HOBBS OCD

Form 3160-5
(August 2007)

AUG 2 2 2016

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD
Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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 reverse side.

5. Lease Serial No.
NMNM117125

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.
SHEBA FEDERAL COM 1H

2. Name of Operator
GMT EXPLORATION COMPANY, LLC
Contact: MARISSA WALTERS
E-Mail: mwalters@gmtexploration.com

9. API Well No.
30-025-43358

3a. Address
1560 BROADWAY, SUITE 2000
DENVER, CO 80202

3b. Phone No. (include area code)
Ph: 303-586-9275

10. Field and Pool, or Exploratory
RED HILLS

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 22 T24S R34E NENE 620FNL 535FEL

11. County or Parish, and State
LEA COUNTY, NM

12. CHECK 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	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ 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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

GMT would like to deepen this well to the Wolfcamp. Our proposed new depth will be 12,450' TVD. 16509 MD
Please see the attached for an updated C102, drilling plan, and directional survey.

5M after surface casing
10M after intermediate casing

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

Electronic Submission #344858 verified by the BLM Well Information System
For GMT EXPLORATION COMPANY, LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 07/18/2016 (16PP0905SE)

Name *(Printed/Typed)* KEITH KRESS — Title ENGINEER

Signature (Electronic Submission) — Date 07/15/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED
AUG 9 2016
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Approved By _____ Title _____ Date _____

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

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.

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

GMT Exploration Company LLC
Sheba Federal Com #1H
620' FNL 535' FEL Section 22, T24S, R34E
Lea County, New Mexico

DRILLING PROGRAM

Drilling operations for this well will be conducted in accordance with the Onshore Oil and Gas Order #1, 2, 6 as provided for in 43 CFR 3164.1. This includes the well control equipment and its testing, the mud system and associated equipment, and the casing and cementing.

1. Estimated tops of important geologic markers (Measured Depth):

Ground Level	***3499'***
Fresh Water	600'
Rustler	1,150'
Salt Top	1,250'
Salt Base	3,820'
Lamar Limestone	3,875'
Delaware Bell Canyon	5,400'
Delaware Cherry Canyon	6,570'
Delaware Brushy Canyon	7,750'
Lower Brushy Canyon Marker	9,055'
Bone Spring	9,210'
Avalon Shale Top	9,275'
Avalon Carbonate	9,510'
1st Bone Spring Sand	10,300'
1st Bone Spring Carbonate	10,545'
2nd Bone Spring Sand	10,900'
2nd Bone Spring Carbonate	11,340'
3rd Bone Spring Sand	11,875'
Actual Target	12,120'
Wolfcamp	12,375'

2. Estimated depths of anticipated water, oil, gas or minerals:

Mineral	Formation	Depth (Measured Depth)
Water		600'
Natural Gas/Oil	Lower Brushy Canyon Marker	9,055'
Natural Gas/Oil	Avalon Shale Top	9,275'
Natural Gas/Oil	1st Bone Spring Sand	10,300'
Natural Gas/Oil	2nd Bone Spring Sand	10,900'
Natural Gas/Oil	3rd Bone Spring Sand	11,875'
Actual Target		12,120'

Fresh water: Fresh water aquifers will be protected with surface casing set at 1,865'. All potentially productive usable water, hydrocarbons, and other mineral zones will be protected with casing and cement.

3. Minimum specifications for pressure control:

5M/10M

The BOP and related equipment will meet or exceed the requirements of a ~~5M psi~~ system as set forth in On Shore Order No. 2. See attached BOP Schematic.

See COAs

A. Casinghead: 14 3/4" x 13 3/8" x 5000 psi WP
Tubinghead: 7-1/16" - 5000 psi WP x 4 1/16" - 10,000 psi WP

5M after setting surface casing
10M after setting intermediate

B. Minimum Specified Pressure Control Equipment

- Annular preventer
- One Pipe ram, One blind ram
- Drilling spool, or blowout preventer with 2 side outlets. Choke side will be a 3-inch minimum diameter, kill will shall be at least 2-inch diameter
- 3 inch diameter choke line
- 2 – 3 inch choke line valves
- 2 inch Kill line
- 2 chokes with 1 remotely controlled from rig floor (see Figure 2)
- 2 – 2 inch kill line valves and a check valve
- Upper kelly cock valve with handle available
- When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed)
- Lower kelly cock valve with handle available
- Safety valve(s) and subs to fit all drill string connections in use
- Inside BOP or float sub available
- Pressure gauge on choke manifold
- All BOPE connections subjected to well pressure shall be flanged, welded, or clamped
- Fill-up line above the uppermost preventer.

C. Auxiliary Equipment

- Audio and visual mud monitoring equipment shall be placed to detect volume changes indicating loss or gain of circulating fluid volume. (OOS 1, III.C.2)
- Gas Buster will be used below 6,000'.
- Upper and lower kelly cocks with handles, safety valve and subs to fit all drill string connections and pressure gauge on choke manifold.

D. BOP Testing procedures:

- The BOP test shall be performed before drilling out of the surface casing shoe and will occur at a minimum:
  a. when initially installed
  b. whenever any seal subject to test pressure is broken
  c. following related repairs
  d. at 30 day intervals
  e. Checked daily as to mechanical operating conditions.

- The ram type preventer(s) shall be tested to the approved BOP stack working pressure when a test plug is used. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing.

- The annular type preventer(s) shall be tested to 50% of the approved BOP stack working pressure. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer.

- A Sundry Notice (Form 3160-5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test.

- If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure.

- GMT has engaged Sierra Engineering to perform the BOP tests. We will invite the BLM to witness them.

The BOP Configuration, Choke manifold layout, and Accumulator system, will be in compliance with Onshore Order 2 for a ~~5000~~ 5M/10M psi system.

A remote accumulator will be used. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM supervised BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.

4. **Supplementary Information:**

Any required operational changes in the casing and cement design specified below will be submitted to the BLM Authorized Officer for approval **prior** to running casing and cementing.

A: Proposed Casing Program:

See next page

PURPOSE	INTERVAL	HOLE SIZE	CASING SIZE	WT/FT (lbs/ft)	GRADE	COND	THREAD & Coupling
CONDUCTOR	0-80'	26"	20"	94	H-40	NEW	ST&C
SURFACE	0-1,135'	17 1/2"	13 3/8"	54.5	J-55	NEW	ST&C
INTERMEDIATE	0 – 11,600'	9 7/8"	7 5/8"	29.7	HCP-110	NEW	LT&C
PRODUCTION	0-16,600'	6 3/4"	5 ½"	23	P-110	NEW	ST-L

16,509' MD per directional plan

Minimum design safety factors: Burst-1.0, Collapse-1.125, Axial -1.6.

Centralizer Program:

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

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

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

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

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

[Quoted text hidden]

Russ Ginanni <rginanni@sierra-engineering.net> Tue, Aug 9, 2016 at 8:31 AM
To: "Sanchez, Jennifer" <j1sanchez@blm.gov>
Cc: "mwalters@gmtexploration.com" <mwalters@gmtexploration.com>, "kkress@gmtexploration.com" <kkress@gmtexploration.com>, "gvolek@sierra-hamilton.com" <gvolek@sierra-hamilton.com>, "ddodd@sierra-hamilton.com" <ddodd@sierra-hamilton.com>, Russ Ginanni <rginanni@sierra-hamilton.com>

We attempted to mimic a prolific operator with this design. I'm not surprised you object. We have an alternate in case you did. I'll mail this shortly.

Russ Ginanni
Operations Supt
Sierra Engineering
432-425-7450
[Quoted text hidden]

Gema Volek <gcastro@sierra-engineering.net> Tue, Aug 9, 2016 at 9:22 AM
To: "Sanchez, Jennifer" <j1sanchez@blm.gov>
Cc: "mwalters@gmtexploration.com" <mwalters@gmtexploration.com>, "kkress@gmtexploration.com" <kkress@gmtexploration.com>, "gvolek@sierra-hamilton.com" <gvolek@sierra-hamilton.com>, "ddodd@sierra-hamilton.com" <ddodd@sierra-hamilton.com>, Russ Ginanni <rginanni@sierra-hamilton.com>

Jennifer,

Here is what we are planning on doing:

Hole Size	Depth	Casing	Weight	Grade	Conn	Cement	TOC
17-1/2"	0 - 1135'	133/8"	54.5	J-55	STC	1040 sx	Circ
9-7/8"	0' – 11,600'	7-5/8"	29.7	HCP-110	LTC	St 1: - sx St 2: - sx	Circ
6-3/4"	0 - 11,500' & 11,500' - 17,000'	5½" 5"	23 18	P-110	JFE Bear	- sx	10,000'
Intermediate: Two stg cementing operation w/ DV @ 5000'. ACP to be added if necessary. 3 stg if necessary. Production: completion cement to 10,000'.							

17.5" hole drilled to 1135' with 13-3/8" pipe.

9-7/8" hole drilled to 11,600' with 7-5/8" pipe.

KOP @ 11,850'.

6-3/4" hole drilled in dab of vertical hole to curve and lateral.

The 5.5" casing will be in the 7-5/8" intermediate casing. The open hole 6-3/4" will have 5" casing in the dab of vertical, curve and later. I have attached the spec sheets for the 5.5" and 5" pipe.

Please let me know if we need to supply you with anything else.

Gema R. Volek

B. Proposed Cementing Program:

Casing Size	Interval	% Excess	Cement Blend
Surface: 13-3/8" J-55 54.50# STC	0' – 1,135'	75 % over theoretical hole volume	**Lead Slurry: Class C** Density: 13.5 ppg Yield: 1.7 ft3/sx Mix Fluid: 8.87 gal/sx Sx Ref: 94 lb/sx Mix Water: 8.78 gal/sx Extender: 1% BWOC LCM/ Extender: 3 lb/sx WBWOB Lost Circ: 0.12 lb/sx WBWOB Accelerator: 0.5% BWOC TOC: Circulate Total Sx: 598 sx **Tail Slurry: Class C** Density: 14.8 ppg Yield: 1.35 ft3/sx Mix Fluid: 6.38 gal/sx Sx Ref: 94 lb/sx Mix Water: 6.38 gal/sx Accelerator: 2% BWOC TOT: 835' Total Sx: 323 sx
Intermediate: 7 5/8" 29.7# HCP-110 LTC	0' – 11,600'	50 % over theoretical hole volume for 1st stg lead slurry -or- 10% over caliper volume. 100% 1 st tail and 2 nd stg slurries.	**1st Stg Lead Slurry: TXI Light Weight** Density: 11 ppg Yield: 2.75 ft3/sx Mix Fluid: 16.87 gal/sx Sx Ref: 75 lb/sx Mix Water: 16.84 gal/sx Retarder: 0.4% lb/sx Extender: 10% BWOC Antifoam: 0.02 gal/sx VBWOB Extender: 2% BWOC Expanding: 2% BWOC Retarder: 0.01 gal/sx VBWOB Viscosifier: 0.05% BWOC Fluid Loss: 0.5% BWOC TOC: 4500' Total Sx: 980 sx **1st Stg Tail Slurry: Class H** Density: 15.6 ppg Yield: 1.22 ft3/sx Mix Fluid: 5.4 gal/sx

			Sx Ref	94 lb/sx
			Mix Water	5.37 gal/sx
			Retarder	0.25% BWOC
			Extender	1.5% BWOC
			Antifoam	0.02 gal/sx VBWOB
			Dispersant	0.2% BWOC
			Fluid Loss	0.3 %BWOC
			Expanding	2% BWOC
			Retarder	0.01 gal/sx VBWOB
			TOT	10,600'
			Total Sx	280 sx
			DV Tool @ 4500'	
			2nd Stg Lead Slurry: Class 35/65 POZ Class C	
			Density	12.7 ppg
			Yield	1.86 ft3/sx
			Mix Fluid	10.25 gal/sx
			Sx Ref	87 lb/sx
			Mix Water	10.2 gal/sx
			Retarder	0.2% BWOB
			Extender	25.9 lb/sx BWOB
			Salt	5% BWOW
			Antifoam	0.02 gal/sx VBWOB
			Dispersant	0.1% BWOB
			Extender	1% BWOB
			Retarder	0.03 gal/sx VBWOB
			TOC	Surface
			Total Sx	820 sx
			2nd Stg Tail Slurry: Neat Class C	
			Density	14.8 ppg
			Yield	1.33 ft3/sx
			Mix Fluid	6.35 gal/sx
			Sx Ref	94 lb/sx
			Mix Water	6.35 gal/sx
			Retarder	0.2% BWOC
			TOT	3500'
			Total Sx	350 sx
Production: 5 1/2" 23# P-110 ST-L	0- 16,600'	40 % over theoretical hole volume for curve 25% for lateral and 10% for pipe by pipe -or- 10% over caliper volume	**Tail Slurry Only: 50/50 POZ Class H**	
			Density	14.4 ppg
			Yield	1.29 ft3/sx
			Mix Fluid	5.72 gal/sx
			Sx Ref	84 lb/sx
			Mix Water	5.67 gal/sx
			Extender	5.5% BWOB
			Extender	37 lb/sx BWOB

			Antifoam	0.02 gal/sx VBWOB
			Dispersant	0.1% BWOB
			Fluid Loss	0.15 BWOB
			Expanding	2% BWOB
			Retarder	0.03 gal/sx VBWOB
			Viscosifier	0.03% BWOB
			Retarder	0.5% BWOB
			TOT	10,000'
			Total Sx	1500 sx

The **surface casing** shall be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface. Pea Gravel or other material shall not be used to fill up around the surface casing in the event cement fall back occurs.

A Sundry Notice (Form 3160-5), along with a copy of the service company's materials ticket and job log, shall be submitted to the local BLM office within 5 working days following the running and cementing

5. **Mud System:**

The following is meant as a guide only. Actual mud weights will be determined by hole conditions. Sufficient quantities of mud materials will be maintained or readily accessible for assuring well control.

Interval	PPG	SEC	CC	pH	Remarks
0-1135'	8.6-9.0	36-38	N/C	10.0-10.5	Fresh Water
1,135'-11,600'	8.6-8.8	40-45	N/C	Oil/ Water Ratio 70:30	OBM
11,600'-16,600'	10.0-10.5	45-55	N/A	Oil/ Water Ratio 70:30	OBM

Mud tests will be performed at a minimum interval of every 24 hours after mudding up to determine: density, viscosity, filtration, and pH for formation compatibility.

GMT will use fresh water from surface casing total depth and then switch to a brine-based solution of salinity sufficient to be saturated for preventing washout (10#/gal) (≥ 185,000 ppm).

Sufficient quantities of mud materials shall be maintained at the well site, at all times, for the purpose of assuring well control.

Drilling of the surface casing will occur with fresh water.

If a temporary surface pipeline is used to transport drilling water, the pipeline shall be laid and removed when the ground surface is dry so as to minimize surface disturbance. No blading or other alteration of the ground surface shall be allowed.

6. **Testing, Logging, and Coring Program**

Cores-DST's: None anticipated at this time.

Surveys: Inclination only surveys while drilling, directional survey

Mud Logger: Morco Geological Services Leaving intermediate to TD

Logging: Triple Combo Intermediate to TD

Stimulation Program:
Evaluate open hole logs to determine interval to perforate. Perforate selected intervals of interest after addressing spacing and commingling considerations. A completion program will be based upon evaluation of the logs and formation parameters.

7. **Abnormal Conditions/Expected BHP**

a. GMT does not expect any temperatures in excess of 200°F or pressures exceeding the normal gradient.

8. **Additional Information**

a. Anticipated starting date based upon approval will be 8/1/2016.

b. Duration of the drilling operations will be approximately 45 days.

c. This well is a directional well per attached directional plan from Weatherford. Please refer to Exhibit 2.

d. Rat and mouse holes (or any subgrade excavations for drilling operations) shall be filled and compacted, with appropriate native materials, immediately upon release of the drilling rig from the location.

e. Any permanent plug placed in the well during drilling and/or completion operations must have **prior** approval of the Authorized Officer.

f. As provided in NTL-4A, gas produced from this well may not be vented or flared beyond an initial test period, 30 days or 50 MMCF, whichever first occurs, without approval of the Authorized Officer.

g. GMT shall report all fresh water flows encountered while drilling to the Authorized Officers representative (Petroleum Engineer) prior to the running the next string of casing. The reported information shall include a) well name, number and location, b) the date the water flow was encountered, c) depth at which the water flow was encountered and d) estimated water flow rate into the well bore. The operator shall file a Form 3160-5 (Subsequent Report Sundry Notice) of this same information within 30 days of releasing the drilling rig.

h. Anticipated bottom hole temperature is 200°F, and its anticipated pressure is ~4873psi.

GMT Exploration Company, LLC will promptly plug and abandon each newly completed, re-completed or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval of the Authorized Officer. When justified by the Operator, the Authorized Officer may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment from the site of a well which is to be permanently abandoned, the surface of the lands disturbed shall be reclaimed in accordance with a plan first approved or prescribed by the Authorized Officer or per the reclamation conditions of approval stated herein.

GMT Exploration Company LLC

GMT Exploration

Lea County, NM (NAD 83)
Sheba Federal Com 1H
Sheba Federal Com 1H

Sheba Federal Com 1H

Plan: Design #1

Standard Planning Report

13 July, 2016

NEWSCO

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Sheba Federal Com 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Site:	Sheba Federal Com 1H	**North Reference:**	Grid
Well:	Sheba Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Sheba Federal Com 1H		
Design:	Design #1		

Project	Lea County, NM (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	Sheba Federal Com 1H				
Site Position:		**Northing:**	440,737.10 usft	**Latitude:**	32° 12' 30.904 N
From:	Lat/Long	**Easting:**	814,231.40 usft	**Longitude:**	103° 27' 3.630 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.47 °

Well	Sheba Federal Com 1H					
Well Position	**+N/-S**	0.00 ft	**Northing:**	440,737.10 usft	**Latitude:**	32° 12' 30.904 N
	+E/-W	0.00 ft	**Easting:**	814,231.40 usft	**Longitude:**	103° 27' 3.630 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,499.00 ft

Wellbore	Sheba Federal Com 1H				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	07/13/16	7.00	60.08	48,037

Design	Design #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.00	0.00	0.00	177.10	

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11,850.06	0.00	0.00	11,850.06	0.00	0.00	0.00	0.00	0.00	0.00	
12,745.80	89.57	177.10	12,423.00	-567.97	28.76	10.00	10.00	19.77	177.10	
16,509.36	89.57	177.10	12,451.00	-4,326.61	219.10	0.00	0.00	0.00	0.00	PBHL Sheba Federal

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Sheba Federal Com 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Site:	Sheba Federal Com 1H	**North Reference:**	Grid
Well:	Sheba Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Sheba Federal Com 1H		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,150.00	0.00	0.00	1,150.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Salt Top									
1,250.00	0.00	0.00	1,250.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
Salt Base									
3,820.00	0.00	0.00	3,820.00	0.00	0.00	0.00	0.00	0.00	0.00
Lamar Limestone									
3,875.00	0.00	0.00	3,875.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Sheba Federal Com 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Site:	Sheba Federal Com 1H	**North Reference:**	Grid
Well:	Sheba Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Sheba Federal Com 1H		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware Bell Canyon									
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware Cherry Canyon									
6,570.00	0.00	0.00	6,570.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware Brushy Canyon									
7,750.00	0.00	0.00	7,750.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Lower Brushy Canyon Marker									
9,055.00	0.00	0.00	9,055.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Sheba Federal Com 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Site:	Sheba Federal Com 1H	**North Reference:**	Grid
Well:	Sheba Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Sheba Federal Com 1H		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Bone Spring									
9,210.00	0.00	0.00	9,210.00	0.00	0.00	0.00	0.00	0.00	0.00
Avalon Shale Top									
9,275.00	0.00	0.00	9,275.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbonate									
9,510.00	0.00	0.00	9,510.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00
10,100.00	0.00	0.00	10,100.00	0.00	0.00	0.00	0.00	0.00	0.00
10,200.00	0.00	0.00	10,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1st Bone Spring Sand									
10,300.00	0.00	0.00	10,300.00	0.00	0.00	0.00	0.00	0.00	0.00
10,400.00	0.00	0.00	10,400.00	0.00	0.00	0.00	0.00	0.00	0.00
10,500.00	0.00	0.00	10,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbonate									
10,545.00	0.00	0.00	10,545.00	0.00	0.00	0.00	0.00	0.00	0.00
10,600.00	0.00	0.00	10,600.00	0.00	0.00	0.00	0.00	0.00	0.00
10,700.00	0.00	0.00	10,700.00	0.00	0.00	0.00	0.00	0.00	0.00
10,800.00	0.00	0.00	10,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd Bone Spring Sand									
10,900.00	0.00	0.00	10,900.00	0.00	0.00	0.00	0.00	0.00	0.00
11,000.00	0.00	0.00	11,000.00	0.00	0.00	0.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,100.00	0.00	0.00	0.00	0.00	0.00	0.00
11,200.00	0.00	0.00	11,200.00	0.00	0.00	0.00	0.00	0.00	0.00
11,300.00	0.00	0.00	11,300.00	0.00	0.00	0.00	0.00	0.00	0.00
Carbonate									
11,340.00	0.00	0.00	11,340.00	0.00	0.00	0.00	0.00	0.00	0.00
11,400.00	0.00	0.00	11,400.00	0.00	0.00	0.00	0.00	0.00	0.00
11,500.00	0.00	0.00	11,500.00	0.00	0.00	0.00	0.00	0.00	0.00
11,600.00	0.00	0.00	11,600.00	0.00	0.00	0.00	0.00	0.00	0.00
11,700.00	0.00	0.00	11,700.00	0.00	0.00	0.00	0.00	0.00	0.00
11,800.00	0.00	0.00	11,800.00	0.00	0.00	0.00	0.00	0.00	0.00
Start DLS 10.00 TFO 177.10									
11,850.06	0.00	0.00	11,850.06	0.00	0.00	0.00	0.00	0.00	0.00
3rd Bone Spring Sand									
11,875.01	2.50	177.10	11,875.00	-0.54	0.03	0.54	10.00	10.00	0.00
11,900.00	4.99	177.10	11,899.94	-2.17	0.11	2.18	10.00	10.00	0.00
12,000.00	14.99	177.10	11,998.29	-19.48	0.99	19.51	10.00	10.00	0.00
12,100.00	24.99	177.10	12,092.15	-53.59	2.71	53.66	10.00	10.00	0.00
12,200.00	34.99	177.10	12,178.65	-103.45	5.24	103.58	10.00	10.00	0.00
12,300.00	44.99	177.10	12,255.16	-167.56	8.49	167.77	10.00	10.00	0.00
12,400.00	54.99	177.10	12,319.37	-243.96	12.35	244.27	10.00	10.00	0.00
12,500.00	64.99	177.10	12,369.31	-330.34	16.73	330.76	10.00	10.00	0.00
Wolfcamp									
12,533.88	68.38	177.10	12,382.72	-361.40	18.30	361.87	10.00	10.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Sheba Federal Com 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Site:	Sheba Federal Com 1H	**North Reference:**	Grid
Well:	Sheba Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Sheba Federal Com 1H		
Design:	Design #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,600.00	74.99	177.10	12,403.48	-424.06	21.47	424.61	10.00	10.00	0.00
Horizontal Interval Top									
12,620.06	77.00	177.10	12,408.33	-443.50	22.46	444.07	10.00	10.00	0.00
12,700.00	84.99	177.10	12,420.83	-522.29	26.45	522.96	10.00	10.00	0.00
Start 3763.56 hold at 12745.80 MD									
12,745.80	89.57	177.10	12,423.00	-567.97	28.76	568.70	10.00	10.00	0.00
12,800.00	89.57	177.10	12,423.41	-622.10	31.50	622.90	0.00	0.00	0.00
12,900.00	89.57	177.10	12,424.15	-721.97	36.56	722.89	0.00	0.00	0.00
13,000.00	89.57	177.10	12,424.89	-821.84	41.62	822.89	0.00	0.00	0.00
13,100.00	89.57	177.10	12,425.64	-921.71	46.68	922.89	0.00	0.00	0.00
13,200.00	89.57	177.10	12,426.38	-1,021.58	51.73	1,022.88	0.00	0.00	0.00
13,300.00	89.57	177.10	12,427.13	-1,121.44	56.79	1,122.88	0.00	0.00	0.00
13,400.00	89.57	177.10	12,427.87	-1,221.31	61.85	1,222.88	0.00	0.00	0.00
13,500.00	89.57	177.10	12,428.61	-1,321.18	66.91	1,322.88	0.00	0.00	0.00
13,600.00	89.57	177.10	12,429.36	-1,421.05	71.96	1,422.87	0.00	0.00	0.00
13,700.00	89.57	177.10	12,430.10	-1,520.92	77.02	1,522.87	0.00	0.00	0.00
13,800.00	89.57	177.10	12,430.85	-1,620.79	82.08	1,622.87	0.00	0.00	0.00
13,900.00	89.57	177.10	12,431.59	-1,720.66	87.13	1,722.87	0.00	0.00	0.00
14,000.00	89.57	177.10	12,432.33	-1,820.53	92.19	1,822.86	0.00	0.00	0.00
14,100.00	89.57	177.10	12,433.08	-1,920.40	97.25	1,922.86	0.00	0.00	0.00
14,200.00	89.57	177.10	12,433.82	-2,020.27	102.31	2,022.86	0.00	0.00	0.00
14,300.00	89.57	177.10	12,434.56	-2,120.14	107.36	2,122.85	0.00	0.00	0.00
14,400.00	89.57	177.10	12,435.31	-2,220.01	112.42	2,222.85	0.00	0.00	0.00
14,500.00	89.57	177.10	12,436.05	-2,319.88	117.48	2,322.85	0.00	0.00	0.00
14,600.00	89.57	177.10	12,436.80	-2,419.75	122.54	2,422.85	0.00	0.00	0.00
14,700.00	89.57	177.10	12,437.54	-2,519.61	127.59	2,522.84	0.00	0.00	0.00
14,800.00	89.57	177.10	12,438.28	-2,619.48	132.65	2,622.84	0.00	0.00	0.00
14,900.00	89.57	177.10	12,439.03	-2,719.35	137.71	2,722.84	0.00	0.00	0.00
15,000.00	89.57	177.10	12,439.77	-2,819.22	142.77	2,822.83	0.00	0.00	0.00
15,100.00	89.57	177.10	12,440.52	-2,919.09	147.82	2,922.83	0.00	0.00	0.00
15,200.00	89.57	177.10	12,441.26	-3,018.96	152.88	3,022.83	0.00	0.00	0.00
15,300.00	89.57	177.10	12,442.00	-3,118.83	157.94	3,122.83	0.00	0.00	0.00
15,400.00	89.57	177.10	12,442.75	-3,218.70	163.00	3,222.82	0.00	0.00	0.00
15,500.00	89.57	177.10	12,443.49	-3,318.57	168.05	3,322.82	0.00	0.00	0.00
15,600.00	89.57	177.10	12,444.24	-3,418.44	173.11	3,422.82	0.00	0.00	0.00
15,700.00	89.57	177.10	12,444.98	-3,518.31	178.17	3,522.82	0.00	0.00	0.00
15,800.00	89.57	177.10	12,445.72	-3,618.18	183.23	3,622.81	0.00	0.00	0.00
15,900.00	89.57	177.10	12,446.47	-3,718.05	188.28	3,722.81	0.00	0.00	0.00
16,000.00	89.57	177.10	12,447.21	-3,817.91	193.34	3,822.81	0.00	0.00	0.00
16,100.00	89.57	177.10	12,447.95	-3,917.78	198.40	3,922.80	0.00	0.00	0.00
16,200.00	89.57	177.10	12,448.70	-4,017.65	203.45	4,022.80	0.00	0.00	0.00
16,300.00	89.57	177.10	12,449.44	-4,117.52	208.51	4,122.80	0.00	0.00	0.00
16,400.00	89.57	177.10	12,450.19	-4,217.39	213.57	4,222.80	0.00	0.00	0.00
16,500.00	89.57	177.10	12,450.93	-4,317.26	218.63	4,322.79	0.00	0.00	0.00
TD at 16509.36									
16,509.36	89.57	177.10	12,451.00	-4,326.61	219.10	4,332.15	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Sheba Federal Com 1H
Company:	GMT Exploration	**TVD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Project:	Lea County, NM (NAD 83)	**MD Reference:**	WELL @ 3519.00ft (Original Well Elev)
Site:	Sheba Federal Com 1H	**North Reference:**	Grid
Well:	Sheba Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Sheba Federal Com 1H		
Design:	Design #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Sheba Federal Cc - plan hits target center - Point	0.00	0.00	12,451.00	-4,326.61	219.10	436,410.50	814,450.50	32° 11' 48.074 N	103° 27' 1.494 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,150.00	1,150.00	Rustler		0.43	177.10
1,250.00	1,250.00	Salt Top		0.43	177.10
3,820.00	3,820.00	Salt Base		0.43	177.10
3,875.00	3,875.00	Lamar Limestone		0.43	177.10
5,400.00	5,400.00	Delaware Bell Canyon		0.43	177.10
6,570.00	6,570.00	Delaware Cherry Canyon		0.43	177.10
7,750.00	7,750.00	Delaware Brushy Canyon		0.43	177.10
9,055.00	9,055.00	Lower Brushy Canyon Marker		0.43	177.10
9,210.00	9,210.00	Bone Spring		0.43	177.10
9,275.00	9,275.00	Avalon Shale Top		0.43	177.10
9,510.00	9,510.00	Carbonate		0.43	177.10
10,300.00	10,300.00	1st Bone Spring Sand		0.43	177.10
10,545.00	10,545.00	Carbonate		0.43	177.10
10,900.00	10,900.00	2nd Bone Spring Sand		0.43	177.10
11,340.00	11,340.00	Carbonate		0.43	177.10
11,875.01	11,875.00	3rd Bone Spring Sand		0.43	177.10
12,533.88	12,380.00	Wolfcamp		0.43	177.10
12,620.06	12,405.00	Horizontal Interval Top		0.43	177.10

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
11,850.06	11,850.06	0.00	0.00	Start DLS 10.00 TFO 177.10
12,745.80	12,423.00	-567.97	28.76	Start 3763.56 hold at 12745.80 MD
16,509.36	12,451.00	-4,326.61	219.10	TD at 16509.36

GMT Exploration Company LLC

Project:	Lea County, NM (NAD 83)
Site:	Sheba Federal Com 1H
Well:	Sheba Federal Com 1H
Wellbore:	Sheba Federal Com 1H
Design:	Design #1
Latitude:	32° 12' 30.904 N
Longitude:	103° 27' 3.630 W
GL:	3499.00
KB:	WELL @ 3519.00ft (Original Well Elev)

NEWSCO

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL Sheba Federal Com 1H	12451.00	-4326.61	219.10	436410.50	814450.50	32° 11' 48.074 N	103° 27' 1.494 W

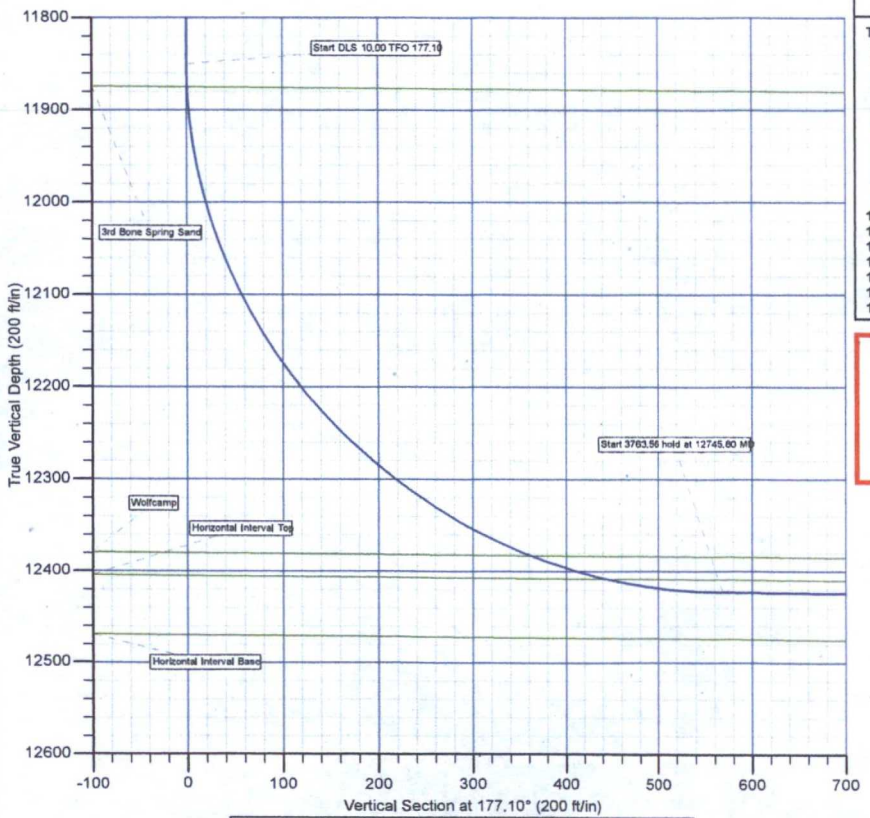
WELL DETAILS: Sheba Federal Com 1H

Ground Level: 3499.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	440737.10	814231.40	32° 12' 30.904 N	103° 27' 3.630 W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11850.06	0.00	0.00	11850.06	0.00	0.00	0.00	0.00	0.00	Start DLS 10.00 TFO 177.10
12745.80	89.57	177.10	12423.00	-567.97	28.76	10.00	177.10	568.70	Start 3763.56 hold at 12745.80 MD
16509.36	89.57	177.10	12451.00	-4326.61	219.10	0.00	0.00	4332.15	TD at 16509.36

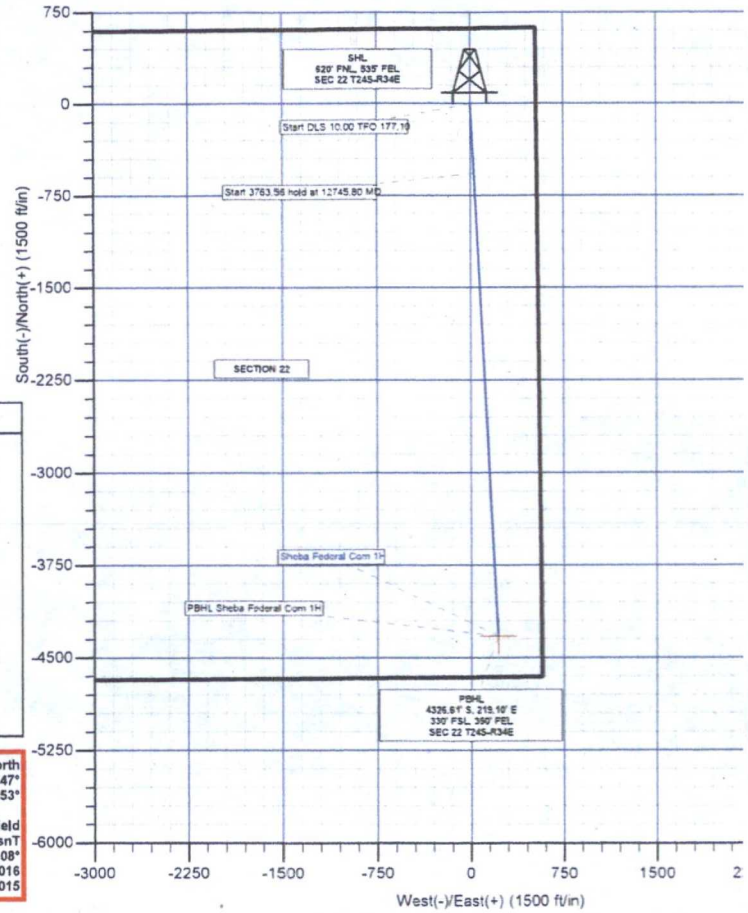


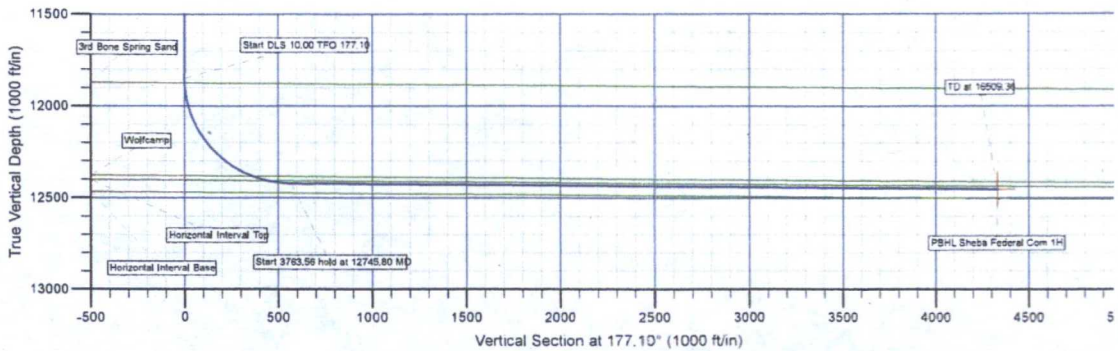
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1150.00	1150.00	Rustler
1250.00	1250.00	Salt Top
3820.00	3820.00	Salt Base
3875.00	3875.00	Lamar Limestone
5400.00	5400.00	Delaware Bell Canyon
6570.00	6570.00	Delaware Cherry Canyon
7750.00	7750.00	Delaware Brushy Canyon
9055.00	9055.00	Lower Brushy Canyon Marker
9210.00	9210.00	Bone Spring
9275.00	9275.00	Avalon Shale Top
9510.00	9510.00	Carbonate
10300.00	10300.00	1st Bone Spring Sand
10545.00	10545.00	Carbonate
10900.00	10900.00	2nd Bone Spring Sand
11340.00	11340.00	Carbonate
11875.00	11875.01	3rd Bone Spring Sand
12382.72	12533.88	Wolfcamp
12408.33	12620.06	Horizontal Interval Top

Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.53°

Magnetic Field
Strength: 48036.7snT
Dip Angle: 60.08°
Date: 07/13/2016
Model: IGRF2015





PROJECT DETAILS: Lea County, NM (NAD 83)

Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

Plan: Design #1 (Sheba Federal Com 1H/Sheba Federal Com 1H)

Created By: TRACY WILLIAMS Date: 14:39, July 13 2016

Sanchez, Jennifer <j1sanchez@blm.gov>

GMT Exploration Sheba Federal Com # 1H Wolfcamp

1 message

Russ Ginanni <rginanni@sierra-engineering.net> Mon, Aug 8, 2016 at 5:40 PM
To: "j1sanchez@blm.gov" <j1sanchez@blm.gov>
Cc: "mwalters@gmtexploration.com" <mwalters@gmtexploration.com>, "kkress@gmtexploration.com" <kkress@gmtexploration.com>, "gvolek@sierra-hamilton.com" <gvolek@sierra-hamilton.com>, "ddodd@sierra-hamilton.com" <ddodd@sierra-hamilton.com>, Russ Ginanni <rginanni@sierra-hamilton.com>

Jennifer,

Here is the BOP and Choke manifold we can install on the captioned well. It will all be 10K except where noted. We will install this BOP after setting our 13 3/8" casing @ 1135'. This BOP and ram components will provide a 10K barrier for the balance of the well to 16,500' MD TD. We can do what is necessary to comply with the BLM conditions and fabrication. We will be using a 9.0 – 9.2 ppg OBM from 1134' – 11,600' TVD for Intermediate. Below that and into the Wolfcamp @ 12,450 TVD we anticipate a 11.5 ppg OBM as a minimum once well within the lateral. Please advise if you have any questions regarding this matter.

Thanks,

Russ Ginanni

Permian Operations Supt

Sierra Hamilton

10 Desta Drive, Suite # 260E

Midland, TX 79705

Cell: 432-425-7450

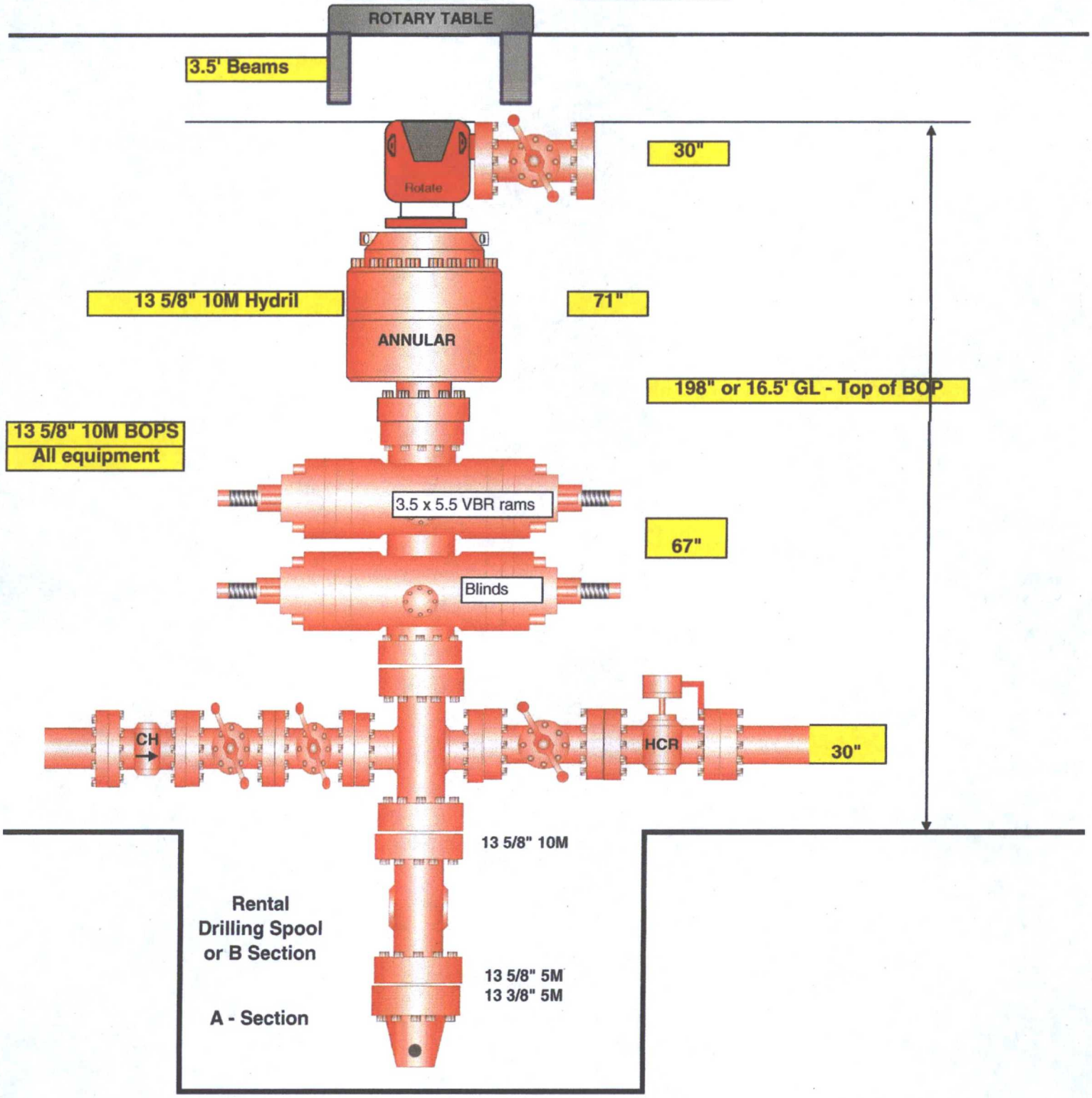
Office: 432-683-8000

SIERRA HAMILTON

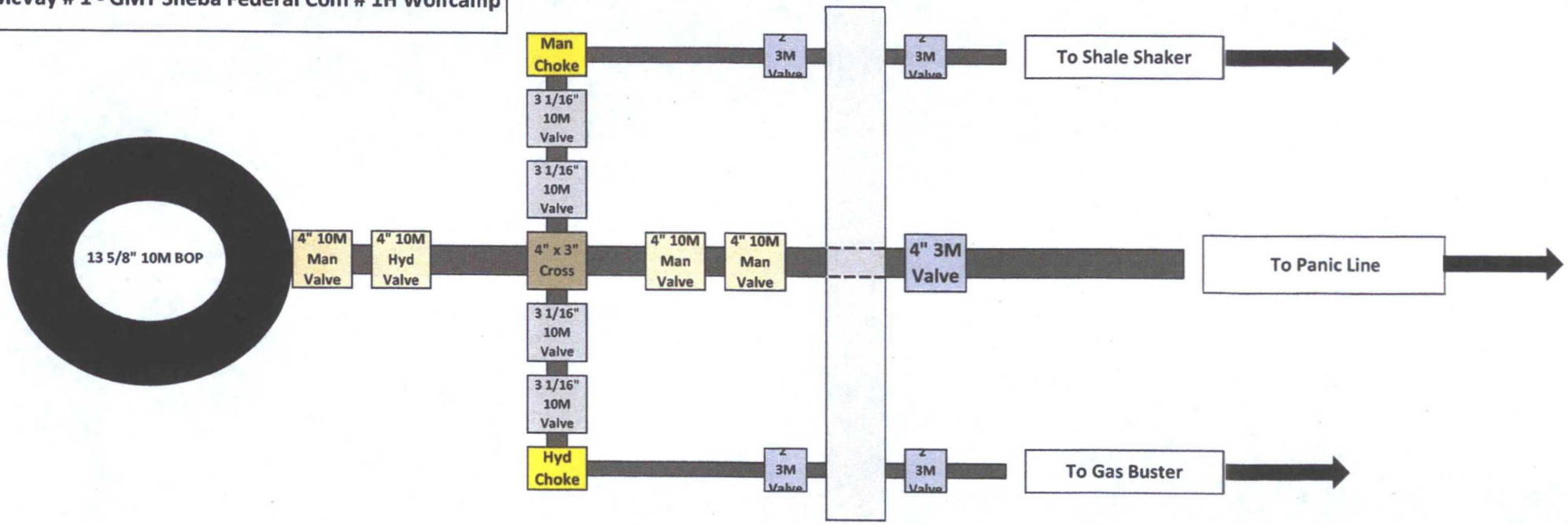
Sheba WC_10K BOP & Manif_ 1134 ft - 16,500 ft TD.xlsx
262K

13 5/8" 10M BOP 4 Ram Stack 500'- 4880'

WELL:	GMT Exploration Sheba Fed Com # 1H		
LOCATION:	West of Jal		
COUNTY:	Lea	STATE:	Texas
RIG NAME / #:	McVay # 1		
ELEVATION:	KB		GL
KB Measurement	20	20	Floor



McVay # 1 - GMT Sheba Federal Com # 1H Wolfcamp



JFEBEAR

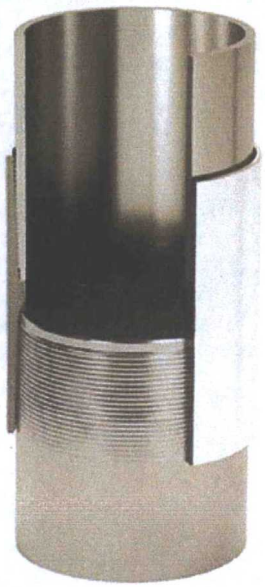
JFE

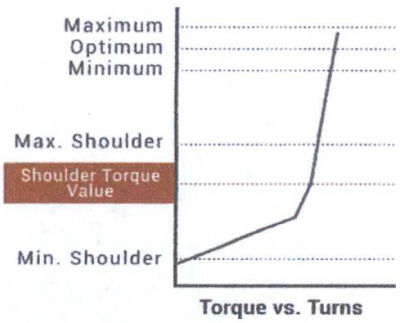
August 01, 2016

UNCONTROLLED DOCUMENT

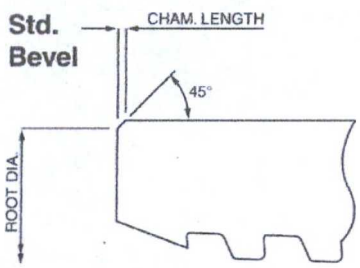
SIZE:	5 in (127 mm)
WEIGHT:	18 lb/ft (26.79 kg/m)
GRADE:	P110
COUP:	Standard
FF:	API Modified - Carbon

JFE has performed and continues to perform connection and qualification testing according to the most rigorous industry and customer standards. Performance ratings are uniaxial ratings based on specified pipe minimum performance properties. Please contact the JFE-TC office for the latest information.





Torque vs. Turns



MATERIAL	Imperial	Metric
Min Yield Strength	110,000 psi	758 MPa
Max Yield Strength	140,000 psi	965 MPa
Min Tensile Strength	125,000 psi	862 MPa
COUPLING		
Coupling OD	5.639 in	143.23 mm
Coupling ID	4.303 in	109.3 mm
Tensile Efficency	117%	117%
Coupling Length	10.369 in	263.37 mm
Make-up Loss Length	4.630 in	117.60 mm
Bearing Face Load	354 kip	1,574.67 kN
PIPE		
Pipe Body Wall	0.362 in	9.19 mm
Pipe ID	4.276 in	108.61 mm
Drift Diameter	4.151 in	105.44 mm
Collapse Pressure	13,470 psi	92.87 MPa
Internal Yield Pressure	13,940 psi	96.11 MPa
Pipe Body Yield Strength	580 kip	2,580 kN
CONNECTION PERFORMANCE		
Collapse Pressure	13,470 psi	92.87 MPa
Internal Yield Pressure	13,940 psi	96.11 MPa
Joint Strength	580 kip	2,581 kN
Joint Tensile Efficiency	100%	100%
Compression Rating	464 kip	2,065 kN
FIELD MAKE-UP TORQUE		
Min Torque	10,080 ft-lb	13,667 Nm
Opt Torque	11,200 ft-lb	15,185 Nm
Max Torque	12,320 ft-lb	16,704 Nm
Min Shoulder	1,120 ft-lb	1,519 Nm
Max Shoulder	8,400 ft-lb	11,389 Nm
Max Torque with Sealability	15,700 ft-lb	21,286 Nm

Notes
[*1] Torque data shown is for API Modified (FF=1.0)

Legal Notice

JFEBEAR

JFE

July 16, 2016

UNCONTROLLED DOCUMENT

SIZE:	5.5 in (139.7 mm)
WEIGHT:	23 lb/ft (34.23 kg/m)
GRADE:	P110
COUP:	Standard
FF:	API Modified - Carbon

JFE has performed and continues to perform connection and qualification testing according to the most rigorous industry and customer standards. Performance ratings are uniaxial ratings based on specified pipe minimum performance properties. Please contact the JFE-TC office for the latest information.

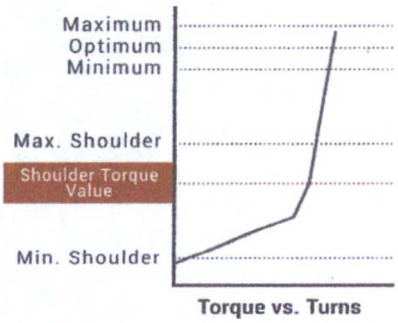
MATERIAL	Imperial	Metric
Min Yield Strength	110,000 psi	758 MPa
Max Yield Strength	140,000 psi	965 MPa
Min Tensile Strength	125,000 psi	862 MPa

COUPLING		
Coupling OD	6.135 in	155.83 mm
Coupling ID	4.684 in	118.97 mm
Tensile Efficency	101%	101%
Coupling Length	10.369 in	263.37 mm
Make-up Loss Length	4.630 in	117.60 mm
Bearing Face Load	383 kip	1,703.67 kN

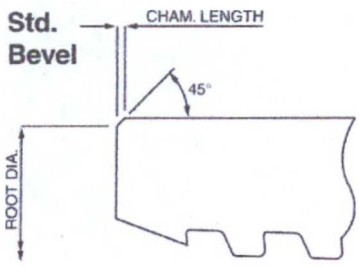
PIPE		
Pipe Body Wall	0.415 in	10.54 mm
Pipe ID	4.670 in	118.62 mm
Drift Diameter	4.545 in	115.44 mm
Collapse Pressure	14,540 psi	100.25 MPa
Internal Yield Pressure	14,520 psi	100.11 MPa
Pipe Body Yield Strength	729 kip	3,243 kN

CONNECTION PERFORMANCE		
Collapse Pressure	14,540 psi	100.25 MPa
Internal Yield Pressure	14,520 psi	100.11 MPa
Joint Strength	729 kip	3,244 kN
Joint Tensile Efficiency	100%	100%
Compression Rating	583 kip	2,595 kN

FIELD MAKE-UP TORQUE		
Min Torque	15,010 ft-lb	20,351 Nm
Opt Torque	16,680 ft-lb	22,615 Nm
Max Torque	18,350 ft-lb	24,879 Nm
Min Shoulder	1,668 ft-lb	2,262 Nm
Max Shoulder	12,510 ft-lb	16,961 Nm
Max Torque with Sealability	20,300 ft-lb	27,523 Nm



Torque vs. Turns



Notes
[*1] Torque data shown is for API Modified (FF=1.0)

Legal Notice

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	GMT Exploration Company
LEASE NO.:	NM117125
WELL NAME & NO.:	1H-Sheba Federal Com
SURFACE HOLE FOOTAGE:	620'/N & 535'/E
BOTTOM HOLE FOOTAGE	330'/N & 350'/E
LOCATION:	Section 22, T. 24 S., R. 34 E., NMPM
COUNTY:	Lea County, New Mexico

Original COAs still stand with the following drilling modifications:

I. DRILLING

A. DRILLING OPERATIONS 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)

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

1. **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.**

2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. 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 is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log 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.**

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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

Possibility of water flows in the Salado, Bone Spring Lime, Delaware and Castile. Possibility of lost circulation in the Bone Spring Lime, Rustler, and Delaware. Abnormal pressures may be encountered upon penetrating the 3rd Bone Spring Sandstone and all subsequent formations.

1. The **13 3/8** inch surface casing shall be set at approximately **1135** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    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 is to include the lead cement slurry.

    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.

Formation below the 13 3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

Operator has proposed DV tool at depth of 4500'.Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

Formation below the 7-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2 X 5** inch production casing is:

   ☒ Cement as proposed by operator. Operator shall provide method of verification.

4. 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.

C. 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 53.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi. **5M 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.**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7-5/8** intermediate casing shoe shall be **10,000 (10M)** psi. **10M 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. 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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

c. 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.

d. The results of the test shall be reported to the appropriate BLM office.

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 if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

JAM 080916