

Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: ☐ DRILL ☐ REENTER		5. Lease Serial No.
1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator [373910]		8. Lease Name and Well No. [330788]
3a. Address	3b. Phone No. (include area code)	9. API Well No. 30-025-48806
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory [98185]
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		12. County or Parish
16. No of acres in lease		13. State
17. Spacing Unit dedicated to this well		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		
19. Proposed Depth		
20. BLM/BIA Bond No. in file		
21. Elevations (Show whether DF, KDB, RT, GL, etc.)		
22. Approximate date work will start*		
23. Estimated duration		
24. Attachments		
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)		
1. Well plat certified by a registered surveyor.		4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
2. A Drilling Plan.		5. Operator certification.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).		6. Such other site specific information and/or plans as may be requested by the BLM.
25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		
Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		
Conditions of approval, if any, are attached.		
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.		

GCP Rec 04/20/2021

SL

(Continued on page 2)



Approval Date: 04/15/2021

KZ
05/07/2021

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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

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

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

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

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

Additional Operator Remarks

Location of Well

0. SHL: LOT 3 / 250 FNL / 2167 FWL / TWSP: 25S / RANGE: 35E / SECTION: 1 / LAT: 32.166034 / LONG: -103.322783 (TVD: 0 feet, MD: 0 feet)
PPP: SESW / 0 FSL / 1804 FWL / TWSP: 24S / RANGE: 35E / SECTION: 36 / LAT: 32.181256 / LONG: -103.323982 (TVD: 11528 feet, MD: 17000 feet)
PPP: NENW / 1323 FNL / 1804 FWL / TWSP: 24S / RANGE: 35E / SECTION: 36 / LAT: 32.177619 / LONG: -103.32398 (TVD: 11571 feet, MD: 15700 feet)
PPP: SESW / 346 FSL / 1804 FWL / TWSP: 24S / RANGE: 35E / SECTION: 36 / LAT: 32.167671 / LONG: -103.323973 (TVD: 11692 feet, MD: 12054 feet)
PPP: SESW / 0 FSL / 1800 FWL / TWSP: 24S / RANGE: 35E / SECTION: 36 / LAT: 32.166721 / LONG: -103.323972 (TVD: 11597 feet, MD: 11700 feet)
BHL: NENW / 150 FNL / 1800 FWL / TWSP: 24S / RANGE: 35E / SECTION: 25 / LAT: 32.195352 / LONG: -103.323991 (TVD: 11357 feet, MD: 22131 feet)

BLM Point of Contact

Name: TENILLE ORTIZ
Title: Legal Instruments Examiner
Phone: (575) 234-2224
Email: tortiz@blm.gov

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Review and Appeal Rights

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

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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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-48806		² Pool Code 98185	³ Pool Name WC-025 G-09 S253502B;LWR BONE SPRING	
⁴ Property Code 330788	⁵ Property Name BIDDER 49 FED COM			⁶ Well Number 602H
⁷ OGRID No. 373910	⁸ Operator Name FRANKLIN MOUNTAIN ENERGY LLC			⁹ Elevation 3319.3'

¹⁰Surface Location

UL or lot no. 3	Section 1	Township 25S	Range 35E	Lot Idn	Feet from the 250	North/South line NORTH	Feet from the 2167	East/West line WEST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. C	Section 25	Township 24S	Range 35E	Lot Idn	Feet from the 150	North/South line NORTH	Feet from the 1800	East/West line WEST	County LEA
¹² Dedicated Acres 320		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

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

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: *Shelly Albrecht* Date: 7/14/2020

Printed Name: Shelly Albrecht

E-mail Address: salbrecht@fmlc.com

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.

February 13, 2020

Date of Survey

Signature and Seal of Professional Surveyor:

Paul Buchele

PAUL BUCHELE
NEW MEXICO
23782
07-02-20
PROFESSIONAL SURVEYOR

Certificate Number:

● = SURFACE HOLE LOCATION
◆ = KICK OFF POINT/PPP
○ = BOTTOM HOLE LOCATION
▲ = SECTION CORNER LOCATED
△ = SECTION CORNER RE-ESTABLISHED.
(Not Set on Ground.)

SCALE

DRAWN BY: K.A. 02-28-20
REV: 1 D.P. 07-02-20 (NAME CHANGE, ADD KOP, PPP POINTS & LEASE INFO.)

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State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 1/29/2021

☒ Original

Operator & OGRID No.: Franklin Mountain Energy, LLC 373910

☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Bidder 49 Fed Com 602H	TBD	Lot 3-1-25S-35E	250 FNL 2167 FWL	1100 +/-	Flared	New well; expect to tie-in at IP
Bidder 49 Fed Com 703H	TBD	Lot 3-1-25S-35E	250 FNL 2202 FWL	1100 +/-	Flared	New well; expect to tie-in at IP
KC7 Fed Com 704H	TBD	Lot 3-1-25S-35E	250 FNL 2237 FWL	1100 +/-	Flared	New well; expect to tie-in at IP

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Lucid Energy and will be connected to Lucid Energy's gathering system located in Lea County, New Mexico. It will require 1,000' of pipeline to connect the facility to low/high pressure gathering system. Franklin Mountain Energy, LLC provides (periodically) to Lucid Energy a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Franklin Mountain Energy, LLC and Lucid Energy have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Lucid Energy's Red Hills Processing Plant located in Sec.13, Twn. 24S, Rng. 33E, Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to permanent central tank battery and gas will be sold or flared. Gas sales should start as soon as the wells start producing gas unless there are operational issues on Lucid Energy's system at that time. Based on current information, it is Franklin Mountain Energy's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines



Bidder 49 Fed Com 602H

1. Geologic name of surface location: Permian
2. Estimated tops of important geological markers:

Formations	PROG SS	PROG TVD	Picked TVD	delta	Potential/Issues
Cenozoic Alluvium (surface)	3,319'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,123'	1,226'			Carbonates
Salado	2,008'	1,341'			Salt, Carbonate & Clastics
Base Salt	-143'	3,492'			Shaley Carbonate & Shale
Lamar	-1,723'	5,072'			Carbonate & Clastics
Bell Canyon	-1,767'	5,116'			Sandstone - oil/gas/water
Cherry Canyon	-2,654'	6,003'			Sandstone - oil/gas/water
Brushy Canyon	-4,075'	7,424'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,350'	8,699'			Shale/Carbonates - oil/gas
Avalon	-5,447'	8,796'			Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,639'	9,988'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,772'	10,121'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,145'	10,494'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-7,693'	11,042'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,287'	11,636'			Sandstone - oil/gas/water
HZ Target at SHL	-8,363'	11,712'			Overpressure shale/sand- Oil/Gas
Wolfcamp	-8,542'	11,891'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-8,577'	11,926'			Overpressure Shale - Oil/Gas
Wolfcamp B	-8,769'	12,118'			Overpressure Shale - Oil/Gas

3. Estimated depth of anticipated fresh water, oil or gas:

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,116'	Oil
Bone Spring	9,988'	Oil
Wolfcamp	11,891'	Oil

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Surface freshwater sands will be protected by setting 13 3/8" casing at 1,300' and circulating cement back to surface.

4. Casing Program:

All casings strings will be run new. Safety factors calculated assuming the well is vertical.

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5400	1.72	1.67	2.90	3.30
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	12054	1.1	1.27	1.81	1.23
Long string 5 1/2"	23	P-110	14520	14520	729	Anaconda 656	22131	1.32	1.4	1.2	1.08



Cementing Program:

Cementing Stage tool can be placed in the 1st Intermediate string as a contingency to ensure required TOC to surface.

String Type	Hole Size	Casing Size	Setting Depth	Sacks	Type of cmt	Lead Yield ft3/sk	Water gal/sk	TOC ft	Sacks	Type of cmt	Tail Yield ft3/sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1300	795	Extenda Cem, 13.5 ppg Class C, 3lb/sk Kol-Seal	1.747	9.06	0	334	HalCem TM, 14.8 ppg, Class C, 1% CaCl ₂ , 0.125pps Celo-Flake	1.349	6.51	1000	100%
Int1	12.25	9.625	5400	1167	Neocem TM, 11.5 ppg, Class C 5% Salt, 0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal	2.444	14.32	0	153	HalCem TM, 14.8 ppg, Class C, 0.1% HR 800 .125 pps Poly-E-Flake	1.334	6.42	5100	100%
Int2	8.75	7.625	12054	343	NeoCem, 11 ppg, Class C 3lb/sk Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake	2.798	17.15	4400	112	NeoCem 13.2 ppg, Class C 0.25 pps Cello-Flake, 2% CaCl ₂	1.44	7.29	11054	50%
Prod	6.75	5.5	22131	816	NeoCem, 13.5 ppg, Gas Migration Control	1.357	6.65	11054						20%

5. Minimum Specifications for Pressure Control:

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on bottom and 4 ½" x 7" variable pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the second intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/250 psig and the annular preventer to 5,000/250 psig. The second intermediate casing will be tested to 2000 psi for 30 minutes prior to drillout.

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.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.



6. Types and characteristics of the proposed mud system:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal. The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,300'	Fresh - Gel	8.6-8.8	28-34	N/c
1,300' – 12,054'	Brine	8.8-10.2	28-34	N/c
12,054' – 22,131' Lateral	Oil Base	10.0-11.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 10-11 ppg. In order to maintain hole stability, mud weights up to 12 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

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

7. Auxiliary well control and monitoring equipment:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

(D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

8. Logging, testing and coring program:

GR–CCL–CNL Will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

9. Abnormal conditions, pressures, temperatures and potential hazards:

The estimated bottom-hole temperature at 11,692' TVD (deepest point of the well) is 195F with an estimated maximum bottom-hole pressure (BHP) at the same point of 7,295 psig (based on 12 ppg MW). Hydrogen sulfate may be present in the area. All necessary precautions will be taken before drilling operations commence. See Hydrogen Sulfide Plan below:

10. Hydrogen Sulfide Plan:

A. All personnel shall receive proper awareness H₂S training.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment

a. Well Control Equipment

i. Flare line 150' from wellhead to be ignited by auto ignition sparking system.

ii. Choke manifold with a remotely operated hydraulic choke.

iii. Mud/gas separator

b. Protective equipment for essential personnel

i. Breathing Apparatus

1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.

2. Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity



3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation
- ii. Auxiliary Rescue Equipment
 1. Stretcher
 2. Two OSHA full body harnesses
 3. 100 feet of 5/8 inches OSHA approved rope
 4. 1-20# class ABC fire extinguisher
- c. H2S Detection and Monitoring Equipment
 - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
 1. Rig Floor
 2. Below Rig Floor / Near BOPs
 3. End of flow line or where well bore fluid is being discharged (near shakers)
 - ii. If H2S is encountered, measured values and formations will be provided to the BLM.
- d. Visual Warning Systems
 - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - iii. Two windsocks will be placed in strategic locations, visible from all angles.
- e. Mud Program
 - i. The Mud program will be designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- f. Metallurgy
 - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
 - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H2S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H2S contingency plan. This will be reevaluated during wellbore construction if H2S is observed and after the well is on production.

11. Anticipated starting date and duration of operations:

The drilling operations on the well should be finished in approximately one month. However, in order to minimize disturbance in the area and to improve efficiency Franklin Mountain is planning to drill all the wells on the pad prior to commence completion operations. To even further reduce the time heavy machinery is used the “batch drilling” method may be used. A batch drilling sequence sundry will be submitted for BLM approval prior to spud. A drilling rig with walking/skidding capabilities will be used.

**12. Disposal/environmental concerns:**

- (A) Drilled cuttings will be hauled to and disposed of in a state-certified disposal site.
- (B) Non-hazardous waste mud/cement from the drilling process will be also be hauled to and disposed of in a state-certified disposal site.
- (C) Garbage will be hauled to the Pecos City Landfill.
- (D) Sewage (grey water) will be hauled to the Carlsbad City Landfill

13. Wellhead:

A multi-bowl wellhead system will be utilized.

After running the 13 3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5,000 psi pressure test. This pressure test will be repeated at least every 21 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5,000 psi.

After running the 2nd intermediate casing, and before drilling out, the wellhead, BOP, and related equipment will be tested to 10,000/250 psig.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Cameron Multi-Bowl WH system has been sent to the BLM office in Carlsbad.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing strings. After installation of the first intermediate string the pack-off and lower flanges will be pressure tested to 5000 psi. After installation of the second intermediate string, the pack-off and upper flange will be pressure tested to 10,000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

14. Additional variance requests**A. Casing.**

In order to minimize potential environmental and technical hazards, this well is planned with two intermediate strings of casing.

1. Variance is requested to wave the centralizer requirements for the 7 5/8" casing due to the tight clearance with 9 5/8" string.
2. Variance is requested to wave/reduce the centralizer requirements for the 5 1/2" casing due to the tight clearance with 6 3/4" hole and 5 1/2" casing due to tight clearances.

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Western/Bidder 49/KC7
Well: Bidder 49 Fed Com 602H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.54°
Magnetic North: 6.00°

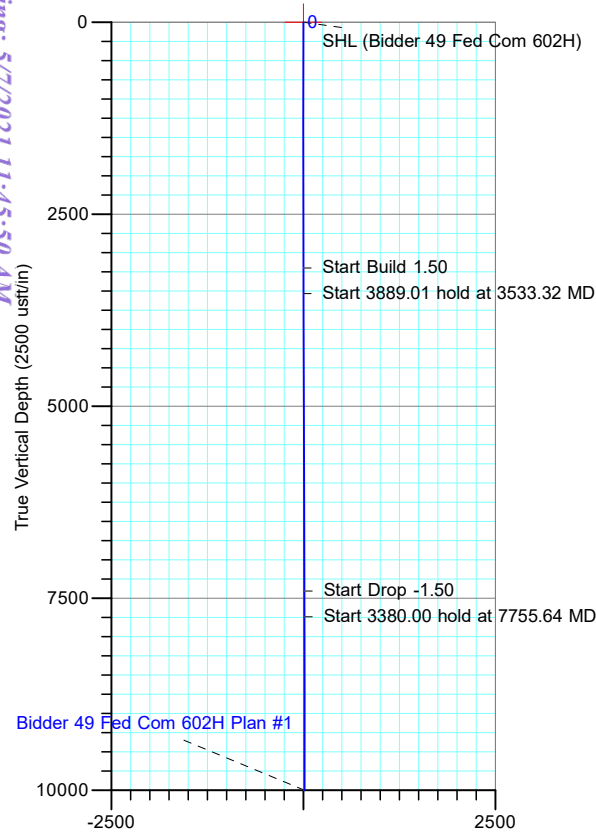
Magnetic Field
Strength: 47587.8nT
Dip Angle: 59.92°
Date: 6/22/2020
Model: IGRF2020

PROJECT DETAILS: Lea County, NM (NAD83)

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



3319.3' GE + 30' KB @ 3349.30usft

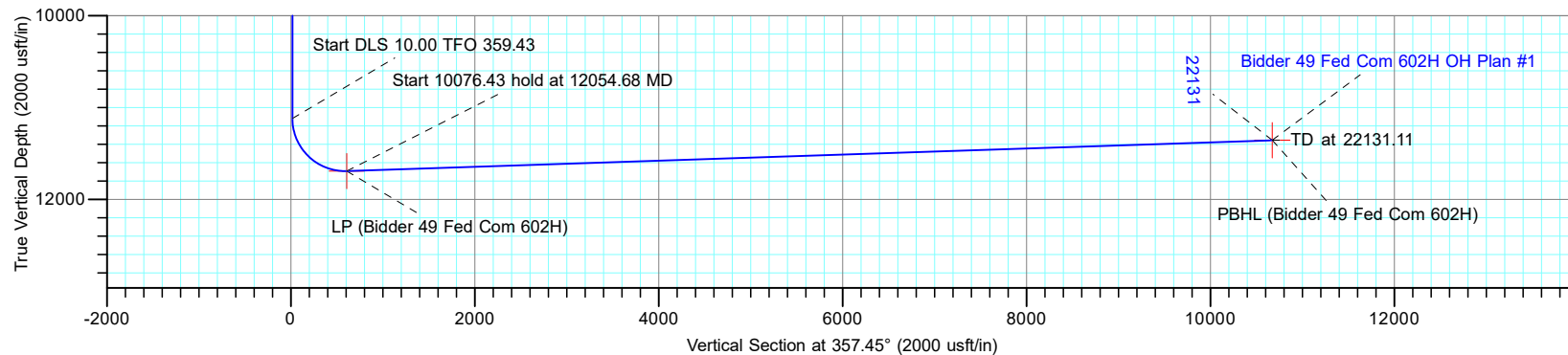
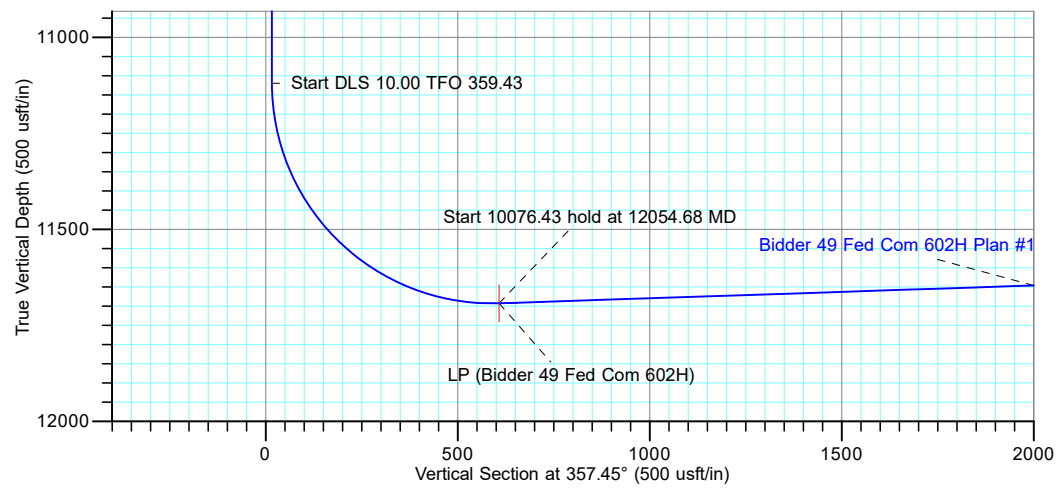


SECTION DETAILS

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	
3200.00	0.00	0.00	3200.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3533.32	5.00	270.00	3532.89	0.00	-14.53	1.50	270.00	0.65	Start 3889.01 hold at 3533.32 MD
7422.33	5.00	270.00	7407.11	0.00	-353.47	0.00	0.00	15.70	Start Drop -1.50
7755.64	0.00	0.00	7740.00	0.00	-368.00	1.50	180.00	16.35	Start 3380.00 hold at 7755.64 MD
11135.64	0.00	0.00	11120.00	0.00	-368.00	0.00	0.00	16.35	Start DLS 10.00 TFO 359.43
12054.68	91.90	359.43	11692.64	591.96	-373.89	10.00	359.43	607.98	Start 10076.43 hold at 12054.68 MD
22131.11	91.90	359.43	11357.94	10662.33	-474.07	0.00	0.00	10672.86	TD at 22131.11

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (Bidder 49 Fed Com 602H)	11692.64	591.96	-373.89	32.167671	-103.323973
PBHL (Bidder 49 Fed Com 602H)	11357.94	10662.33	-474.07	32.195352	-103.323991
SHL (Bidder 49 Fed Com 602H)	0.00	0.00	0.00	32.166034	-103.322783



TOTAL DIRECTIONAL SERVICES LLC
671 Academy Ct, Windsor, CO 80550
Phone: (970) 460-9402

Plan: Plan #1 (Bidder 49 Fed Com 602H/OH)
Western/Bidder 49/KC7
Created By: Dustin Ault Date: 14:28, June 23 2020
Date: _____
Approved: _____ Date: _____

Released to Imaging: 5/7/2021 11:45:50 AM

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Western/Bidder 49/KC7
Well: Bidder 49 Fed Com 602H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.54°
Magnetic North: 6.00°

Magnetic Field
Strength: 47587.8nT
Dip Angle: 59.92°
Date: 6/22/2020
Model: IGRF2020

PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

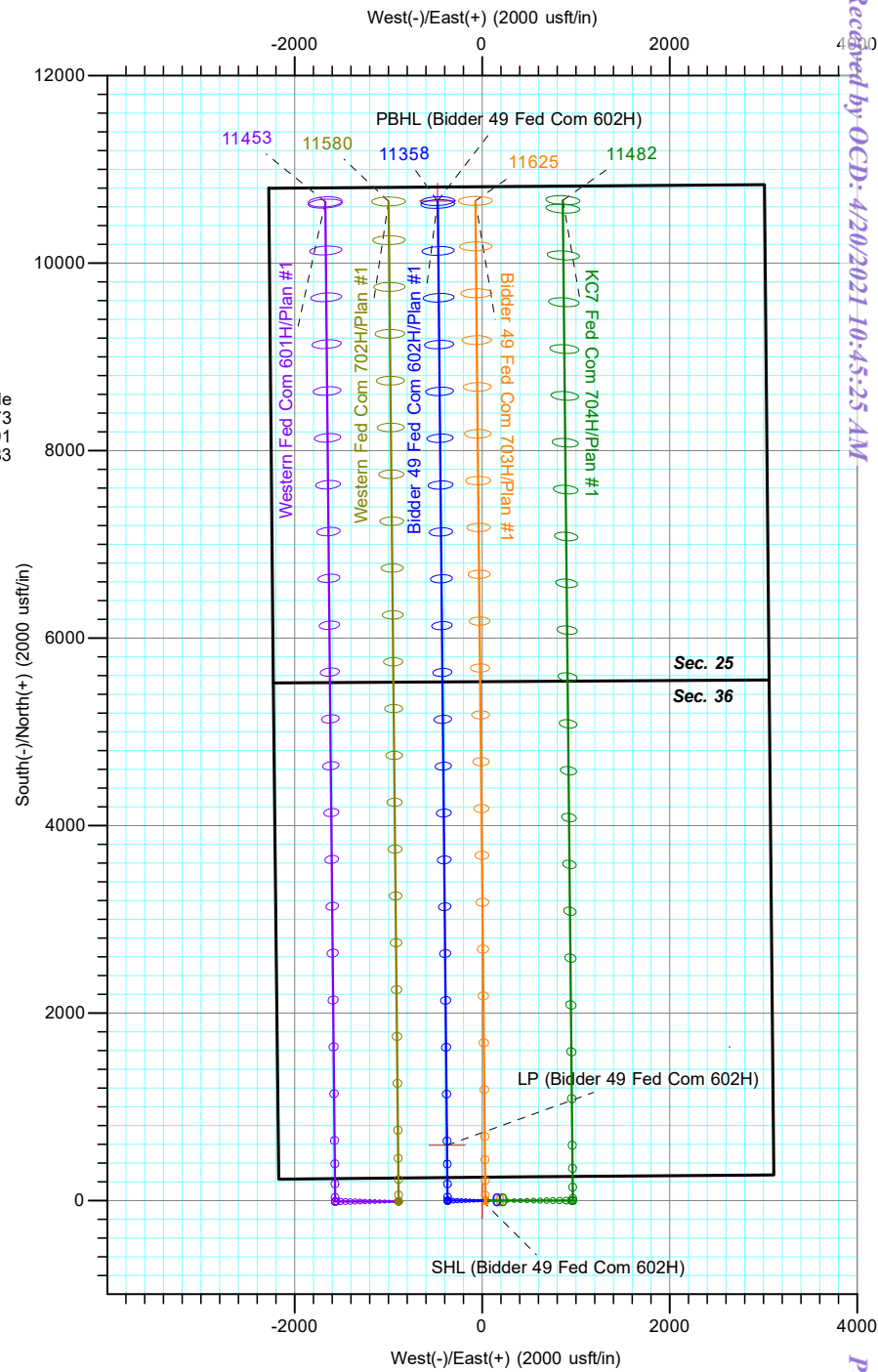
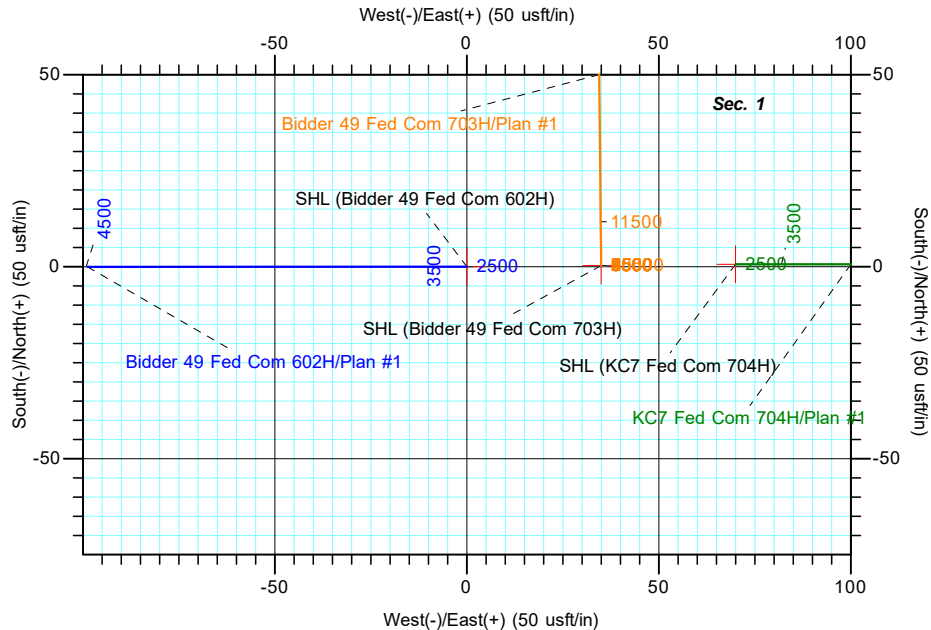


DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (Bidder 49 Fed Com 602H)	11692.64	591.96	-373.89	426198.41	853663.50	32.167671	-103.323973
PBHL (Bidder 49 Fed Com 602H)	11357.94	10662.33	-474.07	436268.78	853563.32	32.195352	-103.323991
SHL (Bidder 49 Fed Com 602H)	0.00	0.00	0.00	425606.45	854037.39	32.166034	-103.322783

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	
3200.00	0.00	0.00	3200.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3533.32	5.00	270.00	3532.89	0.00	-14.53	1.50	270.00	0.65	Start 3889.01 hold at 3533.32 MD
7422.33	5.00	270.00	7407.11	0.00	-353.47	0.00	0.00	15.70	Start Drop -1.50
7755.64	0.00	0.00	7740.00	0.00	-368.00	1.50	180.00	16.35	Start 3380.00 hold at 7755.64 MD
11135.64	0.00	0.00	11120.00	0.00	-368.00	0.00	0.00	16.35	Start DLS 10.00 TFO 359.43
12054.68	91.90	359.43	11692.64	591.96	-373.89	10.00	359.43	607.98	Start 10076.43 hold at 12054.68 MD
22131.11	91.90	359.43	11357.94	10662.33	-474.07	0.00	0.00	10672.86	TD at 22131.11



TOTAL DIRECTIONAL SERVICES LLC
671 Academy Ct, Windsor, CO 80550
Phone: (970) 460-9402

Plan: Plan #1 (Bidder 49 Fed Com 602H/OH)
Western/Bidder 49/KC7
Created By: Dustin Ault
Date: 14:31, June 23 2020
Approved: _____
Date: _____

Received by OCD: 4/20/2021 10:45:25 AM

Page 14 of 90



Franklin Mountain Energy

Lea County, NM (NAD83)

Western/Bidder 49/KC7

Bidder 49 Fed Com 602H

OH

Plan: Plan #1

Standard Planning Report

23 June, 2020





Total Directional Services Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Western/Bidder 49/KC7			
Site Position:		Northing:	425,597.25 usft	Latitude:	32.166033
From:	Map	Easting:	853,111.55 usft	Longitude:	-103.325775
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54

Well	Bidder 49 Fed Com 602H					
Well Position	+N/-S	9.20 usft	Northing:	425,606.45 usft	Latitude:	32.166034
	+E/-W	925.84 usft	Easting:	854,037.39 usft	Longitude:	-103.322783
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,319.30 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	6/22/2020	6.54	59.92	47,587.81495805

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	357.45

Plan Survey Tool Program	Date	6/23/2020		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,131.05 Plan #1 (OH)	OWSG (Rev2) MWD	
			OWSG MWD - Standard	

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
0.00	0.00	0.00	0.00	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	
3,533.32	5.00	270.00	3,532.89	0.00	-14.53	1.50	1.50	0.00	270.00	
7,422.33	5.00	270.00	7,407.11	0.00	-353.47	0.00	0.00	0.00	0.00	
7,755.64	0.00	0.00	7,740.00	0.00	-368.00	1.50	-1.50	0.00	180.00	
11,135.64	0.00	0.00	11,120.00	0.00	-368.00	0.00	0.00	0.00	0.00	
12,054.68	91.90	359.43	11,692.64	591.96	-373.89	10.00	10.00	-0.06	359.43	
22,131.11	91.90	359.43	11,357.94	10,662.33	-474.07	0.00	0.00	0.00	0.00	PBHL (Bidder 49 Fed)



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (Bidder 49 Fed Com 602H)									
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
1,200.00	0.00	0.00	1,200.00	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
Start Build 1.50									
3,300.00	1.50	270.00	3,299.99	0.00	-1.31	0.06	1.50	1.50	0.00
3,400.00	3.00	270.00	3,399.91	0.00	-5.23	0.23	1.50	1.50	0.00
3,500.00	4.50	270.00	3,499.69	0.00	-11.77	0.52	1.50	1.50	0.00
3,533.32	5.00	270.00	3,532.89	0.00	-14.53	0.65	1.50	1.50	0.00
Start 3889.01 hold at 3533.32 MD									
3,600.00	5.00	270.00	3,599.32	0.00	-20.35	0.90	0.00	0.00	0.00
3,700.00	5.00	270.00	3,698.94	0.00	-29.06	1.29	0.00	0.00	0.00
3,800.00	5.00	270.00	3,798.56	0.00	-37.78	1.68	0.00	0.00	0.00
3,900.00	5.00	270.00	3,898.18	0.00	-46.49	2.07	0.00	0.00	0.00
4,000.00	5.00	270.00	3,997.80	0.00	-55.21	2.45	0.00	0.00	0.00
4,100.00	5.00	270.00	4,097.42	0.00	-63.92	2.84	0.00	0.00	0.00
4,200.00	5.00	270.00	4,197.04	0.00	-72.64	3.23	0.00	0.00	0.00
4,300.00	5.00	270.00	4,296.66	0.00	-81.35	3.61	0.00	0.00	0.00
4,400.00	5.00	270.00	4,396.28	0.00	-90.07	4.00	0.00	0.00	0.00
4,500.00	5.00	270.00	4,495.90	0.00	-98.78	4.39	0.00	0.00	0.00
4,600.00	5.00	270.00	4,595.52	0.00	-107.50	4.77	0.00	0.00	0.00
4,700.00	5.00	270.00	4,695.14	0.00	-116.21	5.16	0.00	0.00	0.00
4,800.00	5.00	270.00	4,794.76	0.00	-124.93	5.55	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
4,900.00	5.00	270.00	4,894.38	0.00	-133.64	5.94	0.00	0.00	0.00
5,000.00	5.00	270.00	4,994.00	0.00	-142.36	6.32	0.00	0.00	0.00
5,100.00	5.00	270.00	5,093.62	0.00	-151.07	6.71	0.00	0.00	0.00
5,200.00	5.00	270.00	5,193.24	0.00	-159.79	7.10	0.00	0.00	0.00
5,300.00	5.00	270.00	5,292.86	0.00	-168.50	7.48	0.00	0.00	0.00
5,400.00	5.00	270.00	5,392.47	0.00	-177.22	7.87	0.00	0.00	0.00
5,500.00	5.00	270.00	5,492.09	0.00	-185.93	8.26	0.00	0.00	0.00
5,600.00	5.00	270.00	5,591.71	0.00	-194.65	8.65	0.00	0.00	0.00
5,700.00	5.00	270.00	5,691.33	0.00	-203.36	9.03	0.00	0.00	0.00
5,800.00	5.00	270.00	5,790.95	0.00	-212.08	9.42	0.00	0.00	0.00
5,900.00	5.00	270.00	5,890.57	0.00	-220.79	9.81	0.00	0.00	0.00
6,000.00	5.00	270.00	5,990.19	0.00	-229.51	10.19	0.00	0.00	0.00
6,100.00	5.00	270.00	6,089.81	0.00	-238.22	10.58	0.00	0.00	0.00
6,200.00	5.00	270.00	6,189.43	0.00	-246.94	10.97	0.00	0.00	0.00
6,300.00	5.00	270.00	6,289.05	0.00	-255.65	11.36	0.00	0.00	0.00
6,400.00	5.00	270.00	6,388.67	0.00	-264.37	11.74	0.00	0.00	0.00
6,500.00	5.00	270.00	6,488.29	0.00	-273.08	12.13	0.00	0.00	0.00
6,600.00	5.00	270.00	6,587.91	0.00	-281.80	12.52	0.00	0.00	0.00
6,700.00	5.00	270.00	6,687.53	0.00	-290.51	12.90	0.00	0.00	0.00
6,800.00	5.00	270.00	6,787.15	0.00	-299.23	13.29	0.00	0.00	0.00
6,900.00	5.00	270.00	6,886.77	0.00	-307.94	13.68	0.00	0.00	0.00
7,000.00	5.00	270.00	6,986.39	0.00	-316.66	14.07	0.00	0.00	0.00
7,100.00	5.00	270.00	7,086.01	0.00	-325.38	14.45	0.00	0.00	0.00
7,200.00	5.00	270.00	7,185.63	0.00	-334.09	14.84	0.00	0.00	0.00
7,300.00	5.00	270.00	7,285.25	0.00	-342.81	15.23	0.00	0.00	0.00
7,400.00	5.00	270.00	7,384.86	0.00	-351.52	15.61	0.00	0.00	0.00
7,422.33	5.00	270.00	7,407.11	0.00	-353.47	15.70	0.00	0.00	0.00
Start Drop -1.50									
7,500.00	3.83	270.00	7,484.55	0.00	-359.45	15.97	1.50	-1.50	0.00
7,600.00	2.33	270.00	7,584.40	0.00	-364.83	16.21	1.50	-1.50	0.00
7,700.00	0.83	270.00	7,684.36	0.00	-367.59	16.33	1.50	-1.50	0.00
7,755.64	0.00	0.00	7,740.00	0.00	-368.00	16.35	1.50	-1.50	0.00
Start 3380.00 hold at 7755.64 MD									
7,800.00	0.00	0.00	7,784.36	0.00	-368.00	16.35	0.00	0.00	0.00
7,900.00	0.00	0.00	7,884.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,000.00	0.00	0.00	7,984.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,100.00	0.00	0.00	8,084.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,200.00	0.00	0.00	8,184.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,300.00	0.00	0.00	8,284.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,400.00	0.00	0.00	8,384.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,500.00	0.00	0.00	8,484.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,600.00	0.00	0.00	8,584.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,700.00	0.00	0.00	8,684.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,800.00	0.00	0.00	8,784.36	0.00	-368.00	16.35	0.00	0.00	0.00
8,900.00	0.00	0.00	8,884.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,000.00	0.00	0.00	8,984.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,100.00	0.00	0.00	9,084.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,200.00	0.00	0.00	9,184.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,300.00	0.00	0.00	9,284.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,400.00	0.00	0.00	9,384.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,500.00	0.00	0.00	9,484.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,600.00	0.00	0.00	9,584.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,700.00	0.00	0.00	9,684.36	0.00	-368.00	16.35	0.00	0.00	0.00
9,800.00	0.00	0.00	9,784.36	0.00	-368.00	16.35	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
9,900.00	0.00	0.00	9,884.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,000.00	0.00	0.00	9,984.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,100.00	0.00	0.00	10,084.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,200.00	0.00	0.00	10,184.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,300.00	0.00	0.00	10,284.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,400.00	0.00	0.00	10,384.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,500.00	0.00	0.00	10,484.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,600.00	0.00	0.00	10,584.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,700.00	0.00	0.00	10,684.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,800.00	0.00	0.00	10,784.36	0.00	-368.00	16.35	0.00	0.00	0.00
10,900.00	0.00	0.00	10,884.36	0.00	-368.00	16.35	0.00	0.00	0.00
11,000.00	0.00	0.00	10,984.36	0.00	-368.00	16.35	0.00	0.00	0.00
11,100.00	0.00	0.00	11,084.36	0.00	-368.00	16.35	0.00	0.00	0.00
11,135.64	0.00	0.00	11,120.00	0.00	-368.00	16.35	0.00	0.00	0.00
Start DLS 10.00 TFO 359.43									
11,150.00	1.44	359.43	11,134.36	0.18	-368.00	16.53	10.00	10.00	0.00
11,200.00	6.44	359.43	11,184.22	3.61	-368.04	19.95	10.00	10.00	0.00
11,250.00	11.44	359.43	11,233.60	11.37	-368.11	27.71	10.00	10.00	0.00
11,300.00	16.44	359.43	11,282.11	23.41	-368.23	39.74	10.00	10.00	0.00
11,350.00	21.44	359.43	11,329.39	39.63	-368.39	55.95	10.00	10.00	0.00
11,400.00	26.44	359.43	11,375.08	59.91	-368.60	76.22	10.00	10.00	0.00
11,450.00	31.44	359.43	11,418.82	84.09	-368.84	100.39	10.00	10.00	0.00
11,500.00	36.44	359.43	11,460.29	111.99	-369.11	128.28	10.00	10.00	0.00
11,550.00	41.44	359.43	11,499.17	143.40	-369.43	159.67	10.00	10.00	0.00
11,600.00	46.44	359.43	11,535.17	178.08	-369.77	194.33	10.00	10.00	0.00
11,650.00	51.44	359.43	11,568.00	215.77	-370.15	232.00	10.00	10.00	0.00
11,700.00	56.44	359.43	11,597.43	256.17	-370.55	272.38	10.00	10.00	0.00
11,750.00	61.44	359.43	11,623.22	298.99	-370.97	315.17	10.00	10.00	0.00
11,800.00	66.44	359.43	11,645.18	343.88	-371.42	360.04	10.00	10.00	0.00
11,850.00	71.44	359.43	11,663.15	390.53	-371.89	406.66	10.00	10.00	0.00
11,900.00	76.44	359.43	11,676.98	438.56	-372.36	454.66	10.00	10.00	0.00
11,950.00	81.44	359.43	11,686.57	487.61	-372.85	503.69	10.00	10.00	0.00
12,000.00	86.44	359.43	11,691.85	537.31	-373.35	553.36	10.00	10.00	0.00
12,054.68	91.90	359.43	11,692.64	591.96	-373.89	607.98	10.00	10.00	0.00
Start 10076.43 hold at 12054.68 MD - LP (Bidder 49 Fed Com 602H)									
12,100.00	91.90	359.43	11,691.14	637.25	-374.34	653.25	0.00	0.00	0.00
12,200.00	91.90	359.43	11,687.81	737.19	-375.33	753.14	0.00	0.00	0.00
12,300.00	91.90	359.43	11,684.49	837.13	-376.33	853.02	0.00	0.00	0.00
12,400.00	91.90	359.43	11,681.17	937.07	-377.32	952.91	0.00	0.00	0.00
12,500.00	91.90	359.43	11,677.85	1,037.01	-378.32	1,052.79	0.00	0.00	0.00
12,600.00	91.90	359.43	11,674.53	1,136.95	-379.31	1,152.68	0.00	0.00	0.00
12,700.00	91.90	359.43	11,671.21	1,236.89	-380.30	1,252.57	0.00	0.00	0.00
12,800.00	91.90	359.43	11,667.89	1,336.83	-381.30	1,352.45	0.00	0.00	0.00
12,900.00	91.90	359.43	11,664.56	1,436.77	-382.29	1,452.34	0.00	0.00	0.00
13,000.00	91.90	359.43	11,661.24	1,536.71	-383.29	1,552.22	0.00	0.00	0.00
13,100.00	91.90	359.43	11,657.92	1,636.65	-384.28	1,652.11	0.00	0.00	0.00
13,200.00	91.90	359.43	11,654.60	1,736.59	-385.28	1,751.99	0.00	0.00	0.00
13,300.00	91.90	359.43	11,651.28	1,836.53	-386.27	1,851.88	0.00	0.00	0.00
13,400.00	91.90	359.43	11,647.96	1,936.47	-387.26	1,951.76	0.00	0.00	0.00
13,500.00	91.90	359.43	11,644.63	2,036.41	-388.26	2,051.65	0.00	0.00	0.00
13,600.00	91.90	359.43	11,641.31	2,136.35	-389.25	2,151.53	0.00	0.00	0.00
13,700.00	91.90	359.43	11,637.99	2,236.29	-390.25	2,251.42	0.00	0.00	0.00
13,800.00	91.90	359.43	11,634.67	2,336.23	-391.24	2,351.30	0.00	0.00	0.00
13,900.00	91.90	359.43	11,631.35	2,436.17	-392.24	2,451.19	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)
14,000.00	91.90	359.43	11,628.03	2,536.11	-393.23	2,551.08	0.00	0.00	0.00
14,100.00	91.90	359.43	11,624.70	2,636.05	-394.22	2,650.96	0.00	0.00	0.00
14,200.00	91.90	359.43	11,621.38	2,735.99	-395.22	2,750.85	0.00	0.00	0.00
14,300.00	91.90	359.43	11,618.06	2,835.93	-396.21	2,850.73	0.00	0.00	0.00
14,400.00	91.90	359.43	11,614.74	2,935.87	-397.21	2,950.62	0.00	0.00	0.00
14,500.00	91.90	359.43	11,611.42	3,035.81	-398.20	3,050.50	0.00	0.00	0.00
14,600.00	91.90	359.43	11,608.10	3,135.75	-399.19	3,150.39	0.00	0.00	0.00
14,700.00	91.90	359.43	11,604.77	3,235.69	-400.19	3,250.27	0.00	0.00	0.00
14,800.00	91.90	359.43	11,601.45	3,335.63	-401.18	3,350.16	0.00	0.00	0.00
14,900.00	91.90	359.43	11,598.13	3,435.57	-402.18	3,450.04	0.00	0.00	0.00
15,000.00	91.90	359.43	11,594.81	3,535.51	-403.17	3,549.93	0.00	0.00	0.00
15,100.00	91.90	359.43	11,591.49	3,635.45	-404.17	3,649.82	0.00	0.00	0.00
15,200.00	91.90	359.43	11,588.17	3,735.39	-405.16	3,749.70	0.00	0.00	0.00
15,300.00	91.90	359.43	11,584.84	3,835.33	-406.15	3,849.59	0.00	0.00	0.00
15,400.00	91.90	359.43	11,581.52	3,935.27	-407.15	3,949.47	0.00	0.00	0.00
15,500.00	91.90	359.43	11,578.20	4,035.21	-408.14	4,049.36	0.00	0.00	0.00
15,600.00	91.90	359.43	11,574.88	4,135.15	-409.14	4,149.24	0.00	0.00	0.00
15,700.00	91.90	359.43	11,571.56	4,235.09	-410.13	4,249.13	0.00	0.00	0.00
15,800.00	91.90	359.43	11,568.24	4,335.03	-411.13	4,349.01	0.00	0.00	0.00
15,900.00	91.90	359.43	11,564.91	4,434.97	-412.12	4,448.90	0.00	0.00	0.00
16,000.00	91.90	359.43	11,561.59	4,534.91	-413.11	4,548.78	0.00	0.00	0.00
16,100.00	91.90	359.43	11,558.27	4,634.85	-414.11	4,648.67	0.00	0.00	0.00
16,200.00	91.90	359.43	11,554.95	4,734.79	-415.10	4,748.55	0.00	0.00	0.00
16,300.00	91.90	359.43	11,551.63	4,834.73	-416.10	4,848.44	0.00	0.00	0.00
16,400.00	91.90	359.43	11,548.31	4,934.67	-417.09	4,948.33	0.00	0.00	0.00
16,500.00	91.90	359.43	11,544.98	5,034.61	-418.08	5,048.21	0.00	0.00	0.00
16,600.00	91.90	359.43	11,541.66	5,134.55	-419.08	5,148.10	0.00	0.00	0.00
16,700.00	91.90	359.43	11,538.34	5,234.49	-420.07	5,247.98	0.00	0.00	0.00
16,800.00	91.90	359.43	11,535.02	5,334.43	-421.07	5,347.87	0.00	0.00	0.00
16,900.00	91.90	359.43	11,531.70	5,434.37	-422.06	5,447.75	0.00	0.00	0.00
17,000.00	91.90	359.43	11,528.38	5,534.31	-423.06	5,547.64	0.00	0.00	0.00
17,100.00	91.90	359.43	11,525.05	5,634.25	-424.05	5,647.52	0.00	0.00	0.00
17,200.00	91.90	359.43	11,521.73	5,734.19	-425.04	5,747.41	0.00	0.00	0.00
17,300.00	91.90	359.43	11,518.41	5,834.13	-426.04	5,847.29	0.00	0.00	0.00
17,400.00	91.90	359.43	11,515.09	5,934.07	-427.03	5,947.18	0.00	0.00	0.00
17,500.00	91.90	359.43	11,511.77	6,034.01	-428.03	6,047.06	0.00	0.00	0.00
17,600.00	91.90	359.43	11,508.45	6,133.95	-429.02	6,146.95	0.00	0.00	0.00
17,700.00	91.90	359.43	11,505.13	6,233.89	-430.02	6,246.84	0.00	0.00	0.00
17,800.00	91.90	359.43	11,501.80	6,333.83	-431.01	6,346.72	0.00	0.00	0.00
17,900.00	91.90	359.43	11,498.48	6,433.77	-432.00	6,446.61	0.00	0.00	0.00
18,000.00	91.90	359.43	11,495.16	6,533.71	-433.00	6,546.49	0.00	0.00	0.00
18,100.00	91.90	359.43	11,491.84	6,633.65	-433.99	6,646.38	0.00	0.00	0.00
18,200.00	91.90	359.43	11,488.52	6,733.59	-434.99	6,746.26	0.00	0.00	0.00
18,300.00	91.90	359.43	11,485.20	6,833.53	-435.98	6,846.15	0.00	0.00	0.00
18,400.00	91.90	359.43	11,481.87	6,933.47	-436.97	6,946.03	0.00	0.00	0.00
18,500.00	91.90	359.43	11,478.55	7,033.41	-437.97	7,045.92	0.00	0.00	0.00
18,600.00	91.90	359.43	11,475.23	7,133.35	-438.96	7,145.80	0.00	0.00	0.00
18,700.00	91.90	359.43	11,471.91	7,233.29	-439.96	7,245.69	0.00	0.00	0.00
18,800.00	91.90	359.43	11,468.59	7,333.23	-440.95	7,345.57	0.00	0.00	0.00
18,900.00	91.90	359.43	11,465.27	7,433.17	-441.95	7,445.46	0.00	0.00	0.00
19,000.00	91.90	359.43	11,461.94	7,533.11	-442.94	7,545.35	0.00	0.00	0.00
19,100.00	91.90	359.43	11,458.62	7,633.05	-443.93	7,645.23	0.00	0.00	0.00
19,200.00	91.90	359.43	11,455.30	7,732.99	-444.93	7,745.12	0.00	0.00	0.00
19,300.00	91.90	359.43	11,451.98	7,832.93	-445.92	7,845.00	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #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)	
19,400.00	91.90	359.43	11,448.66	7,932.87	-446.92	7,944.89	0.00	0.00	0.00	
19,500.00	91.90	359.43	11,445.34	8,032.81	-447.91	8,044.77	0.00	0.00	0.00	
19,600.00	91.90	359.43	11,442.01	8,132.75	-448.91	8,144.66	0.00	0.00	0.00	
19,700.00	91.90	359.43	11,438.69	8,232.69	-449.90	8,244.54	0.00	0.00	0.00	
19,800.00	91.90	359.43	11,435.37	8,332.63	-450.89	8,344.43	0.00	0.00	0.00	
19,900.00	91.90	359.43	11,432.05	8,432.56	-451.89	8,444.31	0.00	0.00	0.00	
20,000.00	91.90	359.43	11,428.73	8,532.50	-452.88	8,544.20	0.00	0.00	0.00	
20,100.00	91.90	359.43	11,425.41	8,632.44	-453.88	8,644.09	0.00	0.00	0.00	
20,200.00	91.90	359.43	11,422.08	8,732.38	-454.87	8,743.97	0.00	0.00	0.00	
20,300.00	91.90	359.43	11,418.76	8,832.32	-455.86	8,843.86	0.00	0.00	0.00	
20,400.00	91.90	359.43	11,415.44	8,932.26	-456.86	8,943.74	0.00	0.00	0.00	
20,500.00	91.90	359.43	11,412.12	9,032.20	-457.85	9,043.63	0.00	0.00	0.00	
20,600.00	91.90	359.43	11,408.80	9,132.14	-458.85	9,143.51	0.00	0.00	0.00	
20,700.00	91.90	359.43	11,405.48	9,232.08	-459.84	9,243.40	0.00	0.00	0.00	
20,800.00	91.90	359.43	11,402.15	9,332.02	-460.84	9,343.28	0.00	0.00	0.00	
20,900.00	91.90	359.43	11,398.83	9,431.96	-461.83	9,443.17	0.00	0.00	0.00	
21,000.00	91.90	359.43	11,395.51	9,531.90	-462.82	9,543.05	0.00	0.00	0.00	
21,100.00	91.90	359.43	11,392.19	9,631.84	-463.82	9,642.94	0.00	0.00	0.00	
21,200.00	91.90	359.43	11,388.87	9,731.78	-464.81	9,742.82	0.00	0.00	0.00	
21,300.00	91.90	359.43	11,385.55	9,831.72	-465.81	9,842.71	0.00	0.00	0.00	
21,400.00	91.90	359.43	11,382.22	9,931.66	-466.80	9,942.60	0.00	0.00	0.00	
21,500.00	91.90	359.43	11,378.90	10,031.60	-467.80	10,042.48	0.00	0.00	0.00	
21,600.00	91.90	359.43	11,375.58	10,131.54	-468.79	10,142.37	0.00	0.00	0.00	
21,700.00	91.90	359.43	11,372.26	10,231.48	-469.78	10,242.25	0.00	0.00	0.00	
21,800.00	91.90	359.43	11,368.94	10,331.42	-470.78	10,342.14	0.00	0.00	0.00	
21,900.00	91.90	359.43	11,365.62	10,431.36	-471.77	10,442.02	0.00	0.00	0.00	
22,000.00	91.90	359.43	11,362.30	10,531.30	-472.77	10,541.91	0.00	0.00	0.00	
22,100.00	91.90	359.43	11,358.97	10,631.24	-473.76	10,641.79	0.00	0.00	0.00	
22,131.11	91.90	359.43	11,357.94	10,662.33	-474.07	10,672.86	0.00	0.00	0.00	
TD at 22131.11 - PBHL (Bidder 49 Fed Com 602H)										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL (Bidder 49 Fed Con - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	425,606.45	854,037.39	32.166034	-103.322783	
PBHL (Bidder 49 Fed Co - plan hits target center - Point	0.00	0.00	11,357.94	10,662.33	-474.07	436,268.78	853,563.32	32.195352	-103.323992	
LP (Bidder 49 Fed Com - plan hits target center - Point	0.00	0.00	11,692.64	591.96	-373.89	426,198.41	853,663.50	32.167671	-103.323973	



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Company:	Franklin Mountain Energy	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Project:	Lea County, NM (NAD83)	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site:	Western/Bidder 49/KC7	North Reference:	Grid
Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
3,200.00	3,200.00	0.00	0.00	Start Build 1.50	
3,533.32	3,532.89	0.00	-14.53	Start 3889.01 hold at 3533.32 MD	
7,422.33	7,407.11	0.00	-353.47	Start Drop -1.50	
7,755.64	7,740.00	0.00	-368.00	Start 3380.00 hold at 7755.64 MD	
11,135.64	11,120.00	0.00	-368.00	Start DLS 10.00 TFO 359.43	
12,054.68	11,692.64	591.96	-373.89	Start 10076.43 hold at 12054.68 MD	
22,131.11	11,357.94	10,662.33	-474.07	TD at 22131.11	



Franklin Mountain Energy

Lea County, NM (NAD83)

Western/Bidder 49/KC7

Bidder 49 Fed Com 602H

OH

Plan #1

Anticollision Report

23 June, 2020





Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum ellipse separation of 1,000.00 usft	Error Surface:	Combined Separation
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 6/23/2020	
From (usft)	To (usft)	Survey (Wellbore)
0.00	22,131.05	Plan #1 (OH)
		Tool Name
		OWSG (Rev2) MWD
		Description
		OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Western/Bidder 49/KC7						
Bidder 49 Fed Com 703H - OH - Plan #1	3,200.00	3,201.50	34.99	19.09	2.201	CC, ES, SF
KC7 Fed Com 704H - OH - Plan #1	3,116.06	3,117.86	69.98	54.51	4.523	CC
KC7 Fed Com 704H - OH - Plan #1	3,200.00	3,201.77	69.98	54.09	4.402	ES, SF
Western Fed Com 601H - OH - Plan #1	3,648.81	3,533.11	919.30	901.56	51.820	CC, ES
Western Fed Com 601H - OH - Plan #1	22,131.11	22,218.19	1,203.60	948.85	4.725	SF
Western Fed Com 702H - OH - Plan #1	11,135.64	11,085.40	522.93	467.28	9.397	CC
Western Fed Com 702H - OH - Plan #1	22,131.11	22,312.88	569.08	336.45	2.446	ES, SF

Offset Design		Western/Bidder 49/KC7 - Bidder 49 Fed Com 703H - OH - Plan #1											Offset Site Error:	0.00 usft		
Survey Program:				0-OWSG (Rev2) MWD											Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
0.00	0.00	1.50	1.50	0.00	0.00	89.43	0.35	34.99	34.99							
100.00	100.00	101.50	101.50	0.13	0.13	89.43	0.35	34.99	34.99	34.81	0.18	193.030				
200.00	200.00	201.50	201.50	0.48	0.49	89.43	0.35	34.99	34.99	34.30	0.69	50.845				
300.00	300.00	301.50	301.50	0.84	0.85	89.43	0.35	34.99	34.99	33.80	1.20	29.278				
400.00	400.00	401.50	401.50	1.20	1.21	89.43	0.35	34.99	34.99	33.29	1.70	20.558				
500.00	500.00	501.50	501.50	1.56	1.56	89.43	0.35	34.99	34.99	32.78	2.21	15.840				
600.00	600.00	601.50	601.50	1.92	1.92	89.43	0.35	34.99	34.99	32.28	2.72	12.883				
700.00	700.00	701.50	701.50	2.28	2.28	89.43	0.35	34.99	34.99	31.77	3.22	10.857				
800.00	800.00	801.50	801.50	2.63	2.64	89.43	0.35	34.99	34.99	31.26	3.73	9.381				
900.00	900.00	901.50	901.50	2.99	3.00	89.43	0.35	34.99	34.99	30.75	4.24	8.259				
1,000.00	1,000.00	1,001.50	1,001.50	3.35	3.36	89.43	0.35	34.99	34.99	30.25	4.74	7.376				
1,100.00	1,100.00	1,101.50	1,101.50	3.71	3.72	89.43	0.35	34.99	34.99	29.74	5.25	6.664				
1,200.00	1,200.00	1,201.50	1,201.50	4.07	4.07	89.43	0.35	34.99	34.99	29.23	5.76	6.077				
1,300.00	1,300.00	1,301.50	1,301.50	4.43	4.43	89.43	0.35	34.99	34.99	28.73	6.26	5.586				
1,400.00	1,400.00	1,401.50	1,401.50	4.79	4.79	89.43	0.35	34.99	34.99	28.22	6.77	5.167				
1,500.00	1,500.00	1,501.50	1,501.50	5.14	5.15	89.43	0.35	34.99	34.99	27.71	7.28	4.807				
1,600.00	1,600.00	1,601.50	1,601.50	5.50	5.51	89.43	0.35	34.99	34.99	27.21	7.79	4.494				
1,700.00	1,700.00	1,701.50	1,701.50	5.86	5.87	89.43	0.35	34.99	34.99	26.70	8.29	4.220				
1,800.00	1,800.00	1,801.50	1,801.50	6.22	6.22	89.43	0.35	34.99	34.99	26.19	8.80	3.977				
1,900.00	1,900.00	1,901.50	1,901.50	6.58	6.58	89.43	0.35	34.99	34.99	25.69	9.31	3.760				
2,000.00	2,000.00	2,001.50	2,001.50	6.94	6.94	89.43	0.35	34.99	34.99	25.18	9.81	3.566				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Bidder 49 Fed Com 703H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
2,100.00	2,100.00	2,101.50	2,101.50	7.29	7.30	89.43	0.35	34.99	34.99	24.67	10.32	3.391		
2,200.00	2,200.00	2,201.50	2,201.50	7.65	7.66	89.43	0.35	34.99	34.99	24.16	10.83	3.232		
2,300.00	2,300.00	2,301.50	2,301.50	8.01	8.02	89.43	0.35	34.99	34.99	23.66	11.33	3.087		
2,400.00	2,400.00	2,401.50	2,401.50	8.37	8.38	89.43	0.35	34.99	34.99	23.15	11.84	2.955		
2,500.00	2,500.00	2,501.50	2,501.50	8.73	8.73	89.43	0.35	34.99	34.99	22.64	12.35	2.834		
2,600.00	2,600.00	2,601.50	2,601.50	9.09	9.09	89.43	0.35	34.99	34.99	22.14	12.86	2.722		
2,700.00	2,700.00	2,701.50	2,701.50	9.45	9.45	89.43	0.35	34.99	34.99	21.63	13.36	2.619		
2,800.00	2,800.00	2,801.50	2,801.50	9.80	9.81	89.43	0.35	34.99	34.99	21.12	13.87	2.523		
2,900.00	2,900.00	2,901.50	2,901.50	10.16	10.17	89.43	0.35	34.99	34.99	20.62	14.38	2.434		
3,000.00	3,000.00	3,001.50	3,001.50	10.52	10.53	89.43	0.35	34.99	34.99	20.11	14.88	2.351		
3,100.00	3,100.00	3,101.50	3,101.50	10.88	10.88	89.43	0.35	34.99	34.99	19.60	15.39	2.274		
3,200.00	3,200.00	3,201.50	3,201.50	11.24	11.24	89.43	0.35	34.99	34.99	19.09	15.90	2.201	CC, ES, SF	
3,300.00	3,299.99	3,301.49	3,301.49	11.59	11.60	179.45	0.35	34.99	36.30	19.90	16.40	2.214		
3,400.00	3,399.91	3,401.41	3,401.41	11.93	11.96	179.50	0.35	34.99	40.23	23.33	16.89	2.381		
3,500.00	3,499.69	3,501.19	3,501.19	12.27	12.32	179.57	0.35	34.99	46.77	29.38	17.39	2.690		
3,533.32	3,532.89	3,534.39	3,534.39	12.39	12.44	179.59	0.35	34.99	49.52	31.97	17.55	2.822		
3,600.00	3,599.32	3,600.82	3,600.82	12.62	12.67	179.64	0.35	34.99	55.34	37.46	17.88	3.095		
3,700.00	3,698.94	3,700.44	3,700.44	12.97	13.03	179.69	0.35	34.99	64.05	45.68	18.37	3.486		
3,800.00	3,798.56	3,800.06	3,800.06	13.32	13.39	179.72	0.35	34.99	72.77	53.90	18.87	3.856		
3,900.00	3,898.18	3,899.68	3,899.68	13.67	13.75	179.75	0.35	34.99	81.48	62.12	19.37	4.207		
4,000.00	3,997.80	3,999.30	3,999.30	14.03	14.10	179.78	0.35	34.99	90.20	70.33	19.86	4.541		
4,100.00	4,097.42	4,098.92	4,098.92	14.39	14.46	179.80	0.35	34.99	98.91	78.55	20.36	4.858		
4,200.00	4,197.04	4,198.54	4,198.54	14.74	14.82	179.81	0.35	34.99	107.63	86.77	20.86	5.160		
4,300.00	4,296.66	4,298.16	4,298.16	15.10	15.17	179.83	0.35	34.99	116.34	94.99	21.36	5.448		
4,400.00	4,396.28	4,397.78	4,397.78	15.46	15.53	179.84	0.35	34.99	125.06	103.20	21.85	5.722		
4,500.00	4,495.90	4,497.40	4,497.40	15.82	15.89	179.85	0.35	34.99	133.77	111.42	22.35	5.984		
4,600.00	4,495.52	4,497.02	4,497.02	16.19	16.25	179.86	0.35	34.99	142.49	119.63	22.85	6.235		
4,700.00	4,495.14	4,496.64	4,496.64	16.55	16.60	179.87	0.35	34.99	151.20	127.85	23.35	6.474		
4,800.00	4,794.76	4,796.26	4,796.26	16.91	16.96	179.87	0.35	34.99	159.92	136.06	23.85	6.704		
4,900.00	4,894.38	4,895.88	4,895.88	17.28	17.32	179.88	0.35	34.99	168.63	144.28	24.36	6.924		
5,000.00	4,994.00	4,995.50	4,995.50	17.64	17.67	179.89	0.35	34.99	177.35	152.49	24.86	7.135		
5,100.00	5,093.62	5,095.12	5,095.12	18.01	18.03	179.89	0.35	34.99	186.06	160.70	25.36	7.338		
5,200.00	5,193.24	5,194.74	5,194.74	18.38	18.39	179.90	0.35	34.99	194.78	168.92	25.86	7.532		
5,300.00	5,292.86	5,294.36	5,294.36	18.75	18.75	179.90	0.35	34.99	203.49	177.13	26.36	7.719		
5,400.00	5,392.47	5,393.97	5,393.97	19.12	19.10	179.91	0.35	34.99	212.21	185.34	26.86	7.899		
5,500.00	5,492.09	5,493.59	5,493.59	19.49	19.46	179.91	0.35	34.99	220.92	193.56	27.37	8.073		
5,600.00	5,591.71	5,593.21	5,593.21	19.86	19.82	179.91	0.35	34.99	229.64	201.77	27.87	8.240		
5,700.00	5,691.33	5,692.83	5,692.83	20.23	20.17	179.92	0.35	34.99	238.35	209.98	28.37	8.401		
5,800.00	5,790.95	5,792.45	5,792.45	20.60	20.53	179.92	0.35	34.99	247.07	218.19	28.88	8.556		
5,900.00	5,890.57	5,892.07	5,892.07	20.97	20.89	179.92	0.35	34.99	255.78	226.40	29.38	8.706		
6,000.00	5,990.19	5,991.69	5,991.69	21.34	21.25	179.92	0.35	34.99	264.50	234.62	29.88	8.851		
6,100.00	6,089.81	6,091.31	6,091.31	21.71	21.60	179.93	0.35	34.99	273.21	242.83	30.39	8.991		
6,200.00	6,189.43	6,190.93	6,190.93	22.09	21.96	179.93	0.35	34.99	281.93	251.04	30.89	9.127		
6,300.00	6,289.05	6,290.55	6,290.55	22.46	22.32	179.93	0.35	34.99	290.64	259.25	31.39	9.258		
6,400.00	6,388.67	6,390.17	6,390.17	22.83	22.67	179.93	0.35	34.99	299.36	267.46	31.90	9.385		
6,500.00	6,488.29	6,489.79	6,489.79	23.21	23.03	179.93	0.35	34.99	308.07	275.67	32.40	9.507		
6,600.00	6,587.91	6,589.41	6,589.41	23.58	23.39	179.94	0.35	34.99	316.79	283.88	32.91	9.626		
6,700.00	6,687.53	6,689.03	6,689.03	23.96	23.75	179.94	0.35	34.99	325.50	292.09	33.41	9.742		
6,800.00	6,787.15	6,788.65	6,788.65	24.33	24.10	179.94	0.35	34.99	334.22	300.30	33.92	9.854		
6,900.00	6,886.77	6,888.27	6,888.27	24.71	24.46	179.94	0.35	34.99	342.93	308.51	34.42	9.962		
7,000.00	6,986.39	6,987.89	6,987.89	25.08	24.82	179.94	0.35	34.99	351.65	316.72	34.93	10.068		
7,100.00	7,086.01	7,087.51	7,087.51	25.46	25.17	179.94	0.35	34.99	360.37	324.93	35.43	10.170		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,200.00	7,185.63	7,187.13	7,187.13	25.83	25.53	179.95	0.35	34.99	369.08	333.14	35.94	10.270	
7,300.00	7,285.25	7,286.75	7,286.75	26.21	25.89	179.95	0.35	34.99	377.80	341.35	36.44	10.366	
7,400.00	7,384.86	7,386.36	7,386.36	26.59	26.25	179.95	0.35	34.99	386.51	349.56	36.95	10.460	
7,422.33	7,407.11	7,408.61	7,408.61	26.67	26.32	179.95	0.35	34.99	388.46	351.39	37.06	10.481	
7,500.00	7,484.55	7,486.05	7,486.05	26.96	26.60	179.95	0.35	34.99	394.44	356.98	37.46	10.531	
7,600.00	7,584.40	7,585.90	7,585.90	27.33	26.96	179.95	0.35	34.99	399.82	361.86	37.96	10.532	
7,700.00	7,684.36	7,685.86	7,685.86	27.68	27.32	179.95	0.35	34.99	402.58	364.12	38.47	10.466	
7,755.64	7,740.00	7,741.50	7,741.50	27.88	27.52	89.95	0.35	34.99	402.99	364.25	38.74	10.401	
7,800.00	7,784.36	7,785.86	7,785.86	28.03	27.68	89.95	0.35	34.99	402.99	364.02	38.97	10.342	
7,900.00	7,884.36	7,885.86	7,885.86	28.37	28.04	89.95	0.35	34.99	402.99	363.52	39.47	10.210	
8,000.00	7,984.36	7,985.86	7,985.86	28.72	28.39	89.95	0.35	34.99	402.99	363.02	39.97	10.082	
8,100.00	8,084.36	8,085.86	8,085.86	29.07	28.75	89.95	0.35	34.99	402.99	362.52	40.47	9.958	
8,200.00	8,184.36	8,185.86	8,185.86	29.41	29.11	89.95	0.35	34.99	402.99	362.02	40.97	9.836	
8,300.00	8,284.36	8,285.86	8,285.86	29.76	29.47	89.95	0.35	34.99	402.99	361.52	41.47	9.717	
8,400.00	8,384.36	8,385.86	8,385.86	30.10	29.83	89.95	0.35	34.99	402.99	361.01	41.98	9.600	
8,500.00	8,484.36	8,485.86	8,485.86	30.45	30.19	89.95	0.35	34.99	402.99	360.51	42.48	9.487	
8,600.00	8,584.36	8,585.86	8,585.86	30.80	30.54	89.95	0.35	34.99	402.99	360.01	42.98	9.376	
8,700.00	8,684.36	8,685.86	8,685.86	31.15	30.90	89.95	0.35	34.99	402.99	359.51	43.48	9.268	
8,800.00	8,784.36	8,785.86	8,785.86	31.49	31.26	89.95	0.35	34.99	402.99	359.01	43.98	9.162	
8,900.00	8,884.36	8,885.86	8,885.86	31.84	31.62	89.95	0.35	34.99	402.99	358.50	44.49	9.059	
9,000.00	8,984.36	8,985.86	8,985.86	32.19	31.98	89.95	0.35	34.99	402.99	358.00	44.99	8.957	
9,100.00	9,084.36	9,085.86	9,085.86	32.54	32.34	89.95	0.35	34.99	402.99	357.50	45.49	8.858	
9,200.00	9,184.36	9,185.86	9,185.86	32.89	32.70	89.95	0.35	34.99	402.99	357.00	45.99	8.762	
9,300.00	9,284.36	9,285.86	9,285.86	33.23	33.05	89.95	0.35	34.99	402.99	356.49	46.50	8.667	
9,400.00	9,384.36	9,385.86	9,385.86	33.58	33.41	89.95	0.35	34.99	402.99	355.99	47.00	8.574	
9,500.00	9,484.36	9,485.86	9,485.86	33.93	33.77	89.95	0.35	34.99	402.99	355.49	47.50	8.483	
9,600.00	9,584.36	9,585.86	9,585.86	34.28	34.13	89.95	0.35	34.99	402.99	354.98	48.01	8.395	
9,700.00	9,684.36	9,685.86	9,685.86	34.63	34.49	89.95	0.35	34.99	402.99	354.48	48.51	8.307	
9,800.00	9,784.36	9,785.86	9,785.86	34.98	34.85	89.95	0.35	34.99	402.99	353.98	49.01	8.222	
9,900.00	9,884.36	9,885.86	9,885.86	35.33	35.20	89.95	0.35	34.99	402.99	353.47	49.52	8.139	
10,000.00	9,984.36	9,985.86	9,985.86	35.68	35.56	89.95	0.35	34.99	402.99	352.97	50.02	8.057	
10,100.00	10,084.36	10,085.86	10,085.86	36.03	35.92	89.95	0.35	34.99	402.99	352.47	50.52	7.976	
10,200.00	10,184.36	10,185.86	10,185.86	36.38	36.28	89.95	0.35	34.99	402.99	351.96	51.03	7.898	
10,300.00	10,284.36	10,285.86	10,285.86	36.73	36.64	89.95	0.35	34.99	402.99	351.46	51.53	7.821	
10,400.00	10,384.36	10,385.86	10,385.86	37.08	37.00	89.95	0.35	34.99	402.99	350.96	52.03	7.745	
10,500.00	10,484.36	10,485.86	10,485.86	37.43	37.36	89.95	0.35	34.99	402.99	350.45	52.54	7.671	
10,600.00	10,584.36	10,585.86	10,585.86	37.78	37.71	89.95	0.35	34.99	402.99	349.95	53.04	7.598	
10,700.00	10,684.36	10,685.86	10,685.86	38.13	38.07	89.95	0.35	34.99	402.99	349.45	53.54	7.526	
10,800.00	10,784.36	10,785.86	10,785.86	38.49	38.43	89.95	0.35	34.99	402.99	348.94	54.05	7.456	
10,900.00	10,884.36	10,885.86	10,885.86	38.84	38.79	89.95	0.35	34.99	402.99	348.44	54.55	7.387	
11,000.00	10,984.36	10,985.86	10,985.86	39.19	39.15	89.95	0.35	34.99	402.99	347.93	55.06	7.320	
11,100.00	11,084.36	11,085.86	11,085.86	39.54	39.51	89.95	0.35	34.99	402.99	347.43	55.56	7.253	
11,135.64	11,120.00	11,121.50	11,121.50	39.67	39.63	89.95	0.35	34.99	402.99	347.25	55.74	7.230	
11,150.00	11,134.36	11,135.86	11,135.86	39.72	39.69	90.55	0.35	34.99	402.99	347.18	55.81	7.220	
11,200.00	11,184.22	11,185.72	11,185.72	39.89	39.86	91.03	0.35	34.99	403.04	346.98	56.06	7.189	
11,250.00	11,233.60	11,235.10	11,235.10	40.06	40.04	92.09	0.35	34.99	403.25	346.94	56.31	7.161	
11,300.00	11,282.11	11,283.61	11,283.61	40.23	40.22	93.69	0.35	34.99	403.88	347.33	56.56	7.141	
11,350.00	11,329.39	11,330.89	11,330.89	40.40	40.39	95.71	0.35	34.99	405.29	348.50	56.80	7.136	
11,400.00	11,375.08	11,376.58	11,376.58	40.55	40.55	98.04	0.35	34.99	407.96	350.93	57.03	7.154	
11,450.00	11,418.82	11,426.11	11,426.09	40.69	40.73	100.79	1.62	34.98	412.19	354.92	57.27	7.197	
11,500.00	11,460.29	11,479.67	11,479.28	40.83	40.92	103.61	7.67	34.92	417.65	360.15	57.50	7.263	
11,550.00	11,499.17	11,536.20	11,534.55	40.96	41.11	106.37	19.41	34.80	424.17	366.50	57.68	7.354	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
11,600.00	11,535.17	11,596.10	11,591.55	41.08	41.31	109.07	37.72	34.61	431.56	373.81	57.75	7.473		
11,650.00	11,568.00	11,659.79	11,649.71	41.20	41.52	111.67	63.61	34.35	439.55	381.88	57.67	7.621		
11,700.00	11,597.43	11,727.69	11,708.14	41.32	41.74	114.14	98.13	34.01	447.85	390.44	57.41	7.800		
11,750.00	11,623.22	11,800.15	11,765.51	41.45	41.96	116.45	142.30	33.56	456.10	399.14	56.96	8.008		
11,800.00	11,645.18	11,877.38	11,820.01	41.59	42.20	118.55	196.94	33.02	463.90	407.59	56.31	8.238		
11,850.00	11,663.15	11,959.37	11,869.27	41.74	42.45	120.36	262.39	32.36	470.85	415.29	55.56	8.474		
11,900.00	11,676.98	12,045.78	11,910.51	41.90	42.71	121.82	338.22	31.60	476.54	421.71	54.83	8.692		
11,950.00	11,686.57	12,135.82	11,940.87	42.07	42.99	122.85	422.89	30.75	480.61	426.34	54.27	8.855		
12,000.00	11,691.85	12,228.32	11,957.85	42.24	43.29	123.40	513.71	29.83	482.78	428.71	54.07	8.929		
12,054.68	11,692.64	12,319.57	11,960.23	42.44	43.59	123.46	604.84	28.92	482.93	428.61	54.32	8.891		
12,100.00	11,691.14	12,364.90	11,958.72	42.62	43.76	123.46	650.14	28.46	482.93	428.40	54.52	8.857		
12,200.00	11,687.81	12,464.90	11,955.40	43.05	44.17	123.46	750.08	27.46	482.92	427.89	55.03	8.776		
12,300.00	11,684.49	12,564.90	11,952.09	43.54	44.64	123.46	850.01	26.46	482.91	427.31	55.60	8.685		
12,400.00	11,681.17	12,664.90	11,948.77	44.09	45.17	123.46	949.95	25.45	482.91	426.67	56.24	8.587		
12,500.00	11,677.85	12,764.90	11,945.45	44.69	45.74	123.46	1,049.89	24.45	482.90	425.96	56.94	8.481		
12,600.00	11,674.53	12,864.90	11,942.13	45.34	46.37	123.46	1,149.83	23.44	482.90	425.19	57.70	8.369		
12,700.00	11,671.21	12,964.90	11,938.81	46.05	47.05	123.46	1,249.77	22.44	482.89	424.37	58.52	8.251		
12,800.00	11,667.89	13,064.90	11,935.49	46.80	47.78	123.46	1,349.71	21.44	482.88	423.49	59.40	8.130		
12,900.00	11,664.56	13,164.90	11,932.18	47.59	48.55	123.46	1,449.65	20.43	482.88	422.55	60.33	8.005		
13,000.00	11,661.24	13,264.90	11,928.86	48.43	49.36	123.46	1,549.59	19.43	482.87	421.57	61.30	7.877		
13,100.00	11,657.92	13,364.90	11,925.54	49.31	50.22	123.47	1,649.53	18.43	482.86	420.53	62.33	7.747		
13,200.00	11,654.60	13,464.90	11,922.22	50.23	51.11	123.47	1,749.47	17.42	482.86	419.46	63.40	7.616		
13,300.00	11,651.28	13,564.90	11,918.90	51.18	52.05	123.47	1,849.41	16.42	482.85	418.33	64.52	7.484		
13,400.00	11,647.96	13,664.90	11,915.58	52.17	53.01	123.47	1,949.35	15.41	482.85	417.17	65.67	7.352		
13,500.00	11,644.63	13,764.90	11,912.27	53.20	54.02	123.47	2,049.29	14.41	482.84	415.97	66.87	7.221		
13,600.00	11,641.31	13,864.90	11,908.95	54.25	55.05	123.47	2,149.23	13.41	482.83	414.73	68.10	7.090		
13,700.00	11,637.99	13,964.90	11,905.63	55.33	56.11	123.47	2,249.17	12.40	482.83	413.46	69.36	6.961		
13,800.00	11,634.67	14,064.90	11,902.31	56.44	57.20	123.47	2,349.11	11.40	482.82	412.16	70.66	6.833		
13,900.00	11,631.35	14,164.90	11,898.99	57.58	58.32	123.47	2,449.05	10.39	482.82	410.83	71.99	6.707		
14,000.00	11,628.03	14,264.90	11,895.68	58.74	59.46	123.47	2,548.99	9.39	482.81	409.47	73.34	6.583		
14,100.00	11,624.70	14,364.90	11,892.36	59.92	60.62	123.47	2,648.93	8.39	482.80	408.08	74.72	6.461		
14,200.00	11,621.38	14,464.90	11,889.04	61.13	61.81	123.48	2,748.87	7.38	482.80	406.67	76.13	6.342		
14,300.00	11,618.06	14,564.90	11,885.72	62.36	63.02	123.48	2,848.81	6.38	482.79	405.23	77.56	6.225		
14,400.00	11,614.74	14,664.90	11,882.40	63.60	64.24	123.48	2,948.75	5.38	482.78	403.77	79.01	6.110		
14,500.00	11,611.42	14,764.90	11,879.08	64.86	65.49	123.48	3,048.69	4.37	482.78	402.30	80.48	5.999		
14,600.00	11,608.10	14,864.90	11,875.77	66.15	66.76	123.48	3,148.63	3.37	482.77	400.80	81.97	5.889		
14,700.00	11,604.77	14,964.90	11,872.45	67.44	68.04	123.48	3,248.57	2.36	482.77	399.28	83.48	5.783		
14,800.00	11,601.45	15,064.90	11,869.13	68.75	69.33	123.48	3,348.51	1.36	482.76	397.75	85.01	5.679		
14,900.00	11,598.13	15,164.90	11,865.81	70.08	70.64	123.48	3,448.45	0.36	482.75	396.20	86.55	5.578		
15,000.00	11,594.81	15,264.90	11,862.49	71.42	71.97	123.48	3,548.39	-0.65	482.75	394.64	88.11	5.479		
15,100.00	11,591.49	15,364.90	11,859.17	72.77	73.31	123.48	3,648.33	-1.65	482.74	393.06	89.68	5.383		
15,200.00	11,588.17	15,464.90	11,855.86	74.14	74.66	123.49	3,748.27	-2.66	482.74	391.47	91.26	5.289		
15,300.00	11,584.84	15,564.90	11,852.54	75.52	76.02	123.49	3,848.21	-3.66	482.73	389.87	92.86	5.198		
15,400.00	11,581.52	15,664.90	11,849.22	76.90	77.40	123.49	3,948.15	-4.66	482.72	388.25	94.47	5.110		
15,500.00	11,578.20	15,764.90	11,845.90	78.30	78.78	123.49	4,048.09	-5.67	482.72	386.63	96.09	5.024		
15,600.00	11,574.88	15,864.90	11,842.58	79.71	80.18	123.49	4,148.03	-6.67	482.71	385.00	97.72	4.940		
15,700.00	11,571.56	15,964.90	11,839.26	81.12	81.58	123.49	4,247.97	-7.67	482.70	383.35	99.35	4.858		
15,800.00	11,568.24	16,064.90	11,835.95	82.55	83.00	123.49	4,347.91	-8.68	482.70	381.70	101.00	4.779		
15,900.00	11,564.91	16,164.90	11,832.63	83.98	84.42	123.49	4,447.85	-9.68	482.69	380.04	102.65	4.702		
16,000.00	11,561.59	16,264.90	11,829.31	85.43	85.85	123.49	4,547.79	-10.69	482.69	378.37	104.32	4.627		
16,100.00	11,558.27	16,364.90	11,825.99	86.87	87.29	123.49	4,647.73	-11.69	482.68	376.70	105.98	4.554		
16,200.00	11,554.95	16,464.90	11,822.67	88.33	88.74	123.50	4,747.67	-12.69	482.67	375.01	107.66	4.483		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
16,300.00	11,551.63	16,564.90	11,819.36	89.79	90.19	123.50	4,847.61	-13.70	482.67	373.33	109.34	4.414	
16,400.00	11,548.31	16,664.90	11,816.04	91.26	91.65	123.50	4,947.55	-14.70	482.66	371.63	111.03	4.347	
16,500.00	11,544.98	16,764.90	11,812.72	92.74	93.12	123.50	5,047.49	-15.71	482.66	369.93	112.72	4.282	
16,600.00	11,541.66	16,864.90	11,809.40	94.22	94.59	123.50	5,147.43	-16.71	482.65	368.23	114.42	4.218	
16,700.00	11,538.34	16,964.90	11,806.08	95.71	96.07	123.50	5,247.37	-17.71	482.64	366.52	116.12	4.156	
16,800.00	11,535.02	17,064.90	11,802.76	97.20	97.55	123.50	5,347.31	-18.72	482.64	364.81	117.83	4.096	
16,900.00	11,531.70	17,164.90	11,799.45	98.70	99.04	123.50	5,447.25	-19.72	482.63	363.09	119.54	4.038	
17,000.00	11,528.38	17,264.90	11,796.13	100.20	100.54	123.50	5,547.19	-20.72	482.62	361.38	121.25	3.980	
17,100.00	11,525.05	17,364.90	11,792.81	101.71	102.04	123.50	5,647.13	-21.73	482.62	359.65	122.97	3.925	
17,200.00	11,521.73	17,464.90	11,789.49	103.22	103.54	123.50	5,747.07	-22.73	482.61	357.93	124.69	3.871	
17,300.00	11,518.41	17,564.90	11,786.17	104.74	105.05	123.51	5,847.01	-23.74	482.61	356.20	126.41	3.818	
17,400.00	11,515.09	17,664.90	11,782.85	106.26	106.56	123.51	5,946.95	-24.74	482.60	354.47	128.13	3.766	
17,500.00	11,511.77	17,764.90	11,779.54	107.78	108.08	123.51	6,046.89	-25.74	482.59	352.73	129.86	3.716	
17,600.00	11,508.45	17,864.90	11,776.22	109.31	109.60	123.51	6,146.83	-26.75	482.59	351.00	131.59	3.667	
17,700.00	11,505.13	17,964.90	11,772.90	110.84	111.12	123.51	6,246.77	-27.75	482.58	349.26	133.32	3.620	
17,800.00	11,501.80	18,064.90	11,769.58	112.37	112.65	123.51	6,346.71	-28.75	482.58	347.53	135.05	3.573	
17,900.00	11,498.48	18,164.90	11,766.26	113.91	114.18	123.51	6,446.65	-29.76	482.57	345.79	136.78	3.528	
18,000.00	11,495.16	18,264.90	11,762.94	115.45	115.72	123.51	6,546.59	-30.76	482.56	344.05	138.52	3.484	
18,100.00	11,491.84	18,364.90	11,759.63	117.00	117.26	123.51	6,646.53	-31.77	482.56	342.30	140.25	3.441	
18,200.00	11,488.52	18,464.90	11,756.31	118.54	118.80	123.51	6,746.47	-32.77	482.55	340.56	141.99	3.399	
18,300.00	11,485.20	18,564.90	11,752.99	120.09	120.34	123.52	6,846.41	-33.77	482.54	338.82	143.73	3.357	
18,400.00	11,481.87	18,664.90	11,749.67	121.64	121.89	123.52	6,946.35	-34.78	482.54	337.08	145.46	3.317	
18,500.00	11,478.55	18,764.90	11,746.35	123.20	123.44	123.52	7,046.29	-35.78	482.53	335.33	147.20	3.278	
18,600.00	11,475.23	18,864.90	11,743.04	124.76	124.99	123.52	7,146.23	-36.79	482.53	333.59	148.94	3.240	
18,700.00	11,471.91	18,964.90	11,739.72	126.32	126.55	123.52	7,246.17	-37.79	482.52	331.84	150.68	3.202	
18,800.00	11,468.59	19,064.90	11,736.40	127.88	128.11	123.52	7,346.11	-38.79	482.51	330.10	152.41	3.166	
18,900.00	11,465.27	19,164.90	11,733.08	129.44	129.67	123.52	7,446.05	-39.80	482.51	328.36	154.15	3.130	
19,000.00	11,461.94	19,264.90	11,729.76	131.01	131.23	123.52	7,545.99	-40.80	482.50	326.61	155.89	3.095	
19,100.00	11,458.62	19,364.90	11,726.44	132.58	132.79	123.52	7,645.93	-41.80	482.50	324.87	157.62	3.061	
19,200.00	11,455.30	19,464.90	11,723.13	134.15	134.36	123.52	7,745.87	-42.81	482.49	323.13	159.36	3.028	
19,300.00	11,451.98	19,564.90	11,719.81	135.72	135.93	123.53	7,845.81	-43.81	482.48	321.39	161.10	2.995	
19,400.00	11,448.66	19,664.90	11,716.49	137.30	137.50	123.53	7,945.75	-44.82	482.48	319.65	162.83	2.963	
19,500.00	11,445.34	19,764.90	11,713.17	138.87	139.07	123.53	8,045.69	-45.82	482.47	317.91	164.56	2.932	
19,600.00	11,442.01	19,864.90	11,709.85	140.45	140.64	123.53	8,145.63	-46.82	482.46	316.17	166.30	2.901	
19,700.00	11,438.69	19,964.90	11,706.53	142.03	142.22	123.53	8,245.57	-47.83	482.46	314.43	168.03	2.871	
19,800.00	11,435.37	20,064.90	11,703.22	143.61	143.80	123.53	8,345.51	-48.83	482.45	312.69	169.76	2.842	
19,900.00	11,432.05	20,164.90	11,699.90	145.20	145.38	123.53	8,445.45	-49.84	482.45	310.96	171.49	2.813	
20,000.00	11,428.73	20,264.90	11,696.58	146.78	146.96	123.53	8,545.39	-50.84	482.44	309.22	173.22	2.785	
20,100.00	11,425.41	20,364.90	11,693.26	148.37	148.54	123.53	8,645.33	-51.84	482.43	307.49	174.94	2.758	
20,200.00	11,422.08	20,464.90	11,689.94	149.96	150.12	123.53	8,745.27	-52.85	482.43	305.76	176.67	2.731	
20,300.00	11,418.76	20,564.90	11,686.62	151.55	151.71	123.53	8,845.21	-53.85	482.42	304.03	178.39	2.704	
20,400.00	11,415.44	20,664.90	11,683.31	153.14	153.30	123.54	8,945.15	-54.85	482.42	302.30	180.11	2.678	
20,500.00	11,412.12	20,764.90	11,679.99	154.73	154.88	123.54	9,045.09	-55.86	482.41	300.57	181.83	2.653	
20,600.00	11,408.80	20,864.90	11,676.67	156.32	156.47	123.54	9,145.03	-56.86	482.40	298.85	183.55	2.628	
20,700.00	11,405.48	20,964.90	11,673.35	157.91	158.06	123.54	9,244.97	-57.87	482.40	297.13	185.27	2.604	
20,800.00	11,402.15	21,064.90	11,670.03	159.51	159.66	123.54	9,344.91	-58.87	482.39	295.41	186.98	2.580	
20,900.00	11,398.83	21,164.90	11,666.72	161.11	161.25	123.54	9,444.85	-59.87	482.38	293.69	188.70	2.556	
21,000.00	11,395.51	21,264.90	11,663.40	162.70	162.84	123.54	9,544.79	-60.88	482.38	291.97	190.41	2.533	
21,100.00	11,392.19	21,364.90	11,660.08	164.30	164.44	123.54	9,644.73	-61.88	482.37	290.25	192.12	2.511	
21,200.00	11,388.87	21,464.90	11,656.76	165.90	166.04	123.54	9,744.67	-62.88	482.37	288.54	193.82	2.489	
21,300.00	11,385.55	21,564.90	11,653.44	167.50	167.63	123.54	9,844.61	-63.89	482.36	286.83	195.53	2.467	
21,400.00	11,382.22	21,664.90	11,650.12	169.10	169.23	123.55	9,944.55	-64.89	482.35	285.12	197.23	2.446	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Bidder 49 Fed Com 703H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance			Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
21,500.00	11,378.90	21,764.90	11,646.81	170.71	170.83	123.55	10,044.48	-65.90	482.35	283.41	198.93	2.425	
21,600.00	11,375.58	21,864.90	11,643.49	172.31	172.43	123.55	10,144.42	-66.90	482.34	281.71	200.63	2.404	
21,700.00	11,372.26	21,964.90	11,640.17	173.92	174.04	123.55	10,244.36	-67.90	482.34	280.01	202.33	2.384	
21,800.00	11,368.94	22,064.90	11,636.85	175.52	175.64	123.55	10,344.30	-68.91	482.33	278.31	204.02	2.364	
21,900.00	11,365.62	22,164.90	11,633.53	177.13	177.24	123.55	10,444.24	-69.91	482.32	276.61	205.71	2.345	
22,000.00	11,362.30	22,264.90	11,630.21	178.73	178.85	123.55	10,544.18	-70.92	482.32	274.92	207.40	2.326	
22,100.00	11,358.97	22,364.90	11,626.90	180.34	180.45	123.55	10,644.12	-71.92	482.31	273.22	209.09	2.307	
22,120.49	11,358.29	22,385.38	11,626.22	180.67	180.78	123.55	10,664.60	-72.13	482.31	272.88	209.43	2.303	
22,131.11	11,357.94	22,385.87	11,626.20	180.84	180.79	123.55	10,665.09	-72.13	482.42	273.13	209.28	2.305	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Western/Bidder 49/KC7 - KC7 Fed Com 704H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	1.80	1.80	0.00	0.00	89.44	0.69	69.98	69.98							
100.00	100.00	101.80	101.80	0.13	0.13	89.44	0.69	69.98	69.98	69.80	0.18	384.409				
200.00	200.00	201.80	201.80	0.48	0.49	89.44	0.69	69.98	69.98	69.29	0.69	101.577				
300.00	300.00	301.80	301.80	0.84	0.85	89.44	0.69	69.98	69.98	68.79	1.20	58.519				
400.00	400.00	401.80	401.80	1.20	1.21	89.44	0.69	69.98	69.98	68.28	1.70	41.097				
500.00	500.00	501.80	501.80	1.56	1.57	89.44	0.69	69.98	69.98	67.77	2.21	31.669				
600.00	600.00	601.80	601.80	1.92	1.92	89.44	0.69	69.98	69.98	67.27	2.72	25.760				
700.00	700.00	701.80	701.80	2.28	2.28	89.44	0.69	69.98	69.98	66.76	3.22	21.709				
800.00	800.00	801.80	801.80	2.63	2.64	89.44	0.69	69.98	69.98	66.25	3.73	18.759				
900.00	900.00	901.80	901.80	2.99	3.00	89.44	0.69	69.98	69.98	65.75	4.24	16.515				
1,000.00	1,000.00	1,001.80	1,001.80	3.35	3.36	89.44	0.69	69.98	69.98	65.24	4.74	14.750				
1,100.00	1,100.00	1,101.80	1,101.80	3.71	3.72	89.44	0.69	69.98	69.98	64.73	5.25	13.326				
1,200.00	1,200.00	1,201.80	1,201.80	4.07	4.08	89.44	0.69	69.98	69.98	64.22	5.76	12.153				
1,300.00	1,300.00	1,301.80	1,301.80	4.43	4.43	89.44	0.69	69.98	69.98	63.72	6.27	11.170				
1,400.00	1,400.00	1,401.80	1,401.80	4.79	4.79	89.44	0.69	69.98	69.98	63.21	6.77	10.334				
1,500.00	1,500.00	1,501.80	1,501.80	5.14	5.15	89.44	0.69	69.98	69.98	62.70	7.28	9.614				
1,600.00	1,600.00	1,601.80	1,601.80	5.50	5.51	89.44	0.69	69.98	69.98	62.20	7.79	8.988				
1,700.00	1,700.00	1,701.80	1,701.80	5.86	5.87	89.44	0.69	69.98	69.98	61.69	8.29	8.439				
1,800.00	1,800.00	1,801.80	1,801.80	6.22	6.23	89.44	0.69	69.98	69.98	61.18	8.80	7.952				
1,900.00	1,900.00	1,901.80	1,901.80	6.58	6.58	89.44	0.69	69.98	69.98	60.68	9.31	7.519				
2,000.00	2,000.00	2,001.80	2,001.80	6.94	6.94	89.44	0.69	69.98	69.98	60.17	9.81	7.131				
2,100.00	2,100.00	2,101.80	2,101.80	7.29	7.30	89.44	0.69	69.98	69.98	59.66	10.32	6.781				
2,200.00	2,200.00	2,201.80	2,201.80	7.65	7.66	89.44	0.69	69.98	69.98	59.16	10.83	6.463				
2,300.00	2,300.00	2,301.80	2,301.80	8.01	8.02	89.44	0.69	69.98	69.98	58.65	11.34	6.174				
2,400.00	2,400.00	2,401.80	2,401.80	8.37	8.38	89.44	0.69	69.98	69.98	58.14	11.84	5.910				
2,500.00	2,500.00	2,501.80	2,501.80	8.73	8.74	89.44	0.69	69.98	69.98	57.63	12.35	5.667				
2,600.00	2,600.00	2,601.80	2,601.80	9.09	9.09	89.44	0.69	69.98	69.98	57.13	12.86	5.444				
2,700.00	2,700.00	2,701.80	2,701.80	9.45	9.45	89.44	0.69	69.98	69.98	56.62	13.36	5.237				
2,800.00	2,800.00	2,801.80	2,801.80	9.80	9.81	89.44	0.69	69.98	69.98	56.11	13.87	5.046				
2,900.00	2,900.00	2,901.80	2,901.80	10.16	10.17	89.44	0.69	69.98	69.98	55.61	14.38	4.868				
3,000.00	3,000.00	3,001.80	3,001.80	10.52	10.53	89.44	0.69	69.98	69.98	55.10	14.88	4.702				
3,100.00	3,100.00	3,101.80	3,101.80	10.88	10.89	89.44	0.69	69.98	69.98	54.59	15.39	4.547				
3,116.06	3,116.06	3,117.86	3,117.86	10.94	10.94	89.44	0.69	69.98	69.98	54.51	15.47	4.523 CC				
3,200.00	3,200.00	3,201.77	3,201.77	11.24	11.24	89.44	0.69	69.98	69.98	54.09	15.90	4.402 ES, SF				
3,300.00	3,299.99	3,300.00	3,299.99	11.59	11.59	179.45	0.69	71.29	72.62	56.24	16.38	4.433				
3,400.00	3,399.91	3,397.64	3,397.55	11.93	11.92	179.51	0.69	75.09	80.44	63.60	16.84	4.776				
3,500.00	3,499.69	3,494.59	3,494.30	12.27	12.26	179.57	0.69	81.33	93.39	76.10	17.29	5.402				
3,533.32	3,532.89	3,526.65	3,526.25	12.39	12.37	179.59	0.69	83.94	98.84	81.40	17.43	5.669				
3,600.00	3,599.32	3,590.49	3,589.81	12.62	12.59	179.64	0.69	89.92	110.85	93.13	17.72	6.255				
3,700.00	3,698.94	3,685.46	3,684.15	12.97	12.92	179.69	0.69	100.79	130.91	112.76	18.14	7.215				
3,800.00	3,798.56	3,781.25	3,779.05	13.32	13.26	179.73	0.69	113.82	153.09	134.50	18.59	8.236				
3,900.00	3,898.18	3,878.68	3,875.54	13.67	13.61	179.77	0.69	127.39	175.59	156.52	19.06	9.210				
4,000.00	3,997.80	3,976.12	3,972.03	14.03	13.96	179.80	0.69	140.95	198.09	178.54	19.54	10.135				
4,100.00	4,097.42	4,073.56	4,068.51	14.39	14.32	179.82	0.69	154.52	220.59	200.56	20.02	11.016				
4,200.00	4,197.04	4,170.99	4,165.00	14.74	14.68	179.83	0.69	168.08	243.09	222.58	20.51	11.854				
4,300.00	4,296.66	4,268.43	4,261.49	15.10	15.04	179.85	0.69	181.65	265.58	244.59	20.99	12.653				
4,400.00	4,396.28	4,365.87	4,357.98	15.46	15.40	179.86	0.69	195.21	288.08	266.61	21.47	13.416				
4,500.00	4,495.90	4,463.30	4,454.46	15.82	15.77	179.87	0.69	208.77	310.58	288.62	21.96	14.144				
4,600.00	4,595.52	4,560.74	4,550.95	16.19	16.14	179.88	0.69	222.34	333.08	310.63	22.44	14.840				
4,700.00	4,495.14	4,658.17	4,647.44	16.55	16.51	179.89	0.69	235.90	355.58	332.65	22.93	15.506				
4,800.00	4,794.76	4,755.61	4,743.92	16.91	16.88	179.89	0.69	249.47	378.08	354.66	23.42	16.144				
4,900.00	4,894.38	4,853.05	4,840.41	17.28	17.26	179.90	0.69	263.03	400.57	376.67	23.91	16.755				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - KC7 Fed Com 704H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,994.00	4,950.48	4,936.90	17.64	17.63	179.90	0.69	276.60	423.07	398.68	24.40	17.341		
5,100.00	5,093.62	5,047.92	5,033.39	18.01	18.01	179.91	0.69	290.16	445.57	420.68	24.89	17.903		
5,200.00	5,193.24	5,145.36	5,129.87	18.38	18.39	179.91	0.69	303.72	468.07	442.69	25.38	18.444		
5,300.00	5,292.86	5,242.79	5,226.36	18.75	18.77	179.92	0.69	317.29	490.57	464.70	25.87	18.963		
5,400.00	5,392.47	5,340.23	5,322.85	19.12	19.15	179.92	0.69	330.85	513.07	486.70	26.36	19.462		
5,500.00	5,492.09	5,437.66	5,419.34	19.49	19.53	179.92	0.69	344.42	535.57	508.71	26.86	19.943		
5,600.00	5,591.71	5,535.10	5,515.82	19.86	19.92	179.93	0.69	357.98	558.06	530.72	27.35	20.406		
5,700.00	5,691.33	5,632.54	5,612.31	20.23	20.30	179.93	0.69	371.55	580.56	552.72	27.84	20.852		
5,800.00	5,790.95	5,729.97	5,708.80	20.60	20.69	179.93	0.69	385.11	603.06	574.72	28.34	21.282		
5,900.00	5,890.57	5,827.41	5,805.29	20.97	21.07	179.94	0.69	398.67	625.56	596.73	28.83	21.696		
6,000.00	5,990.19	5,924.85	5,901.77	21.34	21.46	179.94	0.69	412.24	648.06	618.73	29.33	22.097		
6,100.00	6,089.81	6,022.28	5,998.26	21.71	21.85	179.94	0.69	425.80	670.56	640.73	29.82	22.484		
6,200.00	6,189.43	6,119.72	6,094.75	22.09	22.24	179.94	0.69	439.37	693.06	662.73	30.32	22.858		
6,300.00	6,289.05	6,217.15	6,191.24	22.46	22.63	179.94	0.69	452.93	715.55	684.74	30.82	23.219		
6,400.00	6,388.67	6,314.59	6,287.72	22.83	23.02	179.95	0.69	466.50	738.05	706.74	31.32	23.569		
6,500.00	6,488.29	6,412.03	6,384.21	23.21	23.41	179.95	0.69	480.06	760.55	728.74	31.81	23.907		
6,600.00	6,587.91	6,509.46	6,480.70	23.58	23.80	179.95	0.69	493.63	783.05	750.74	32.31	24.235		
6,700.00	6,687.53	6,606.90	6,577.19	23.96	24.20	179.95	0.69	507.19	805.55	772.74	32.81	24.552		
6,800.00	6,787.15	6,704.33	6,673.67	24.33	24.59	179.95	0.69	520.75	828.05	794.74	33.31	24.860		
6,900.00	6,886.77	6,801.77	6,770.16	24.71	24.98	179.95	0.69	534.32	850.55	816.74	33.81	25.158		
7,000.00	6,986.39	6,899.21	6,866.65	25.08	25.38	179.95	0.69	547.88	873.04	838.74	34.31	25.447		
7,100.00	7,086.01	6,996.64	6,963.14	25.46	25.77	179.95	0.69	561.45	895.54	860.73	34.81	25.728		
7,200.00	7,185.63	7,094.08	7,059.62	25.83	26.17	179.96	0.69	575.01	918.04	882.73	35.31	26.001		
7,300.00	7,285.25	7,191.52	7,156.11	26.21	26.57	179.96	0.69	588.58	940.54	904.73	35.81	26.266		
7,400.00	7,384.86	7,288.95	7,252.60	26.59	26.96	179.96	0.69	602.14	963.04	926.73	36.31	26.523		
7,422.33	7,407.11	7,310.71	7,274.14	26.67	27.05	179.96	0.69	605.17	968.06	931.64	36.42	26.579		
7,500.00	7,484.55	7,386.56	7,349.26	26.96	27.36	179.96	0.69	615.73	984.77	947.95	36.81	26.752		
7,600.00	7,584.40	7,484.69	7,446.43	27.33	27.76	179.96	0.69	629.39	1,004.00	966.68	37.31	26.907		
7,700.00	7,684.36	7,583.29	7,544.07	27.68	28.16	179.96	0.69	643.12	1,020.65	982.83	37.82	26.989		
7,755.64	7,740.00	7,638.33	7,598.58	27.88	28.39	89.96	0.69	650.78	1,028.80	990.70	38.10	27.005		
7,800.00	7,784.36	7,682.26	7,642.08	28.03	28.57	89.96	0.69	656.89	1,034.97	996.65	38.32	27.009		
7,900.00	7,884.36	7,781.29	7,740.14	28.37	28.97	89.96	0.69	670.68	1,048.89	1,010.07	38.82	27.018		
8,000.00	7,984.36	7,880.31	7,838.20	28.72	29.38	89.96	0.69	684.46	1,062.81	1,023.49	39.32	27.027		
8,100.00	8,084.36	7,979.34	7,936.26	29.07	29.78	89.96	0.69	698.25	1,076.74	1,036.91	39.83	27.035		
8,200.00	8,184.36	8,078.36	8,034.32	29.41	30.19	89.96	0.69	712.04	1,090.66	1,050.32	40.33	27.042		
8,300.00	8,284.36	8,177.39	8,132.39	29.76	30.60	89.96	0.69	725.82	1,104.58	1,063.74	40.84	27.050		
8,400.00	8,384.36	8,276.42	8,230.45	30.10	31.00	89.96	0.69	739.61	1,118.50	1,077.16	41.34	27.057		
8,500.00	8,484.36	8,375.44	8,328.51	30.45	31.41	89.96	0.69	753.39	1,132.42	1,090.58	41.84	27.063		
8,600.00	8,584.36	8,474.47	8,426.57	30.80	31.82	89.97	0.69	767.18	1,146.34	1,103.99	42.35	27.070		
8,700.00	8,684.36	8,573.50	8,524.63	31.15	32.23	89.97	0.69	780.96	1,160.26	1,117.41	42.85	27.076		
8,800.00	8,784.36	8,672.52	8,622.70	31.49	32.63	89.97	0.69	794.75	1,174.18	1,130.83	43.36	27.081		
8,900.00	8,884.36	8,771.55	8,720.76	31.84	33.04	89.97	0.69	808.54	1,188.10	1,144.24	43.86	27.087		
9,000.00	8,984.36	8,870.57	8,818.82	32.19	33.45	89.97	0.69	822.32	1,202.03	1,157.66	44.37	27.092		
9,100.00	9,084.36	8,969.60	8,916.88	32.54	33.86	89.97	0.69	836.11	1,215.95	1,171.07	44.87	27.097		
9,200.00	9,184.36	9,068.63	9,014.94	32.89	34.27	89.97	0.69	849.89	1,229.87	1,184.49	45.38	27.102		
9,300.00	9,284.36	9,167.65	9,113.01	33.23	34.68	89.97	0.69	863.68	1,243.79	1,197.90	45.89	27.106		
9,400.00	9,384.36	9,266.68	9,211.07	33.58	35.09	89.97	0.69	877.46	1,257.71	1,211.32	46.39	27.111		
9,500.00	9,484.36	9,365.71	9,309.13	33.93	35.50	89.97	0.69	891.25	1,271.63	1,224.73	46.90	27.115		
9,600.00	9,584.36	9,464.73	9,407.19	34.28	35.90	89.97	0.69	905.04	1,285.55	1,238.15	47.40	27.119		
9,700.00	9,684.36	9,563.76	9,505.25	34.63	36.31	89.97	0.69	918.82	1,299.47	1,251.56	47.91	27.123		
9,800.00	9,784.36	9,673.40	9,613.85	34.98	36.77	89.97	0.69	933.96	1,313.31	1,264.84	48.48	27.091		
9,900.00	9,884.36	9,825.20	9,764.69	35.33	37.37	89.97	0.69	950.88	1,324.46	1,275.22	49.24	26.896		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - KC7 Fed Com 704H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,000.00	9,984.36	9,978.11	9,917.20	35.68	37.94	89.97	0.69	961.86	1,331.64	1,281.69	49.95	26.660		
10,100.00	10,084.36	10,131.67	10,070.66	36.03	38.47	89.97	0.69	966.72	1,334.81	1,284.22	50.59	26.384		
10,200.00	10,184.36	10,247.16	10,186.16	36.38	38.85	89.97	0.69	966.98	1,334.98	1,283.87	51.11	26.117		
10,300.00	10,284.36	10,347.16	10,286.16	36.73	39.18	89.97	0.69	966.98	1,334.98	1,283.37	51.61	25.868		
10,400.00	10,384.36	10,447.16	10,386.16	37.08	39.50	89.97	0.69	966.98	1,334.98	1,282.88	52.10	25.623		
10,500.00	10,484.36	10,547.16	10,486.16	37.43	39.83	89.97	0.69	966.98	1,334.98	1,282.39	52.59	25.383		
10,600.00	10,584.36	10,647.16	10,586.16	37.78	40.16	89.97	0.69	966.98	1,334.98	1,281.89	53.09	25.147		
10,700.00	10,684.36	10,747.16	10,686.16	38.13	40.49	89.97	0.69	966.98	1,334.98	1,281.40	53.58	24.916		
10,800.00	10,784.36	10,847.16	10,786.16	38.49	40.82	89.97	0.69	966.98	1,334.98	1,280.91	54.07	24.688		
10,900.00	10,884.36	10,947.16	10,886.16	38.84	41.15	89.97	0.69	966.98	1,334.98	1,280.41	54.57	24.465		
11,000.00	10,984.36	11,047.16	10,986.16	39.19	41.47	89.97	0.69	966.98	1,334.98	1,279.92	55.06	24.245		
11,100.00	11,084.36	11,147.16	11,086.16	39.54	41.80	89.97	0.69	966.98	1,334.98	1,279.42	55.56	24.029		
11,135.64	11,120.00	11,182.80	11,121.80	39.67	41.92	89.97	0.69	966.98	1,334.98	1,279.25	55.73	23.953		
11,150.00	11,134.36	11,197.16	11,136.16	39.72	41.97	90.55	0.69	966.98	1,334.98	1,279.18	55.80	23.923		
11,200.00	11,184.22	11,247.03	11,186.02	39.89	42.13	90.69	0.69	966.98	1,335.02	1,278.97	56.05	23.819		
11,250.00	11,233.60	11,296.90	11,235.89	40.06	42.30	91.01	0.81	966.98	1,335.13	1,278.84	56.29	23.717		
11,300.00	11,282.11	11,348.67	11,287.53	40.23	42.47	91.38	4.22	966.94	1,335.32	1,278.78	56.54	23.618		
11,350.00	11,329.39	11,401.32	11,339.52	40.40	42.64	91.75	12.46	966.86	1,335.56	1,278.78	56.78	23.522		
11,400.00	11,375.08	11,454.87	11,391.39	40.55	42.81	92.10	25.68	966.73	1,335.84	1,278.83	57.02	23.429		
11,450.00	11,418.82	11,509.33	11,442.64	40.69	42.97	92.44	44.04	966.55	1,336.17	1,278.92	57.25	23.339		
11,500.00	11,460.29	11,564.69	11,492.71	40.83	43.13	92.77	67.61	966.31	1,336.52	1,279.04	57.48	23.252		
11,550.00	11,499.17	11,620.95	11,541.03	40.96	43.27	93.08	96.39	966.03	1,336.88	1,279.18	57.71	23.167		
11,600.00	11,535.17	11,678.07	11,586.95	41.08	43.41	93.36	130.31	965.69	1,337.25	1,279.32	57.93	23.084		
11,650.00	11,568.00	11,736.01	11,629.85	41.20	43.54	93.61	169.21	965.30	1,337.61	1,279.46	58.15	23.003		
11,700.00	11,597.43	11,794.70	11,669.08	41.32	43.65	93.84	212.82	964.87	1,337.95	1,279.58	58.37	22.921		
11,750.00	11,623.22	11,854.06	11,704.01	41.45	43.76	94.03	260.78	964.39	1,338.25	1,279.65	58.59	22.840		
11,800.00	11,645.18	11,913.98	11,734.05	41.59	43.87	94.18	312.61	963.88	1,338.50	1,279.68	58.82	22.756		
11,850.00	11,663.15	11,974.37	11,758.67	41.74	43.97	94.30	367.71	963.33	1,338.69	1,279.64	59.05	22.669		
11,900.00	11,676.98	12,035.08	11,777.45	41.90	44.09	94.37	425.41	962.76	1,338.82	1,279.53	59.29	22.580		
11,950.00	11,686.57	12,095.98	11,790.06	42.07	44.22	94.41	484.96	962.16	1,338.88	1,279.34	59.54	22.486		
12,000.00	11,691.85	12,156.93	11,796.27	42.24	44.37	94.40	545.55	961.56	1,338.87	1,279.07	59.80	22.389		
12,053.43	11,692.68	12,218.55	11,796.19	42.44	44.55	94.36	607.15	960.95	1,338.80	1,278.71	60.09	22.280		
12,054.68	11,692.64	12,219.79	11,796.15	42.44	44.55	94.36	608.40	960.94	1,338.80	1,278.70	60.09	22.278		
12,100.00	11,691.14	12,265.12	11,794.75	42.62	44.70	94.36	653.69	960.49	1,338.80	1,278.46	60.34	22.187		
12,200.00	11,687.81	12,365.12	11,791.64	43.05	45.08	94.37	753.64	959.49	1,338.82	1,277.88	60.94	21.968		
12,300.00	11,684.49	12,465.12	11,788.54	43.54	45.53	94.38	853.59	958.50	1,338.84	1,277.21	61.63	21.724		
12,400.00	11,681.17	12,565.12	11,785.43	44.09	46.05	94.39	953.53	957.50	1,338.85	1,276.46	62.39	21.458		
12,500.00	11,677.85	12,665.12	11,782.32	44.69	46.62	94.40	1,053.48	956.51	1,338.87	1,275.64	63.23	21.173		
12,600.00	11,674.53	12,765.11	11,779.22	45.34	47.24	94.41	1,153.43	955.52	1,338.89	1,274.74	64.15	20.871		
12,700.00	11,671.21	12,865.11	11,776.11	46.05	47.92	94.42	1,253.37	954.52	1,338.90	1,273.77	65.13	20.556		
12,800.00	11,667.89	12,965.11	11,773.01	46.80	48.65	94.43	1,353.32	953.53	1,338.92	1,272.73	66.19	20.229		
12,900.00	11,664.56	13,065.11	11,769.90	47.59	49.42	94.44	1,453.27	952.53	1,338.94	1,271.63	67.30	19.894		
13,000.00	11,661.24	13,165.11	11,766.80	48.43	50.24	94.45	1,553.21	951.54	1,338.95	1,270.47	68.48	19.552		
13,100.00	11,657.92	13,265.11	11,763.69	49.31	51.10	94.46	1,653.16	950.54	1,338.97	1,269.25	69.72	19.205		
13,200.00	11,654.60	13,365.11	11,760.59	50.23	51.99	94.46	1,753.11	949.55	1,338.99	1,267.98	71.01	18.856		
13,300.00	11,651.28	13,465.11	11,757.48	51.18	52.92	94.47	1,853.05	948.56	1,339.01	1,266.65	72.35	18.507		
13,400.00	11,647.96	13,565.11	11,754.38	52.17	53.89	94.48	1,953.00	947.56	1,339.02	1,265.28	73.74	18.158		
13,500.00	11,644.63	13,665.11	11,751.27	53.20	54.89	94.49	2,052.95	946.57	1,339.04	1,263.86	75.18	17.810		
13,600.00	11,641.31	13,765.11	11,748.16	54.25	55.92	94.50	2,152.89	945.57	1,339.06	1,262.39	76.67	17.466		
13,700.00	11,637.99	13,865.11	11,745.06	55.33	56.98	94.51	2,252.84	944.58	1,339.07	1,260.89	78.19	17.126		
13,800.00	11,634.67	13,965.11	11,741.95	56.44	58.07	94.52	2,352.79	943.59	1,339.09	1,259.34	79.75	16.791		
13,900.00	11,631.35	14,065.11	11,738.85	57.58	59.18	94.53	2,452.73	942.59	1,339.11	1,257.76	81.35	16.461		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - KC7 Fed Com 704H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance				Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
14,000.00	11,628.03	14,165.11	11,735.74	58.74	60.32	94.54	2,552.68	941.60	1,339.13	1,256.14		82.98	16.137	
14,100.00	11,624.70	14,265.11	11,732.64	59.92	61.48	94.55	2,652.63	940.60	1,339.14	1,254.49		84.65	15.820	
14,200.00	11,621.38	14,365.11	11,729.53	61.13	62.67	94.56	2,752.57	939.61	1,339.16	1,252.81		86.35	15.509	
14,300.00	11,618.06	14,465.11	11,726.43	62.36	63.87	94.57	2,852.52	938.62	1,339.18	1,251.10		88.07	15.205	
14,400.00	11,614.74	14,565.11	11,723.32	63.60	65.10	94.58	2,952.47	937.62	1,339.20	1,249.37		89.83	14.909	
14,500.00	11,611.42	14,665.11	11,720.22	64.86	66.34	94.58	3,052.41	936.63	1,339.21	1,247.61		91.60	14.619	
14,600.00	11,608.10	14,765.11	11,717.11	66.15	67.60	94.59	3,152.36	935.63	1,339.23	1,245.82		93.41	14.337	
14,700.00	11,604.77	14,865.11	11,714.00	67.44	68.88	94.60	3,252.31	934.64	1,339.25	1,244.02		95.23	14.063	
14,800.00	11,601.45	14,965.11	11,710.90	68.75	70.17	94.61	3,352.25	933.65	1,339.27	1,242.19		97.08	13.795	
14,900.00	11,598.13	15,065.11	11,707.79	70.08	71.47	94.62	3,452.20	932.65	1,339.28	1,240.34		98.95	13.535	
15,000.00	11,594.81	15,165.11	11,704.69	71.42	72.80	94.63	3,552.15	931.66	1,339.30	1,238.47		100.83	13.282	
15,100.00	11,591.49	15,265.11	11,701.58	72.77	74.13	94.64	3,652.09	930.66	1,339.32	1,236.58		102.74	13.036	
15,200.00	11,588.17	15,365.11	11,698.48	74.14	75.48	94.65	3,752.04	929.67	1,339.34	1,234.68		104.66	12.797	
15,300.00	11,584.84	15,465.11	11,695.37	75.52	76.84	94.66	3,851.98	928.68	1,339.35	1,232.76		106.60	12.565	
15,400.00	11,581.52	15,565.11	11,692.27	76.90	78.21	94.67	3,951.93	927.68	1,339.37	1,230.82		108.55	12.339	
15,500.00	11,578.20	15,665.11	11,689.16	78.30	79.59	94.68	4,051.88	926.69	1,339.39	1,228.87		110.52	12.119	
15,600.00	11,574.88	15,765.11	11,686.06	79.71	80.98	94.69	4,151.82	925.69	1,339.41	1,226.91		112.50	11.906	
15,700.00	11,571.56	15,865.11	11,682.95	81.12	82.38	94.70	4,251.77	924.70	1,339.43	1,224.93		114.50	11.699	
15,800.00	11,568.24	15,965.11	11,679.84	82.55	83.79	94.70	4,351.72	923.71	1,339.44	1,222.94		116.50	11.497	
15,900.00	11,564.91	16,065.11	11,676.74	83.98	85.21	94.71	4,451.66	922.71	1,339.46	1,220.94		118.52	11.301	
16,000.00	11,561.59	16,165.11	11,673.63	85.43	86.63	94.72	4,551.61	921.72	1,339.48	1,218.93		120.55	11.111	
16,100.00	11,558.27	16,265.11	11,670.53	86.87	88.07	94.73	4,651.56	920.72	1,339.50	1,216.91		122.59	10.927	
16,200.00	11,554.95	16,365.11	11,667.42	88.33	89.51	94.74	4,751.50	919.73	1,339.52	1,214.87		124.64	10.747	
16,300.00	11,551.63	16,465.11	11,664.32	89.79	90.96	94.75	4,851.45	918.74	1,339.53	1,212.83		126.70	10.572	
16,400.00	11,548.31	16,565.11	11,661.21	91.26	92.41	94.76	4,951.40	917.74	1,339.55	1,210.78		128.77	10.403	
16,500.00	11,544.98	16,665.11	11,658.11	92.74	93.88	94.77	5,051.34	916.75	1,339.57	1,208.72		130.85	10.238	
16,600.00	11,541.66	16,765.11	11,655.00	94.22	95.35	94.78	5,151.29	915.75	1,339.59	1,206.65		132.93	10.077	
16,700.00	11,538.34	16,865.11	11,651.89	95.71	96.82	94.79	5,251.24	914.76	1,339.61	1,204.58		135.03	9.921	
16,800.00	11,535.02	16,965.11	11,648.79	97.20	98.30	94.80	5,351.18	913.76	1,339.63	1,202.50		137.13	9.769	
16,900.00	11,531.70	17,065.10	11,645.68	98.70	99.79	94.81	5,451.13	912.77	1,339.64	1,200.41		139.24	9.621	
17,000.00	11,528.38	17,165.10	11,642.58	100.20	101.28	94.82	5,551.08	911.78	1,339.66	1,198.31		141.35	9.477	
17,100.00	11,525.05	17,265.10	11,639.47	101.71	102.77	94.82	5,651.02	910.78	1,339.68	1,196.21		143.47	9.337	
17,200.00	11,521.73	17,365.10	11,636.37	103.22	104.27	94.83	5,750.97	909.79	1,339.70	1,194.10		145.60	9.201	
17,300.00	11,518.41	17,465.10	11,633.26	104.74	105.78	94.84	5,850.92	908.79	1,339.72	1,191.98		147.74	9.068	
17,400.00	11,515.09	17,565.10	11,630.16	106.26	107.29	94.85	5,950.86	907.80	1,339.74	1,189.86		149.87	8.939	
17,500.00	11,511.77	17,665.10	11,627.05	107.78	108.80	94.86	6,050.81	906.81	1,339.75	1,187.74		152.02	8.813	
17,600.00	11,508.45	17,765.10	11,623.95	109.31	110.32	94.87	6,150.76	905.81	1,339.77	1,185.60		154.17	8.690	
17,700.00	11,505.13	17,865.10	11,620.84	110.84	111.84	94.88	6,250.70	904.82	1,339.79	1,183.47		156.32	8.571	
17,800.00	11,501.80	17,965.10	11,617.73	112.37	113.36	94.89	6,350.65	903.82	1,339.81	1,181.33		158.48	8.454	
17,900.00	11,498.48	18,065.10	11,614.63	113.91	114.89	94.90	6,450.60	902.83	1,339.83	1,179.18		160.65	8.340	
18,000.00	11,495.16	18,165.10	11,611.52	115.45	116.42	94.91	6,550.54	901.84	1,339.85	1,177.03		162.82	8.229	
18,100.00	11,491.84	18,265.10	11,608.42	117.00	117.96	94.92	6,650.49	900.84	1,339.87	1,174.88		164.99	8.121	
18,200.00	11,488.52	18,365.10	11,605.31	118.54	119.50	94.93	6,750.44	899.85	1,339.88	1,172.72		167.17	8.015	
18,300.00	11,485.20	18,465.10	11,602.21	120.09	121.04	94.94	6,850.38	898.85	1,339.90	1,170.56		169.35	7.912	
18,400.00	11,481.87	18,565.10	11,599.10	121.64	122.58	94.94	6,950.33	897.86	1,339.92	1,168.39		171.53	7.812	
18,500.00	11,478.55	18,665.10	11,596.00	123.20	124.13	94.95	7,050.28	896.87	1,339.94	1,166.22		173.72	7.713	
18,600.00	11,475.23	18,765.10	11,592.89	124.76	125.68	94.96	7,150.22	895.87	1,339.96	1,164.05		175.91	7.617	
18,700.00	11,471.91	18,865.10	11,589.79	126.32	127.23	94.97	7,250.17	894.88	1,339.98	1,161.87		178.11	7.524	
18,800.00	11,468.59	18,965.10	11,586.68	127.88	128.79	94.98	7,350.12	893.88	1,340.00	1,159.69		180.30	7.432	
18,900.00	11,465.27	19,065.10	11,583.57	129.44	130.34	94.99	7,450.06	892.89	1,340.02	1,157.51		182.51	7.342	
19,000.00	11,461.94	19,165.10	11,580.47	131.01	131.90	95.00	7,550.01	891.90	1,340.04	1,155.33		184.71	7.255	
19,100.00	11,458.62	19,265.10	11,577.36	132.58	133.46	95.01	7,649.96	890.90	1,340.06	1,153.14		186.92	7.169	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Western/Bidder 49/KC7 - KC7 Fed Com 704H - OH - Plan #1		Offset Site Error:		0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
19,200.00	11,455.30	19,365.10	11,574.26	134.15	135.03	95.02	7,749.90	889.91	1,340.07	1,150.95	189.13	7.086						
19,300.00	11,451.98	19,465.10	11,571.15	135.72	136.59	95.03	7,849.85	888.91	1,340.09	1,148.75	191.34	7.004						
19,400.00	11,448.66	19,565.10	11,568.05	137.30	138.16	95.04	7,949.80	887.92	1,340.11	1,146.56	193.56	6.924						
19,500.00	11,445.34	19,665.10	11,564.94	138.87	139.73	95.05	8,049.74	886.93	1,340.13	1,144.36	195.77	6.845						
19,600.00	11,442.01	19,765.10	11,561.84	140.45	141.30	95.05	8,149.69	885.93	1,340.15	1,142.16	197.99	6.769						
19,700.00	11,438.69	19,865.10	11,558.73	142.03	142.88	95.06	8,249.64	884.94	1,340.17	1,139.95	200.22	6.694						
19,800.00	11,435.37	19,965.10	11,555.63	143.61	144.45	95.07	8,349.58	883.94	1,340.19	1,137.75	202.44	6.620						
19,900.00	11,432.05	20,065.10	11,552.52	145.20	146.03	95.08	8,449.53	882.95	1,340.21	1,135.54	204.67	6.548						
20,000.00	11,428.73	20,165.10	11,549.41	146.78	147.61	95.09	8,549.47	881.96	1,340.23	1,133.33	206.90	6.478						
20,100.00	11,425.41	20,265.10	11,546.31	148.37	149.19	95.10	8,649.42	880.96	1,340.25	1,131.12	209.13	6.409						
20,200.00	11,422.08	20,365.10	11,543.20	149.96	150.77	95.11	8,749.37	879.97	1,340.27	1,128.91	211.36	6.341						
20,300.00	11,418.76	20,465.10	11,540.10	151.55	152.35	95.12	8,849.31	878.97	1,340.29	1,126.69	213.59	6.275						
20,400.00	11,415.44	20,565.10	11,536.99	153.14	153.94	95.13	8,949.26	877.98	1,340.31	1,124.48	215.83	6.210						
20,500.00	11,412.12	20,665.10	11,533.89	154.73	155.53	95.14	9,049.21	876.99	1,340.33	1,122.26	218.07	6.146						
20,600.00	11,408.80	20,765.10	11,530.78	156.32	157.11	95.15	9,149.15	875.99	1,340.35	1,120.04	220.31	6.084						
20,700.00	11,405.48	20,865.10	11,527.68	157.91	158.70	95.16	9,249.10	875.00	1,340.37	1,117.82	222.55	6.023						
20,800.00	11,402.15	20,965.10	11,524.57	159.51	160.29	95.17	9,349.05	874.00	1,340.39	1,115.60	224.79	5.963						
20,900.00	11,398.83	21,065.10	11,521.47	161.11	161.88	95.17	9,448.99	873.01	1,340.41	1,113.37	227.03	5.904						
21,000.00	11,395.51	21,165.10	11,518.36	162.70	163.48	95.18	9,548.94	872.01	1,340.42	1,111.14	229.28	5.846						
21,100.00	11,392.19	21,265.10	11,515.25	164.30	165.07	95.19	9,648.89	871.02	1,340.44	1,108.92	231.53	5.790						
21,200.00	11,388.87	21,365.09	11,512.15	165.90	166.66	95.20	9,748.83	870.03	1,340.46	1,106.69	233.78	5.734						
21,300.00	11,385.55	21,465.09	11,509.04	167.50	168.26	95.21	9,848.78	869.03	1,340.48	1,104.46	236.03	5.679						
21,400.00	11,382.22	21,565.09	11,505.94	169.10	169.86	95.22	9,948.73	868.04	1,340.50	1,102.23	238.28	5.626						
21,500.00	11,378.90	21,665.09	11,502.83	170.71	171.46	95.23	10,048.67	867.04	1,340.52	1,099.99	240.53	5.573						
21,600.00	11,375.58	21,765.09	11,499.73	172.31	173.06	95.24	10,148.62	866.05	1,340.54	1,097.76	242.78	5.522						
21,700.00	11,372.26	21,865.09	11,496.62	173.92	174.66	95.25	10,248.57	865.06	1,340.56	1,095.52	245.04	5.471						
21,800.00	11,368.94	21,965.09	11,493.52	175.52	176.26	95.26	10,348.51	864.06	1,340.58	1,093.29	247.30	5.421						
21,900.00	11,365.62	22,065.09	11,490.41	177.13	177.86	95.27	10,448.46	863.07	1,340.60	1,091.05	249.55	5.372						
22,000.00	11,362.30	22,165.09	11,487.30	178.73	179.46	95.28	10,548.41	862.07	1,340.62	1,088.81	251.81	5.324						
22,100.00	11,358.97	22,265.09	11,484.20	180.34	181.07	95.28	10,648.35	861.08	1,340.64	1,086.57	254.07	5.277						
22,200.00	11,355.65	22,365.09	11,481.10	181.94	181.87	95.29	10,748.30	860.09	1,340.66	1,084.33	256.32	5.230						
22,300.00	11,352.33	22,465.09	11,478.00	183.54	182.68	95.30	10,848.25	859.10	1,340.68	1,082.09	258.57	5.183						
22,400.00	11,349.01	22,565.09	11,474.90	185.14	181.81	95.31	10,948.20	858.11	1,340.70	1,079.85	260.82	5.136						
22,500.00	11,345.69	22,665.09	11,471.80	186.74	180.94	95.32	11,048.15	857.12	1,340.72	1,077.61	263.07	5.089						
22,600.00	11,342.37	22,765.09	11,468.70	188.34	180.07	95.33	11,148.10	856.13	1,340.74	1,075.37	265.32	5.042						
22,700.00	11,339.05	22,865.09	11,465.60	189.94	179.20	95.34	11,248.05	855.14	1,340.76	1,073.13	267.57	4.995						
22,800.00	11,335.73	22,965.09	11,462.50	191.54	178.33	95.35	11,348.00	854.15	1,340.78	1,070.89	269.82	4.948						
22,900.00	11,332.41	23,065.09	11,459.40	193.14	177.46	95.36	11,447.95	853.16	1,340.80	1,068.65	272.07	4.901						
23,000.00	11,329.09	23,165.09	11,456.30	194.74	176.59	95.37	11,547.90	852.17	1,340.82	1,066.41	274.32	4.854						
23,100.00	11,325.77	23,265.09	11,453.20	196.34	175.72	95.38	11,647.85	851.18	1,340.84	1,064.17	276.57	4.807						
23,200.00	11,322.45	23,365.09	11,450.10	197.94	174.85	95.39	11,747.80	850.19	1,340.86	1,061.93	278.82	4.760						
23,300.00	11,319.13	23,465.09	11,447.00	199.54	173.98	95.40	11,847.75	849.20	1,340.88	1,059.69	281.07	4.713						
23,400.00	11,315.81	23,565.09	11,443.90	201.14	173.11	95.41	11,947.70	848.21	1,340.90	1,057.45	283.32	4.666						
23,500.00	11,312.49	23,665.09	11,440.80	202.74	172.24	95.42	12,047.65	847.22	1,340.92	1,055.21	285.57	4.619						
23,600.00	11,309.17	23,765.09	11,437.70	204.34	171.37	95.43	12,147.60	846.23	1,340.94	1,052.97	287.82	4.572						
23,700.00	11,305.85	23,865.09	11,434.60	205.94	170.50	95.44	12,247.55	845.24	1,340.96	1,050.73	290.07	4.525						
23,800.00	11,302.53	23,965.09	11,431.50	207.54	169.63	95.45	12,347.50	844.25	1,340.98	1,048.49	292.32	4.478						
23,900.00	11,299.21	24,065.09	11,428.40	209.14	168.76	95.46	12,447.45	843.26	1,341.00	1,046.25	294.57	4.431						
24,000.00	11,295.89	24,165.09	11,425.30	210.74	167.89	95.47	12,547.40	842.27	1,341.02	1,044.01	296.82	4.384						
24,100.00	11,292.57	24,265.09	11,422.20	212.34	167.02	95.48	12,647.35	841.28	1,341.04	1,041.77	299.07	4.337						
24,200.00	11,289.25	24,365.09	11,419.10	213.94	166.15	95.49	12,747.30	840.29	1,341.06	1,039.53	301.32	4.290						
24,300.00	11,285.93	24,465.09	11,416.00	215.54	165.28	95.50	12,847.25	839.30	1,341.08	1,037.29	303.57	4.243						
24,400.00	11,282.61	24,565.09	11,412.90	217.14	164.41	95.51	12,947.20	838.31	1,341.10	1,035.05	305.82	4.196						
24,500.00	11,279.29	24,665.09	11,409.80	218.74	163.54	95.52	13,047.15	837.32	1,341.12	1,032.81	308.07	4.149						
24,600.00	11,275.97	24,765.09	11,406.70	220.34	162.67	95.53	13,147.10	836.33	1,341.14	1,030.57	310.32	4.102						
24,700.00	11,272.65	24,865.09	11,403.60	221.94	161.80	95.54	13,247.05	835.34	1,341.16	1,028.33	312.57	4.055						
24,800.00	11,269.33	24,965.09	11,400.50	223.54	160.93	95.55	13,347.00	834.35	1,341.18	1,026.09	314.82	4.008						
24,900.00	11,266.01	25,065.09	11,397.40	225.14	160.06	95.56	13,446.95	833.36	1,341.20	1,023.85	317.07	3.961						
25,000.00	11,262.69	25,165.09	11,394.30	226.74	159.19	95.57	13,546.90	832.37	1,341.22	1,021.61	319.32	3.914						
25,100.00	11,259.37	25,265.09	11,391.20	228.34	158.32	95.58	13,646.85	831.38	1,341.24	1,019.37	321.57	3.867						
25,200.00	11,256.05	25,365.09	11,388.10	229.94	157.45	95.59	13,746.80	830.39	1,341.26	1,017.13	323.82	3.820						
25,300.00	11,252.73	25,465.09	11,385.00	231.54	156.58	95.60	13,846.75	829.40	1,341.28	1,014.89	326.07	3.773						
25,400.00	11,249.41	25,565.09	11,381.90	233.14	155.71	95.61	13,946.70	828.41	1,341.30	1,012.65	328.32	3.726						
25,500.00	11,246.09	25,665.09	11,378.80	234.74	154.84	95.62	14,046.65	827.42	1,341.32	1,010.41	330.57	3.679						
25,600.00	11,242.77	25,765.09	11,375.70	236.34	153.97	95.63	14,146.60	826.43	1,341.34	1,008.17	332.82	3.632						
25,700.00	11,239.45	25,865.09	11,372.60	237.94	153.10	95.64	14,246.55	825.44	1,341.36	1,005.93	335.07	3.585						
25,800.00	11,236.13	25,965.09	11,369.50	239.54	152.23	95.65												



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Western Fed Com 601H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-90.57	-9.20	-925.84	926.55					
100.00	100.00	64.80	64.80	0.13	0.08	-90.57	-9.20	-925.84	925.89	925.74	0.15	6,193.049		
200.00	200.00	164.80	164.80	0.48	0.36	-90.57	-9.20	-925.84	925.89	925.28	0.60	1,538.485		
300.00	300.00	264.80	264.80	0.84	0.72	-90.57	-9.20	-925.84	925.89	924.78	1.11	837.355		
400.00	400.00	364.80	364.80	1.20	1.07	-90.57	-9.20	-925.84	925.89	924.27	1.61	574.532		
500.00	500.00	464.80	464.80	1.56	1.43	-90.57	-9.20	-925.84	925.89	923.77	2.12	437.169		
600.00	600.00	564.80	564.80	1.92	1.79	-90.57	-9.20	-925.84	925.89	923.26	2.62	352.785		
700.00	700.00	664.80	664.80	2.28	2.15	-90.57	-9.20	-925.84	925.89	922.75	3.13	295.695		
800.00	800.00	764.80	764.80	2.63	2.51	-90.57	-9.20	-925.84	925.89	922.25	3.64	254.505		
900.00	900.00	864.80	864.80	2.99	2.87	-90.57	-9.20	-925.84	925.89	921.74	4.14	223.384		
1,000.00	1,000.00	964.80	964.80	3.35	3.23	-90.57	-9.20	-925.84	925.89	921.23	4.65	199.044		
1,100.00	1,100.00	1,064.80	1,064.80	3.71	3.58	-90.57	-9.20	-925.84	925.89	920.73	5.16	179.486		
1,200.00	1,200.00	1,164.80	1,164.80	4.07	3.94	-90.57	-9.20	-925.84	925.89	920.22	5.67	163.428		
1,300.00	1,300.00	1,264.80	1,264.80	4.43	4.30	-90.57	-9.20	-925.84	925.89	919.71	6.17	150.006		
1,400.00	1,400.00	1,364.80	1,364.80	4.79	4.66	-90.57	-9.20	-925.84	925.89	919.21	6.68	138.622		
1,500.00	1,500.00	1,464.80	1,464.80	5.14	5.02	-90.57	-9.20	-925.84	925.89	918.70	7.19	128.843		
1,600.00	1,600.00	1,564.80	1,564.80	5.50	5.38	-90.57	-9.20	-925.84	925.89	918.19	7.69	120.353		
1,700.00	1,700.00	1,664.80	1,664.80	5.86	5.73	-90.57	-9.20	-925.84	925.89	917.69	8.20	112.913		
1,800.00	1,800.00	1,764.80	1,764.80	6.22	6.09	-90.57	-9.20	-925.84	925.89	917.18	8.71	106.339		
1,900.00	1,900.00	1,864.80	1,864.80	6.58	6.45	-90.57	-9.20	-925.84	925.89	916.67	9.21	100.489		
2,000.00	2,000.00	1,964.80	1,964.80	6.94	6.81	-90.57	-9.20	-925.84	925.89	916.16	9.72	95.248		
2,100.00	2,100.00	2,064.80	2,064.80	7.29	7.17	-90.57	-9.20	-925.84	925.89	915.66	10.23	90.527		
2,200.00	2,200.00	2,164.80	2,164.80	7.65	7.53	-90.57	-9.20	-925.84	925.89	915.15	10.73	86.252		
2,300.00	2,300.00	2,264.80	2,264.80	8.01	7.89	-90.57	-9.20	-925.84	925.89	914.64	11.24	82.363		
2,400.00	2,400.00	2,364.80	2,364.80	8.37	8.24	-90.57	-9.20	-925.84	925.89	914.14	11.75	78.809		
2,500.00	2,500.00	2,464.80	2,464.80	8.73	8.60	-90.57	-9.20	-925.84	925.89	913.63	12.26	75.549		
2,600.00	2,600.00	2,564.80	2,564.80	9.09	8.96	-90.57	-9.20	-925.84	925.89	913.12	12.76	72.548		
2,700.00	2,700.00	2,664.80	2,664.80	9.45	9.32	-90.57	-9.20	-925.84	925.89	912.62	13.27	69.776		
2,800.00	2,800.00	2,764.80	2,764.80	9.80	9.68	-90.57	-9.20	-925.84	925.89	912.11	13.78	67.209		
2,900.00	2,900.00	2,864.80	2,864.80	10.16	10.04	-90.57	-9.20	-925.84	925.89	911.60	14.28	64.823		
3,000.00	3,000.00	2,964.80	2,964.80	10.52	10.39	-90.57	-9.20	-925.84	925.89	911.10	14.79	62.601		
3,100.00	3,100.00	3,064.80	3,064.80	10.88	10.75	-90.57	-9.20	-925.84	925.89	910.59	15.30	60.527		
3,200.00	3,200.00	3,164.80	3,164.80	11.24	11.11	-90.57	-9.20	-925.84	925.89	910.08	15.80	58.585		
3,300.00	3,299.99	3,252.16	3,252.16	11.59	11.42	-0.57	-9.20	-926.20	925.02	908.75	16.27	56.861		
3,400.00	3,399.91	3,332.67	3,332.64	11.93	11.70	-0.57	-9.20	-928.14	923.51	906.81	16.70	55.303		
3,500.00	3,499.69	3,413.20	3,413.09	12.27	11.98	-0.57	-9.20	-931.79	921.49	904.37	17.12	53.821		
3,533.32	3,532.89	3,440.03	3,439.88	12.39	12.07	-0.57	-9.20	-933.38	920.71	903.45	17.26	53.340		
3,600.00	3,599.32	3,500.00	3,499.69	12.62	12.27	-0.57	-9.20	-937.61	919.58	902.02	17.56	52.366		
3,648.81	3,647.95	3,533.11	3,532.68	12.79	12.39	-0.57	-9.20	-940.36	919.30	901.56	17.74	51.820 CC, ES		
3,700.00	3,698.94	3,574.37	3,573.77	12.97	12.53	-0.57	-9.20	-944.17	919.57	901.62	17.95	51.230		
3,800.00	3,798.56	3,668.20	3,667.10	13.32	12.86	-0.57	-9.20	-953.89	921.21	902.80	18.41	50.035		
3,900.00	3,898.18	3,768.19	3,766.54	13.67	13.21	-0.57	-9.20	-964.34	922.95	904.05	18.90	48.838		
4,000.00	3,997.80	3,868.17	3,865.97	14.03	13.57	-0.57	-9.20	-974.79	924.69	905.31	19.39	47.696		
4,100.00	4,097.42	3,968.16	3,965.41	14.39	13.92	-0.57	-9.20	-985.24	926.44	906.56	19.88	46.608		
4,200.00	4,197.04	4,068.14	4,064.85	14.74	14.28	-0.57	-9.20	-995.69	928.18	907.81	20.37	45.569		
4,300.00	4,296.66	4,168.13	4,164.29	15.10	14.64	-0.57	-9.20	-1,006.14	929.92	909.06	20.86	44.577		
4,400.00	4,396.28	4,268.11	4,263.72	15.46	15.00	-0.57	-9.20	-1,016.58	931.66	910.31	21.35	43.628		
4,500.00	4,495.90	4,368.10	4,363.16	15.82	15.37	-0.56	-9.20	-1,027.03	933.41	911.56	21.85	42.720		
4,600.00	4,595.52	4,468.08	4,462.60	16.19	15.73	-0.56	-9.20	-1,037.48	935.15	912.81	22.35	41.850		
4,700.00	4,695.14	4,568.07	4,562.03	16.55	16.10	-0.56	-9.20	-1,047.93	936.89	914.05	22.84	41.017		
4,800.00	4,794.76	4,668.05	4,661.47	16.91	16.47	-0.56	-9.20	-1,058.38	938.64	915.30	23.34	40.217		
4,900.00	4,894.38	4,768.04	4,760.91	17.28	16.84	-0.56	-9.20	-1,068.83	940.38	916.54	23.84	39.450		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design		Western/Bidder 49/KC7 - Western Fed Com 601H - OH - Plan #1											Offset Site Error:		0.00 usft
Survey Program:		0-OWSG (Rev2) MWD											Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
5,000.00	4,994.00	4,868.02	4,860.35	17.64	17.21	-0.56	-9.20	-1,079.28	942.12	917.79	24.34	38.712			
5,100.00	5,093.62	4,968.01	4,959.78	18.01	17.58	-0.56	-9.20	-1,089.73	943.87	919.03	24.84	38.004			
5,200.00	5,193.24	5,067.99	5,059.22	18.38	17.95	-0.56	-9.20	-1,100.17	945.61	920.27	25.34	37.322			
5,300.00	5,292.86	5,167.97	5,158.66	18.75	18.33	-0.56	-9.20	-1,110.62	947.35	921.51	25.84	36.666			
5,400.00	5,392.47	5,267.96	5,258.10	19.12	18.70	-0.56	-9.20	-1,121.07	949.09	922.76	26.34	36.034			
5,500.00	5,492.09	5,367.94	5,357.53	19.49	19.08	-0.55	-9.20	-1,131.52	950.84	924.00	26.84	35.425			
5,600.00	5,591.71	5,467.93	5,456.97	19.86	19.45	-0.55	-9.20	-1,141.97	952.58	925.24	27.34	34.838			
5,700.00	5,691.33	5,567.91	5,556.41	20.23	19.83	-0.55	-9.20	-1,152.42	954.32	926.48	27.85	34.271			
5,800.00	5,790.95	5,667.90	5,655.85	20.60	20.21	-0.55	-9.20	-1,162.87	956.07	927.72	28.35	33.724			
5,900.00	5,890.57	5,767.88	5,755.28	20.97	20.59	-0.55	-9.20	-1,173.31	957.81	928.96	28.85	33.195			
6,000.00	5,990.19	5,867.87	5,854.72	21.34	20.97	-0.55	-9.20	-1,183.76	959.55	930.19	29.36	32.684			
6,100.00	6,089.81	5,967.85	5,954.16	21.71	21.35	-0.55	-9.20	-1,194.21	961.30	931.43	29.86	32.190			
6,200.00	6,189.43	6,067.84	6,053.59	22.09	21.73	-0.55	-9.20	-1,204.66	963.04	932.67	30.37	31.712			
6,300.00	6,289.05	6,167.82	6,153.03	22.46	22.11	-0.55	-9.20	-1,215.11	964.78	933.91	30.87	31.249			
6,400.00	6,388.67	6,267.81	6,252.47	22.83	22.49	-0.55	-9.20	-1,225.56	966.53	935.15	31.38	30.801			
6,500.00	6,488.29	6,367.79	6,351.91	23.21	22.87	-0.54	-9.20	-1,236.01	968.27	936.38	31.89	30.367			
6,600.00	6,587.91	6,467.78	6,451.34	23.58	23.25	-0.54	-9.20	-1,246.46	970.01	937.62	32.39	29.946			
6,700.00	6,687.53	6,567.76	6,550.78	23.96	23.64	-0.54	-9.20	-1,256.90	971.75	938.85	32.90	29.537			
6,800.00	6,787.15	6,667.75	6,650.22	24.33	24.02	-0.54	-9.20	-1,267.35	973.50	940.09	33.41	29.141			
6,900.00	6,886.77	6,767.73	6,749.66	24.71	24.40	-0.54	-9.20	-1,277.80	975.24	941.33	33.91	28.757			
7,000.00	6,986.39	6,867.72	6,849.09	25.08	24.79	-0.54	-9.20	-1,288.25	976.98	942.56	34.42	28.383			
7,100.00	7,086.01	6,967.70	6,948.53	25.46	25.17	-0.54	-9.20	-1,298.70	978.73	943.80	34.93	28.020			
7,200.00	7,185.63	7,067.69	7,047.97	25.83	25.55	-0.54	-9.20	-1,309.15	980.47	945.03	35.44	27.668			
7,300.00	7,285.25	7,167.67	7,147.41	26.21	25.94	-0.54	-9.20	-1,319.60	982.21	946.27	35.95	27.325			
7,400.00	7,384.86	7,267.66	7,246.84	26.59	26.33	-0.54	-9.20	-1,330.05	983.96	947.50	36.45	26.992			
7,422.33	7,407.11	7,289.98	7,269.04	26.67	26.41	-0.54	-9.20	-1,332.38	984.34	947.78	36.57	26.919			
7,500.00	7,484.55	7,367.62	7,346.26	26.96	26.71	-0.53	-9.20	-1,340.49	986.49	949.53	36.96	26.689			
7,600.00	7,584.40	7,467.49	7,445.58	27.33	27.10	-0.53	-9.20	-1,350.93	991.57	954.10	37.47	26.463			
7,700.00	7,684.36	7,567.19	7,544.74	27.68	27.48	-0.53	-9.20	-1,361.35	999.27	961.29	37.97	26.314			
7,755.64	7,740.00	7,622.57	7,599.81	27.88	27.69	-90.53	-9.20	-1,367.13	1,004.68	966.42	38.25	26.263			
7,800.00	7,784.36	7,666.68	7,643.69	28.03	27.87	-90.53	-9.20	-1,371.74	1,009.31	970.84	38.48	26.232			
7,900.00	7,884.36	7,766.14	7,742.59	28.37	28.25	-90.52	-9.20	-1,382.14	1,019.76	980.79	38.98	26.163			
8,000.00	7,984.36	7,865.59	7,841.50	28.72	28.63	-90.51	-9.20	-1,392.53	1,030.21	990.74	39.48	26.096			
8,100.00	8,084.36	7,965.04	7,940.41	29.07	29.02	-90.51	-9.20	-1,402.92	1,040.66	1,000.68	39.98	26.030			
8,200.00	8,184.36	8,064.49	8,039.32	29.41	29.41	-90.50	-9.20	-1,413.32	1,051.11	1,010.63	40.48	25.966			
8,300.00	8,284.36	8,163.95	8,138.22	29.76	29.79	-90.50	-9.20	-1,423.71	1,061.56	1,020.58	40.98	25.903			
8,400.00	8,384.36	8,263.40	8,237.13	30.10	30.18	-90.49	-9.20	-1,434.10	1,072.01	1,030.53	41.48	25.842			
8,500.00	8,484.36	8,362.85	8,336.04	30.45	30.56	-90.49	-9.20	-1,444.50	1,082.46	1,040.48	41.99	25.782			
8,600.00	8,584.36	8,462.30	8,434.95	30.80	30.95	-90.48	-9.20	-1,454.89	1,092.91	1,050.42	42.49	25.723			
8,700.00	8,684.36	8,561.75	8,533.86	31.15	31.33	-90.48	-9.20	-1,465.28	1,103.36	1,060.37	42.99	25.666			
8,800.00	8,784.36	8,661.21	8,632.76	31.49	31.72	-90.48	-9.20	-1,475.68	1,113.81	1,070.32	43.49	25.609			
8,900.00	8,884.36	8,760.66	8,731.67	31.84	32.11	-90.47	-9.20	-1,486.07	1,124.26	1,080.27	43.99	25.554			
9,000.00	8,984.36	8,860.11	8,830.58	32.19	32.49	-90.47	-9.20	-1,496.46	1,134.71	1,090.21	44.50	25.500			
9,100.00	9,084.36	8,959.56	8,929.49	32.54	32.88	-90.46	-9.20	-1,506.85	1,145.16	1,100.16	45.00	25.448			
9,200.00	9,184.36	9,059.02	9,028.40	32.89	33.27	-90.46	-9.20	-1,517.25	1,155.61	1,110.11	45.50	25.396			
9,300.00	9,284.36	9,158.47	9,127.30	33.23	33.66	-90.45	-9.20	-1,527.64	1,166.06	1,120.05	46.01	25.345			
9,400.00	9,384.36	9,257.92	9,226.21	33.58	34.04	-90.45	-9.20	-1,538.03	1,176.51	1,130.00	46.51	25.295			
9,500.00	9,484.36	9,363.85	9,331.57	33.93	34.46	-90.45	-9.20	-1,549.05	1,186.92	1,139.88	47.04	25.232			
9,600.00	9,584.36	9,508.70	9,475.94	34.28	35.00	-90.44	-9.20	-1,560.66	1,194.94	1,147.25	47.70	25.052			
9,700.00	9,684.36	9,654.21	9,621.32	34.63	35.53	-90.44	-9.20	-1,566.81	1,199.17	1,150.87	48.30	24.826			
9,800.00	9,784.36	9,782.06	9,749.16	34.98	35.97	-90.44	-9.20	-1,567.84	1,199.88	1,151.04	48.84	24.569			
9,900.00	9,884.36	9,882.06	9,849.16	35.33	36.30	-90.44	-9.20	-1,567.84	1,199.88	1,150.54	49.33	24.322			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,000.00	9,984.36	9,982.06	9,949.16	35.68	36.64	-90.44	-9.20	-1,567.84	1,199.88	1,150.05	49.83	24.081		
10,100.00	10,084.36	10,082.06	10,049.16	36.03	36.98	-90.44	-9.20	-1,567.84	1,199.88	1,149.55	50.32	23.844		
10,200.00	10,184.36	10,182.06	10,149.16	36.38	37.31	-90.44	-9.20	-1,567.84	1,199.88	1,149.06	50.82	23.611		
10,300.00	10,284.36	10,282.06	10,249.16	36.73	37.65	-90.44	-9.20	-1,567.84	1,199.88	1,148.56	51.31	23.383		
10,400.00	10,384.36	10,382.06	10,349.16	37.08	37.99	-90.44	-9.20	-1,567.84	1,199.88	1,148.07	51.81	23.160		
10,500.00	10,484.36	10,482.06	10,449.16	37.43	38.33	-90.44	-9.20	-1,567.84	1,199.88	1,147.57	52.31	22.940		
10,600.00	10,584.36	10,582.06	10,549.16	37.78	38.67	-90.44	-9.20	-1,567.84	1,199.88	1,147.07	52.80	22.724		
10,700.00	10,684.36	10,682.06	10,649.16	38.13	39.01	-90.44	-9.20	-1,567.84	1,199.88	1,146.58	53.30	22.513		
10,800.00	10,784.36	10,782.06	10,749.16	38.49	39.35	-90.44	-9.20	-1,567.84	1,199.88	1,146.08	53.79	22.305		
10,900.00	10,884.36	10,882.06	10,849.16	38.84	39.69	-90.44	-9.20	-1,567.84	1,199.88	1,145.58	54.29	22.101		
11,000.00	10,984.36	10,982.06	10,949.16	39.19	40.03	-90.44	-9.20	-1,567.84	1,199.88	1,145.09	54.79	21.900		
11,100.00	11,084.36	11,082.06	11,049.16	39.54	40.37	-90.44	-9.20	-1,567.84	1,199.88	1,144.59	55.29	21.703		
11,135.64	11,120.00	11,117.71	11,084.80	39.67	40.49	-90.44	-9.20	-1,567.84	1,199.88	1,144.41	55.46	21.634		
11,150.00	11,134.36	11,132.06	11,099.16	39.72	40.54	-89.88	-9.20	-1,567.84	1,199.87	1,144.34	55.53	21.606		
11,191.65	11,175.91	11,173.62	11,140.71	39.86	40.68	-90.00	-9.20	-1,567.84	1,199.87	1,144.13	55.74	21.526		
11,200.00	11,184.22	11,181.93	11,149.02	39.89	40.71	-90.04	-9.20	-1,567.84	1,199.87	1,144.09	55.78	21.510		
11,250.00	11,233.60	11,231.45	11,198.54	40.06	40.88	-90.40	-9.12	-1,567.84	1,199.90	1,143.88	56.03	21.417		
11,300.00	11,282.11	11,281.77	11,248.75	40.23	41.05	-90.83	-6.08	-1,567.87	1,200.00	1,143.73	56.27	21.327		
11,350.00	11,329.39	11,332.93	11,299.33	40.40	41.22	-91.25	1.52	-1,567.95	1,200.17	1,143.66	56.51	21.239		
11,400.00	11,375.08	11,384.96	11,349.86	40.55	41.39	-91.67	13.84	-1,568.07	1,200.40	1,143.66	56.74	21.156		
11,450.00	11,418.82	11,437.89	11,399.91	40.69	41.56	-92.08	31.03	-1,568.24	1,200.69	1,143.72	56.97	21.075		
11,500.00	11,460.29	11,491.74	11,448.97	40.83	41.72	-92.48	53.17	-1,568.46	1,201.03	1,143.83	57.20	20.998		
11,550.00	11,499.17	11,546.51	11,496.52	40.96	41.87	-92.86	80.31	-1,568.73	1,201.40	1,143.98	57.42	20.924		
11,600.00	11,535.17	11,602.20	11,541.98	41.08	42.01	-93.22	112.44	-1,569.05	1,201.81	1,144.17	57.63	20.852		
11,650.00	11,568.00	11,658.80	11,584.77	41.20	42.15	-93.55	149.44	-1,569.42	1,202.23	1,144.38	57.85	20.783		
11,700.00	11,597.43	11,716.25	11,624.26	41.32	42.27	-93.86	191.14	-1,569.83	1,202.65	1,144.59	58.06	20.714		
11,750.00	11,623.22	11,774.53	11,659.84	41.45	42.40	-94.14	237.26	-1,570.29	1,203.05	1,144.78	58.27	20.646		
11,800.00	11,645.18	11,833.54	11,690.91	41.59	42.52	-94.38	287.40	-1,570.79	1,203.42	1,144.94	58.48	20.577		
11,850.00	11,663.15	11,893.21	11,716.92	41.74	42.65	-94.59	341.07	-1,571.32	1,203.75	1,145.05	58.70	20.506		
11,900.00	11,676.98	11,953.43	11,737.37	41.90	42.79	-94.75	397.68	-1,571.89	1,204.02	1,145.09	58.93	20.433		
11,950.00	11,686.57	12,014.08	11,751.84	42.07	42.96	-94.87	456.55	-1,572.47	1,204.22	1,145.06	59.16	20.356		
12,000.00	11,691.85	12,075.03	11,760.04	42.24	43.14	-94.94	516.90	-1,573.07	1,204.35	1,144.95	59.40	20.275		
12,054.68	11,692.64	12,141.84	11,761.61	42.44	43.37	-94.96	583.66	-1,573.73	1,204.39	1,144.71	59.68	20.180		
12,100.00	11,691.14	12,187.09	11,760.07	42.62	43.54	-94.96	628.88	-1,574.18	1,204.38	1,144.46	59.93	20.098		
12,200.00	11,687.81	12,287.09	11,756.66	43.05	43.96	-94.96	728.81	-1,575.18	1,204.38	1,143.85	60.53	19.898		
12,300.00	11,684.49	12,387.09	11,753.25	43.54	44.44	-94.95	828.75	-1,576.17	1,204.37	1,143.16	61.21	19.677		
12,400.00	11,681.17	12,487.09	11,749.84	44.09	44.98	-94.95	928.69	-1,577.17	1,204.36	1,142.39	61.97	19.434		
12,500.00	11,677.85	12,587.09	11,746.43	44.69	45.58	-94.95	1,028.63	-1,578.16	1,204.35	1,141.54	62.81	19.175		
12,600.00	11,674.53	12,687.09	11,743.02	45.34	46.23	-94.94	1,128.56	-1,579.15	1,204.34	1,140.62	63.72	18.900		
12,700.00	11,671.21	12,787.09	11,739.61	46.05	46.92	-94.94	1,228.50	-1,580.15	1,204.34	1,139.63	64.71	18.612		
12,800.00	11,667.89	12,887.09	11,736.20	46.80	47.67	-94.93	1,328.44	-1,581.14	1,204.33	1,138.57	65.76	18.314		
12,900.00	11,664.56	12,987.09	11,732.79	47.59	48.46	-94.93	1,428.37	-1,582.13	1,204.32	1,137.44	66.88	18.008		
13,000.00	11,661.24	13,087.09	11,729.38	48.43	49.29	-94.93	1,528.31	-1,583.13	1,204.31	1,136.26	68.05	17.696		
13,100.00	11,657.92	13,187.09	11,725.97	49.31	50.16	-94.92	1,628.25	-1,584.12	1,204.30	1,135.01	69.29	17.380		
13,200.00	11,654.60	13,287.09	11,722.57	50.23	51.07	-94.92	1,728.18	-1,585.11	1,204.29	1,133.71	70.58	17.062		
13,300.00	11,651.28	13,387.09	11,719.16	51.18	52.02	-94.91	1,828.12	-1,586.11	1,204.29	1,132.36	71.93	16.743		
13,400.00	11,647.96	13,487.09	11,715.75	52.17	53.00	-94.91	1,928.06	-1,587.10	1,204.28	1,130.96	73.32	16.425		
13,500.00	11,644.63	13,587.09	11,712.34	53.20	54.01	-94.90	2,027.99	-1,588.09	1,204.27	1,129.51	74.76	16.108		
13,600.00	11,641.31	13,687.09	11,708.93	54.25	55.06	-94.90	2,127.93	-1,589.09	1,204.26	1,128.02	76.25	15.795		
13,700.00	11,637.99	13,787.09	11,705.52	55.33	56.13	-94.90	2,227.87	-1,590.08	1,204.25	1,126.48	77.77	15.485		
13,800.00	11,634.67	13,887.09	11,702.11	56.44	57.23	-94.89	2,327.80	-1,591.08	1,204.25	1,124.91	79.34	15.179		
13,900.00	11,631.35	13,987.09	11,698.70	57.58	58.36	-94.89	2,427.74	-1,592.07	1,204.24	1,123.30	80.94	14.879		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Western Fed Com 601H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,000.00	11,628.03	14,087.09	11,695.29	58.74	59.51	-94.88	2,527.68	-1,593.06	1,204.23	1,121.66	82.57	14.584		
14,100.00	11,624.70	14,187.09	11,691.88	59.92	60.69	-94.88	2,627.62	-1,594.06	1,204.22	1,119.98	84.24	14.295		
14,200.00	11,621.38	14,287.09	11,688.47	61.13	61.89	-94.88	2,727.55	-1,595.05	1,204.21	1,118.27	85.94	14.012		
14,300.00	11,618.06	14,387.09	11,685.06	62.36	63.10	-94.87	2,827.49	-1,596.04	1,204.21	1,116.53	87.67	13.735		
14,400.00	11,614.74	14,487.09	11,681.65	63.60	64.34	-94.87	2,927.43	-1,597.04	1,204.20	1,114.77	89.43	13.465		
14,500.00	11,611.42	14,587.09	11,678.24	64.86	65.59	-94.86	3,027.36	-1,598.03	1,204.19	1,112.98	91.21	13.202		
14,600.00	11,608.10	14,687.09	11,674.83	66.15	66.87	-94.86	3,127.30	-1,599.02	1,204.18	1,111.17	93.02	12.946		
14,700.00	11,604.77	14,787.09	11,671.42	67.44	68.15	-94.85	3,227.24	-1,600.02	1,204.17	1,109.33	94.84	12.696		
14,800.00	11,601.45	14,887.09	11,668.01	68.75	69.46	-94.85	3,327.17	-1,601.01	1,204.17	1,107.47	96.69	12.453		
14,900.00	11,598.13	14,987.09	11,664.60	70.08	70.78	-94.85	3,427.11	-1,602.01	1,204.16	1,105.59	98.56	12.217		
15,000.00	11,594.81	15,087.09	11,661.20	71.42	72.11	-94.84	3,527.05	-1,603.00	1,204.15	1,103.70	100.45	11.987		
15,100.00	11,591.49	15,187.09	11,657.79	72.77	73.45	-94.84	3,626.98	-1,603.99	1,204.14	1,101.78	102.36	11.764		
15,200.00	11,588.17	15,287.09	11,654.38	74.14	74.81	-94.83	3,726.92	-1,604.99	1,204.13	1,099.85	104.29	11.546		
15,300.00	11,584.84	15,387.09	11,650.97	75.52	76.18	-94.83	3,826.86	-1,605.98	1,204.13	1,097.90	106.23	11.335		
15,400.00	11,581.52	15,487.09	11,647.56	76.90	77.56	-94.83	3,926.79	-1,606.97	1,204.12	1,095.93	108.19	11.130		
15,500.00	11,578.20	15,587.09	11,644.15	78.30	78.95	-94.82	4,026.73	-1,607.97	1,204.11	1,093.95	110.16	10.931		
15,600.00	11,574.88	15,687.09	11,640.74	79.71	80.35	-94.82	4,126.67	-1,608.96	1,204.10	1,091.96	112.14	10.737		
15,700.00	11,571.56	15,787.09	11,637.33	81.12	81.76	-94.81	4,226.61	-1,609.95	1,204.09	1,089.95	114.14	10.549		
15,800.00	11,568.24	15,887.09	11,633.92	82.55	83.18	-94.81	4,326.54	-1,610.95	1,204.09	1,087.94	116.15	10.367		
15,900.00	11,564.91	15,987.09	11,630.51	83.98	84.60	-94.80	4,426.48	-1,611.94	1,204.08	1,085.91	118.17	10.189		
16,000.00	11,561.59	16,087.09	11,627.10	85.43	86.04	-94.80	4,526.42	-1,612.94	1,204.07	1,083.86	120.21	10.017		
16,100.00	11,558.27	16,187.09	11,623.69	86.87	87.48	-94.80	4,626.35	-1,613.93	1,204.06	1,081.81	122.25	9.849		
16,200.00	11,554.95	16,287.09	11,620.28	88.33	88.93	-94.79	4,726.29	-1,614.92	1,204.05	1,079.75	124.30	9.686		
16,300.00	11,551.63	16,387.09	11,616.87	89.79	90.39	-94.79	4,826.23	-1,615.92	1,204.05	1,077.68	126.37	9.528		
16,400.00	11,548.31	16,487.09	11,613.46	91.26	91.85	-94.78	4,926.16	-1,616.91	1,204.04	1,075.60	128.44	9.374		
16,500.00	11,544.98	16,587.09	11,610.05	92.74	93.32	-94.78	5,026.10	-1,617.90	1,204.03	1,073.51	130.52	9.225		
16,600.00	11,541.66	16,687.09	11,606.64	94.22	94.80	-94.78	5,126.04	-1,618.90	1,204.02	1,071.41	132.61	9.079		
16,700.00	11,538.34	16,787.09	11,603.23	95.71	96.28	-94.77	5,225.97	-1,619.89	1,204.02	1,069.30	134.71	8.938		
16,800.00	11,535.02	16,887.09	11,599.83	97.20	97.77	-94.77	5,325.91	-1,620.88	1,204.01	1,067.19	136.82	8.800		
16,900.00	11,531.70	16,987.09	11,596.42	98.70	99.26	-94.76	5,425.85	-1,621.88	1,204.00	1,065.07	138.93	8.666		
17,000.00	11,528.38	17,087.09	11,593.01	100.20	100.76	-94.76	5,525.79	-1,622.87	1,203.99	1,062.94	141.05	8.536		
17,100.00	11,525.05	17,187.09	11,589.60	101.71	102.26	-94.75	5,625.72	-1,623.87	1,203.98	1,060.81	143.17	8.409		
17,200.00	11,521.73	17,287.09	11,586.19	103.22	103.77	-94.75	5,725.66	-1,624.86	1,203.98	1,058.67	145.31	8.286		
17,300.00	11,518.41	17,387.09	11,582.78	104.74	105.28	-94.75	5,825.60	-1,625.85	1,203.97	1,056.53	147.44	8.166		
17,400.00	11,515.09	17,487.09	11,579.37	106.26	106.79	-94.74	5,925.53	-1,626.85	1,203.96	1,054.37	149.59	8.049		
17,500.00	11,511.77	17,587.09	11,575.96	107.78	108.31	-94.74	6,025.47	-1,627.84	1,203.95	1,052.22	151.74	7.935		
17,600.00	11,508.45	17,687.09	11,572.55	109.31	109.84	-94.73	6,125.41	-1,628.83	1,203.95	1,050.05	153.89	7.823		
17,700.00	11,505.13	17,787.09	11,569.14	110.84	111.36	-94.73	6,225.34	-1,629.83	1,203.94	1,047.89	156.05	7.715		
17,800.00	11,501.80	17,887.09	11,565.73	112.37	112.89	-94.73	6,325.28	-1,630.82	1,203.93	1,045.72	158.21	7.609		
17,900.00	11,498.48	17,987.09	11,562.32	113.91	114.43	-94.72	6,425.22	-1,631.81	1,203.92	1,043.54	160.38	7.507		
18,000.00	11,495.16	18,087.09	11,558.91	115.45	115.96	-94.72	6,525.15	-1,632.81	1,203.91	1,041.36	162.56	7.406		
18,100.00	11,491.84	18,187.09	11,555.50	117.00	117.50	-94.71	6,625.09	-1,633.80	1,203.91	1,039.17	164.73	7.308		
18,200.00	11,488.52	18,287.09	11,552.09	118.54	119.05	-94.71	6,725.03	-1,634.80	1,203.90	1,036.98	166.92	7.213		
18,300.00	11,485.20	18,387.09	11,548.68	120.09	120.59	-94.70	6,824.96	-1,635.79	1,203.89	1,034.79	169.10	7.119		
18,400.00	11,481.87	18,487.09	11,545.27	121.64	122.14	-94.70	6,924.90	-1,636.78	1,203.88	1,032.59	171.29	7.028		
18,500.00	11,478.55	18,587.09	11,541.87	123.20	123.69	-94.70	7,024.84	-1,637.78	1,203.88	1,030.39	173.49	6.939		
18,600.00	11,475.23	18,687.09	11,538.46	124.76	125.25	-94.69	7,124.78	-1,638.77	1,203.87	1,028.19	175.68	6.853		
18,700.00	11,471.91	18,787.09	11,535.05	126.32	126.80	-94.69	7,224.71	-1,639.76	1,203.86	1,025.98	177.88	6.768		
18,800.00	11,468.59	18,887.09	11,531.64	127.88	128.36	-94.68	7,324.65	-1,640.76	1,203.85	1,023.77	180.09	6.685		
18,900.00	11,465.27	18,987.09	11,528.23	129.44	129.92	-94.68	7,424.59	-1,641.75	1,203.84	1,021.55	182.29	6.604		
19,000.00	11,461.94	19,087.09	11,524.82	131.01	131.49	-94.68	7,524.52	-1,642.74	1,203.84	1,019.33	184.50	6.525		
19,100.00	11,458.62	19,187.09	11,521.41	132.58	133.05	-94.67	7,624.46	-1,643.74	1,203.83	1,017.11	186.72	6.447		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Western/Bidder 49/KC7 - Western Fed Com 601H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
19,200.00	11,455.30	19,287.09	11,518.00	134.15	134.62	-94.67	7,724.40	-1,644.73	1,203.82	1,014.89	188.93	6.372				
19,300.00	11,451.98	19,387.09	11,514.59	135.72	136.19	-94.66	7,824.33	-1,645.73	1,203.81	1,012.67	191.15	6.298				
19,400.00	11,448.66	19,487.09	11,511.18	137.30	137.76	-94.66	7,924.27	-1,646.72	1,203.81	1,010.44	193.37	6.225				
19,500.00	11,445.34	19,587.09	11,507.77	138.87	139.34	-94.65	8,024.21	-1,647.71	1,203.80	1,008.21	195.59	6.155				
19,600.00	11,442.01	19,687.09	11,504.36	140.45	140.91	-94.65	8,124.14	-1,648.71	1,203.79	1,005.97	197.82	6.085				
19,700.00	11,438.69	19,787.09	11,500.95	142.03	142.49	-94.65	8,224.08	-1,649.70	1,203.78	1,003.74	200.05	6.018				
19,800.00	11,435.37	19,887.09	11,497.54	143.61	144.07	-94.64	8,324.02	-1,650.69	1,203.77	1,001.50	202.28	5.951				
19,900.00	11,432.05	19,987.09	11,494.13	145.20	145.65	-94.64	8,423.95	-1,651.69	1,203.77	999.26	204.51	5.886				
20,000.00	11,428.73	20,087.09	11,490.72	146.78	147.23	-94.63	8,523.89	-1,652.68	1,203.76	997.02	206.74	5.822				
20,100.00	11,425.41	20,187.09	11,487.31	148.37	148.81	-94.63	8,623.83	-1,653.67	1,203.75	994.77	208.98	5.760				
20,200.00	11,422.08	20,287.09	11,483.90	149.96	150.40	-94.63	8,723.77	-1,654.67	1,203.74	992.52	211.22	5.699				
20,300.00	11,418.76	20,387.09	11,480.50	151.55	151.98	-94.62	8,823.70	-1,655.66	1,203.74	990.28	213.46	5.639				
20,400.00	11,415.44	20,487.09	11,477.09	153.14	153.57	-94.62	8,923.64	-1,656.65	1,203.73	988.03	215.70	5.580				
20,500.00	11,412.12	20,587.09	11,473.68	154.73	155.16	-94.61	9,023.58	-1,657.65	1,203.72	985.77	217.95	5.523				
20,600.00	11,408.80	20,687.09	11,470.27	156.32	156.75	-94.61	9,123.51	-1,658.64	1,203.71	983.52	220.20	5.467				
20,700.00	11,405.48	20,787.09	11,466.86	157.91	158.34	-94.60	9,223.45	-1,659.64	1,203.71	981.26	222.44	5.411				
20,800.00	11,402.15	20,887.09	11,463.45	159.51	159.94	-94.60	9,323.39	-1,660.63	1,203.70	979.01	224.69	5.357				
20,900.00	11,398.83	20,987.09	11,460.04	161.11	161.53	-94.60	9,423.32	-1,661.62	1,203.69	976.75	226.94	5.304				
21,000.00	11,395.51	21,087.08	11,456.63	162.70	163.13	-94.59	9,523.26	-1,662.62	1,203.68	974.49	229.20	5.252				
21,100.00	11,392.19	21,187.08	11,453.22	164.30	164.72	-94.59	9,623.20	-1,663.61	1,203.68	972.22	231.45	5.201				
21,200.00	11,388.87	21,287.08	11,449.81	165.90	166.32	-94.58	9,723.13	-1,664.60	1,203.67	969.96	233.71	5.150				
21,300.00	11,385.55	21,387.08	11,446.40	167.50	167.92	-94.58	9,823.07	-1,665.60	1,203.66	967.70	235.96	5.101				
21,400.00	11,382.22	21,487.08	11,442.99	169.10	169.52	-94.58	9,923.01	-1,666.59	1,203.65	965.43	238.22	5.053				
21,500.00	11,378.90	21,587.08	11,439.58	170.71	171.12	-94.57	10,022.94	-1,667.58	1,203.65	963.16	240.48	5.005				
21,600.00	11,375.58	21,687.08	11,436.17	172.31	172.72	-94.57	10,122.88	-1,668.58	1,203.64	960.89	242.75	4.958				
21,700.00	11,372.26	21,787.08	11,432.76	173.92	174.32	-94.56	10,222.82	-1,669.57	1,203.63	958.62	245.01	4.913				
21,800.00	11,368.94	21,887.08	11,429.35	175.52	175.93	-94.56	10,322.76	-1,670.57	1,203.62	956.35	247.27	4.868				
21,900.00	11,365.62	21,987.08	11,425.94	177.13	177.53	-94.55	10,422.69	-1,671.56	1,203.62	954.08	249.54	4.823				
22,000.00	11,362.30	22,087.08	11,422.54	178.73	179.14	-94.55	10,522.63	-1,672.55	1,203.61	951.80	251.80	4.780				
22,100.00	11,358.97	22,187.08	11,419.13	180.34	180.74	-94.55	10,622.57	-1,673.55	1,203.60	949.53	254.07	4.737				
22,131.11	11,357.94	22,218.19	11,418.07	180.84	181.22	-94.55	10,653.65	-1,673.86	1,203.60	948.85	254.75	4.725 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Western Fed Com 702H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-90.57	-8.86	-890.85	891.57					
100.00	100.00	65.40	65.40	0.13	0.08	-90.57	-8.86	-890.85	890.89	890.74	0.15	5,942.672		
200.00	200.00	165.40	165.40	0.48	0.36	-90.57	-8.86	-890.85	890.89	890.29	0.60	1,477.197		
300.00	300.00	265.40	265.40	0.84	0.72	-90.57	-8.86	-890.85	890.89	889.79	1.11	804.694		
400.00	400.00	365.40	365.40	1.20	1.08	-90.57	-8.86	-890.85	890.89	889.28	1.61	552.327		
500.00	500.00	465.40	465.40	1.56	1.44	-90.57	-8.86	-890.85	890.89	888.77	2.12	420.358		
600.00	600.00	565.40	565.40	1.92	1.79	-90.57	-8.86	-890.85	890.89	888.27	2.63	339.262		
700.00	700.00	665.40	665.40	2.28	2.15	-90.57	-8.86	-890.85	890.89	887.76	3.13	284.386		
800.00	800.00	765.40	765.40	2.63	2.51	-90.57	-8.86	-890.85	890.89	887.25	3.64	244.786		
900.00	900.00	865.40	865.40	2.99	2.87	-90.57	-8.86	-890.85	890.89	886.75	4.15	214.865		
1,000.00	1,000.00	965.40	965.40	3.35	3.23	-90.57	-8.86	-890.85	890.89	886.24	4.65	191.460		
1,100.00	1,100.00	1,065.40	1,065.40	3.71	3.59	-90.57	-8.86	-890.85	890.89	885.73	5.16	172.653		
1,200.00	1,200.00	1,165.40	1,165.40	4.07	3.94	-90.57	-8.86	-890.85	890.89	885.23	5.67	157.210		
1,300.00	1,300.00	1,265.40	1,265.40	4.43	4.30	-90.57	-8.86	-890.85	890.89	884.72	6.17	144.302		
1,400.00	1,400.00	1,365.40	1,365.40	4.79	4.66	-90.57	-8.86	-890.85	890.89	884.21	6.68	133.353		
1,500.00	1,500.00	1,465.40	1,465.40	5.14	5.02	-90.57	-8.86	-890.85	890.89	883.71	7.19	123.948		
1,600.00	1,600.00	1,565.40	1,565.40	5.50	5.38	-90.57	-8.86	-890.85	890.89	883.20	7.69	115.782		
1,700.00	1,700.00	1,665.40	1,665.40	5.86	5.74	-90.57	-8.86	-890.85	890.89	882.69	8.20	108.626		
1,800.00	1,800.00	1,765.40	1,765.40	6.22	6.10	-90.57	-8.86	-890.85	890.89	882.19	8.71	102.303		
1,900.00	1,900.00	1,865.40	1,865.40	6.58	6.45	-90.57	-8.86	-890.85	890.89	881.68	9.22	96.675		
2,000.00	2,000.00	1,965.40	1,965.40	6.94	6.81	-90.57	-8.86	-890.85	890.89	881.17	9.72	91.634		
2,100.00	2,100.00	2,065.40	2,065.40	7.29	7.17	-90.57	-8.86	-890.85	890.89	880.66	10.23	87.093		
2,200.00	2,200.00	2,165.40	2,165.40	7.65	7.53	-90.57	-8.86	-890.85	890.89	880.16	10.74	82.981		
2,300.00	2,300.00	2,265.40	2,265.40	8.01	7.89	-90.57	-8.86	-890.85	890.89	879.65	11.24	79.239		
2,400.00	2,400.00	2,365.40	2,365.40	8.37	8.25	-90.57	-8.86	-890.85	890.89	879.14	11.75	75.821		
2,500.00	2,500.00	2,465.40	2,465.40	8.73	8.60	-90.57	-8.86	-890.85	890.89	878.64	12.26	72.685		
2,600.00	2,600.00	2,565.40	2,565.40	9.09	8.96	-90.57	-8.86	-890.85	890.89	878.13	12.76	69.798		
2,700.00	2,700.00	2,665.40	2,665.40	9.45	9.32	-90.57	-8.86	-890.85	890.89	877.62	13.27	67.132		
2,800.00	2,800.00	2,765.40	2,765.40	9.80	9.68	-90.57	-8.86	-890.85	890.89	877.12	13.78	64.662		
2,900.00	2,900.00	2,865.40	2,865.40	10.16	10.04	-90.57	-8.86	-890.85	890.89	876.61	14.28	62.367		
3,000.00	3,000.00	2,965.40	2,965.40	10.52	10.40	-90.57	-8.86	-890.85	890.89	876.10	14.79	60.229		
3,100.00	3,100.00	3,065.40	3,065.40	10.88	10.76	-90.57	-8.86	-890.85	890.89	875.60	15.30	58.234		
3,200.00	3,200.00	3,165.40	3,165.40	11.24	11.11	-90.57	-8.86	-890.85	890.89	875.09	15.81	56.366		
3,300.00	3,299.99	3,265.39	3,265.39	11.59	11.47	-0.57	-8.86	-890.85	889.59	873.28	16.31	54.556		
3,400.00	3,399.91	3,365.31	3,365.31	11.93	11.83	-0.57	-8.86	-890.85	885.66	868.86	16.80	52.717		
3,500.00	3,499.69	3,465.09	3,465.09	12.27	12.19	-0.58	-8.86	-890.85	879.12	861.83	17.29	50.832		
3,533.32	3,532.89	3,498.29	3,498.29	12.39	12.31	-0.58	-8.86	-890.85	876.36	858.90	17.46	50.194		
3,600.00	3,599.32	3,564.72	3,564.72	12.62	12.55	-0.59	-8.86	-890.85	870.55	852.76	17.79	48.938		
3,700.00	3,698.94	3,664.34	3,664.34	12.97	12.90	-0.59	-8.86	-890.85	861.84	843.55	18.28	47.138		
3,800.00	3,798.56	3,763.96	3,763.96	13.32	13.26	-0.60	-8.86	-890.85	853.12	834.34	18.78	45.431		
3,900.00	3,898.18	3,863.58	3,863.58	13.67	13.62	-0.60	-8.86	-890.85	844.41	825.13	19.27	43.810		
4,000.00	3,997.80	3,963.20	3,963.20	14.03	13.97	-0.61	-8.86	-890.85	835.69	815.92	19.77	42.269		
4,100.00	4,097.42	4,062.82	4,062.82	14.39	14.33	-0.62	-8.86	-890.85	826.98	806.71	20.27	40.802		
4,200.00	4,197.04	4,162.44	4,162.44	14.74	14.69	-0.62	-8.86	-890.85	818.26	797.50	20.77	39.404		
4,300.00	4,296.66	4,262.06	4,262.06	15.10	15.05	-0.63	-8.86	-890.85	809.55	788.28	21.26	38.071		
4,400.00	4,396.28	4,361.68	4,361.68	15.46	15.40	-0.64	-8.86	-890.85	800.83	779.07	21.76	36.798		
4,500.00	4,495.90	4,461.30	4,461.30	15.82	15.76	-0.64	-8.86	-890.85	792.12	769.86	22.26	35.581		
4,600.00	4,495.52	4,560.92	4,560.92	16.19	16.12	-0.65	-8.86	-890.85	783.40	760.64	22.76	34.417		
4,700.00	4,495.14	4,660.54	4,660.54	16.55	16.47	-0.66	-8.86	-890.85	774.69	751.43	23.26	33.303		
4,800.00	4,794.76	4,760.16	4,760.16	16.91	16.83	-0.67	-8.86	-890.85	765.97	742.21	23.76	32.235		
4,900.00	4,894.38	4,859.78	4,859.78	17.28	17.19	-0.67	-8.86	-890.85	757.26	733.00	24.26	31.210		
5,000.00	4,994.00	4,959.40	4,959.40	17.64	17.55	-0.68	-8.86	-890.85	748.55	723.78	24.76	30.227		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Western/Bidder 49/KC7 - Western Fed Com 702H - OH - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
5,100.00	5,093.62	5,059.02	5,059.02	18.01	17.90	-0.69	-8.86	-890.85	739.83	714.56	25.27	29.282				
5,200.00	5,193.24	5,158.64	5,158.64	18.38	18.26	-0.70	-8.86	-890.85	731.12	705.35	25.77	28.374				
5,300.00	5,292.86	5,258.26	5,258.26	18.75	18.62	-0.71	-8.86	-890.85	722.40	696.13	26.27	27.500				
5,400.00	5,392.47	5,357.87	5,357.87	19.12	18.97	-0.71	-8.86	-890.85	713.69	686.92	26.77	26.658				
5,500.00	5,492.09	5,457.49	5,457.49	19.49	19.33	-0.72	-8.86	-890.85	704.97	677.70	27.27	25.847				
5,600.00	5,591.71	5,557.11	5,557.11	19.86	19.69	-0.73	-8.86	-890.85	696.26	668.48	27.78	25.066				
5,700.00	5,691.33	5,656.73	5,656.73	20.23	20.04	-0.74	-8.86	-890.85	687.54	659.26	28.28	24.312				
5,800.00	5,790.95	5,756.35	5,756.35	20.60	20.40	-0.75	-8.86	-890.85	678.83	650.05	28.78	23.584				
5,900.00	5,890.57	5,855.97	5,855.97	20.97	20.76	-0.76	-8.86	-890.85	670.12	640.83	29.29	22.881				
6,000.00	5,990.19	5,955.59	5,955.59	21.34	21.12	-0.77	-8.86	-890.85	661.40	631.61	29.79	22.202				
6,100.00	6,089.81	6,055.21	6,055.21	21.71	21.47	-0.78	-8.86	-890.85	652.69	622.39	30.29	21.545				
6,200.00	6,189.43	6,154.83	6,154.83	22.09	21.83	-0.79	-8.86	-890.85	643.97	613.17	30.80	20.909				
6,300.00	6,289.05	6,254.45	6,254.45	22.46	22.19	-0.80	-8.86	-890.85	635.26	603.96	31.30	20.294				
6,400.00	6,388.67	6,354.07	6,354.07	22.83	22.54	-0.81	-8.86	-890.85	626.54	594.74	31.81	19.698				
6,500.00	6,488.29	6,453.69	6,453.69	23.21	22.90	-0.82	-8.86	-890.85	617.83	585.52	32.31	19.121				
6,600.00	6,587.91	6,553.31	6,553.31	23.58	23.26	-0.84	-8.86	-890.85	609.12	576.30	32.82	18.561				
6,700.00	6,687.53	6,652.93	6,652.93	23.96	23.62	-0.85	-8.86	-890.85	600.40	567.08	33.32	18.019				
6,800.00	6,787.15	6,752.55	6,752.55	24.33	23.97	-0.86	-8.86	-890.85	591.69	557.86	33.83	17.492				
6,900.00	6,886.77	6,852.17	6,852.17	24.71	24.33	-0.87	-8.86	-890.85	582.97	548.64	34.33	16.981				
7,000.00	6,986.39	6,951.79	6,951.79	25.08	24.69	-0.89	-8.86	-890.85	574.26	539.42	34.84	16.485				
7,100.00	7,086.01	7,051.41	7,051.41	25.46	25.04	-0.90	-8.86	-890.85	565.54	530.20	35.34	16.002				
7,200.00	7,185.63	7,151.03	7,151.03	25.83	25.40	-0.92	-8.86	-890.85	556.83	520.98	35.85	15.534				
7,300.00	7,285.25	7,250.65	7,250.65	26.21	25.76	-0.93	-8.86	-890.85	548.12	511.76	36.35	15.078				
7,400.00	7,384.86	7,350.26	7,350.26	26.59	26.12	-0.94	-8.86	-890.85	539.40	502.54	36.86	14.635				
7,422.33	7,407.11	7,372.51	7,372.51	26.67	26.20	-0.95	-8.86	-890.85	537.46	500.49	36.97	14.537				
7,500.00	7,484.55	7,449.95	7,449.95	26.96	26.47	-0.96	-8.86	-890.85	531.48	494.11	37.36	14.225				
7,600.00	7,584.40	7,549.80	7,549.80	27.33	26.83	-0.97	-8.86	-890.85	526.10	488.23	37.87	13.893				
7,700.00	7,684.36	7,649.76	7,649.76	27.68	27.19	-0.97	-8.86	-890.85	523.33	484.96	38.37	13.638				
7,755.64	7,740.00	7,705.40	7,705.40	27.88	27.39	-0.97	-8.86	-890.85	522.93	484.27	38.65	13.529				
7,800.00	7,784.36	7,749.76	7,749.76	28.03	27.55	-0.97	-8.86	-890.85	522.93	484.05	38.87	13.452				
7,900.00	7,884.36	7,849.76	7,849.76	28.37	27.91	-0.97	-8.86	-890.85	522.93	483.55	39.38	13.280				
8,000.00	7,984.36	7,949.76	7,949.76	28.72	28.26	-0.97	-8.86	-890.85	522.93	483.05	39.88	13.113				
8,100.00	8,084.36	8,049.76	8,049.76	29.07	28.62	-0.97	-8.86	-890.85	522.93	482.55	40.38	12.951				
8,200.00	8,184.36	8,149.76	8,149.76	29.41	28.98	-0.97	-8.86	-890.85	522.93	482.04	40.88	12.792				
8,300.00	8,284.36	8,249.76	8,249.76	29.76	29.34	-0.97	-8.86	-890.85	522.93	481.54	41.38	12.637				
8,400.00	8,384.36	8,349.76	8,349.76	30.10	29.70	-0.97	-8.86	-890.85	522.93	481.04	41.88	12.485				
8,500.00	8,484.36	8,449.76	8,449.76	30.45	30.06	-0.97	-8.86	-890.85	522.93	480.54	42.39	12.337				
8,600.00	8,584.36	8,549.76	8,549.76	30.80	30.42	-0.97	-8.86	-890.85	522.93	480.04	42.89	12.193				
8,700.00	8,684.36	8,649.76	8,649.76	31.15	30.77	-0.97	-8.86	-890.85	522.93	479.54	43.39	12.052				
8,800.00	8,784.36	8,749.76	8,749.76	31.49	31.13	-0.97	-8.86	-890.85	522.93	479.03	43.89	11.914				
8,900.00	8,884.36	8,849.76	8,849.76	31.84	31.49	-0.97	-8.86	-890.85	522.93	478.53	44.39	11.779				
9,000.00	8,984.36	8,949.76	8,949.76	32.19	31.85	-0.97	-8.86	-890.85	522.93	478.03	44.90	11.647				
9,100.00	9,084.36	9,049.76	9,049.76	32.54	32.21	-0.97	-8.86	-890.85	522.93	477.53	45.40	11.518				
9,200.00	9,184.36	9,149.76	9,149.76	32.89	32.57	-0.97	-8.86	-890.85	522.93	477.02	45.90	11.392				
9,300.00	9,284.36	9,249.76	9,249.76	33.23	32.92	-0.97	-8.86	-890.85	522.93	476.52	46.41	11.269				
9,400.00	9,384.36	9,349.76	9,349.76	33.58	33.28	-0.97	-8.86	-890.85	522.93	476.02	46.91	11.148				
9,500.00	9,484.36	9,449.76	9,449.76	33.93	33.64	-0.97	-8.86	-890.85	522.93	475.51	47.41	11.030				
9,600.00	9,584.36	9,549.76	9,549.76	34.28	34.00	-0.97	-8.86	-890.85	522.93	475.01	47.91	10.914				
9,700.00	9,684.36	9,649.76	9,649.76	34.63	34.36	-0.97	-8.86	-890.85	522.93	474.51	48.42	10.800				
9,800.00	9,784.36	9,749.76	9,749.76	34.98	34.72	-0.97	-8.86	-890.85	522.93	474.00	48.92	10.689				
9,900.00	9,884.36	9,849.76	9,849.76	35.33	35.08	-0.97	-8.86	-890.85	522.93	473.50	49.42	10.580				
10,000.00	9,984.36	9,949.76	9,949.76	35.68	35.43	-0.97	-8.86	-890.85	522.93	473.00	49.93	10.474				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Western Fed Com 702H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,100.00	10,084.36	10,049.76	10,049.76	36.03	35.79	-90.97	-8.86	-890.85	522.93	472.49	50.43	10.369		
10,200.00	10,184.36	10,149.76	10,149.76	36.38	36.15	-90.97	-8.86	-890.85	522.93	471.99	50.93	10.267		
10,300.00	10,284.36	10,249.76	10,249.76	36.73	36.51	-90.97	-8.86	-890.85	522.93	471.49	51.44	10.166		
10,400.00	10,384.36	10,349.76	10,349.76	37.08	36.87	-90.97	-8.86	-890.85	522.93	470.98	51.94	10.068		
10,500.00	10,484.36	10,449.76	10,449.76	37.43	37.23	-90.97	-8.86	-890.85	522.93	470.48	52.44	9.971		
10,600.00	10,584.36	10,549.76	10,549.76	37.78	37.58	-90.97	-8.86	-890.85	522.93	469.98	52.95	9.876		
10,700.00	10,684.36	10,649.76	10,649.76	38.13	37.94	-90.97	-8.86	-890.85	522.93	469.47	53.45	9.783		
10,800.00	10,784.36	10,749.76	10,749.76	38.49	38.30	-90.97	-8.86	-890.85	522.93	468.97	53.96	9.692		
10,900.00	10,884.36	10,849.76	10,849.76	38.84	38.66	-90.97	-8.86	-890.85	522.93	468.46	54.46	9.602		
11,000.00	10,984.36	10,949.76	10,949.76	39.19	39.02	-90.97	-8.86	-890.85	522.93	467.96	54.96	9.514		
11,100.00	11,084.36	11,049.76	11,049.76	39.54	39.38	-90.97	-8.86	-890.85	522.93	467.46	55.47	9.427		
11,135.64	11,120.00	11,085.40	11,085.40	39.67	39.50	-90.97	-8.86	-890.85	522.93	467.28	55.65	9.397	CC	
11,150.00	11,134.36	11,099.76	11,099.76	39.72	39.56	-90.42	-8.86	-890.85	522.93	467.21	55.72	9.385		
11,200.00	11,184.22	11,149.62	11,149.62	39.89	39.74	-90.79	-8.86	-890.85	522.96	466.99	55.97	9.343		
11,250.00	11,233.60	11,199.00	11,199.00	40.06	39.91	-91.61	-8.86	-890.85	523.13	466.91	56.22	9.305		
11,300.00	11,282.11	11,247.51	11,247.51	40.23	40.09	-92.84	-8.86	-890.85	523.61	467.15	56.46	9.273		
11,350.00	11,329.39	11,294.79	11,294.79	40.40	40.26	-94.41	-8.86	-890.85	524.70	468.00	56.71	9.253		
11,400.00	11,375.08	11,343.99	11,343.98	40.55	40.43	-96.29	-7.97	-890.86	526.67	469.72	56.95	9.248		
11,450.00	11,418.82	11,396.65	11,396.35	40.69	40.62	-98.26	-2.62	-890.91	529.37	472.19	57.18	9.258		
11,500.00	11,460.29	11,451.60	11,450.22	40.83	40.81	-100.19	8.06	-891.02	532.72	475.33	57.39	9.283		
11,550.00	11,499.17	11,509.08	11,505.21	40.96	41.00	-102.09	24.70	-891.19	536.63	479.08	57.56	9.323		
11,600.00	11,535.17	11,569.32	11,560.76	41.08	41.20	-103.93	47.95	-891.42	540.99	483.33	57.66	9.382		
11,650.00	11,568.00	11,632.54	11,616.08	41.20	41.40	-105.70	78.49	-891.73	545.65	487.96	57.68	9.460		
11,700.00	11,597.43	11,698.93	11,670.18	41.32	41.61	-107.37	116.89	-892.11	550.41	492.80	57.61	9.554		
11,750.00	11,623.22	11,768.57	11,721.76	41.45	41.82	-108.91	163.62	-892.58	555.09	497.65	57.44	9.664		
11,800.00	11,645.18	11,841.45	11,769.25	41.59	42.05	-110.29	218.83	-893.14	559.47	502.27	57.19	9.782		
11,850.00	11,663.15	11,917.40	11,810.87	41.74	42.28	-111.47	282.29	-893.77	563.32	506.40	56.92	9.897		
11,900.00	11,676.98	11,996.05	11,844.74	41.90	42.52	-112.40	353.21	-894.49	566.44	509.77	56.66	9.997		
11,950.00	11,686.57	12,076.85	11,869.09	42.07	42.78	-113.05	430.17	-895.26	568.64	512.13	56.51	10.063		
12,000.00	11,691.85	12,159.03	11,882.51	42.24	43.04	-113.38	511.17	-896.07	569.80	513.28	56.52	10.082		
12,054.68	11,692.64	12,242.26	11,884.26	42.44	43.32	-113.40	594.32	-896.91	569.85	513.10	56.75	10.041		
12,100.00	11,691.14	12,287.59	11,882.74	42.62	43.49	-113.40	639.62	-897.36	569.85	512.88	56.97	10.003		
12,200.00	11,687.81	12,387.59	11,879.38	43.05	43.90	-113.40	739.55	-898.37	569.84	512.34	57.50	9.911		
12,300.00	11,684.49	12,487.59	11,876.01	43.54	44.37	-113.39	839.49	-899.37	569.83	511.73	58.10	9.807		
12,400.00	11,681.17	12,587.59	11,872.65	44.09	44.90	-113.39	939.43	-900.37	569.82	511.04	58.78	9.694		
12,500.00	11,677.85	12,687.59	11,869.28	44.69	45.48	-113.38	1,039.37	-901.38	569.82	510.28	59.53	9.571		
12,600.00	11,674.53	12,787.59	11,865.92	45.34	46.11	-113.38	1,139.31	-902.38	569.81	509.45	60.35	9.441		
12,700.00	11,671.21	12,887.59	11,862.56	46.05	46.79	-113.38	1,239.25	-903.38	569.80	508.56	61.24	9.304		
12,800.00	11,667.89	12,987.59	11,859.19	46.80	47.52	-113.37	1,339.18	-904.39	569.79	507.60	62.19	9.162		
12,900.00	11,664.56	13,087.59	11,855.83	47.59	48.30	-113.37	1,439.12	-905.39	569.78	506.58	63.20	9.016		
13,000.00	11,661.24	13,187.59	11,852.47	48.43	49.12	-113.36	1,539.06	-906.40	569.78	505.51	64.27	8.866		
13,100.00	11,657.92	13,287.59	11,849.10	49.31	49.98	-113.36	1,639.00	-907.40	569.77	504.38	65.39	8.714		
13,200.00	11,654.60	13,387.59	11,845.74	50.23	50.88	-113.35	1,738.94	-908.40	569.76	503.20	66.56	8.560		
13,300.00	11,651.28	13,487.59	11,842.37	51.18	51.81	-113.35	1,838.88	-909.41	569.75	501.97	67.78	8.406		
13,400.00	11,647.96	13,587.59	11,839.01	52.17	52.78	-113.35	1,938.81	-910.41	569.74	500.70	69.05	8.252		
13,500.00	11,644.63	13,687.59	11,835.65	53.20	53.79	-113.34	2,038.75	-911.41	569.73	499.38	70.36	8.098		
13,600.00	11,641.31	13,787.59	11,832.28	54.25	54.82	-113.34	2,138.69	-912.42	569.73	498.02	71.71	7.945		
13,700.00	11,637.99	13,887.59	11,828.92	55.33	55.89	-113.33	2,238.63	-913.42	569.72	496.62	73.10	7.794		
13,800.00	11,634.67	13,987.59	11,825.56	56.44	56.98	-113.33	2,338.57	-914.42	569.71	495.19	74.53	7.645		
13,900.00	11,631.35	14,087.59	11,822.19	57.58	58.10	-113.32	2,438.51	-915.43	569.70	493.72	75.99	7.498		
14,000.00	11,628.03	14,187.59	11,818.83	58.74	59.25	-113.32	2,538.44	-916.43	569.69	492.22	77.48	7.353		
14,100.00	11,624.70	14,287.59	11,815.46	59.92	60.42	-113.32	2,638.38	-917.44	569.69	490.68	79.00	7.211		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Western/Bidder 49/KC7 - Western Fed Com 702H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,200.00	11,621.38	14,387.59	11,812.10	61.13	61.61	-113.31	2,738.32	-918.44	569.68	489.12	80.56	7.072		
14,300.00	11,618.06	14,487.59	11,808.74	62.36	62.82	-113.31	2,838.26	-919.44	569.67	487.54	82.13	6.936		
14,400.00	11,614.74	14,587.59	11,805.37	63.60	64.05	-113.30	2,938.20	-920.45	569.66	485.92	83.74	6.803		
14,500.00	11,611.42	14,687.59	11,802.01	64.86	65.30	-113.30	3,038.14	-921.45	569.65	484.29	85.37	6.673		
14,600.00	11,608.10	14,787.59	11,798.65	66.15	66.57	-113.29	3,138.07	-922.45	569.65	482.63	87.02	6.546		
14,700.00	11,604.77	14,887.59	11,795.28	67.44	67.85	-113.29	3,238.01	-923.46	569.64	480.95	88.69	6.423		
14,800.00	11,601.45	14,987.59	11,791.92	68.75	69.15	-113.29	3,337.95	-924.46	569.63	479.25	90.38	6.303		
14,900.00	11,598.13	15,087.59	11,788.55	70.08	70.47	-113.28	3,437.89	-925.46	569.62	477.53	92.09	6.185		
15,000.00	11,594.81	15,187.59	11,785.19	71.42	71.80	-113.28	3,537.83	-926.47	569.61	475.80	93.82	6.071		
15,100.00	11,591.49	15,287.59	11,781.83	72.77	73.14	-113.27	3,637.77	-927.47	569.61	474.04	95.56	5.961		
15,200.00	11,588.17	15,387.59	11,778.46	74.14	74.49	-113.27	3,737.71	-928.48	569.60	472.28	97.32	5.853		
15,300.00	11,584.84	15,487.59	11,775.10	75.52	75.86	-113.27	3,837.64	-929.48	569.59	470.49	99.10	5.748		
15,400.00	11,581.52	15,587.59	11,771.73	76.90	77.23	-113.26	3,937.58	-930.48	569.58	468.70	100.89	5.646		
15,500.00	11,578.20	15,687.59	11,768.37	78.30	78.62	-113.26	4,037.52	-931.49	569.57	466.89	102.69	5.547		
15,600.00	11,574.88	15,787.59	11,765.01	79.71	80.02	-113.25	4,137.46	-932.49	569.57	465.07	104.50	5.450		
15,700.00	11,571.56	15,887.59	11,761.64	81.12	81.43	-113.25	4,237.40	-933.49	569.56	463.23	106.33	5.357		
15,800.00	11,568.24	15,987.59	11,758.28	82.55	82.84	-113.24	4,337.34	-934.50	569.55	461.39	108.16	5.266		
15,900.00	11,564.91	16,087.59	11,754.92	83.98	84.27	-113.24	4,437.27	-935.50	569.54	459.53	110.01	5.177		
16,000.00	11,561.59	16,187.59	11,751.55	85.43	85.70	-113.24	4,537.21	-936.50	569.53	457.67	111.86	5.091		
16,100.00	11,558.27	16,287.59	11,748.19	86.87	87.14	-113.23	4,637.15	-937.51	569.53	455.80	113.73	5.008		
16,200.00	11,554.95	16,387.59	11,744.82	88.33	88.59	-113.23	4,737.09	-938.51	569.52	453.92	115.60	4.927		
16,300.00	11,551.63	16,487.59	11,741.46	89.79	90.05	-113.22	4,837.03	-939.52	569.51	452.03	117.48	4.848		
16,400.00	11,548.31	16,587.59	11,738.10	91.26	91.51	-113.22	4,936.97	-940.52	569.50	450.13	119.37	4.771		
16,500.00	11,544.98	16,687.59	11,734.73	92.74	92.98	-113.21	5,036.90	-941.52	569.49	448.22	121.27	4.696		
16,600.00	11,541.66	16,787.59	11,731.37	94.22	94.45	-113.21	5,136.84	-942.53	569.49	446.31	123.17	4.623		
16,700.00	11,538.34	16,887.59	11,728.01	95.71	95.93	-113.21	5,236.78	-943.53	569.48	444.39	125.08	4.553		
16,800.00	11,535.02	16,987.59	11,724.64	97.20	97.42	-113.20	5,336.72	-944.53	569.47	442.47	127.00	4.484		
16,900.00	11,531.70	17,087.59	11,721.28	98.70	98.91	-113.20	5,436.66	-945.54	569.46	440.54	128.92	4.417		
17,000.00	11,528.38	17,187.59	11,717.91	100.20	100.41	-113.19	5,536.60	-946.54	569.46	438.61	130.85	4.352		
17,100.00	11,525.05	17,287.59	11,714.55	101.71	101.91	-113.19	5,636.53	-947.54	569.45	436.66	132.78	4.289		
17,200.00	11,521.73	17,387.59	11,711.19	103.22	103.41	-113.18	5,736.47	-948.55	569.44	434.72	134.72	4.227		
17,300.00	11,518.41	17,487.59	11,707.82	104.74	104.92	-113.18	5,836.41	-949.55	569.43	432.77	136.66	4.167		
17,400.00	11,515.09	17,587.59	11,704.46	106.26	106.44	-113.18	5,936.35	-950.56	569.42	430.81	138.61	4.108		
17,500.00	11,511.77	17,687.59	11,701.10	107.78	107.96	-113.17	6,036.29	-951.56	569.42	428.86	140.56	4.051		
17,600.00	11,508.45	17,787.59	11,697.73	109.31	109.48	-113.17	6,136.23	-952.56	569.41	426.89	142.51	3.995		
17,700.00	11,505.13	17,887.59	11,694.37	110.84	111.01	-113.16	6,236.16	-953.57	569.40	424.93	144.47	3.941		
17,800.00	11,501.80	17,987.59	11,691.00	112.37	112.54	-113.16	6,336.10	-954.57	569.39	422.96	146.43	3.888		
17,900.00	11,498.48	18,087.59	11,687.64	113.91	114.07	-113.15	6,436.04	-955.57	569.38	420.99	148.40	3.837		
18,000.00	11,495.16	18,187.59	11,684.28	115.45	115.60	-113.15	6,535.98	-956.58	569.38	419.01	150.36	3.787		
18,100.00	11,491.84	18,287.59	11,680.91	117.00	117.14	-113.15	6,635.92	-957.58	569.37	417.03	152.34	3.738		
18,200.00	11,488.52	18,387.59	11,677.55	118.54	118.69	-113.14	6,735.86	-958.58	569.36	415.05	154.31	3.690		
18,300.00	11,485.20	18,487.59	11,674.18	120.09	120.23	-113.14	6,835.79	-959.59	569.35	413.07	156.28	3.643		
18,400.00	11,481.87	18,587.59	11,670.82	121.64	121.78	-113.13	6,935.73	-960.59	569.34	411.08	158.26	3.597		
18,500.00	11,478.55	18,687.59	11,667.46	123.20	123.33	-113.13	7,035.67	-961.60	569.34	409.09	160.24	3.553		
18,600.00	11,475.23	18,787.59	11,664.09	124.76	124.89	-113.12	7,135.61	-962.60	569.33	407.10	162.22	3.510		
18,700.00	11,471.91	18,887.59	11,660.73	126.32	126.44	-113.12	7,235.55	-963.60	569.32	405.11	164.21	3.467		
18,800.00	11,468.59	18,987.59	11,657.37	127.88	128.00	-113.12	7,335.49	-964.61	569.31	403.12	166.19	3.426		
18,900.00	11,465.27	19,087.59	11,654.00	129.44	129.56	-113.11	7,435.42	-965.61	569.30	401.12	168.18	3.385		
19,000.00	11,461.94	19,187.59	11,650.64	131.01	131.12	-113.11	7,535.36	-966.61	569.30	399.13	170.17	3.345		
19,100.00	11,458.62	19,287.59	11,647.27	132.58	132.69	-113.10	7,635.30	-967.62	569.29	397.13	172.16	3.307		
19,200.00	11,455.30	19,387.59	11,643.91	134.15	134.26	-113.10	7,735.24	-968.62	569.28	395.13	174.15	3.269		
19,300.00	11,451.98	19,487.59	11,640.55	135.72	135.83	-113.09	7,835.18	-969.62	569.27	393.13	176.14	3.232		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Bidder 49 Fed Com 602H
Project:	Lea County, NM (NAD83)	TVD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,400.00	11,448.66	19,587.59	11,637.18	137.30	137.40	-113.09	7,935.12	-970.63	569.27	391.13	178.14	3.196		
19,500.00	11,445.34	19,687.59	11,633.82	138.87	138.97	-113.09	8,035.05	-971.63	569.26	389.13	180.13	3.160		
19,600.00	11,442.01	19,787.59	11,630.46	140.45	140.55	-113.08	8,134.99	-972.64	569.25	387.12	182.13	3.126		
19,700.00	11,438.69	19,887.59	11,627.09	142.03	142.12	-113.08	8,234.93	-973.64	569.24	385.12	184.12	3.092		
19,800.00	11,435.37	19,987.59	11,623.73	143.61	143.70	-113.07	8,334.87	-974.64	569.23	383.11	186.12	3.058		
19,900.00	11,432.05	20,087.59	11,620.36	145.20	145.28	-113.07	8,434.81	-975.65	569.23	381.11	188.12	3.026		
20,000.00	11,428.73	20,187.59	11,617.00	146.78	146.86	-113.06	8,534.75	-976.65	569.22	379.10	190.12	2.994		
20,100.00	11,425.41	20,287.59	11,613.64	148.37	148.45	-113.06	8,634.68	-977.65	569.21	377.10	192.11	2.963		
20,200.00	11,422.08	20,387.59	11,610.27	149.96	150.03	-113.06	8,734.62	-978.66	569.20	375.09	194.11	2.932		
20,300.00	11,418.76	20,487.59	11,606.91	151.55	151.62	-113.05	8,834.56	-979.66	569.20	373.08	196.11	2.902		
20,400.00	11,415.44	20,587.59	11,603.55	153.14	153.20	-113.05	8,934.50	-980.66	569.19	371.08	198.11	2.873		
20,500.00	11,412.12	20,687.59	11,600.18	154.73	154.79	-113.04	9,034.44	-981.67	569.18	369.07	200.11	2.844		
20,600.00	11,408.80	20,787.59	11,596.82	156.32	156.38	-113.04	9,134.38	-982.67	569.17	367.06	202.11	2.816		
20,700.00	11,405.48	20,887.59	11,593.45	157.91	157.98	-113.03	9,234.31	-983.68	569.16	365.06	204.11	2.789		
20,800.00	11,402.15	20,987.59	11,590.09	159.51	159.57	-113.03	9,334.25	-984.68	569.16	363.05	206.11	2.761		
20,900.00	11,398.83	21,087.59	11,586.73	161.11	161.16	-113.03	9,434.19	-985.68	569.15	361.04	208.11	2.735		
21,000.00	11,395.51	21,187.59	11,583.36	162.70	162.76	-113.02	9,534.13	-986.69	569.14	359.03	210.11	2.709		
21,100.00	11,392.19	21,287.59	11,580.00	164.30	164.35	-113.02	9,634.07	-987.69	569.13	357.03	212.10	2.683		
21,200.00	11,388.87	21,387.59	11,576.64	165.90	165.95	-113.01	9,734.01	-988.69	569.12	355.02	214.10	2.658		
21,300.00	11,385.55	21,487.59	11,573.27	167.50	167.55	-113.01	9,833.95	-989.70	569.12	353.02	216.10	2.634		
21,400.00	11,382.22	21,587.59	11,569.91	169.10	169.15	-113.00	9,933.88	-990.70	569.11	351.01	218.10	2.609		
21,500.00	11,378.90	21,687.59	11,566.54	170.71	170.75	-113.00	10,033.82	-991.70	569.10	349.01	220.09	2.586		
21,600.00	11,375.58	21,787.59	11,563.18	172.31	172.35	-113.00	10,133.76	-992.71	569.09	347.00	222.09	2.562		
21,700.00	11,372.26	21,887.59	11,559.82	173.92	173.95	-112.99	10,233.70	-993.71	569.09	345.00	224.09	2.540		
21,800.00	11,368.94	21,987.59	11,556.45	175.52	175.56	-112.99	10,333.64	-994.72	569.08	343.00	226.08	2.517		
21,900.00	11,365.62	22,087.59	11,553.09	177.13	177.16	-112.98	10,433.58	-995.72	569.07	340.99	228.08	2.495		
22,000.00	11,362.30	22,187.59	11,549.72	178.73	178.77	-112.98	10,533.51	-996.72	569.06	338.99	230.07	2.473		
22,100.00	11,358.97	22,287.59	11,546.36	180.34	180.37	-112.97	10,633.45	-997.73	569.05	336.99	232.06	2.452		
22,125.33	11,358.13	22,312.88	11,545.51	180.75	180.78	-112.97	10,658.73	-997.98	569.05	336.49	232.57	2.447		
22,131.11	11,357.94	22,312.88	11,545.51	180.84	180.78	-112.97	10,658.73	-997.98	569.08	336.45	232.63	2.446 ES, SF		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



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Reference Site:	Western/Bidder 49/KC7	MD Reference:	3319.3' GE + 30' KB @ 3349.30usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Bidder 49 Fed Com 602H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3319.3' GE + 30' KB @ 3349.30usft

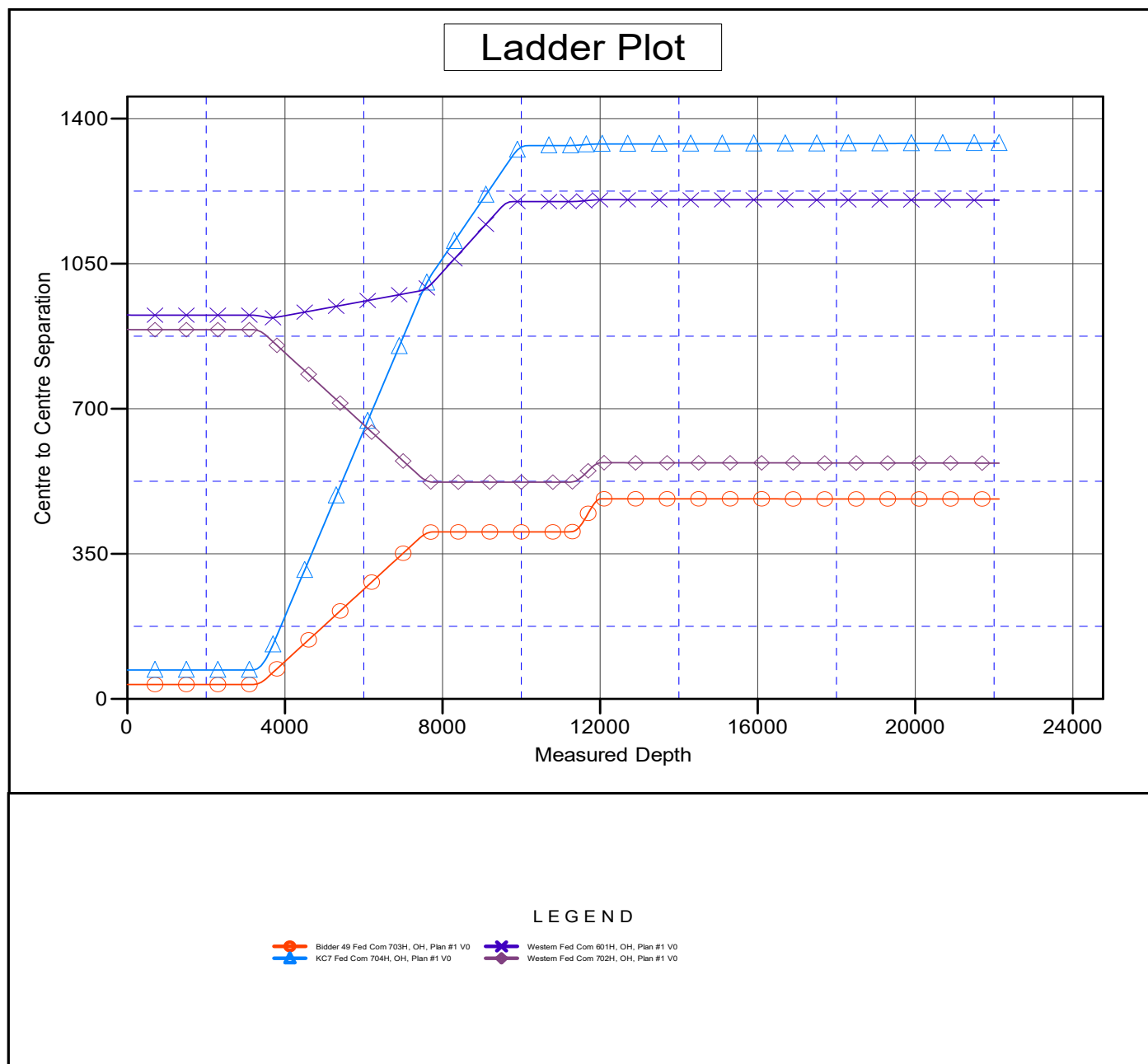
Offset Depths are relative to Offset Datum

Central Meridian is -104.333334

Coordinates are relative to: Bidder 49 Fed Com 602H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.54°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



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Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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Offset Depths are relative to Offset Datum

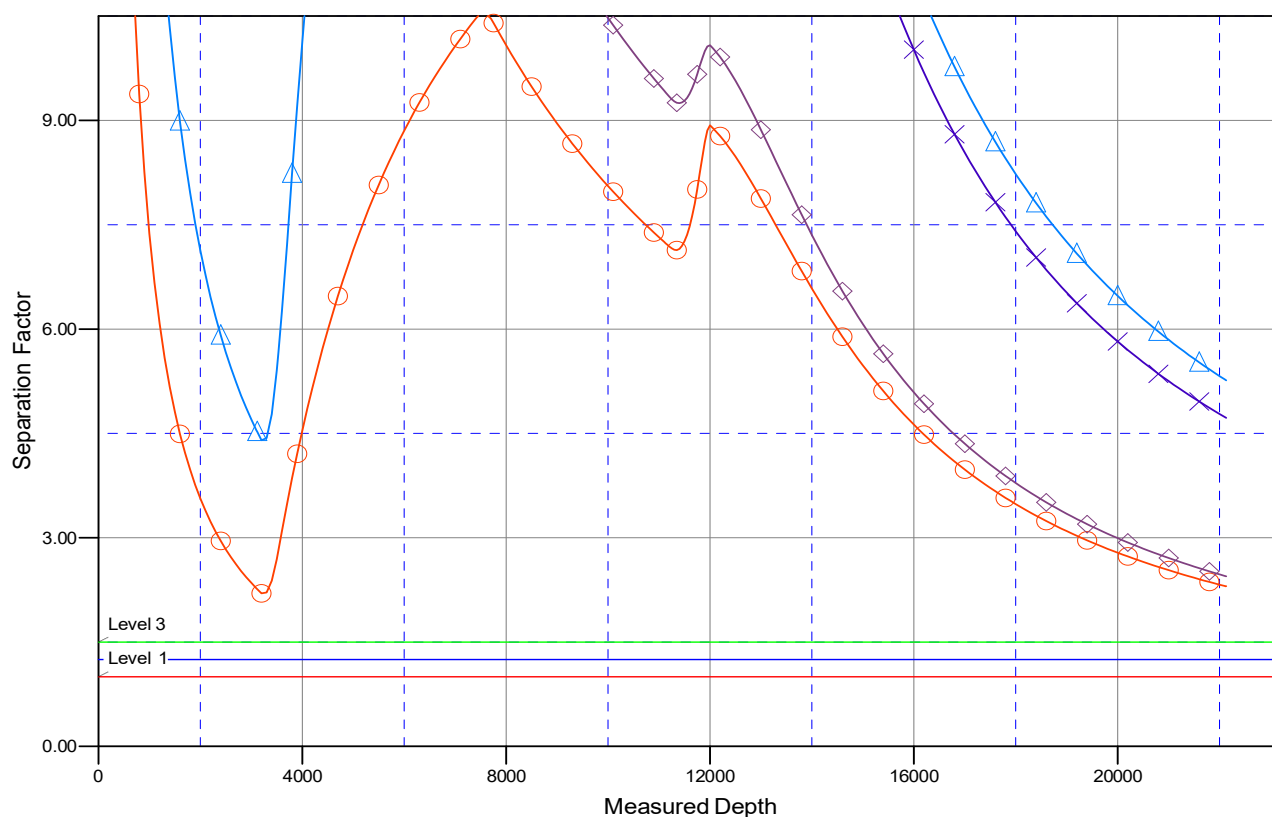
Central Meridian is -104.333334

Coordinates are relative to: Bidder 49 Fed Com 602H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.54°

Separation Factor Plot



LEGEND



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME: WELL NAME & NO.: SURFACE HOLE FOOTAGE: BOTTOM HOLE FOOTAGE: SURFACE LOCATION: COUNTY:	FRANKLIN MOUNTAIN ENERGY LLC WESTERN FED COM 601H 250'/N & 1241'/W 150'/N & 600'/W Section 1, T.25 S., R.35 E., NMP Lea County, New Mexico
OPERATOR'S NAME: WELL NAME & NO.: SURFACE HOLE FOOTAGE: BOTTOM HOLE FOOTAGE: SURFACE LOCATION: COUNTY:	FRANKLIN MOUNTAIN ENERGY LLC WESTERN FED COM 702H 250'/N & 1276'/W 150'/N & 1276'/W Section 1, T.25 S., R.35 E., NMP Lea County, New Mexico
OPERATOR'S NAME: WELL NAME & NO.: SURFACE HOLE FOOTAGE: BOTTOM HOLE FOOTAGE: SURFACE LOCATION: COUNTY:	FRANKLIN MOUNTAIN ENERGY LLC BIDDER 49 FED COM 602H 250'/N & 2167'/W 150'/N & 1800'/W Section 1, T.25 S., R.35 E., NMP Lea County, New Mexico
OPERATOR'S NAME: WELL NAME & NO.: SURFACE HOLE FOOTAGE: BOTTOM HOLE FOOTAGE: SURFACE LOCATION: COUNTY:	FRANKLIN MOUNTAIN ENERGY LLC BIDDER 49 FED COM 703H 250'/N & 2202'/W 150'/N & 2202'/W Section 1, T.25 S., R.35 E., NMP Lea County, New Mexico
OPERATOR'S NAME: WELL NAME & NO.: SURFACE HOLE FOOTAGE: BOTTOM HOLE FOOTAGE: SURFACE LOCATION: COUNTY:	FRANKLIN MOUNTAIN ENERGY LLC KC7 FED COM 704H 250'/N & 2237'/W 150'/N & 2152'/E Section 1, T.25 S., R.35 E., NMP Lea County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Lesser Prairie-Chicken Timing Stipulations
 - Ground-level Abandoned Well Marker
 - Hydrology
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Chicken stips Only applies to the western fed com pad.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Everything else applies to every pad.

Hydrology:

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects

within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

Range:

Cattleguards

Where a permanent cattleguard is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Livestock Watering Requirement

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS**Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (24) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 24' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

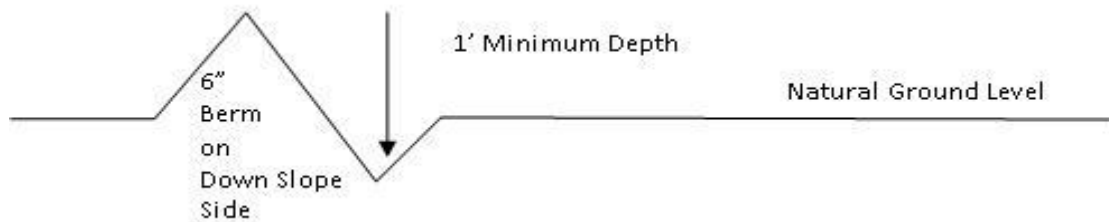
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

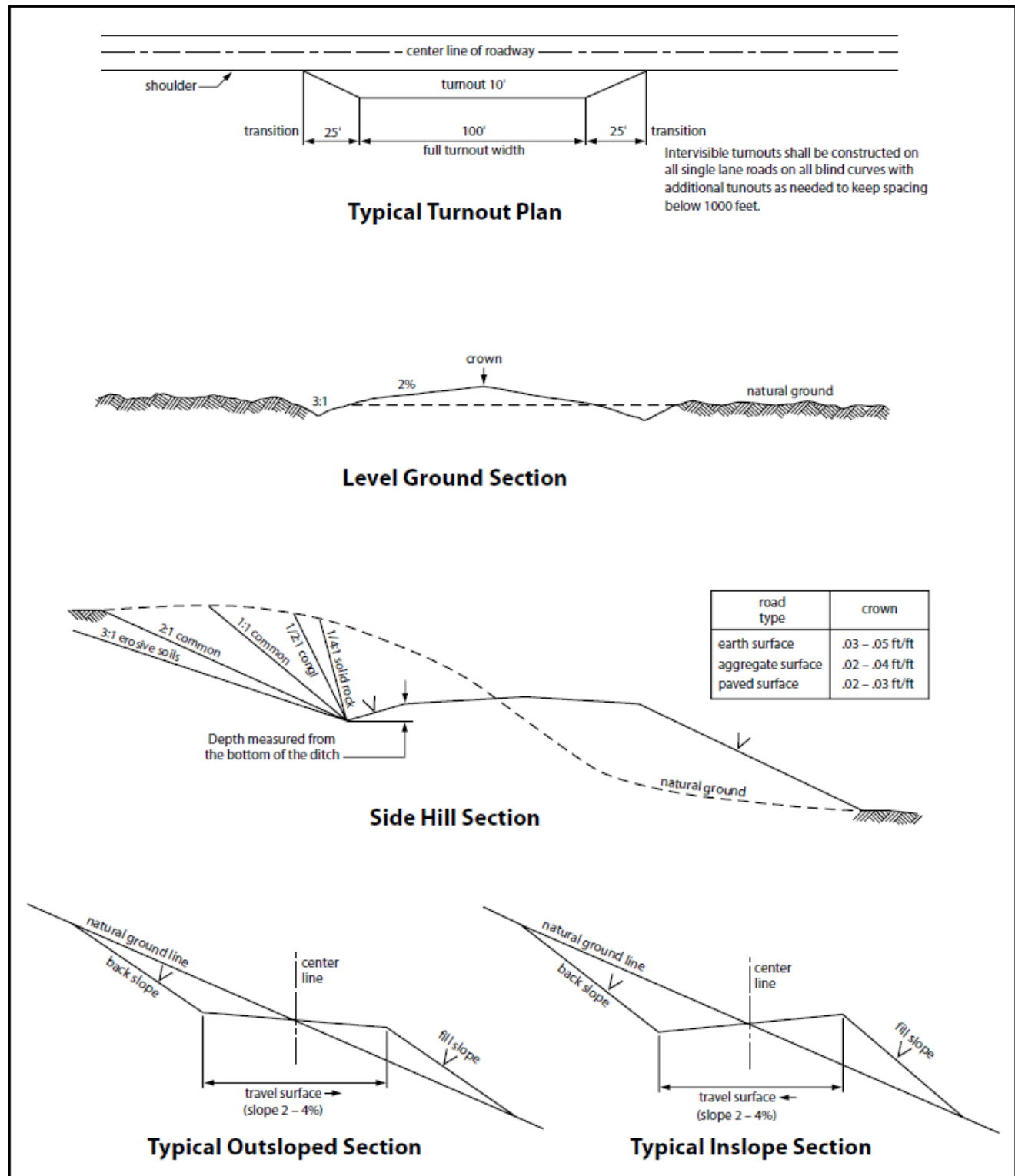


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. STANDARD STIPULATIONS FOR OIL AND GAS RELATED SITES

A copy of the application (Grant/Sundry Notice) and attachments, including stipulations and map, will be on location during construction. BLM personnel may request to view a copy of your permit during construction to ensure compliance with all stipulations.

The holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer, BLM.

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant and for all response costs, penalties, damages, claims, and other costs arising from the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Chap. 82, Section 6901 et. seq., from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. Chap. 109, Section 9601 et. seq., and from other applicable environmental statutes.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et. seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et. seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et.

seq.) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the site or related pipeline(s), any oil or other pollutant should be discharged from site facilities, the pipeline(s) or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

5. Sites shall be maintained in an orderly, sanitary condition at all times. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, brines, chemicals, oil drums, ashes, and equipment.

6. The operator will notify the Bureau of Land Management (BLM) authorized officer and nearest Fish and Wildlife Service (FWS) Law Enforcement office within 24 hours, if the operator discovers a dead or injured federally protected species (i.e., migratory bird species, bald or golden eagle, or species listed by the FWS as threatened or endangered) in or adjacent to a pit, trench, tank, exhaust stack, or fence. (If the operator is unable to contact the FWS Law Enforcement office, the operator must contact the nearest FWS Ecological Services office.)

7. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for this project is **Shale Green**, Munsell Soil Color Chart Number 5Y 4/2.

8. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of

evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

9. A sales contract for removal of mineral material (caliche, sand, gravel, fill dirt) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. There are several options available for purchasing mineral material: contact the BLM office (575-234-5972).

10. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

11. Once the site is no longer in service or use, the site must undergo final abandonment. At final abandonment, the site and access roads must undergo "final" reclamation so that the character and productivity of the land are restored. Earthwork for final reclamation must be completed within six (6) months of the abandonment of the site. All pads and facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact. After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

12. The holder shall stockpile an adequate amount of topsoil where blading occurs. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles. The topsoil will be used for final reclamation.

13. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|--|--|
| ☐ seed mixture 1 | ☐ seed mixture 3 |
| ☒ seed mixture 2 | ☐ seed mixture 4 |
| ☐ seed mixture 2/LPC | ☐ Aplomado Falcon Mixture |

14. In those areas where erosion control structures are required to stabilize soil conditions, the holder shall install such structures as are suitable for the specific soil

conditions being encountered and which are in accordance with sound management practices. Any earth work will require prior approval by the Authorized Officer.

15. Open-topped Tanks - The operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps

16. The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an

impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock enclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

17. Open-Vent Exhaust Stack Enclosures – The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (Recommended enclosure structures on open-vent exhaust stacks are in the shape of a cone.) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

18. Containment Structures - Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

C. BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 60 feet:
 - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 50 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
 - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 50 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
 - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- | | |
|--|--|
| ☐ seed mixture 1 | ☐ seed mixture 3 |
| ☒ seed mixture 2 | ☐ seed mixture 4 |
| ☐ seed mixture 2/LPC | ☐ Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

D.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on

facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent,

conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and

loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Franklin Mountain Energy LLC
LEASE NO.:	NMNM138897
LOCATION:	Section 1, T.25 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Bidder 49 Fed Com 602H
SURFACE HOLE FOOTAGE:	250'/N & 2167'/W
BOTTOM HOLE FOOTAGE:	150'/N & 1800'/W

WELL NAME & NO.:	Bidder 49 Fed Com 703H
SURFACE HOLE FOOTAGE:	250'/N & 2202'/W
BOTTOM HOLE FOOTAGE:	150'/N & 2202'/W

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Cave/Karst Potential	☐ Critical		
Variance	☒ None	☐ Flex Hose	☐ Other
Wellhead	☐ Conventional	☐ Multibowl	☒ Both
Other	☒ 4 String Area	☒ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

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 **1335 feet** (a minimum of **25 feet (Lea County)** 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 shall be set at approximately **5400 feet** is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, potash or capitan reef.
 - ❖ In Capitan Reef 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.
 - ❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:
 - Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
 - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:
 - Cement should tie-back at least **50 feet** on top of Capitan Reef top **or 200 feet** into the previous casing, whichever is greater. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, potash or capitan reef. Cement excess is less than 25%, more cement might be required.
4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1.

Option 1:

- a. 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**.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9 5/8 inch** intermediate casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. 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 is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
 - 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.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

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)

☒ 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 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 integrity 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 integrity 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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. 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.
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 not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- 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. The results of the test shall be reported to the appropriate BLM office.
- f. 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.
- g. 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.
- h. 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.



Hydrogen Sulfide Plan

- A. All personnel shall receive proper awareness H₂S training.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment
 - a. Well Control Equipment
 - i. Flare line 150' from wellhead to be ignited by auto ignition sparking system.
 - ii. Choke manifold with a remotely operated hydraulic choke.
 - iii. Mud/gas separator
 - b. Protective equipment for essential personnel
 - i. Breathing Apparatus
 - 1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.
 - 2. Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity
 - 3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation
 - ii. Auxiliary Rescue Equipment
 - 1. Stretcher
 - 2. Two OSHA full body harnesses
 - 3. 100 feet of 5/8 inches OSHA approved rope
 - 4. 1-20# class ABC fire extinguisher
 - c. H₂S Detection and Monitoring Equipment
 - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
 - 1. Rig Floor
 - 2. Below Rig Floor / Near BOPs
 - 3. End of flow line or where well bore fluid is being discharged (near shakers)
 - ii. If H₂S is encountered, measured values and formations will be provided to the BLM.
 - d. Visual Warning Systems
 - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - iii. Two windsocks will be placed in strategic locations, visible from all angles.
 - e. Mud Program
 - i. The Mud program will be designed to minimize the volume of H₂S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H₂S bearing zones.



- f. Metallurgy
 - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
 - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H₂S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H₂S contingency plan. This will be reevaluated during wellbore construction if H₂S is observed and after the well is on production.



Emergency Contact List:

Vladimir Roudakov, Drilling Engineer	Cell 720 933 9784
Rachael Overbey, Project and Regulatory Director	Cell 303 570 4057
Franklin Mountain Energy Afterhours Emergency Call Tree:	720-640-7517

EMERGENCY NUMBERS:

<u>Agency</u>	<u>Telephone Number</u>
BLM – Carlsbad Mainline	575-234-5972
BLM – Spill Emergency	575-234-6235
BLM – Engineering Emergency	575-361-2822
NMOCD District 1 – Hobbs Mainline	575-393-6161
NMOCD Emergency Line	575-370-3186
Wild Well Control	281-784-4700
H2S Emergency response:	
Air Ambulance New Mexico – Lea Co Reginal	575-391-2934
Lea County Sheriff's Department	575-396-3611
Fire Department:	
Carlsbad	575-885-3125
Artesia	575-746-5050
Lea County Regional Medical Center	575-492-5000
Jal Community Hospital	505-395-2511
Lea County Emergency Management	575-396-8602
Poison Control Center	800-222-1222



Bidder 49 Fed Com 602H

1. Geologic name of surface location: Permian

2. Estimated tops of important geological markers:

Formations	PROG SS	PROG TVD	Picked TVD	delta	Potential/Issues
Cenozoic Alluvium (surface)	3,319'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,123'	1,226'			Carbonates
Salado	2,008'	1,341'			Salt, Carbonate & Clastics
Base Salt	-143'	3,492'			Shaley Carbonate & Shale
Lamar	-1,723'	5,072'			Carbonate & Clastics
Bell Canyon	-1,767'	5,116'			Sandstone - oil/gas/water
Cherry Canyon	-2,654'	6,003'			Sandstone - oil/gas/water
Brushy Canyon	-4,075'	7,424'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,350'	8,699'			Shale/Carbonates - oil/gas
Avalon	-5,447'	8,796'			Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,639'	9,988'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,772'	10,121'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,145'	10,494'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-7,693'	11,042'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,287'	11,636'			Sandstone - oil/gas/water
HZ Target at SHL	-8,363'	11,712'			Overpressure shale/sand- Oil/Gas
Wolfcamp	-8,542'	11,891'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-8,577'	11,926'			Overpressure Shale - Oil/Gas
Wolfcamp B	-8,769'	12,118'			Overpressure Shale - Oil/Gas

3. Estimated depth of anticipated fresh water, oil or gas:

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,116'	Oil
Bone Spring	9,988'	Oil
Wolfcamp	11,891'	Oil

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Surface freshwater sands will be protected by setting 13 3/8" casing at 1,300' and circulating cement back to surface.

4. Casing Program:

All casings strings will be run new. Safety factors calculated assuming the well is vertical.

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5400	1.72	1.67	2.90	3.30
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	12054	1.1	1.27	1.81	1.23
Long string 5 1/2"	23	P-110	14520	14520	729	Anaconda 656	22131	1.32	1.4	1.2	1.08



Cementing Program:

Cementing Stage tool can be placed in the 1st Intermediate string as a contingency to ensure required TOC to surface.

String Type	Hole Size	Casing Size	Setting Depth	Sacks	Type of cmt	Lead Yield ft ³ /sk	Water gal/sk	TOC ft	Sacks	Type of cmt	Tail Yield ft ³ /sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1300	795	Extenda Cem, 13.5 ppg Class C, 3lb/sk Kol-Seal	1.747	9.06	0	334	HalCem TM, 14.8 ppg, Class C, 1% CaCl ₂ , 0.125pps Celo-Flake	1.349	6.51	1000	100%
Int1	12.25	9.625	5400	1167	Neocem TM, 11.5 ppg, Class C 5% Salt, 0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal	2.444	14.32	0	153	HalCem TM, 14.8 ppg, Class C, 0.1% HR 800 .125 pps Poly-E-Flake	1.334	6.42	5100	100%
Int2	8.75	7.625	12054	343	NeoCem, 11 ppg, Class C 3lb/sk Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake	2.798	17.15	4400	112	NeoCem 13.2 ppg, Class C 0.25 pps Cello-Flake, 2% CaCl ₂	1.44	7.29	11054	50%
Prod	6.75	5.5	22131	816	NeoCem, 13.5 ppg, Gas Migration Control	1.357	6.65	11054						20%

5. Minimum Specifications for Pressure Control:

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on bottom and 4 ½" x 7" variable pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the second intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/250 psig and the annular preventer to 5,000/250 psig. The second intermediate casing will be tested to 2000 psi for 30 minutes prior to drillout.

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.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.



6. Types and characteristics of the proposed mud system:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal. The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,300'	Fresh - Gel	8.6-8.8	28-34	N/c
1,300' – 12,054'	Brine	8.8-10.2	28-34	N/c
12,054' – 22,131' Lateral	Oil Base	10.0-11.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 10-11 ppg. In order to maintain hole stability, mud weights up to 12 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

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

7. Auxiliary well control and monitoring equipment:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

(D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

8. Logging, testing and coring program:

GR–CCL–CNL Will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

9. Abnormal conditions, pressures, temperatures and potential hazards:

The estimated bottom-hole temperature at 11,692' TVD (deepest point of the well) is 195F with an estimated maximum bottom-hole pressure (BHP) at the same point of 7,295 psig (based on 12 ppg MW). Hydrogen sulfate may be present in the area. All necessary precautions will be taken before drilling operations commence. See Hydrogen Sulfide Plan below:

10. Hydrogen Sulfide Plan:

A. All personnel shall receive proper awareness H₂S training.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment

a. Well Control Equipment

i. Flare line 150' from wellhead to be ignited by auto ignition sparking system.

ii. Choke manifold with a remotely operated hydraulic choke.

iii. Mud/gas separator

b. Protective equipment for essential personnel

i. Breathing Apparatus

1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.

2. Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity



3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation
- ii. Auxiliary Rescue Equipment
 1. Stretcher
 2. Two OSHA full body harnesses
 3. 100 feet of 5/8 inches OSHA approved rope
 4. 1-20# class ABC fire extinguisher
- c. H2S Detection and Monitoring Equipment
 - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
 1. Rig Floor
 2. Below Rig Floor / Near BOPs
 3. End of flow line or where well bore fluid is being discharged (near shakers)
 - ii. If H2S is encountered, measured values and formations will be provided to the BLM.
- d. Visual Warning Systems
 - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - iii. Two windsocks will be placed in strategic locations, visible from all angles.
- e. Mud Program
 - i. The Mud program will be designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- f. Metallurgy
 - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
 - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H2S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H2S contingency plan. This will be reevaluated during wellbore construction if H2S is observed and after the well is on production.

11. Anticipated starting date and duration of operations:

The drilling operations on the well should be finished in approximately one month. However, in order to minimize disturbance in the area and to improve efficiency Franklin Mountain is planning to drill all the wells on the pad prior to commence completion operations. To even further reduce the time heavy machinery is used the “batch drilling” method may be used. A batch drilling sequence sundry will be submitted for BLM approval prior to spud. A drilling rig with walking/skidding capabilities will be used.

**12. Disposal/environmental concerns:**

- (A) Drilled cuttings will be hauled to and disposed of in a state-certified disposal site.
- (B) Non-hazardous waste mud/cement from the drilling process will be also be hauled to and disposed of in a state-certified disposal site.
- (C) Garbage will be hauled to the Pecos City Landfill.
- (D) Sewage (grey water) will be hauled to the Carlsbad City Landfill

13. Wellhead:

A multi-bowl wellhead system will be utilized.

After running the 13 3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5,000 psi pressure test. This pressure test will be repeated at least every 21 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5,000 psi.

After running the 2nd intermediate casing, and before drilling out, the wellhead, BOP, and related equipment will be tested to 10,000/250 psig.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Cameron Multi-Bowl WH system has been sent to the BLM office in Carlsbad.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing strings. After installation of the first intermediate string the pack-off and lower flanges will be pressure tested to 5000 psi. After installation of the second intermediate string, the pack-off and upper flange will be pressure tested to 10,000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

14. Additional variance requests**A. Casing.**

In order to minimize potential environmental and technical hazards, this well is planned with two intermediate strings of casing.

1. Variance is requested to wave the centralizer requirements for the 7 5/8" casing due to the tight clearance with 9 5/8" string.
2. Variance is requested to wave/reduce the centralizer requirements for the 5 1/2" casing due to the tight clearance with 6 3/4" hole and 5 1/2" casing due to tight clearances.

FRANKLIN MOUNTAIN ENERGY



Geologic Prognosis

Well Name	Bidder 49 Fed Com 602H
Operator	Franklin Mountain Energy, LLC
Project Area	FMM Unit
Well Type	10,000' Third Bone Spring Lateral
API	
Permit Number	
Rig	

State	NM	County	Lea						
SHL	Township	25S/35E	Section	1	2,167'	FWL	250'	FNL	
BHL	Township	24S/35E	Section	25	1,800'	FWL	150'	FNL	
Surface Latitude	NAD 83	32.166034							
Surface Longitude	NAD 83	103.325783							
Bottom Hole Latitude	NAD 83	32.195352							
Bottom Hole Longitude	NAD 83	103.323991							
Ground Level	3,319'	Rig KB	30'	KB	3,349'				

Formations	PROG SS	PROG TVD	Picked TVD	delta	Potential/Issues
Cenozoic Alluvium (surface)	3,319'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,123'	1,226'			Carbonates
Salado	2,008'	1,341'			Salt, Carbonate & Clastics
Base Salt	-143'	3,492'			Shaley Carbonate & Shale
Capitan Reef Top	-1,261'	4,610'			Carbonates
Lamar	-1,723'	5,072'			Carbonate & Clastics
Bell Canyon	-1,767'	5,116'			Sandstone - oil/gas/water
Cherry Canyon	-2,654'	6,003'			Sandstone - oil/gas/water
Brushy Canyon	-4,075'	7,424'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,350'	8,699'			Shale/Carbonates - oil/gas
Avalon	-5,447'	8,796'			Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,639'	9,988'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,772'	10,121'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,145'	10,494'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-7,693'	11,042'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,287'	11,636'			Sandstone - oil/gas/water
HZ Target at SHL	-8,363'	11,712'			Overpressure shale/sand- Oil/Gas
Wolfcamp	-8,542'	11,891'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-8,577'	11,926'			Overpressure Shale - Oil/Gas
Wolfcamp B	-8,769'	12,118'			Overpressure Shale - Oil/Gas

Target interval is expected to have an average apparent dip of ~2 degrees up along the lateral based on the Wolfcamp A structure

Target window tolerance is set at +/- 10'

Target Line: 11712' KBTVD @ 0' VS w/ 91.9° inc.

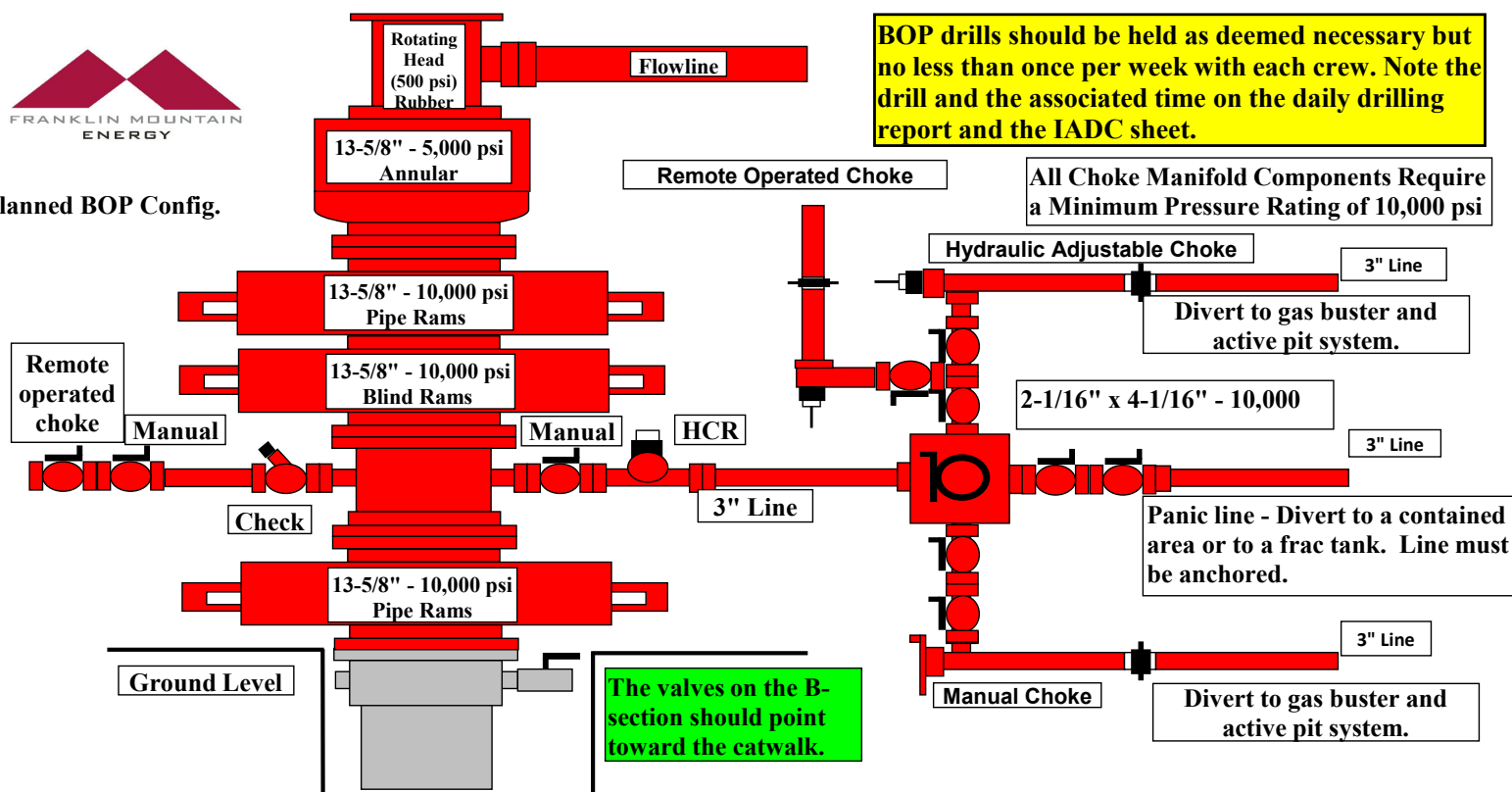
Offset Log: Proxy WCA State Com 001H (30025439220100)

Revised 6/12/20

FME Geologist		Ben Kessel		bkessel@fmellc.com	
		Office	720.414.7868	Cell	303.868.9946
FME Engineer					
Electric Logs					
			From	To	
Open-Hole	n/a				
MWD/LWD	MWD GR			Int. 1 Csg. Point	TD
Mud Log:					
t drill out of surface casing					
Sampling:	10' samples in vertical and through curve, 30' samples in lateral				
Samples:	1 set dry samples at footage frequency noted above				
Mud Gas:	Continuous				
Daily Contact:	Email distribution of mud log/daily report at 7:30am and 4:30 pm CST				
Daily Mud Log Email Distribution List					
Final Mud Log Distribution					
	Ben Kessel (bkessel@fmellc.com)			email	
Cuttings/Samples Shipment Information					



Planned BOP Config.



Note - Actual BOP configuration subject to change given wellsite requirements.

Lower BOP outlet can be used in place of mud cross if necessary.

Choke manifold configuration may vary but must have 1 manual and 1 adjustable choke with at least a 10,000 psi rating.

BOP Description:

Use contractor's 13-5/8", 10K double BOP (drill pipe rams on top and blind rams on bottom), single 13-5/8", 10K pipe rams beneath the double and 13-5/8", 5K annular. RU 10K psi choke manifold equipped with one manual adjustable choke and one hydraulically adjustable choke. Kill line and choke line should be located below blind ram chamber.

Install two (2) full opening gate valves and a check valve on the kill line with the gate valve nearest to the wellhead. The choke line shall be equipped with a manual full opening gate valve and an HCR valve. The manual valve should be open and the HCR valve should be closed during drilling operations. Chokes should be closed at all times as well. All lines should be flushed on a regular basis to avoid blockage (barite plugging). The pressure rating of the choke and kill lines and all valves should be equal to or greater than the BOP rams. RU contractor's accumulator system.

Test the accumulator system noting the initial pressure, final pressure and the amount of time required to close the various BOP components. Prior to drilling out, pressure test the casing and BOP equipment, using test plug, as follows and record test information on the daily report. Ensure casing head valves are open while testing BOPs. Test BOPs, choke manifold and lines, HCR, standpipe, mud line and all safety valves to 5,000 psig (high) and 250 psig (low) for 5 min. Test the annular to 5,000 psig (high) and 250 (low) for 5 minutes.

Drillpipe safety valves (TIW) should be full opening and have a rated working pressure of at least 5,000 psi. Safety valves for each size of drillpipe in use with the proper connection should be available on the rig floor in front of the drawworks at all times in the open position. Safety valves with the proper crossover should also be available if drill collars have a different connection than the drillpipe. The appropriate wrench for all manually operated valves should be marked and readily available on the rig floor at all times.

Ensure pressure gauge on choke manifold is operational. All BOP connections subjected to well pressure will be flanged, welded or clamped. All choke lines will be straight, turns will have tee blocks or targeted and shall be anchored.



Well Control Procedure

BOP & related components will be tested to required BLM specifications. Should a well-control situation arise, a contingency plan will be implemented. The plan is as follows.

Preparation:

- Sufficient kill mud volume will be prepared in the pre-mix tank prior to testing BOP components.
- Kill mud weight will be adequate to combat Maximum Anticipated Surface Pressure
- Choke manifold system is operable set up according to the BLM requirements and connected to the kill mud storage

Execution:

During any well control issues if the annular preventer should become inoperable or a wash out occurs

- well control will continue using the upper pipe rams in place of the annular preventer.
 - Close pipe rams
 - Pump kill mud to neutralize the well control situation
- Constantly monitor situation using choke manifold
- Use Kill lines of manifold if necessary

This additional well control procedure, as required by the BLM, is applicable to testing Annular Preventor to 100% of the rating.

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 24779

CONDITIONS OF APPROVAL

Operator:		OGRID:	Action Number:	Action Type:
FRANKLIN MOUNTAIN ENERGY LLC	44 Cook Street	373910	24779	FORM 3160-3
Suite 1000	Denver, CO80206			

OCD Reviewer	Condition
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string