Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM128360

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No. 316248
ARMSTRONG 26 23 W1ED FED COM 2H

2. Name of Operator
MEWBOURNE OIL COMPANY
Contact: JACKIE LATHAN
E-Mail: jlathan@mewbourne.com

9. API Well No.
30-015-43798-00-X1

3a. Address
P O BOX 5270
HOBBS, NM 88241

3b. Phone No. (include area code)
Ph: 575-393-5905

10. Field and Pool or Exploratory Area
ROSS RANCH

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 26 T25S R31E NWSW 2500FSL 330FWL (Unit C)

Carlsbad Field Office
OCD Artesia

11. County or Parish, State
EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Mewbourne Oil Company has an approved APD for the above well. Mewbourne requests approval to make the following changes:

RECEIVED
effective 2/1/2018
JUN 06 2018
DISTRICT II-ARTESIA O.C.D.

1) Change well name to ~~Armstrong 26/35 W1LM Fed Com #2H~~. PCM 6/1/18 - 321504
2) Change pool to 98220.
3) Change BHL to 330' FSL & 330' FWL, Sec 35.
4) Change csg depth and cement to suit new plan.
5) Change wellhead to multi-bowl type wellhead.
6) Change BOP and request variance to use 5M annular with a 10M BOP stack.
7) Change spacing to 240 acres.

GC 6-6-18
Accepted for record - NMOCD

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Please see attachments for C-102, wellhead schematic, new drilling plan, casing & cement

Engineering Good. ZS 5/31/18

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #405732 verified by the BLM Well Information System
For MEWBOURNE OIL COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 03/08/2018 (18PP1253SE)

Name *(Printed/Typed)* ROBERT TALLEY — Title ENGINEER

Signature (Electronic Submission) — Date 02/26/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ — Title AFM — Date 06/01/2018

Conditions of approval, if any, are attached. Approval of this notice 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. — Office CFO

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #405732 that would not fit on the form

32. Additional remarks, continued

information.

Please contact Robert Talley with any questions.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 12 2017

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-015-43798	98220	Purple Sage; Wolfcamp Gas

4 Property Code	5 Property Name	6 Well Number
~~316248~~ 32150 4	ARMSTRONG 26/35 W1LM FED COM	2H

7 OGRID NO.	8 Operator Name	9 Elevation
14744	MEWBOURNE OIL COMPANY	3331'

10 Surface Location

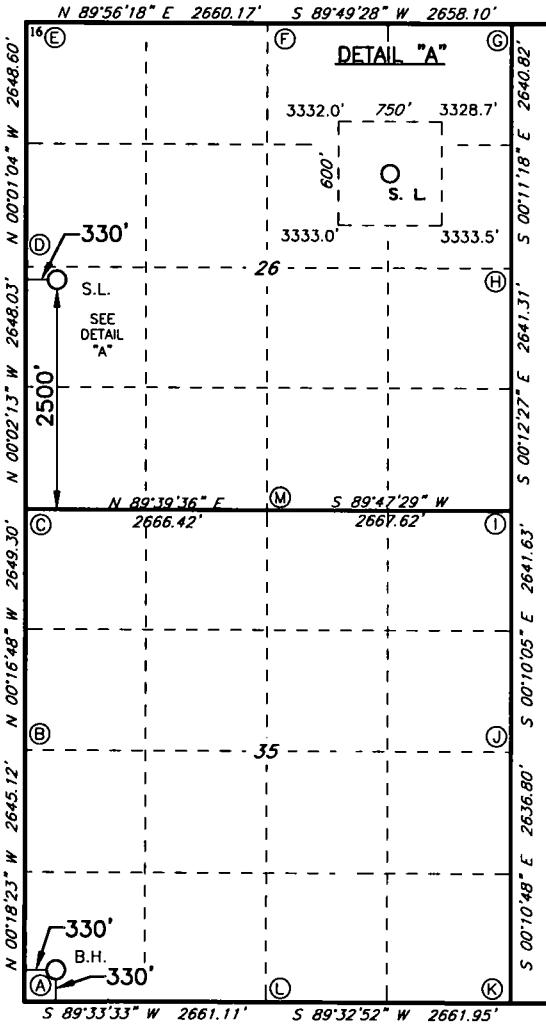
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet From the	East/West line	County
L	26	25S	31E		2500	SOUTH	330	WEST	EDDY

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	35	25S	31E		330	SOUTH	330	WEST	EDDY

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
480			

No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.



GEODETIC DATA
NAD 83 GRID – NM EAST

SURFACE LOCATION
N: 400917.5 – E: 720007.3
LAT: 32.1008872° N
LONG: 103.7563285° W

BOTTOM HOLE
N: 393455.8 – E: 720034.5
LAT: 32.0803759° N
LONG: 103.7563695° W

CORNER DATA
NAD 83 GRID – NM EAST

A: FOUND BRASS CAP "1939"
N: 393123.3 – E: 719706.4

B: FOUND BRASS CAP "1939"
N: 395768.0 – E: 719692.1

C: FOUND BRASS CAP "1939"
N: 398416.8 – E: 719679.1

D: FOUND BRASS CAP "1939"
N: 401064.4 – E: 719677.2

E: CALCULATED CORNER
N: 403712.6 – E: 719676.3

F: FOUND BRASS CAP "1939"
N: 403715.4 – E: 722336.0

G: FOUND BRASS CAP "1939"
N: 403723.5 – E: 724993.6

H: FOUND BRASS CAP "1939"
N: 401083.2 – E: 725002.4

I: FOUND BRASS CAP "1939"
N: 398442.3 – E: 725012.1

J: FOUND BRASS CAP "1939"
N: 395801.2 – E: 725019.9

K: FOUND BRASS CAP "1916"
N: 393164.8 – E: 725028.3

L: FOUND BRASS CAP "1939"
N: 393143.8 – E: 722366.9

M: FOUND BRASS CAP "1939"
N: 398432.6 – E: 722344.9

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 6-12-18 Date

BRADLEY BISHOP
Printed Name

BBISHOP@MEWBOURNE.COM
E-mail Address

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

12-04-2015
Date of Survey

Signature and Seal of Professional Surveyor:

ROBERT M. HOWETT
NEW MEXICO
19680
PROFESSIONAL SURVEYOR

19680
Certificate Number

Rev: 2/16/18 Name & BH

RRC – Job No.: LS1510580D

Mewbourne Oil Company, Armstrong 26/35 W1LM Fed Com #2H
Sec 26, T25S, R31E
SL: 2500' FSL & 330' FWL
BHL: 330' FSL & 330' FWL

1. Geologic Formations

TVD of target	12111'	Pilot hole depth	NA
MD at TD:	19431'	Deepest expected fresh water:	325'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	899		
Top of Salt	1289		
Castile			
Base of Salt	4044		
Lamar	4293	Oil/Gas	
Bell Canyon	4332	Oil/Gas	
Cherry Canyon	5345	Oil/Gas	
Manzanita Marker	5486		
Brushy Canyon	6837	Oil/Gas	
Bone Spring	8269	Oil/Gas	
1st Bone Spring Sand	9310	Oil/Gas	
2nd Bone Spring Sand	9928	Oil/Gas	
3rd Bone Spring Sand	11194	Oil/Gas	
Abo			
Wolfcamp	11640	Target Zone	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

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

Mewbourne Oil Company, Armstrong 26/35 W1LM Fed Com #2H
Sec 26, T25S, R31E
SL: 2500' FSL & 330' FWL
BHL: 330' FSL & 330' FWL

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	975'	13.375"	48	H40	STC	1.69	3.79	6.88	11.56
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.92	4.54
12.25"	3453'	4218'	9.625"	40	J55	LTC	1.17	1.80	16.99	20.59
8.75"	0'	12444'	7"	26	HCP110	LTC	1.30	1.66	2.00	2.57
6.125"	11538'	19461'	4.5"	13.5	P110	LTC	1.30	1.52	3.16	3.95
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

Mewbourne Oil Company, Armstrong 26/35 W1LM Fed Com #2H
Sec 26, T25S, R31E
SL: 2500' FSL & 330' FWL
BHL: 330' FSL & 330' FWL

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	520	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Inter.	695	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Prod. Stg 1	400	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
ECP/DV Tool @ 5485'						
Prod. Stg 2	70	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	100	14.8	1.34	6.3	8	Tail: Class C + Retarder
Liner	325	11.2	2.97	18	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

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

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	4018'	25%
Liner	11538'	25%

4. Pressure Control Equipment

	Variance: A variance is requested to use a 5000 psi annular with a 10000 psi BOP stack. See attachment for description.

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

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
	N Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here: See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	975	FW Gel	8.6-8.8	28-34	N/C
975	4218	Saturated Brine	10.0	28-34	N/C
4218	11538	Cut Brine	8.6-9.7	28-34	N/C
11538	19461	OBM	10.0-13.0	30-40	<10cc

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

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

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP (11538') to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
X	Gamma Ray	11538' (KOP) to TD
	Density	
	CBL	
	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8187 psi
Abnormal Temperature	No

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

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
	H2S is present
X	H2S Plan attached

8. Other facets of operation

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

Attachments
___ Directional Plan
___ Other, describe

10,000 PSI Annular BOP Variance Request

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

1. Component and Preventer Compatibility Tables

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

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

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

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

VBR = Variable Bore Ram

2. Well Control Procedures

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

General Procedure While Drilling

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

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

General Procedure While Tripping

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

General Procedure While Running Production Casing

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

General Procedure With No Pipe In Hole (Open Hole)

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

General Procedures While Pulling BHA Through Stack

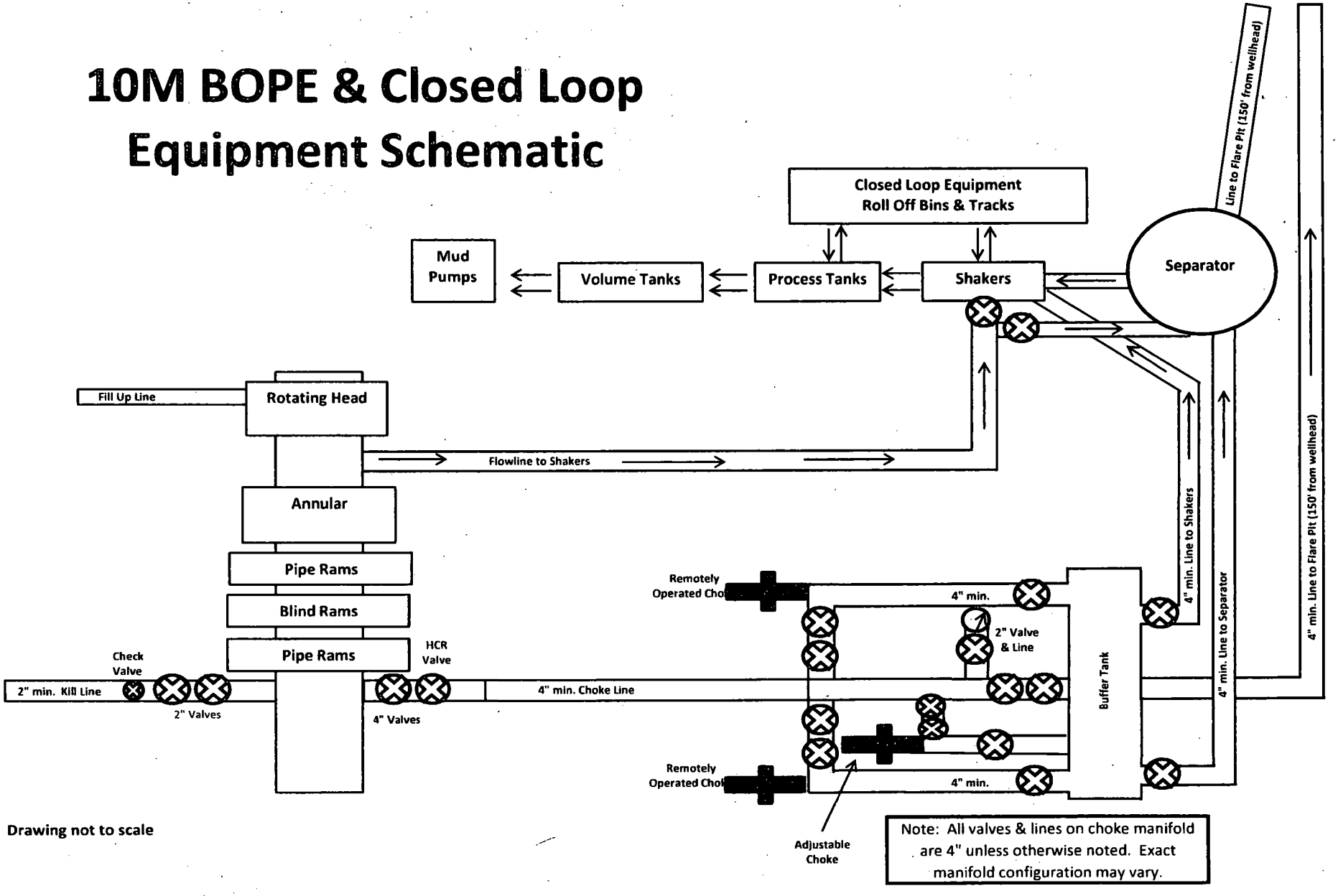
1. PRIOR to pulling last joint of drillpipe through stack:
    a. Perform flow check. If flowing, continue to (b).
    b. Sound alarm (alert crew)
    c. Stab full-opening safety valve and close
    d. Space out drill string with tool joint just beneath the upper variable bore rams
    e. Shut-in using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

ii. Pit gain
iii. Time

h. Regroup and identify forward plan

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

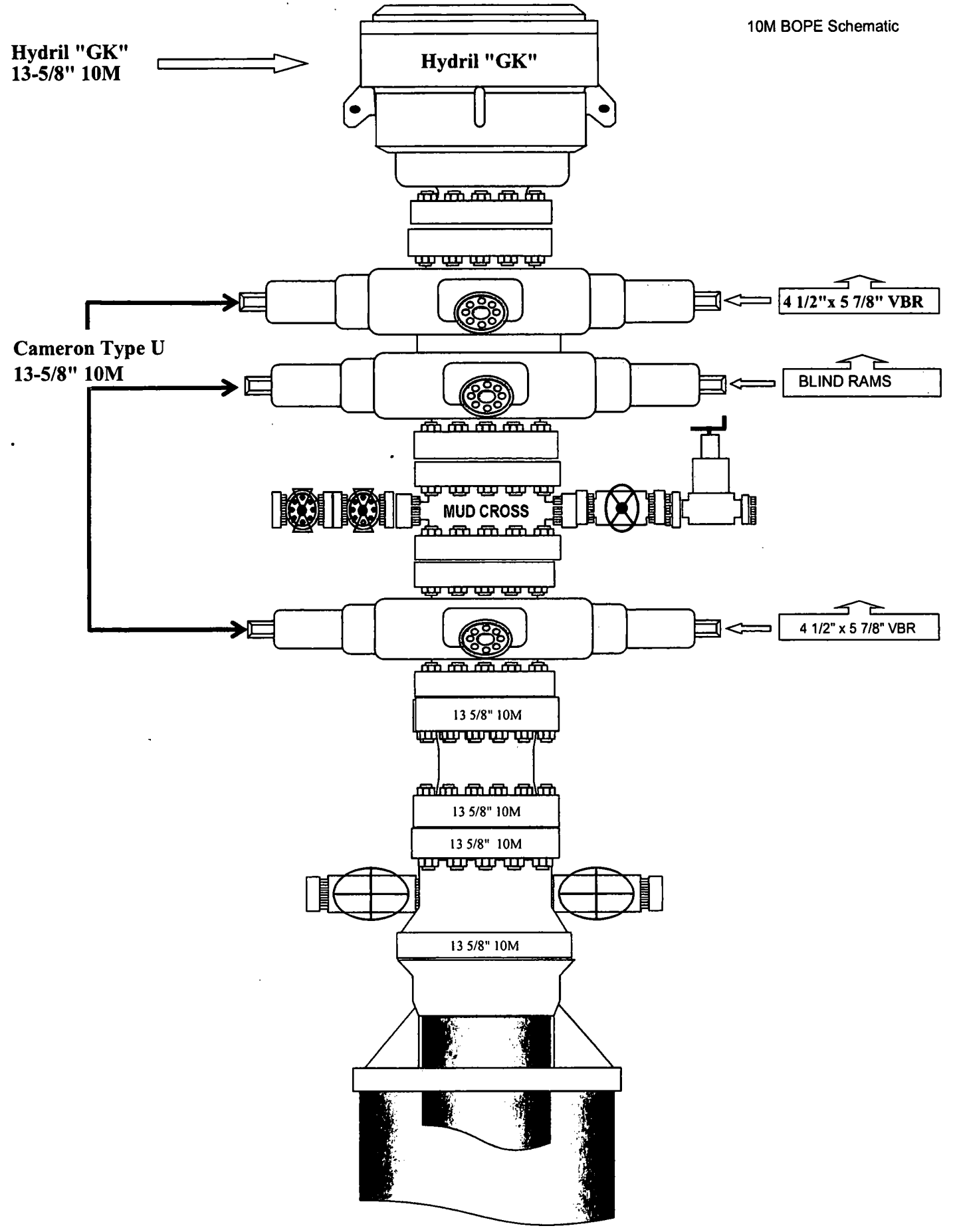
10M BOPE & Closed Loop Equipment Schematic



Drawing not to scale

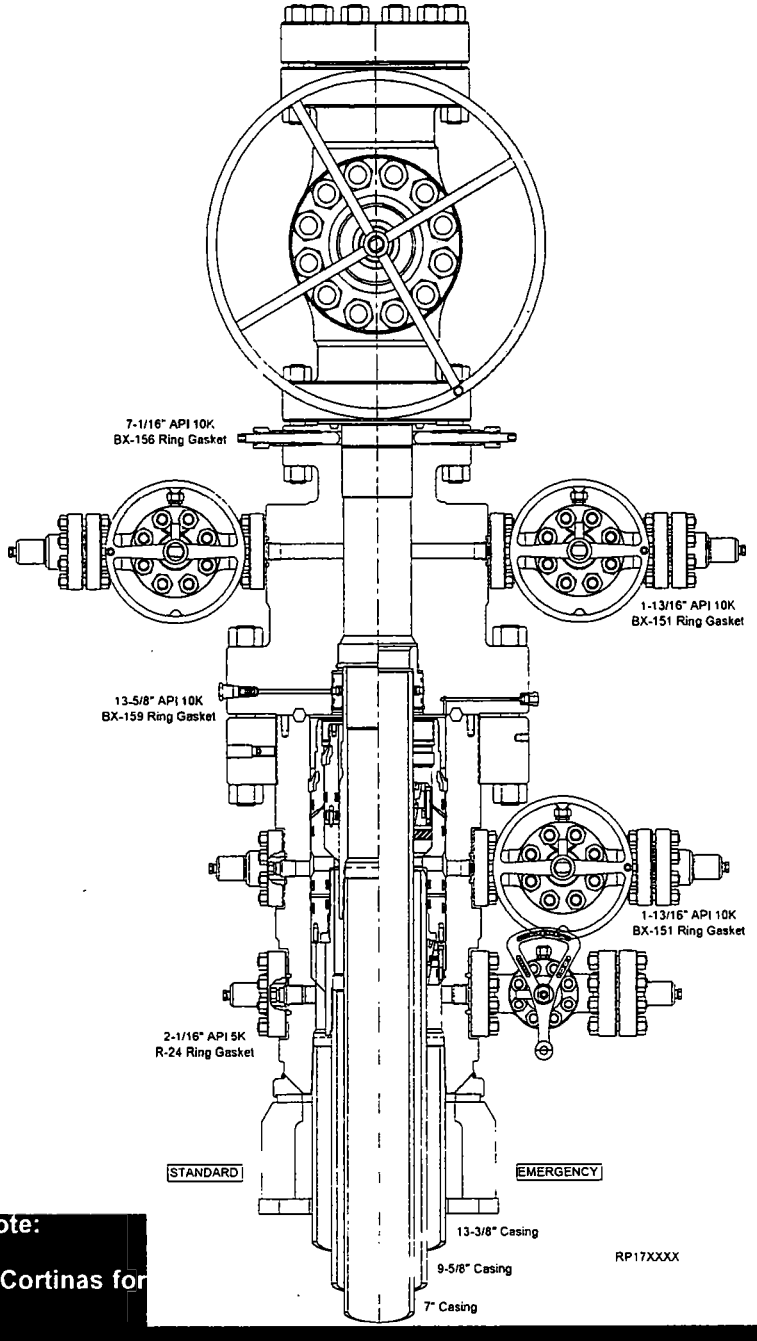
Note: All valves & lines on choke manifold are 4" unless otherwise noted. Exact manifold configuration may vary.

10M BOPE Schematic



RUNNING PROCEDURE

Mewbourne Oil Co



Publication Status Note:

Draft A sent to John Cortinas for review; RA 04/29/17

Surface Systems Publication

CAMERON A Schlumberger Company	**13-5/8" 10K MN-DS System** **13-3/8" x 9-5/8" x 7" Casing Program**	**RP-003815** **Rev 01 Draft A**

ENGINEERING & SERVICES

GATES E & S NORTH AMERICA, INC.
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: *Tim.Cantu@gates.com*
WEB: www.gates.com

10K CEMENTING ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	4/30/2015
Customer Ref. :	4060578	Hose Serial No.:	D-043015-7
Invoice No. :	500506	Created By:	JUSTIN CROPPER

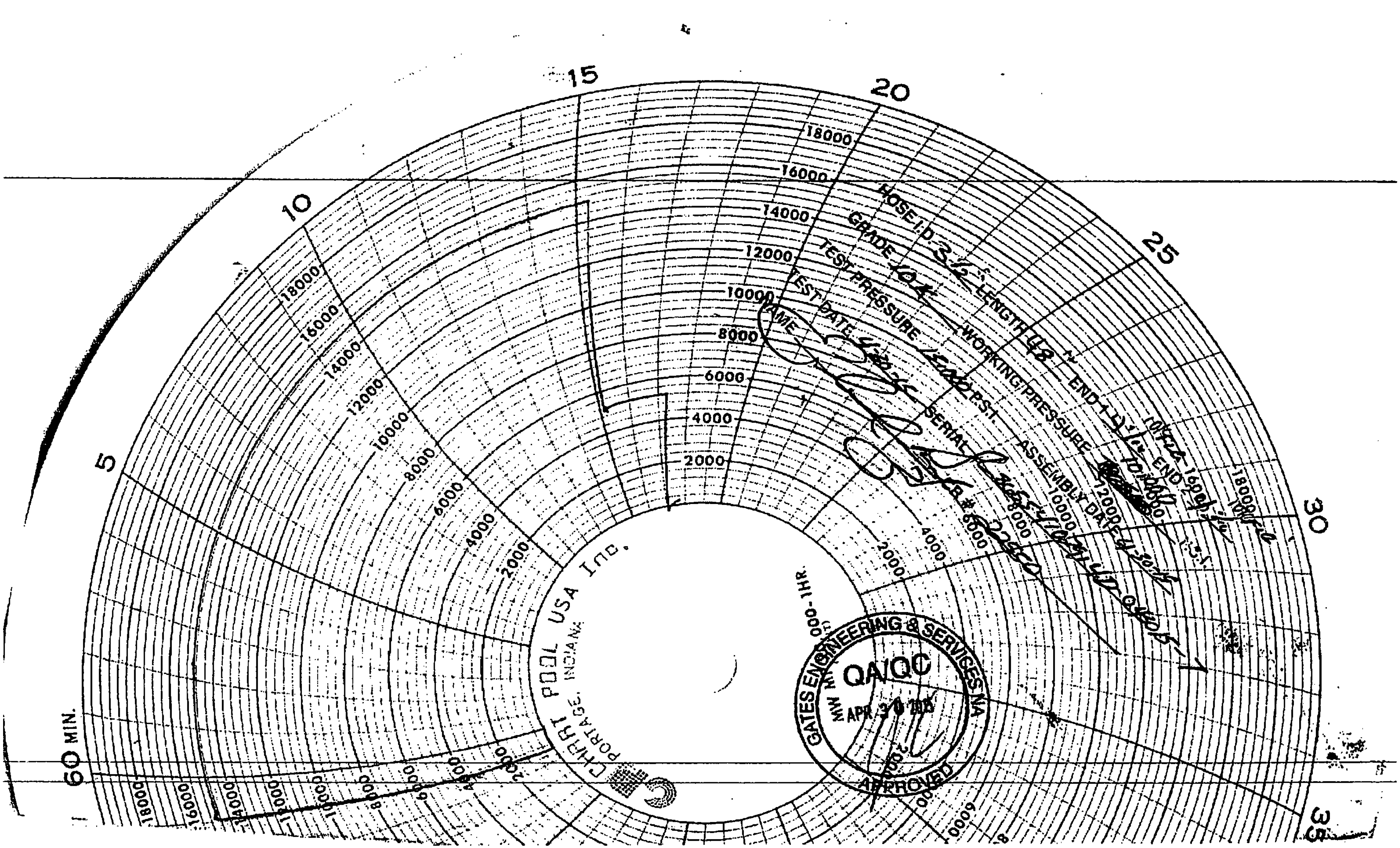
Product Description:	10K3.548.0CK4.1/1610KFLGE/E LE

End Fitting 1 :	4 1/16 10K FLG	End Fitting 2 :	4 1/16 10K FLG
Gates Part No. :	4773-6290	Assembly Code :	L36554102914D-043015-7
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 15,000 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality Manager :	QUALITY	Produciton:	PRODUCTION
Date :	4/30/2015	Date :	4/30/2015
Signature :		Signature :	

Form-PTC - 01 Rev.0 2


60 MIN.
CHART POOL USA Inc.
PORTAGE, INDIANA
GATES ENGINEERING & SERVICES NA
QA/QC
APPROVED
HOSE I.D.
LENGTH
GRADE
TEST PRESSURE
WORKING PRESSURE
TEST DATE
ASSEMBLY DATE
SERIAL
END 1
END 2

Mewbourne Oil Company

Eddy County, New Mexico NAD 83
Armstrong 26/35 W1LM Fed Com #2H
Sec 26, T25S, R31E
SL: 2500' FSL & 330' FWL (26)
BHL: 330' FSL & 330' FWL (35)

Plan: Design #1

Standard Planning Report

26 February, 2018

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Armstrong 26/35 W1LM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Site:	Armstrong 26/35 W1LM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 26, T25S, R31E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 330' FWL (35)		
Design:	Design #1		

Project	Eddy County, New Mexico NAD 83		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Armstrong 26/35 W1LM Fed Com #2H				
Site Position:		**Northing:**	400,918.00 usft	**Latitude:**	32.1008887
From:	Map	**Easting:**	720,007.00 usft	**Longitude:**	-103.7563295
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.31 °

Well	Sec 26, T25S, R31E					
Well Position	**+N/-S**	0.0 usft	**Northing:**	400,918.00 usft	**Latitude:**	32.1008887
	+E/-W	0.0 usft	**Easting:**	720,007.00 usft	**Longitude:**	-103.7563295
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,358.0 usft	**Ground Level:**	3,331.0 usft

Wellbore	BHL: 330' FSL & 330' FWL (35)				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	2/26/2018	6.84	59.87	47,854

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	179.79	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,293.0	0.00	0.00	4,293.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,346.0	1.06	0.00	4,346.0	0.5	0.0	2.00	2.00	0.00	0.00	
11,486.3	1.06	0.00	11,485.0	132.5	0.0	0.00	0.00	0.00	0.00	
11,539.2	0.00	0.00	11,538.0	133.0	0.0	2.00	-2.00	0.00	180.00	KOP @ 11538'
12,444.9	90.56	179.79	12,111.0	-445.6	2.1	10.00	10.00	0.00	179.79	
19,461.7	90.56	179.79	12,043.0	-7,462.0	28.0	0.00	0.00	0.00	0.00	BHL: 330' FSL & 330'

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Armstrong 26/35 W1LM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Site:	Armstrong 26/35 W1LM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 26, T25S, R31E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 330' FWL (35)		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 2500' FSL & 330' FWL (26)									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,293.0	0.00	0.00	4,293.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.14	0.00	4,300.0	0.0	0.0	0.0	2.00	2.00	0.00
4,346.0	1.06	0.00	4,346.0	0.5	0.0	-0.5	2.00	2.00	0.00
4,400.0	1.06	0.00	4,400.0	1.5	0.0	-1.5	0.00	0.00	0.00
4,500.0	1.06	0.00	4,500.0	3.3	0.0	-3.3	0.00	0.00	0.00
4,600.0	1.06	0.00	4,600.0	5.2	0.0	-5.2	0.00	0.00	0.00
4,700.0	1.06	0.00	4,699.9	7.0	0.0	-7.0	0.00	0.00	0.00
4,800.0	1.06	0.00	4,799.9	8.9	0.0	-8.9	0.00	0.00	0.00
4,900.0	1.06	0.00	4,899.9	10.7	0.0	-10.7	0.00	0.00	0.00
5,000.0	1.06	0.00	4,999.9	12.6	0.0	-12.6	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Armstrong 26/35 W1LM Fed Com #2H
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Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Site:	Armstrong 26/35 W1LM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 26, T25S, R31E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 330' FWL (35)		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.0	1.06	0.00	5,099.9	14.4	0.0	-14.4	0.00	0.00	0.00
5,200.0	1.06	0.00	5,199.9	16.3	0.0	-16.3	0.00	0.00	0.00
5,300.0	1.06	0.00	5,299.8	18.1	0.0	-18.1	0.00	0.00	0.00
5,400.0	1.06	0.00	5,399.8	20.0	0.0	-20.0	0.00	0.00	0.00
5,500.0	1.06	0.00	5,499.8	21.8	0.0	-21.8	0.00	0.00	0.00
5,600.0	1.06	0.00	5,599.8	23.7	0.0	-23.7	0.00	0.00	0.00
5,700.0	1.06	0.00	5,699.8	25.5	0.0	-25.5	0.00	0.00	0.00
5,800.0	1.06	0.00	5,799.7	27.4	0.0	-27.4	0.00	0.00	0.00
5,900.0	1.06	0.00	5,899.7	29.2	0.0	-29.2	0.00	0.00	0.00
6,000.0	1.06	0.00	5,999.7	31.1	0.0	-31.1	0.00	0.00	0.00
6,100.0	1.06	0.00	6,099.7	32.9	0.0	-32.9	0.00	0.00	0.00
6,200.0	1.06	0.00	6,199.7	34.8	0.0	-34.8	0.00	0.00	0.00
6,300.0	1.06	0.00	6,299.7	36.6	0.0	-36.6	0.00	0.00	0.00
6,400.0	1.06	0.00	6,399.6	38.5	0.0	-38.5	0.00	0.00	0.00
6,500.0	1.06	0.00	6,499.6	40.3	0.0	-40.3	0.00	0.00	0.00
6,600.0	1.06	0.00	6,599.6	42.2	0.0	-42.2	0.00	0.00	0.00
6,700.0	1.06	0.00	6,699.6	44.0	0.0	-44.0	0.00	0.00	0.00
6,800.0	1.06	0.00	6,799.6	45.9	0.0	-45.9	0.00	0.00	0.00
6,900.0	1.06	0.00	6,899.6	47.7	0.0	-47.7	0.00	0.00	0.00
7,000.0	1.06	0.00	6,999.5	49.6	0.0	-49.6	0.00	0.00	0.00
7,100.0	1.06	0.00	7,099.5	51.4	0.0	-51.4	0.00	0.00	0.00
7,200.0	1.06	0.00	7,199.5	53.3	0.0	-53.3	0.00	0.00	0.00
7,300.0	1.06	0.00	7,299.5	55.1	0.0	-55.1	0.00	0.00	0.00
7,400.0	1.06	0.00	7,399.5	57.0	0.0	-57.0	0.00	0.00	0.00
7,500.0	1.06	0.00	7,499.5	58.8	0.0	-58.8	0.00	0.00	0.00
7,600.0	1.06	0.00	7,599.4	60.7	0.0	-60.7	0.00	0.00	0.00
7,700.0	1.06	0.00	7,699.4	62.5	0.0	-62.5	0.00	0.00	0.00
7,800.0	1.06	0.00	7,799.4	64.4	0.0	-64.4	0.00	0.00	0.00
7,900.0	1.06	0.00	7,899.4	66.2	0.0	-66.2	0.00	0.00	0.00
8,000.0	1.06	0.00	7,999.4	68.1	0.0	-68.1	0.00	0.00	0.00
8,100.0	1.06	0.00	8,099.4	69.9	0.0	-69.9	0.00	0.00	0.00
8,200.0	1.06	0.00	8,199.3	71.7	0.0	-71.7	0.00	0.00	0.00
8,300.0	1.06	0.00	8,299.3	73.6	0.0	-73.6	0.00	0.00	0.00
8,400.0	1.06	0.00	8,399.3	75.4	0.0	-75.4	0.00	0.00	0.00
8,500.0	1.06	0.00	8,499.3	77.3	0.0	-77.3	0.00	0.00	0.00
8,600.0	1.06	0.00	8,599.3	79.1	0.0	-79.1	0.00	0.00	0.00
8,700.0	1.06	0.00	8,699.3	81.0	0.0	-81.0	0.00	0.00	0.00
8,800.0	1.06	0.00	8,799.2	82.8	0.0	-82.8	0.00	0.00	0.00
8,900.0	1.06	0.00	8,899.2	84.7	0.0	-84.7	0.00	0.00	0.00
9,000.0	1.06	0.00	8,999.2	86.5	0.0	-86.5	0.00	0.00	0.00
9,100.0	1.06	0.00	9,099.2	88.4	0.0	-88.4	0.00	0.00	0.00
9,200.0	1.06	0.00	9,199.2	90.2	0.0	-90.2	0.00	0.00	0.00
9,300.0	1.06	0.00	9,299.1	92.1	0.0	-92.1	0.00	0.00	0.00
9,400.0	1.06	0.00	9,399.1	93.9	0.0	-93.9	0.00	0.00	0.00
9,500.0	1.06	0.00	9,499.1	95.8	0.0	-95.8	0.00	0.00	0.00
9,600.0	1.06	0.00	9,599.1	97.6	0.0	-97.6	0.00	0.00	0.00
9,700.0	1.06	0.00	9,699.1	99.5	0.0	-99.5	0.00	0.00	0.00
9,800.0	1.06	0.00	9,799.1	101.3	0.0	-101.3	0.00	0.00	0.00
9,900.0	1.06	0.00	9,899.0	103.2	0.0	-103.2	0.00	0.00	0.00
10,000.0	1.06	0.00	9,999.0	105.0	0.0	-105.0	0.00	0.00	0.00
10,100.0	1.06	0.00	10,099.0	106.9	0.0	-106.9	0.00	0.00	0.00
10,200.0	1.06	0.00	10,199.0	108.7	0.0	-108.7	0.00	0.00	0.00
10,300.0	1.06	0.00	10,299.0	110.6	0.0	-110.6	0.00	0.00	0.00
10,400.0	1.06	0.00	10,399.0	112.4	0.0	-112.4	0.00	0.00	0.00

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Well:	Sec 26, T25S, R31E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 330' FWL (35)		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,500.0	1.06	0.00	10,498.9	114.3	0.0	-114.3	0.00	0.00	0.00
10,600.0	1.06	0.00	10,598.9	116.1	0.0	-116.1	0.00	0.00	0.00
10,700.0	1.06	0.00	10,698.9	118.0	0.0	-118.0	0.00	0.00	0.00
10,800.0	1.06	0.00	10,798.9	119.8	0.0	-119.8	0.00	0.00	0.00
10,900.0	1.06	0.00	10,898.9	121.7	0.0	-121.7	0.00	0.00	0.00
11,000.0	1.06	0.00	10,998.9	123.5	0.0	-123.5	0.00	0.00	0.00
11,100.0	1.06	0.00	11,098.8	125.4	0.0	-125.4	0.00	0.00	0.00
11,200.0	1.06	0.00	11,198.8	127.2	0.0	-127.2	0.00	0.00	0.00
11,300.0	1.06	0.00	11,298.8	129.1	0.0	-129.1	0.00	0.00	0.00
11,400.0	1.06	0.00	11,398.8	130.9	0.0	-130.9	0.00	0.00	0.00
11,486.3	1.06	0.00	11,485.0	132.5	0.0	-132.5	0.00	0.00	0.00
11,500.0	0.78	0.00	11,498.8	132.7	0.0	-132.7	2.00	-2.00	0.00
11,539.2	0.00	0.00	11,538.0	133.0	0.0	-133.0	2.00	-2.00	0.00
KOP @ 11538'									
11,600.0	6.08	179.79	11,598.7	129.8	0.0	-129.8	10.00	10.00	0.00
11,700.0	16.08	179.79	11,696.7	110.6	0.1	-110.6	10.00	10.00	0.00
11,800.0	26.07	179.79	11,789.9	74.7	0.2	-74.7	10.00	10.00	0.00
11,900.0	36.07	179.79	11,875.4	23.1	0.4	-23.1	10.00	10.00	0.00
12,000.0	46.07	179.79	11,950.7	-42.5	0.6	42.5	10.00	10.00	0.00
12,100.0	56.07	179.79	12,013.5	-120.2	0.9	120.2	10.00	10.00	0.00
12,179.5	64.02	179.79	12,053.1	-189.0	1.2	189.0	10.00	10.00	0.00
FTP: 2311' FSL & 330' FWL (26)									
12,200.0	66.07	179.79	12,061.8	-207.6	1.3	207.6	10.00	10.00	0.00
12,300.0	76.07	179.79	12,094.2	-302.1	1.6	302.1	10.00	10.00	0.00
12,400.0	86.07	179.79	12,109.7	-400.7	2.0	400.7	10.00	10.00	0.00
12,444.9	90.56	179.79	12,111.0	-445.6	2.1	445.6	10.00	10.00	0.00
LP: 2055' FSL & 330' FWL (26)									
12,500.0	90.56	179.79	12,110.5	-500.7	2.3	500.7	0.00	0.00	0.00
12,600.0	90.56	179.79	12,109.5	-600.7	2.7	600.7	0.00	0.00	0.00
12,700.0	90.56	179.79	12,108.5	-700.7	3.1	700.7	0.00	0.00	0.00
12,800.0	90.56	179.79	12,107.6	-800.7	3.4	800.7	0.00	0.00	0.00
12,900.0	90.56	179.79	12,106.6	-900.7	3.8	900.7	0.00	0.00	0.00
13,000.0	90.56	179.79	12,105.6	-1,000.7	4.2	1,000.7	0.00	0.00	0.00
13,100.0	90.56	179.79	12,104.7	-1,100.7	4.5	1,100.7	0.00	0.00	0.00
13,200.0	90.56	179.79	12,103.7	-1,200.6	4.9	1,200.7	0.00	0.00	0.00
13,300.0	90.56	179.79	12,102.7	-1,300.6	5.3	1,300.7	0.00	0.00	0.00
13,400.0	90.56	179.79	12,101.7	-1,400.6	5.7	1,400.6	0.00	0.00	0.00
13,500.0	90.56	179.79	12,100.8	-1,500.6	6.0	1,500.6	0.00	0.00	0.00
13,600.0	90.56	179.79	12,099.8	-1,600.6	6.4	1,600.6	0.00	0.00	0.00
13,700.0	90.56	179.79	12,098.8	-1,700.6	6.8	1,700.6	0.00	0.00	0.00
13,800.0	90.56	179.79	12,097.9	-1,800.6	7.1	1,800.6	0.00	0.00	0.00
13,900.0	90.56	179.79	12,096.9	-1,900.6	7.5	1,900.6	0.00	0.00	0.00
14,000.0	90.56	179.79	12,095.9	-2,000.6	7.9	2,000.6	0.00	0.00	0.00
14,100.0	90.56	179.79	12,095.0	-2,100.6	8.2	2,100.6	0.00	0.00	0.00
14,200.0	90.56	179.79	12,094.0	-2,200.6	8.6	2,200.6	0.00	0.00	0.00
14,300.0	90.56	179.79	12,093.0	-2,300.6	9.0	2,300.6	0.00	0.00	0.00
14,400.0	90.56	179.79	12,092.1	-2,400.6	9.3	2,400.6	0.00	0.00	0.00
14,500.0	90.56	179.79	12,091.1	-2,500.6	9.7	2,500.6	0.00	0.00	0.00
14,600.0	90.56	179.79	12,090.1	-2,600.6	10.1	2,600.6	0.00	0.00	0.00
14,700.0	90.56	179.79	12,089.1	-2,700.6	10.4	2,700.6	0.00	0.00	0.00
14,800.0	90.56	179.79	12,088.2	-2,800.6	10.8	2,800.6	0.00	0.00	0.00
14,900.0	90.56	179.79	12,087.2	-2,900.6	11.2	2,900.6	0.00	0.00	0.00
15,000.0	90.56	179.79	12,086.2	-3,000.6	11.6	3,000.6	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Armstrong 26/35 W1LM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Site:	Armstrong 26/35 W1LM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 26, T25S, R31E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 330' FWL (35)		
Design:	Design #1		

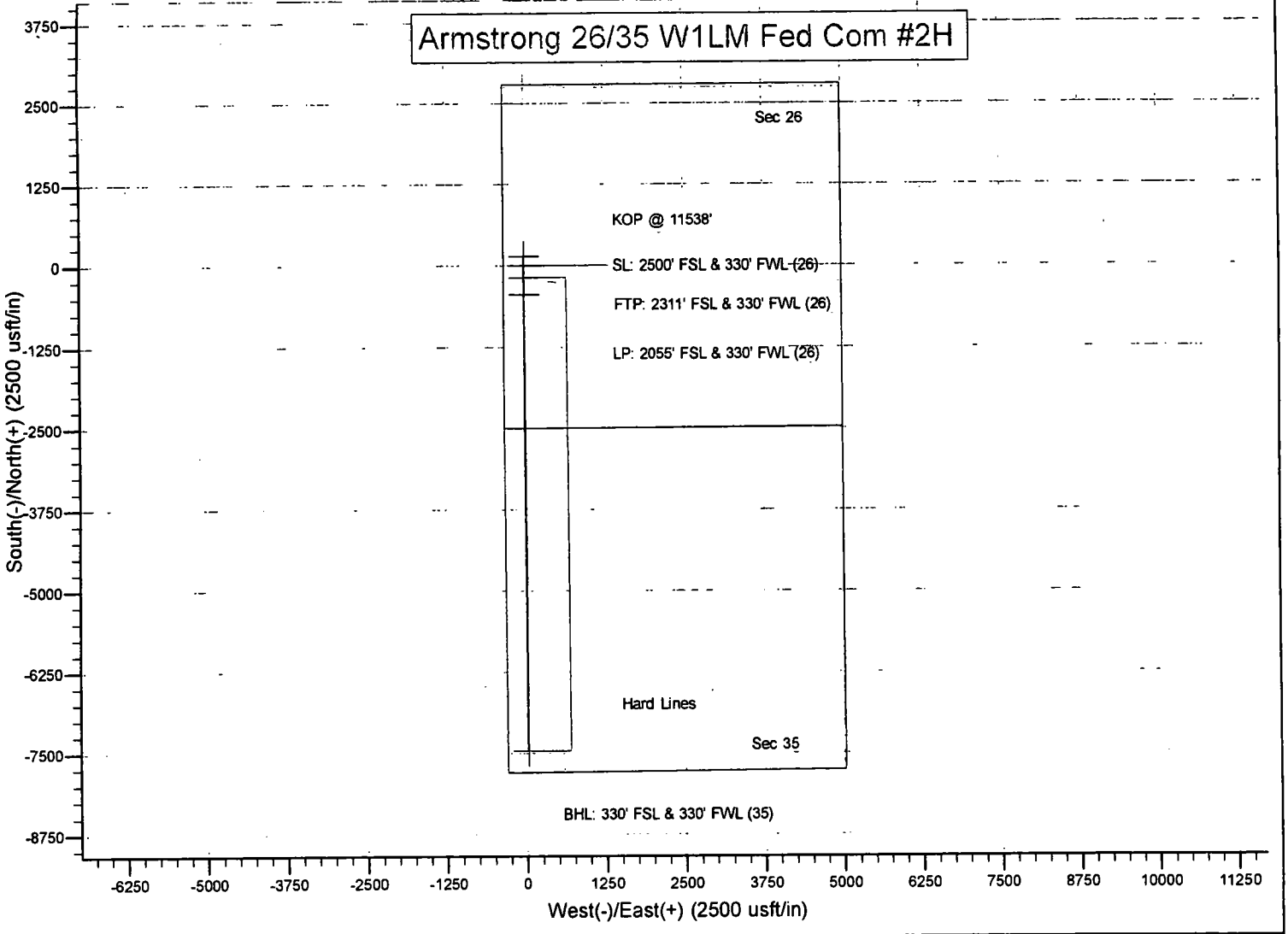
Planned Survey

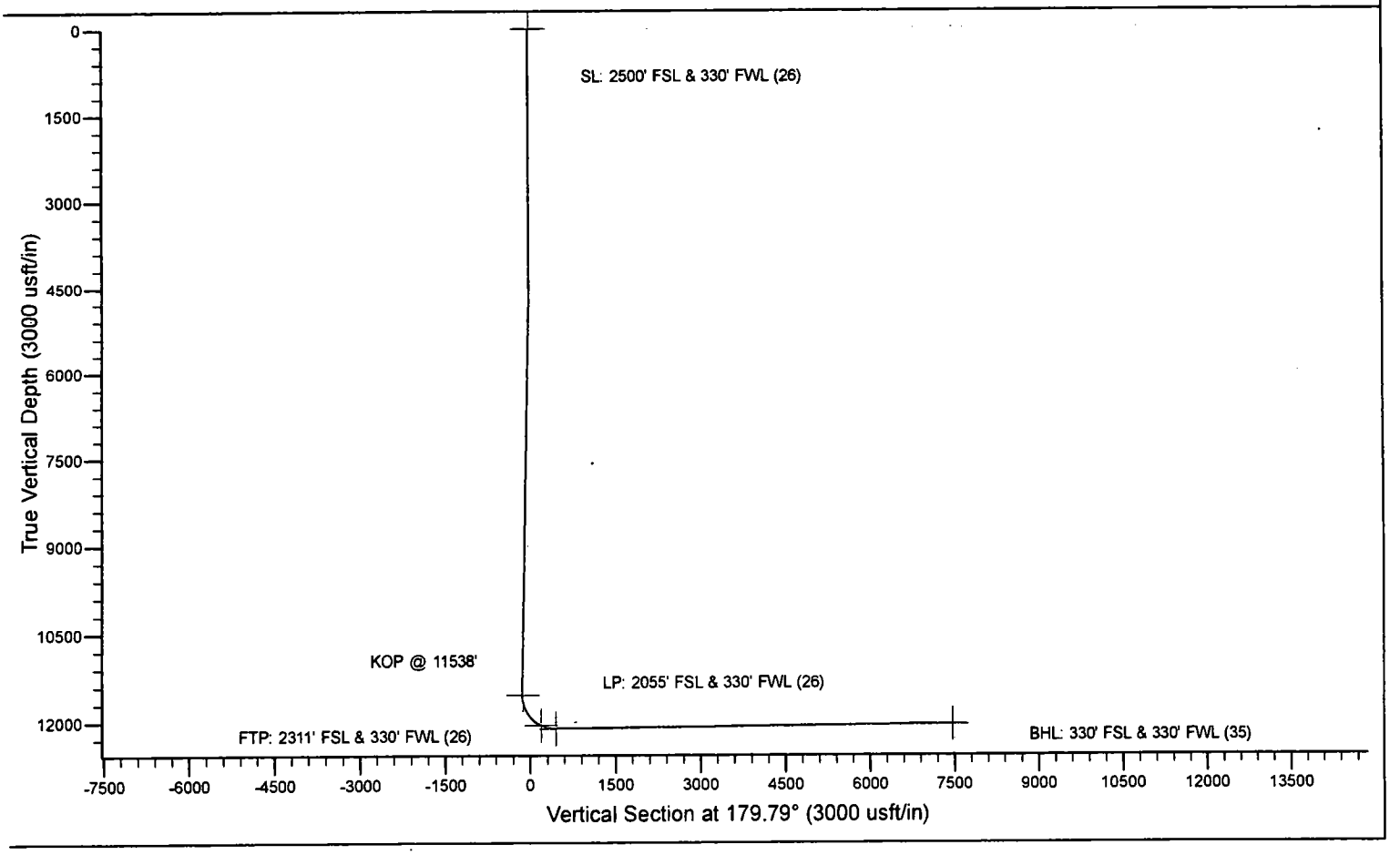
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,100.0	90.56	179.79	12,085.3	-3,100.5	11.9	3,100.6	0.00	0.00	0.00
15,200.0	90.56	179.79	12,084.3	-3,200.5	12.3	3,200.6	0.00	0.00	0.00
15,300.0	90.56	179.79	12,083.3	-3,300.5	12.7	3,300.6	0.00	0.00	0.00
15,400.0	90.56	179.79	12,082.4	-3,400.5	13.0	3,400.6	0.00	0.00	0.00
15,500.0	90.56	179.79	12,081.4	-3,500.5	13.4	3,500.5	0.00	0.00	0.00
15,600.0	90.56	179.79	12,080.4	-3,600.5	13.8	3,600.5	0.00	0.00	0.00
15,700.0	90.56	179.79	12,079.5	-3,700.5	14.1	3,700.5	0.00	0.00	0.00
15,800.0	90.56	179.79	12,078.5	-3,800.5	14.5	3,800.5	0.00	0.00	0.00
15,900.0	90.56	179.79	12,077.5	-3,900.5	14.9	3,900.5	0.00	0.00	0.00
16,000.0	90.56	179.79	12,076.5	-4,000.5	15.2	4,000.5	0.00	0.00	0.00
16,100.0	90.56	179.79	12,075.6	-4,100.5	15.6	4,100.5	0.00	0.00	0.00
16,200.0	90.56	179.79	12,074.6	-4,200.5	16.0	4,200.5	0.00	0.00	0.00
16,300.0	90.56	179.79	12,073.6	-4,300.5	16.3	4,300.5	0.00	0.00	0.00
16,400.0	90.56	179.79	12,072.7	-4,400.5	16.7	4,400.5	0.00	0.00	0.00
16,500.0	90.56	179.79	12,071.7	-4,500.5	17.1	4,500.5	0.00	0.00	0.00
16,600.0	90.56	179.79	12,070.7	-4,600.5	17.5	4,600.5	0.00	0.00	0.00
16,700.0	90.56	179.79	12,069.8	-4,700.5	17.8	4,700.5	0.00	0.00	0.00
16,800.0	90.56	179.79	12,068.8	-4,800.5	18.2	4,800.5	0.00	0.00	0.00
16,900.0	90.56	179.79	12,067.8	-4,900.4	18.6	4,900.5	0.00	0.00	0.00
17,000.0	90.56	179.79	12,066.9	-5,000.4	18.9	5,000.5	0.00	0.00	0.00
17,100.0	90.56	179.79	12,065.9	-5,100.4	19.3	5,100.5	0.00	0.00	0.00
17,200.0	90.56	179.79	12,064.9	-5,200.4	19.7	5,200.5	0.00	0.00	0.00
17,300.0	90.56	179.79	12,063.9	-5,300.4	20.0	5,300.5	0.00	0.00	0.00
17,400.0	90.56	179.79	12,063.0	-5,400.4	20.4	5,400.5	0.00	0.00	0.00
17,500.0	90.56	179.79	12,062.0	-5,500.4	20.8	5,500.5	0.00	0.00	0.00
17,600.0	90.56	179.79	12,061.0	-5,600.4	21.1	5,600.5	0.00	0.00	0.00
17,700.0	90.56	179.79	12,060.1	-5,700.4	21.5	5,700.4	0.00	0.00	0.00
17,800.0	90.56	179.79	12,059.1	-5,800.4	21.9	5,800.4	0.00	0.00	0.00
17,900.0	90.56	179.79	12,058.1	-5,900.4	22.2	5,900.4	0.00	0.00	0.00
18,000.0	90.56	179.79	12,057.2	-6,000.4	22.6	6,000.4	0.00	0.00	0.00
18,100.0	90.56	179.79	12,056.2	-6,100.4	23.0	6,100.4	0.00	0.00	0.00
18,200.0	90.56	179.79	12,055.2	-6,200.4	23.3	6,200.4	0.00	0.00	0.00
18,300.0	90.56	179.79	12,054.3	-6,300.4	23.7	6,300.4	0.00	0.00	0.00
18,400.0	90.56	179.79	12,053.3	-6,400.4	24.1	6,400.4	0.00	0.00	0.00
18,500.0	90.56	179.79	12,052.3	-6,500.4	24.5	6,500.4	0.00	0.00	0.00
18,600.0	90.56	179.79	12,051.4	-6,600.4	24.8	6,600.4	0.00	0.00	0.00
18,700.0	90.56	179.79	12,050.4	-6,700.4	25.2	6,700.4	0.00	0.00	0.00
18,800.0	90.56	179.79	12,049.4	-6,800.3	25.6	6,800.4	0.00	0.00	0.00
18,900.0	90.56	179.79	12,048.4	-6,900.3	25.9	6,900.4	0.00	0.00	0.00
19,000.0	90.56	179.79	12,047.5	-7,000.3	26.3	7,000.4	0.00	0.00	0.00
19,100.0	90.56	179.79	12,046.5	-7,100.3	26.7	7,100.4	0.00	0.00	0.00
19,200.0	90.56	179.79	12,045.5	-7,200.3	27.0	7,200.4	0.00	0.00	0.00
19,300.0	90.56	179.79	12,044.6	-7,300.3	27.4	7,300.4	0.00	0.00	0.00
19,400.0	90.56	179.79	12,043.6	-7,400.3	27.8	7,400.4	0.00	0.00	0.00
19,461.7	90.56	179.79	12,043.0	-7,462.0	28.0	7,462.1	0.00	0.00	0.00
BHL: 330' FSL & 330' FWL (35)									

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Armstrong 26/35 W1LM Fed Com #2H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Project:	Eddy County, New Mexico NAD 83	**MD Reference:**	WELL @ 3358.0usft (Original Well Elev)
Site:	Armstrong 26/35 W1LM Fed Com #2H	**North Reference:**	Grid
Well:	Sec 26, T25S, R31E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FSL & 330' FWL (35)		
Design:	Design #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL: 2500' FSL & 330' FV - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	400,918.00	720,007.00	32.1008887	-103.7563295
KOP @ 11538' - plan hits target center - Point	0.00	0.00	11,538.0	133.0	0.0	401,051.00	720,007.00	32.1012543	-103.7563272
BHL: 330' FSL & 330' FV - plan hits target center - Point	0.00	0.00	12,043.0	-7,462.0	28.0	393,456.00	720,035.00	32.0803766	-103.7563680
FTP: 2311' FSL & 330' F - plan hits target center - Point	0.00	0.00	12,053.1	-189.0	1.2	400,729.00	720,008.18	32.1003692	-103.7563289
LP: 2055' FSL & 330' FV - plan hits target center - Point	0.00	0.00	12,111.0	-445.6	2.1	400,472.42	720,009.13	32.0996639	-103.7563303


Armstrong 26/35 W1LM Fed Com #2H
Sec 26
KOP @ 11538'
SL: 2500' FSL & 330' FWL (26)
FTP: 2311' FSL & 330' FWL (26)
LP: 2055' FSL & 330' FWL (26)
Hard Lines
Sec 35
BHL: 330' FSL & 330' FWL (35)
South(-)/North(+) (2500 usft/in)
West(-)/East(+) (2500 usft/in)
3750
2500
1250
0
-1250
-2500
-3750
-5000
-6250
-7500
-8750
-6250
-5000
-3750
-2500
-1250
0
1250
2500
3750
5000
6250
7500
8750
10000
11250


SL: 2500' FSL & 330' FWL (26)
KOP @ 11538'
LP: 2055' FSL & 330' FWL (26)
FTP: 2311' FSL & 330' FWL (26)
BHL: 330' FSL & 330' FWL (35)
True Vertical Depth (3000 usft/in)
Vertical Section at 179.79° (3000 usft/in)
0
1500
3000
4500
6000
7500
9000
10500
12000
-7500
-6000
-4500
-3000
-1500
0
1500
3000
4500
6000
7500
9000
10500
12000
13500

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**MEWBOURNE OIL COMPANY**
LEASE NO.:	**NMNM125635**
WELL NAME & NO.:	**ARMSTRONG 26/35 W1LM FED COM 2H**
SURFACE HOLE FOOTAGE:	**2500' FSL & 330' FWL**
BOTTOM HOLE FOOTAGE	**330' FSL & 330' FWL**
LOCATION:	**Section 26, T. 25 S., R 31 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

COA

All previous COAs still apply expect the following.

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **975** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.**Additional cement maybe required. Excess calculates to 24%.**

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.

Operator shall filled 1/3rd casing with fluid while running casing to maintain collapse safety factor.

3. The minimum required fill of cement behind the **7** inch production casing is:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job. **Additional cement maybe required. Excess calculates to 24%.**

b. Second stage above DV tool:Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
   - Cement should tie-back 100' into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi.

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. **If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:**
    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**
    e. **Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.**

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.

g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 053118

In a Lesser Prairie-Chicken section.

13 3/8	surface csg in a	17 1/2	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	48.00	H 40	ST&C	6.88	1.73	0.79	975	46,800
"B"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 786			Tail Cmt	does not	circ to sfc.	Totals:	975	46,800

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	720	1370	732	87	8.80	1263	2M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

9 5/8	casing inside the	13 3/8			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	36.00	J 55	LT&C	2.92	1.13	0.58	3,453	124,308
"B"	40.00	J 55	LT&C	16.99	1.17	0.65	765	30,600
w/8.4#/g mud, 30min Sfc Csg Test psig:						Totals:	4,218	154,908
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		975	overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	895	1741	1401	24	10.00	3438	5M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.02, 0.94, c, d All > 0.70, OK. BRUST GRADIET IS > .70

7	casing inside the	9 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	26.00	P 110	LT&C	2.20	1.07	1.63	11,539	300,014
"B"	26.00	P 110	LT&C	5.34	0.95	1.63	905	23,530
"C"							0	0
"D"							0	0
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,539						Totals:	12,444	323,544
B would be:				46.60	1.02	if it were a vertical wellbore.		

No Pilot Hole Planned	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	12444	12111	12111	11539	91	10	12444

The cement volume(s) are intended to achieve a top of 4018 ft from surface or a 200 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1503	look ↘	0	1279		9.70	5514	10M	0.55
Setting Depths for D V Tool(s):			5485				sum of sx	Σ CuFt	Σ%excess
% excess cmt by stage:		19	26				940	1539	20

MASP is within 10% of 5000psig, need exrta equip?

ALT. COLLAPSE SF: 1.02*1.5=1.53. CURVE SAFETY FACTOR IS TOO CONSERVATIVE.

Tail cmt

4 1/2	Liner w/top @	11243			Design Factors		LINER	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight
"A"	13.50	P 110	LT&C	2.35	1.23	1.52	1,201	16,214
"B"	13.50	P 110	LT&C	2.31	1.31	1.52	7,017	94,730
w/8.4#/g mud, 30min Sfc Csg Test psig: 2,649						Totals:	8,218	110,943
A Segment Design Factors would be:				2.08	1.31	if it were a vertical wellbore.		

0572	MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
	19461	12111	12043	11539	91	10	12444

The cement volume(s) are intended to achieve a top of 11243 ft from surface or a 1201 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 1/8	0.0942	325	965	675	43	13.00			0.56

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX. MASP is within 10% of 5000psig, need exrta equip?