

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☐ DRILL ☐ REENTER 1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other 1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. [332687]	
2. Name of Operator [373910]		9. API Well No. 30-025-49850	
3a. Address		3b. Phone No. (include area code)	
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 11. Sec., T. R. M. or Blk. and Survey or Area	
14. Distance in miles and direction from nearest town or post office*		12. County or Parish	
13. State		15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	
16. No of acres in lease		17. Spacing Unit dedicated to this well	
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. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification. 6. Such other site specific information and/or plans as may be requested by the BLM.			
25. Signature		Name (Printed/Typed)	
Title		Date	
Approved by (Signature)		Name (Printed/Typed)	
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.			

NGMP Rec 03/08/2022

SL

(Continued on page 2)



Approval Date: 03/07/2022

KZ

03/14/2022

*(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: TR C / 650 FNL / 1343 FWL / TWSP: 26S / RANGE: 35E / SECTION: 1 / LAT: 32.077787 / LONG: -103.325441 (TVD: 0 feet, MD: 0 feet)

PPP: TR NENW / 0 FNL / 2100 FWL / TWSP: 26S / RANGE: 35E / SECTION: 12 / LAT: 32.065042 / LONG: -103.322997 (TVD: 8643 feet, MD: 13600 feet)

PPP: TR C / 710 FNL / 2098 FWL / TWSP: 26S / RANGE: 35E / SECTION: 1 / LAT: 32.077622 / LONG: -103.323003 (TVD: 8643 feet, MD: 9055 feet)

BHL: TR C / 1170 FNL / 2100 FWL / TWSP: 26S / RANGE: 35E / SECTION: 13 / LAT: 32.047324 / LONG: -103.322988 (TVD: 8643 feet, MD: 20078 feet)

BLM Point of Contact

Name: TENILLE ORTIZ

Title: Legal Instruments Examiner

Phone: (575) 234-2224

Email: tortiz@blm.gov

CONFIDENTIAL

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.

CONFIDENTIAL

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 30-025-49850	² Pool Code 97779	³ Pool Name DOGIE DRAW;DELAWARE	
⁴ Property Code 332687	⁵ Property Name PF FED COM		⁶ Well Number 102H
⁷ OGRID No. 373910	⁸ Operator Name FRANKLIN MOUNTAIN ENERGY LLC		⁹ Elevation 3052.9'

¹⁰ Surface Location

UL or lot no. C	Section 1	Township 26S	Range 35E	Lot 1dn	Feet from the 650	North/South line NORTH	Feet from the 1343	East/West line WEST	County LEA
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¹¹Bottom Hole Location If Different From Surface

UL or lot no. C	Section 13	Township 26S	Range 35E	Lot Idn	Feet from the 1170	North/South line NORTH	Feet from the 2100	East/West line WEST	County LEA
¹² Dedicated Acres 360		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.

Released to Imaging: 3/14/2022 2:53:33 PM

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

Submit Electronically
Via E-permitting

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: Franklin Mountain Energy, LLC **OGRID:** 373910 **Date:** 03/08/2022

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
See Attached Well List						

IV. Central Delivery Point Name: Paul Foster CTB: (f#) fAPP2125739207 [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
See Attached Well List						

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

If Operator checks this box, Operator will select one of the following:

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

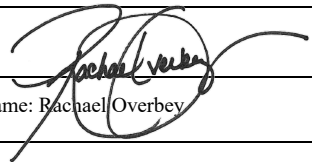
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Rachael Overbey
Title: Director Operations Planning & Regulatory
E-mail Address: roverbey@fmelle.com
Date: 3/8/2022
Phone: 720-414-7868
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

NATURAL GAS MANAGEMENT PLAN

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API 14 Digit	ULSTR	Surface Location FTG	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
PF Fed Com 101H	TBD	D-1-26S-35E	650 FNL 1268 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 102H	TBD 30-025-49850	C-1-26S-35E	650 FNL 1343 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 501H	TBD	D-1-26S-35E	650 FNL 1293 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 502H	TBD	D-1-26S-35E	650 FNL 1318 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 801H	TBD	D-1-26S-35E	575 FNL 1281 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 802H	TBD	D-1-26S-35E	575 FNL 1306 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 803H	TBD	C-1-26S-35E	575 FNL 1331 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 103H	TBD	A-1-26S-35E	285 FNL 1125 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 104H	TBD	A-1-26S-35E	285 FNL 1050 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 503H	TBD	A-1-26S-35E	285 FNL 1100 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 504H	TBD	A-1-26S-35E	285 FNL 1075 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 804H	TBD	A-1-26S-35E	210 FNL 1112 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 805H	TBD	A-1-26S-35E	210 FNL 1087 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 806H	TBD	A-1-26S-35E	210 FNL 1062 FEL	800 +/-	700 +/-	600 +/-

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API 14 Digit	Spud Date (Batch Drilling)	TD Reached Date	Completion Commencement Date	Initial Flowback Date	First Production Date
PF Fed Com 101H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 102H	TBD 30-025-49850	TBD	TBD	TBD	TBD	TBD
PF Fed Com 501H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 502H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 801H	TBD	10/20/2022	12/20/2022	1/5/2023	1/25/2023	1/27/2023
PF Fed Com 802H	TBD	10/20/2022	12/20/2022	1/5/2023	1/25/2023	1/27/2023
PF Fed Com 803H	TBD	10/20/2022	12/20/2022	1/5/2023	1/25/2023	1/27/2023
PF Fed Com 103H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 104H	TBD	9/28/2022	10/20/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 503H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 504H	TBD	9/6/2022	9/27/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 804H	TBD	7/5/2022	9/5/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 805H	TBD	7/5/2022	9/5/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 806H	TBD	7/5/2022	9/5/2022	12/20/2022	1/1/2023	1/3/2023



Natural Gas Management Plan

Items VI-VIII

VI. Separation Equipment: Attach a complete description of how Operator will size separation equipment to optimize gas capture.

- Data from surrounding wells is used to generate type curves which provides the basis for expected gas rates during initial production, peak production and then the natural decline.
- Separation equipment will be sized to provide adequate separation for peak production.
- Facility design includes multiple stages of separation to minimize gas waste. Wells flow through a high pressure 2-phase separator to remove bulk gas, liquid from the 2-phase separator is sent to a 3-phase separator where additional gas is separated. Gas from the 2 Phase and 3 Phase separators are then sent through a gas scrubber before being route to treatment and/or sales. As production declines the 2-phase separator may be removed.
- Industry standard sizing calculations are used for gas-liquid separation and liquid-liquid separation.

VII. Operational Practices: Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F 19.15.27.8 NMAC.

- Drilling, completion and production setup is designed to minimize the waste of natural gas and to flare instead of vent.
- *Drilling Operations:*
 - Natural gas encountered will be flared instead of vented unless there is an equipment malfunction and/or to avoid risking safety or the environment.
 - Flares will be properly sized and placed at least 100' from the nearest surface hole on the pad.
- *Completions/Recompletions Operations:*
 - Flowback operations will not commence until connected to a properly sized gas gathering system.
 - During initial flowback wells are routed to the separation equipment as soon as technically feasible to minimize gas waste.
 - During separation flowback wells are routed to the separation equipment to minimize gas waste.
 - Gas sales is maximized. Gas will be flared instead of vented during an emergency or malfunction to avoid posing a risk to operations or personnel safety.
 - Flares are properly sized with a continuous pilot.
- *Production Operations:*
 - Gas sales will be maximized. Gas will be flared instead of vented during an emergency or malfunction to avoid posing a risk to operations or personnel safety.
 - After a well is stabilized from liquid unloading, the well will be turned back into the collection system.
- *Performance Standards:*
 - The facility will be designed to handle peak production rates and pressures.
 - All tanks will have automatic gauging equipment.
 - Flares will be designed to ensure proper combustion and will have continuous pilots. Flares will be located 100' from nearest surface hole on the pad and storage tanks.
 - Weekly AVOs will be performed, and any leaking thief hatches will be cleaned and properly re-sealed.



- **Measurement and Calibration:**
 - All volume that is flared and vented that is not measured will be estimated.
 - When metering is not practical due to low pressure/rate, all vented or flared volumes will be estimated.
 - Measurement will conform to industry standards. Measurement will not be bypassed except for purposes of inspection or calibration.

VIII. Best Management Practices: Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

- Venting will be minimized during active and planned maintenance.
- Systems and equipment requiring maintenance will be isolated and blown down to sales and then flare before any remaining gas is vented in an effort to minimize waste and venting.
- Downhole maintenance will use best management practices to minimize vent.



PF Fed Com 102H

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)	3,120'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,267'	883'			Carbonates
Salado	1,769'	1,381'			Salt, Carbonate & Clastics
Base Salt	-411'	3,561'			Shaley Carbonate & Shale
Lamar	-1,900'	5,050'			Carbonate & Clastics
Bell Canyon	-1,998'	5,148'			Sandstone - oil/gas/water
Cherry Canyon	-2,903'	6,053'			Sandstone - oil/gas/water
Brushy Canyon	-4,373'	7,523'			Sand/carb/shales - oil/gas/water
Lowermost Brushy	-5,366'	8,516'			Sand/carb/shales - oil/gas/water
HZ Target at Landing	-5,493'	8,643'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,563'	8,713'			Shale/Carbonates - oil/gas
Avalon	-5,584'	8,734'			Shale/Carbonates - oil/gas

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

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,148'	Oil
Leonard	8,516'	Oil
Avalon	8,734'	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 casing 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	5100	1.79	1.77	3.01	3.43
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	9055	1.47	1.69	2.24	1.53
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606 TVD	20078 8643	1.32	1.55	1.30	1.08 2.03

7 5/8" casing will be set at 9,055' MD/8,643' TVD at 90° Inc. Stress calculations on 5 1/2" casing performed assuming 20,078' depth. Actual max vertical depth is 8,643'.



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, 12.8 ppg Class C, 3lb/sk Kol-Seal	1.747	9.06	0	334	Tail, 14.8 ppg, Class C,	1.349	6.51	1000	100%
					0.125pps Poly-E-Flake					1% CaCl ₂ , 0.125pps Celo-Flake				
Int1	12.25	9.625	5100	1488	Lead, 12.8 ppg, Class C 5% Salt,	1.79	9.74	0	154	Tail, 14.8 ppg, Class C,	1.33	6.37	4800	100%
					0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal					0.1% HR 800 .125 pps Poly-E-Flake				
Int2	8.75	7.625	9055	208	Lite Fill, 9.5 ppg, Class C 3lb/sk	2.13	5.97	4100	94	NeoCem 14.8 ppg, Class C	1.33	6.29	8055	50%
					Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake					0.25 pps Cello-Flake, 2% CaCl ₂				
Prod	6.75	5.5	20078	897	Tail, 14.5 ppg, Gas Migration Control	1.34	6.22	8055						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' – 9,055'	Brine	8.8-10.2	28-34	N/c
9,055' – 20,078' Lateral	Oil Base	10.0-12.0	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 8,643' TVD (deepest point of the well) is 160F with an estimated maximum bottom-hole pressure (BHP) at the same point of 5,393 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 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 Cactus 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.

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Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: PF Fed Com
Well: PF Fed Com 102H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.54°
Magnetic North: 5.87°

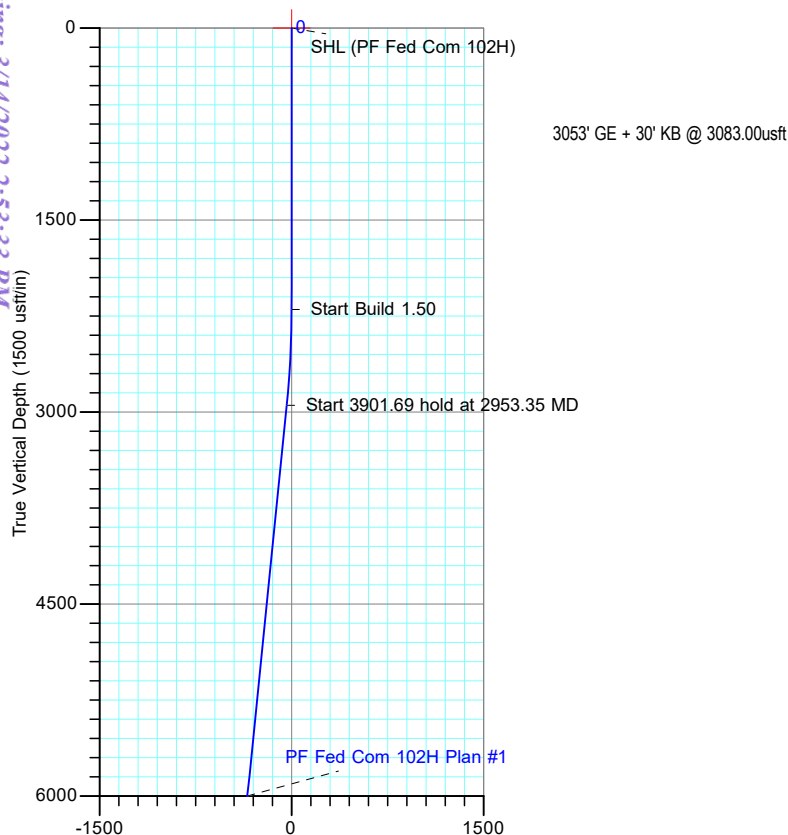
Magnetic Field
Strength: 47425.6nT
Dip Angle: 59.80°
Date: 7/16/2021
Model: IGRF2020

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



Received by OCD: 3/8/2022 4:45:33 PM

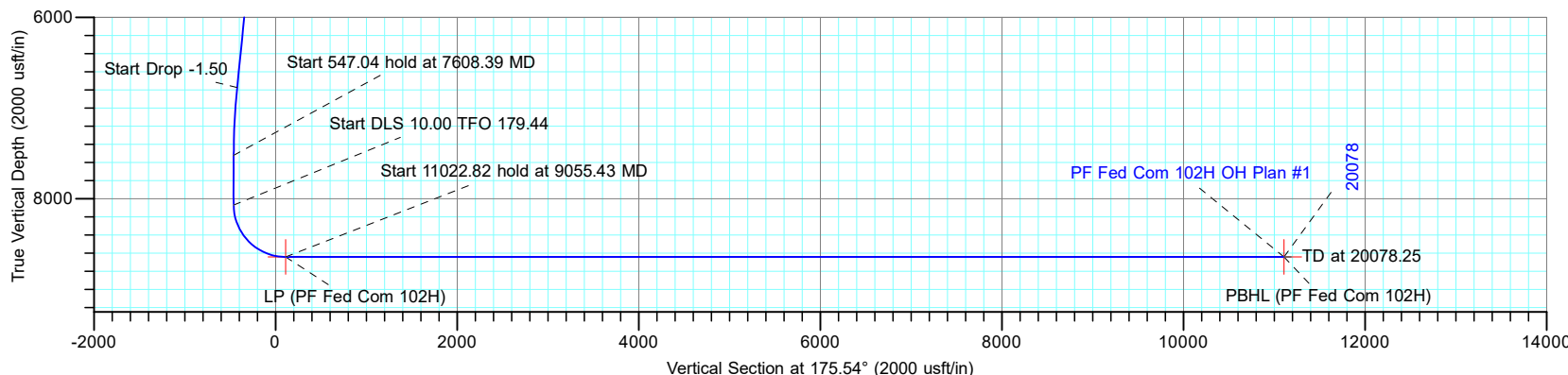
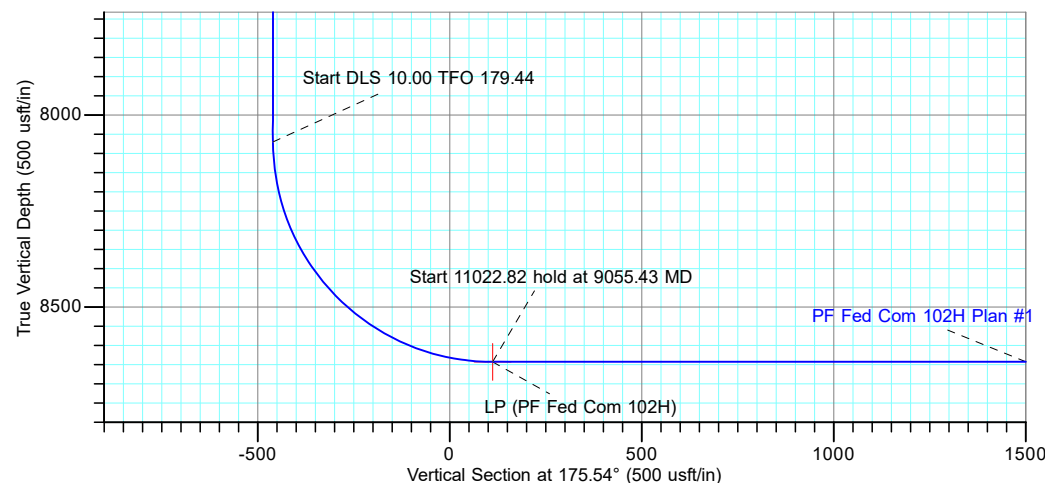


SECTION DETAILS

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	
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
2953.35	11.30	55.27	2948.47	42.19	60.85	1.50	55.27	-37.33	Start 3901.69 hold at 2953.35 MD
6855.04	11.30	55.27	6774.53	477.81	689.15	0.00	0.00	-422.79	Start Drop -1.50
7608.39	0.00	0.00	7523.00	520.00	750.00	1.50	180.00	-460.12	Start 547.04 hold at 7608.39 MD
8155.43	0.00	0.00	8070.04	520.00	750.00	0.00	0.00	-460.12	Start DLS 10.00 TFO 179.44
9055.43	90.00	179.44	8643.00	-52.93	755.61	10.00	179.44	111.51	Start 11022.82 hold at 9055.43 MD
20078.25	90.00	179.44	8643.00	-11075.23	863.56	0.00	0.00	11108.84	TD at 20078.25

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (PF Fed Com 102H)	8643.00	-52.93	755.61	32.077622	-103.323003
PBHL (PF Fed Com 102H)	8643.00	-11075.23	863.56	32.047324	-103.322988
SHL (PF Fed Com 102H)	0.00	0.00	0.00	32.077787	-103.325441



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

Plan: Plan #1 (PF Fed Com 102H/OH)
PF Fed Com
Created By: Dustin Ault Date: 21:45, July 16 2021
Date: _____
Approved: _____ Date: _____

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Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: PF Fed Com
Well: PF Fed Com 102H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.54°
Magnetic North: 5.87°
Magnetic Field
Strength: 47425.6nT
Dip Angle: 59.80°
Date: 7/16/2021
Model: IGRF2020



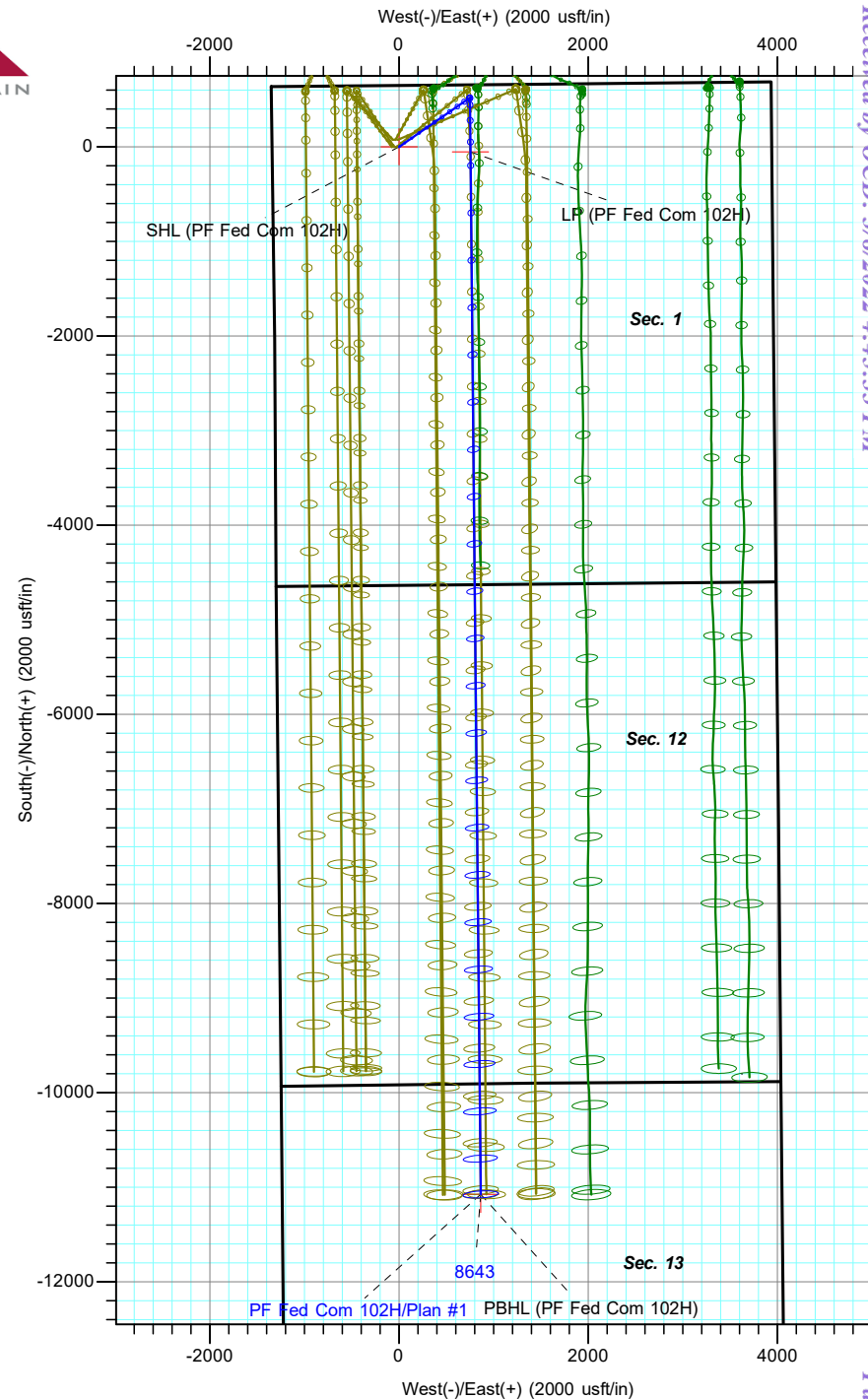
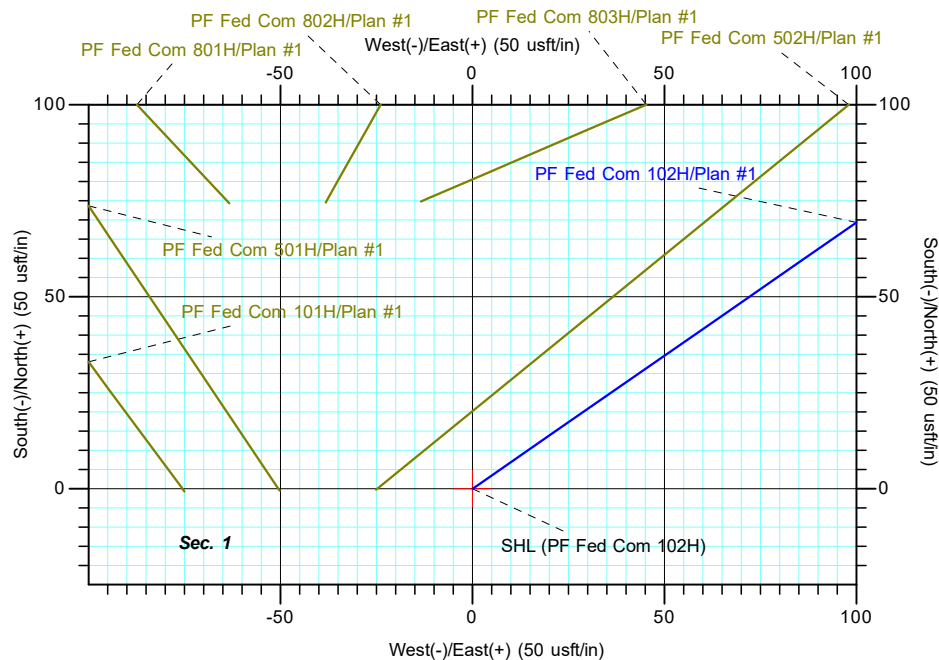
PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (PF Fed Com 102H)	8643.00	-52.93	755.61	393441.49	854270.72	32.077622	-103.323003
PBHL (PF Fed Com 102H)	8643.00	-11075.23	863.56	382419.19	854378.67	32.047324	-103.322988
SHL (PF Fed Com 102H)	0.00	0.00	0.00	393494.42	853515.11	32.077787	-103.325441

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	
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
2953.35	11.30	55.27	2948.47	42.19	60.85	1.50	55.27	-37.33	Start 3901.69 hold at 2953.35 MD
6855.04	11.30	55.27	6774.53	477.81	689.15	0.00	0.00	-422.79	Start Drop -1.50
7608.39	0.00	0.00	7523.00	520.00	750.00	1.50	180.00	-460.12	Start 547.04 hold at 7608.39 MD
8155.43	0.00	0.00	8070.04	520.00	750.00	0.00	0.00	-460.12	Start DLS 10.00 TFO 179.44
9055.43	90.00	179.44	8643.00	-52.93	755.61	10.00	179.44	111.51	Start 11022.82 hold at 9055.43 MD
20078.25	90.00	179.44	8643.00	-11075.23	863.56	0.00	0.00	11108.84	TD at 20078.25



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

Plan: Plan #1 (PF Fed Com 102H/OH)
Created By: Dustin Ault Date: 21:45, July 16 2021
Date: _____
Approved: _____ Date: _____

Received by OCD: 3/8/2022 4:45:33 PM

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Franklin Mountain Energy

Lea County, NM (NAD83)

PF Fed Com

PF Fed Com 102H

OH

Plan: Plan #1

Standard Planning Report

16 July, 2021





Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 102H
Company:	Franklin Mountain Energy	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 102H	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	PF Fed Com			
Site Position:		Northing:	393,493.72 usft	Latitude: 32.077787
From:	Lat/Long	Easting:	853,440.15 usft	Longitude: -103.325683
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.54 °

Well	PF Fed Com 102H			
Well Position	+N/-S	0.70 usft	Northing:	393,494.42 usft
	+E/-W	74.96 usft	Easting:	853,515.11 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 3,053.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	7/16/2021	6.41	59.80	47,425.61409823

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	175.54

Plan Survey Tool Program	Date	7/16/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,078.25 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	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,953.35	11.30	55.27	2,948.47	42.19	60.85	1.50	1.50	0.00	55.27	
6,855.04	11.30	55.27	6,774.53	477.81	689.15	0.00	0.00	0.00	0.00	
7,608.39	0.00	0.00	7,523.00	520.00	750.00	1.50	-1.50	0.00	180.00	
8,155.43	0.00	0.00	8,070.04	520.00	750.00	0.00	0.00	0.00	0.00	
9,055.43	90.00	179.44	8,643.00	-52.93	755.61	10.00	10.00	19.94	179.44	
20,078.25	90.00	179.44	8,643.00	-11,075.23	863.56	0.00	0.00	0.00	0.00	PBHL (PF Fed Com 1



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 102H
Company:	Franklin Mountain Energy	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 102H	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 (PF Fed Com 102H)									
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
Start Build 1.50									
2,300.00	1.50	55.27	2,299.99	0.75	1.08	-0.66	1.50	1.50	0.00
2,400.00	3.00	55.27	2,399.91	2.98	4.30	-2.64	1.50	1.50	0.00
2,500.00	4.50	55.27	2,499.69	6.71	9.68	-5.94	1.50	1.50	0.00
2,600.00	6.00	55.27	2,599.27	11.92	17.20	-10.55	1.50	1.50	0.00
2,700.00	7.50	55.27	2,698.57	18.62	26.85	-16.48	1.50	1.50	0.00
2,800.00	9.00	55.27	2,797.54	26.80	38.65	-23.71	1.50	1.50	0.00
2,900.00	10.50	55.27	2,896.09	36.44	52.56	-32.25	1.50	1.50	0.00
2,953.35	11.30	55.27	2,948.47	42.19	60.85	-37.33	1.50	1.50	0.00
Start 3901.69 hold at 2953.35 MD									
3,000.00	11.30	55.27	2,994.22	47.40	68.37	-41.94	0.00	0.00	0.00
3,100.00	11.30	55.27	3,092.28	58.57	84.47	-51.82	0.00	0.00	0.00
3,200.00	11.30	55.27	3,190.34	69.73	100.57	-61.70	0.00	0.00	0.00
3,300.00	11.30	55.27	3,288.41	80.89	116.68	-71.58	0.00	0.00	0.00
3,400.00	11.30	55.27	3,386.47	92.06	132.78	-81.46	0.00	0.00	0.00
3,500.00	11.30	55.27	3,484.53	103.22	148.88	-91.34	0.00	0.00	0.00
3,600.00	11.30	55.27	3,582.59	114.39	164.98	-101.22	0.00	0.00	0.00
3,700.00	11.30	55.27	3,680.65	125.55	181.09	-111.10	0.00	0.00	0.00
3,800.00	11.30	55.27	3,778.71	136.72	197.19	-120.98	0.00	0.00	0.00
3,900.00	11.30	55.27	3,876.77	147.88	213.29	-130.86	0.00	0.00	0.00
4,000.00	11.30	55.27	3,974.84	159.05	229.40	-140.73	0.00	0.00	0.00
4,100.00	11.30	55.27	4,072.90	170.21	245.50	-150.61	0.00	0.00	0.00
4,200.00	11.30	55.27	4,170.96	181.38	261.60	-160.49	0.00	0.00	0.00
4,300.00	11.30	55.27	4,269.02	192.54	277.71	-170.37	0.00	0.00	0.00
4,400.00	11.30	55.27	4,367.08	203.71	293.81	-180.25	0.00	0.00	0.00
4,500.00	11.30	55.27	4,465.14	214.87	309.91	-190.13	0.00	0.00	0.00
4,600.00	11.30	55.27	4,563.20	226.04	326.02	-200.01	0.00	0.00	0.00
4,700.00	11.30	55.27	4,661.26	237.20	342.12	-209.89	0.00	0.00	0.00
4,800.00	11.30	55.27	4,759.33	248.37	358.22	-219.77	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 102H
Company:	Franklin Mountain Energy	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 102H	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	11.30	55.27	4,857.39	259.53	374.32	-229.65	0.00	0.00	0.00
5,000.00	11.30	55.27	4,955.45	270.70	390.43	-239.53	0.00	0.00	0.00
5,100.00	11.30	55.27	5,053.51	281.86	406.53	-249.41	0.00	0.00	0.00
5,200.00	11.30	55.27	5,151.57	293.03	422.63	-259.29	0.00	0.00	0.00
5,300.00	11.30	55.27	5,249.63	304.19	438.74	-269.16	0.00	0.00	0.00
5,400.00	11.30	55.27	5,347.69	315.36	454.84	-279.04	0.00	0.00	0.00
5,500.00	11.30	55.27	5,445.76	326.52	470.94	-288.92	0.00	0.00	0.00
5,600.00	11.30	55.27	5,543.82	337.69	487.05	-298.80	0.00	0.00	0.00
5,700.00	11.30	55.27	5,641.88	348.85	503.15	-308.68	0.00	0.00	0.00
5,800.00	11.30	55.27	5,739.94	360.02	519.25	-318.56	0.00	0.00	0.00
5,900.00	11.30	55.27	5,838.00	371.18	535.36	-328.44	0.00	0.00	0.00
6,000.00	11.30	55.27	5,936.06	382.34	551.46	-338.32	0.00	0.00	0.00
6,100.00	11.30	55.27	6,034.12	393.51	567.56	-348.20	0.00	0.00	0.00
6,200.00	11.30	55.27	6,132.19	404.67	583.66	-358.08	0.00	0.00	0.00
6,300.00	11.30	55.27	6,230.25	415.84	599.77	-367.96	0.00	0.00	0.00
6,400.00	11.30	55.27	6,328.31	427.00	615.87	-377.84	0.00	0.00	0.00
6,500.00	11.30	55.27	6,426.37	438.17	631.97	-387.72	0.00	0.00	0.00
6,600.00	11.30	55.27	6,524.43	449.33	648.08	-397.59	0.00	0.00	0.00
6,700.00	11.30	55.27	6,622.49	460.50	664.18	-407.47	0.00	0.00	0.00
6,800.00	11.30	55.27	6,720.55	471.66	680.28	-417.35	0.00	0.00	0.00
6,855.04	11.30	55.27	6,774.53	477.81	689.15	-422.79	0.00	0.00	0.00
Start Drop -1.50									
6,900.00	10.63	55.27	6,818.67	482.68	696.17	-427.10	1.50	-1.50	0.00
7,000.00	9.13	55.27	6,917.18	492.45	710.27	-435.75	1.50	-1.50	0.00
7,100.00	7.63	55.27	7,016.11	500.75	722.24	-443.09	1.50	-1.50	0.00
7,200.00	6.13	55.27	7,115.39	507.57	732.08	-449.13	1.50	-1.50	0.00
7,300.00	4.63	55.27	7,214.95	512.91	739.78	-453.85	1.50	-1.50	0.00
7,400.00	3.13	55.27	7,314.72	516.76	745.33	-457.26	1.50	-1.50	0.00
7,500.00	1.63	55.27	7,414.63	519.12	748.74	-459.35	1.50	-1.50	0.00
7,608.39	0.00	0.00	7,523.00	520.00	750.00	-460.12	1.50	-1.50	0.00
Start 547.04 hold at 7608.39 MD									
7,700.00	0.00	0.00	7,614.61	520.00	750.00	-460.12	0.00	0.00	0.00
7,800.00	0.00	0.00	7,714.61	520.00	750.00	-460.12	0.00	0.00	0.00
7,900.00	0.00	0.00	7,814.61	520.00	750.00	-460.12	0.00	0.00	0.00
8,000.00	0.00	0.00	7,914.61	520.00	750.00	-460.12	0.00	0.00	0.00
8,100.00	0.00	0.00	8,014.61	520.00	750.00	-460.12	0.00	0.00	0.00
8,155.43	0.00	0.00	8,070.04	520.00	750.00	-460.12	0.00	0.00	0.00
Start DLS 10.00 TFO 179.44									
8,200.00	4.46	179.44	8,114.57	518.27	750.02	-458.40	10.00	10.00	0.00
8,250.00	9.46	179.44	8,164.18	512.21	750.08	-452.35	10.00	10.00	0.00
8,300.00	14.46	179.44	8,213.08	501.86	750.18	-442.02	10.00	10.00	0.00
8,350.00	19.46	179.44	8,260.89	487.28	750.32	-427.48	10.00	10.00	0.00
8,400.00	24.46	179.44	8,307.25	468.59	750.50	-408.83	10.00	10.00	0.00
8,450.00	29.46	179.44	8,351.81	445.93	750.73	-386.23	10.00	10.00	0.00
8,500.00	34.46	179.44	8,394.21	419.48	750.98	-359.83	10.00	10.00	0.00
8,550.00	39.46	179.44	8,434.16	389.43	751.28	-329.85	10.00	10.00	0.00
8,600.00	44.46	179.44	8,471.33	356.01	751.61	-296.51	10.00	10.00	0.00
8,650.00	49.46	179.44	8,505.44	319.48	751.96	-260.06	10.00	10.00	0.00
8,700.00	54.46	179.44	8,536.25	280.12	752.35	-220.79	10.00	10.00	0.00
8,750.00	59.46	179.44	8,563.50	238.22	752.76	-178.98	10.00	10.00	0.00
8,800.00	64.46	179.44	8,587.00	194.11	753.19	-134.97	10.00	10.00	0.00
8,850.00	69.46	179.44	8,606.56	148.11	753.64	-89.08	10.00	10.00	0.00
8,900.00	74.46	179.44	8,622.05	100.59	754.11	-41.66	10.00	10.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 102H
Company:	Franklin Mountain Energy	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 102H	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)
8,950.00	79.46	179.44	8,633.33	51.90	754.58	6.92	10.00	10.00	0.00
9,000.00	84.46	179.44	8,640.32	2.41	755.07	56.30	10.00	10.00	0.00
9,050.00	89.46	179.44	8,642.97	-47.50	755.56	106.09	10.00	10.00	0.00
9,055.43	90.00	179.44	8,643.00	-52.93	755.61	111.51	10.00	10.00	0.00
Start 11022.82 hold at 9055.43 MD - LP (PF Fed Com 102H)									
9,100.00	90.00	179.44	8,643.00	-97.50	756.05	155.98	0.00	0.00	0.00
9,200.00	90.00	179.44	8,643.00	-197.50	757.03	255.75	0.00	0.00	0.00
9,300.00	90.00	179.44	8,643.00	-297.49	758.01	355.52	0.00	0.00	0.00
9,400.00	90.00	179.44	8,643.00	-397.49	758.99	455.28	0.00	0.00	0.00
9,500.00	90.00	179.44	8,643.00	-497.48	759.96	555.05	0.00	0.00	0.00
9,600.00	90.00	179.44	8,643.00	-597.48	760.94	654.82	0.00	0.00	0.00
9,700.00	90.00	179.44	8,643.00	-697.47	761.92	754.59	0.00	0.00	0.00
9,800.00	90.00	179.44	8,643.00	-797.47	762.90	854.36	0.00	0.00	0.00
9,900.00	90.00	179.44	8,643.00	-897.46	763.88	954.13	0.00	0.00	0.00
10,000.00	90.00	179.44	8,643.00	-997.46	764.86	1,053.90	0.00	0.00	0.00
10,100.00	90.00	179.44	8,643.00	-1,097.45	765.84	1,153.67	0.00	0.00	0.00
10,200.00	90.00	179.44	8,643.00	-1,197.45	766.82	1,253.43	0.00	0.00	0.00
10,300.00	90.00	179.44	8,643.00	-1,297.44	767.80	1,353.20	0.00	0.00	0.00
10,400.00	90.00	179.44	8,643.00	-1,397.44	768.78	1,452.97	0.00	0.00	0.00
10,500.00	90.00	179.44	8,643.00	-1,497.43	769.76	1,552.74	0.00	0.00	0.00
10,600.00	90.00	179.44	8,643.00	-1,597.43	770.74	1,652.51	0.00	0.00	0.00
10,700.00	90.00	179.44	8,643.00	-1,697.42	771.72	1,752.28	0.00	0.00	0.00
10,800.00	90.00	179.44	8,643.00	-1,797.42	772.70	1,852.05	0.00	0.00	0.00
10,900.00	90.00	179.44	8,643.00	-1,897.41	773.68	1,951.82	0.00	0.00	0.00
11,000.00	90.00	179.44	8,643.00	-1,997.41	774.65	2,051.58	0.00	0.00	0.00
11,100.00	90.00	179.44	8,643.00	-2,097.41	775.63	2,151.35	0.00	0.00	0.00
11,200.00	90.00	179.44	8,643.00	-2,197.40	776.61	2,251.12	0.00	0.00	0.00
11,300.00	90.00	179.44	8,643.00	-2,297.40	777.59	2,350.89	0.00	0.00	0.00
11,400.00	90.00	179.44	8,643.00	-2,397.39	778.57	2,450.66	0.00	0.00	0.00
11,500.00	90.00	179.44	8,643.00	-2,497.39	779.55	2,550.43	0.00	0.00	0.00
11,600.00	90.00	179.44	8,643.00	-2,597.38	780.53	2,650.20	0.00	0.00	0.00
11,700.00	90.00	179.44	8,643.00	-2,697.38	781.51	2,749.97	0.00	0.00	0.00
11,800.00	90.00	179.44	8,643.00	-2,797.37	782.49	2,849.73	0.00	0.00	0.00
11,900.00	90.00	179.44	8,643.00	-2,897.37	783.47	2,949.50	0.00	0.00	0.00
12,000.00	90.00	179.44	8,643.00	-2,997.36	784.45	3,049.27	0.00	0.00	0.00
12,100.00	90.00	179.44	8,643.00	-3,097.36	785.43	3,149.04	0.00	0.00	0.00
12,200.00	90.00	179.44	8,643.00	-3,197.35	786.41	3,248.81	0.00	0.00	0.00
12,300.00	90.00	179.44	8,643.00	-3,297.35	787.39	3,348.58	0.00	0.00	0.00
12,400.00	90.00	179.44	8,643.00	-3,397.34	788.37	3,448.35	0.00	0.00	0.00
12,500.00	90.00	179.44	8,643.00	-3,497.34	789.34	3,548.12	0.00	0.00	0.00
12,600.00	90.00	179.44	8,643.00	-3,597.33	790.32	3,647.88	0.00	0.00	0.00
12,700.00	90.00	179.44	8,643.00	-3,697.33	791.30	3,747.65	0.00	0.00	0.00
12,800.00	90.00	179.44	8,643.00	-3,797.32	792.28	3,847.42	0.00	0.00	0.00
12,900.00	90.00	179.44	8,643.00	-3,897.32	793.26	3,947.19	0.00	0.00	0.00
13,000.00	90.00	179.44	8,643.00	-3,997.31	794.24	4,046.96	0.00	0.00	0.00
13,100.00	90.00	179.44	8,643.00	-4,097.31	795.22	4,146.73	0.00	0.00	0.00
13,200.00	90.00	179.44	8,643.00	-4,197.30	796.20	4,246.50	0.00	0.00	0.00
13,300.00	90.00	179.44	8,643.00	-4,297.30	797.18	4,346.27	0.00	0.00	0.00
13,400.00	90.00	179.44	8,643.00	-4,397.29	798.16	4,446.03	0.00	0.00	0.00
13,500.00	90.00	179.44	8,643.00	-4,497.29	799.14	4,545.80	0.00	0.00	0.00
13,600.00	90.00	179.44	8,643.00	-4,597.29	800.12	4,645.57	0.00	0.00	0.00
13,700.00	90.00	179.44	8,643.00	-4,697.28	801.10	4,745.34	0.00	0.00	0.00
13,800.00	90.00	179.44	8,643.00	-4,797.28	802.08	4,845.11	0.00	0.00	0.00
13,900.00	90.00	179.44	8,643.00	-4,897.27	803.06	4,944.88	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 102H
Company:	Franklin Mountain Energy	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 102H	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	90.00	179.44	8,643.00	-4,997.27	804.03	5,044.65	0.00	0.00	0.00
14,100.00	90.00	179.44	8,643.00	-5,097.26	805.01	5,144.42	0.00	0.00	0.00
14,200.00	90.00	179.44	8,643.00	-5,197.26	805.99	5,244.18	0.00	0.00	0.00
14,300.00	90.00	179.44	8,643.00	-5,297.25	806.97	5,343.95	0.00	0.00	0.00
14,400.00	90.00	179.44	8,643.00	-5,397.25	807.95	5,443.72	0.00	0.00	0.00
14,500.00	90.00	179.44	8,643.00	-5,497.24	808.93	5,543.49	0.00	0.00	0.00
14,600.00	90.00	179.44	8,643.00	-5,597.24	809.91	5,643.26	0.00	0.00	0.00
14,700.00	90.00	179.44	8,643.00	-5,697.23	810.89	5,743.03	0.00	0.00	0.00
14,800.00	90.00	179.44	8,643.00	-5,797.23	811.87	5,842.80	0.00	0.00	0.00
14,900.00	90.00	179.44	8,643.00	-5,897.22	812.85	5,942.57	0.00	0.00	0.00
15,000.00	90.00	179.44	8,643.00	-5,997.22	813.83	6,042.33	0.00	0.00	0.00
15,100.00	90.00	179.44	8,643.00	-6,097.21	814.81	6,142.10	0.00	0.00	0.00
15,200.00	90.00	179.44	8,643.00	-6,197.21	815.79	6,241.87	0.00	0.00	0.00
15,300.00	90.00	179.44	8,643.00	-6,297.20	816.77	6,341.64	0.00	0.00	0.00
15,400.00	90.00	179.44	8,643.00	-6,397.20	817.75	6,441.41	0.00	0.00	0.00
15,500.00	90.00	179.44	8,643.00	-6,497.19	818.72	6,541.18	0.00	0.00	0.00
15,600.00	90.00	179.44	8,643.00	-6,597.19	819.70	6,640.95	0.00	0.00	0.00
15,700.00	90.00	179.44	8,643.00	-6,697.18	820.68	6,740.72	0.00	0.00	0.00
15,800.00	90.00	179.44	8,643.00	-6,797.18	821.66	6,840.48	0.00	0.00	0.00
15,900.00	90.00	179.44	8,643.00	-6,897.17	822.64	6,940.25	0.00	0.00	0.00
16,000.00	90.00	179.44	8,643.00	-6,997.17	823.62	7,040.02	0.00	0.00	0.00
16,100.00	90.00	179.44	8,643.00	-7,097.17	824.60	7,139.79	0.00	0.00	0.00
16,200.00	90.00	179.44	8,643.00	-7,197.16	825.58	7,239.56	0.00	0.00	0.00
16,300.00	90.00	179.44	8,643.00	-7,297.16	826.56	7,339.33	0.00	0.00	0.00
16,400.00	90.00	179.44	8,643.00	-7,397.15	827.54	7,439.10	0.00	0.00	0.00
16,500.00	90.00	179.44	8,643.00	-7,497.15	828.52	7,538.87	0.00	0.00	0.00
16,600.00	90.00	179.44	8,643.00	-7,597.14	829.50	7,638.63	0.00	0.00	0.00
16,700.00	90.00	179.44	8,643.00	-7,697.14	830.48	7,738.40	0.00	0.00	0.00
16,800.00	90.00	179.44	8,643.00	-7,797.13	831.46	7,838.17	0.00	0.00	0.00
16,900.00	90.00	179.44	8,643.00	-7,897.13	832.44	7,937.94	0.00	0.00	0.00
17,000.00	90.00	179.44	8,643.00	-7,997.12	833.41	8,037.71	0.00	0.00	0.00
17,100.00	90.00	179.44	8,643.00	-8,097.12	834.39	8,137.48	0.00	0.00	0.00
17,200.00	90.00	179.44	8,643.00	-8,197.11	835.37	8,237.25	0.00	0.00	0.00
17,300.00	90.00	179.44	8,643.00	-8,297.11	836.35	8,337.02	0.00	0.00	0.00
17,400.00	90.00	179.44	8,643.00	-8,397.10	837.33	8,436.78	0.00	0.00	0.00
17,500.00	90.00	179.44	8,643.00	-8,497.10	838.31	8,536.55	0.00	0.00	0.00
17,600.00	90.00	179.44	8,643.00	-8,597.09	839.29	8,636.32	0.00	0.00	0.00
17,700.00	90.00	179.44	8,643.00	-8,697.09	840.27	8,736.09	0.00	0.00	0.00
17,800.00	90.00	179.44	8,643.00	-8,797.08	841.25	8,835.86	0.00	0.00	0.00
17,900.00	90.00	179.44	8,643.00	-8,897.08	842.23	8,935.63	0.00	0.00	0.00
18,000.00	90.00	179.44	8,643.00	-8,997.07	843.21	9,035.40	0.00	0.00	0.00
18,100.00	90.00	179.44	8,643.00	-9,097.07	844.19	9,135.17	0.00	0.00	0.00
18,200.00	90.00	179.44	8,643.00	-9,197.06	845.17	9,234.93	0.00	0.00	0.00
18,300.00	90.00	179.44	8,643.00	-9,297.06	846.15	9,334.70	0.00	0.00	0.00
18,400.00	90.00	179.44	8,643.00	-9,397.06	847.13	9,434.47	0.00	0.00	0.00
18,500.00	90.00	179.44	8,643.00	-9,497.05	848.10	9,534.24	0.00	0.00	0.00
18,600.00	90.00	179.44	8,643.00	-9,597.05	849.08	9,634.01	0.00	0.00	0.00
18,700.00	90.00	179.44	8,643.00	-9,697.04	850.06	9,733.78	0.00	0.00	0.00
18,800.00	90.00	179.44	8,643.00	-9,797.04	851.04	9,833.55	0.00	0.00	0.00
18,900.00	90.00	179.44	8,643.00	-9,897.03	852.02	9,933.32	0.00	0.00	0.00
19,000.00	90.00	179.44	8,643.00	-9,997.03	853.00	10,033.08	0.00	0.00	0.00
19,100.00	90.00	179.44	8,643.00	-10,097.02	853.98	10,132.85	0.00	0.00	0.00
19,200.00	90.00	179.44	8,643.00	-10,197.02	854.96	10,232.62	0.00	0.00	0.00
19,300.00	90.00	179.44	8,643.00	-10,297.01	855.94	10,332.39	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 102H
Company:	Franklin Mountain Energy	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 102H	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	90.00	179.44	8,643.00	-10,397.01	856.92	10,432.16	0.00	0.00	0.00
19,500.00	90.00	179.44	8,643.00	-10,497.00	857.90	10,531.93	0.00	0.00	0.00
19,600.00	90.00	179.44	8,643.00	-10,597.00	858.88	10,631.70	0.00	0.00	0.00
19,700.00	90.00	179.44	8,643.00	-10,696.99	859.86	10,731.47	0.00	0.00	0.00
19,800.00	90.00	179.44	8,643.00	-10,796.99	860.84	10,831.23	0.00	0.00	0.00
19,900.00	90.00	179.44	8,643.00	-10,896.98	861.81	10,931.00	0.00	0.00	0.00
20,000.00	90.00	179.44	8,643.00	-10,996.98	862.79	11,030.77	0.00	0.00	0.00
20,078.25	90.00	179.44	8,643.00	-11,075.23	863.56	11,108.84	0.00	0.00	0.00
TD at 20078.25 - PBHL (PF Fed Com 102H)									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (PF Fed Com 102H) - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	393,494.42	853,515.11	32.077787	-103.325441
PBHL (PF Fed Com 102) - plan hits target center - Point	0.00	0.00	8,643.00	-11,075.23	863.56	382,419.19	854,378.67	32.047324	-103.322988
LP (PF Fed Com 102H) - plan hits target center - Point	0.00	0.00	8,643.00	-52.93	755.61	393,441.49	854,270.72	32.077622	-103.323004

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,200.00	2,200.00	0.00	0.00	Start Build 1.50	
2,953.35	2,948.47	42.19	60.85	Start 3901.69 hold at 2953.35 MD	
6,855.04	6,774.53	477.81	689.15	Start Drop -1.50	
7,608.39	7,523.00	520.00	750.00	Start 547.04 hold at 7608.39 MD	
8,155.43	8,070.04	520.00	750.00	Start DLS 10.00 TFO 179.44	
9,055.43	8,643.00	-52.93	755.61	Start 11022.82 hold at 9055.43 MD	
20,078.25	8,643.00	-11,075.23	863.56	TD at 20078.25	



Franklin Mountain Energy

Lea County, NM (NAD83)

PF Fed Com

PF Fed Com 102H

OH

Plan #1

Anticollision Report

16 July, 2021





Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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	7/16/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	20,078.25	Plan #1 (OH)	OWSG (Rev2) MWD	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						
Bus Driver/Kaston Fed Com						
Bus Driver Fed Com 602H - OH - OH	7,771.23	7,713.24	122.07	85.80	3.366	CC
Bus Driver Fed Com 602H - OH - OH	8,100.00	8,041.40	123.36	85.53	3.261	ES
Bus Driver Fed Com 602H - OH - OH	8,155.43	8,096.74	123.65	85.57	3.247	SF
Bus Driver Fed Com 602H - OH - Plan #6	7,771.23	7,713.24	122.07	85.80	3.366	CC
Bus Driver Fed Com 602H - OH - Plan #6	8,100.00	8,041.40	123.36	85.53	3.261	ES
Bus Driver Fed Com 602H - OH - Plan #6	8,155.43	8,096.74	123.65	85.57	3.247	SF
Bus Driver Fed Com 702H - OH - OH	6,564.58	6,546.44	272.77	238.94	8.063	CC, ES
Bus Driver Fed Com 702H - OH - OH	6,600.00	6,578.09	273.14	239.12	8.030	SF
Bus Driver Fed Com 702H - OH - Plan #5	6,597.81	6,568.64	278.59	244.67	8.212	CC
Bus Driver Fed Com 702H - OH - Plan #5	6,600.00	6,570.70	278.60	244.66	8.209	ES
Bus Driver Fed Com 702H - OH - Plan #5	6,700.00	6,664.49	280.84	246.37	8.147	SF
Kaston Fed Com 603H - OH - OH	7,369.60	7,307.71	1,180.29	1,144.33	32.828	CC
Kaston Fed Com 603H - OH - OH	7,400.00	7,338.73	1,180.38	1,144.27	32.693	ES
Kaston Fed Com 603H - OH - OH	20,078.25	22,955.00	3,726.76	3,579.94	25.383	SF
Kaston Fed Com 703H - OH - OH	8,190.61	8,143.76	607.76	568.77	15.588	CC
Kaston Fed Com 703H - OH - OH	8,200.00	8,153.35	607.77	568.74	15.572	ES
Kaston Fed Com 703H - OH - OH	8,300.00	8,248.53	609.60	570.20	15.472	SF
Kaston Fed Com 703H - OH - Plan #9	8,190.43	8,143.55	607.93	568.87	15.564	CC
Kaston Fed Com 703H - OH - Plan #9	8,200.00	8,153.32	607.93	568.84	15.548	ES
Kaston Fed Com 703H - OH - Plan #9	8,300.00	8,248.51	609.77	570.30	15.449	SF
Judge Baylor Fed Com						
Judge Baylor Fed Com 601H - OH - Plan #5	2,200.00	2,217.00	1,243.44	1,232.57	114.427	CC
Judge Baylor Fed Com 601H - OH - Plan #5	2,300.00	2,316.99	1,243.66	1,232.29	109.372	ES
Judge Baylor Fed Com 601H - OH - Plan #5	19,100.00	22,101.01	3,846.43	3,692.05	24.914	SF
Judge Baylor Fed Com 701H - OH - Plan #5	3,583.82	3,661.64	1,213.39	1,195.37	67.365	CC
Judge Baylor Fed Com 701H - OH - Plan #5	3,700.00	3,775.08	1,213.65	1,195.02	65.174	ES
Judge Baylor Fed Com 701H - OH - Plan #5	19,100.00	22,390.61	3,986.47	3,843.46	27.874	SF
LHS Wildcat Fed Com						
LHS Wildcat Fed Com 604H - OH - OH	7,589.42	7,485.28	2,492.59	2,456.40	68.868	CC
LHS Wildcat Fed Com 604H - OH - OH	7,700.00	7,596.32	2,493.04	2,456.32	67.891	ES
LHS Wildcat Fed Com 604H - OH - OH	19,200.00	21,860.00	4,284.50	4,108.13	24.291	SF
LHS Wildcat Fed Com 705H - OH - OH	7,586.31	7,477.43	2,831.50	2,795.58	78.845	CC
LHS Wildcat Fed Com 705H - OH - OH	7,608.39	7,502.00	2,831.56	2,795.55	78.614	ES
LHS Wildcat Fed Com 705H - OH - OH	19,400.00	22,230.00	4,603.92	4,420.47	25.096	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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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

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						
PF Fed Com						
PF Fed Com 101H - OH - Plan #1	2,000.00	2,000.00	74.96	65.15	7.642	CC, ES
PF Fed Com 101H - OH - Plan #1	18,800.00	18,634.72	1,202.92	968.32	5.127	SF
PF Fed Com 501H - OH - Plan #1	2,100.00	2,100.00	50.18	39.86	4.864	CC, ES
PF Fed Com 501H - OH - Plan #1	2,200.00	2,199.26	50.91	40.09	4.705	SF
PF Fed Com 502H - OH - Plan #1	2,200.00	2,200.00	25.09	14.27	2.318	CC, ES
PF Fed Com 502H - OH - Plan #1	4,600.00	4,606.00	46.58	22.13	1.905	SF
PF Fed Com 801H - OH - Plan #1	2,000.00	2,000.00	97.63	87.82	9.953	CC, ES
PF Fed Com 801H - OH - Plan #1	2,200.00	2,194.85	102.73	91.94	9.518	SF
PF Fed Com 802H - OH - Plan #1	2,200.00	2,200.00	83.80	72.97	7.742	CC, ES
PF Fed Com 802H - OH - Plan #1	2,500.00	2,496.32	88.69	76.38	7.204	SF
PF Fed Com 803H - OH - Plan #1	1,600.00	1,600.00	76.01	68.23	9.768	CC
PF Fed Com 803H - OH - Plan #1	1,700.00	1,699.36	76.43	68.14	9.226	ES
PF Fed Com 803H - OH - Plan #1	1,900.00	1,897.14	80.98	71.70	8.730	SF

Offset Design

Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - OH

Offset Site Error: 0.00 usft

Survey Program: 112-OWSG (Rev2) MWD, 1352-OWSG (Rev2) MWD

Offset Well Error: 0.00 usft

Reference		Offset		Semi Major Axis		Distance		Minimum Separation		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)	Separation Factor
0.00	0.00	4.36	4.36	0.00	0.01	47.34	971.66	1,054.28	1,433.75		
100.00	100.00	101.16	101.16	0.13	0.13	47.33	971.82	1,054.30	1,433.87	1,433.69	0.18 7,847.018
178.02	178.02	182.52	182.52	0.41	0.39	47.33	971.84	1,054.27	1,433.86	1,433.30	0.56 2,546.954
200.00	200.00	199.16	199.16	0.48	0.45	47.33	971.89	1,054.27	1,433.91	1,433.25	0.66 2,172.060
300.00	300.00	302.46	302.45	0.84	0.82	47.29	972.77	1,053.75	1,434.11	1,432.94	1.17 1,222.406
400.00	400.00	407.52	407.47	1.20	1.19	47.18	974.69	1,051.94	1,434.09	1,432.40	1.69 847.399
500.00	500.00	527.36	527.28	1.56	1.62	47.07	975.84	1,049.10	1,432.97	1,430.72	2.25 637.316
600.00	600.00	655.15	655.02	1.92	2.07	47.03	974.37	1,045.93	1,430.36	1,427.54	2.82 507.230
700.00	700.00	767.07	766.82	2.28	2.46	47.08	970.33	1,043.59	1,426.36	1,423.01	3.35 426.136
800.00	800.00	893.28	892.68	2.63	2.90	47.35	960.92	1,043.30	1,421.14	1,417.23	3.91 363.678
900.00	900.00	971.34	970.52	2.99	3.18	47.50	955.16	1,042.45	1,415.41	1,411.05	4.35 325.119
1,000.00	1,000.00	1,063.11	1,062.13	3.35	3.51	47.66	949.69	1,042.13	1,411.13	1,406.29	4.84 291.825
1,100.00	1,100.00	1,157.80	1,156.66	3.71	3.85	47.80	944.39	1,041.67	1,407.01	1,401.68	5.33 264.148
1,200.00	1,200.00	1,249.88	1,248.64	4.07	4.18	47.94	940.04	1,041.68	1,403.83	1,398.01	5.81 241.550
1,300.00	1,300.00	1,333.00	1,331.71	4.43	4.48	48.02	937.03	1,041.46	1,401.21	1,394.94	6.27 223.312
1,400.00	1,400.00	1,425.00	1,423.68	4.79	4.68	48.07	935.03	1,041.11	1,399.48	1,392.81	6.67 209.816
1,500.00	1,500.00	1,519.00	1,517.67	5.14	4.70	48.08	934.10	1,040.26	1,398.16	1,391.21	6.95 201.289
1,586.42	1,586.42	1,592.25	1,590.91	5.45	4.74	48.04	934.53	1,039.34	1,397.71	1,390.51	7.20 194.131
1,600.00	1,600.00	1,603.54	1,602.21	5.50	4.74	48.03	934.69	1,039.22	1,397.72	1,390.48	7.24 193.055
1,700.00	1,700.00	1,695.80	1,694.44	5.86	4.80	47.95	936.40	1,038.28	1,398.20	1,390.64	7.55 185.087
1,800.00	1,800.00	1,794.13	1,792.75	6.22	4.89	47.86	938.62	1,037.33	1,399.00	1,391.11	7.89 177.318
1,900.00	1,900.00	1,893.15	1,891.74	6.58	5.00	47.77	940.86	1,036.47	1,399.88	1,391.63	8.24 169.828
2,000.00	2,000.00	1,986.03	1,984.59	6.94	5.12	47.69	942.96	1,036.02	1,401.04	1,392.43	8.61 162.807
2,100.00	2,100.00	2,078.44	2,076.98	7.29	5.26	47.63	945.20	1,036.09	1,402.73	1,393.75	8.98 156.222
2,200.00	2,200.00	2,172.62	2,171.12	7.65	5.42	47.56	947.73	1,036.55	1,404.90	1,395.54	9.36 150.021
2,300.00	2,299.99	2,269.68	2,268.13	8.01	5.60	-7.77	950.54	1,037.25	1,406.09	1,396.33	9.76 144.065
2,400.00	2,399.91	2,368.00	2,366.40	8.36	5.80	-7.87	953.60	1,038.04	1,404.89	1,394.73	10.16 138.230
2,500.00	2,499.69	2,466.45	2,464.80	8.71	6.02	-7.98	956.81	1,038.85	1,401.23	1,390.66	10.58 132.493
2,600.00	2,599.27	2,573.42	2,571.73	9.07	6.26	-8.09	959.17	1,040.28	1,394.63	1,383.62	11.01 126.693
2,700.00	2,698.57	2,679.50	2,677.78	9.43	6.51	-8.17	960.79	1,042.28	1,385.43	1,373.99	11.44 121.063

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - OH		Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1352-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				
11,800.00	8,643.00	14,968.11	11,880.95	58.04	71.93	-178.69	-2,753.18	856.12	3,234.59	3,187.53	47.06	68.733				
11,900.00	8,643.00	15,033.00	11,882.40	59.42	72.85	-178.69	-2,818.05	856.55	3,236.70	3,188.95	47.75	67.784				
12,000.00	8,643.00	15,114.65	11,884.91	60.81	74.01	-178.70	-2,899.67	856.92	3,239.70	3,191.16	48.54	66.739				
12,100.00	8,643.00	15,255.78	11,887.51	62.22	76.04	-178.72	-3,040.76	857.29	3,241.30	3,191.65	49.65	65.286				
12,200.00	8,643.00	15,317.00	11,889.15	63.64	76.92	-178.75	-3,101.96	856.40	3,243.81	3,193.47	50.34	64.433				
12,300.00	8,643.00	15,367.59	11,891.21	65.07	77.65	-178.78	-3,152.49	855.29	3,247.65	3,196.66	50.99	63.698				
12,400.00	8,643.00	15,447.73	11,895.24	66.51	78.82	-178.82	-3,232.51	853.68	3,252.57	3,200.78	51.79	62.801				
12,500.00	8,643.00	15,553.80	11,900.46	67.96	80.37	-178.89	-3,338.41	850.96	3,257.43	3,204.68	52.75	61.758				
12,600.00	8,643.00	15,642.53	11,904.92	69.41	81.67	-178.92	-3,427.03	850.35	3,262.42	3,208.81	53.61	60.851				
12,700.00	8,643.00	15,797.99	11,912.39	70.88	83.97	-178.94	-3,582.31	850.63	3,267.46	3,212.60	54.86	59.561				
12,800.00	8,643.00	15,871.27	11,915.36	72.35	85.06	-178.96	-3,655.53	850.46	3,271.46	3,215.81	55.65	58.785				
12,900.00	8,643.00	15,954.39	11,919.19	73.84	86.30	-178.97	-3,738.56	850.44	3,276.04	3,219.54	56.51	57.978				
13,000.00	8,643.00	16,027.90	11,923.00	75.32	87.40	-178.98	-3,811.97	850.60	3,281.22	3,223.92	57.30	57.264				
13,100.00	8,643.00	16,098.44	11,927.31	76.82	88.46	-178.99	-3,882.38	850.67	3,287.32	3,229.23	58.08	56.595				
13,200.00	8,643.00	16,178.47	11,932.86	78.32	89.66	-179.00	-3,962.21	851.24	3,294.23	3,235.29	58.93	55.897				
13,300.00	8,643.00	16,349.14	11,942.62	79.83	92.24	-179.02	-4,132.60	851.91	3,299.69	3,239.37	60.32	54.702				
13,400.00	8,643.00	16,405.53	11,945.55	81.34	93.09	-179.02	-4,188.91	852.60	3,305.08	3,244.04	61.03	54.151				
13,500.00	8,643.00	16,643.00	11,955.45	82.86	96.71	-178.89	-4,425.86	862.61	3,309.33	3,246.50	62.84	52.666				
13,600.00	8,643.00	16,643.00	11,955.45	84.38	96.71	-178.89	-4,425.86	862.61	3,312.98	3,249.76	63.22	52.404				
13,700.00	8,643.00	16,643.00	11,955.45	85.91	96.71	-178.89	-4,425.86	862.61	3,319.64	3,256.05	63.58	52.209				
13,800.00	8,643.00	16,643.00	11,955.45	87.44	96.71	-178.89	-4,425.86	862.61	3,329.29	3,265.36	63.93	52.079				
13,900.00	8,643.00	16,643.00	11,955.45	88.98	96.71	-178.89	-4,425.86	862.61	3,341.90	3,277.65	64.25	52.011				
14,000.00	8,643.00	16,643.00	11,955.45	90.52	96.71	-178.89	-4,425.86	862.61	3,357.45	3,292.89	64.56	52.007				
14,100.00	8,643.00	16,643.00	11,955.45	92.06	96.71	-178.89	-4,425.86	862.61	3,375.89	3,311.05	64.84	52.064				
14,200.00	8,643.00	16,643.00	11,955.45	93.61	96.71	-178.89	-4,425.86	862.61	3,397.18	3,332.08	65.10	52.184				
14,300.00	8,643.00	16,643.00	11,955.45	95.16	96.71	-178.89	-4,425.86	862.61	3,421.25	3,355.91	65.34	52.363				
14,400.00	8,643.00	16,643.00	11,955.45	96.72	96.71	-178.89	-4,425.86	862.61	3,448.06	3,382.51	65.55	52.600				
14,500.00	8,643.00	16,643.00	11,955.45	98.27	96.71	-178.89	-4,425.86	862.61	3,477.54	3,411.79	65.75	52.894				
14,600.00	8,643.00	16,643.00	11,955.45	99.83	96.71	-178.89	-4,425.86	862.61	3,509.62	3,443.70	65.92	53.242				
14,700.00	8,643.00	16,643.00	11,955.45	101.40	96.71	-178.89	-4,425.86	862.61	3,544.24	3,478.17	66.07	53.644				
14,800.00	8,643.00	16,643.00	11,955.45	102.96	96.71	-178.89	-4,425.86	862.61	3,581.31	3,515.11	66.20	54.098				
14,900.00	8,643.00	16,643.00	11,955.45	104.53	96.71	-178.89	-4,425.86	862.61	3,620.76	3,554.45	66.31	54.601				
15,000.00	8,643.00	16,643.00	11,955.45	106.10	96.71	-178.89	-4,425.86	862.61	3,662.53	3,596.12	66.41	55.153				
15,100.00	8,643.00	16,643.00	11,955.45	107.68	96.71	-178.89	-4,425.86	862.61	3,706.52	3,640.03	66.48	55.751				
15,200.00	8,643.00	16,643.00	11,955.45	109.25	96.71	-178.89	-4,425.86	862.61	3,752.66	3,686.11	66.54	56.393				
15,300.00	8,643.00	16,643.00	11,955.45	110.83	96.71	-178.89	-4,425.86	862.61	3,800.87	3,734.28	66.59	57.078				
15,400.00	8,643.00	16,643.00	11,955.45	112.41	96.71	-178.89	-4,425.86	862.61	3,851.07	3,784.45	66.62	57.804				
15,500.00	8,643.00	16,643.00	11,955.45	114.00	96.71	-178.89	-4,425.86	862.61	3,903.19	3,836.55	66.64	58.570				
15,600.00	8,643.00	16,643.00	11,955.45	115.58	96.71	-178.89	-4,425.86	862.61	3,957.15	3,890.51	66.65	59.373				
15,700.00	8,643.00	16,643.00	11,955.45	117.17	96.71	-178.89	-4,425.86	862.61	4,012.88	3,946.24	66.65	60.212				
15,800.00	8,643.00	16,643.00	11,955.45	118.75	96.71	-178.89	-4,425.86	862.61	4,070.31	4,003.67	66.63	61.086				
15,900.00	8,643.00	16,643.00	11,955.45	120.34	96.71	-178.89	-4,425.86	862.61	4,129.35	4,062.74	66.61	61.994				
16,000.00	8,643.00	16,643.00	11,955.45	121.93	96.71	-178.89	-4,425.86	862.61	4,189.95	4,123.38	66.58	62.933				
16,100.00	8,643.00	16,643.00	11,955.45	123.53	96.71	-178.89	-4,425.86	862.61	4,252.04	4,185.50	66.54	63.901				
16,200.00	8,643.00	16,643.00	11,955.45	125.12	96.71	-178.89	-4,425.86	862.61	4,315.56	4,249.06	66.50	64.898				
16,300.00	8,643.00	16,643.00	11,955.45	126.72	96.71	-178.89	-4,425.86	862.61	4,380.43	4,313.99	66.45	65.923				
16,400.00	8,643.00	16,643.00	11,955.45	128.31	96.71	-178.89	-4,425.86	862.61	4,446.61	4,380.22	66.39	66.973				
16,500.00	8,643.00	16,643.00	11,955.45	129.91	96.71	-178.89	-4,425.86	862.61	4,514.04	4,447.70	66.34	68.048				
16,600.00	8,643.00	16,643.00	11,955.45	131.51	96.71	-178.89	-4,425.86	862.61	4,582.65	4,516.38	66.28	69.145				
16,700.00	8,643.00	16,643.00	11,955.45	133.11	96.71	-178.89	-4,425.86	862.61	4,652.40	4,586.19	66.21	70.265				
16,800.00	8,643.00	16,643.00	11,955.45	134.72	96.71	-178.89	-4,425.86	862.61	4,723.24	4,657.10	66.15	71.406				
16,900.00	8,643.00	16,643.00	11,955.45	136.32	96.71	-178.89	-4,425.86	862.61	4,795.12	4,729.04	66.08	72.567				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1352-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	
17,000.00	8,643.00	16,643.00	11,955.45	137.92	96.71	-178.89	-4,425.86	862.61	4,867.99	4,801.98	66.01	73.746	
17,100.00	8,643.00	16,643.00	11,955.45	139.53	96.71	-178.89	-4,425.86	862.61	4,941.81	4,875.87	65.94	74.943	



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #6		Offset Site Error:	0.00 usft
Survey Program:													112-OWSG (Rev2) MWD, 1425-OWSG (Rev2) MWD, 12083-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	4.36	4.36	0.00	0.01	47.34	971.66	1,054.28	1,433.75							
100.00	100.00	101.16	101.16	0.13	0.13	47.33	971.82	1,054.30	1,433.87	1,433.69	0.18	7,847.018				
178.02	178.02	182.52	182.52	0.41	0.39	47.33	971.84	1,054.27	1,433.86	1,433.30	0.56	2,546.954				
200.00	200.00	199.16	199.16	0.48	0.45	47.33	971.89	1,054.27	1,433.91	1,433.25	0.66	2,172.060				
300.00	300.00	302.46	302.45	0.84	0.82	47.29	972.77	1,053.75	1,434.11	1,432.94	1.17	1,222.406				
400.00	400.00	407.52	407.47	1.20	1.19	47.18	974.69	1,051.94	1,434.09	1,432.40	1.69	847.399				
500.00	500.00	527.36	527.28	1.56	1.62	47.07	975.84	1,049.10	1,432.97	1,430.72	2.25	637.316				
600.00	600.00	655.15	655.02	1.92	2.07	47.03	974.37	1,045.93	1,430.36	1,427.54	2.82	507.230				
700.00	700.00	767.07	766.82	2.28	2.46	47.08	970.33	1,043.59	1,426.36	1,423.01	3.35	426.136				
800.00	800.00	893.28	892.68	2.63	2.90	47.35	960.92	1,043.30	1,421.14	1,417.23	3.91	363.678				
900.00	900.00	971.34	970.52	2.99	3.18	47.50	955.16	1,042.45	1,415.41	1,411.05	4.35	325.119				
1,000.00	1,000.00	1,063.11	1,062.13	3.35	3.51	47.66	949.69	1,042.13	1,411.13	1,406.29	4.84	291.825				
1,100.00	1,100.00	1,157.80	1,156.66	3.71	3.85	47.80	944.39	1,041.67	1,407.01	1,401.68	5.33	264.148				
1,200.00	1,200.00	1,249.88	1,248.64	4.07	4.18	47.94	940.04	1,041.68	1,403.83	1,398.01	5.81	241.550				
1,300.00	1,300.00	1,333.00	1,331.71	4.43	4.48	48.02	937.03	1,041.46	1,401.21	1,394.94	6.27	223.312				
1,400.00	1,400.00	1,425.00	1,423.68	4.79	4.68	48.07	935.03	1,041.11	1,399.48	1,392.81	6.67	209.816				
1,500.00	1,500.00	1,519.00	1,517.67	5.14	4.70	48.08	934.10	1,040.26	1,398.16	1,391.21	6.95	201.289				
1,586.42	1,586.42	1,592.25	1,590.91	5.45	4.74	48.04	934.53	1,039.34	1,397.71	1,390.51	7.20	194.131				
1,600.00	1,600.00	1,603.54	1,602.21	5.50	4.74	48.03	934.69	1,039.22	1,397.72	1,390.48	7.24	193.055				
1,700.00	1,700.00	1,695.80	1,694.44	5.86	4.80	47.95	936.40	1,038.28	1,398.20	1,390.64	7.55	185.087				
1,800.00	1,800.00	1,794.13	1,792.75	6.22	4.89	47.86	938.62	1,037.33	1,399.00	1,391.11	7.89	177.318				
1,900.00	1,900.00	1,893.15	1,891.74	6.58	5.00	47.77	940.86	1,036.47	1,399.88	1,391.63	8.24	169.828				
2,000.00	2,000.00	1,986.03	1,984.59	6.94	5.12	47.69	942.96	1,036.02	1,401.04	1,392.43	8.61	162.807				
2,100.00	2,100.00	2,078.44	2,076.98	7.29	5.26	47.63	945.20	1,036.09	1,402.73	1,393.75	8.98	156.222				
2,200.00	2,200.00	2,172.62	2,171.12	7.65	5.42	47.56	947.73	1,036.55	1,404.90	1,395.54	9.36	150.021				
2,300.00	2,299.99	2,269.68	2,268.13	8.01	5.60	-7.77	950.54	1,037.25	1,406.09	1,396.33	9.76	144.065				
2,400.00	2,399.91	2,368.00	2,366.40	8.36	5.80	-7.87	953.60	1,038.04	1,404.89	1,394.73	10.16	138.230				
2,500.00	2,499.69	2,466.45	2,464.80	8.71	6.02	-7.98	956.81	1,038.85	1,401.23	1,390.66	10.58	132.493				
2,600.00	2,599.27	2,573.42	2,571.73	9.07	6.26	-8.09	959.17	1,040.28	1,394.63	1,383.62	11.01	126.693				
2,700.00	2,698.57	2,679.50	2,677.78	9.43	6.51	-8.17	960.79	1,042.28	1,385.43	1,373.99	11.44	121.063				
2,800.00	2,797.54	2,807.16	2,805.44	9.79	6.82	-8.29	960.75	1,042.91	1,371.43	1,359.52	11.91	115.133				
2,900.00	2,896.09	2,897.45	2,895.72	10.17	7.05	-8.41	960.53	1,043.02	1,354.61	1,342.28	12.33	109.848				
2,953.35	2,948.47	2,934.00	2,932.27	10.37	7.15	-8.47	960.59	1,043.25	1,344.98	1,332.44	12.54	107.252				
3,000.00	2,994.22	2,979.96	2,978.23	10.55	7.27	-8.52	960.80	1,043.77	1,336.47	1,323.72	12.75	104.850				
3,100.00	3,092.28	3,067.12	3,065.37	10.94	7.51	-8.60	961.57	1,045.59	1,319.15	1,305.98	13.17	100.146				
3,200.00	3,190.34	3,192.61	3,190.82	11.33	7.85	-8.69	961.93	1,048.43	1,301.72	1,288.06	13.66	95.284				
3,300.00	3,288.41	3,362.81	3,360.87	11.73	8.33	-8.72	955.64	1,048.38	1,279.79	1,265.59	14.20	90.156				
3,400.00	3,386.47	3,517.16	3,514.64	12.14	8.78	-8.67	943.39	1,043.55	1,252.82	1,238.13	14.69	85.311				
3,500.00	3,484.53	3,618.37	3,615.30	12.55	9.09	-8.73	935.02	1,037.09	1,223.41	1,208.27	15.14	80.828				
3,600.00	3,582.59	3,700.32	3,696.86	12.97	9.34	-8.84	929.42	1,031.37	1,194.56	1,178.97	15.58	76.664				
3,700.00	3,680.65	3,784.00	3,780.22	13.39	9.60	-9.03	925.25	1,025.38	1,166.78	1,150.75	16.03	72.776				
3,800.00	3,778.71	3,915.95	3,911.54	13.81	10.02	-9.34	917.89	1,015.00	1,138.20	1,121.70	16.50	68.966				
3,900.00	3,876.77	4,033.85	4,028.47	14.24	10.41	-9.44	906.20	1,005.49	1,106.48	1,089.52	16.96	65.233				
4,000.00	3,974.84	4,115.97	4,109.87	14.67	10.69	-9.48	897.42	999.08	1,074.55	1,057.12	17.43	61.661				
4,100.00	4,072.90	4,196.76	4,190.14	15.10	10.96	-9.57	890.30	993.33	1,044.26	1,026.37	17.90	58.353				
4,200.00	4,170.96	4,282.40	4,275.30	15.53	11.25	-9.71	883.71	987.16	1,014.73	996.36	18.37	55.247				
4,300.00	4,269.02	4,358.29	4,350.88	15.97	11.51	-9.81	878.51	982.89	986.82	967.98	18.84	52.375				
4,400.00	4,367.08	4,444.00	4,436.38	16.41	11.79	-9.92	873.55	979.39	960.68	941.36	19.32	49.729				
4,500.00	4,465.14	4,534.82	4,527.02	16.85	12.10	-10.02	868.56	976.51	935.39	915.59	19.80	47.247				
4,600.00	4,563.20	4,653.13	4,644.95	17.29	12.50	-10.06	859.99	972.49	908.73	888.46	20.28	44.819				
4,700.00	4,661.26	4,748.46	4,739.90	17.73	12.83	-10.12	852.58	968.48	881.20	860.44	20.76	42.452				
4,800.00	4,759.33	4,845.24	4,836.32	18.18	13.17	-10.20	845.35	964.18	853.71	832.47	21.24	40.193				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #6		Offset Site Error:	0.00 usft
Survey Program:													112-OWSG (Rev2) MWD, 1425-OWSG (Rev2) MWD, 12083-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				
4,900.00	4,857.39	4,946.97	4,937.63	18.63	13.53	-10.30	837.51	959.42	825.91	804.19	21.72	38.026				
5,000.00	4,955.45	5,045.23	5,035.42	19.08	13.88	-10.39	829.42	954.29	797.37	775.17	22.20	35.913				
5,100.00	5,053.51	5,143.48	5,133.22	19.52	14.23	-10.54	821.76	948.87	768.94	746.26	22.69	33.895				
5,200.00	5,151.57	5,251.56	5,240.65	19.98	14.63	-10.62	811.60	942.82	739.37	716.22	23.15	31.939				
5,300.00	5,249.63	5,351.03	5,339.28	20.43	15.00	-10.50	799.67	937.95	708.50	684.87	23.63	29.988				
5,400.00	5,347.69	5,443.29	5,430.76	20.88	15.34	-10.35	788.48	933.66	677.71	653.59	24.12	28.096				
5,500.00	5,445.76	5,534.06	5,520.82	21.33	15.68	-10.19	777.77	929.88	647.48	622.85	24.62	26.295				
5,600.00	5,543.82	5,630.99	5,617.04	21.79	16.04	-10.01	766.72	926.12	617.72	592.61	25.11	24.601				
5,700.00	5,641.88	5,728.67	5,713.99	22.24	16.41	-9.93	755.93	921.00	587.27	561.67	25.59	22.947				
5,800.00	5,739.94	5,818.52	5,803.21	22.70	16.75	-9.90	746.54	916.09	557.08	530.97	26.11	21.338				
5,900.00	5,838.00	5,908.44	5,892.63	23.16	17.08	-9.89	738.04	911.96	528.14	501.51	26.62	19.836				
6,000.00	5,936.06	6,002.40	5,986.13	23.61	17.43	-9.86	729.54	908.12	499.83	472.70	27.13	18.425				
6,100.00	6,034.12	6,096.57	6,079.85	24.07	17.78	-9.83	721.22	904.41	471.77	444.13	27.63	17.072				
6,200.00	6,132.19	6,195.00	6,177.86	24.53	18.15	-9.82	712.82	900.61	443.97	415.85	28.12	15.789				
6,300.00	6,230.25	6,297.29	6,279.58	24.99	18.53	-9.88	703.44	895.37	414.86	386.28	28.57	14.519				
6,400.00	6,328.31	6,393.81	6,375.46	25.45	18.90	-9.96	693.98	889.59	384.73	355.67	29.06	13.239				
6,500.00	6,426.37	6,489.27	6,470.29	25.91	19.27	-10.04	684.65	883.97	354.70	325.14	29.56	12.001				
6,600.00	6,524.43	6,584.02	6,564.41	26.37	19.63	-10.09	675.15	878.58	324.63	294.57	30.06	10.799				
6,700.00	6,622.49	6,676.80	6,656.63	26.83	19.98	-10.15	666.25	873.58	295.06	264.47	30.59	9.646				
6,800.00	6,720.55	6,770.58	6,749.94	27.29	20.34	-10.31	658.09	868.96	266.41	235.30	31.11	8.563				
6,855.04	6,774.53	6,822.75	6,801.87	27.55	20.53	-10.44	653.80	866.45	250.86	219.47	31.40	7.990				
6,900.00	6,818.67	6,865.57	6,844.50	27.75	20.70	-10.55	650.44	864.34	238.49	206.87	31.63	7.541				
7,000.00	6,917.18	6,961.14	6,939.70	28.20	21.05	-10.99	643.74	859.25	213.09	180.95	32.15	6.629				
7,100.00	7,016.11	7,057.09	7,035.34	28.62	21.41	-11.84	638.41	853.56	190.82	158.14	32.68	5.839				
7,200.00	7,115.39	7,154.47	7,132.44	29.02	21.76	-12.82	633.62	848.06	171.75	138.55	33.21	5.172				
7,300.00	7,214.95	7,252.14	7,229.87	29.40	22.12	-13.76	628.99	842.91	155.63	121.89	33.74	4.613				
7,400.00	7,314.72	7,351.06	7,328.57	29.77	22.48	-14.79	624.85	837.80	142.55	108.29	34.25	4.161				
7,500.00	7,414.63	7,449.51	7,426.81	30.11	22.83	-15.76	620.98	832.82	132.30	97.51	34.79	3.803				
7,608.39	7,523.00	7,555.85	7,533.01	30.45	23.21	38.90	617.40	828.58	125.26	89.89	35.37	3.541				
7,700.00	7,614.61	7,643.79	7,620.91	30.74	23.52	38.51	615.89	826.29	122.55	86.65	35.90	3.414				
7,771.23	7,685.85	7,713.24	7,690.35	30.96	23.75	38.22	615.91	825.52	122.07	85.80	36.27	3.366 CC				
7,800.00	7,714.61	7,741.35	7,718.46	31.05	23.84	38.13	616.08	825.42	122.15	85.73	36.42	3.354				
7,900.00	7,814.61	7,841.58	7,818.68	31.37	24.15	37.97	616.69	825.45	122.65	85.76	36.89	3.325				
8,000.00	7,914.61	7,941.65	7,918.76	31.68	24.47	38.07	616.80	825.82	122.96	85.60	37.36	3.292				
8,100.00	8,014.61	8,041.40	8,018.50	31.99	24.79	38.48	616.56	826.76	123.36	85.53	37.82	3.261 ES				
8,155.43	8,070.04	8,096.74	8,073.83	32.17	24.96	38.84	616.32	827.54	123.65	85.57	38.08	3.247 SF				
8,200.00	8,114.57	8,141.21	8,118.29	32.30	25.11	-140.66	616.06	828.29	125.26	86.97	38.29	3.271				
8,250.00	8,164.18	8,190.80	8,167.87	32.42	25.27	-141.65	615.76	829.17	130.30	91.75	38.55	3.380				
8,300.00	8,213.08	8,240.09	8,217.16	32.53	25.43	-143.44	615.47	830.02	138.86	100.04	38.82	3.577				
8,350.00	8,260.89	8,288.80	8,265.87	32.63	25.59	-145.86	615.18	830.44	150.92	111.80	39.12	3.858				
8,400.00	8,307.25	8,335.88	8,312.95	32.71	25.75	-148.56	614.92	830.37	166.71	127.27	39.44	4.227				
8,450.00	8,351.81	8,380.89	8,357.95	32.77	25.90	-151.24	614.78	829.84	186.47	146.69	39.77	4.688				
8,500.00	8,394.21	8,423.31	8,400.36	32.81	26.04	-153.65	614.75	828.96	210.27	170.17	40.10	5.244				
8,550.00	8,434.16	8,462.78	8,439.83	32.84	26.18	-155.56	614.76	828.20	238.11	197.71	40.40	5.894				
8,600.00	8,471.33	8,499.49	8,476.53	32.85	26.30	-156.95	614.80	827.64	269.73	229.06	40.66	6.634				
8,650.00	8,505.44	8,533.07	8,510.11	32.85	26.41	-157.81	614.85	827.24	304.81	263.92	40.89	7.454				
8,700.00	8,536.25	8,563.30	8,540.34	32.84	26.51	-158.11	614.93	826.96	343.02	301.93	41.09	8.348				
8,750.00	8,563.50	8,589.97	8,567.01	32.81	26.60	-157.79	615.02	826.77	384.00	342.74	41.26	9.308				
8,800.00	8,587.00	8,613.21	8,590.25	32.78	26.68	-156.70	615.11	826.64	427.37	385.97	41.39	10.324				
8,850.00	8,606.56	8,632.59	8,609.63	32.74	26.74	-154.49	615.19	826.52	472.73	431.22	41.51	11.389				
8,900.00	8,622.05	8,647.88	8,624.92	32.70	26.79	-150.39	615.25	826.44	519.72	478.12	41.60	12.493				
8,950.00	8,633.33	8,658.97	8,636.00	32.66	26.83	-142.61	615.29	826.37	567.96	526.28	41.67	13.629				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #6												Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1425-OWSG (Rev2) MWD, 12083-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	8,643.00	22,076.25	12,213.52	173.45	182.90	-179.02	-9,853.97	912.72	3,582.95	3,462.50	120.45	29.746	
19,300.00	8,643.00	22,175.79	12,223.04	175.07	184.51	-179.02	-9,953.05	913.60	3,592.51	3,470.98	121.52	29.562	
19,400.00	8,643.00	22,275.33	12,232.56	176.69	186.12	-179.03	-10,052.13	914.47	3,602.07	3,479.47	122.60	29.381	
19,500.00	8,643.00	22,374.88	12,242.07	178.32	187.73	-179.03	-10,151.21	915.34	3,611.62	3,487.95	123.67	29.204	
19,600.00	8,643.00	22,474.42	12,251.59	179.94	189.34	-179.03	-10,250.30	916.21	3,621.18	3,496.44	124.74	29.029	
19,700.00	8,643.00	22,573.96	12,261.11	181.56	190.96	-179.04	-10,349.38	917.08	3,630.74	3,504.92	125.82	28.857	
19,800.00	8,643.00	22,673.50	12,270.63	183.19	192.57	-179.04	-10,448.46	917.95	3,640.30	3,513.40	126.89	28.688	
19,900.00	8,643.00	22,773.04	12,280.14	184.82	194.18	-179.05	-10,547.54	918.82	3,649.86	3,521.89	127.97	28.521	
20,000.00	8,643.00	22,872.59	12,289.66	186.44	195.79	-179.05	-10,646.62	919.69	3,659.42	3,530.37	129.04	28.358	
20,078.25	8,643.00	22,950.48	12,297.11	187.71	197.06	-179.05	-10,724.16	920.37	3,666.89	3,537.01	129.89	28.231	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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: 16-OWSG (Rev2) MWD, 1424-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	0.00	0.00	0.00	0.00	46.38	971.33	1,019.29	1,408.00					
100.00	100.00	115.27	115.24	0.13	0.20	46.31	972.47	1,018.12	1,407.97	1,407.75	0.22	6,270.664		
134.46	134.46	138.87	138.83	0.25	0.28	46.29	972.82	1,017.67	1,407.84	1,407.47	0.37	3,838.747		
200.00	200.00	202.26	202.22	0.48	0.49	46.26	973.35	1,017.20	1,407.87	1,407.18	0.69	2,038.464		
300.00	300.00	324.79	324.73	0.84	0.93	46.20	973.86	1,015.48	1,407.13	1,405.87	1.25	1,121.728		
400.00	400.00	430.43	430.34	1.20	1.31	46.13	973.73	1,013.08	1,405.40	1,403.63	1.77	792.020		
500.00	500.00	551.00	550.84	1.56	1.74	46.03	973.34	1,009.01	1,402.72	1,400.38	2.34	600.533		
600.00	600.00	654.94	654.69	1.92	2.12	45.92	972.97	1,004.64	1,399.46	1,396.61	2.85	490.456		
700.00	700.00	740.00	739.68	2.28	2.43	45.83	972.65	1,001.18	1,396.30	1,392.98	3.32	420.382		
800.00	800.00	840.62	840.26	2.63	2.79	45.77	972.13	998.44	1,393.98	1,390.15	3.83	363.999		
900.00	900.00	939.43	939.03	2.99	3.15	45.73	970.98	995.92	1,391.34	1,387.01	4.33	321.187		
1,000.00	1,000.00	1,039.75	1,039.32	3.35	3.51	45.70	969.76	993.85	1,389.02	1,384.18	4.84	287.140		
1,100.00	1,100.00	1,147.41	1,146.94	3.71	3.89	45.69	967.89	991.32	1,386.12	1,380.76	5.36	258.534		
1,200.00	1,200.00	1,233.28	1,232.78	4.07	4.20	45.66	966.84	989.43	1,383.68	1,377.84	5.83	237.276		
1,300.00	1,300.00	1,327.46	1,326.95	4.43	4.50	45.64	966.09	987.83	1,381.90	1,375.61	6.30	219.439		
1,400.00	1,400.00	1,415.14	1,414.62	4.79	4.66	45.61	965.79	986.68	1,380.73	1,374.06	6.67	207.158		
1,500.00	1,500.00	1,513.58	1,513.05	5.14	4.71	45.59	965.80	985.80	1,380.09	1,373.13	6.96	198.412		
1,600.00	1,600.00	1,612.23	1,611.70	5.50	4.76	45.57	965.68	985.13	1,379.52	1,372.26	7.26	190.038		
1,700.00	1,700.00	1,708.72	1,708.18	5.86	4.84	45.56	965.58	984.69	1,379.12	1,371.54	7.58	181.872		
1,800.00	1,800.00	1,806.67	1,806.14	6.22	4.94	45.55	965.57	984.44	1,378.93	1,371.01	7.93	173.979		
1,900.00	1,900.00	1,906.35	1,905.82	6.58	5.06	45.54	965.68	984.19	1,378.83	1,370.54	8.29	166.397		
2,000.00	2,000.00	2,005.79	2,005.26	6.94	5.21	45.54	965.74	983.99	1,378.72	1,370.06	8.66	159.189		
2,015.41	2,015.41	2,020.44	2,019.91	6.99	5.23	45.54	965.75	983.97	1,378.72	1,370.00	8.72	158.123		
2,100.00	2,100.00	2,101.41	2,100.88	7.29	5.37	45.52	966.02	983.88	1,378.85	1,369.80	9.04	152.490		
2,200.00	2,200.00	2,199.86	2,199.32	7.65	5.54	45.51	966.52	983.83	1,379.17	1,369.73	9.44	146.165		
2,300.00	2,299.99	2,297.69	2,297.15	8.01	5.73	-9.78	967.05	983.89	1,378.30	1,368.47	9.83	140.153		
2,400.00	2,399.91	2,393.81	2,393.27	8.36	5.93	-9.83	967.82	984.09	1,375.14	1,364.90	10.24	134.341		
2,500.00	2,499.69	2,492.34	2,491.80	8.71	6.14	-9.91	968.69	984.38	1,369.53	1,358.88	10.65	128.605		
2,600.00	2,599.27	2,609.55	2,609.00	9.07	6.42	-10.03	969.62	984.61	1,361.28	1,350.19	11.10	122.688		
2,700.00	2,698.57	2,755.40	2,754.80	9.43	6.78	-10.24	968.06	981.67	1,347.51	1,335.93	11.58	116.322		
2,800.00	2,797.54	2,842.94	2,842.30	9.79	7.01	-10.43	966.75	978.93	1,330.14	1,318.14	12.01	110.798		
2,900.00	2,896.09	2,933.89	2,933.20	10.17	7.25	-10.64	965.56	976.60	1,310.78	1,298.35	12.43	105.423		
2,953.35	2,948.47	3,009.99	3,009.26	10.37	7.46	-10.82	964.07	974.41	1,299.08	1,286.38	12.70	102.290		
3,000.00	2,994.22	3,093.56	3,092.68	10.55	7.70	-11.00	961.29	970.43	1,287.53	1,274.58	12.95	99.436		
3,100.00	3,092.28	3,280.30	3,278.17	10.94	8.27	-11.57	950.02	952.51	1,257.41	1,243.96	13.46	93.445		
3,200.00	3,190.34	3,397.76	3,394.10	11.33	8.65	-12.04	940.09	936.44	1,223.07	1,209.16	13.91	87.953		
3,300.00	3,288.41	3,475.22	3,470.53	11.73	8.92	-12.37	933.54	925.68	1,188.71	1,174.37	14.35	82.841		
3,400.00	3,386.47	3,567.13	3,561.37	12.14	9.23	-12.78	926.54	913.53	1,155.41	1,140.61	14.80	78.058		
3,500.00	3,484.53	3,707.89	3,699.93	12.55	9.74	-13.56	914.97	891.76	1,120.39	1,105.13	15.26	73.431		
3,600.00	3,582.59	3,818.29	3,807.71	12.97	10.16	-14.40	905.28	869.95	1,082.20	1,066.49	15.71	68.878		
3,700.00	3,680.65	3,911.03	3,897.97	13.39	10.54	-15.26	897.70	850.05	1,043.56	1,027.37	16.18	64.495		
3,800.00	3,778.71	4,001.08	3,985.54	13.81	10.91	-16.19	890.75	830.23	1,005.11	988.45	16.66	60.332		
3,900.00	3,876.77	4,090.95	4,073.00	14.24	11.28	-17.18	883.78	810.74	967.08	949.94	17.15	56.401		
4,000.00	3,974.84	4,181.64	4,161.43	14.67	11.66	-18.13	875.51	792.41	929.22	911.59	17.64	52.687		
4,100.00	4,072.90	4,255.00	4,233.20	15.10	11.97	-18.86	868.27	779.07	892.33	874.18	18.15	49.163		
4,200.00	4,170.96	4,328.27	4,305.27	15.53	12.27	-19.53	861.38	767.82	857.62	838.95	18.67	45.947		
4,300.00	4,269.02	4,400.28	4,376.50	15.97	12.55	-20.13	855.53	759.11	825.78	806.60	19.18	43.050		
4,400.00	4,367.08	4,481.00	4,456.63	16.41	12.85	-20.79	850.09	751.03	796.30	776.61	19.69	40.437		
4,500.00	4,465.14	4,570.82	4,545.88	16.85	13.19	-21.59	844.86	742.38	767.93	747.73	20.20	38.011		
4,600.00	4,563.20	4,659.34	4,633.88	17.29	13.52	-22.47	840.46	733.85	740.42	719.70	20.72	35.732		
4,700.00	4,661.26	4,747.84	4,721.97	17.73	13.84	-23.37	836.69	726.35	714.27	693.02	21.24	33.621		
4,800.00	4,759.33	4,849.38	4,823.07	18.18	14.21	-24.45	832.16	717.94	688.28	666.51	21.77	31.623		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - OH		Offset Site Error:	0.00 usft
Survey Program:													16-OWSG (Rev2) MWD, 1424-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				
4,900.00	4,857.39	4,947.03	4,920.20	18.63	14.58	-25.60	827.23	709.14	661.65	639.35	22.29	29.678				
5,000.00	4,955.45	5,047.46	5,020.12	19.08	14.95	-26.85	822.17	700.51	635.52	612.70	22.82	27.844				
5,100.00	5,053.51	5,166.16	5,137.89	19.52	15.41	-28.55	813.92	688.22	607.30	583.98	23.32	26.040				
5,200.00	5,151.57	5,279.45	5,249.51	19.98	15.89	-30.65	803.28	672.09	575.60	551.78	23.82	24.161				
5,300.00	5,249.63	5,376.66	5,344.83	20.43	16.31	-32.86	793.12	655.91	542.63	518.23	24.40	22.238				
5,400.00	5,347.69	5,470.05	5,436.29	20.88	16.72	-35.29	783.09	639.98	510.02	485.00	25.02	20.386				
5,500.00	5,445.76	5,561.69	5,526.06	21.33	17.13	-37.95	773.12	624.46	478.30	452.62	25.67	18.631				
5,600.00	5,543.82	5,654.94	5,617.42	21.79	17.55	-41.00	762.90	608.81	447.67	421.32	26.35	16.990				
5,700.00	5,641.88	5,747.21	5,707.76	22.24	17.96	-44.45	752.67	593.10	418.25	391.18	27.07	15.450				
5,800.00	5,739.94	5,836.64	5,795.42	22.70	18.36	-48.18	742.93	578.26	390.77	362.92	27.85	14.032				
5,900.00	5,838.00	5,926.60	5,883.83	23.16	18.76	-52.23	733.64	564.51	365.97	337.32	28.65	12.773				
6,000.00	5,936.06	6,020.65	5,976.45	23.61	19.16	-56.83	724.17	551.20	343.71	314.25	29.46	11.668				
6,100.00	6,034.12	6,115.94	6,070.33	24.07	19.57	-61.92	714.01	538.43	323.38	293.10	30.28	10.680				
6,200.00	6,132.19	6,209.60	6,162.63	24.53	19.98	-67.43	703.67	526.28	305.56	274.44	31.12	9.819				
6,300.00	6,230.25	6,303.36	6,255.06	24.99	20.38	-73.42	693.35	514.48	291.03	259.09	31.95	9.110				
6,400.00	6,328.31	6,396.82	6,347.19	25.45	20.78	-79.91	682.93	502.64	280.23	247.49	32.74	8.560				
6,500.00	6,426.37	6,488.18	6,437.29	25.91	21.17	-86.53	673.10	491.18	273.97	240.52	33.44	8.192				
6,564.58	6,489.70	6,546.44	6,494.87	26.21	21.41	-90.72	667.62	484.22	272.77	238.94	33.83	8.063 CC, ES				
6,600.00	6,524.43	6,578.09	6,526.17	26.37	21.55	-92.96	664.95	480.42	273.14	239.12	34.02	8.030 SF				
6,700.00	6,622.49	6,668.94	6,616.09	26.83	21.92	-99.22	658.28	469.29	277.88	243.42	34.46	8.064				
6,800.00	6,720.55	6,762.83	6,709.03	27.29	22.31	-105.36	652.09	457.48	287.14	252.33	34.82	8.247				
6,855.04	6,774.53	6,815.68	6,761.37	27.55	22.53	-108.62	648.63	451.00	293.61	258.61	34.99	8.390				
6,900.00	6,818.67	6,859.50	6,804.79	27.75	22.71	-111.23	645.78	445.85	299.34	264.20	35.13	8.520				
7,000.00	6,917.18	6,957.27	6,901.77	28.20	23.11	-116.33	639.52	435.11	312.63	277.20	35.43	8.824				
7,100.00	7,016.11	7,055.92	6,999.74	28.62	23.50	-120.52	633.62	425.22	326.06	290.31	35.74	9.123				
7,200.00	7,115.39	7,151.15	7,094.42	29.02	23.87	-123.76	628.63	416.19	339.25	303.21	36.04	9.414				
7,300.00	7,214.95	7,247.82	7,190.52	29.40	24.25	-126.35	624.55	406.55	352.61	316.25	36.37	9.696				
7,400.00	7,314.72	7,349.28	7,291.39	29.77	24.64	-128.52	620.13	396.64	364.76	328.00	36.76	9.923				
7,500.00	7,414.63	7,452.32	7,393.96	30.11	25.04	-130.16	615.88	387.77	374.56	337.37	37.18	10.073				
7,608.39	7,523.00	7,561.47	7,502.76	30.45	25.44	-75.93	612.81	379.58	382.67	345.03	37.65	10.164				
7,700.00	7,614.61	7,654.64	7,595.69	30.74	25.78	-76.39	611.22	373.18	388.41	350.35	38.06	10.204				
7,800.00	7,714.61	7,759.52	7,700.39	31.05	26.15	-76.74	610.20	367.09	393.84	355.29	38.55	10.217				
7,900.00	7,814.61	7,865.80	7,806.57	31.37	26.51	-77.06	609.03	362.58	397.72	358.68	39.04	10.188				
8,000.00	7,914.61	7,969.76	7,910.47	31.68	26.86	-77.33	607.81	359.47	400.37	360.86	39.51	10.134				
8,100.00	8,014.61	8,071.91	8,012.60	31.99	27.19	-77.35	608.06	357.68	402.13	362.15	39.98	10.059				
8,155.43	8,070.04	8,127.29	8,067.98	32.17	27.36	-77.28	608.74	356.91	403.04	362.80	40.24	10.017				
8,200.00	8,114.57	8,172.12	8,112.80	32.30	27.50	103.48	609.35	356.32	404.15	363.69	40.45	9.991				
8,250.00	8,164.18	8,222.11	8,162.78	32.42	27.66	104.16	609.96	355.69	406.36	365.65	40.71	9.981				
8,300.00	8,213.08	8,272.03	8,212.70	32.53	27.81	105.29	610.46	355.14	409.73	368.73	41.00	9.994				
8,350.00	8,260.89	8,320.92	8,261.58	32.63	27.96	106.78	610.85	354.71	414.48	373.18	41.30	10.036				
8,400.00	8,307.25	8,368.57	8,309.23	32.71	28.11	108.52	611.13	354.42	420.96	379.35	41.61	10.117				
8,450.00	8,351.81	8,414.33	8,354.99	32.77	28.25	110.39	611.34	354.28	429.57	387.65	41.92	10.247				
8,500.00	8,394.21	8,457.64	8,398.30	32.81	28.38	112.22	611.50	354.26	440.75	398.53	42.22	10.439				
8,550.00	8,434.16	8,498.44	8,439.09	32.84	28.50	113.89	611.64	354.33	454.91	412.41	42.51	10.702				
8,600.00	8,471.33	8,535.80	8,476.46	32.85	28.61	115.21	611.77	354.46	472.37	429.61	42.76	11.047				
8,650.00	8,505.44	8,570.07	8,510.73	32.85	28.71	116.09	611.89	354.60	493.35	450.37	42.98	11.477				
8,700.00	8,536.25	8,601.09	8,541.75	32.84	28.80	116.43	611.99	354.75	517.90	474.73	43.17	11.997				
8,750.00	8,563.50	8,628.89	8,569.54	32.81	28.88	116.12	612.07	354.91	545.94	502.62	43.32	12.604				
8,800.00	8,587.00	8,652.91	8,593.57	32.78	28.94	115.01	612.12	355.06	577.27	533.85	43.42	13.294				
8,850.00	8,606.56	8,672.96	8,613.62	32.74	29.00	112.92	612.14	355.20	611.62	568.12	43.50	14.062				
8,900.00	8,622.05	8,688.90	8,629.56	32.70	29.05	109.70	612.14	355.32	648.63	605.10	43.54	14.899				
8,950.00	8,633.33	8,700.88	8,641.53	32.66	29.08	105.19	612.14	355.42	687.91	644.36	43.55	15.796				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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: 16-OWSG (Rev2) MWD, 1424-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		
9,000.00	8,640.32	8,708.35	8,649.01	32.62	29.10	99.16	612.14	355.49	729.01	685.47	43.54	16.743		
9,050.00	8,642.97	8,711.24	8,651.89	32.59	29.11	91.56	612.13	355.51	771.48	727.97	43.51	17.730		
9,055.43	8,643.00	8,711.27	8,651.92	32.59	29.11	90.64	612.13	355.51	776.15	732.64	43.51	17.839		
9,100.00	8,643.00	8,711.32	8,651.98	32.59	29.11	90.65	612.13	355.51	814.88	771.41	43.47	18.744		
9,200.00	8,643.00	8,711.44	8,652.09	32.65	29.11	90.67	612.13	355.52	903.73	860.33	43.40	20.823		
9,300.00	8,643.00	8,711.56	8,652.21	32.85	29.11	90.69	612.13	355.52	994.71	951.37	43.33	22.956		
9,400.00	8,643.00	8,711.68	8,652.33	33.19	29.11	90.70	612.13	355.52	1,087.26	1,044.00	43.27	25.129		
9,500.00	8,643.00	8,711.80	8,652.45	33.64	29.11	90.72	612.13	355.52	1,181.04	1,137.82	43.21	27.331		
9,600.00	8,643.00	8,711.92	8,652.58	34.19	29.11	90.74	612.13	355.52	1,275.76	1,232.59	43.16	29.556		
9,700.00	8,643.00	8,712.05	8,652.70	34.82	29.11	90.76	612.13	355.52	1,371.22	1,328.10	43.12	31.799		
9,800.00	8,643.00	8,712.18	8,652.83	35.51	29.11	90.78	612.13	355.52	1,467.30	1,424.21	43.08	34.056		
9,900.00	8,643.00	8,712.30	8,652.96	36.27	29.11	90.79	612.13	355.52	1,563.86	1,520.81	43.05	36.324		
10,000.00	8,643.00	8,712.43	8,653.08	37.08	29.11	90.81	612.13	355.52	1,660.83	1,617.81	43.03	38.601		
10,100.00	8,643.00	8,712.56	8,653.22	37.95	29.11	90.83	612.13	355.53	1,758.15	1,715.14	43.00	40.885		
10,200.00	8,643.00	8,712.69	8,653.35	38.86	29.12	90.85	612.13	355.53	1,855.74	1,812.76	42.98	43.175		
10,300.00	8,643.00	8,712.83	8,653.48	39.82	29.12	90.87	612.13	355.53	1,953.58	1,910.62	42.97	45.468		
10,400.00	8,643.00	8,712.96	8,653.62	40.83	29.12	90.89	612.13	355.53	2,051.63	2,008.68	42.95	47.765		
10,500.00	8,643.00	8,713.10	8,653.75	41.88	29.12	90.91	612.13	355.53	2,149.86	2,106.92	42.94	50.065		
10,600.00	8,643.00	8,713.24	8,653.89	42.96	29.12	90.93	612.13	355.53	2,248.24	2,205.31	42.93	52.366		
10,700.00	8,643.00	8,713.38	8,654.03	44.07	29.12	90.95	612.13	355.53	2,346.76	2,303.84	42.93	54.669		
10,800.00	8,643.00	8,713.52	8,654.17	45.22	29.12	90.97	612.13	355.54	2,445.41	2,402.48	42.92	56.972		
10,900.00	8,643.00	8,713.66	8,654.32	46.40	29.12	90.99	612.13	355.54	2,544.15	2,501.23	42.92	59.275		
11,000.00	8,643.00	8,713.81	8,654.46	47.61	29.12	91.01	612.13	355.54	2,642.99	2,600.07	42.92	61.578		
11,100.00	8,643.00	8,713.96	8,654.61	48.84	29.12	91.04	612.13	355.54	2,741.92	2,699.00	42.92	63.881		
11,200.00	8,643.00	8,714.11	8,654.76	50.10	29.12	91.06	612.13	355.54	2,840.92	2,797.99	42.93	66.183		
11,300.00	8,643.00	8,714.26	8,654.91	51.37	29.12	91.08	612.13	355.54	2,939.99	2,897.06	42.93	68.483		
11,400.00	8,643.00	8,714.41	8,655.06	52.67	29.12	91.10	612.13	355.54	3,039.12	2,996.18	42.94	70.782		
11,500.00	8,643.00	8,714.57	8,655.22	53.99	29.12	91.12	612.13	355.55	3,138.30	3,095.36	42.94	73.080		
11,600.00	8,643.00	8,714.72	8,655.38	55.32	29.12	91.15	612.13	355.55	3,237.54	3,194.58	42.95	75.375		
11,700.00	8,643.00	8,714.88	8,655.54	56.67	29.12	91.17	612.13	355.55	3,336.82	3,293.85	42.96	77.668		
11,800.00	8,643.00	8,715.04	8,655.70	58.04	29.12	91.19	612.13	355.55	3,436.14	3,393.16	42.97	79.959		
11,900.00	8,643.00	8,715.21	8,655.86	59.42	29.12	91.22	612.13	355.55	3,535.50	3,492.51	42.99	82.247		
12,000.00	8,643.00	8,715.37	8,656.03	60.81	29.12	91.24	612.13	355.55	3,634.89	3,591.89	43.00	84.533		
12,100.00	8,643.00	8,715.54	8,656.19	62.22	29.12	91.27	612.13	355.55	3,734.32	3,691.31	43.01	86.816		
12,200.00	8,643.00	8,715.71	8,656.36	63.64	29.12	91.29	612.13	355.56	3,833.78	3,790.75	43.03	89.095		
12,300.00	8,643.00	8,715.88	8,656.54	65.07	29.12	91.32	612.13	355.56	3,933.26	3,890.22	43.05	91.371		
12,400.00	8,643.00	8,716.06	8,656.71	66.51	29.12	91.34	612.13	355.56	4,032.77	3,989.71	43.06	93.644		
12,500.00	8,643.00	8,716.24	8,656.89	67.96	29.13	91.37	612.13	355.56	4,132.31	4,089.22	43.08	95.913		
12,600.00	8,643.00	8,716.42	8,657.07	69.41	29.13	91.39	612.13	355.56	4,231.86	4,188.76	43.10	98.179		
12,700.00	8,643.00	8,716.60	8,657.25	70.88	29.13	91.42	612.13	355.56	4,331.44	4,288.32	43.12	100.441		
12,800.00	8,643.00	8,716.78	8,657.44	72.35	29.13	91.45	612.13	355.57	4,431.04	4,387.89	43.15	102.699		
12,900.00	8,643.00	8,716.97	8,657.62	73.84	29.13	91.47	612.13	355.57	4,530.65	4,487.48	43.17	104.952		
13,000.00	8,643.00	8,717.16	8,657.81	75.32	29.13	91.50	612.13	355.57	4,630.28	4,587.09	43.19	107.202		
13,100.00	8,643.00	8,717.35	8,658.01	76.82	29.13	91.53	612.13	355.57	4,729.93	4,686.71	43.22	109.447		
13,200.00	8,643.00	8,717.55	8,658.20	78.32	29.13	91.56	612.13	355.57	4,829.59	4,786.34	43.24	111.688		
13,300.00	8,643.00	8,717.75	8,658.40	79.83	29.13	91.59	612.13	355.58	4,929.26	4,885.99	43.27	113.924		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - Plan #5		Offset Site Error:	0.00 usft
Survey Program:													16-OWSG (Rev2) MWD, 1424-OWSG (Rev2) MWD, 2745-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	0.00	0.00	0.00	0.00	46.38	971.33	1,019.29	1,408.00							
100.00	100.00	115.27	115.24	0.13	0.20	46.31	972.47	1,018.12	1,407.97	1,407.75	0.22	6,270.664				
134.46	134.46	138.87	138.83	0.25	0.28	46.29	972.82	1,017.67	1,407.84	1,407.47	0.37	3,838.747				
200.00	200.00	202.26	202.22	0.48	0.49	46.26	973.35	1,017.20	1,407.87	1,407.18	0.69	2,038.464				
300.00	300.00	324.79	324.73	0.84	0.93	46.20	973.86	1,015.48	1,407.13	1,405.87	1.25	1,121.728				
400.00	400.00	430.43	430.34	1.20	1.31	46.13	973.73	1,013.08	1,405.40	1,403.63	1.77	792.020				
500.00	500.00	551.00	550.84	1.56	1.74	46.03	973.34	1,009.01	1,402.72	1,400.38	2.34	600.533				
600.00	600.00	654.94	654.69	1.92	2.12	45.92	972.97	1,004.64	1,399.46	1,396.61	2.85	490.456				
700.00	700.00	740.00	739.68	2.28	2.43	45.83	972.65	1,001.18	1,396.30	1,392.98	3.32	420.382				
800.00	800.00	840.62	840.26	2.63	2.79	45.77	972.13	998.44	1,393.98	1,390.15	3.83	363.999				
900.00	900.00	939.43	939.03	2.99	3.15	45.73	970.98	995.92	1,391.34	1,387.01	4.33	321.187				
1,000.00	1,000.00	1,039.75	1,039.32	3.35	3.51	45.70	969.76	993.85	1,389.02	1,384.18	4.84	287.140				
1,100.00	1,100.00	1,147.41	1,146.94	3.71	3.89	45.69	967.89	991.32	1,386.12	1,380.76	5.36	258.534				
1,200.00	1,200.00	1,233.28	1,232.78	4.07	4.20	45.66	966.84	989.43	1,383.68	1,377.84	5.83	237.276				
1,300.00	1,300.00	1,327.46	1,326.95	4.43	4.50	45.64	966.09	987.83	1,381.90	1,375.61	6.30	219.439				
1,400.00	1,400.00	1,415.14	1,414.62	4.79	4.66	45.61	965.79	986.68	1,380.73	1,374.06	6.67	207.158				
1,500.00	1,500.00	1,513.58	1,513.05	5.14	4.71	45.59	965.80	985.80	1,380.09	1,373.13	6.96	198.412				
1,600.00	1,600.00	1,612.23	1,611.70	5.50	4.76	45.57	965.68	985.13	1,379.52	1,372.26	7.26	190.038				
1,700.00	1,700.00	1,708.72	1,708.18	5.86	4.84	45.56	965.58	984.69	1,379.12	1,371.54	7.58	181.872				
1,800.00	1,800.00	1,806.67	1,806.14	6.22	4.94	45.55	965.57	984.44	1,378.93	1,371.01	7.93	173.979				
1,900.00	1,900.00	1,906.35	1,905.82	6.58	5.06	45.54	965.68	984.19	1,378.83	1,370.54	8.29	166.397				
2,000.00	2,000.00	2,005.79	2,005.26	6.94	5.21	45.54	965.74	983.99	1,378.72	1,370.06	8.66	159.189				
2,015.41	2,015.41	2,020.44	2,019.91	6.99	5.23	45.54	965.75	983.97	1,378.72	1,370.00	8.72	158.123				
2,100.00	2,100.00	2,101.41	2,100.88	7.29	5.37	45.52	966.02	983.88	1,378.85	1,369.80	9.04	152.490				
2,200.00	2,200.00	2,199.86	2,199.32	7.65	5.54	45.51	966.52	983.83	1,379.17	1,369.73	9.44	146.165				
2,300.00	2,299.99	2,297.69	2,297.15	8.01	5.73	-9.78	967.05	983.89	1,378.30	1,368.47	9.83	140.153				
2,400.00	2,399.91	2,393.81	2,393.27	8.36	5.93	-9.83	967.82	984.09	1,375.14	1,364.90	10.24	134.341				
2,500.00	2,499.69	2,492.34	2,491.80	8.71	6.14	-9.91	968.69	984.38	1,369.53	1,358.88	10.65	128.605				
2,600.00	2,599.27	2,609.55	2,609.00	9.07	6.42	-10.03	969.62	984.61	1,361.28	1,350.19	11.10	122.688				
2,700.00	2,698.57	2,755.40	2,754.80	9.43	6.78	-10.24	968.06	981.67	1,347.51	1,335.93	11.58	116.322				
2,800.00	2,797.54	2,868.79	2,868.09	9.79	7.08	-10.47	965.82	977.63	1,329.59	1,317.56	12.04	110.457				
2,900.00	2,896.09	3,014.75	3,013.68	10.17	7.49	-10.87	960.69	968.69	1,306.25	1,293.73	12.53	104.278				
2,953.35	2,948.47	3,090.99	3,089.55	10.37	7.71	-11.13	956.87	962.12	1,291.35	1,278.56	12.78	101.018				
3,000.00	2,994.22	3,156.76	3,154.85	10.55	7.91	-11.34	952.95	955.42	1,277.21	1,264.20	13.00	98.215				
3,100.00	3,092.28	3,287.87	3,284.60	10.94	8.33	-11.83	943.43	939.20	1,244.52	1,231.06	13.46	92.440				
3,200.00	3,190.34	3,381.67	3,377.24	11.33	8.64	-12.22	935.99	926.55	1,210.75	1,196.85	13.91	87.061				
3,300.00	3,288.41	3,475.46	3,469.88	11.73	8.96	-12.63	928.55	913.90	1,177.03	1,162.68	14.36	81.989				
3,400.00	3,386.47	3,569.26	3,562.52	12.14	9.28	-13.07	921.11	901.24	1,143.37	1,128.56	14.81	77.202				
3,500.00	3,484.53	3,663.05	3,655.16	12.55	9.62	-13.53	913.67	888.59	1,109.77	1,094.50	15.27	72.682				
3,600.00	3,582.59	3,756.85	3,747.80	12.97	9.96	-14.02	906.23	875.94	1,076.24	1,060.51	15.73	68.409				
3,700.00	3,680.65	3,850.64	3,840.44	13.39	10.30	-14.54	898.79	863.29	1,042.78	1,026.58	16.20	64.371				
3,800.00	3,778.71	3,944.44	3,933.08	13.81	10.65	-15.09	891.34	850.63	1,009.41	992.74	16.67	60.547				
3,900.00	3,876.77	4,038.23	4,025.72	14.24	11.00	-15.69	883.90	837.98	976.13	958.98	17.15	56.925				
4,000.00	3,974.84	4,132.03	4,118.36	14.67	11.36	-16.32	876.46	825.33	942.94	925.31	17.63	53.492				
4,100.00	4,072.90	4,225.82	4,211.00	15.10	11.72	-17.00	869.02	812.67	909.87	891.76	18.11	50.235				
4,200.00	4,170.96	4,319.62	4,303.64	15.53	12.09	-17.73	861.58	800.02	876.92	858.32	18.60	47.142				
4,300.00	4,269.02	4,413.41	4,396.28	15.97	12.45	-18.52	854.14	787.37	844.11	825.02	19.10	44.204				
4,400.00	4,367.08	4,507.21	4,488.91	16.41	12.82	-19.36	846.69	774.72	811.46	791.87	19.59	41.412				
4,500.00	4,465.14	4,601.00	4,581.55	16.85	13.20	-20.28	839.25	762.06	778.98	758.88	20.10	38.756				
4,600.00	4,563.20	4,694.80	4,674.19	17.29	13.57	-21.28	831.81	749.41	746.70	726.09	20.61	36.229				
4,700.00	4,661.26	4,788.59	4,766.83	17.73	13.95	-22.36	824.37	736.76	714.65	693.52	21.13	33.823				
4,800.00	4,759.33	4,882.39	4,859.47	18.18	14.33	-23.55	816.93	724.10	682.85	661.19	21.65	31.534				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - Plan #5		Offset Site Error:	0.00 usft
Survey Program:													16-OWSG (Rev2) MWD, 1424-OWSG (Rev2) MWD, 2745-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				
9,000.00	8,640.32	8,699.68	8,644.82	32.62	29.04	98.55	603.27	360.82	718.66	675.16	43.50	16.521				
9,050.00	8,642.97	8,702.33	8,647.47	32.59	29.05	90.91	603.27	360.82	761.13	717.66	43.47	17.509				
9,055.43	8,643.00	8,702.36	8,647.50	32.59	29.05	90.00	603.27	360.82	765.81	722.34	43.47	17.618				
9,100.00	8,643.00	8,702.36	8,647.50	32.59	29.05	90.00	603.27	360.82	804.54	761.11	43.43	18.524				
9,200.00	8,643.00	8,702.36	8,647.50	32.65	29.05	90.00	603.27	360.82	893.42	850.07	43.36	20.606				
9,300.00	8,643.00	8,702.36	8,647.50	32.85	29.05	90.00	603.27	360.82	984.44	941.16	43.29	22.742				
9,400.00	8,643.00	8,702.36	8,647.50	33.19	29.05	90.00	603.27	360.82	1,077.06	1,033.83	43.22	24.918				
9,500.00	8,643.00	8,702.36	8,647.50	33.64	29.05	90.00	603.27	360.82	1,170.89	1,127.72	43.17	27.123				
9,600.00	8,643.00	8,702.36	8,647.50	34.19	29.05	90.00	603.27	360.82	1,265.66	1,222.54	43.12	29.352				
9,700.00	8,643.00	8,702.36	8,647.50	34.82	29.05	90.00	603.27	360.82	1,361.18	1,318.11	43.08	31.599				
9,800.00	8,643.00	8,702.36	8,647.50	35.51	29.05	90.00	603.27	360.82	1,457.31	1,414.27	43.04	33.859				
9,900.00	8,643.00	8,702.36	8,647.50	36.27	29.05	90.00	603.27	360.82	1,553.92	1,510.91	43.01	36.131				
10,000.00	8,643.00	8,702.36	8,647.50	37.08	29.05	90.00	603.27	360.82	1,650.93	1,607.95	42.98	38.411				
10,100.00	8,643.00	8,702.36	8,647.50	37.95	29.05	90.00	603.27	360.82	1,748.29	1,705.33	42.96	40.699				
10,200.00	8,643.00	8,702.36	8,647.50	38.86	29.05	90.00	603.27	360.82	1,845.92	1,802.98	42.94	42.991				
10,300.00	8,643.00	8,702.36	8,647.50	39.82	29.05	90.00	603.27	360.82	1,943.80	1,900.88	42.92	45.288				
10,400.00	8,643.00	8,702.36	8,647.50	40.83	29.05	90.00	603.27	360.82	2,041.88	1,998.97	42.91	47.589				
10,500.00	8,643.00	8,702.36	8,647.50	41.88	29.05	90.00	603.27	360.82	2,140.14	2,097.24	42.90	49.891				
10,600.00	8,643.00	8,702.36	8,647.50	42.96	29.05	90.00	603.27	360.82	2,238.55	2,195.66	42.89	52.196				
10,700.00	8,643.00	8,702.36	8,647.50	44.07	29.05	90.00	603.27	360.82	2,337.10	2,294.22	42.88	54.502				
10,800.00	8,643.00	8,702.36	8,647.50	45.22	29.05	90.00	603.27	360.82	2,435.77	2,392.89	42.88	56.808				
10,900.00	8,643.00	8,702.36	8,647.50	46.40	29.05	90.00	603.27	360.82	2,534.54	2,491.66	42.88	59.114				
11,000.00	8,643.00	8,702.36	8,647.50	47.61	29.05	90.00	603.27	360.82	2,633.40	2,590.53	42.87	61.421				
11,100.00	8,643.00	8,702.36	8,647.50	48.84	29.05	90.00	603.27	360.82	2,732.35	2,689.47	42.88	63.726				
11,200.00	8,643.00	8,702.36	8,647.50	50.10	29.05	90.00	603.27	360.82	2,831.37	2,788.49	42.88	66.031				
11,300.00	8,643.00	8,702.36	8,647.50	51.37	29.05	90.00	603.27	360.82	2,930.46	2,887.57	42.88	68.335				
11,400.00	8,643.00	8,702.36	8,647.50	52.67	29.05	90.00	603.27	360.82	3,029.60	2,986.71	42.89	70.637				
11,500.00	8,643.00	8,702.36	8,647.50	53.99	29.05	90.00	603.27	360.82	3,128.80	3,085.91	42.90	72.937				
11,600.00	8,643.00	8,702.36	8,647.50	55.32	29.05	90.00	603.27	360.82	3,228.05	3,185.15	42.91	75.236				
11,700.00	8,643.00	8,702.36	8,647.50	56.67	29.05	90.00	603.27	360.82	3,327.35	3,284.43	42.92	77.532				
11,800.00	8,643.00	8,702.36	8,647.50	58.04	29.05	90.00	603.27	360.82	3,426.69	3,383.76	42.93	79.826				
11,900.00	8,643.00	15,320.16	12,089.91	59.42	73.83	173.51	-2,855.60	391.24	3,464.94	3,415.34	49.60	69.858				
12,000.00	8,643.00	15,420.15	12,091.22	60.81	75.24	173.51	-2,955.58	392.12	3,466.25	3,415.75	50.50	68.641				
12,100.00	8,643.00	15,520.14	12,092.54	62.22	76.65	173.51	-3,055.56	393.00	3,467.57	3,416.16	51.41	67.454				
12,200.00	8,643.00	15,620.14	12,093.85	63.64	78.07	173.51	-3,155.54	393.88	3,468.89	3,416.56	52.32	66.298				
12,300.00	8,643.00	15,720.13	12,095.16	65.07	79.50	173.51	-3,255.52	394.76	3,470.20	3,416.95	53.25	65.171				
12,400.00	8,643.00	15,820.12	12,096.48	66.51	80.94	173.51	-3,355.50	395.63	3,471.52	3,417.34	54.18	64.073				
12,500.00	8,643.00	15,920.11	12,097.79	67.96	82.39	173.51	-3,455.48	396.51	3,472.83	3,417.71	55.12	63.004				
12,600.00	8,643.00	16,020.10	12,099.10	69.41	83.84	173.51	-3,555.46	397.39	3,474.15	3,418.08	56.07	61.964				
12,700.00	8,643.00	16,120.09	12,100.42	70.88	85.30	173.51	-3,655.44	398.27	3,475.47	3,418.44	57.02	60.950				
12,800.00	8,643.00	16,220.08	12,101.73	72.35	86.77	173.51	-3,755.41	399.15	3,476.78	3,418.80	57.98	59.963				
12,900.00	8,643.00	16,320.07	12,103.04	73.84	88.25	173.51	-3,855.39	400.03	3,478.10	3,419.15	58.95	59.002				
13,000.00	8,643.00	16,420.07	12,104.35	75.32	89.73	173.52	-3,955.37	400.91	3,479.41	3,419.49	59.92	58.067				
13,100.00	8,643.00	16,520.06	12,105.67	76.82	91.22	173.52	-4,055.35	401.79	3,480.73	3,419.83	60.90	57.156				
13,200.00	8,643.00	16,620.05	12,106.98	78.32	92.71	173.52	-4,155.33	402.67	3,482.05	3,420.16	61.88	56.269				
13,300.00	8,643.00	16,720.04	12,108.29	79.83	94.21	173.52	-4,255.31	403.55	3,483.36	3,420.49	62.87	55.406				
13,400.00	8,643.00	16,820.03	12,109.61	81.34	95.71	173.52	-4,355.29	404.43	3,484.68	3,420.82	63.86	54.565				
13,500.00	8,643.00	16,920.02	12,110.92	82.86	97.22	173.52	-4,455.27	405.31	3,485.99	3,421.13	64.86	53.747				
13,600.00	8,643.00	17,020.01	12,112.23	84.38	98.73	173.52	-4,555.24	406.18	3,487.31	3,421.45	65.86	52.949				
13,700.00	8,643.00	17,120.01	12,113.55	85.91	100.25	173.52	-4,655.22	407.06	3,488.63	3,421.76	66.87	52.172				
13,800.00	8,643.00	17,220.00	12,114.86	87.44	101.77	173.52	-4,755.20	407.94	3,489.94	3,422.07	67.88	51.416				
13,900.00	8,643.00	17,319.99	12,116.17	88.98	103.29	173.52	-4,855.18	408.82	3,491.26	3,422.37	68.89	50.678				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - Plan #5												Offset Site Error:	0.00 usft
Survey Program: 16-OWSG (Rev2) MWD, 1424-OWSG (Rev2) MWD, 2745-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
19,200.00	8,643.00	22,619.53	12,185.77	173.45	187.21	173.56	-10,154.06	455.42	3,561.01	3,435.58	125.43	28.389	
19,300.00	8,643.00	22,719.52	12,187.08	175.07	188.83	173.57	-10,254.04	456.30	3,562.33	3,435.80	126.53	28.154	
19,400.00	8,643.00	22,819.51	12,188.39	176.69	190.44	173.57	-10,354.02	457.18	3,563.64	3,436.02	127.63	27.923	
19,500.00	8,643.00	22,919.50	12,189.70	178.32	192.06	173.57	-10,454.00	458.06	3,564.96	3,436.24	128.72	27.695	
19,600.00	8,643.00	23,019.49	12,191.02	179.94	193.67	173.57	-10,553.98	458.94	3,566.28	3,436.46	129.82	27.471	
19,700.00	8,643.00	23,119.49	12,192.33	181.56	195.29	173.57	-10,653.95	459.81	3,567.59	3,436.67	130.92	27.251	
19,800.00	8,643.00	23,219.48	12,193.64	183.19	196.91	173.57	-10,753.93	460.69	3,568.91	3,436.89	132.02	27.034	
19,900.00	8,643.00	23,319.47	12,194.96	184.82	198.53	173.57	-10,853.91	461.57	3,570.22	3,437.11	133.11	26.821	
20,000.00	8,643.00	23,419.46	12,196.27	186.44	200.15	173.57	-10,953.89	462.45	3,571.54	3,437.33	134.21	26.611	
20,078.25	8,643.00	23,497.70	12,197.30	187.71	201.41	173.57	-11,032.13	463.14	3,572.57	3,437.50	135.07	26.449	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Kaston Fed Com 603H - OH - OH		Offset Site Error:	0.00 usft
Survey Program: 117-OWSG (Rev2) MWD, 1363-OWSG (Rev2) MWD, 23350-BLIND													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	5,053.51	4,972.83	4,928.90	19.52	15.64	10.97	788.15	1,556.84	1,263.41	1,239.89	23.52	53.717				
5,200.00	5,151.57	5,074.63	5,029.63	19.98	16.06	11.63	782.60	1,570.51	1,254.31	1,230.26	24.05	52.151				
5,300.00	5,249.63	5,175.95	5,129.88	20.43	16.48	12.32	776.25	1,583.70	1,244.68	1,220.09	24.59	50.627				
5,400.00	5,347.69	5,251.00	5,203.63	20.88	16.81	12.97	769.38	1,595.71	1,236.85	1,211.80	25.05	49.366				
5,500.00	5,445.76	5,320.37	5,271.33	21.33	17.14	13.67	761.77	1,608.81	1,231.34	1,205.83	25.51	48.273				
5,600.00	5,543.82	5,409.91	5,358.43	21.79	17.57	14.61	751.55	1,626.85	1,227.39	1,201.37	26.03	47.158				
5,700.00	5,641.88	5,503.65	5,449.62	22.24	18.03	15.58	741.24	1,645.94	1,224.19	1,197.63	26.56	46.089				
5,800.00	5,739.94	5,598.24	5,541.69	22.70	18.49	16.55	731.39	1,665.31	1,221.67	1,194.57	27.10	45.083				
5,900.00	5,838.00	5,692.37	5,633.34	23.16	18.95	17.48	722.16	1,684.65	1,219.76	1,192.13	27.63	44.144				
6,000.00	5,936.06	5,792.31	5,730.72	23.61	19.43	18.46	712.97	1,705.17	1,218.36	1,190.17	28.19	43.226				
6,100.00	6,034.12	5,910.07	5,845.82	24.07	19.99	19.54	703.20	1,728.05	1,216.48	1,187.67	28.81	42.230				
6,200.00	6,132.19	5,999.95	5,933.82	24.53	20.42	20.35	696.09	1,744.88	1,214.29	1,184.97	29.32	41.418				
6,300.00	6,230.25	6,094.74	6,026.60	24.99	20.86	21.18	689.05	1,763.01	1,212.89	1,183.04	29.85	40.637				
6,400.00	6,328.31	6,189.63	6,119.44	25.45	21.31	22.02	682.16	1,781.38	1,212.04	1,181.66	30.38	39.900				
6,500.00	6,426.37	6,325.81	6,253.07	25.91	21.94	23.22	671.87	1,805.48	1,209.68	1,178.62	31.06	38.945				
6,600.00	6,524.43	6,424.82	6,350.46	26.37	22.39	24.08	664.24	1,821.58	1,206.30	1,174.69	31.61	38.165				
6,700.00	6,622.49	6,517.71	6,441.76	26.83	22.81	24.92	656.87	1,837.05	1,203.54	1,171.40	32.13	37.454				
6,800.00	6,720.55	6,612.16	6,534.54	27.29	23.25	25.76	649.51	1,853.09	1,201.42	1,168.75	32.67	36.779				
6,855.04	6,774.53	6,665.00	6,586.43	27.55	23.49	26.24	645.40	1,862.19	1,200.50	1,167.54	32.96	36.420				
6,900.00	6,818.67	6,756.04	6,676.08	27.75	23.90	27.04	638.00	1,876.18	1,199.24	1,165.87	33.36	35.946				
7,000.00	6,917.18	6,902.68	6,821.29	28.20	24.50	28.18	627.21	1,893.34	1,194.94	1,160.93	34.01	35.132				
7,100.00	7,016.11	7,041.23	6,959.21	28.62	25.01	29.07	618.29	1,903.03	1,188.21	1,153.62	34.60	34.346				
7,200.00	7,115.39	7,137.00	7,054.71	29.02	25.35	29.55	613.81	1,908.68	1,183.19	1,148.08	35.10	33.704				
7,300.00	7,214.95	7,235.01	7,152.51	29.40	25.69	29.90	611.29	1,914.51	1,180.75	1,145.14	35.61	33.162				
7,369.60	7,284.37	7,307.71	7,225.08	29.66	25.94	30.11	609.69	1,918.68	1,180.29	1,144.33	35.95	32.828 CC				
7,400.00	7,314.72	7,338.73	7,256.03	29.77	26.05	30.20	608.95	1,920.41	1,180.38	1,144.27	36.11	32.693 ES				
7,500.00	7,414.63	7,438.87	7,355.99	30.11	26.39	30.45	606.62	1,925.99	1,182.18	1,145.59	36.59	32.305				
7,608.39	7,523.00	7,569.58	7,486.53	30.45	26.83	85.91	604.50	1,932.42	1,186.15	1,149.02	37.13	31.947				
7,700.00	7,614.61	7,685.33	7,602.24	30.74	27.19	85.90	604.86	1,934.98	1,188.13	1,150.58	37.56	31.637				
7,800.00	7,714.61	7,785.85	7,702.74	31.05	27.48	85.81	606.85	1,936.14	1,189.43	1,151.42	38.01	31.295				
7,900.00	7,814.61	7,882.97	7,799.83	31.37	27.76	85.73	608.56	1,937.47	1,190.93	1,152.46	38.46	30.963				
8,000.00	7,914.61	7,982.40	7,899.24	31.68	28.06	85.69	609.56	1,939.04	1,192.58	1,153.65	38.92	30.639				
8,100.00	8,014.61	8,072.32	7,989.14	31.99	28.34	85.67	610.10	1,940.87	1,194.65	1,155.27	39.39	30.330				
8,155.43	8,070.04	8,125.54	8,042.34	32.17	28.51	85.67	610.29	1,942.26	1,196.11	1,156.46	39.65	30.168				
8,200.00	8,114.57	8,168.81	8,085.60	32.30	28.65	-93.71	610.27	1,943.45	1,197.45	1,157.60	39.85	30.050				
8,250.00	8,164.18	8,233.46	8,150.23	32.42	28.85	-93.92	610.13	1,944.91	1,198.98	1,158.91	40.06	29.927				
8,300.00	8,213.08	8,294.44	8,211.21	32.53	29.04	-94.39	610.00	1,945.50	1,200.22	1,159.96	40.26	29.812				
8,350.00	8,260.89	8,349.04	8,265.81	32.63	29.20	-94.99	609.73	1,945.66	1,201.60	1,161.16	40.44	29.712				
8,400.00	8,307.25	8,393.93	8,310.70	32.71	29.34	-95.59	609.36	1,945.67	1,203.43	1,162.81	40.62	29.628				
8,450.00	8,351.81	8,434.41	8,351.17	32.77	29.46	-96.16	608.91	1,945.84	1,206.18	1,165.39	40.79	29.571				
8,500.00	8,394.21	8,480.95	8,397.71	32.81	29.60	-96.93	608.33	1,946.12	1,209.97	1,169.02	40.95	29.549				
8,550.00	8,434.16	8,534.82	8,451.58	32.84	29.75	-97.99	608.03	1,945.90	1,214.53	1,173.43	41.10	29.553				
8,600.00	8,471.33	8,573.84	8,490.59	32.85	29.86	-98.64	607.98	1,945.41	1,220.19	1,178.94	41.25	29.578				
8,650.00	8,505.44	8,605.40	8,522.15	32.85	29.95	-98.98	607.69	1,945.12	1,227.53	1,186.11	41.42	29.638				
8,700.00	8,536.25	8,634.50	8,551.25	32.84	30.03	-99.12	607.20	1,944.97	1,236.70	1,195.12	41.59	29.739				
8,750.00	8,563.50	8,665.04	8,581.77	32.81	30.12	-99.17	606.50	1,944.88	1,247.79	1,206.03	41.76	29.880				
8,800.00	8,587.00	8,693.94	8,610.67	32.78	30.20	-99.02	605.86	1,944.69	1,260.79	1,218.84	41.94	30.060				
8,850.00	8,606.56	8,718.11	8,634.83	32.74	30.27	-98.50	605.35	1,944.44	1,275.79	1,233.66	42.13	30.280				
8,900.00	8,622.05	8,737.39	8,654.11	32.70	30.33	-97.56	604.97	1,944.18	1,292.84	1,250.51	42.33	30.540				
8,950.00	8,633.33	8,750.33	8,667.04	32.66	30.37	-96.10	604.72	1,943.98	1,311.92	1,269.38	42.54	30.840				
9,000.00	8,640.32	8,758.65	8,675.36	32.62	30.39	-94.19	604.54	1,943.86	1,332.94	1,290.19	42.75	31.180				
9,050.00	8,642.97	8,762.55	8,679.26	32.59	30.40	-91.81	604.46	1,943.80	1,355.72	1,312.76	42.96	31.558				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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
Bus Driver/Kaston Fed Com - Kaston Fed Com 603H - OH - OH												Offset Well Error:	0.00 usft
Survey Program: 117-OWSG (Rev2) MWD, 1363-OWSG (Rev2) MWD, 23350-BLIND													
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	
19,100.00	8,643.00	22,145.03	12,103.08	171.82	183.90	-161.61	-9,886.82	2,000.62	3,646.92	3,510.67	136.24	26.768	
19,200.00	8,643.00	22,199.00	12,105.48	173.45	184.77	-161.57	-9,940.56	2,004.96	3,653.21	3,515.95	137.26	26.616	
19,300.00	8,643.00	22,241.97	12,107.88	175.07	185.48	-161.53	-9,983.28	2,008.87	3,660.86	3,522.70	138.16	26.498	
19,400.00	8,643.00	22,307.19	12,112.72	176.69	186.54	-161.50	-10,048.18	2,013.16	3,669.65	3,530.46	139.19	26.364	
19,500.00	8,643.00	22,408.34	12,121.55	178.32	188.18	-161.50	-10,148.86	2,017.13	3,678.87	3,538.43	140.43	26.197	
19,600.00	8,643.00	22,552.99	12,134.33	179.94	190.52	-161.55	-10,292.93	2,018.99	3,687.32	3,545.43	141.89	25.987	
19,700.00	8,643.00	22,672.00	12,143.93	181.56	192.44	-161.62	-10,411.55	2,019.14	3,694.65	3,551.51	143.15	25.810	
19,800.00	8,643.00	22,748.12	12,150.40	183.19	193.67	-161.66	-10,487.39	2,019.14	3,702.40	3,558.27	144.13	25.687	
19,900.00	8,643.00	22,853.90	12,159.70	184.82	195.38	-161.72	-10,592.76	2,019.17	3,710.47	3,565.17	145.30	25.537	
20,000.00	8,643.00	22,902.99	12,164.25	186.44	196.17	-161.75	-10,641.64	2,019.11	3,718.98	3,572.88	146.10	25.454	
20,078.25	8,643.00	22,955.00	12,169.75	187.71	197.01	-161.77	-10,693.35	2,019.70	3,726.76	3,579.94	146.82	25.383 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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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: 112-OWSG (Rev2) MWD, 1431-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	4.62	4.62	0.00	0.01	48.26	971.99	1,089.27	1,459.89					
100.00	100.00	107.25	107.25	0.13	0.14	48.25	972.04	1,089.10	1,459.79	1,459.61	0.19	7,740.826		
200.00	200.00	237.73	237.71	0.48	0.60	48.22	971.59	1,087.46	1,458.64	1,457.88	0.77	1,900.586		
300.00	300.00	343.46	343.40	0.84	0.98	48.17	970.67	1,084.68	1,456.10	1,454.81	1.29	1,130.879		
400.00	400.00	450.57	450.45	1.20	1.36	48.10	970.03	1,081.10	1,453.22	1,451.41	1.81	801.600		
500.00	500.00	555.28	555.08	1.56	1.74	48.03	969.03	1,077.18	1,449.79	1,447.46	2.33	621.642		
600.00	600.00	667.93	667.64	1.92	2.15	47.94	967.87	1,072.65	1,446.15	1,443.28	2.87	503.353		
700.00	700.00	722.00	721.63	2.28	2.35	47.89	967.16	1,070.02	1,442.43	1,439.17	3.26	442.383		
800.00	800.00	858.68	858.21	2.63	2.83	47.84	966.22	1,067.04	1,440.50	1,436.64	3.85	373.699		
900.00	900.00	967.05	966.47	2.99	3.23	47.74	965.21	1,062.12	1,436.51	1,432.13	4.38	327.669		
1,000.00	1,000.00	1,085.37	1,084.62	3.35	3.66	47.68	962.21	1,056.69	1,431.39	1,426.45	4.94	289.884		
1,100.00	1,100.00	1,175.16	1,174.28	3.71	3.99	47.63	959.88	1,052.48	1,426.17	1,420.75	5.42	263.213		
1,200.00	1,200.00	1,273.83	1,272.83	4.07	4.35	47.57	957.94	1,047.92	1,421.42	1,415.50	5.92	240.002		
1,300.00	1,300.00	1,439.56	1,438.12	4.43	4.77	47.43	952.91	1,037.35	1,414.91	1,408.47	6.44	219.649		
1,400.00	1,400.00	1,576.74	1,574.35	4.79	4.95	47.24	945.95	1,022.86	1,403.54	1,396.76	6.78	206.981		
1,500.00	1,500.00	1,656.67	1,653.71	5.14	5.03	47.14	941.31	1,014.56	1,392.00	1,384.92	7.08	196.704		
1,600.00	1,600.00	1,732.00	1,728.67	5.50	5.11	47.12	936.76	1,008.65	1,382.14	1,374.75	7.39	187.107		
1,700.00	1,700.00	1,803.32	1,799.76	5.86	5.19	47.14	932.43	1,004.83	1,374.11	1,366.41	7.71	178.289		
1,800.00	1,800.00	1,857.00	1,853.32	6.22	5.26	47.20	929.25	1,003.37	1,368.45	1,360.42	8.03	170.523		
1,900.00	1,900.00	1,932.40	1,928.60	6.58	5.35	47.34	925.00	1,003.77	1,365.20	1,356.84	8.36	163.283		
1,973.19	1,973.19	1,981.61	1,977.70	6.84	5.41	47.47	922.41	1,005.62	1,364.59	1,355.99	8.61	158.569		
2,000.00	2,000.00	2,000.56	1,996.60	6.94	5.44	47.53	921.45	1,006.57	1,364.67	1,355.97	8.70	156.921		
2,100.00	2,100.00	2,075.44	2,071.25	7.29	5.54	47.77	917.98	1,011.40	1,366.27	1,357.23	9.04	151.100		
2,200.00	2,200.00	2,161.74	2,157.24	7.65	5.66	48.05	914.78	1,017.84	1,369.32	1,359.92	9.41	145.558		
2,300.00	2,299.99	2,264.84	2,259.93	8.01	5.82	-6.86	910.76	1,026.17	1,371.47	1,361.67	9.80	139.921		
2,400.00	2,399.91	2,371.51	2,366.05	8.36	6.02	-6.45	905.02	1,035.34	1,370.47	1,360.26	10.21	134.201		
2,500.00	2,499.69	2,475.76	2,469.77	8.71	6.23	-6.06	899.34	1,044.06	1,366.72	1,356.09	10.63	128.549		
2,600.00	2,599.27	2,591.73	2,585.14	9.07	6.49	-5.63	892.05	1,053.37	1,359.64	1,348.56	11.08	122.694		
2,700.00	2,698.57	2,703.41	2,696.14	9.43	6.76	-5.18	883.35	1,062.01	1,348.83	1,337.29	11.54	116.921		
2,800.00	2,797.54	2,801.00	2,793.21	9.79	7.02	-4.82	875.95	1,068.79	1,335.05	1,323.07	11.98	111.473		
2,900.00	2,896.09	2,895.00	2,886.87	10.17	7.27	-4.55	870.26	1,074.45	1,318.98	1,306.56	12.41	106.246		
2,953.35	2,948.47	2,931.91	2,923.64	10.37	7.37	-4.44	868.26	1,076.88	1,309.79	1,297.16	12.63	103.718		
3,000.00	2,994.22	2,964.72	2,956.29	10.55	7.46	-4.33	866.43	1,079.52	1,301.94	1,289.12	12.81	101.597		
3,100.00	3,092.28	3,038.12	3,029.17	10.94	7.67	-4.01	862.08	1,087.06	1,286.62	1,273.39	13.22	97.300		
3,200.00	3,190.34	3,137.04	3,127.03	11.33	7.97	-3.47	855.25	1,099.80	1,272.83	1,259.14	13.69	92.976		
3,300.00	3,288.41	3,281.92	3,270.54	11.73	8.42	-2.66	843.32	1,115.66	1,256.89	1,242.63	14.26	88.135		
3,400.00	3,386.47	3,380.32	3,367.92	12.14	8.75	-2.04	833.30	1,125.54	1,239.17	1,224.42	14.75	84.032		
3,500.00	3,484.53	3,477.13	3,463.78	12.55	9.08	-1.44	823.69	1,135.11	1,221.62	1,206.39	15.23	80.194		
3,600.00	3,582.59	3,591.67	3,577.47	12.97	9.48	-0.79	813.38	1,144.53	1,203.40	1,187.65	15.75	76.385		
3,700.00	3,680.65	3,709.46	3,694.65	13.39	9.88	-0.22	803.76	1,151.49	1,183.95	1,167.67	16.28	72.745		
3,800.00	3,778.71	3,794.41	3,779.33	13.81	10.16	0.11	797.91	1,154.76	1,163.67	1,146.93	16.74	69.514		
3,900.00	3,876.77	3,872.43	3,857.15	14.24	10.42	0.40	793.97	1,158.86	1,145.47	1,128.28	17.19	66.622		
4,000.00	3,974.84	3,970.09	3,954.34	14.67	10.76	0.88	787.57	1,165.97	1,128.20	1,110.51	17.69	63.781		
4,100.00	4,072.90	4,077.77	4,061.24	15.10	11.15	1.57	777.97	1,174.60	1,110.34	1,092.13	18.21	60.971		
4,200.00	4,170.96	4,159.04	4,141.96	15.53	11.44	2.09	771.00	1,180.83	1,092.59	1,073.91	18.69	58.472		
4,300.00	4,269.02	4,231.35	4,213.84	15.97	11.69	2.50	766.68	1,187.43	1,077.41	1,058.27	19.14	56.299		
4,400.00	4,367.08	4,319.85	4,301.85	16.41	12.00	2.96	763.05	1,196.00	1,063.80	1,044.19	19.62	54.226		
4,500.00	4,465.14	4,410.21	4,391.69	16.85	12.32	3.41	760.17	1,205.20	1,051.18	1,031.08	20.10	52.293		
4,600.00	4,563.20	4,514.35	4,495.07	17.29	12.69	4.02	755.70	1,216.87	1,038.97	1,018.34	20.62	50.375		
4,700.00	4,661.26	4,644.82	4,624.50	17.73	13.18	4.97	746.36	1,230.35	1,024.65	1,003.44	21.21	48.303		
4,800.00	4,759.33	4,752.05	4,731.06	18.18	13.57	5.73	738.31	1,239.12	1,008.52	986.77	21.75	46.377		
4,900.00	4,857.39	4,856.07	4,834.66	18.63	13.95	6.37	732.02	1,246.16	992.01	969.74	22.27	44.548		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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: 112-OWSG (Rev2) MWD, 1431-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		
9,000.00	8,640.32	8,671.70	8,642.79	32.62	27.09	-95.31	609.68	1,352.75	852.06	810.40	41.66	20.454		
9,050.00	8,642.97	8,674.48	8,645.57	32.59	27.10	-90.41	609.68	1,352.77	888.00	846.19	41.82	21.236		
9,055.43	8,643.00	8,674.51	8,645.60	32.59	27.10	-89.82	609.68	1,352.77	891.99	850.16	41.83	21.323		
9,100.00	8,643.00	8,674.56	8,645.66	32.59	27.10	-89.83	609.68	1,352.77	925.30	883.34	41.96	22.050		
9,200.00	8,643.00	8,674.68	8,645.78	32.65	27.10	-89.84	609.68	1,352.77	1,003.21	960.97	42.25	23.746		
9,300.00	8,643.00	8,674.80	8,645.89	32.85	27.10	-89.85	609.68	1,352.77	1,084.76	1,042.25	42.51	25.520		
9,400.00	8,643.00	8,674.91	8,646.01	33.19	27.10	-89.86	609.68	1,352.77	1,169.17	1,126.43	42.74	27.355		
9,500.00	8,643.00	8,675.03	8,646.12	33.64	27.10	-89.87	609.68	1,352.77	1,255.87	1,212.93	42.95	29.242		
9,600.00	8,643.00	8,675.14	8,646.23	34.19	27.10	-89.88	609.68	1,352.77	1,344.42	1,301.29	43.13	31.170		
9,700.00	8,643.00	8,675.25	8,646.34	34.82	27.10	-89.89	609.68	1,352.77	1,434.48	1,391.18	43.30	33.131		
9,800.00	8,643.00	8,675.36	8,646.45	35.51	27.10	-89.90	609.68	1,352.77	1,525.78	1,482.33	43.44	35.121		
9,900.00	8,643.00	8,675.47	8,646.56	36.27	27.10	-89.91	609.68	1,352.77	1,618.10	1,574.53	43.57	37.135		
10,000.00	8,643.00	8,675.57	8,646.67	37.08	27.10	-89.92	609.68	1,352.77	1,711.29	1,667.60	43.69	39.169		
10,100.00	8,643.00	8,675.68	8,646.77	37.95	27.10	-89.93	609.68	1,352.77	1,805.21	1,761.41	43.80	41.219		
10,200.00	8,643.00	8,675.78	8,646.87	38.86	27.10	-89.94	609.67	1,352.77	1,899.75	1,855.85	43.89	43.282		
10,300.00	8,643.00	8,675.88	8,646.98	39.82	27.10	-89.95	609.67	1,352.77	1,994.82	1,950.84	43.98	45.357		
10,400.00	8,643.00	8,675.98	8,647.08	40.83	27.10	-89.96	609.67	1,352.77	2,090.35	2,046.29	44.06	47.442		
10,500.00	8,643.00	8,676.08	8,647.18	41.88	27.10	-89.97	609.67	1,352.77	2,186.28	2,142.14	44.14	49.535		
10,600.00	8,643.00	8,676.18	8,647.27	42.96	27.10	-89.98	609.67	1,352.77	2,282.56	2,238.35	44.21	51.635		
10,700.00	8,643.00	8,676.28	8,647.37	44.07	27.10	-89.99	609.67	1,352.78	2,379.15	2,334.88	44.27	53.741		
10,800.00	8,643.00	8,676.37	8,647.47	45.22	27.10	-90.00	609.67	1,352.78	2,476.00	2,431.67	44.33	55.852		
10,900.00	8,643.00	8,676.47	8,647.56	46.40	27.10	-90.01	609.67	1,352.78	2,573.10	2,528.71	44.39	57.967		
11,000.00	8,643.00	8,676.56	8,647.65	47.61	27.11	-90.01	609.67	1,352.78	2,670.41	2,625.97	44.44	60.086		
11,100.00	8,643.00	8,676.65	8,647.74	48.84	27.11	-90.02	609.67	1,352.78	2,767.92	2,723.42	44.50	62.207		
11,200.00	8,643.00	8,676.74	8,647.83	50.10	27.11	-90.03	609.67	1,352.78	2,865.59	2,821.05	44.55	64.330		
11,300.00	8,643.00	8,676.83	8,647.92	51.37	27.11	-90.04	609.67	1,352.78	2,963.43	2,918.83	44.59	66.455		
11,400.00	8,643.00	8,676.92	8,648.01	52.67	27.11	-90.05	609.67	1,352.78	3,061.40	3,016.76	44.64	68.581		
11,500.00	8,643.00	8,677.01	8,648.10	53.99	27.11	-90.06	609.67	1,352.78	3,159.50	3,114.81	44.68	70.707		
11,600.00	8,643.00	8,677.09	8,648.19	55.32	27.11	-90.07	609.67	1,352.78	3,257.71	3,212.98	44.73	72.835		
11,700.00	8,643.00	8,677.18	8,648.27	56.67	27.11	-90.07	609.67	1,352.78	3,356.03	3,311.26	44.77	74.962		
11,800.00	8,643.00	8,677.26	8,648.35	58.04	27.11	-90.08	609.67	1,352.78	3,454.44	3,409.63	44.81	77.089		
11,900.00	8,643.00	8,677.34	8,648.44	59.42	27.11	-90.09	609.67	1,352.78	3,552.95	3,508.10	44.85	79.215		
12,000.00	8,643.00	8,677.42	8,648.52	60.81	27.11	-90.10	609.67	1,352.78	3,651.53	3,606.64	44.89	81.340		
12,100.00	8,643.00	8,677.51	8,648.60	62.22	27.11	-90.10	609.67	1,352.78	3,750.20	3,705.26	44.93	83.465		
12,200.00	8,643.00	8,677.59	8,648.68	63.64	27.11	-90.11	609.67	1,352.78	3,848.93	3,803.95	44.97	85.588		
12,300.00	8,643.00	8,677.66	8,648.76	65.07	27.11	-90.12	609.67	1,352.78	3,947.72	3,902.71	45.01	87.710		
12,400.00	8,643.00	8,677.74	8,648.84	66.51	27.11	-90.13	609.67	1,352.78	4,046.57	4,001.52	45.05	89.830		
12,500.00	8,643.00	8,677.82	8,648.91	67.96	27.11	-90.13	609.67	1,352.78	4,145.48	4,100.39	45.09	91.948		
12,600.00	8,643.00	8,677.90	8,648.99	69.41	27.11	-90.14	609.67	1,352.78	4,244.44	4,199.32	45.12	94.064		
12,700.00	8,643.00	8,677.97	8,649.07	70.88	27.11	-90.15	609.67	1,352.78	4,343.45	4,298.28	45.16	96.177		
12,800.00	8,643.00	8,678.05	8,649.14	72.35	27.11	-90.16	609.67	1,352.78	4,442.50	4,397.30	45.20	98.289		
12,900.00	8,643.00	8,678.12	8,649.21	73.84	27.11	-90.16	609.67	1,352.78	4,541.59	4,496.35	45.24	100.399		
13,000.00	8,643.00	8,678.19	8,649.29	75.32	27.11	-90.17	609.67	1,352.78	4,640.72	4,595.45	45.27	102.505		
13,100.00	8,643.00	8,678.26	8,649.36	76.82	27.11	-90.18	609.67	1,352.78	4,739.89	4,694.58	45.31	104.609		
13,200.00	8,643.00	8,678.34	8,649.43	78.32	27.11	-90.18	609.67	1,352.78	4,839.09	4,793.74	45.35	106.709		
13,300.00	8,643.00	8,678.41	8,649.50	79.83	27.11	-90.19	609.67	1,352.78	4,938.33	4,892.94	45.39	108.806		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Kaston Fed Com 703H - OH - Plan #9		Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1409-OWSG (Rev2) MWD, 11286-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	4.62	4.62	0.00	0.01	48.26	971.99	1,089.27	1,459.89							
100.00	100.00	107.25	107.25	0.13	0.14	48.25	972.04	1,089.10	1,459.79	1,459.61	0.19	7,740.826				
200.00	200.00	237.73	237.71	0.48	0.60	48.22	971.59	1,087.46	1,458.64	1,457.88	0.77	1,900.586				
300.00	300.00	343.46	343.40	0.84	0.98	48.17	970.67	1,084.68	1,456.10	1,454.81	1.29	1,130.879				
400.00	400.00	450.57	450.45	1.20	1.36	48.10	970.03	1,081.10	1,453.22	1,451.41	1.81	801.600				
500.00	500.00	555.28	555.08	1.56	1.74	48.03	969.03	1,077.18	1,449.79	1,447.46	2.33	621.642				
600.00	600.00	667.93	667.64	1.92	2.15	47.94	967.87	1,072.65	1,446.15	1,443.28	2.87	503.353				
700.00	700.00	722.00	721.63	2.28	2.35	47.89	967.16	1,070.02	1,442.43	1,439.17	3.26	442.383				
800.00	800.00	858.68	858.21	2.63	2.83	47.84	966.22	1,067.04	1,440.50	1,436.64	3.85	373.699				
900.00	900.00	967.05	966.47	2.99	3.23	47.74	965.21	1,062.12	1,436.51	1,432.13	4.38	327.669				
1,000.00	1,000.00	1,085.37	1,084.62	3.35	3.66	47.68	962.21	1,056.69	1,431.39	1,426.45	4.94	289.884				
1,100.00	1,100.00	1,175.16	1,174.28	3.71	3.99	47.63	959.88	1,052.48	1,426.17	1,420.75	5.42	263.213				
1,200.00	1,200.00	1,273.83	1,272.83	4.07	4.35	47.57	957.94	1,047.92	1,421.42	1,415.50	5.92	240.002				
1,300.00	1,300.00	1,432.25	1,430.86	4.43	4.71	47.43	953.47	1,038.08	1,415.15	1,408.75	6.40	220.978				
1,400.00	1,400.00	1,576.75	1,574.39	4.79	4.81	47.23	946.30	1,022.97	1,403.86	1,397.17	6.69	210.000				
1,500.00	1,500.00	1,656.68	1,653.74	5.14	4.90	47.14	941.66	1,014.68	1,392.32	1,385.33	6.99	199.155				
1,600.00	1,600.00	1,732.00	1,728.70	5.50	5.00	47.11	937.11	1,008.76	1,382.46	1,375.15	7.31	189.098				
1,700.00	1,700.00	1,803.32	1,799.78	5.86	5.09	47.13	932.78	1,004.94	1,374.44	1,366.80	7.64	179.913				
1,800.00	1,800.00	1,857.00	1,853.34	6.22	5.16	47.19	929.60	1,003.49	1,368.77	1,360.81	7.96	171.879				
1,900.00	1,900.00	1,932.40	1,928.62	6.58	5.27	47.33	925.35	1,003.89	1,365.52	1,357.21	8.31	164.385				
1,973.24	1,973.24	1,981.64	1,977.75	6.84	5.33	47.46	922.75	1,005.74	1,364.91	1,356.35	8.56	159.522				
2,000.00	2,000.00	2,000.55	1,996.62	6.94	5.36	47.52	921.80	1,006.68	1,364.99	1,356.34	8.65	157.827				
2,100.00	2,100.00	2,075.43	2,071.26	7.29	5.47	47.76	918.33	1,011.51	1,366.59	1,357.59	9.00	151.837				
2,200.00	2,200.00	2,161.72	2,157.24	7.65	5.60	48.04	915.13	1,017.95	1,369.64	1,360.27	9.37	146.142				
2,300.00	2,299.99	2,264.83	2,259.94	8.01	5.77	-6.87	911.11	1,026.28	1,371.78	1,362.01	9.77	140.362				
2,400.00	2,399.91	2,371.50	2,366.06	8.36	5.98	-6.45	905.37	1,035.45	1,370.79	1,360.60	10.19	134.522				
2,500.00	2,499.69	2,475.74	2,469.78	8.71	6.20	-6.07	899.69	1,044.17	1,367.04	1,356.42	10.62	128.774				
2,600.00	2,599.27	2,591.72	2,585.16	9.07	6.47	-5.64	892.40	1,053.48	1,359.96	1,348.89	11.07	122.833				
2,700.00	2,698.57	2,703.41	2,696.16	9.43	6.75	-5.19	883.70	1,062.12	1,349.14	1,337.61	11.53	116.993				
2,800.00	2,797.54	2,801.00	2,793.24	9.79	7.02	-4.83	876.30	1,068.91	1,335.36	1,323.38	11.98	111.499				
2,900.00	2,896.09	2,895.00	2,886.89	10.17	7.28	-4.55	870.61	1,074.57	1,319.29	1,306.87	12.42	106.237				
2,953.35	2,948.47	2,931.90	2,923.66	10.37	7.38	-4.45	868.61	1,076.99	1,310.10	1,297.47	12.63	103.699				
3,000.00	2,994.22	2,964.71	2,956.31	10.55	7.47	-4.34	866.78	1,079.63	1,302.24	1,289.42	12.82	101.570				
3,100.00	3,092.28	3,038.11	3,029.19	10.94	7.69	-4.02	862.43	1,087.17	1,286.92	1,273.69	13.23	97.259				
3,200.00	3,190.34	3,137.02	3,127.04	11.33	7.99	-3.48	855.60	1,099.91	1,273.13	1,259.43	13.70	92.914				
3,300.00	3,288.41	3,281.93	3,270.57	11.73	8.45	-2.67	843.67	1,115.78	1,257.19	1,242.91	14.28	88.050				
3,400.00	3,386.47	3,380.32	3,367.95	12.14	8.79	-2.05	833.65	1,125.65	1,239.47	1,224.70	14.77	83.938				
3,500.00	3,484.53	3,477.13	3,463.80	12.55	9.12	-1.45	824.04	1,135.22	1,221.92	1,206.66	15.26	80.094				
3,600.00	3,582.59	3,591.67	3,577.49	12.97	9.52	-0.80	813.72	1,144.64	1,203.70	1,187.92	15.78	76.280				
3,700.00	3,680.65	3,709.46	3,694.67	13.39	9.92	-0.23	804.11	1,151.60	1,184.24	1,167.94	16.30	72.634				
3,800.00	3,778.71	3,794.40	3,779.35	13.81	10.21	0.10	798.26	1,154.87	1,163.96	1,147.19	16.77	69.405				
3,900.00	3,876.77	3,872.43	3,857.16	14.24	10.47	0.39	794.32	1,158.97	1,145.76	1,128.54	17.23	66.515				
4,000.00	3,974.84	3,970.09	3,954.35	14.67	10.81	0.87	787.92	1,166.08	1,128.49	1,110.77	17.72	63.675				
4,100.00	4,072.90	4,077.78	4,061.26	15.10	11.20	1.56	778.32	1,174.72	1,110.63	1,092.38	18.25	60.866				
4,200.00	4,170.96	4,159.03	4,141.97	15.53	11.50	2.07	771.35	1,180.95	1,092.87	1,074.15	18.72	58.370				
4,300.00	4,269.02	4,231.34	4,213.85	15.97	11.76	2.49	767.03	1,187.55	1,077.69	1,058.51	19.18	56.202				
4,400.00	4,367.08	4,319.83	4,301.85	16.41	12.07	2.94	763.40	1,196.11	1,064.08	1,044.43	19.66	54.132				
4,500.00	4,465.14	4,410.19	4,391.69	16.85	12.39	3.39	760.52	1,205.31	1,051.45	1,031.31	20.14	52.202				
4,600.00	4,563.20	4,514.33	4,495.07	17.29	12.76	4.01	756.06	1,216.98	1,039.24	1,018.57	20.67	50.286				
4,700.00	4,661.26	4,644.82	4,624.52	17.73	13.25	4.96	746.71	1,230.47	1,024.92	1,003.66	21.26	48.215				
4,800.00	4,759.33	4,752.04	4,731.08	18.18	13.65	5.71	738.66	1,239.24	1,008.79	986.99	21.79	46.292				
4,900.00	4,857.39	4,856.07	4,834.67	18.63	14.03	6.35	732.37	1,246.28	992.28	969.96	22.32	44.466				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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: 112-OWSG (Rev2) MWD, 1409-OWSG (Rev2) MWD, 11286-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		
9,000.00	8,640.32	8,671.68	8,642.79	32.62	27.20	-95.31	610.03	1,352.87	852.39	810.66	41.73	20.425		
9,050.00	8,642.97	8,674.45	8,645.57	32.59	27.21	-90.41	610.03	1,352.88	888.34	846.45	41.89	21.206		
9,055.43	8,643.00	8,674.49	8,645.60	32.59	27.21	-89.82	610.03	1,352.88	892.33	850.42	41.91	21.293		
9,100.00	8,643.00	8,674.54	8,645.66	32.59	27.21	-89.83	610.03	1,352.88	925.64	883.60	42.04	22.019		
9,200.00	8,643.00	8,674.66	8,645.78	32.65	27.21	-89.84	610.03	1,352.88	1,003.56	961.24	42.32	23.713		
9,300.00	8,643.00	8,674.78	8,645.89	32.85	27.21	-89.85	610.03	1,352.88	1,085.11	1,042.53	42.58	25.484		
9,400.00	8,643.00	8,674.89	8,646.01	33.19	27.21	-89.86	610.03	1,352.88	1,169.53	1,126.72	42.81	27.317		
9,500.00	8,643.00	8,675.01	8,646.12	33.64	27.21	-89.87	610.03	1,352.88	1,256.24	1,213.21	43.02	29.200		
9,600.00	8,643.00	8,675.12	8,646.23	34.19	27.22	-89.88	610.03	1,352.88	1,344.79	1,301.58	43.21	31.125		
9,700.00	8,643.00	8,675.23	8,646.35	34.82	27.22	-89.89	610.03	1,352.88	1,434.85	1,391.48	43.37	33.084		
9,800.00	8,643.00	8,675.34	8,646.45	35.51	27.22	-89.90	610.03	1,352.88	1,526.14	1,482.63	43.52	35.071		
9,900.00	8,643.00	8,675.45	8,646.56	36.27	27.22	-89.91	610.03	1,352.89	1,618.47	1,574.82	43.65	37.082		
10,000.00	8,643.00	8,675.55	8,646.67	37.08	27.22	-89.92	610.03	1,352.89	1,711.66	1,667.90	43.76	39.112		
10,100.00	8,643.00	8,675.66	8,646.77	37.95	27.22	-89.93	610.02	1,352.89	1,805.58	1,761.71	43.87	41.159		
10,200.00	8,643.00	8,675.76	8,646.88	38.86	27.22	-89.94	610.02	1,352.89	1,900.11	1,856.15	43.96	43.220		
10,300.00	8,643.00	8,675.86	8,646.98	39.82	27.22	-89.95	610.02	1,352.89	1,995.18	1,951.13	44.05	45.291		
10,400.00	8,643.00	8,675.96	8,647.08	40.83	27.22	-89.96	610.02	1,352.89	2,090.72	2,046.58	44.13	47.373		
10,500.00	8,643.00	8,676.06	8,647.18	41.88	27.22	-89.97	610.02	1,352.89	2,186.65	2,142.44	44.21	49.463		
10,600.00	8,643.00	8,676.16	8,647.28	42.96	27.22	-89.98	610.02	1,352.89	2,282.93	2,238.65	44.28	51.560		
10,700.00	8,643.00	8,676.26	8,647.37	44.07	27.22	-89.99	610.02	1,352.89	2,379.51	2,335.17	44.34	53.663		
10,800.00	8,643.00	8,676.35	8,647.47	45.22	27.22	-90.00	610.02	1,352.89	2,476.37	2,431.97	44.40	55.771		
10,900.00	8,643.00	8,676.45	8,647.56	46.40	27.22	-90.01	610.02	1,352.89	2,573.47	2,529.01	44.46	57.883		
11,000.00	8,643.00	8,676.54	8,647.65	47.61	27.22	-90.01	610.02	1,352.89	2,670.78	2,626.27	44.51	59.998		
11,100.00	8,643.00	8,676.63	8,647.75	48.84	27.22	-90.02	610.02	1,352.89	2,768.28	2,723.72	44.57	62.115		
11,200.00	8,643.00	8,676.72	8,647.84	50.10	27.22	-90.03	610.02	1,352.89	2,865.96	2,821.34	44.62	64.235		
11,300.00	8,643.00	8,676.81	8,647.93	51.37	27.22	-90.04	610.02	1,352.89	2,963.79	2,919.13	44.66	66.357		
11,400.00	8,643.00	8,676.90	8,648.02	52.67	27.22	-90.05	610.02	1,352.89	3,061.76	3,017.05	44.71	68.480		
11,500.00	8,643.00	8,676.99	8,648.10	53.99	27.22	-90.06	610.02	1,352.89	3,159.86	3,115.10	44.76	70.603		
11,600.00	8,643.00	8,677.07	8,648.19	55.32	27.22	-90.07	610.02	1,352.89	3,258.07	3,213.27	44.80	72.727		
11,700.00	8,643.00	8,677.16	8,648.27	56.67	27.22	-90.07	610.02	1,352.89	3,356.39	3,311.55	44.84	74.851		
11,800.00	8,643.00	15,228.54	12,050.00	58.04	72.83	-170.08	-2,792.16	1,377.32	3,454.11	3,405.56	48.56	71.137		
11,900.00	8,643.00	15,328.54	12,050.00	59.42	74.25	-170.09	-2,892.16	1,378.19	3,454.09	3,404.62	49.47	69.823		
12,000.00	8,643.00	15,428.54	12,050.00	60.81	75.67	-170.09	-2,992.15	1,379.07	3,454.08	3,403.68	50.39	68.542		
12,100.00	8,643.00	15,528.54	12,050.00	62.22	77.10	-170.09	-3,092.15	1,379.95	3,454.06	3,402.73	51.33	67.296		
12,200.00	8,643.00	15,628.54	12,050.00	63.64	78.54	-170.09	-3,192.15	1,380.82	3,454.04	3,401.77	52.27	66.082		
12,300.00	8,643.00	15,728.54	12,050.00	65.07	79.99	-170.09	-3,292.14	1,381.70	3,454.02	3,400.80	53.22	64.901		
12,400.00	8,643.00	15,828.54	12,050.00	66.51	81.44	-170.09	-3,392.14	1,382.57	3,454.00	3,399.83	54.18	63.752		
12,500.00	8,643.00	15,928.54	12,050.00	67.96	82.91	-170.10	-3,492.13	1,383.45	3,453.99	3,398.84	55.15	62.633		
12,600.00	8,643.00	16,028.54	12,050.00	69.41	84.38	-170.10	-3,592.13	1,384.33	3,453.97	3,397.85	56.12	61.546		
12,700.00	8,643.00	16,128.54	12,050.00	70.88	85.85	-170.10	-3,692.13	1,385.20	3,453.95	3,396.85	57.10	60.488		
12,800.00	8,643.00	16,228.54	12,050.00	72.35	87.34	-170.10	-3,792.12	1,386.08	3,453.93	3,395.84	58.09	59.459		
12,900.00	8,643.00	16,328.54	12,050.00	73.84	88.82	-170.10	-3,892.12	1,386.95	3,453.92	3,394.83	59.08	58.458		
13,000.00	8,643.00	16,428.54	12,050.00	75.32	90.32	-170.10	-3,992.11	1,387.83	3,453.90	3,393.81	60.08	57.485		
13,100.00	8,643.00	16,528.54	12,050.00	76.82	91.82	-170.11	-4,092.11	1,388.71	3,453.88	3,392.79	61.09	56.538		
13,200.00	8,643.00	16,628.54	12,050.00	78.32	93.32	-170.11	-4,192.11	1,389.58	3,453.86	3,391.76	62.10	55.618		
13,300.00	8,643.00	16,728.54	12,050.00	79.83	94.83	-170.11	-4,292.10	1,390.46	3,453.84	3,390.73	63.12	54.722		
13,400.00	8,643.00	16,828.54	12,050.00	81.34	96.35	-170.11	-4,392.10	1,391.33	3,453.83	3,389.69	64.14	53.852		
13,500.00	8,643.00	16,928.54	12,050.00	82.86	97.87	-170.11	-4,492.10	1,392.21	3,453.81	3,388.65	65.16	53.005		
13,600.00	8,643.00	17,028.54	12,050.00	84.38	99.39	-170.11	-4,592.09	1,393.09	3,453.79	3,387.60	66.19	52.182		
13,700.00	8,643.00	17,128.54	12,050.00	85.91	100.92	-170.12	-4,692.09	1,393.96	3,453.77	3,386.55	67.22	51.380		
13,800.00	8,643.00	17,228.54	12,050.00	87.44	102.45	-170.12	-4,792.08	1,394.84	3,453.76	3,385.50	68.26	50.599		
13,900.00	8,643.00	17,328.54	12,050.00	88.98	103.98	-170.12	-4,892.08	1,395.72	3,453.74	3,384.44	69.30	49.840		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													Bus Driver/Kaston Fed Com - Kaston Fed Com 703H - OH - Plan #9		Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1409-OWSG (Rev2) MWD, 11286-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	8,643.00	17,428.54	12,050.00	90.52	105.52	-170.12	-4,992.08	1,396.59	3,453.72	3,383.38	70.34	49.100				
14,100.00	8,643.00	17,528.54	12,050.00	92.06	107.06	-170.12	-5,092.07	1,397.47	3,453.70	3,382.31	71.39	48.379				
14,200.00	8,643.00	17,628.54	12,050.00	93.61	108.60	-170.12	-5,192.07	1,398.34	3,453.68	3,381.25	72.44	47.678				
14,300.00	8,643.00	17,728.54	12,050.00	95.16	110.15	-170.13	-5,292.06	1,399.22	3,453.67	3,380.17	73.49	46.993				
14,400.00	8,643.00	17,828.54	12,050.00	96.72	111.70	-170.13	-5,392.06	1,400.10	3,453.65	3,379.10	74.55	46.326				
14,500.00	8,643.00	17,928.54	12,050.00	98.27	113.26	-170.13	-5,492.06	1,400.97	3,453.63	3,378.02	75.61	45.676				
14,600.00	8,643.00	18,028.54	12,050.00	99.83	114.81	-170.13	-5,592.05	1,401.85	3,453.61	3,376.94	76.67	45.043				
14,700.00	8,643.00	18,128.54	12,050.00	101.40	116.37	-170.13	-5,692.05	1,402.72	3,453.60	3,375.85	77.74	44.425				
14,800.00	8,643.00	18,228.54	12,050.00	102.96	117.93	-170.13	-5,792.04	1,403.60	3,453.58	3,374.77	78.81	43.823				
14,900.00	8,643.00	18,328.54	12,050.00	104.53	119.50	-170.14	-5,892.04	1,404.48	3,453.56	3,373.68	79.88	43.236				
15,000.00	8,643.00	18,428.54	12,050.00	106.10	121.06	-170.14	-5,992.04	1,405.35	3,453.54	3,372.59	80.95	42.662				
15,100.00	8,643.00	18,528.54	12,050.00	107.68	122.63	-170.14	-6,092.03	1,406.23	3,453.52	3,371.50	82.03	42.103				
15,200.00	8,643.00	18,628.54	12,050.00	109.25	124.20	-170.14	-6,192.03	1,407.10	3,453.51	3,370.41	83.10	41.558				
15,300.00	8,643.00	18,728.54	12,050.00	110.83	125.77	-170.14	-6,292.03	1,407.98	3,453.49	3,369.31	84.18	41.026				
15,400.00	8,643.00	18,828.54	12,050.00	112.41	127.35	-170.14	-6,392.02	1,408.86	3,453.47	3,368.21	85.26	40.506				
15,500.00	8,643.00	18,928.54	12,050.00	114.00	128.93	-170.15	-6,492.02	1,409.73	3,453.45	3,367.11	86.34	39.998				
15,600.00	8,643.00	19,028.54	12,050.00	115.58	130.50	-170.15	-6,592.01	1,410.61	3,453.44	3,366.01	87.42	39.502				
15,700.00	8,643.00	19,128.54	12,050.00	117.17	132.08	-170.15	-6,692.01	1,411.48	3,453.42	3,364.91	88.51	39.018				
15,800.00	8,643.00	19,228.54	12,050.00	118.75	133.67	-170.15	-6,792.01	1,412.36	3,453.40	3,363.80	89.60	38.543				
15,900.00	8,643.00	19,328.54	12,050.00	120.34	135.25	-170.15	-6,892.00	1,413.24	3,453.38	3,362.70	90.69	38.080				
16,000.00	8,643.00	19,428.54	12,050.00	121.93	136.83	-170.15	-6,992.00	1,414.11	3,453.37	3,361.59	91.78	37.627				
16,100.00	8,643.00	19,528.54	12,050.00	123.53	138.42	-170.16	-7,091.99	1,414.99	3,453.35	3,360.48	92.87	37.184				
16,200.00	8,643.00	19,628.54	12,050.00	125.12	140.01	-170.16	-7,191.99	1,415.87	3,453.33	3,359.36	93.96	36.751				
16,300.00	8,643.00	19,728.54	12,050.00	126.72	141.60	-170.16	-7,291.99	1,416.74	3,453.31	3,358.25	95.06	36.328				
16,400.00	8,643.00	19,828.54	12,050.00	128.31	143.19	-170.16	-7,391.98	1,417.62	3,453.29	3,357.14	96.16	35.913				
16,500.00	8,643.00	19,928.54	12,050.00	129.91	144.78	-170.16	-7,491.98	1,418.49	3,453.28	3,356.02	97.26	35.507				
16,600.00	8,643.00	20,028.54	12,050.00	131.51	146.38	-170.16	-7,591.97	1,419.37	3,453.26	3,354.90	98.35	35.110				
16,700.00	8,643.00	20,128.54	12,050.00	133.11	147.97	-170.17	-7,691.97	1,420.25	3,453.24	3,353.79	99.45	34.722				
16,800.00	8,643.00	20,228.54	12,050.00	134.72	149.57	-170.17	-7,791.97	1,421.12	3,453.22	3,352.67	100.55	34.342				
16,900.00	8,643.00	20,328.54	12,050.00	136.32	151.16	-170.17	-7,891.96	1,422.00	3,453.21	3,351.55	101.65	33.970				
17,000.00	8,643.00	20,428.54	12,050.00	137.92	152.76	-170.17	-7,991.96	1,422.87	3,453.19	3,350.43	102.76	33.605				
17,100.00	8,643.00	20,528.54	12,050.00	139.53	154.36	-170.17	-8,091.96	1,423.75	3,453.17	3,349.31	103.86	33.248				
17,200.00	8,643.00	20,628.54	12,050.00	141.14	155.96	-170.17	-8,191.95	1,424.63	3,453.15	3,348.19	104.97	32.898				
17,300.00	8,643.00	20,728.54	12,050.00	142.74	157.56	-170.18	-8,291.95	1,425.50	3,453.14	3,347.06	106.07	32.555				
17,400.00	8,643.00	20,828.54	12,050.00	144.35	159.17	-170.18	-8,391.94	1,426.38	3,453.12	3,345.94	107.18	32.219				
17,500.00	8,643.00	20,928.54	12,050.00	145.96	160.77	-170.18	-8,491.94	1,427.25	3,453.10	3,344.81	108.28	31.889				
17,600.00	8,643.00	21,028.54	12,050.00	147.57	162.37	-170.18	-8,591.94	1,428.13	3,453.08	3,343.69	109.39	31.566				
17,700.00	8,643.00	21,128.54	12,050.00	149.18	163.98	-170.18	-8,691.93	1,429.01	3,453.06	3,342.56	110.50	31.249				
17,800.00	8,643.00	21,228.54	12,050.00	150.80	165.59	-170.18	-8,791.93	1,429.88	3,453.05	3,341.43	111.61	30.938				
17,900.00	8,643.00	21,328.54	12,050.00	152.41	167.19	-170.19	-8,891.92	1,430.76	3,453.03	3,340.30	112.72	30.633				
18,000.00	8,643.00	21,428.54	12,050.00	154.02	168.80	-170.19	-8,991.92	1,431.63	3,453.01	3,339.18	113.84	30.333				
18,100.00	8,643.00	21,528.54	12,050.00	155.64	170.41	-170.19	-9,091.92	1,432.51	3,452.99	3,338.04	114.95	30.039				
18,200.00	8,643.00	21,628.54	12,050.00	157.25	172.02	-170.19	-9,191.91	1,433.39	3,452.98	3,336.91	116.06	29.751				
18,300.00	8,643.00	21,728.54	12,050.00	158.87	173.63	-170.19	-9,291.91	1,434.26	3,452.96	3,335.78	117.18	29.468				
18,400.00	8,643.00	21,828.54	12,050.00	160.49	175.24	-170.19	-9,391.90	1,435.14	3,452.94	3,334.65	118.29	29.190				
18,500.00	8,643.00	21,928.54	12,050.00	162.11	176.85	-170.20	-9,491.90	1,436.02	3,452.92	3,333.52	119.41	28.917				
18,600.00	8,643.00	22,028.54	12,050.00	163.72	178.47	-170.20	-9,591.90	1,436.89	3,452.91	3,332.38	120.52	28.649				
18,700.00	8,643.00	22,128.54	12,050.00	165.34	180.08	-170.20	-9,691.89	1,437.77	3,452.89	3,331.25	121.64	28.386				
18,800.00	8,643.00	22,228.54	12,050.00	166.96	181.70	-170.20	-9,791.89	1,438.64	3,452.87	3,330.11	122.76	28.127				
18,900.00	8,643.00	22,328.54	12,050.00	168.58	183.31	-170.20	-9,891.89	1,439.52	3,452.85	3,328.98	123.88	27.873				
19,000.00	8,643.00	22,428.54	12,050.00	170.20	184.93	-170.20	-9,991.88	1,440.40	3,452.84	3,327.84	125.00	27.624				
19,100.00	8,643.00	22,528.54	12,050.00	171.82	186.54	-170.21	-10,091.88	1,441.27	3,452.82	3,326.70	126.12	27.378				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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
Bus Driver/Kaston Fed Com - Kaston Fed Com 703H - OH - Plan #9												Offset Well Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1409-OWSG (Rev2) MWD, 11286-OWSG (Rev2) MWD													
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	8,643.00	22,628.54	12,050.00	173.45	188.16	-170.21	-10,191.87	1,442.15	3,452.80	3,325.57	127.23	27.137	
19,300.00	8,643.00	22,728.54	12,050.00	175.07	189.78	-170.21	-10,291.87	1,443.02	3,452.78	3,324.43	128.35	26.901	
19,400.00	8,643.00	22,828.54	12,050.00	176.69	191.39	-170.21	-10,391.87	1,443.90	3,452.76	3,323.29	129.47	26.668	
19,500.00	8,643.00	22,928.54	12,050.00	178.32	193.01	-170.21	-10,491.86	1,444.78	3,452.75	3,322.15	130.59	26.439	
19,600.00	8,643.00	23,028.54	12,050.00	179.94	194.63	-170.21	-10,591.86	1,445.65	3,452.73	3,321.01	131.72	26.213	
19,700.00	8,643.00	23,128.54	12,050.00	181.56	196.25	-170.22	-10,691.85	1,446.53	3,452.71	3,319.87	132.84	25.992	
19,800.00	8,643.00	23,228.54	12,050.00	183.19	197.87	-170.22	-10,791.85	1,447.40	3,452.69	3,318.74	133.96	25.775	
19,900.00	8,643.00	23,328.54	12,050.00	184.82	199.49	-170.22	-10,891.85	1,448.28	3,452.68	3,317.60	135.08	25.560	
20,000.00	8,643.00	23,428.54	12,050.00	186.44	201.06	-170.22	-10,991.84	1,449.16	3,452.66	3,316.53	136.13	25.364	
20,076.73	8,643.00	23,504.65	12,050.00	187.69	202.16	-170.22	-11,067.95	1,449.82	3,452.65	3,315.86	136.79	25.241	
20,078.25	8,643.00	23,504.65	12,050.00	187.71	202.16	-170.22	-11,067.95	1,449.82	3,452.65	3,315.85	136.80	25.239	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
5,100.00	5,053.51	5,073.04	5,068.75	19.52	17.66	-123.33	796.16	-905.58	1,409.30	1,383.35	25.95	54.301		
5,200.00	5,151.57	5,169.30	5,164.64	19.98	18.00	-124.31	788.40	-908.75	1,420.56	1,394.09	26.47	53.659		
5,300.00	5,249.63	5,265.56	5,260.53	20.43	18.33	-125.26	780.64	-911.92	1,432.24	1,405.25	26.99	53.058		
5,400.00	5,347.69	5,361.82	5,356.43	20.88	18.67	-126.21	772.89	-915.09	1,444.34	1,416.82	27.51	52.496		
5,500.00	5,445.76	5,458.08	5,452.32	21.33	19.01	-127.14	765.13	-918.26	1,456.83	1,428.80	28.03	51.970		
5,600.00	5,543.82	5,554.34	5,548.21	21.79	19.36	-128.05	757.37	-921.43	1,469.73	1,441.18	28.55	51.479		
5,700.00	5,641.88	5,650.59	5,644.10	22.24	19.70	-128.95	749.61	-924.60	1,483.00	1,453.93	29.07	51.019		
5,800.00	5,739.94	5,746.85	5,740.00	22.70	20.04	-129.83	741.85	-927.77	1,496.65	1,467.06	29.58	50.589		
5,900.00	5,838.00	5,843.11	5,835.89	23.16	20.39	-130.70	734.09	-930.94	1,510.66	1,480.56	30.10	50.187		
6,000.00	5,936.06	5,939.37	5,931.78	23.61	20.73	-131.55	726.33	-934.11	1,525.02	1,494.41	30.62	49.811		
6,100.00	6,034.12	6,035.63	6,027.68	24.07	21.08	-132.39	718.57	-937.28	1,539.73	1,508.60	31.13	49.460		
6,200.00	6,132.19	6,131.89	6,123.57	24.53	21.43	-133.21	710.81	-940.45	1,554.77	1,523.12	31.64	49.132		
6,300.00	6,230.25	6,228.15	6,219.46	24.99	21.78	-134.02	703.05	-943.62	1,570.13	1,537.97	32.16	48.825		
6,400.00	6,328.31	6,324.41	6,315.36	25.45	22.13	-134.81	695.30	-946.79	1,585.81	1,553.14	32.67	48.539		
6,500.00	6,426.37	6,420.66	6,411.25	25.91	22.48	-135.59	687.54	-949.96	1,601.79	1,568.61	33.18	48.272		
6,600.00	6,524.43	6,516.92	6,507.14	26.37	22.83	-136.35	679.78	-953.13	1,618.07	1,584.37	33.69	48.023		
6,700.00	6,622.49	6,613.18	6,603.04	26.83	23.18	-137.10	672.02	-956.30	1,634.63	1,600.43	34.20	47.790		
6,800.00	6,720.55	6,709.44	6,698.93	27.29	23.53	-137.83	664.26	-959.47	1,651.48	1,616.76	34.71	47.573		
6,855.04	6,774.53	6,762.42	6,751.71	27.55	23.72	-138.23	659.99	-961.22	1,660.86	1,625.87	34.99	47.460		
6,900.00	6,818.67	6,805.77	6,794.89	27.75	23.88	-138.62	656.49	-962.64	1,668.40	1,633.17	35.22	47.366		
7,000.00	6,917.18	6,902.66	6,891.41	28.20	24.24	-139.43	648.68	-965.83	1,683.91	1,648.18	35.73	47.130		
7,100.00	7,016.11	7,000.15	6,988.53	28.62	24.60	-140.15	640.83	-969.04	1,697.66	1,661.43	36.23	46.857		
7,200.00	7,115.39	7,098.18	7,086.19	29.02	24.96	-140.79	632.92	-972.27	1,709.58	1,672.85	36.73	46.546		
7,300.00	7,214.95	7,196.67	7,184.31	29.40	25.32	-141.36	624.99	-975.52	1,719.61	1,682.39	37.22	46.198		
7,400.00	7,314.72	7,295.57	7,282.83	29.77	25.69	-141.84	617.01	-978.77	1,727.71	1,689.99	37.71	45.812		
7,500.00	7,414.63	7,394.80	7,381.68	30.11	26.05	-142.25	609.02	-982.04	1,733.83	1,695.63	38.20	45.389		
7,608.39	7,523.00	7,511.11	7,497.59	30.45	26.48	-87.36	600.01	-985.72	1,738.08	1,699.33	38.75	44.852		
7,700.00	7,614.61	7,619.17	7,605.45	30.74	26.87	-87.56	594.16	-988.11	1,739.89	1,700.64	39.25	44.332		
7,800.00	7,714.61	7,737.42	7,723.65	31.05	27.29	-87.66	590.99	-989.41	1,740.87	1,701.09	39.79	43.757		
7,900.00	7,814.61	7,845.38	7,831.61	31.37	27.66	-87.67	590.67	-989.54	1,740.97	1,700.69	40.29	43.215		
8,000.00	7,914.61	7,945.38	7,931.61	31.68	28.00	-87.67	590.67	-989.54	1,740.97	1,700.21	40.76	42.711		
8,100.00	8,014.61	8,045.38	8,031.61	31.99	28.34	-87.67	590.67	-989.54	1,740.97	1,699.73	41.24	42.218		
8,155.43	8,070.04	8,100.81	8,087.04	32.17	28.53	-87.67	590.67	-989.54	1,740.97	1,699.47	41.50	41.949		
8,200.00	8,114.57	8,145.34	8,131.57	32.30	28.69	92.94	590.67	-989.54	1,741.06	1,699.35	41.71	41.744		
8,250.00	8,164.18	8,194.95	8,181.18	32.42	28.86	93.10	590.67	-989.54	1,741.38	1,699.45	41.93	41.532		
8,300.00	8,213.08	8,243.85	8,230.08	32.53	29.02	93.37	590.67	-989.54	1,741.98	1,699.84	42.14	41.338		
8,350.00	8,260.89	8,291.66	8,277.89	32.63	29.19	93.74	590.67	-989.54	1,742.93	1,700.59	42.34	41.164		
8,400.00	8,307.25	8,338.02	8,324.25	32.71	29.35	94.17	590.67	-989.54	1,744.32	1,701.79	42.53	41.012		
8,450.00	8,351.81	8,382.57	8,368.81	32.77	29.50	94.63	590.67	-989.54	1,746.27	1,703.56	42.71	40.886		
8,500.00	8,394.21	8,424.98	8,411.21	32.81	29.65	95.10	590.67	-989.54	1,748.92	1,706.04	42.88	40.787		
8,550.00	8,434.16	8,464.92	8,451.16	32.84	29.78	95.54	590.67	-989.54	1,752.41	1,709.38	43.03	40.721		
8,600.00	8,471.33	8,502.09	8,488.33	32.85	29.91	95.90	590.67	-989.54	1,756.88	1,713.71	43.18	40.690		
8,650.00	8,505.44	8,536.21	8,522.44	32.85	30.03	96.15	590.67	-989.54	1,762.49	1,719.18	43.31	40.697		
8,700.00	8,536.25	8,567.01	8,553.25	32.84	30.13	96.25	590.67	-989.54	1,769.35	1,725.93	43.42	40.746		
8,750.00	8,563.50	8,594.27	8,580.50	32.81	30.23	96.16	590.67	-989.54	1,777.59	1,734.06	43.53	40.838		
8,800.00	8,587.00	8,617.77	8,604.00	32.78	30.31	95.86	590.67	-989.54	1,787.28	1,743.66	43.62	40.975		
8,850.00	8,606.56	8,637.33	8,623.56	32.74	30.38	95.30	590.67	-989.54	1,798.48	1,754.79	43.69	41.160		
8,900.00	8,622.05	8,652.81	8,639.05	32.70	30.43	94.47	590.67	-989.54	1,811.21	1,767.45	43.76	41.394		
8,950.00	8,633.33	8,664.09	8,650.33	32.66	30.47	93.35	590.67	-989.54	1,825.44	1,781.64	43.80	41.674		
9,000.00	8,640.32	8,671.09	8,657.32	32.62	30.49	91.93	590.67	-989.54	1,841.12	1,797.28	43.83	42.002		
9,050.00	8,642.97	8,673.74	8,659.97	32.59	30.50	90.20	590.67	-989.54	1,858.12	1,814.27	43.85	42.375		
9,055.43	8,643.00	8,673.77	8,660.00	32.59	30.50	90.00	590.67	-989.54	1,860.04	1,816.19	43.85	42.418		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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	
19,500.00	8,643.00	22,101.01	12,068.88	178.32	180.83	152.83	-9,778.56	-899.07	3,901.74	3,746.94	154.80	25.206	
19,600.00	8,643.00	22,101.01	12,068.88	179.94	180.83	152.83	-9,778.56	-899.07	3,921.82	3,767.13	154.69	25.353	
19,700.00	8,643.00	22,101.01	12,068.88	181.56	180.83	152.83	-9,778.56	-899.07	3,944.34	3,789.83	154.50	25.529	
19,800.00	8,643.00	22,101.01	12,068.88	183.19	180.83	152.83	-9,778.56	-899.07	3,969.25	3,815.01	154.24	25.735	
19,900.00	8,643.00	22,101.01	12,068.88	184.82	180.83	152.83	-9,778.56	-899.07	3,996.50	3,842.60	153.90	25.968	
20,000.00	8,643.00	22,101.01	12,068.88	186.44	180.83	152.83	-9,778.56	-899.07	4,026.06	3,872.56	153.50	26.229	
20,078.25	8,643.00	22,101.01	12,068.88	187.71	180.83	152.83	-9,778.56	-899.07	4,050.76	3,897.62	153.14	26.451	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
0.00	0.00	17.00	17.00	0.00	0.02	-42.99	892.13	-831.51	1,219.55					
100.00	100.00	117.00	117.00	0.13	0.19	-42.99	892.13	-831.51	1,219.55	1,219.33	0.22	5,427.547		
200.00	200.00	217.00	217.00	0.48	0.54	-42.99	892.13	-831.51	1,219.55	1,218.82	0.73	1,673.468		
300.00	300.00	317.00	317.00	0.84	0.90	-42.99	892.13	-831.51	1,219.55	1,218.32	1.24	987.340		
400.00	400.00	417.00	417.00	1.20	1.26	-42.99	892.13	-831.51	1,219.55	1,217.81	1.74	700.117		
500.00	500.00	517.00	517.00	1.56	1.62	-42.99	892.13	-831.51	1,219.55	1,217.30	2.25	542.321		
600.00	600.00	617.00	617.00	1.92	1.98	-42.99	892.13	-831.51	1,219.55	1,216.79	2.76	442.565		
700.00	700.00	717.00	717.00	2.28	2.34	-42.99	892.13	-831.51	1,219.55	1,216.29	3.26	373.804		
800.00	800.00	817.00	817.00	2.63	2.70	-42.99	892.13	-831.51	1,219.55	1,215.78	3.77	323.535		
900.00	900.00	917.00	917.00	2.99	3.05	-42.99	892.13	-831.51	1,219.55	1,215.27	4.28	285.183		
1,000.00	1,000.00	1,017.00	1,017.00	3.35	3.41	-42.99	892.13	-831.51	1,219.55	1,214.77	4.78	254.959		
1,100.00	1,100.00	1,117.00	1,117.00	3.71	3.77	-42.99	892.13	-831.51	1,219.55	1,214.26	5.29	230.528		
1,200.00	1,200.00	1,217.00	1,217.00	4.07	4.13	-42.99	892.13	-831.51	1,219.55	1,213.75	5.80	210.369		
1,300.00	1,300.00	1,317.00	1,317.00	4.43	4.49	-42.99	892.13	-831.51	1,219.55	1,213.25	6.30	193.452		
1,400.00	1,400.00	1,417.00	1,417.00	4.79	4.85	-42.99	892.13	-831.51	1,219.55	1,212.74	6.81	179.054		
1,500.00	1,500.00	1,517.00	1,517.00	5.14	5.21	-42.99	892.13	-831.51	1,219.55	1,212.23	7.32	166.650		
1,600.00	1,600.00	1,617.00	1,617.00	5.50	5.56	-42.99	892.13	-831.51	1,219.55	1,211.73	7.82	155.854		
1,700.00	1,700.00	1,717.00	1,717.00	5.86	5.92	-42.99	892.13	-831.51	1,219.55	1,211.22	8.33	146.371		
1,800.00	1,800.00	1,817.00	1,817.00	6.22	6.28	-42.99	892.13	-831.51	1,219.55	1,210.71	8.84	137.976		
1,900.00	1,900.00	1,917.00	1,917.00	6.58	6.64	-42.99	892.13	-831.51	1,219.55	1,210.20	9.35	130.492		
2,000.00	2,000.00	2,017.00	2,017.00	6.94	7.00	-42.99	892.13	-831.51	1,219.55	1,209.70	9.85	123.777		
2,100.00	2,100.00	2,117.00	2,117.00	7.29	7.36	-42.99	892.13	-831.51	1,219.55	1,209.19	10.36	117.720		
2,200.00	2,200.00	2,217.00	2,217.00	7.65	7.71	-42.99	892.13	-831.51	1,219.55	1,208.68	10.87	112.229		
2,300.00	2,299.99	2,316.99	2,316.99	8.01	8.07	-98.31	892.13	-831.51	1,219.74	1,208.37	11.37	107.269		
2,400.00	2,399.91	2,416.91	2,416.91	8.36	8.43	-98.48	892.13	-831.51	1,220.31	1,208.44	11.87	102.784		
2,500.00	2,499.69	2,516.69	2,516.69	8.71	8.79	-98.77	892.13	-831.51	1,221.30	1,208.92	12.37	98.692		
2,600.00	2,599.27	2,616.27	2,616.27	9.07	9.15	-99.17	892.13	-831.51	1,222.73	1,209.85	12.88	94.945		
2,700.00	2,698.57	2,722.43	2,722.43	9.43	9.52	-99.72	892.07	-831.48	1,224.62	1,211.23	13.40	91.404		
2,800.00	2,797.54	2,864.75	2,864.70	9.79	10.00	-100.71	888.97	-829.90	1,224.84	1,210.85	13.98	87.601		
2,900.00	2,896.09	2,993.90	2,993.62	10.17	10.42	-101.86	882.15	-826.43	1,222.42	1,207.90	14.53	84.151		
2,953.35	2,948.47	3,046.06	3,045.65	10.37	10.59	-102.39	878.91	-824.78	1,221.01	1,206.22	14.79	82.559		
3,000.00	2,994.22	3,091.61	3,091.09	10.55	10.74	-102.85	876.08	-823.34	1,219.93	1,204.90	15.02	81.214		
3,100.00	3,092.28	3,189.25	3,188.49	10.94	11.07	-103.84	870.01	-820.25	1,217.88	1,202.36	15.52	78.461		
3,200.00	3,190.34	3,286.89	3,285.89	11.33	11.40	-104.83	863.94	-817.16	1,216.22	1,200.19	16.03	75.878		
3,300.00	3,288.41	3,384.53	3,383.30	11.73	11.73	-105.82	857.88	-814.08	1,214.94	1,198.40	16.54	73.455		
3,400.00	3,386.47	3,482.17	3,480.70	12.14	12.06	-106.81	851.81	-810.99	1,214.04	1,196.98	17.06	71.182		
3,500.00	3,484.53	3,579.80	3,578.10	12.55	12.40	-107.81	845.74	-807.90	1,213.52	1,195.95	17.57	69.051		
3,583.82	3,566.72	3,661.64	3,659.74	12.90	12.68	-108.65	840.66	-805.32	1,213.39	1,195.37	18.01	67.365 CC		
3,600.00	3,582.59	3,677.44	3,675.50	12.97	12.73	-108.81	839.68	-804.82	1,213.39	1,195.30	18.10	67.051		
3,700.00	3,680.65	3,775.08	3,772.90	13.39	13.07	-109.80	833.61	-801.73	1,213.65	1,195.02	18.62	65.174 ES		
3,800.00	3,778.71	3,872.72	3,870.30	13.81	13.41	-110.80	827.54	-798.65	1,214.29	1,195.14	19.15	63.413		
3,900.00	3,876.77	3,970.36	3,967.70	14.24	13.75	-111.79	821.48	-795.56	1,215.31	1,195.63	19.68	61.759		
4,000.00	3,974.84	4,068.00	4,065.10	14.67	14.09	-112.78	815.41	-792.47	1,216.71	1,196.50	20.21	60.206		
4,100.00	4,072.90	4,165.63	4,162.50	15.10	14.44	-113.77	809.34	-789.39	1,218.50	1,197.76	20.74	58.747		
4,200.00	4,170.96	4,263.27	4,259.90	15.53	14.78	-114.76	803.28	-786.30	1,220.67	1,199.39	21.27	57.376		
4,300.00	4,269.02	4,360.91	4,357.30	15.97	15.13	-115.74	797.21	-783.21	1,223.21	1,201.40	21.81	56.087		
4,400.00	4,367.08	4,458.55	4,454.70	16.41	15.48	-116.72	791.14	-780.13	1,226.13	1,203.79	22.34	54.875		
4,500.00	4,465.14	4,556.19	4,552.10	16.85	15.83	-117.70	785.08	-777.04	1,229.43	1,206.55	22.88	53.736		
4,600.00	4,563.20	4,653.82	4,649.50	17.29	16.17	-118.66	779.01	-773.95	1,233.09	1,209.67	23.41	52.663		
4,700.00	4,661.26	4,751.46	4,746.90	17.73	16.52	-119.63	772.94	-770.87	1,237.12	1,213.17	23.95	51.654		
4,800.00	4,759.33	4,849.10	4,844.30	18.18	16.87	-120.58	766.88	-767.78	1,241.51	1,217.03	24.49	50.704		
4,900.00	4,857.39	4,946.74	4,941.71	18.63	17.23	-121.53	760.81	-764.69	1,246.26	1,221.24	25.02	49.810		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
5,000.00	4,955.45	5,044.38	5,039.11	19.08	17.58	-122.48	754.74	-761.61	1,251.37	1,225.81	25.56	48.968		
5,100.00	5,053.51	5,142.02	5,136.51	19.52	17.93	-123.41	748.68	-758.52	1,256.83	1,230.74	26.09	48.174		
5,200.00	5,151.57	5,239.65	5,233.91	19.98	18.28	-124.34	742.61	-755.43	1,262.63	1,236.01	26.62	47.426		
5,300.00	5,249.63	5,337.29	5,331.31	20.43	18.64	-125.26	736.54	-752.35	1,268.78	1,241.62	27.16	46.721		
5,400.00	5,347.69	5,434.93	5,428.71	20.88	18.99	-126.17	730.48	-749.26	1,275.26	1,247.57	27.69	46.057		
5,500.00	5,445.76	5,532.57	5,526.11	21.33	19.35	-127.07	724.41	-746.17	1,282.07	1,253.85	28.22	45.431		
5,600.00	5,543.82	5,630.21	5,623.51	21.79	19.70	-127.96	718.34	-743.09	1,289.21	1,260.46	28.75	44.840		
5,700.00	5,641.88	5,727.84	5,720.91	22.24	20.06	-128.84	712.28	-740.00	1,296.67	1,267.39	29.28	44.283		
5,800.00	5,739.94	5,825.48	5,818.31	22.70	20.41	-129.72	706.21	-736.91	1,304.44	1,274.63	29.81	43.758		
5,900.00	5,838.00	5,923.12	5,915.71	23.16	20.77	-130.58	700.14	-733.83	1,312.53	1,282.19	30.34	43.262		
6,000.00	5,936.06	6,020.76	6,013.11	23.61	21.13	-131.43	694.08	-730.74	1,320.92	1,290.05	30.87	42.795		
6,100.00	6,034.12	6,118.40	6,110.51	24.07	21.48	-132.27	688.01	-727.65	1,329.60	1,298.21	31.39	42.353		
6,200.00	6,132.19	6,216.04	6,207.91	24.53	21.84	-133.10	681.94	-724.57	1,338.58	1,306.66	31.92	41.937		
6,300.00	6,230.25	6,313.67	6,305.31	24.99	22.20	-133.92	675.88	-721.48	1,347.85	1,315.40	32.44	41.544		
6,400.00	6,328.31	6,411.31	6,402.71	25.45	22.56	-134.73	669.81	-718.39	1,357.39	1,324.42	32.97	41.173		
6,500.00	6,426.37	6,508.95	6,500.11	25.91	22.92	-135.53	663.74	-715.31	1,367.21	1,333.72	33.49	40.823		
6,600.00	6,524.43	6,606.59	6,597.52	26.37	23.28	-136.32	657.68	-712.22	1,377.30	1,343.29	34.01	40.492		
6,700.00	6,622.49	6,704.23	6,694.92	26.83	23.64	-137.09	651.61	-709.13	1,387.66	1,353.12	34.54	40.180		
6,800.00	6,720.55	6,801.86	6,792.32	27.29	24.00	-137.86	645.54	-706.05	1,398.27	1,363.21	35.06	39.886		
6,855.04	6,774.53	6,855.60	6,845.93	27.55	24.19	-138.27	642.20	-704.35	1,404.21	1,368.87	35.34	39.731		
6,900.00	6,818.67	6,899.56	6,889.77	27.75	24.36	-138.65	639.47	-702.96	1,408.93	1,373.35	35.58	39.603		
7,000.00	6,917.18	6,997.67	6,987.65	28.20	24.72	-139.42	633.38	-699.86	1,418.16	1,382.07	36.09	39.293		
7,100.00	7,016.11	7,096.22	7,086.96	28.62	25.08	-140.10	627.25	-696.74	1,425.59	1,388.99	36.60	38.947		
7,200.00	7,115.39	7,195.15	7,184.64	29.02	25.45	-140.69	621.11	-693.62	1,431.16	1,394.05	37.11	38.566		
7,300.00	7,214.95	7,294.37	7,283.63	29.40	25.81	-141.20	614.94	-690.48	1,434.82	1,397.21	37.61	38.150		
7,400.00	7,314.72	7,393.83	7,382.85	29.77	26.18	-141.62	608.76	-687.33	1,436.53	1,398.42	38.11	37.697		
7,500.00	7,414.63	7,493.46	7,482.23	30.11	26.55	-141.96	602.57	-684.18	1,436.24	1,397.64	38.60	37.210		
7,608.39	7,523.00	7,586.26	7,574.86	30.45	26.89	-86.90	597.57	-681.64	1,434.17	1,395.09	39.08	36.701		
7,700.00	7,614.61	7,663.33	7,651.87	30.74	27.17	-87.00	594.94	-680.30	1,432.41	1,392.94	39.47	36.290		
7,800.00	7,714.61	7,747.56	7,736.08	31.05	27.46	-87.05	593.64	-679.64	1,431.54	1,391.65	39.90	35.883		
7,846.55	7,761.16	7,789.63	7,778.16	31.20	27.60	-87.05	593.57	-679.61	1,431.50	1,391.40	40.10	35.698		
7,900.00	7,814.61	7,843.09	7,831.61	31.37	27.78	-87.05	593.57	-679.61	1,431.50	1,391.15	40.35	35.475		
8,000.00	7,914.61	7,943.09	7,931.61	31.68	28.12	-87.05	593.57	-679.61	1,431.50	1,390.67	40.82	35.065		
8,100.00	8,014.61	8,043.09	8,031.61	31.99	28.46	-87.05	593.57	-679.61	1,431.50	1,390.20	41.30	34.664		
8,155.43	8,070.04	8,098.51	8,087.04	32.17	28.64	-87.05	593.57	-679.61	1,431.50	1,389.94	41.56	34.445		
8,200.00	8,114.57	8,143.04	8,131.57	32.30	28.79	93.57	593.57	-679.61	1,431.61	1,389.84	41.76	34.279		
8,250.00	8,164.18	8,192.66	8,181.18	32.42	28.96	93.77	593.57	-679.61	1,432.00	1,390.01	41.98	34.110		
8,300.00	8,213.08	8,241.56	8,230.08	32.53	29.13	94.10	593.57	-679.61	1,432.72	1,390.53	42.19	33.958		
8,350.00	8,260.89	8,289.37	8,277.89	32.63	29.29	94.54	593.57	-679.61	1,433.87	1,391.48	42.39	33.826		
8,400.00	8,307.25	8,335.73	8,324.25	32.71	29.45	95.06	593.57	-679.61	1,435.56	1,392.98	42.58	33.717		
8,450.00	8,351.81	8,380.28	8,368.81	32.77	29.60	95.63	593.57	-679.61	1,437.93	1,395.18	42.75	33.633		
8,500.00	8,394.21	8,422.69	8,411.21	32.81	29.74	96.20	593.57	-679.61	1,441.15	1,398.23	42.92	33.580		
8,550.00	8,434.16	8,462.63	8,451.16	32.84	29.88	96.72	593.57	-679.61	1,445.37	1,402.31	43.07	33.560		
8,600.00	8,471.33	8,499.80	8,488.33	32.85	30.00	97.16	593.57	-679.61	1,450.79	1,407.59	43.21	33.579		
8,650.00	8,505.44	8,533.92	8,522.44	32.85	30.12	97.47	593.57	-679.61	1,457.57	1,414.24	43.33	33.639		
8,700.00	8,536.25	8,564.72	8,553.25	32.84	30.22	97.59	593.57	-679.61	1,465.86	1,422.42	43.44	33.745		
8,750.00	8,563.50	8,591.97	8,580.50	32.81	30.31	97.48	593.57	-679.61	1,475.79	1,432.25	43.53	33.899		
8,800.00	8,587.00	8,615.47	8,604.00	32.78	30.39	97.11	593.57	-679.61	1,487.44	1,443.83	43.61	34.104		
8,850.00	8,606.56	8,635.04	8,623.56	32.74	30.46	96.44	593.57	-679.61	1,500.88	1,457.20	43.68	34.361		
8,900.00	8,622.05	8,650.52	8,639.05	32.70	30.51	95.43	593.57	-679.61	1,516.10	1,472.37	43.73	34.670		
8,950.00	8,633.33	8,661.80	8,650.33	32.66	30.55	94.07	593.57	-679.61	1,533.07	1,489.31	43.76	35.032		
9,000.00	8,640.32	8,668.79	8,657.32	32.62	30.58	92.34	593.57	-679.61	1,551.70	1,507.92	43.78	35.444		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
9,050.00	8,642.97	8,671.45	8,659.97	32.59	30.59	90.25	593.57	-679.61	1,571.84	1,528.06	43.78	35.904		
9,055.43	8,643.00	8,671.47	8,660.00	32.59	30.59	90.00	593.57	-679.61	1,574.11	1,530.33	43.78	35.956		
9,100.00	8,643.00	8,671.47	8,660.00	32.59	30.59	90.00	593.57	-679.61	1,593.33	1,549.55	43.77	36.401		
9,200.00	8,643.00	8,671.47	8,660.00	32.65	30.59	90.00	593.57	-679.61	1,640.03	1,596.26	43.77	37.470		
9,300.00	8,643.00	8,671.47	8,660.00	32.85	30.59	90.00	593.57	-679.61	1,691.37	1,647.59	43.78	38.632		
9,400.00	8,643.00	8,671.47	8,660.00	33.19	30.59	90.00	593.57	-679.61	1,746.92	1,703.12	43.81	39.879		
9,500.00	8,643.00	8,671.47	8,660.00	33.64	30.59	90.00	593.57	-679.61	1,806.31	1,762.47	43.84	41.203		
9,600.00	8,643.00	8,671.47	8,660.00	34.19	30.59	90.00	593.57	-679.61	1,869.17	1,825.29	43.88	42.597		
9,700.00	8,643.00	8,671.47	8,660.00	34.82	30.59	90.00	593.57	-679.61	1,935.15	1,891.22	43.93	44.055		
9,800.00	8,643.00	8,671.47	8,660.00	35.51	30.59	90.00	593.57	-679.61	2,003.95	1,959.98	43.98	45.569		
9,900.00	8,643.00	8,671.47	8,660.00	36.27	30.59	90.00	593.57	-679.61	2,075.29	2,031.27	44.03	47.135		
10,000.00	8,643.00	8,671.47	8,660.00	37.08	30.59	90.00	593.57	-679.61	2,148.92	2,104.84	44.08	48.747		
10,100.00	8,643.00	8,671.47	8,660.00	37.95	30.59	90.00	593.57	-679.61	2,224.61	2,180.47	44.14	50.401		
10,200.00	8,643.00	8,671.47	8,660.00	38.86	30.59	90.00	593.57	-679.61	2,302.15	2,257.96	44.19	52.092		
10,300.00	8,643.00	8,671.47	8,660.00	39.82	30.59	90.00	593.57	-679.61	2,381.37	2,337.12	44.25	53.817		
10,400.00	8,643.00	8,671.47	8,660.00	40.83	30.59	90.00	593.57	-679.61	2,462.10	2,417.80	44.30	55.573		
10,500.00	8,643.00	8,671.47	8,660.00	41.88	30.59	90.00	593.57	-679.61	2,544.20	2,499.84	44.36	57.355		
10,600.00	8,643.00	8,671.47	8,660.00	42.96	30.59	90.00	593.57	-679.61	2,627.54	2,583.13	44.41	59.164		
10,700.00	8,643.00	8,671.47	8,660.00	44.07	30.59	90.00	593.57	-679.61	2,712.01	2,667.55	44.46	60.995		
10,800.00	8,643.00	8,671.47	8,660.00	45.22	30.59	90.00	593.57	-679.61	2,797.50	2,752.99	44.51	62.846		
10,900.00	8,643.00	8,671.47	8,660.00	46.40	30.59	90.00	593.57	-679.61	2,883.93	2,839.37	44.56	64.716		
11,000.00	8,643.00	8,671.47	8,660.00	47.61	30.59	90.00	593.57	-679.61	2,971.21	2,926.59	44.61	66.602		
11,100.00	8,643.00	8,671.47	8,660.00	48.84	30.59	90.00	593.57	-679.61	3,059.26	3,014.60	44.66	68.502		
11,200.00	8,643.00	8,671.47	8,660.00	50.10	30.59	90.00	593.57	-679.61	3,148.03	3,103.33	44.71	70.416		
11,300.00	8,643.00	8,671.47	8,660.00	51.37	30.59	90.00	593.57	-679.61	3,237.46	3,192.70	44.75	72.342		
11,400.00	8,643.00	8,671.47	8,660.00	52.67	30.59	90.00	593.57	-679.61	3,327.48	3,282.69	44.80	74.278		
11,500.00	8,643.00	8,671.47	8,660.00	53.99	30.59	90.00	593.57	-679.61	3,418.06	3,373.22	44.84	76.223		
11,600.00	8,643.00	8,671.47	8,660.00	55.32	30.59	90.00	593.57	-679.61	3,509.16	3,464.27	44.89	78.177		
11,700.00	8,643.00	8,671.47	8,660.00	56.67	30.59	90.00	593.57	-679.61	3,600.72	3,555.79	44.93	80.139		
11,800.00	8,643.00	8,671.47	8,660.00	58.04	30.59	90.00	593.57	-679.61	3,692.73	3,647.75	44.97	82.108		
11,900.00	8,643.00	8,671.47	8,660.00	59.42	30.59	90.00	593.57	-679.61	3,785.13	3,740.12	45.02	84.082		
12,000.00	8,643.00	8,671.47	8,660.00	60.81	30.59	90.00	593.57	-679.61	3,877.92	3,832.86	45.06	86.062		
12,100.00	8,643.00	15,685.96	12,289.47	62.22	77.98	158.46	-3,070.55	-647.64	3,902.24	3,841.51	60.72	64.261		
12,200.00	8,643.00	15,785.96	12,290.55	63.64	79.37	158.46	-3,170.54	-646.76	3,903.28	3,841.47	61.81	63.150		
12,300.00	8,643.00	15,885.95	12,291.64	65.07	80.77	158.47	-3,270.52	-645.89	3,904.33	3,841.43	62.90	62.069		
12,400.00	8,643.00	15,985.94	12,292.72	66.51	82.17	158.47	-3,370.51	-645.02	3,905.38	3,841.37	64.01	61.016		
12,500.00	8,643.00	16,085.94	12,293.80	67.96	83.59	158.48	-3,470.49	-644.15	3,906.42	3,841.31	65.12	59.991		
12,600.00	8,643.00	16,185.93	12,294.88	69.41	85.01	158.48	-3,570.47	-643.27	3,907.47	3,841.23	66.24	58.993		
12,700.00	8,643.00	16,285.93	12,295.97	70.88	86.45	158.48	-3,670.46	-642.40	3,908.52	3,841.15	67.36	58.023		
12,800.00	8,643.00	16,385.92	12,297.05	72.35	87.89	158.49	-3,770.44	-641.53	3,909.56	3,841.07	68.49	57.080		
12,900.00	8,643.00	16,485.92	12,298.13	73.84	89.33	158.49	-3,870.43	-640.66	3,910.61	3,840.98	69.63	56.163		
13,000.00	8,643.00	16,585.91	12,299.22	75.32	90.79	158.50	-3,970.41	-639.78	3,911.66	3,840.88	70.77	55.270		
13,100.00	8,643.00	16,685.90	12,300.30	76.82	92.25	158.50	-4,070.40	-638.91	3,912.70	3,840.78	71.92	54.400		
13,200.00	8,643.00	16,785.90	12,301.38	78.32	93.71	158.51	-4,170.38	-638.04	3,913.75	3,840.67	73.08	53.554		
13,300.00	8,643.00	16,885.89	12,302.46	79.83	95.19	158.51	-4,270.37	-637.17	3,914.80	3,840.55	74.24	52.729		
13,400.00	8,643.00	16,985.89	12,303.55	81.34	96.67	158.52	-4,370.35	-636.29	3,915.84	3,840.43	75.41	51.926		
13,500.00	8,643.00	17,085.88	12,304.63	82.86	98.15	158.52	-4,470.33	-635.42	3,916.89	3,840.31	76.58	51.147		
13,600.00	8,643.00	17,185.87	12,305.71	84.38	99.64	158.52	-4,570.32	-634.55	3,917.94	3,840.18	77.76	50.388		
13,700.00	8,643.00	17,285.87	12,306.80	85.91	101.14	158.53	-4,670.30	-633.68	3,918.98	3,840.05	78.93	49.649		
13,800.00	8,643.00	17,385.86	12,307.88	87.44	102.64	158.53	-4,770.29	-632.81	3,920.03	3,839.91	80.12	48.928		
13,900.00	8,643.00	17,485.86	12,308.96	88.98	104.14	158.54	-4,870.27	-631.93	3,921.08	3,839.77	81.31	48.227		
14,000.00	8,643.00	17,585.85	12,310.05	90.52	105.65	158.54	-4,970.26	-631.06	3,922.12	3,839.63	82.50	47.543		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 Judge Baylor Fed Com - Judge Baylor Fed Com 701H - OH - Plan #5												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	
19,300.00	8,643.00	22,390.61	12,362.08	175.07	181.09	158.75	-9,774.55	-589.14	4,008.32	3,864.97	143.35	27.962	
19,400.00	8,643.00	22,390.61	12,362.08	176.69	181.09	158.75	-9,774.55	-589.14	4,022.92	3,879.52	143.41	28.053	
19,500.00	8,643.00	22,390.61	12,362.08	178.32	181.09	158.75	-9,774.55	-589.14	4,039.96	3,896.55	143.40	28.173	
19,600.00	8,643.00	22,390.61	12,362.08	179.94	181.09	158.75	-9,774.55	-589.14	4,059.38	3,916.06	143.32	28.324	
19,700.00	8,643.00	22,390.61	12,362.08	181.56	181.09	158.75	-9,774.55	-589.14	4,081.16	3,937.98	143.18	28.503	
19,800.00	8,643.00	22,390.61	12,362.08	183.19	181.09	158.75	-9,774.55	-589.14	4,105.26	3,962.29	142.98	28.713	
19,900.00	8,643.00	22,390.61	12,362.08	184.82	181.09	158.75	-9,774.55	-589.14	4,131.65	3,988.93	142.72	28.949	
20,000.00	8,643.00	22,390.61	12,362.08	186.44	181.09	158.75	-9,774.55	-589.14	4,160.27	4,017.86	142.40	29.215	
20,078.25	8,643.00	22,390.61	12,362.08	187.71	181.09	158.75	-9,774.55	-589.14	4,184.19	4,042.08	142.12	29.442	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													LHS Wildcat Fed Com - LHS Wildcat Fed Com 604H - OH - OH		Offset Site Error:	0.00 usft
Survey Program: 190-MWD, 1393-OWSG (Rev2) MWD, 21860-BLIND															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	74.71	931.68	3,408.17	3,533.29							
100.00	100.00	78.50	78.50	0.13	0.12	74.71	931.68	3,408.17	3,533.22	3,533.05	0.17	N/A				
200.00	200.00	178.50	178.50	0.48	0.27	74.71	931.68	3,408.17	3,533.22	3,532.67	0.55	6,379.056				
300.00	300.00	313.22	313.22	0.84	0.71	74.72	931.20	3,407.64	3,532.76	3,531.65	1.10	3,197.309				
400.00	400.00	441.41	441.39	1.20	1.17	74.72	930.29	3,406.05	3,531.37	3,529.70	1.67	2,109.749				
500.00	500.00	579.12	579.06	1.56	1.66	74.73	929.05	3,403.16	3,529.13	3,526.86	2.28	1,551.074				
600.00	600.00	710.08	709.94	1.92	2.13	74.76	926.36	3,399.16	3,525.58	3,522.72	2.86	1,231.655				
700.00	700.00	803.48	803.27	2.28	2.47	74.78	924.28	3,396.18	3,521.92	3,518.56	3.35	1,050.943				
800.00	800.00	893.49	893.21	2.63	2.79	74.80	921.94	3,393.64	3,518.51	3,514.68	3.83	918.320				
900.00	900.00	980.74	980.41	2.99	3.11	74.83	919.79	3,391.66	3,515.64	3,511.34	4.31	816.602				
1,000.00	1,000.00	1,117.77	1,117.33	3.35	3.61	74.85	916.89	3,387.11	3,511.76	3,506.85	4.91	715.448				
1,100.00	1,100.00	1,207.37	1,206.87	3.71	3.93	74.87	915.26	3,384.13	3,508.07	3,502.68	5.39	651.001				
1,200.00	1,200.00	1,319.85	1,319.26	4.07	4.34	74.88	913.38	3,380.10	3,504.16	3,498.23	5.93	591.097				
1,300.00	1,300.00	1,408.14	1,407.48	4.43	4.53	74.89	912.09	3,376.92	3,500.30	3,493.99	6.31	554.976				
1,400.00	1,400.00	1,509.53	1,508.80	4.79	4.56	74.89	910.87	3,373.29	3,496.54	3,489.95	6.58	531.234				
1,500.00	1,500.00	1,603.12	1,602.33	5.14	4.62	74.89	909.83	3,370.11	3,492.96	3,486.08	6.88	507.695				
1,600.00	1,600.00	1,699.43	1,698.58	5.50	4.70	74.90	908.74	3,366.83	3,489.38	3,482.18	7.20	484.575				
1,700.00	1,700.00	1,786.52	1,785.62	5.86	4.79	74.90	907.88	3,364.16	3,486.16	3,478.62	7.53	462.688				
1,800.00	1,800.00	1,876.21	1,875.28	6.22	4.91	74.90	907.12	3,361.61	3,483.20	3,475.31	7.88	441.752				
1,900.00	1,900.00	1,959.71	1,958.74	6.58	5.03	74.91	905.95	3,359.73	3,480.65	3,472.41	8.24	422.272				
2,000.00	2,000.00	2,044.34	2,043.35	6.94	5.17	74.93	904.25	3,358.37	3,478.58	3,469.97	8.61	403.934				
2,100.00	2,100.00	2,125.00	2,123.98	7.29	5.32	74.95	902.47	3,357.39	3,476.86	3,467.88	8.99	386.943				
2,200.00	2,200.00	2,205.31	2,204.27	7.65	5.47	74.98	901.00	3,356.79	3,475.71	3,466.34	9.37	371.065				
2,300.00	2,299.99	2,288.96	2,287.92	8.01	5.64	19.74	900.01	3,356.65	3,474.00	3,464.24	9.75	356.147				
2,400.00	2,399.91	2,376.68	2,375.64	8.36	5.82	19.79	899.40	3,356.73	3,470.21	3,460.06	10.15	341.930				
2,500.00	2,499.69	2,461.30	2,460.26	8.71	6.00	19.86	898.95	3,357.10	3,464.34	3,453.80	10.54	328.583				
2,600.00	2,599.27	2,545.49	2,544.44	9.07	6.19	19.95	898.76	3,357.81	3,456.48	3,445.54	10.94	315.946				
2,700.00	2,698.57	2,667.07	2,666.01	9.43	6.48	20.10	898.36	3,359.04	3,446.38	3,434.98	11.39	302.469				
2,800.00	2,797.54	2,797.95	2,796.80	9.79	6.81	20.35	893.99	3,359.82	3,432.59	3,420.71	11.88	289.018				
2,900.00	2,896.09	2,879.00	2,877.70	10.17	7.04	20.60	889.07	3,360.80	3,416.34	3,404.05	12.29	277.922				
2,953.35	2,948.47	2,910.84	2,909.47	10.37	7.12	20.72	887.05	3,361.39	3,406.99	3,394.49	12.50	272.589				
3,000.00	2,994.22	2,938.53	2,937.11	10.55	7.20	20.79	885.42	3,362.02	3,398.78	3,386.11	12.68	268.078				
3,100.00	3,092.28	3,053.34	3,051.70	10.94	7.52	21.04	879.18	3,365.04	3,381.70	3,368.55	13.16	257.058				
3,200.00	3,190.34	3,351.00	3,348.23	11.33	8.44	21.81	854.46	3,361.27	3,358.59	3,344.64	13.95	240.738				
3,300.00	3,288.41	3,420.16	3,417.08	11.73	8.66	21.99	848.44	3,359.05	3,335.37	3,320.99	14.37	232.049				
3,400.00	3,386.47	3,486.52	3,483.25	12.14	8.88	22.16	843.51	3,357.50	3,313.23	3,298.44	14.79	223.961				
3,500.00	3,484.53	3,606.79	3,603.23	12.55	9.27	22.44	835.98	3,354.51	3,291.30	3,275.99	15.31	215.007				
3,600.00	3,582.59	3,728.00	3,724.18	12.97	9.66	22.68	830.12	3,349.21	3,267.74	3,251.92	15.82	206.517				
3,700.00	3,680.65	3,794.12	3,790.21	13.39	9.87	22.79	828.27	3,346.30	3,244.93	3,228.68	16.25	199.720				
3,800.00	3,778.71	3,851.02	3,847.08	13.81	10.05	22.88	827.44	3,344.53	3,223.49	3,206.83	16.66	193.503				
3,900.00	3,876.77	3,917.00	3,913.03	14.24	10.26	22.99	826.16	3,343.32	3,203.19	3,186.11	17.09	187.467				
4,000.00	3,974.84	4,047.48	4,043.33	14.67	10.70	23.28	819.61	3,341.71	3,182.92	3,165.28	17.63	180.493				
4,100.00	4,072.90	4,143.03	4,138.55	15.10	11.02	23.55	811.95	3,340.38	3,161.91	3,143.78	18.13	174.422				
4,200.00	4,170.96	4,216.96	4,212.29	15.53	11.28	23.75	806.67	3,339.73	3,141.62	3,123.04	18.58	169.041				
4,300.00	4,269.02	4,337.16	4,332.32	15.97	11.68	24.04	800.46	3,338.42	3,121.65	3,102.53	19.12	163.240				
4,400.00	4,367.08	4,508.88	4,503.75	16.41	12.27	24.43	792.39	3,332.64	3,099.36	3,079.61	19.75	156.962				
4,500.00	4,465.14	4,578.00	4,572.76	16.85	12.51	24.58	789.64	3,329.78	3,076.79	3,056.59	20.20	152.327				
4,600.00	4,563.20	4,645.48	4,640.16	17.29	12.74	24.72	787.37	3,327.56	3,055.17	3,034.52	20.65	147.954				
4,700.00	4,661.26	4,715.27	4,709.90	17.73	12.98	24.86	785.15	3,326.06	3,034.65	3,013.54	21.11	143.786				
4,800.00	4,759.33	4,794.87	4,789.46	18.18	13.25	25.03	782.75	3,324.91	3,014.87	2,993.29	21.58	139.712				
4,900.00	4,857.39	4,883.44	4,877.99	18.63	13.55	25.21	780.61	3,323.92	2,995.56	2,973.49	22.07	135.735				
5,000.00	4,955.45	4,976.46	4,970.99	19.08	13.86	25.40	778.82	3,322.93	2,976.43	2,953.87	22.57	131.891				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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
LHS Wildcat Fed Com - LHS Wildcat Fed Com 604H - OH - OH												Offset Well Error:	0.00 usft
Survey Program: 190-MWD, 1393-OWSG (Rev2) MWD, 21860-BLIND													
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
18,661.64	8,643.00	21,748.16	12,055.32	164.72	178.89	-143.67	-9,633.96	3,374.77	4,262.36	4,093.53	168.83	25.246	
18,700.00	8,643.00	21,769.87	12,054.84	165.34	179.25	-143.66	-9,655.64	3,375.70	4,262.44	4,093.10	169.33	25.172	
18,800.00	8,643.00	21,843.59	12,053.18	166.96	184.64	-143.61	-9,729.24	3,379.75	4,263.26	4,090.50	172.76	24.677	
18,900.00	8,643.00	21,860.00	12,052.81	168.58	186.65	-143.60	-9,745.61	3,380.69	4,265.09	4,090.57	174.52	24.439	
19,000.00	8,643.00	21,860.00	12,052.81	170.20	186.65	-143.60	-9,745.61	3,380.69	4,269.23	4,094.01	175.22	24.365	
19,100.00	8,643.00	21,860.00	12,052.81	171.82	186.65	-143.60	-9,745.61	3,380.69	4,275.70	4,099.86	175.84	24.316	
19,200.00	8,643.00	21,860.00	12,052.81	173.45	186.65	-143.60	-9,745.61	3,380.69	4,284.50	4,108.13	176.38	24.291 SF	
19,300.00	8,643.00	21,860.00	12,052.81	175.07	186.65	-143.60	-9,745.61	3,380.69	4,295.61	4,118.78	176.83	24.292	
19,400.00	8,643.00	21,860.00	12,052.81	176.69	186.65	-143.60	-9,745.61	3,380.69	4,309.02	4,131.82	177.19	24.318	
19,500.00	8,643.00	21,860.00	12,052.81	178.32	186.65	-143.60	-9,745.61	3,380.69	4,324.69	4,147.21	177.48	24.367	
19,600.00	8,643.00	21,860.00	12,052.81	179.94	186.65	-143.60	-9,745.61	3,380.69	4,342.61	4,164.93	177.68	24.440	
19,700.00	8,643.00	21,860.00	12,052.81	181.56	186.65	-143.60	-9,745.61	3,380.69	4,362.75	4,184.95	177.81	24.536	
19,800.00	8,643.00	21,860.00	12,052.81	183.19	186.65	-143.60	-9,745.61	3,380.69	4,385.08	4,207.23	177.86	24.655	
19,900.00	8,643.00	21,860.00	12,052.81	184.82	186.65	-143.60	-9,745.61	3,380.69	4,409.57	4,231.74	177.83	24.797	
20,000.00	8,643.00	21,860.00	12,052.81	186.44	186.65	-143.60	-9,745.61	3,380.69	4,436.17	4,258.45	177.72	24.961	
20,078.25	8,643.00	21,860.00	12,052.81	187.71	186.65	-143.60	-9,745.61	3,380.69	4,458.44	4,280.85	177.60	25.104	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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: 133-MWD, 1394-OWSG (Rev2) MWD, 22230-BLIND													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		
18,868.14	8,643.00	22,230.00	12,194.93	168.07	187.87	-141.38	-9,837.22	3,705.81	4,573.10	4,393.52	179.58	25.466		
18,900.00	8,643.00	22,230.00	12,194.93	168.58	187.87	-141.38	-9,837.22	3,705.81	4,573.21	4,393.34	179.87	25.425		
19,000.00	8,643.00	22,230.00	12,194.93	170.20	187.87	-141.38	-9,837.22	3,705.81	4,575.00	4,394.26	180.74	25.313		
19,100.00	8,643.00	22,230.00	12,194.93	171.82	187.87	-141.38	-9,837.22	3,705.81	4,578.97	4,397.44	181.53	25.224		
19,200.00	8,643.00	22,230.00	12,194.93	173.45	187.87	-141.38	-9,837.22	3,705.81	4,585.12	4,402.88	182.24	25.160		
19,300.00	8,643.00	22,230.00	12,194.93	175.07	187.87	-141.38	-9,837.22	3,705.81	4,593.44	4,410.55	182.89	25.116		
19,400.00	8,643.00	22,230.00	12,194.93	176.69	187.87	-141.38	-9,837.22	3,705.81	4,603.92	4,420.47	183.45	25.096 SF		
19,500.00	8,643.00	22,230.00	12,194.93	178.32	187.87	-141.38	-9,837.22	3,705.81	4,616.54	4,432.60	183.94	25.098		
19,600.00	8,643.00	22,230.00	12,194.93	179.94	187.87	-141.38	-9,837.22	3,705.81	4,631.29	4,446.94	184.35	25.122		
19,700.00	8,643.00	22,230.00	12,194.93	181.56	187.87	-141.38	-9,837.22	3,705.81	4,648.14	4,463.46	184.68	25.168		
19,800.00	8,643.00	22,230.00	12,194.93	183.19	187.87	-141.38	-9,837.22	3,705.81	4,667.07	4,482.13	184.95	25.235		
19,900.00	8,643.00	22,230.00	12,194.93	184.82	187.87	-141.38	-9,837.22	3,705.81	4,688.06	4,502.94	185.13	25.323		
20,000.00	8,643.00	22,230.00	12,194.93	186.44	187.87	-141.38	-9,837.22	3,705.81	4,711.08	4,525.84	185.25	25.432		
20,078.25	8,643.00	22,230.00	12,194.93	187.71	187.87	-141.38	-9,837.22	3,705.81	4,730.49	4,545.20	185.29	25.530		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 PF Fed Com - PF Fed Com 101H - 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	8,643.00	18,634.72	8,565.00	173.45	166.26	86.28	-9,770.95	-349.06	1,279.56	1,058.07	221.49	5.777	
19,300.00	8,643.00	18,634.72	8,565.00	175.07	166.26	86.28	-9,770.95	-349.06	1,317.14	1,102.03	215.11	6.123	
19,400.00	8,643.00	18,634.72	8,565.00	176.69	166.26	86.28	-9,770.95	-349.06	1,361.03	1,152.91	208.13	6.539	
19,500.00	8,643.00	18,634.72	8,565.00	178.32	166.26	86.28	-9,770.95	-349.06	1,410.67	1,209.84	200.82	7.024	
19,600.00	8,643.00	18,634.72	8,565.00	179.94	166.26	86.28	-9,770.95	-349.06	1,465.45	1,272.02	193.43	7.576	
19,700.00	8,643.00	18,634.72	8,565.00	181.56	166.26	86.28	-9,770.95	-349.06	1,524.83	1,338.72	186.12	8.193	
19,800.00	8,643.00	18,634.72	8,565.00	183.19	166.26	86.28	-9,770.95	-349.06	1,588.30	1,409.29	179.01	8.873	
19,900.00	8,643.00	18,634.72	8,565.00	184.82	166.26	86.28	-9,770.95	-349.06	1,655.37	1,483.17	172.20	9.613	
20,000.00	8,643.00	18,634.72	8,565.00	186.44	166.26	86.28	-9,770.95	-349.06	1,725.64	1,559.92	165.72	10.413	
20,078.25	8,643.00	18,634.72	8,565.00	187.71	166.26	86.28	-9,770.95	-349.06	1,782.60	1,621.70	160.91	11.079	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 PF Fed Com - PF Fed Com 501H - 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	
19,400.00	8,643.00	20,792.10	10,619.00	176.69	167.92	148.73	-9,770.95	-349.06	2,398.10	2,244.42	153.69	15.604	
19,500.00	8,643.00	20,792.10	10,619.00	178.32	167.92	148.73	-9,770.95	-349.06	2,426.62	2,274.14	152.48	15.914	
19,600.00	8,643.00	20,792.10	10,619.00	179.94	167.92	148.73	-9,770.95	-349.06	2,458.87	2,307.77	151.10	16.273	
19,700.00	8,643.00	20,792.10	10,619.00	181.56	167.92	148.73	-9,770.95	-349.06	2,494.72	2,345.13	149.59	16.677	
19,800.00	8,643.00	20,792.10	10,619.00	183.19	167.92	148.73	-9,770.95	-349.06	2,534.00	2,386.06	147.94	17.129	
19,900.00	8,643.00	20,792.10	10,619.00	184.82	167.92	148.73	-9,770.95	-349.06	2,576.58	2,430.38	146.20	17.624	
20,000.00	8,643.00	20,792.10	10,619.00	186.44	167.92	148.73	-9,770.95	-349.06	2,622.27	2,477.90	144.37	18.163	
20,078.25	8,643.00	20,792.10	10,619.00	187.71	167.92	148.73	-9,770.95	-349.06	2,660.10	2,517.20	142.90	18.615	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 PF Fed Com - PF Fed Com 502H - 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	
19,400.00	8,643.00	21,368.05	10,511.00	176.69	178.29	-180.00	-10,397.01	856.94	1,868.00	1,743.08	124.92	14.954	
19,500.00	8,643.00	21,468.05	10,511.00	178.32	179.90	-180.00	-10,497.00	857.92	1,868.00	1,742.00	126.00	14.825	
19,600.00	8,643.00	21,568.05	10,511.00	179.94	181.51	-180.00	-10,597.00	858.89	1,868.00	1,740.91	127.09	14.698	
19,700.00	8,643.00	21,668.05	10,511.00	181.56	183.12	-180.00	-10,696.99	859.87	1,868.00	1,739.82	128.18	14.574	
19,800.00	8,643.00	21,768.05	10,511.00	183.19	184.74	-180.00	-10,796.99	860.85	1,868.00	1,738.74	129.26	14.451	
19,900.00	8,643.00	21,868.05	10,511.00	184.82	186.35	-180.00	-10,896.98	861.82	1,868.00	1,737.65	130.35	14.330	
20,000.00	8,643.00	21,968.05	10,511.00	186.44	187.97	-180.00	-10,996.98	862.80	1,868.00	1,736.56	131.44	14.212	
20,078.25	8,643.00	22,046.30	10,511.00	187.71	189.23	-180.00	-11,075.23	863.56	1,868.00	1,735.71	132.29	14.120	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 PF Fed Com - PF Fed Com 801H - 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	
19,400.00	8,643.00	22,715.49	12,544.00	176.69	170.44	161.57	-9,772.25	-449.14	4,161.00	4,024.91	136.08	30.576	
19,500.00	8,643.00	22,715.49	12,544.00	178.32	170.44	161.57	-9,772.25	-449.14	4,177.49	4,041.47	136.02	30.712	
19,600.00	8,643.00	22,715.49	12,544.00	179.94	170.44	161.57	-9,772.25	-449.14	4,196.30	4,060.40	135.90	30.879	
19,700.00	8,643.00	22,715.49	12,544.00	181.56	170.44	161.57	-9,772.25	-449.14	4,217.39	4,081.67	135.73	31.073	
19,800.00	8,643.00	22,715.49	12,544.00	183.19	170.44	161.57	-9,772.25	-449.14	4,240.74	4,105.25	135.49	31.298	
19,900.00	8,643.00	22,715.49	12,544.00	184.82	170.44	161.57	-9,772.25	-449.14	4,266.31	4,131.10	135.21	31.554	
20,000.00	8,643.00	22,715.49	12,544.00	186.44	170.44	161.57	-9,772.25	-449.14	4,294.06	4,159.18	134.87	31.837	
20,078.25	8,643.00	22,715.49	12,544.00	187.71	170.44	161.57	-9,772.25	-449.14	4,317.26	4,182.68	134.58	32.080	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
9,100.00	8,643.00	8,680.32	8,643.00	32.59	32.10	90.00	603.59	258.82	859.52	814.19	45.33	18.962		
9,200.00	8,643.00	8,680.32	8,643.00	32.65	32.10	90.00	603.59	258.82	943.37	898.14	45.23	20.856		
9,300.00	8,643.00	8,680.32	8,643.00	32.85	32.10	90.00	603.59	258.82	1,030.12	984.97	45.15	22.817		
9,400.00	8,643.00	8,680.32	8,643.00	33.19	32.10	90.00	603.59	258.82	1,119.07	1,074.00	45.07	24.828		
9,500.00	8,643.00	8,680.32	8,643.00	33.64	32.10	90.00	603.59	258.82	1,209.76	1,164.75	45.01	26.879		
9,600.00	8,643.00	8,680.32	8,643.00	34.19	32.10	90.00	603.59	258.82	1,301.80	1,256.85	44.95	28.960		
9,700.00	8,643.00	8,680.32	8,643.00	34.82	32.10	90.00	603.59	258.82	1,394.95	1,350.04	44.90	31.065		
9,800.00	8,643.00	8,680.32	8,643.00	35.51	32.10	90.00	603.59	258.82	1,488.98	1,444.12	44.86	33.189		
9,900.00	8,643.00	8,680.32	8,643.00	36.27	32.10	90.00	603.59	258.82	1,583.75	1,538.92	44.83	35.329		
10,000.00	8,643.00	8,680.32	8,643.00	37.08	32.10	90.00	603.59	258.82	1,679.12	1,634.32	44.80	37.481		
10,100.00	8,643.00	8,680.32	8,643.00	37.95	32.10	90.00	603.59	258.82	1,775.00	1,730.23	44.77	39.644		
10,200.00	8,643.00	8,680.32	8,643.00	38.86	32.10	90.00	603.59	258.82	1,871.31	1,826.56	44.75	41.814		
10,300.00	8,643.00	8,680.32	8,643.00	39.82	32.10	90.00	603.59	258.82	1,967.99	1,923.26	44.74	43.992		
10,400.00	8,643.00	8,680.32	8,643.00	40.83	32.10	90.00	603.59	258.82	2,064.99	2,020.27	44.72	46.175		
10,500.00	8,643.00	8,680.32	8,643.00	41.88	32.10	90.00	603.59	258.82	2,162.26	2,117.55	44.71	48.363		
10,600.00	8,643.00	8,680.32	8,643.00	42.96	32.10	90.00	603.59	258.82	2,259.77	2,215.07	44.70	50.554		
10,700.00	8,643.00	8,680.32	8,643.00	44.07	32.10	90.00	603.59	258.82	2,357.49	2,312.79	44.69	52.747		
10,800.00	8,643.00	8,680.32	8,643.00	45.22	32.10	90.00	603.59	258.82	2,455.39	2,410.70	44.69	54.943		
10,900.00	8,643.00	8,680.32	8,643.00	46.40	32.10	90.00	603.59	258.82	2,553.45	2,508.76	44.69	57.141		
11,000.00	8,643.00	8,680.32	8,643.00	47.61	32.10	90.00	603.59	258.82	2,651.66	2,606.97	44.69	59.339		
11,100.00	8,643.00	8,680.32	8,643.00	48.84	32.10	90.00	603.59	258.82	2,750.00	2,705.31	44.69	61.538		
11,200.00	8,643.00	8,680.32	8,643.00	50.10	32.10	90.00	603.59	258.82	2,848.45	2,803.76	44.69	63.737		
11,300.00	8,643.00	8,680.32	8,643.00	51.37	32.10	90.00	603.59	258.82	2,947.01	2,902.31	44.69	65.936		
11,400.00	8,643.00	8,680.32	8,643.00	52.67	32.10	90.00	603.59	258.82	3,045.66	3,000.96	44.70	68.134		
11,500.00	8,643.00	8,680.32	8,643.00	53.99	32.10	90.00	603.59	258.82	3,144.40	3,099.69	44.71	70.332		
11,600.00	8,643.00	8,680.32	8,643.00	55.32	32.10	90.00	603.59	258.82	3,243.21	3,198.49	44.72	72.528		
11,700.00	8,643.00	8,680.32	8,643.00	56.67	32.10	90.00	603.59	258.82	3,342.09	3,297.37	44.73	74.723		
11,800.00	8,643.00	8,680.32	8,643.00	58.04	32.10	90.00	603.59	258.82	3,441.04	3,396.31	44.74	76.917		
11,900.00	8,643.00	8,680.32	8,643.00	59.42	32.10	90.00	603.59	258.82	3,540.05	3,495.30	44.75	79.109		
12,000.00	8,643.00	8,680.32	8,643.00	60.81	32.10	90.00	603.59	258.82	3,639.11	3,594.35	44.76	81.299		
12,100.00	8,643.00	8,680.32	8,643.00	62.22	32.10	90.00	603.59	258.82	3,738.23	3,693.45	44.78	83.486		
12,200.00	8,643.00	16,050.48	12,446.00	63.64	71.77	174.29	-3,201.09	406.18	3,821.96	3,768.63	53.33	71.666		
12,300.00	8,643.00	16,150.48	12,446.00	65.07	73.07	174.29	-3,301.09	407.17	3,821.96	3,767.72	54.24	70.465		
12,400.00	8,643.00	16,250.48	12,446.00	66.51	74.39	174.29	-3,401.08	408.15	3,821.96	3,766.80	55.16	69.293		
12,500.00	8,643.00	16,350.48	12,446.00	67.96	75.71	174.29	-3,501.08	409.13	3,821.96	3,765.88	56.08	68.150		
12,600.00	8,643.00	16,450.48	12,446.00	69.41	77.05	174.29	-3,601.07	410.12	3,821.96	3,764.95	57.01	67.036		
12,700.00	8,643.00	16,550.48	12,446.00	70.88	78.41	174.29	-3,701.07	411.10	3,821.96	3,764.01	57.95	65.950		
12,800.00	8,643.00	16,650.48	12,446.00	72.35	79.77	174.29	-3,801.06	412.09	3,821.96	3,763.06	58.90	64.891		
12,900.00	8,643.00	16,750.48	12,446.00	73.84	81.14	174.29	-3,901.06	413.07	3,821.96	3,762.11	59.85	63.859		
13,000.00	8,643.00	16,850.48	12,446.00	75.32	82.53	174.29	-4,001.05	414.05	3,821.96	3,761.15	60.81	62.853		
13,100.00	8,643.00	16,950.48	12,446.00	76.82	83.92	174.29	-4,101.05	415.04	3,821.96	3,760.19	61.77	61.873		
13,200.00	8,643.00	17,050.48	12,446.00	78.32	85.32	174.29	-4,201.04	416.02	3,821.96	3,759.22	62.74	60.918		
13,300.00	8,643.00	17,150.48	12,446.00	79.83	86.73	174.29	-4,301.04	417.00	3,821.96	3,758.24	63.71	59.987		
13,400.00	8,643.00	17,250.48	12,446.00	81.34	88.15	174.29	-4,401.03	417.99	3,821.96	3,757.27	64.69	59.081		
13,500.00	8,643.00	17,350.48	12,446.00	82.86	89.58	174.29	-4,501.03	418.97	3,821.96	3,756.28	65.67	58.196		
13,600.00	8,643.00	17,450.48	12,446.00	84.38	91.02	174.29	-4,601.02	419.96	3,821.96	3,755.29	66.66	57.334		
13,700.00	8,643.00	17,550.48	12,446.00	85.91	92.46	174.29	-4,701.02	420.94	3,821.96	3,754.30	67.65	56.493		
13,800.00	8,643.00	17,650.48	12,446.00	87.44	93.91	174.29	-4,801.01	421.92	3,821.95	3,753.31	68.65	55.673		
13,900.00	8,643.00	17,750.48	12,446.00	88.98	95.36	174.29	-4,901.01	422.91	3,821.95	3,752.31	69.65	54.875		
14,000.00	8,643.00	17,850.48	12,446.00	90.52	96.83	174.29	-5,001.01	423.89	3,821.95	3,751.30	70.65	54.094		
14,100.00	8,643.00	17,950.48	12,446.00	92.06	98.29	174.29	-5,101.00	424.87	3,821.95	3,750.29	71.66	53.333		
14,200.00	8,643.00	18,050.48	12,446.00	93.61	99.77	174.29	-5,201.00	425.86	3,821.95	3,749.28	72.67	52.591		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 PF Fed Com - PF Fed Com 802H - 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		Minimum Separation (usft)	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)			
19,500.00	8,643.00	23,350.48	12,446.00	178.32	182.29	174.30	-10,500.74	478.00	3,821.93	3,692.93	129.00	29.628	
19,600.00	8,643.00	23,450.48	12,446.00	179.94	183.89	174.30	-10,600.73	478.98	3,821.93	3,691.84	130.09	29.379	
19,700.00	8,643.00	23,550.48	12,446.00	181.56	185.49	174.30	-10,700.73	479.96	3,821.93	3,690.75	131.18	29.135	
19,800.00	8,643.00	23,650.48	12,446.00	183.19	187.10	174.30	-10,800.72	480.95	3,821.93	3,689.66	132.27	28.894	
19,900.00	8,643.00	23,750.48	12,446.00	184.82	188.70	174.30	-10,900.72	481.93	3,821.93	3,688.56	133.37	28.658	
20,000.00	8,643.00	23,850.48	12,446.00	186.44	190.31	174.30	-11,000.71	482.92	3,821.93	3,687.47	134.46	28.425	
20,078.25	8,643.00	23,928.74	12,446.00	187.71	191.56	174.30	-11,078.96	483.69	3,821.93	3,686.61	135.31	28.245	

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
0.00	0.00	0.00	0.00	0.00	0.00	-10.15	74.82	-13.40	76.01					
100.00	100.00	100.00	100.00	0.13	0.13	-10.15	74.82	-13.40	76.01	75.84	0.18	428.406		
200.00	200.00	200.00	200.00	0.48	0.48	-10.15	74.82	-13.40	76.01	75.33	0.68	111.068		
300.00	300.00	300.00	300.00	0.84	0.84	-10.15	74.82	-13.40	76.01	74.82	1.19	63.805		
400.00	400.00	400.00	400.00	1.20	1.20	-10.15	74.82	-13.40	76.01	74.32	1.70	44.759		
500.00	500.00	500.00	500.00	1.56	1.56	-10.15	74.82	-13.40	76.01	73.81	2.21	34.469		
600.00	600.00	600.00	600.00	1.92	1.92	-10.15	74.82	-13.40	76.01	73.30	2.71	28.027		
700.00	700.00	700.00	700.00	2.28	2.28	-10.15	74.82	-13.40	76.01	72.79	3.22	23.613		
800.00	800.00	800.00	800.00	2.63	2.63	-10.15	74.82	-13.40	76.01	72.29	3.73	20.400		
900.00	900.00	900.00	900.00	2.99	2.99	-10.15	74.82	-13.40	76.01	71.78	4.23	17.957		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-10.15	74.82	-13.40	76.01	71.27	4.74	16.037		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-10.15	74.82	-13.40	76.01	70.77	5.25	14.487		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-10.15	74.82	-13.40	76.01	70.26	5.75	13.211		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-10.15	74.82	-13.40	76.01	69.75	6.26	12.141		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-10.15	74.82	-13.40	76.01	69.25	6.77	11.232		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-10.15	74.82	-13.40	76.01	68.74	7.27	10.449		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-10.15	74.82	-13.40	76.01	68.23	7.78	9.768 CC		
1,700.00	1,700.00	1,699.36	1,699.34	5.86	5.85	-8.89	75.50	-11.82	76.43	68.14	8.28	9.226 ES		
1,800.00	1,800.00	1,798.49	1,798.33	6.22	6.20	-5.22	77.54	-7.08	77.88	69.10	8.78	8.869		
1,900.00	1,900.00	1,897.14	1,896.60	6.58	6.55	0.53	80.90	0.75	80.98	71.70	9.28	8.730 SF		
2,000.00	2,000.00	1,995.09	1,993.83	6.94	6.90	7.72	85.56	11.59	86.56	76.80	9.76	8.866		
2,100.00	2,100.00	2,092.11	2,089.70	7.29	7.26	15.49	91.47	25.34	95.47	85.23	10.24	9.327		
2,200.00	2,200.00	2,188.02	2,183.90	7.65	7.62	23.01	98.56	41.85	108.28	97.59	10.69	10.131		
2,300.00	2,299.99	2,282.88	2,276.43	8.01	8.00	-25.67	106.80	61.03	124.08	112.96	11.12	11.162		
2,400.00	2,399.91	2,377.76	2,368.26	8.36	8.39	-20.27	116.21	82.94	141.45	129.91	11.54	12.258		
2,500.00	2,499.69	2,475.75	2,462.85	8.71	8.82	-16.03	126.32	106.46	158.21	146.19	12.02	13.163		
2,600.00	2,599.27	2,574.22	2,557.90	9.07	9.26	-12.81	136.47	130.09	173.12	160.61	12.51	13.840		
2,700.00	2,698.57	2,673.08	2,653.33	9.43	9.71	-10.26	146.66	153.82	185.91	172.91	13.00	14.295		
2,800.00	2,797.54	2,772.28	2,749.08	9.79	10.17	-8.15	156.89	177.63	196.44	182.93	13.51	14.544		
2,900.00	2,896.09	2,871.75	2,845.10	10.17	10.65	-6.34	167.15	201.50	204.61	190.60	14.01	14.602		
2,953.35	2,948.47	2,924.89	2,896.40	10.37	10.90	-5.47	172.63	214.26	207.98	193.70	14.28	14.561		
3,000.00	2,994.22	2,971.39	2,941.29	10.55	11.13	-4.74	177.42	225.42	210.65	196.13	14.52	14.506		
3,100.00	3,092.28	3,071.07	3,037.50	10.94	11.62	-3.23	187.70	249.34	216.47	201.43	15.03	14.399		
3,200.00	3,190.34	3,170.74	3,133.71	11.33	12.11	-1.81	197.97	273.26	222.43	206.88	15.55	14.306		
3,300.00	3,288.41	3,270.41	3,229.92	11.73	12.61	-0.45	208.25	297.18	228.52	212.46	16.06	14.226		
3,400.00	3,386.47	3,370.09	3,326.13	12.14	13.11	0.83	218.53	321.10	234.74	218.15	16.58	14.156		
3,500.00	3,484.53	3,469.76	3,422.35	12.55	13.62	2.04	228.80	345.03	241.06	223.96	17.10	14.095		
3,600.00	3,582.59	3,569.43	3,518.56	12.97	14.13	3.19	239.08	368.95	247.48	229.86	17.62	14.042		
3,700.00	3,680.65	3,669.10	3,614.77	13.39	14.64	4.28	249.36	392.87	254.01	235.86	18.15	13.996		
3,800.00	3,778.71	3,768.78	3,710.98	13.81	15.16	5.32	259.63	416.79	260.61	241.94	18.67	13.956		
3,900.00	3,876.77	3,868.45	3,807.20	14.24	15.68	6.31	269.91	440.71	267.30	248.10	19.20	13.920		
4,000.00	3,974.84	3,968.12	3,903.41	14.67	16.20	7.24	280.19	464.63	274.07	254.33	19.73	13.889		
4,100.00	4,072.90	4,067.80	3,999.62	15.10	16.73	8.14	290.46	488.56	280.90	260.64	20.27	13.861		
4,200.00	4,170.96	4,167.47	4,095.83	15.53	17.25	8.99	300.74	512.48	287.80	267.00	20.80	13.836		
4,300.00	4,269.02	4,267.14	4,192.04	15.97	17.78	9.80	311.02	536.40	294.76	273.42	21.34	13.814		
4,400.00	4,367.08	4,366.81	4,288.26	16.41	18.31	10.57	321.29	560.32	301.78	279.90	21.88	13.794		
4,500.00	4,465.14	4,466.49	4,384.47	16.85	18.84	11.31	331.57	584.24	308.84	286.42	22.42	13.777		
4,600.00	4,563.20	4,566.16	4,480.68	17.29	19.37	12.01	341.85	608.16	315.96	293.00	22.96	13.761		
4,700.00	4,661.26	4,665.83	4,576.89	17.73	19.90	12.69	352.12	632.09	323.12	299.61	23.51	13.747		
4,800.00	4,759.33	4,765.50	4,673.11	18.18	20.44	13.33	362.40	656.01	330.32	306.27	24.05	13.734		
4,900.00	4,857.39	4,865.18	4,769.32	18.63	20.97	13.95	372.68	679.93	337.57	312.97	24.60	13.722		
5,000.00	4,955.45	4,964.85	4,865.53	19.08	21.51	14.54	382.95	703.85	344.85	319.70	25.15	13.711		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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													PF Fed Com - PF Fed Com 803H - 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	5,053.51	5,064.52	4,961.74	19.52	22.05	15.10	393.23	727.77	352.17	326.46	25.70	13.701				
5,200.00	5,151.57	5,164.20	5,057.96	19.98	22.59	15.65	403.51	751.69	359.52	333.26	26.26	13.692				
5,300.00	5,249.63	5,263.87	5,154.17	20.43	23.13	16.17	413.78	775.62	366.90	340.08	26.81	13.684				
5,400.00	5,347.69	5,363.54	5,250.38	20.88	23.67	16.67	424.06	799.54	374.30	346.93	27.37	13.676				
5,500.00	5,445.76	5,463.21	5,346.59	21.33	24.21	17.15	434.34	823.46	381.74	353.81	27.93	13.668				
5,600.00	5,543.82	5,562.89	5,442.80	21.79	24.75	17.61	444.62	847.38	389.20	360.71	28.49	13.662				
5,700.00	5,641.88	5,662.56	5,539.02	22.24	25.29	18.06	454.89	871.30	396.69	367.64	29.05	13.655				
5,800.00	5,739.94	5,762.23	5,635.23	22.70	25.83	18.49	465.17	895.22	404.20	374.59	29.61	13.650				
5,900.00	5,838.00	5,861.91	5,731.44	23.16	26.37	18.90	475.45	919.15	411.73	381.55	30.18	13.644				
6,000.00	5,936.06	5,961.58	5,827.65	23.61	26.92	19.30	485.72	943.07	419.28	388.54	30.74	13.639				
6,100.00	6,034.12	6,061.25	5,923.87	24.07	27.46	19.68	496.00	966.99	426.85	395.54	31.31	13.634				
6,200.00	6,132.19	6,160.92	6,020.08	24.53	28.00	20.05	506.28	990.91	434.44	402.57	31.88	13.629				
6,300.00	6,230.25	6,260.60	6,116.29	24.99	28.55	20.41	516.55	1,014.83	442.05	409.60	32.45	13.624				
6,400.00	6,328.31	6,360.27	6,212.50	25.45	29.09	20.76	526.83	1,038.75	449.67	416.66	33.02	13.620				
6,500.00	6,426.37	6,459.94	6,308.72	25.91	29.64	21.09	537.11	1,062.68	457.31	423.73	33.59	13.616				
6,600.00	6,524.43	6,559.61	6,404.93	26.37	30.18	21.42	547.38	1,086.60	464.97	430.81	34.16	13.612				
6,700.00	6,622.49	6,659.29	6,501.14	26.83	30.73	21.73	557.66	1,110.52	472.64	437.90	34.73	13.608				
6,800.00	6,720.55	6,758.96	6,597.35	27.29	31.28	22.03	567.94	1,134.44	480.32	445.01	35.31	13.604				
6,855.04	6,774.53	6,815.81	6,652.23	27.55	31.59	22.20	573.79	1,148.06	484.53	448.89	35.64	13.595				
6,900.00	6,818.67	6,869.60	6,704.34	27.75	31.87	22.38	579.06	1,160.32	487.64	451.66	35.98	13.554				
7,000.00	6,917.18	6,989.55	6,821.38	28.20	32.47	22.74	589.41	1,184.42	493.35	456.67	36.68	13.451				
7,100.00	7,016.11	7,109.82	6,939.74	28.62	33.02	23.06	597.83	1,204.03	497.38	460.07	37.31	13.331				
7,200.00	7,115.39	7,230.30	7,059.09	29.02	33.51	23.35	604.30	1,219.09	499.71	461.83	37.87	13.194				
7,300.00	7,214.95	7,350.87	7,179.11	29.40	33.95	23.59	608.78	1,229.53	500.33	461.97	38.36	13.041				
7,400.00	7,314.72	7,471.41	7,299.47	29.77	34.34	23.81	611.27	1,235.31	499.25	460.46	38.78	12.872				
7,500.00	7,414.63	7,586.58	7,414.63	30.11	34.66	23.98	611.82	1,236.60	496.59	457.42	39.17	12.677				
7,608.39	7,523.00	7,694.95	7,523.00	30.45	34.96	79.31	611.82	1,236.60	495.19	455.50	39.68	12.478				
7,700.00	7,614.61	7,786.56	7,614.61	30.74	35.20	79.31	611.82	1,236.60	495.19	455.08	40.11	12.345				
7,800.00	7,714.61	7,886.56	7,714.61	31.05	35.48	79.31	611.82	1,236.60	495.19	454.61	40.58	12.204				
7,900.00	7,814.61	7,986.56	7,814.61	31.37	35.75	79.31	611.82	1,236.60	495.19	454.14	41.04	12.065				
8,000.00	7,914.61	8,086.56	7,914.61	31.68	36.03	79.31	611.82	1,236.60	495.19	453.68	41.51	11.929				
8,100.00	8,014.61	8,186.56	8,014.61	31.99	36.30	79.31	611.82	1,236.60	495.19	453.21	41.98	11.795				
8,155.43	8,070.04	8,241.99	8,070.04	32.17	36.46	79.31	611.82	1,236.60	495.19	452.95	42.24	11.722				
8,200.00	8,114.57	8,286.52	8,114.57	32.30	36.58	-100.29	611.82	1,236.60	495.50	453.06	42.43	11.677				
8,250.00	8,164.18	8,336.13	8,164.18	32.42	36.72	-100.86	611.82	1,236.60	496.62	454.01	42.61	11.655				
8,300.00	8,213.08	8,385.03	8,213.08	32.53	36.86	-101.80	611.82	1,236.60	498.70	455.95	42.75	11.665				
8,350.00	8,260.89	8,432.84	8,260.89	32.63	36.99	-103.04	611.82	1,236.60	501.98	459.11	42.87	11.709				
8,400.00	8,307.25	8,479.20	8,307.25	32.71	37.12	-104.50	611.82	1,236.60	506.76	463.78	42.98	11.791				
8,450.00	8,351.81	8,523.76	8,351.81	32.77	37.25	-106.06	611.82	1,236.60	513.41	470.33	43.09	11.916				
8,500.00	8,394.21	8,566.16	8,394.21	32.81	37.37	-107.60	611.82	1,236.60	522.32	479.11	43.21	12.087				
8,550.00	8,434.16	8,606.11	8,434.16	32.84	37.48	-109.02	611.82	1,236.60	533.85	490.48	43.37	12.309				
8,600.00	8,471.33	8,643.28	8,471.33	32.85	37.59	-110.18	611.82	1,236.60	548.32	504.75	43.57	12.585				
8,650.00	8,505.44	8,677.39	8,505.44	32.85	37.68	-110.98	611.82	1,236.60	565.98	522.17	43.81	12.918				
8,700.00	8,536.25	8,708.19	8,536.25	32.84	37.77	-111.30	611.82	1,236.60	586.96	542.87	44.10	13.311				
8,750.00	8,563.50	8,735.45	8,563.50	32.81	37.85	-111.03	611.82	1,236.60	611.29	566.88	44.42	13.762				
8,800.00	8,587.00	8,758.95	8,587.00	32.78	37.91	-110.07	611.82	1,236.60	638.88	594.12	44.76	14.272				
8,850.00	8,606.56	8,778.51	8,606.56	32.74	37.97	-108.28	611.82	1,236.60	669.53	624.41	45.12	14.838				
8,900.00	8,622.05	8,793.99	8,622.05	32.70	38.01	-105.56	611.82	1,236.60	702.96	657.48	45.48	15.457				
8,950.00	8,633.33	8,805.27	8,633.33	32.66	38.05	-101.77	611.82	1,236.60	738.82	692.99	45.83	16.122				
9,000.00	8,640.32	8,812.27	8,640.32	32.62	38.07	-96.83	611.82	1,236.60	776.70	730.54	46.15	16.828				
9,050.00	8,642.97	8,814.92	8,642.97	32.59	38.07	-90.73	611.82	1,236.60	816.16	769.70	46.46	17.567				
9,055.43	8,643.00	8,814.95	8,643.00	32.59	38.07	-90.00	611.82	1,236.60	820.52	774.03	46.49	17.649				

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
9,100.00	8,643.00	8,814.95	8,643.00	32.59	38.07	-90.00	611.82	1,236.60	856.78	810.04	46.74	18.331		
9,200.00	8,643.00	8,814.95	8,643.00	32.65	38.07	-90.00	611.82	1,236.60	940.74	893.49	47.25	19.911		
9,300.00	8,643.00	8,814.95	8,643.00	32.85	38.07	-90.00	611.82	1,236.60	1,027.57	979.88	47.69	21.548		
9,400.00	8,643.00	8,814.95	8,643.00	33.19	38.07	-90.00	611.82	1,236.60	1,116.61	1,068.55	48.07	23.231		
9,500.00	8,643.00	8,814.95	8,643.00	33.64	38.07	-90.00	611.82	1,236.60	1,207.37	1,158.98	48.39	24.951		
9,600.00	8,643.00	8,814.95	8,643.00	34.19	38.07	-90.00	611.82	1,236.60	1,299.48	1,250.81	48.67	26.699		
9,700.00	8,643.00	8,814.95	8,643.00	34.82	38.07	-90.00	611.82	1,236.60	1,392.69	1,343.77	48.91	28.472		
9,800.00	8,643.00	8,814.95	8,643.00	35.51	38.07	-90.00	611.82	1,236.60	1,486.77	1,437.64	49.13	30.264		
9,900.00	8,643.00	8,814.95	8,643.00	36.27	38.07	-90.00	611.82	1,236.60	1,581.58	1,532.27	49.31	32.071		
10,000.00	8,643.00	8,814.95	8,643.00	37.08	38.07	-90.00	611.82	1,236.60	1,677.00	1,627.52	49.48	33.892		
10,100.00	8,643.00	8,814.95	8,643.00	37.95	38.07	-90.00	611.82	1,236.60	1,772.92	1,723.29	49.63	35.724		
10,200.00	8,643.00	8,814.95	8,643.00	38.86	38.07	-90.00	611.82	1,236.60	1,869.27	1,819.51	49.76	37.565		
10,300.00	8,643.00	8,814.95	8,643.00	39.82	38.07	-90.00	611.82	1,236.60	1,965.98	1,916.10	49.88	39.414		
10,400.00	8,643.00	8,814.95	8,643.00	40.83	38.07	-90.00	611.82	1,236.60	2,063.01	2,013.02	49.99	41.269		
10,500.00	8,643.00	8,814.95	8,643.00	41.88	38.07	-90.00	611.82	1,236.60	2,160.30	2,110.21	50.09	43.130		
10,600.00	8,643.00	8,814.95	8,643.00	42.96	38.07	-90.00	611.82	1,236.60	2,257.84	2,207.66	50.18	44.995		
10,700.00	8,643.00	8,814.95	8,643.00	44.07	38.07	-90.00	611.82	1,236.60	2,355.58	2,305.31	50.27	46.863		
10,800.00	8,643.00	8,814.95	8,643.00	45.22	38.07	-90.00	611.82	1,236.60	2,453.50	2,403.15	50.34	48.734		
10,900.00	8,643.00	8,814.95	8,643.00	46.40	38.07	-90.00	611.82	1,236.60	2,551.58	2,501.16	50.42	50.608		
11,000.00	8,643.00	8,814.95	8,643.00	47.61	38.07	-90.00	611.82	1,236.60	2,649.81	2,599.32	50.49	52.485		
11,100.00	8,643.00	8,814.95	8,643.00	48.84	38.07	-90.00	611.82	1,236.60	2,748.16	2,697.61	50.55	54.363		
11,200.00	8,643.00	8,814.95	8,643.00	50.10	38.07	-90.00	611.82	1,236.60	2,846.63	2,796.02	50.61	56.243		
11,300.00	8,643.00	8,814.95	8,643.00	51.37	38.07	-90.00	611.82	1,236.60	2,945.21	2,894.54	50.67	58.124		
11,400.00	8,643.00	8,814.95	8,643.00	52.67	38.07	-90.00	611.82	1,236.60	3,043.87	2,993.15	50.73	60.005		
11,500.00	8,643.00	8,814.95	8,643.00	53.99	38.07	-90.00	611.82	1,236.60	3,142.62	3,091.84	50.78	61.887		
11,600.00	8,643.00	8,814.95	8,643.00	55.32	38.07	-90.00	611.82	1,236.60	3,241.45	3,190.62	50.83	63.769		
11,700.00	8,643.00	8,814.95	8,643.00	56.67	38.07	-90.00	611.82	1,236.60	3,340.35	3,289.47	50.88	65.650		
11,800.00	8,643.00	8,814.95	8,643.00	58.04	38.07	-90.00	611.82	1,236.60	3,439.31	3,388.38	50.93	67.532		
11,900.00	8,643.00	8,814.95	8,643.00	59.42	38.07	-90.00	611.82	1,236.60	3,538.33	3,487.35	50.98	69.413		
12,000.00	8,643.00	8,814.95	8,643.00	60.81	38.07	-90.00	611.82	1,236.60	3,637.40	3,586.38	51.02	71.293		
12,100.00	8,643.00	8,814.95	8,643.00	62.22	38.07	-90.00	611.82	1,236.60	3,736.52	3,685.45	51.06	73.172		
12,200.00	8,643.00	8,814.95	8,643.00	63.64	38.07	-90.00	611.82	1,236.60	3,835.69	3,784.58	51.11	75.050		
12,300.00	8,643.00	16,353.45	12,517.00	65.07	75.01	-171.40	-3,291.58	1,373.26	3,918.06	3,864.01	54.05	72.489		
12,400.00	8,643.00	16,453.45	12,517.00	66.51	76.29	-171.40	-3,391.58	1,374.25	3,918.06	3,863.07	54.99	71.253		
12,500.00	8,643.00	16,553.45	12,517.00	67.96	77.58	-171.40	-3,491.57	1,375.23	3,918.06	3,862.12	55.93	70.049		
12,600.00	8,643.00	16,653.45	12,517.00	69.41	78.88	-171.40	-3,591.57	1,376.21	3,918.06	3,861.17	56.89	68.875		
12,700.00	8,643.00	16,753.45	12,517.00	70.88	80.19	-171.40	-3,691.56	1,377.20	3,918.06	3,860.21	57.85	67.732		
12,800.00	8,643.00	16,853.45	12,517.00	72.35	81.52	-171.40	-3,791.56	1,378.18	3,918.06	3,859.25	58.81	66.618		
12,900.00	8,643.00	16,953.45	12,517.00	73.84	82.86	-171.40	-3,891.55	1,379.17	3,918.06	3,858.27	59.79	65.535		
13,000.00	8,643.00	17,053.45	12,517.00	75.32	84.21	-171.40	-3,991.55	1,380.15	3,918.06	3,857.30	60.76	64.480		
13,100.00	8,643.00	17,153.45	12,517.00	76.82	85.57	-171.40	-4,091.54	1,381.13	3,918.06	3,856.31	61.75	63.452		
13,200.00	8,643.00	17,253.45	12,517.00	78.32	86.94	-171.40	-4,191.54	1,382.12	3,918.06	3,855.32	62.74	62.452		
13,300.00	8,643.00	17,353.45	12,517.00	79.83	88.32	-171.40	-4,291.53	1,383.10	3,918.06	3,854.33	63.73	61.476		
13,400.00	8,643.00	17,453.45	12,517.00	81.34	89.70	-171.40	-4,391.53	1,384.09	3,918.06	3,853.33	64.73	60.525		
13,500.00	8,643.00	17,553.45	12,517.00	82.86	91.10	-171.40	-4,491.52	1,385.07	3,918.06	3,852.32	65.74	59.600		
13,600.00	8,643.00	17,653.45	12,517.00	84.38	92.51	-171.40	-4,591.52	1,386.05	3,918.06	3,851.31	66.75	58.697		
13,700.00	8,643.00	17,753.45	12,517.00	85.91	93.92	-171.40	-4,691.51	1,387.04	3,918.07	3,850.30	67.77	57.818		
13,800.00	8,643.00	17,853.45	12,517.00	87.44	95.34	-171.40	-4,791.51	1,388.02	3,918.07	3,849.28	68.78	56.962		
13,900.00	8,643.00	17,953.45	12,517.00	88.98	96.77	-171.40	-4,891.50	1,389.00	3,918.07	3,848.26	69.81	56.127		
14,000.00	8,643.00	18,053.45	12,517.00	90.52	98.21	-171.40	-4,991.50	1,389.99	3,918.07	3,847.23	70.83	55.313		
14,100.00	8,643.00	18,153.45	12,517.00	92.06	99.65	-171.40	-5,091.49	1,390.97	3,918.07	3,846.20	71.87	54.520		
14,200.00	8,643.00	18,253.45	12,517.00	93.61	101.10	-171.40	-5,191.49	1,391.96	3,918.07	3,845.17	72.90	53.746		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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		
14,300.00	8,643.00	18,353.45	12,517.00	95.16	102.55	-171.40	-5,291.49	1,392.94	3,918.07	3,844.13	73.94	52.992		
14,400.00	8,643.00	18,453.45	12,517.00	96.72	104.02	-171.40	-5,391.48	1,393.92	3,918.07	3,843.09	74.98	52.256		
14,500.00	8,643.00	18,553.45	12,517.00	98.27	105.48	-171.40	-5,491.48	1,394.91	3,918.07	3,842.05	76.02	51.539		
14,600.00	8,643.00	18,653.45	12,517.00	99.83	106.95	-171.40	-5,591.47	1,395.89	3,918.07	3,841.00	77.07	50.840		
14,700.00	8,643.00	18,753.45	12,517.00	101.40	108.43	-171.40	-5,691.47	1,396.88	3,918.07	3,839.96	78.12	50.157		
14,800.00	8,643.00	18,853.45	12,517.00	102.96	109.91	-171.40	-5,791.46	1,397.86	3,918.07	3,838.91	79.17	49.491		
14,900.00	8,643.00	18,953.45	12,517.00	104.53	111.40	-171.40	-5,891.46	1,398.84	3,918.07	3,837.85	80.22	48.840		
15,000.00	8,643.00	19,053.45	12,517.00	106.10	112.89	-171.40	-5,991.45	1,399.83	3,918.07	3,836.80	81.28	48.205		
15,100.00	8,643.00	19,153.45	12,517.00	107.68	114.39	-171.40	-6,091.45	1,400.81	3,918.07	3,835.74	82.34	47.585		
15,200.00	8,643.00	19,253.45	12,517.00	109.25	115.89	-171.40	-6,191.44	1,401.80	3,918.08	3,834.68	83.40	46.979		
15,300.00	8,643.00	19,353.45	12,517.00	110.83	117.39	-171.40	-6,291.44	1,402.78	3,918.08	3,833.61	84.46	46.387		
15,400.00	8,643.00	19,453.45	12,517.00	112.41	118.90	-171.40	-6,391.43	1,403.76	3,918.08	3,832.55	85.53	45.809		
15,500.00	8,643.00	19,553.45	12,517.00	114.00	120.41	-171.40	-6,491.43	1,404.75	3,918.08	3,831.48	86.60	45.244		
15,600.00	8,643.00	19,653.45	12,517.00	115.58	121.92	-171.40	-6,591.42	1,405.73	3,918.08	3,830.41	87.67	44.692		
15,700.00	8,643.00	19,753.45	12,517.00	117.17	123.44	-171.40	-6,691.42	1,406.72	3,918.08	3,829.34	88.74	44.152		
15,800.00	8,643.00	19,853.45	12,517.00	118.75	124.97	-171.40	-6,791.41	1,407.70	3,918.08	3,828.26	89.82	43.624		
15,900.00	8,643.00	19,953.45	12,517.00	120.34	126.49	-171.40	-6,891.41	1,408.68	3,918.08	3,827.19	90.89	43.107		
16,000.00	8,643.00	20,053.45	12,517.00	121.93	128.02	-171.40	-6,991.40	1,409.67	3,918.08	3,826.11	91.97	42.602		
16,100.00	8,643.00	20,153.45	12,517.00	123.53	129.55	-171.40	-7,091.40	1,410.65	3,918.08	3,825.03	93.05	42.108		
16,200.00	8,643.00	20,253.45	12,517.00	125.12	131.08	-171.40	-7,191.39	1,411.64	3,918.08	3,823.95	94.13	41.624		
16,300.00	8,643.00	20,353.45	12,517.00	126.72	132.62	-171.40	-7,291.39	1,412.62	3,918.08	3,822.87	95.21	41.151		
16,400.00	8,643.00	20,453.45	12,517.00	128.31	134.16	-171.40	-7,391.38	1,413.60	3,918.08	3,821.79	96.30	40.687		
16,500.00	8,643.00	20,553.45	12,517.00	129.91	135.70	-171.40	-7,491.38	1,414.59	3,918.08	3,820.70	97.38	40.234		
16,600.00	8,643.00	20,653.45	12,517.00	131.51	137.25	-171.40	-7,591.37	1,415.57	3,918.09	3,819.62	98.47	39.791		
16,700.00	8,643.00	20,753.45	12,517.00	133.11	138.80	-171.40	-7,691.37	1,416.56	3,918.09	3,818.53	99.55	39.356		
16,800.00	8,643.00	20,853.45	12,517.00	134.72	140.35	-171.40	-7,791.36	1,417.54	3,918.09	3,817.45	100.64	38.931		
16,900.00	8,643.00	20,953.45	12,517.00	136.32	141.90	-171.40	-7,891.36	1,418.52	3,918.09	3,816.36	101.73	38.514		
17,000.00	8,643.00	21,053.45	12,517.00	137.92	143.45	-171.40	-7,991.35	1,419.51	3,918.09	3,815.27	102.82	38.105		
17,100.00	8,643.00	21,153.45	12,517.00	139.53	145.01	-171.40	-8,091.35	1,420.49	3,918.09	3,814.17	103.92	37.705		
17,200.00	8,643.00	21,253.45	12,517.00	141.14	146.57	-171.40	-8,191.34	1,421.47	3,918.09	3,813.08	105.01	37.312		
17,300.00	8,643.00	21,353.45	12,517.00	142.74	148.13	-171.40	-8,291.34	1,422.46	3,918.09	3,811.99	106.10	36.927		
17,400.00	8,643.00	21,453.45	12,517.00	144.35	149.69	-171.40	-8,391.34	1,423.44	3,918.09	3,810.89	107.20	36.550		
17,500.00	8,643.00	21,553.45	12,517.00	145.96	151.25	-171.40	-8,491.33	1,424.43	3,918.09	3,809.80	108.30	36.179		
17,600.00	8,643.00	21,653.45	12,517.00	147.57	152.82	-171.40	-8,591.33	1,425.41	3,918.09	3,808.70	109.39	35.816		
17,700.00	8,643.00	21,753.45	12,517.00	149.18	154.39	-171.40	-8,691.32	1,426.39	3,918.09	3,807.60	110.49	35.460		
17,800.00	8,643.00	21,853.45	12,517.00	150.80	155.96	-171.40	-8,791.32	1,427.38	3,918.09	3,806.50	111.59	35.110		
17,900.00	8,643.00	21,953.45	12,517.00	152.41	157.53	-171.40	-8,891.31	1,428.36	3,918.09	3,805.40	112.69	34.767		
18,000.00	8,643.00	22,053.45	12,517.00	154.02	159.10	-171.40	-8,991.31	1,429.35	3,918.09	3,804.30	113.80	34.431		
18,100.00	8,643.00	22,153.45	12,517.00	155.64	160.68	-171.40	-9,091.30	1,430.33	3,918.10	3,803.20	114.90	34.100		
18,200.00	8,643.00	22,253.45	12,517.00	157.25	162.25	-171.40	-9,191.30	1,431.31	3,918.10	3,802.09	116.00	33.776		
18,300.00	8,643.00	22,353.45	12,517.00	158.87	163.83	-171.40	-9,291.29	1,432.30	3,918.10	3,800.99	117.11	33.457		
18,400.00	8,643.00	22,453.45	12,517.00	160.49	165.41	-171.40	-9,391.29	1,433.28	3,918.10	3,799.89	118.21	33.145		
18,500.00	8,643.00	22,553.45	12,517.00	162.11	166.99	-171.40	-9,491.28	1,434.27	3,918.10	3,798.78	119.32	32.838		
18,600.00	8,643.00	22,653.45	12,517.00	163.72	168.57	-171.40	-9,591.28	1,435.25	3,918.10	3,797.68	120.42	32.537		
18,700.00	8,643.00	22,753.45	12,517.00	165.34	170.15	-171.40	-9,691.27	1,436.23	3,918.10	3,796.57	121.53	32.241		
18,800.00	8,643.00	22,853.45	12,517.00	166.96	171.74	-171.40	-9,791.27	1,437.22	3,918.10	3,795.47	122.63	31.950		
18,900.00	8,643.00	22,953.45	12,517.00	168.58	173.32	-171.40	-9,891.26	1,438.20	3,918.10	3,794.36	123.74	31.664		
19,000.00	8,643.00	23,053.45	12,517.00	170.20	174.91	-171.40	-9,991.26	1,439.19	3,918.10	3,793.25	124.85	31.383		
19,100.00	8,643.00	23,153.45	12,517.00	171.82	176.50	-171.40	-10,091.25	1,440.17	3,918.10	3,792.14	125.96	31.106		
19,200.00	8,643.00	23,253.45	12,517.00	173.45	178.09	-171.40	-10,191.25	1,441.15	3,918.10	3,791.03	127.07	30.834		
19,300.00	8,643.00	23,353.45	12,517.00	175.07	179.68	-171.40	-10,291.24	1,442.14	3,918.10	3,789.92	128.18	30.567		
19,400.00	8,643.00	23,453.45	12,517.00	176.69	181.27	-171.40	-10,391.24	1,443.12	3,918.10	3,788.81	129.29	30.304		

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 PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 PF Fed Com - PF Fed Com 803H - 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	
19,500.00	8,643.00	23,553.45	12,517.00	178.32	182.86	-171.39	-10,491.23	1,444.11	3,918.11	3,787.70	130.41	30.046	
19,600.00	8,643.00	23,653.45	12,517.00	179.94	184.46	-171.39	-10,591.23	1,445.09	3,918.11	3,786.59	131.52	29.791	
19,700.00	8,643.00	23,753.45	12,517.00	181.56	186.05	-171.39	-10,691.22	1,446.07	3,918.11	3,785.48	132.63	29.542	
19,800.00	8,643.00	23,853.45	12,517.00	183.19	187.65	-171.39	-10,791.22	1,447.06	3,918.11	3,784.36	133.74	29.296	
19,900.00	8,643.00	23,953.45	12,517.00	184.82	189.24	-171.39	-10,891.21	1,448.04	3,918.11	3,783.25	134.86	29.054	
20,000.00	8,643.00	24,053.45	12,517.00	186.44	190.84	-171.39	-10,991.21	1,449.03	3,918.11	3,782.14	135.97	28.816	
20,007.50	8,643.00	24,060.95	12,517.00	186.56	190.96	-171.39	-10,998.71	1,449.10	3,918.11	3,782.06	136.05	28.798	
20,078.25	8,643.00	24,130.17	12,517.00	187.71	192.05	-171.39	-11,067.92	1,449.78	3,918.11	3,781.36	136.75	28.651	



Total Directional Services

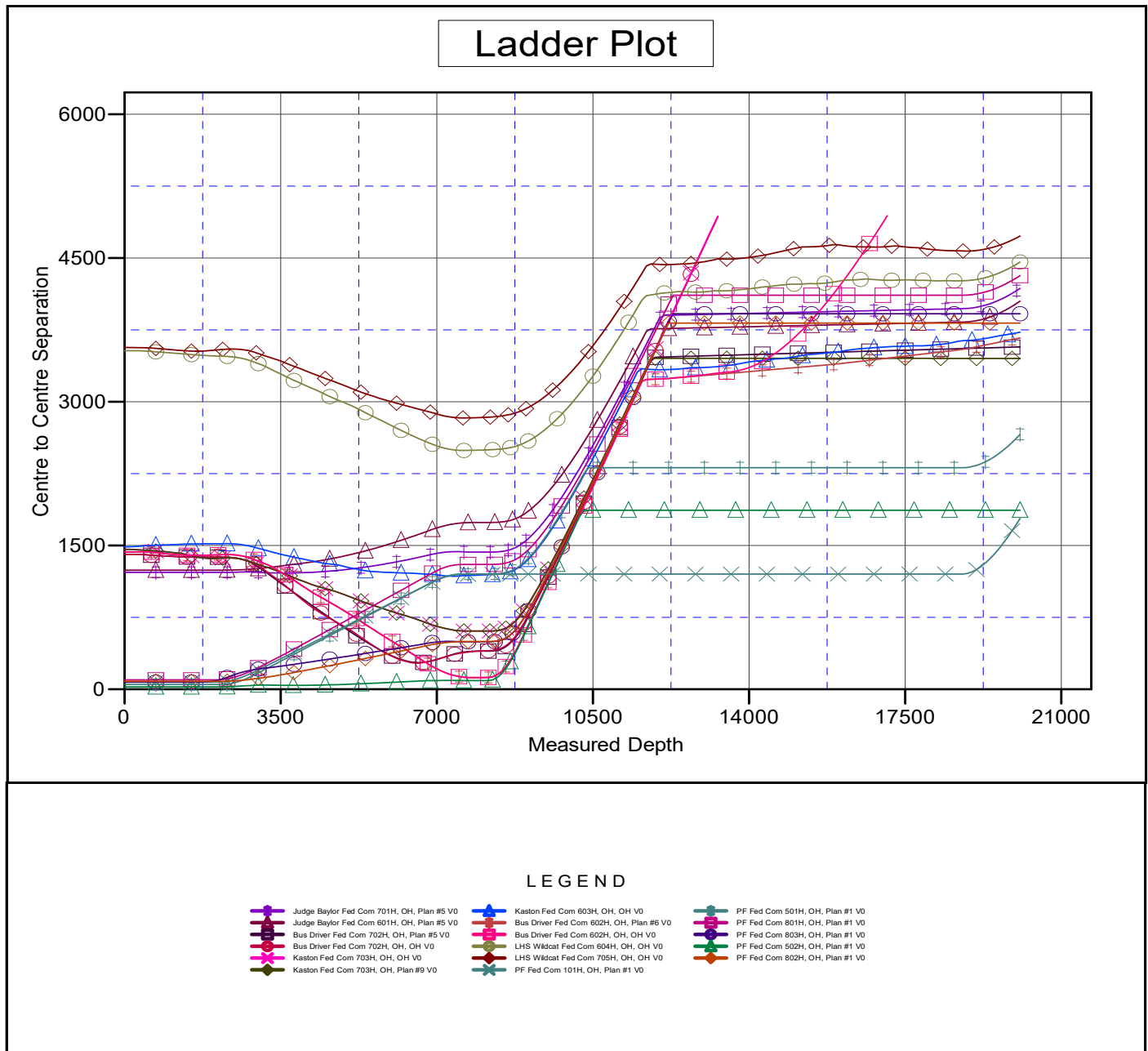
Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 3053' GE + 30' KB @ 3083.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: PF Fed Com 102H
 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



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 102H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 102H	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 3053' GE + 30' KB @ 3083.00usft

Offset Depths are relative to Offset Datum

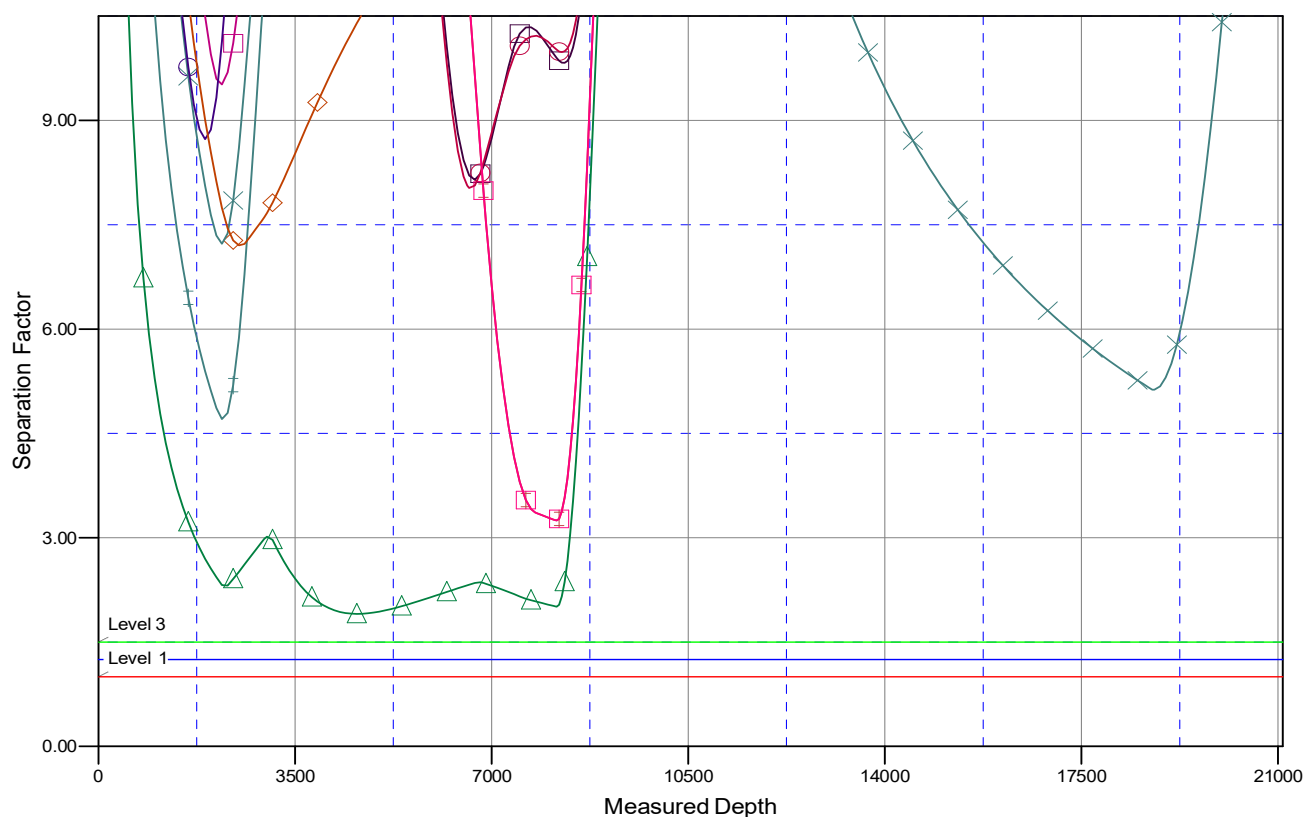
Central Meridian is -104.333334

Coordinates are relative to: PF Fed Com 102H

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

Grid Convergence at Surface is: 0.54°

Separation Factor Plot



LEGEND

Judge Baylor Fed Com 701H, OH, Plan #5 V0	Kaston Fed Com 803H, OH, OH V0	PF Fed Com 501H, OH, Plan #1 V0
Judge Baylor Fed Com 801H, OH, Plan #5 V0	Bus Driver Fed Com 802H, OH, Plan #6 V0	PF Fed Com 801H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, OH V0	PF Fed Com 803H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, OH V0	LHS Wildcat Fed Com 604H, OH, OH V0	PF Fed Com 502H, OH, Plan #1 V0
Kaston Fed Com 703H, OH, OH V0	LHS Wildcat Fed Com 705H, OH, OH V0	PF Fed Com 802H, OH, Plan #1 V0
Kaston Fed Com 703H, OH, Plan #9 V0	PF Fed Com 101H, OH, Plan #1 V0	

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:	Franklin Mountain Energy, LLC
LEASE NO.:	NMNM117126, NMNM12280, NMNM119761, NMNM130330
COUNTY:	Lea County

Wells:

Paul Foster MH West Pad 1	
Paul Foster Fed Com 101H	650 FNL, 1,268 FWL
Paul Foster Fed Com 102H	650 FNL, 1,343 FWL
Paul Foster Fed Com 501H	650 FNL, 1,293 FWL
Paul Foster Fed Com 502H	650 FNL, 1,318 FWL
Paul Foster Fed Com 801H	575 FNL, 1,281 FWL
Paul Foster Fed Com 802H	575 FNL, 1,306 FWL
Paul Foster Fed Com 803H	575 FNL, 1,331 FWL
Paul Foster MH East Pad 2	
Paul Foster Fed Com 103H	285 FNL, 1,125 FEL
Paul Foster Fed Com 104H	285 FNL, 1,050 FEL
Paul Foster Fed Com 503H	285 FNL, 1,100 FEL
Paul Foster Fed Com 504H	285 FNL, 1,075 FEL
Paul Foster Fed Com 804H	210 FNL, 1,112 FEL
Paul Foster Fed Com 805H	210 FNL, 1,087 FEL
Paul Foster Fed Com 806H	210 FNL, 1,062 FEL

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**
 - Watershed
 - Lesser Prairie Chicken
 - VRM IV
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **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 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.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any 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.

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)

Watershed:

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 topsoil 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.

BURIED/SURFACE LINE(S):

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

ELECTRIC LINE(S):

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.

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, 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. 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 ft. 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.

VRM IV:

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

Short-term mitigation measures include painting all above-ground structures that are not subject to safety requirements (including meter housing) Shale Green, which is a flat non-reflective paint color listed in the BLM Standard Environmental Color Chart (CC-001: June 2013). Long-term mitigation measures include the removal of wells and associated infrastructure following abandonment (end of cost-effective production). Previously impacted areas will be reclaimed by removing structures and caliche pads, returning disturbed areas to natural grade, and revegetating with an approved BLM seed mixture; thereby eliminating visual impacts.

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 (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) 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 14' 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

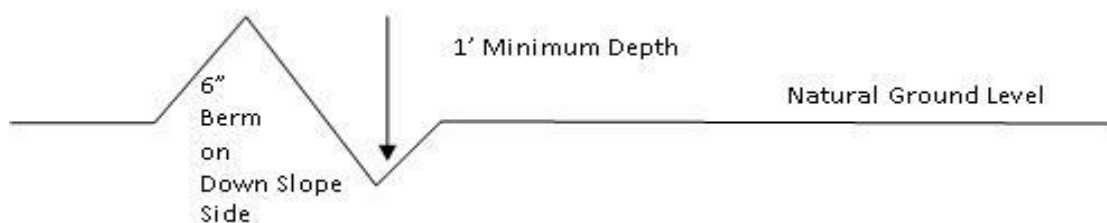
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsliping and insliping, 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

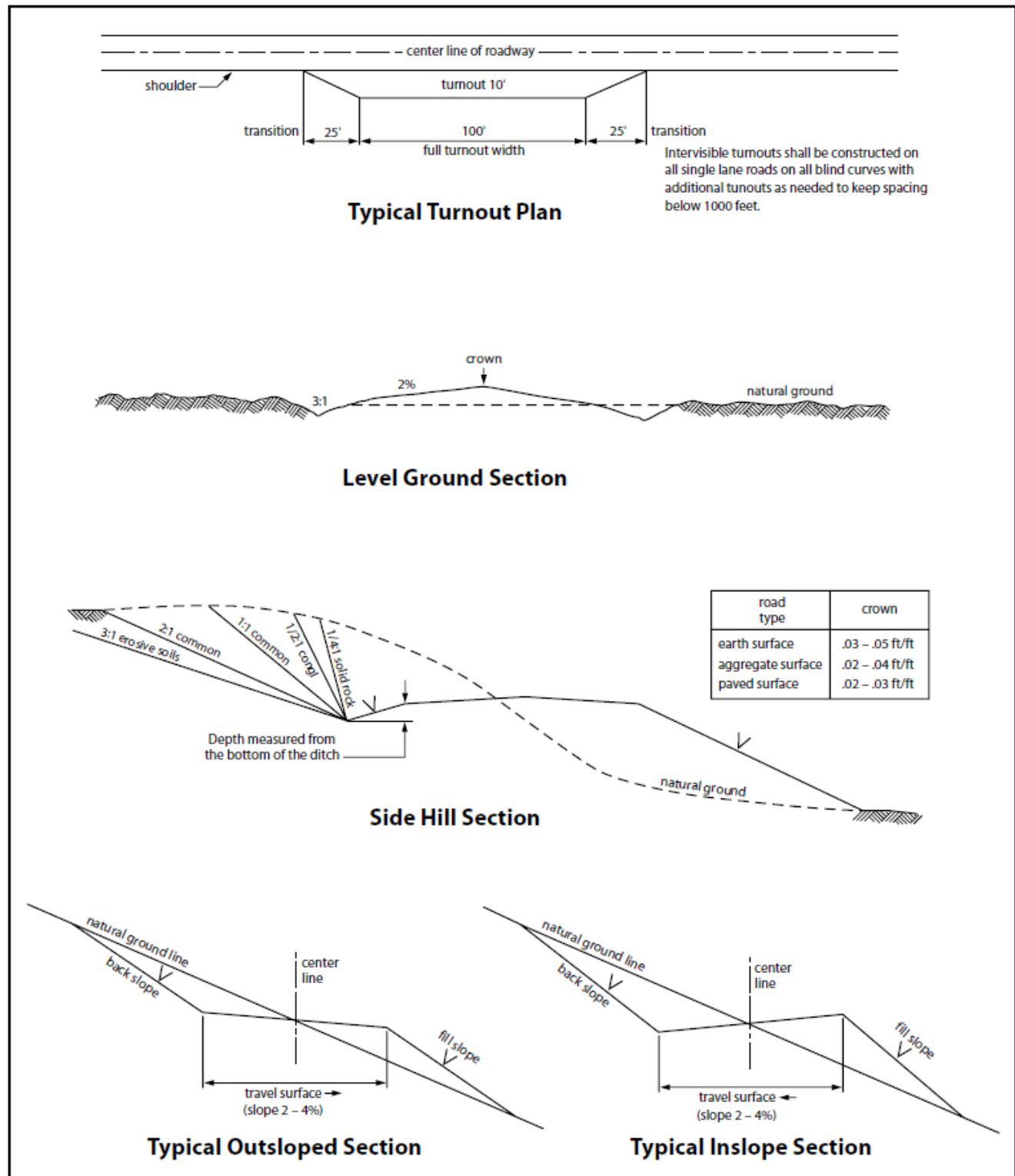


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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. PIPELINES

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

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 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 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 30 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 2
- ☐Seed Mixture 2/LPC
- ☐Seed Mixture 3
- ☐Seed Mixture 4
- ☐Seed Mixture 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 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.

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 17 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

17. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

18. Any 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.

19. 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.

20. 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.

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).

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.

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:

Species

	<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.:	NMNM117126
LOCATION:	Section 1, T.26 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico
Sundry ID:	N/A

WELL NAME & NO.:	PF Fed Com 101H
SURFACE HOLE FOOTAGE:	650'/N & 1268'/W
BOTTOM HOLE FOOTAGE:	150'/S & 900'/W

WELL NAME & NO.:	PF Fed Com 102H
SURFACE HOLE FOOTAGE:	650'/N & 1343'/W
BOTTOM HOLE FOOTAGE:	1170'/N & 2100'/W

WELL NAME & NO.:	PF Fed Com 103H
SURFACE HOLE FOOTAGE:	285'/N & 1125'/E
BOTTOM HOLE FOOTAGE:	1170'/N & 1880'/E

WELL NAME & NO.:	PF Fed Com 501H
SURFACE HOLE FOOTAGE:	650'/N & 1293'/W
BOTTOM HOLE FOOTAGE:	150'/S & 900'/W

WELL NAME & NO.:	PF Fed Com 502H
SURFACE HOLE FOOTAGE:	650'/N & 1318'/W
BOTTOM HOLE FOOTAGE:	1170'/N & 2100'/W

WELL NAME & NO.:	PF Fed Com 504H
SURFACE HOLE FOOTAGE:	285'/N & 1075'/E
BOTTOM HOLE FOOTAGE:	150'/S & 380'/E

WELL NAME & NO.:	PF Fed Com 801H
SURFACE HOLE FOOTAGE:	575'/N & 1281'/W
BOTTOM HOLE FOOTAGE:	150'/S & 800'/W

WELL NAME & NO.:	PF Fed Com 802H
SURFACE HOLE FOOTAGE:	575'/N & 1306'/W
BOTTOM HOLE FOOTAGE:	1170'/N & 1720'/W

WELL NAME & NO.:	PF Fed Com 803H
SURFACE HOLE FOOTAGE:	575'/N & 1331'/W
BOTTOM HOLE FOOTAGE:	1170'/N & 2600'/E

WELL NAME & NO.:	PF Fed Com 804H
SURFACE HOLE FOOTAGE:	210'/N & 1112'/E
BOTTOM HOLE FOOTAGE:	1170'/N & 1680'/E

WELL NAME & NO.:	PF Fed Com 805H
SURFACE HOLE FOOTAGE:	210'/N & 1087'/E
BOTTOM HOLE FOOTAGE:	150'/S & 780'/E

WELL NAME & NO.:	PF Fed Com 806H
SURFACE HOLE FOOTAGE:	210'/N & 1062'/E
BOTTOM HOLE FOOTAGE:	150'/S & 380'/E

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
Wellhead Variance	☐ Diverter		
Other	☒ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Pilot Hole	☐ Open Annulus
Cementing	☐ Cement Squeeze	☐ EchoMeter	
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit
Special Requirements Variance	☐ Break Testing	☐ Offline Cementing	

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 **970 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 is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Option 2:

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

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- b. Second stage above DV tool:
 - Cement to surface. If cement does not circulate, contact 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 **200 feet** into previous casing string. Operator shall provide method of verification.

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** intermediate casing shoe shall be **5000 (5M)** psi.
- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7-5/8** 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:

- a. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch 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.**
 - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - ii. 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.
 - iii. Manufacturer representative shall install the test plug for the initial BOP test.
 - iv. 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.
 - v. 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.

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 88423

CONDITIONS

Operator: Franklin Mountain Energy LLC 44 Cook Street Denver, CO 80206	OGRID: 373910
	Action Number: 88423
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	3/14/2022
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	3/14/2022
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	3/14/2022
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	3/14/2022