross Section Area	8.541 sqin.
Grade Type	Enhanced API
Min. Yield Strength	125 ksi
Max. Yield Strength	140 ksi
Min. Ultimate Tensile Strength	135 ksi
Tensile Yield Strength	1 068 klb
Internal Yield Pressure	10 760 psi
Collapse pressure	7 360 psi

CONNECTION PROPERTIES	
Connection Type	Premium Integral Flush
Connection OD (nom)	7.701 in.
Connection ID (nom)	6.782 in.
Make-Up Loss	4.657 in.
Critical Cross Section	4.971 sqin.
Tension Efficiency	58 % of pipe
Compression Efficiency	72.7 % of pipe
Compression Efficiency with Sealability	34.8 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	100 % of pipe

CONNECTION PERFORMANCES	
Tensile Yield Strength	619 klb
Compression Resistance	778 klb
Compression with Sealability	372 klb
Internal Yield Pressure	10 760 psi
External Pressure Resistance	7 360 psi
Max. Bending	44 °/100ft
Max. Bending with Sealability	17 °/100ft

TORQUE VALUES	
Min. Make-up torque	9 600 ft.lb
Opti. Make-up torque	11 300 ft.lb
Max. Make-up torque	13 000 ft.lb
Max. Torque with Sealability	58 500 ft.lb
Max. Torsional Value	73 000 ft.lb

VAM® HTF™ (High Torque Flush) is a flush OD integral connection providing maximum clearance along with torque strength for challenging applications such as extended reach and slim hole wells, drilling liner / casing, liner rotation to acheive better cementation in highly deviated and critical High Pressure / High Temperature wells.

Looking ahea on the outcoming testing industry standards, VAM® decided to create an upgraded design and launch on the market the VAM® HTF-NR as the new standard version of VAM® extreme high torque flush connection. The VAM® HTF-NR has extensive tests as per API RP 5C5:2015 CAL II which include the gas sealability having load points with bending, internal pressure and high temperature at 135°C.

Do you need help on this product? - Remember no one knows VAM® like VAM®

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Over 180 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

Other Connection Data Sheets are available at www.vamservices.com

Vallourec Group

vallourec

For the latest performance data, always visit our website: www.tenaris.com

July 15 2015

Tenaris

Size: 5.500 in.
Wall: 0.361 in.
Weight: 20.00 lbs/ft
Grade: P110-IC
Min. Wall Thickness: 87.5 %

Connection: TenarisXP™ BTC
Casing/Tubing: CAS
Coupling Option: REGULAR

PIPE BODY DATA

GEOMETRY

Nominal OD	**5.500** in.	Nominal Weight	**20.00** lbs/ft	Standard Drift Diameter	**4.653** in.
Nominal ID	**4.778** in.	Wall Thickness	**0.361** in.	Special Drift Diameter	**N/A**
Plain End Weight	**19.83** lbs/ft				

PERFORMANCE

Body Yield Strength	**641** x 1000 lbs	Internal Yield	**12630** psi	SMYS	**110000** psi
Collapse	**12100** psi				

TENARISXP™ BTC CONNECTION DATA

GEOMETRY

Connection OD	**6.100** in.	Coupling Length	**9.450** in.	Connection ID	**4.766** in.
Critical Section Area	**5.828** sq. in.	Threads per in.	**5.00**	Make-Up Loss	**4.204** in.

PERFORMANCE

Tension Efficiency	**100** %	Joint Yield Strength	**641** x 1000 lbs	Internal Pressure Capacity[1]	**12630** psi
Structural Compression Efficiency	**100** %	Structural Compression Strength	**641** x 1000 lbs	Structural Bending[2]	**92** °/100 ft
External Pressure Capacity	**12100** psi				

ESTIMATED MAKE-UP TORQUES[3]

Minimum	**11270** ft-lbs	Optimum	**12520** ft-lbs	Maximum	**13770** ft-lbs

OPERATIONAL LIMIT TORQUES

Operating Torque	**21500** ft-lbs	Yield Torque	**23900** ft-lbs		

BLANKING DIMENSIONS

Blanking Dimensions

(1) *Internal Pressure Capacity related to structural resistance only. Internal pressure leak resistance as per section 10.3 API 5C3 / ISO 10400 - 2007.*

(2) Structural rating, pure bending to yield (i.e no other loads applied)

(3) Torque values calculated for API Modified thread compounds with Friction Factor=1. For other thread compounds please contact us at licensees@oilfield.tenaris.com. Torque values may be further reviewed.

For additional information, please contact us at contact-tenarishydril@tenaris.com

For the latest performance data, always visit our website: www.tenaris.com

December 31 2015

Tenaris

Size: 4.500 in.
Wall: 0.290 in.
Weight: 13.50 lbs/ft
Grade: P110-ICY
Min. Wall Thickness: 87.5 %

Connection: TenarisXP® BTC
Casing/Tubing: CAS
Coupling Option: REGULAR

Nominal OD	4.500 in.	Nominal Weight	13.50 lbs/ft	Standard Drift Diameter	3.795 in.
Nominal ID	3.920 in.	Wall Thickness	0.290 in.	Special Drift Diameter	N/A
Plain End Weight	13.05 lbs/ft				

Body Yield Strength	479 x 1000 lbs	Internal Yield	14100 psi	SMYS	125000 psi
Collapse	11620 psi				

Connection OD	5.000 in.	Coupling Length	9.075 in.	Connection ID	3.908 in.
Critical Section Area	3.836 sq. in.	Threads per in.	5.00	Make-Up Loss	4.016 in.

Tension Efficiency	100 %	Joint Yield Strength	479 x 1000 lbs	Internal Pressure Capacity[1]	14100 psi
Structural Compression Efficiency	100 %	Structural Compression Strength	479 x 1000 lbs	Structural Bending[2]	127 °/100 ft
External Pressure Capacity	11620 psi				

Minimum	6950 ft-lbs	Optimum	7720 ft-lbs	Maximum	8490 ft-lbs

Operating Torque	10500 ft-lbs	Yield Torque	12200 ft-lbs		

Blanking Dimensions

Matador Production Company **DRILL PLAN PAGE 1**
Brad Dyer Federal 202H
SHL 330' FSL & 2159' FWL
BHL 240' FNL & 1650' FWL
Sec. 35, T. 22 S., R. 32 E., Lea County, NM

DRILLING PROGRAM

1. ESTIMATED TOPS

Formation Name	MD	TVD	Bearing
Quaternary	000'	000'	water
Rustler anhydrite	1189'	1189'	N/A
Salado salt	1667'	1665'	N/A
Base salt	4951'	4932'	N/A
Bell Canyon sandstone	4953'	4934'	hydrocarbons
Brushy Canyon sandstone	7161'	7131'	hydrocarbons
Bone Spring limestone	8733'	8703'	hydrocarbons
1st Bone Spring carbonate	9836'	9806'	hydrocarbons
1st Bone Spring sandstone	9857'	9828'	hydrocarbons
2nd Bone Spring carbonate	10191'	10161'	hydrocarbons
2nd Bone Spring sandstone	10548'	10519'	hydrocarbons
3rd Bone Spring carbonate	10997'	10968'	hydrocarbon
(KOP	11621'	11591'	hydrocarbons)
3rd Bone Spring sandstone	11784'	11753'	hydrocarbons
Wolfcamp A carbonate	12138'	12041'	hydrocarbons & goal
TD	16940'	12170'	hydrocarbons

2. NOTABLE ZONES

Wolfcamp A carbonate is the goal. Hole will extend north of the last perforation point to allow for pump installation. All perforations will be ≥330' from the dedication perimeter. Closest water well (C 02349) is 6556' southwest. Water bearing strata depth were not reported in the 525' deep well.

3. PRESSURE CONTROL

Equipment

A 12,000' 10,000-psi BOP stack consisting of 3 rams with 2 pipe rams, 1 blind ram, and 1 annular preventer will be used below surface casing to TD. See attached BOP, choke manifold, co-flex hose, and speed head diagrams.

An accumulator complying with Onshore Order 2 requirements for the BOP stack pressure rating will be present. Rotating head will be installed as needed.

Testing Procedure

Pressure tests will be conducted before drilling out from under all casing strings. BOP will be inspected and operated as required in Onshore Order 2. Kelly cock and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position.

A third party company will test the BOPs.

After setting surface casing, a minimum 5M BOPE system will be installed. Test pressures will be 250 psi low and 5000 psi high with the annular being tested to 250 psi low and 2500 psi high before drilling below surface shoe. In the event that the rig drills multiple wells on the pad and the BOPs are removed after setting Intermediate 2 casing, a full BOP test will be performed when the rig returns and the 5M BOPE system is re-installed. After setting 7-5/8" x 7" Casing, pressure tests will be made to 250 psi low and 10,000 psi high. Annular will tested to 250 psi low and 5000 psi high.

Variance Request

Matador requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. Manufacturer does not require the hose to be anchored. If the specific hose is not available, then one of equal or higher rating will be used.

Operator requests a variance to use a 5M Annular and test to 250 psi low and 5000 psi high. Matador is requesting a variance to use a speed head for setting the intermediate (9-5/8") casing. In the case of running a speed head with landing mandrel for 9-5/8" casing, BOP test pressures after setting surface casing will be 250 psi low and 5000 psi high. Annular will be tested to 250 psi low and 2500 psi high before drilling below the surface shoe. The BOPs will not be tested again until after setting 7-5/8" x 7" casing unless any flanges are separated. A diagram of the speed head is attached.

4. CASING & CEMENT

All casing will be API and new. See attached casing assumption worksheet.

Hole O. D.	Set MD	Set TVD	Casing O. D.	Weight (lb/ft)	Grade	Joint	Collapse	Burst	Tension
17.5"	0' - 1235'	0' - 1235'	13.375" surface	54.5	J-55	BTC	1.125	1.125	1.8
12.25"	0' - 5010'	0' - 4990'	9.625" inter. 1	40	J-55	BTC	1.125	1.125	1.8
8.75"	0' - 4710'	0' – 4692'	7.625" inter. 2 top	29.7	P-110	BTC	1.125	1.125	1.8
8.75"	4710' – 11500'	4692' – 11471'	7.625" inter. 2 middle	29.7	P-110	VAM HTF-NR	1.125	1.125	1.8
8.75"	11500' – 12420'	11471' – 12155'	7.000" inter. 2 bottom	29	P-110	BTC	1.125	1.125	1.8
6.125"	0' – 11400'	0' – 11371'	5.5" product. top	20	P-110	BTC/TXP	1.125	1.125	1.8
6.125"	11400' – 16940'	11371' – 12170'	4.5" product. Bottom	13.5	P-110	BTC/TXP	1.125	1.125	1.8

Name	Type	Sacks	Yield	Cu. Ft.	Weight	Blend
Surface	Lead	700	1.82	1274	12.8	Class C + Bentonite + 2% $CaCl_2$ + 3% NaCl + LCM
	Tail	400	1.38	552	14.8	Class C + 5% NaCl + LCM
TOC = GL		100% Excess			Centralizers per Onshore Order 2.III.B.1f	
Intermediate 1	Lead	1070	2.13	2279	12.6	Class C + Bentonite + 1% $CaCl_2$ + 8% NaCl + LCM
	Tail	500	1.38	690	14.8	Class C + 5% NaCl + LCM
TOC = GL		100% Excess			2 on btm jt, 1 on 2nd jt, 1 every 4th jt to surface	
Intermediate 2	Lead	600	2.36	1416	11.5	TXI + Fluid Loss + Dispersant + Retarder + LCM
	Tail	250	1.38	345	13.2	TXI + Fluid Loss + Dispersant + Retarder + LCM
TOC = 4400'		75% Excess			2 on btm jt, 1 on 2nd jt, 1 every other jt to top of tail cement (500' above TOC)	
Production	Tail	530	1.17	620	15.8	Class H + Fluid Loss + Dispersant + Retarder + LCM

TOC = 11500'	25% Excess	2 on btm jt, 1 on 2nd jt, 1 every third jt to top of curve

5. MUD PROGRAM

An electronic Pason mud monitoring system complying with Onshore Order 1 will be used. All necessary mud products (barite, bentonite, LCM) for weight addition and fluid loss control will be on location at all times. Mud program is subject to change due to hole conditions. A closed loop system will be used.

Type	Interval (MD)	lb/gal	Viscosity	Fluid Loss
fresh water spud	0' - 1235'	8.3	28	NC
brine water	1235' - 5010'	10.0	30-32	NC
fresh water & cut brine	5010' - 12420'	9.0	30-31	NC
OBM	12420' – 16940'	12.5	50-60	<10

6. CORES, TESTS, & LOGS

No core or drill stem test is planned.

A 2-person mud logging program will be used from ≈12,420' to TD.

No electric logs are planned at this time. GR will be collected through the MWD tools from intermediate casing to TD. CBL with CCL will be run as far as gravity will let it fall to TOC.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈7600 psi. Expected bottom hole temperature is ≈160° F.

In accordance with Onshore Order 6, Matador does not anticipate that there will be enough H_2S from the surface to the Bone Spring to meet the BLM's minimum requirements for the submission of an "H_2S Drilling Operation Plan" or "Public Protection Plan" for drilling and completing this well. Since Matador has an H_2S safety package on all wells, an "H_2S Drilling Operations Plan" is attached. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈3 months to drill and complete the well.

Component and Preventer Compatibility Table:

The table below covers the drilling and casing of the 10M MASP portion of the well and outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Component	OD	Preventer	RWP
Drill pipe	4"	Lower 3.5-5.5" VBR Upper 3.5-5.5" VBR	10M
HWDP	4"		
Jars/Agitator	4.75-5"		
Drill collars and MWD tools	4.75-5.25"		
Mud Motor	4.75-5.25"		
Production casing	4.5-5.5"		
ALL	0-13.625"	Annular	5M
Open-hole	-	Blind Rams	10M

VBR = Variable Bore Ram with compatible range listed in chart
HWDP = Heavy Weight Drill Pipe
MWD = Measurement While Drilling

Well Control Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. 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 Bottom Hole Assembly (BHA) through the Blowout Preventers (BOP). The maximum pressure at which well control is transferred from the annular to another compatible ram is 3,000 psi.

General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps and stop rotary
4. Shut-in well with the annular preventer (The Hydraulic Control Remote (HCR) valve and choke will already be in the closed position)
5. Confirm shut-in
6. Notify tool pusher and company representative
7. Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time of shut in
8. Regroup and identify forward plan
9. If pressure has increased or is anticipated to increase above 3,000 psi, confirm spacing and close the upper pipe rams

General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full opening safety valve and close

3. Space out drill string
4. Shut-in well with annular preventer (The HCR valve and choke will already be in the closed position)
5. Confirm shut-in
6. Notify tool pusher and company representative
7. Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time of shut in
8. Regroup and identify forward plan
9. If pressure has increased or is anticipated to increase above 3,000 psi, confirm spacing and close the upper pipe rams

General Procedure While Running Casing

1. Sound alarm (alert crew)
2. Stab crossover and full opening safety valve and close
3. Space out string
4. Shut-in well with annular preventer (The HCR valve and choke will already be in the closed position)
5. Confirm shut-in
6. Notify tool pusher and company representative
7. Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time of shut in
8. Regroup and identify forward plan
9. If pressure has increased or is anticipated to increase above 3,000 psi, confirm spacing and close the upper pipe rams

General Procedure with No Pipe In Hole

1. At any point when the BOP stack is clear of pipe or BHA, the well will be shut in with blind rams, the HCR valve will be open, and choke will be closed. If pressure increase is observed:
2. Sound alarm (alert crew)
3. Confirm shut-in
4. Notify tool pusher and company representative
5. Read and record the following:
    - SICP
    - Time of shut in
6. Regroup and identify forward plan

General Procedure While Pulling BHA through Stack

1. Prior to pulling last joint/stand of drill pipe through the stack, perform flow check. If flowing:
    a. Sound alarm (alert crew)
    b. Stab full opening safety valve and close
    c. Space out drill string
    d. Shut-in well with annular preventer (The HCR valve and choke will already be in the closed position)
    e. Confirm shut-in

f. Notify tool pusher and company representative
g. Read and record the following:
    - SIDPP and SICP
    - Pit gain
    - Time of shut in
h. Regroup and identify forward plan

2. With BHA in the stack and compatible ram preventer and pipe combo immediately available:
    a. Sound alarm (alert crew)
    b. Stab crossover and full opening safety valve and close
    c. Space out drill string with the upset just beneath the compatible pipe ram
    d. Shut-in well using compatible pipe rams (The HCR valve and choke will already be in the closed position)
    e. Confirm shut-in
    f. Notify tool pusher and company representative
    g. Read and record the following:
        - SIDPP and SICP
        - Pit gain
        - Time of shut in
    h. Regroup and identify forward plan

3. With BHA in the stack and no compatible ram preventer and pipe combo immediately available:
    a. Sound alarm (alert crew)
    b. If possible to pick up high enough, pull BHA clear of the stack
        i. Follow "No Pipe in Hole" procedure above
    c. If impossible to pick up high enough to pull string clear of the stack:
        i. Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
        ii. Space out drill string with the upset just beneath the compatible pipe ram
        iii. Shut-in well using compatible pipe rams (The HCR valve and choke will already be in the closed position)
        iv. Confirm shut-in
        v. Notify tool pusher and company representative
        vi. Read and record the following:
            - SIDPP and SICP
            - Pit gain
            - Time of shut in
        vii. Regroup and identify forward plan

Well Control Drills

Well control drills are specific to the rig equipment, personnel, and operations. Each crew will execute one drill weekly relevant to ongoing operations, but will make a reasonable attempt to vary the type of drills. The drills will be recorded in the daily drilling log.

APD ID: 10400028976 **Submission Date:** 03/31/2018

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Well Type: CONVENTIONAL GAS WELL **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:

BD_202H_Road_Map_20180331143557.pdf

Existing Road Purpose: ACCESS **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:

BD_202H_New_Road_Map_20180331143631.pdf

New road type: RESOURCE

Length: 1280.7 Feet **Width (ft.):** 30

Max slope (%): 0 **Max grade (%):** 2

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Crowned and dtiched

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: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: Grader

Access other construction information:

Access miscellaneous information: A 3" O. D. poly surface flowline on the west side of the existing road will be padded.

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

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: Crowned and ditched

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:

BD_202H_Well_Map_20180331143835.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 equipment will be located on the south and west sides of the pad. A 3-phase overhead raptor-safe power line will be built south and east 2,924.64' from an existing power pole at OXY's Red Tank 35 Federal 3 SWD. No pipeline plans have been finalized at this time.
Production Facilities map:

BD_202H_Production_Facilities_20180331143901.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

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

Water source type: GW WELL

Describe type:

Source longitude:

Source latitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: FEDERAL

Water source volume (barrels): 20000

Source volume (acre-feet): 2.577862

Source volume (gal): 840000

Water source and transportation map:

BD_202H_Water_Source_Map_20180331144042.pdf

Water source comments: Water will be trucked from an existing water station on private land. Berry's water station (CP 00802) is in NWNE 2-21s-33e.

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:**

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:

Operator Name: MATADOR PRC TION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

Section 6 - Construction Materials

Construction Materials description: NM One Call (811) will be notified before construction starts. Top 6" of soil and brush will be stockpiled north of the pad. V-door will face south. Closed loop drilling system will be used. Caliche will be hauled from an existing caliche pit on private (Berry) land in E2NE4 35-20s-34e.
Construction Materials source location attachment:

BD_202H_Construction_Methods_20180331144114.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Cuttings, mud, salts, and other chemicals

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: Steel tanks

Safe containmant attachment:

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

Disposal location description: R360's state approved (NM-01-0006) disposal site at Halfway, NM.

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? YES

Description of cuttings location Steel tanks on pad

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

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

BD_202H_Well_Site_Layout_20180331144335.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** BRAD DYER

Multiple Well Pad Number: 202H

Recontouring attachment:

BD_202H_Recontour_Plat_20180331144408.pdf

BD_202H_Interim_Reclamation_Diagram_20180331144421.pdf

Drainage/Erosion control construction: Crowned and ditched

Drainage/Erosion control reclamation: Harrowed on the contour

Well pad proposed disturbance (acres): 3.65
Road proposed disturbance (acres): 0.88
Powerline proposed disturbance (acres): 1.01
Pipeline proposed disturbance (acres): 0
Other proposed disturbance (acres): 0
Total proposed disturbance: 5.54

Well pad interim reclamation (acres): 0.45
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 1.01
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 1.46

Well pad long term disturbance (acres): 3.2
Road long term disturbance (acres): 0.88
Powerline long term disturbance (acres): 0
Pipeline long term disturbance (acres): 0
Other long term disturbance (acres): 0
Total long term disturbance: 4.08

Disturbance Comments:

Reconstruction method: Interim reclamation will be completed within 6 months of completing the well. Interim reclamation will consist of shrinking the pad 12% (0.45 acre) by removing caliche and reclaiming a 140' x 140' area in the southeast corner of the pad. This will leave 3.20 acres for production equipment (e. g., tank battery, heater-treaters, separators,

flare/CBU, pump jacks), and tractor-trailer turn around. Disturbed areas will be contoured to match pre-construction grades. Soil and brush will be evenly spread over disturbed areas and harrowed on the contour. Disturbed areas will be seeded in accordance with the surface owners' requirements.
Topsoil redistribution: Enough stockpiled topsoil will be retained to cover the remainder of the pad when the well is plugged. Once the last well is plugged, then the rest of the pad and 1280.7' of new road will be similarly reclaimed within 6 months of plugging. Noxious weeds will be controlled.
Soil treatment: None

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

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?

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:**

Total pounds/Acre:

Seed Summary	
Seed Type	**Pounds/Acre**

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: To BLM standards

Weed treatment plan attachment:

Monitoring plan description: To BLM standards

Monitoring plan attachment:

Success standards: To BLM satisfaction

Pit closure description: No pit

Pit closure attachment:

Section 11 - Surface Ownership

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:

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: 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:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Disturbance type: OTHER

Describe: Powerline

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

Operator Name: MATADOR PRODUCTION COMPANY

Well Name: BRAD DYER FEDERAL **Well Number:** 202H

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: 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:**

Section 12 - Other Information

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

ROW Type(s):

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? YES

Previous Onsite information: On site inspection was held with Vance Wolf (BLM) on November 13, 2017. Lone Mountain will file an archaeology report.

Other SUPO Attachment

BD_202H_General_SUPO_20180331144919.pdf

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

08/24/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001079

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: