

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. 30-025-49852	
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	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		17. Spacing Unit dedicated to this well 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		Date	
Office		Date	
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 a new 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 D / 650 FNL / 1318 FWL / TWSP: 26S / RANGE: 35E / SECTION: 1 / LAT: 32.077787 / LONG: -103.325522 (TVD: 0 feet, MD: 0 feet)

PPP: NENW / 0 FNL / 2101 FWL / TWSP: 26S / RANGE: 35E / SECTION: 12 / LAT: 32.065042 / LONG: -103.322996 (TVD: 10511 feet, MD: 15600 feet)

PPP: TR D / 623 FNL / 2095 FWL / TWSP: 26S / RANGE: 35E / SECTION: 1 / LAT: 32.07786 / LONG: -103.323013 (TVD: 10511 feet, MD: 10936 feet)

BHL: TR C / 1170 FNL / 2100 FWL / TWSP: 26S / RANGE: 35E / SECTION: 13 / LAT: 32.047324 / LONG: -103.322988 (TVD: 10511 feet, MD: 22046 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

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-49853	² Pool Code 97088	³ Pool Name WC-025 G-08 S2535340;BONE SPRING
⁴ Property Code 332687	⁵ Property Name PF FED COM	⁶ Well Number 502H
⁷ OGRID No. 373910	⁸ Operator Name FRANKLIN MOUNTAIN ENERGY LLC	⁹ Elevation 3053.6'

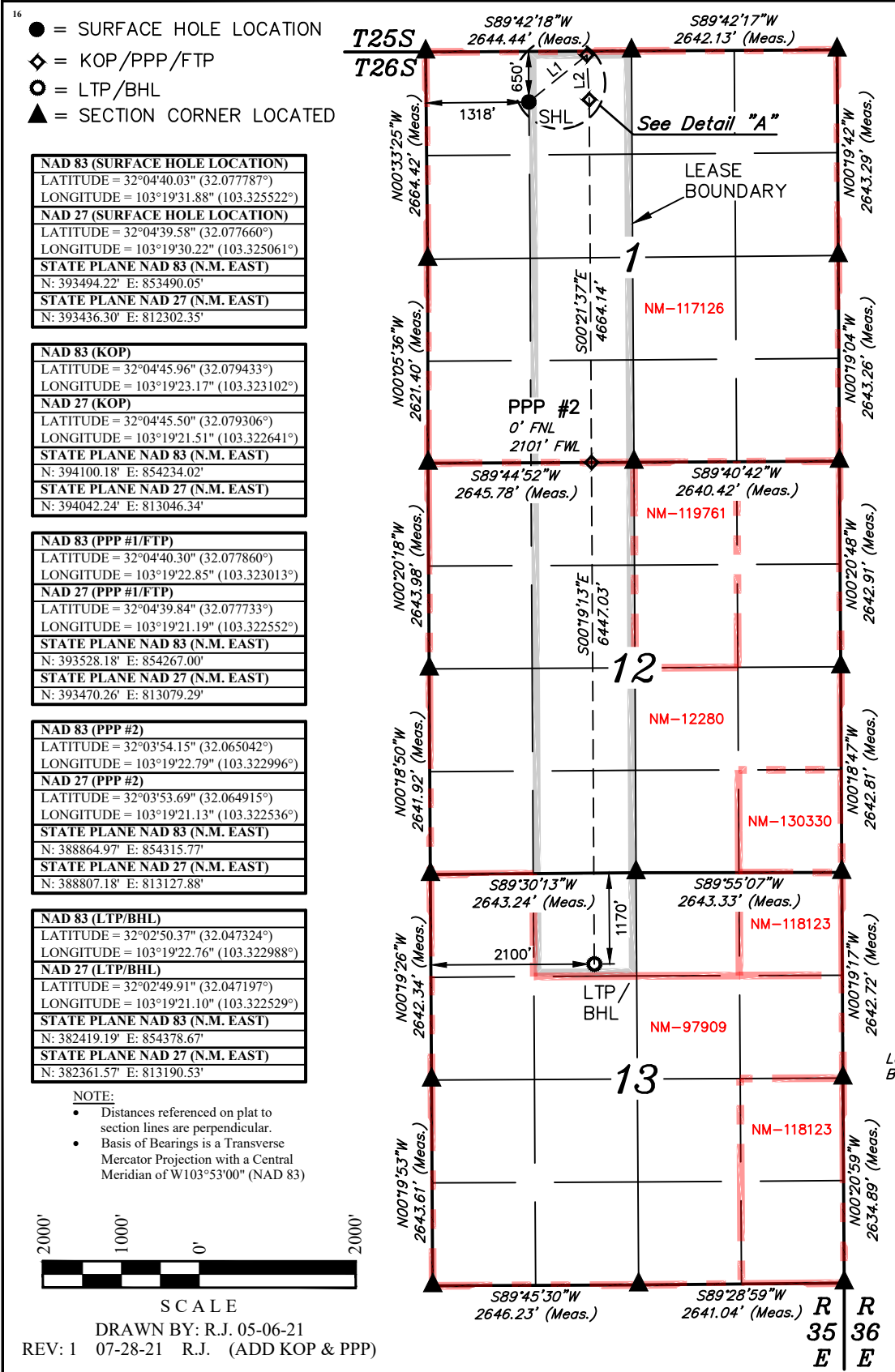
¹⁰ Surface Location

UL or lot no. D	Section 1	Township 26S	Range 35E	Lot Idn	Feet from the 650	North/South line NORTH	Feet from the 1318	East/West line WEST	County LEA
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¹¹ Bottom 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.



¹⁷ OPERATOR CERTIFICATION

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

Signature: *Shelly Albrecht* Date: 8/3/2021

Shelly Albrecht
Printed Name

salbrecht@fmellc.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

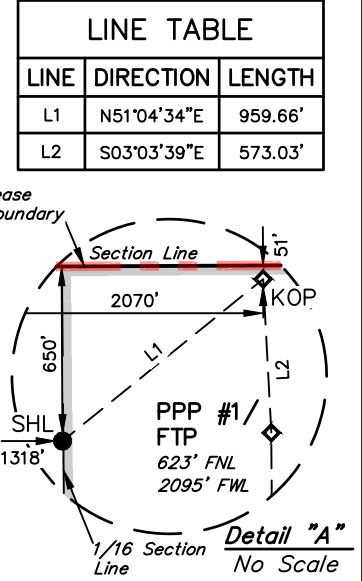
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

April 28, 2021

Date of Survey
Signature and Seal of Professional Surveyor:

Paul Buchele
PAUL BUCHELE
NEW MEXICO
23782
07-28-21
PROFESSIONAL SURVEYOR

Certificate Number:



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: Tatanka North CTB: (f#) TBD [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

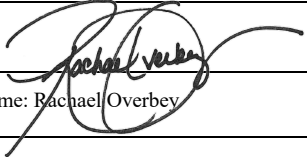
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(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
Tatanka Fed Com 101H	TBD	C-2-26S-35E	20 FNL 1347 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 102H	TBD	C-2-26S-35E	20 FNL 1372 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 103H	TBD	B-2-26S-35E	20 FNL 1875 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 104H	TBD	B-2-26S-35E	20 FNL 1850 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 501H	TBD	C-2-26S-35E	20 FNL 1397 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 502H	TBD	C-2-26S-35E	20 FNL 1422 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 503H	TBD	B-2-26S-35E	20 FNL 1925 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 504H	TBD	B-2-26S-35E	20 FNL 1900 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 601H	TBD	D-2-26S-35E	10 FNL 545 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 602H	TBD	N-35-25S-35E	998 FSL 1807 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 603H	TBD	N-35-25S-35E	998 FSL 1907 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 604H	TBD	A-2-26S-35E	20 FNL 885 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 701H	TBD	D-2-26S-35E	10 FNL 620 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 702H	TBD	N-35-25S-35E	998 FSL 1782 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 703H	TBD	N-35-25S-35E	998 FSL 1857 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 704H	TBD	A-2-26S-35E	20 FNL 935 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 705H	TBD	A-2-26S-35E	20 FNL 860 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 801H	TBD	D-2-26S-35E	10 FNL 570 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 802H	TBD	D-2-26S-35E	10 FNL 595 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 803H	TBD	N-35-25S-35E	998 FSL 1832 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 804H	TBD	N-35-25S-35E	998 FSL 1882 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 805H	TBD	A-2-26S-35E	20 FNL 910 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 806H	TBD	A-2-26S-35E	20 FNL 835 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
Tatanka Fed Com 101H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 102H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 103H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 104H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 501H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 502H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 503H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 504H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 601H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 602H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 603H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 604H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 701H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 702H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 703H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 704H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 705H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 801H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 802H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 803H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 804H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 805H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 806H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023



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 502H

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)	3,053'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,267'	816'			Carbonates
Salado	1,769'	1,314'			Salt, Carbonate & Clastics
Base Salt	-411'	3,494'			Shaley Carbonate & Shale
Lamar	-1,956'	5,039'			Carbonate & Clastics
Bell Canyon	-2,053'	5,136'			Sandstone - oil/gas/water
Cherry Canyon	-2,903'	5,986'			Sandstone - oil/gas/water
Brushy Canyon	-4,373'	7,456'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,563'	8,646'			Shale/Carbonates - oil/gas
Avalon	-5,584'	8,667'			Shale/Carbonates - oil/gas
Chert Zone	-5,775'	8,858'			Chert/Carbonate
First Bone Spring Sand	-6,818'	9,901'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,974'	10,057'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,349'	10,432'			Sandstone - oil/gas/water
HZ Target at Landing	-7,428'	10,511'			Overpressure shale/sand- Oil/Gas
Third Bone Spring Carbonates	-7,918'	11,001'			Shale/Carbonates - oil/gas

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

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,136'	Oil
Bone Spring Sand	9,901'	Oil
Bone Spring Carbonate	11,001'	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	5090	1.79	1.78	3.02	3.43
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	10936	1.21	1.40	1.95	1.33
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606 TVD	22046 10511	1.32	1.41	1.20	1.00 1.77

7 5/8" casing will be set at 10,936' MD/10,511' TVD at 90° Inc. Stress calculations on 5 1/2" casing performed assuming 22,046' depth. Actual max vertical depth is 10,511'.



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	5090	1484	Lead, 12.8 ppg, Class C 5% Salt,	1.79	9.74	0	154	Tail, 14.8 ppg, Class C,	1.33	6.37	4790	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	10936	313	Lite Fill, 9.5 ppg, Class C 3lb/sk	2.13	5.97	4090	94	NeoCem 14.8 ppg, Class C	1.33	6.29	9936	50%
					Bridgmaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake					0.25 pps Cello-Flake, 2% CaCl ₂				
Prod	6.75	5.5	22046	903	Tail, 14.5 ppg, Gas Migration Control	1.34	6.22	9936						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' – 10,936'	Brine	8.8-10.2	28-34	N/c
10,936' – 22,046' 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 10,511' TVD (deepest point of the well) is 170F with an estimated maximum bottom-hole pressure (BHP) at the same point of 6,558 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.

Released to Imaging: 3/14/2022 3:55:57 PM us

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: PF Fed Com
Well: PF Fed Com 502H
Wellbore: OH
Design: Plan #1



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

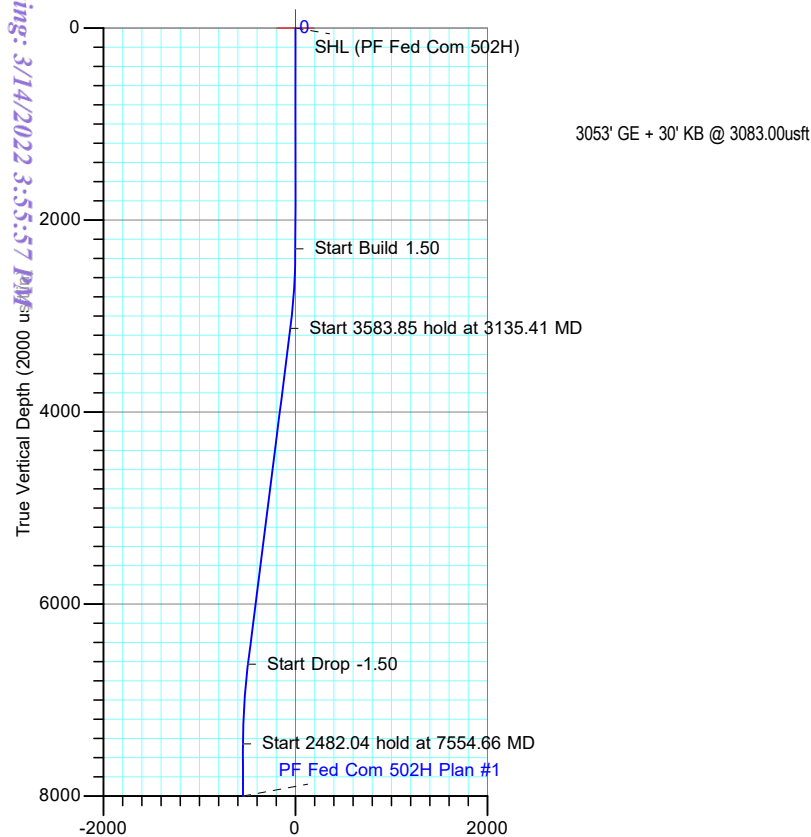
Magnetic Field
Strength: 47425.6nT
Dip Angle: 59.80°
Date: 7/16/2021
Model: IGRF2020

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 4:51:51 PM

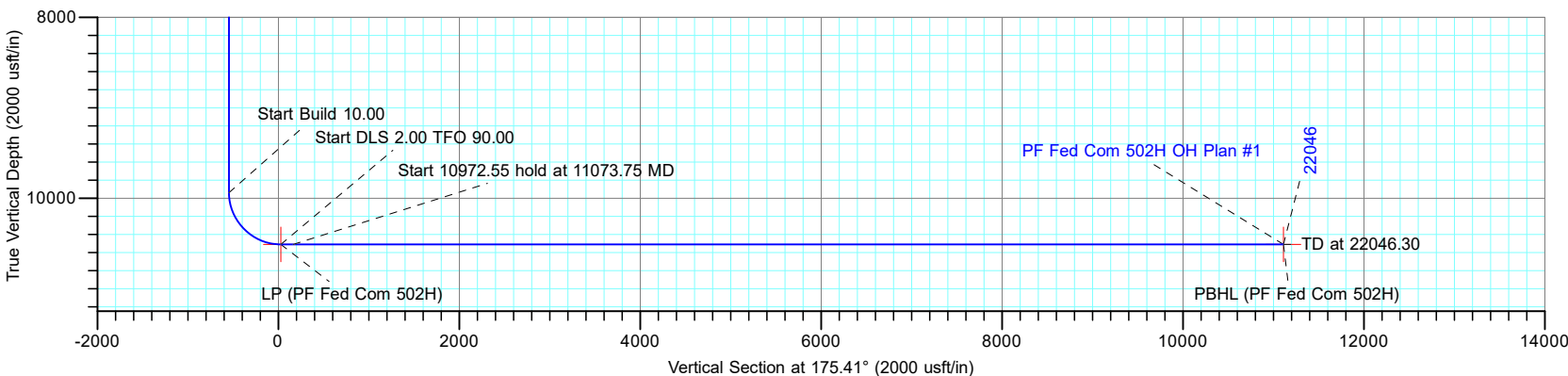
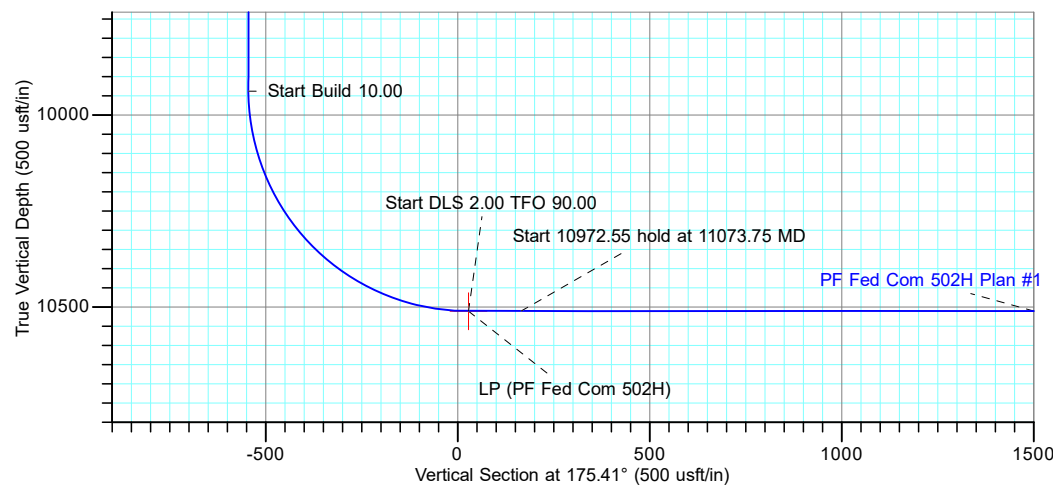


SECTION DETAILS

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	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3135.41	12.53	50.84	3128.76	57.46	70.55	1.50	50.84	-51.64	Start 3583.85 hold at 3135.41 MD
6719.26	12.53	50.84	6627.24	548.54	673.45	0.00	0.00	-492.91	Start Drop -1.50
7554.66	0.00	0.00	7456.00	606.00	744.00	1.50	180.00	-544.55	Start 2482.04 hold at 7554.66 MD
10036.70	0.00	0.00	9938.04	606.00	744.00	0.00	0.00	-544.55	Start Build 10.00
10936.70	90.00	176.70	10511.00	33.99	776.98	10.00	176.70	28.26	Start DLS 2.00 TFO 90.00
11073.75	90.00	179.44	10511.00	-102.97	781.60	2.00	90.00	165.15	Start 10972.55 hold at 11073.75 MD
22046.30	90.00	179.44	10511.00	-11074.99	888.65	0.00	0.00	11110.59	TD at 22046.30

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (PF Fed Com 502H)	10511.00	33.99	776.98	32.077860	-103.323013
PBHL (PF Fed Com 502H)	10511.00	-11074.99	888.65	32.047324	-103.322988
SHL (PF Fed Com 502H)	0.00	0.00	0.00	32.077787	-103.325522



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

Plan: Plan #1 (PF Fed Com 502H/OH)
Created By: Dustin Ault
Date: 21:54, July 16 2021
Approved: _____
Date: _____

Page 18 of 157

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: PF Fed Com
Well: PF Fed Com 502H
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



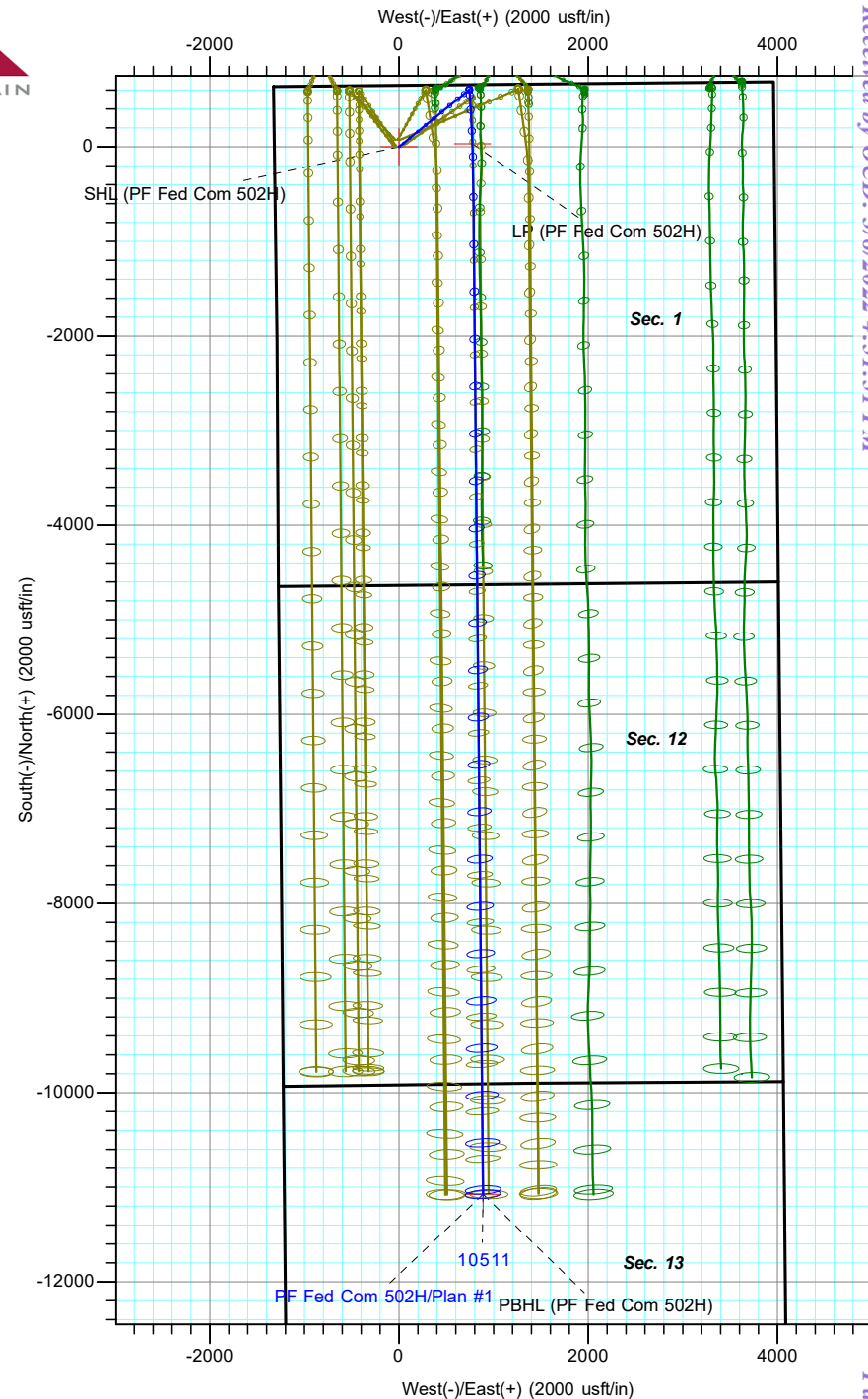
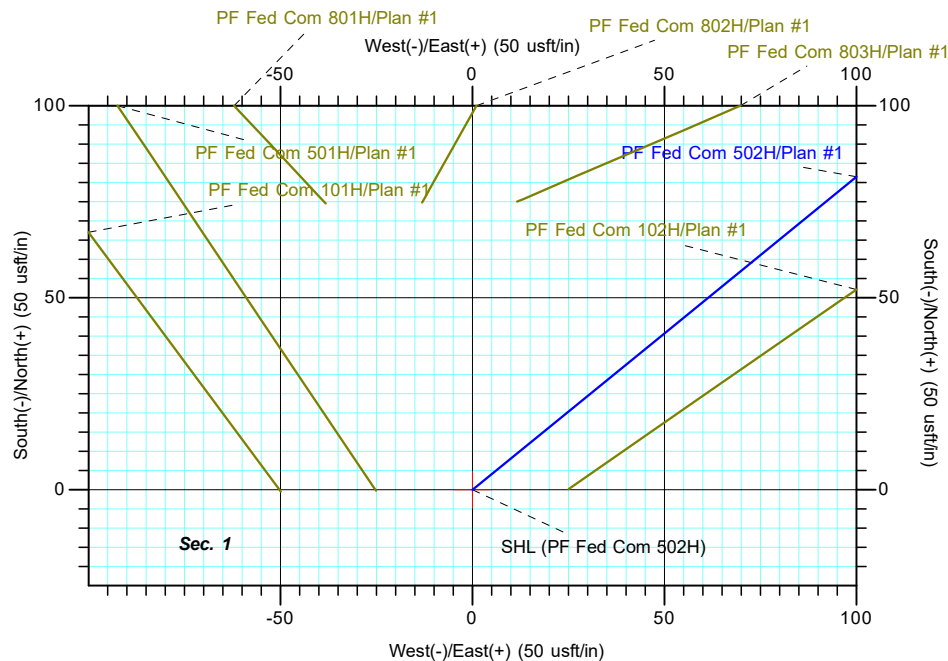
PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (PF Fed Com 502H)	10511.00	33.99	776.98	393528.17	854267.00	32.077860	-103.323013
PBHL (PF Fed Com 502H)	10511.00	-11074.99	888.65	382419.19	854378.67	32.047324	-103.322988
SHL (PF Fed Com 502H)	0.00	0.00	0.00	393494.18	853490.02	32.077787	-103.325522

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	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3135.41	12.53	50.84	3128.76	57.46	70.55	1.50	50.84	-51.64	Start 3583.85 hold at 3135.41 MD
6719.26	12.53	50.84	6627.24	548.54	673.45	0.00	0.00	-492.91	Start Drop -1.50
7554.66	0.00	0.00	7456.00	606.00	744.00	1.50	180.00	-544.55	Start 2482.04 hold at 7554.66 MD
10036.70	0.00	0.00	9938.04	606.00	744.00	0.00	0.00	-544.55	Start Build 10.00
10936.70	90.00	176.70	10511.00	33.99	776.98	10.00	176.70	28.26	Start DLS 2.00 TFO 90.00
11073.75	90.00	179.44	10511.00	-102.97	781.60	2.00	90.00	165.15	Start 10972.55 hold at 11073.75 MD
22046.30	90.00	179.44	10511.00	-11074.99	888.65	0.00	0.00	11110.59	TD at 22046.30



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

Plan: Plan #1 (PF Fed Com 502H/OH)
Created By: Dustin Ault
Date: 22:04, July 16 2021
Approved: _____ Date: _____



Franklin Mountain Energy

Lea County, NM (NAD83)

PF Fed Com

PF Fed Com 502H

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 502H
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 502H	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 502H			
Well Position	+N/-S	0.47 usft	Northing:	393,494.18 usft
	+E/-W	49.87 usft	Easting:	853,490.02 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	47,425.60600071

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	175.41

Plan Survey Tool Program	Date	7/16/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,046.30 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	
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,135.41	12.53	50.84	3,128.76	57.46	70.55	1.50	1.50	0.00	50.84	
6,719.26	12.53	50.84	6,627.24	548.54	673.45	0.00	0.00	0.00	0.00	
7,554.66	0.00	0.00	7,456.00	606.00	744.00	1.50	-1.50	0.00	180.00	
10,036.70	0.00	0.00	9,938.04	606.00	744.00	0.00	0.00	0.00	0.00	
10,936.70	90.00	176.70	10,511.00	33.99	776.98	10.00	10.00	0.00	176.70	
11,073.75	90.00	179.44	10,511.00	-102.97	781.60	2.00	0.00	2.00	90.00	
22,046.30	90.00	179.44	10,511.00	-11,074.99	888.65	0.00	0.00	0.00	0.00	PBHL (PF Fed Com 5)



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 502H
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 502H	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 502H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
2,400.00	1.50	50.84	2,399.99	0.83	1.01	-0.74	1.50	1.50	0.00
2,500.00	3.00	50.84	2,499.91	3.31	4.06	-2.97	1.50	1.50	0.00
2,600.00	4.50	50.84	2,599.69	7.44	9.13	-6.68	1.50	1.50	0.00
2,700.00	6.00	50.84	2,699.27	13.21	16.22	-11.87	1.50	1.50	0.00
2,800.00	7.50	50.84	2,798.57	20.64	25.34	-18.54	1.50	1.50	0.00
2,900.00	9.00	50.84	2,897.54	29.70	36.46	-26.69	1.50	1.50	0.00
3,000.00	10.50	50.84	2,996.09	40.39	49.59	-36.30	1.50	1.50	0.00
3,100.00	12.00	50.84	3,094.16	52.71	64.72	-47.37	1.50	1.50	0.00
3,135.41	12.53	50.84	3,128.76	57.46	70.55	-51.64	1.50	1.50	0.00
Start 3583.85 hold at 3135.41 MD									
3,200.00	12.53	50.84	3,191.82	66.32	81.42	-59.59	0.00	0.00	0.00
3,300.00	12.53	50.84	3,289.44	80.02	98.24	-71.90	0.00	0.00	0.00
3,400.00	12.53	50.84	3,387.05	93.72	115.06	-84.22	0.00	0.00	0.00
3,500.00	12.53	50.84	3,484.67	107.42	131.88	-96.53	0.00	0.00	0.00
3,600.00	12.53	50.84	3,582.29	121.12	148.71	-108.84	0.00	0.00	0.00
3,700.00	12.53	50.84	3,679.91	134.83	165.53	-121.16	0.00	0.00	0.00
3,800.00	12.53	50.84	3,777.52	148.53	182.35	-133.47	0.00	0.00	0.00
3,900.00	12.53	50.84	3,875.14	162.23	199.18	-145.78	0.00	0.00	0.00
4,000.00	12.53	50.84	3,972.76	175.93	216.00	-158.09	0.00	0.00	0.00
4,100.00	12.53	50.84	4,070.38	189.64	232.82	-170.41	0.00	0.00	0.00
4,200.00	12.53	50.84	4,168.00	203.34	249.64	-182.72	0.00	0.00	0.00
4,300.00	12.53	50.84	4,265.61	217.04	266.47	-195.03	0.00	0.00	0.00
4,400.00	12.53	50.84	4,363.23	230.74	283.29	-207.35	0.00	0.00	0.00
4,500.00	12.53	50.84	4,460.85	244.45	300.11	-219.66	0.00	0.00	0.00
4,600.00	12.53	50.84	4,558.47	258.15	316.93	-231.97	0.00	0.00	0.00
4,700.00	12.53	50.84	4,656.08	271.85	333.76	-244.28	0.00	0.00	0.00
4,800.00	12.53	50.84	4,753.70	285.55	350.58	-256.60	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 502H
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 502H	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	12.53	50.84	4,851.32	299.26	367.40	-268.91	0.00	0.00	0.00
5,000.00	12.53	50.84	4,948.94	312.96	384.22	-281.22	0.00	0.00	0.00
5,100.00	12.53	50.84	5,046.56	326.66	401.05	-293.54	0.00	0.00	0.00
5,200.00	12.53	50.84	5,144.17	340.36	417.87	-305.85	0.00	0.00	0.00
5,300.00	12.53	50.84	5,241.79	354.06	434.69	-318.16	0.00	0.00	0.00
5,400.00	12.53	50.84	5,339.41	367.77	451.52	-330.48	0.00	0.00	0.00
5,500.00	12.53	50.84	5,437.03	381.47	468.34	-342.79	0.00	0.00	0.00
5,600.00	12.53	50.84	5,534.65	395.17	485.16	-355.10	0.00	0.00	0.00
5,700.00	12.53	50.84	5,632.26	408.87	501.98	-367.41	0.00	0.00	0.00
5,800.00	12.53	50.84	5,729.88	422.58	518.81	-379.73	0.00	0.00	0.00
5,900.00	12.53	50.84	5,827.50	436.28	535.63	-392.04	0.00	0.00	0.00
6,000.00	12.53	50.84	5,925.12	449.98	552.45	-404.35	0.00	0.00	0.00
6,100.00	12.53	50.84	6,022.73	463.68	569.27	-416.67	0.00	0.00	0.00
6,200.00	12.53	50.84	6,120.35	477.39	586.10	-428.98	0.00	0.00	0.00
6,300.00	12.53	50.84	6,217.97	491.09	602.92	-441.29	0.00	0.00	0.00
6,400.00	12.53	50.84	6,315.59	504.79	619.74	-453.60	0.00	0.00	0.00
6,500.00	12.53	50.84	6,413.21	518.49	636.57	-465.92	0.00	0.00	0.00
6,600.00	12.53	50.84	6,510.82	532.19	653.39	-478.23	0.00	0.00	0.00
6,700.00	12.53	50.84	6,608.44	545.90	670.21	-490.54	0.00	0.00	0.00
6,719.26	12.53	50.84	6,627.24	548.54	673.45	-492.91	0.00	0.00	0.00
Start Drop -1.50									
6,800.00	11.32	50.84	6,706.24	559.07	686.39	-502.38	1.50	-1.50	0.00
6,900.00	9.82	50.84	6,804.54	570.66	700.61	-512.79	1.50	-1.50	0.00
7,000.00	8.32	50.84	6,903.29	580.61	712.83	-521.74	1.50	-1.50	0.00
7,100.00	6.82	50.84	7,002.41	588.93	723.04	-529.21	1.50	-1.50	0.00
7,200.00	5.32	50.84	7,101.85	595.61	731.24	-535.21	1.50	-1.50	0.00
7,300.00	3.82	50.84	7,201.53	600.64	737.42	-539.74	1.50	-1.50	0.00
7,400.00	2.32	50.84	7,301.38	604.02	741.57	-542.78	1.50	-1.50	0.00
7,500.00	0.82	50.84	7,401.34	605.75	743.70	-544.33	1.50	-1.50	0.00
7,554.66	0.00	0.00	7,456.00	606.00	744.00	-544.55	1.50	-1.50	0.00
Start 2482.04 hold at 7554.66 MD									
7,600.00	0.00	0.00	7,501.34	606.00	744.00	-544.55	0.00	0.00	0.00
7,700.00	0.00	0.00	7,601.34	606.00	744.00	-544.55	0.00	0.00	0.00
7,800.00	0.00	0.00	7,701.34	606.00	744.00	-544.55	0.00	0.00	0.00
7,900.00	0.00	0.00	7,801.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,000.00	0.00	0.00	7,901.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,100.00	0.00	0.00	8,001.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,200.00	0.00	0.00	8,101.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,300.00	0.00	0.00	8,201.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,400.00	0.00	0.00	8,301.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,500.00	0.00	0.00	8,401.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,600.00	0.00	0.00	8,501.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,700.00	0.00	0.00	8,601.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,800.00	0.00	0.00	8,701.34	606.00	744.00	-544.55	0.00	0.00	0.00
8,900.00	0.00	0.00	8,801.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,000.00	0.00	0.00	8,901.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,100.00	0.00	0.00	9,001.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,200.00	0.00	0.00	9,101.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,300.00	0.00	0.00	9,201.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,400.00	0.00	0.00	9,301.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,500.00	0.00	0.00	9,401.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,600.00	0.00	0.00	9,501.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,700.00	0.00	0.00	9,601.34	606.00	744.00	-544.55	0.00	0.00	0.00
9,800.00	0.00	0.00	9,701.34	606.00	744.00	-544.55	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 502H
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 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,900.00	0.00	0.00	9,801.34	606.00	744.00	-544.55	0.00	0.00	0.00
10,000.00	0.00	0.00	9,901.34	606.00	744.00	-544.55	0.00	0.00	0.00
10,036.70	0.00	0.00	9,938.04	606.00	744.00	-544.55	0.00	0.00	0.00
Start Build 10.00									
10,050.00	1.33	176.70	9,951.34	605.85	744.01	-544.40	10.00	10.00	0.00
10,100.00	6.33	176.70	10,001.21	602.51	744.20	-541.06	10.00	10.00	0.00
10,150.00	11.33	176.70	10,050.60	594.85	744.64	-533.39	10.00	10.00	0.00
10,200.00	16.33	176.70	10,099.14	582.92	745.33	-521.44	10.00	10.00	0.00
10,250.00	21.33	176.70	10,146.45	566.82	746.26	-505.32	10.00	10.00	0.00
10,300.00	26.33	176.70	10,192.17	546.66	747.42	-485.13	10.00	10.00	0.00
10,350.00	31.33	176.70	10,235.96	522.59	748.81	-461.03	10.00	10.00	0.00
10,400.00	36.33	176.70	10,277.48	494.81	750.41	-433.21	10.00	10.00	0.00
10,450.00	41.33	176.70	10,316.42	463.52	752.22	-401.88	10.00	10.00	0.00
10,500.00	46.33	176.70	10,352.48	428.97	754.21	-367.27	10.00	10.00	0.00
10,550.00	51.33	176.70	10,385.38	391.40	756.37	-329.65	10.00	10.00	0.00
10,600.00	56.33	176.70	10,414.88	351.12	758.70	-289.31	10.00	10.00	0.00
10,650.00	61.33	176.70	10,440.75	308.42	761.16	-246.55	10.00	10.00	0.00
10,700.00	66.33	176.70	10,462.80	263.64	763.74	-201.71	10.00	10.00	0.00
10,750.00	71.33	176.70	10,480.85	217.10	766.42	-155.11	10.00	10.00	0.00
10,800.00	76.33	176.70	10,494.77	169.18	769.19	-107.11	10.00	10.00	0.00
10,850.00	81.33	176.70	10,504.45	120.22	772.01	-58.09	10.00	10.00	0.00
10,900.00	86.33	176.70	10,509.82	70.61	774.87	-8.41	10.00	10.00	0.00
10,936.70	90.00	176.70	10,511.00	33.99	776.98	28.26	10.00	10.00	0.00
Start DLS 2.00 TFO 90.00 - LP (PF Fed Com 502H)									
11,000.00	90.00	177.97	10,511.00	-29.24	779.93	91.52	2.00	0.00	2.00
11,073.75	90.00	179.44	10,511.00	-102.97	781.60	165.15	2.00	0.00	2.00
Start 10972.55 hold at 11073.75 MD									
11,100.00	90.00	179.44	10,511.00	-129.21	781.85	191.33	0.00	0.00	0.00
11,200.00	90.00	179.44	10,511.00	-229.21	782.83	291.09	0.00	0.00	0.00
11,300.00	90.00	179.44	10,511.00	-329.20	783.80	390.84	0.00	0.00	0.00
11,400.00	90.00	179.44	10,511.00	-429.20	784.78	490.59	0.00	0.00	0.00
11,500.00	90.00	179.44	10,511.00	-529.20	785.75	590.35	0.00	0.00	0.00
11,600.00	90.00	179.44	10,511.00	-629.19	786.73	690.10	0.00	0.00	0.00
11,700.00	90.00	179.44	10,511.00	-729.19	787.71	789.85	0.00	0.00	0.00
11,800.00	90.00	179.44	10,511.00	-829.18	788.68	889.61	0.00	0.00	0.00
11,900.00	90.00	179.44	10,511.00	-929.18	789.66	989.36	0.00	0.00	0.00
12,000.00	90.00	179.44	10,511.00	-1,029.17	790.63	1,089.11	0.00	0.00	0.00
12,100.00	90.00	179.44	10,511.00	-1,129.17	791.61	1,188.86	0.00	0.00	0.00
12,200.00	90.00	179.44	10,511.00	-1,229.16	792.58	1,288.62	0.00	0.00	0.00
12,300.00	90.00	179.44	10,511.00	-1,329.16	793.56	1,388.37	0.00	0.00	0.00
12,400.00	90.00	179.44	10,511.00	-1,429.15	794.54	1,488.12	0.00	0.00	0.00
12,500.00	90.00	179.44	10,511.00	-1,529.15	795.51	1,587.88	0.00	0.00	0.00
12,600.00	90.00	179.44	10,511.00	-1,629.14	796.49	1,687.63	0.00	0.00	0.00
12,700.00	90.00	179.44	10,511.00	-1,729.14	797.46	1,787.38	0.00	0.00	0.00
12,800.00	90.00	179.44	10,511.00	-1,829.13	798.44	1,887.13	0.00	0.00	0.00
12,900.00	90.00	179.44	10,511.00	-1,929.13	799.41	1,986.89	0.00	0.00	0.00
13,000.00	90.00	179.44	10,511.00	-2,029.12	800.39	2,086.64	0.00	0.00	0.00
13,100.00	90.00	179.44	10,511.00	-2,129.12	801.37	2,186.39	0.00	0.00	0.00
13,200.00	90.00	179.44	10,511.00	-2,229.11	802.34	2,286.15	0.00	0.00	0.00
13,300.00	90.00	179.44	10,511.00	-2,329.11	803.32	2,385.90	0.00	0.00	0.00
13,400.00	90.00	179.44	10,511.00	-2,429.11	804.29	2,485.65	0.00	0.00	0.00
13,500.00	90.00	179.44	10,511.00	-2,529.10	805.27	2,585.40	0.00	0.00	0.00
13,600.00	90.00	179.44	10,511.00	-2,629.10	806.24	2,685.16	0.00	0.00	0.00



Total Directional Services

Planning Report



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Project:	Lea County, NM (NAD83)	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site:	PF Fed Com	North Reference:	Grid
Well:	PF Fed Com 502H	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)
13,700.00	90.00	179.44	10,511.00	-2,729.09	807.22	2,784.91	0.00	0.00	0.00
13,800.00	90.00	179.44	10,511.00	-2,829.09	808.19	2,884.66	0.00	0.00	0.00
13,900.00	90.00	179.44	10,511.00	-2,929.08	809.17	2,984.42	0.00	0.00	0.00
14,000.00	90.00	179.44	10,511.00	-3,029.08	810.15	3,084.17	0.00	0.00	0.00
14,100.00	90.00	179.44	10,511.00	-3,129.07	811.12	3,183.92	0.00	0.00	0.00
14,200.00	90.00	179.44	10,511.00	-3,229.07	812.10	3,283.68	0.00	0.00	0.00
14,300.00	90.00	179.44	10,511.00	-3,329.06	813.07	3,383.43	0.00	0.00	0.00
14,400.00	90.00	179.44	10,511.00	-3,429.06	814.05	3,483.18	0.00	0.00	0.00
14,500.00	90.00	179.44	10,511.00	-3,529.05	815.02	3,582.93	0.00	0.00	0.00
14,600.00	90.00	179.44	10,511.00	-3,629.05	816.00	3,682.69	0.00	0.00	0.00
14,700.00	90.00	179.44	10,511.00	-3,729.04	816.98	3,782.44	0.00	0.00	0.00
14,800.00	90.00	179.44	10,511.00	-3,829.04	817.95	3,882.19	0.00	0.00	0.00
14,900.00	90.00	179.44	10,511.00	-3,929.03	818.93	3,981.95	0.00	0.00	0.00
15,000.00	90.00	179.44	10,511.00	-4,029.03	819.90	4,081.70	0.00	0.00	0.00
15,100.00	90.00	179.44	10,511.00	-4,129.02	820.88	4,181.45	0.00	0.00	0.00
15,200.00	90.00	179.44	10,511.00	-4,229.02	821.85	4,281.20	0.00	0.00	0.00
15,300.00	90.00	179.44	10,511.00	-4,329.01	822.83	4,380.96	0.00	0.00	0.00
15,400.00	90.00	179.44	10,511.00	-4,429.01	823.81	4,480.71	0.00	0.00	0.00
15,500.00	90.00	179.44	10,511.00	-4,529.01	824.78	4,580.46	0.00	0.00	0.00
15,600.00	90.00	179.44	10,511.00	-4,629.00	825.76	4,680.22	0.00	0.00	0.00
15,700.00	90.00	179.44	10,511.00	-4,729.00	826.73	4,779.97	0.00	0.00	0.00
15,800.00	90.00	179.44	10,511.00	-4,828.99	827.71	4,879.72	0.00	0.00	0.00
15,900.00	90.00	179.44	10,511.00	-4,928.99	828.68	4,979.48	0.00	0.00	0.00
16,000.00	90.00	179.44	10,511.00	-5,028.98	829.66	5,079.23	0.00	0.00	0.00
16,100.00	90.00	179.44	10,511.00	-5,128.98	830.63	5,178.98	0.00	0.00	0.00
16,200.00	90.00	179.44	10,511.00	-5,228.97	831.61	5,278.73	0.00	0.00	0.00
16,300.00	90.00	179.44	10,511.00	-5,328.97	832.59	5,378.49	0.00	0.00	0.00
16,400.00	90.00	179.44	10,511.00	-5,428.96	833.56	5,478.24	0.00	0.00	0.00
16,500.00	90.00	179.44	10,511.00	-5,528.96	834.54	5,577.99	0.00	0.00	0.00
16,600.00	90.00	179.44	10,511.00	-5,628.95	835.51	5,677.75	0.00	0.00	0.00
16,700.00	90.00	179.44	10,511.00	-5,728.95	836.49	5,777.50	0.00	0.00	0.00
16,800.00	90.00	179.44	10,511.00	-5,828.94	837.46	5,877.25	0.00	0.00	0.00
16,900.00	90.00	179.44	10,511.00	-5,928.94	838.44	5,977.00	0.00	0.00	0.00
17,000.00	90.00	179.44	10,511.00	-6,028.93	839.42	6,076.76	0.00	0.00	0.00
17,100.00	90.00	179.44	10,511.00	-6,128.93	840.39	6,176.51	0.00	0.00	0.00
17,200.00	90.00	179.44	10,511.00	-6,228.92	841.37	6,276.26	0.00	0.00	0.00
17,300.00	90.00	179.44	10,511.00	-6,328.92	842.34	6,376.02	0.00	0.00	0.00
17,400.00	90.00	179.44	10,511.00	-6,428.91	843.32	6,475.77	0.00	0.00	0.00
17,500.00	90.00	179.44	10,511.00	-6,528.91	844.29	6,575.52	0.00	0.00	0.00
17,600.00	90.00	179.44	10,511.00	-6,628.91	845.27	6,675.27	0.00	0.00	0.00
17,700.00	90.00	179.44	10,511.00	-6,728.90	846.25	6,775.03	0.00	0.00	0.00
17,800.00	90.00	179.44	10,511.00	-6,828.90	847.22	6,874.78	0.00	0.00	0.00
17,900.00	90.00	179.44	10,511.00	-6,928.89	848.20	6,974.53	0.00	0.00	0.00
18,000.00	90.00	179.44	10,511.00	-7,028.89	849.17	7,074.29	0.00	0.00	0.00
18,100.00	90.00	179.44	10,511.00	-7,128.88	850.15	7,174.04	0.00	0.00	0.00
18,200.00	90.00	179.44	10,511.00	-7,228.88	851.12	7,273.79	0.00	0.00	0.00
18,300.00	90.00	179.44	10,511.00	-7,328.87	852.10	7,373.55	0.00	0.00	0.00
18,400.00	90.00	179.44	10,511.00	-7,428.87	853.07	7,473.30	0.00	0.00	0.00
18,500.00	90.00	179.44	10,511.00	-7,528.86	854.05	7,573.05	0.00	0.00	0.00
18,600.00	90.00	179.44	10,511.00	-7,628.86	855.03	7,672.80	0.00	0.00	0.00
18,700.00	90.00	179.44	10,511.00	-7,728.85	856.00	7,772.56	0.00	0.00	0.00
18,800.00	90.00	179.44	10,511.00	-7,828.85	856.98	7,872.31	0.00	0.00	0.00
18,900.00	90.00	179.44	10,511.00	-7,928.84	857.95	7,972.06	0.00	0.00	0.00
19,000.00	90.00	179.44	10,511.00	-8,028.84	858.93	8,071.82	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 502H
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 502H	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)	
19,100.00	90.00	179.44	10,511.00	-8,128.83	859.90	8,171.57	0.00	0.00	0.00	
19,200.00	90.00	179.44	10,511.00	-8,228.83	860.88	8,271.32	0.00	0.00	0.00	
19,300.00	90.00	179.44	10,511.00	-8,328.82	861.86	8,371.07	0.00	0.00	0.00	
19,400.00	90.00	179.44	10,511.00	-8,428.82	862.83	8,470.83	0.00	0.00	0.00	
19,500.00	90.00	179.44	10,511.00	-8,528.81	863.81	8,570.58	0.00	0.00	0.00	
19,600.00	90.00	179.44	10,511.00	-8,628.81	864.78	8,670.33	0.00	0.00	0.00	
19,700.00	90.00	179.44	10,511.00	-8,728.81	865.76	8,770.09	0.00	0.00	0.00	
19,800.00	90.00	179.44	10,511.00	-8,828.80	866.73	8,869.84	0.00	0.00	0.00	
19,900.00	90.00	179.44	10,511.00	-8,928.80	867.71	8,969.59	0.00	0.00	0.00	
20,000.00	90.00	179.44	10,511.00	-9,028.79	868.69	9,069.34	0.00	0.00	0.00	
20,100.00	90.00	179.44	10,511.00	-9,128.79	869.66	9,169.10	0.00	0.00	0.00	
20,200.00	90.00	179.44	10,511.00	-9,228.78	870.64	9,268.85	0.00	0.00	0.00	
20,300.00	90.00	179.44	10,511.00	-9,328.78	871.61	9,368.60	0.00	0.00	0.00	
20,400.00	90.00	179.44	10,511.00	-9,428.77	872.59	9,468.36	0.00	0.00	0.00	
20,500.00	90.00	179.44	10,511.00	-9,528.77	873.56	9,568.11	0.00	0.00	0.00	
20,600.00	90.00	179.44	10,511.00	-9,628.76	874.54	9,667.86	0.00	0.00	0.00	
20,700.00	90.00	179.44	10,511.00	-9,728.76	875.51	9,767.62	0.00	0.00	0.00	
20,800.00	90.00	179.44	10,511.00	-9,828.75	876.49	9,867.37	0.00	0.00	0.00	
20,900.00	90.00	179.44	10,511.00	-9,928.75	877.47	9,967.12	0.00	0.00	0.00	
21,000.00	90.00	179.44	10,511.00	-10,028.74	878.44	10,066.87	0.00	0.00	0.00	
21,100.00	90.00	179.44	10,511.00	-10,128.74	879.42	10,166.63	0.00	0.00	0.00	
21,200.00	90.00	179.44	10,511.00	-10,228.73	880.39	10,266.38	0.00	0.00	0.00	
21,300.00	90.00	179.44	10,511.00	-10,328.73	881.37	10,366.13	0.00	0.00	0.00	
21,400.00	90.00	179.44	10,511.00	-10,428.72	882.34	10,465.89	0.00	0.00	0.00	
21,500.00	90.00	179.44	10,511.00	-10,528.72	883.32	10,565.64	0.00	0.00	0.00	
21,600.00	90.00	179.44	10,511.00	-10,628.71	884.30	10,665.39	0.00	0.00	0.00	
21,700.00	90.00	179.44	10,511.00	-10,728.71	885.27	10,765.14	0.00	0.00	0.00	
21,800.00	90.00	179.44	10,511.00	-10,828.71	886.25	10,864.90	0.00	0.00	0.00	
21,900.00	90.00	179.44	10,511.00	-10,928.70	887.22	10,964.65	0.00	0.00	0.00	
22,000.00	90.00	179.44	10,511.00	-11,028.70	888.20	11,064.40	0.00	0.00	0.00	
22,046.30	90.00	179.44	10,511.00	-11,074.99	888.65	11,110.59	0.00	0.00	0.00	
TD at 22046.30 - PBHL (PF Fed Com 502H)										

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 502H - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	393,494.18	853,490.02	32.077787	-103.325522
PBHL (PF Fed Com 502 - plan hits target center - Point	0.00	0.00	10,511.00	-11,074.99	888.65	382,419.19	854,378.67	32.047324	-103.322988
LP (PF Fed Com 502H) - plan hits target center - Point	0.00	0.00	10,511.00	33.99	776.98	393,528.17	854,267.00	32.077861	-103.323013



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well PF Fed Com 502H
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 502H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,300.00	2,300.00	0.00	0.00	Start Build 1.50
3,135.41	3,128.76	57.46	70.55	Start 3583.85 hold at 3135.41 MD
6,719.26	6,627.24	548.54	673.45	Start Drop -1.50
7,554.66	7,456.00	606.00	744.00	Start 2482.04 hold at 7554.66 MD
10,036.70	9,938.04	606.00	744.00	Start Build 10.00
10,936.70	10,511.00	33.99	776.98	Start DLS 2.00 TFO 90.00
11,073.75	10,511.00	-102.97	781.60	Start 10972.55 hold at 11073.75 MD
22,046.30	10,511.00	-11,074.99	888.65	TD at 22046.30



Franklin Mountain Energy

Lea County, NM (NAD83)

PF Fed Com

PF Fed Com 502H

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 502H
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 502H	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
Depth Range:	Unlimited
Results Limited by:	Maximum ellipse separation of 1,000.00 usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCSWA
Scan Method:	Closest Approach 3D
Error Surface:	Combined Separation
Casing Method:	Not applied

Survey Tool Program	Date	7/16/2021
From (usft)	To (usft)	Survey (Wellbore)
0.00	22,046.30	Plan #1 (OH)
		Tool Name
		OWSG (Rev2) MWD
		Description
		OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bus Driver/Kaston Fed Com						
Bus Driver Fed Com 602H - OH - OH	9,952.28	9,881.31	91.58	44.52	1.946	CC, ES
Bus Driver Fed Com 602H - OH - OH	10,000.00	9,927.57	92.01	44.69	1.945	SF
Bus Driver Fed Com 602H - OH - Plan #6	9,952.28	9,881.31	91.58	44.52	1.946	CC, ES
Bus Driver Fed Com 602H - OH - Plan #6	10,000.00	9,927.57	92.01	44.69	1.945	SF
Bus Driver Fed Com 702H - OH - OH	6,521.26	6,489.43	196.03	162.22	5.799	CC, ES, SF
Bus Driver Fed Com 702H - OH - Plan #5	6,553.34	6,509.95	199.40	165.49	5.881	CC, ES
Bus Driver Fed Com 702H - OH - Plan #5	6,600.00	6,553.37	200.13	165.97	5.859	SF
Kaston Fed Com 603H - OH - OH	7,265.24	7,182.40	1,203.18	1,167.47	33.693	CC
Kaston Fed Com 603H - OH - OH	10,421.59	10,398.88	1,212.33	1,162.31	24.237	ES
Kaston Fed Com 603H - OH - OH	21,800.00	22,913.18	2,023.39	1,842.63	11.194	SF
Kaston Fed Com 703H - OH - OH	10,275.67	10,208.04	615.88	566.95	12.588	CC, ES
Kaston Fed Com 703H - OH - OH	10,350.00	10,271.85	616.95	567.85	12.565	SF
Kaston Fed Com 703H - OH - Plan #9	10,274.96	10,207.38	616.02	567.01	12.571	CC, ES
Kaston Fed Com 703H - OH - Plan #9	22,046.30	23,504.65	1,642.70	1,489.36	10.713	SF
Judge Baylor Fed Com						
Judge Baylor Fed Com 601H - OH - Plan #5	2,300.00	2,317.00	1,226.26	1,214.89	107.816	CC
Judge Baylor Fed Com 601H - OH - Plan #5	2,500.00	2,516.91	1,226.65	1,214.27	99.079	ES
Judge Baylor Fed Com 601H - OH - Plan #5	20,800.00	22,101.01	2,332.59	2,132.68	11.668	SF
Judge Baylor Fed Com 701H - OH - Plan #5	3,854.54	3,922.49	1,175.03	1,155.59	60.451	CC
Judge Baylor Fed Com 701H - OH - Plan #5	4,000.00	4,063.67	1,175.55	1,155.33	58.140	ES
Judge Baylor Fed Com 701H - OH - Plan #5	20,800.00	22,390.61	2,332.80	2,155.01	13.121	SF
LHS Wildcat Fed Com						
LHS Wildcat Fed Com 604H - OH - OH	7,540.98	7,426.96	2,521.43	2,485.10	69.402	CC
LHS Wildcat Fed Com 604H - OH - OH	7,600.00	7,481.47	2,521.63	2,485.03	68.894	ES
LHS Wildcat Fed Com 604H - OH - OH	21,000.00	21,860.00	2,985.24	2,763.10	13.438	SF
LHS Wildcat Fed Com 705H - OH - OH	7,542.16	7,426.56	2,858.35	2,822.30	79.297	CC
LHS Wildcat Fed Com 705H - OH - OH	7,600.00	7,478.07	2,858.55	2,822.24	78.743	ES
LHS Wildcat Fed Com 705H - OH - OH	21,100.00	22,230.00	3,335.15	3,109.59	14.786	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 502H
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 502H	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	49.87	40.06	5.084	CC, ES
PF Fed Com 101H - OH - Plan #1	2,100.00	2,099.22	50.65	40.33	4.911	SF
PF Fed Com 102H - OH - Plan #1	2,200.00	2,200.00	25.09	14.27	2.318	CC, ES
PF Fed Com 102H - OH - Plan #1	4,600.00	4,593.41	46.51	22.11	1.906	SF
PF Fed Com 501H - OH - Plan #1	2,100.00	2,100.00	25.09	14.77	2.432	CC, ES
PF Fed Com 501H - OH - Plan #1	2,200.00	2,199.62	25.83	15.01	2.387	SF
PF Fed Com 801H - OH - Plan #1	2,000.00	2,000.00	83.80	73.99	8.542	CC, ES
PF Fed Com 801H - OH - Plan #1	2,200.00	2,195.70	88.73	77.94	8.219	SF
PF Fed Com 802H - OH - Plan #1	2,200.00	2,200.00	75.96	65.14	7.018	CC, ES
PF Fed Com 802H - OH - Plan #1	3,300.00	3,289.43	106.38	89.91	6.460	SF
PF Fed Com 803H - OH - Plan #1	1,600.00	1,600.00	75.96	68.18	9.762	CC, ES
PF Fed Com 803H - OH - Plan #1	1,800.00	1,796.91	79.83	71.06	9.100	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 Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	4.36	4.36	0.00	0.01	48.00	971.90	1,079.37	1,452.46				
100.00	100.00	101.15	101.15	0.13	0.13	47.99	972.06	1,079.39	1,452.58	1,452.39	0.18	7,949.768	
178.05	178.05	182.55	182.55	0.41	0.39	47.99	972.08	1,079.36	1,452.57	1,452.00	0.56	2,579.441	
200.00	200.00	199.15	199.15	0.48	0.45	47.99	972.13	1,079.36	1,452.61	1,451.95	0.66	2,200.467	
300.00	300.00	302.73	302.73	0.84	0.82	47.95	973.01	1,078.84	1,452.81	1,451.63	1.17	1,237.631	
400.00	400.00	408.10	408.06	1.20	1.20	47.85	974.93	1,077.02	1,452.75	1,451.06	1.69	857.675	
500.00	500.00	528.15	528.07	1.56	1.62	47.74	976.07	1,074.17	1,451.59	1,449.34	2.25	645.028	
600.00	600.00	655.91	655.77	1.92	2.07	47.70	974.59	1,071.00	1,448.96	1,446.14	2.82	513.484	
700.00	700.00	767.22	766.98	2.28	2.46	47.76	970.55	1,068.68	1,444.97	1,441.63	3.35	431.650	
800.00	800.00	893.69	893.09	2.63	2.90	48.03	961.13	1,068.39	1,439.81	1,435.90	3.91	368.353	
900.00	900.00	971.42	970.60	2.99	3.18	48.17	955.39	1,067.54	1,434.14	1,429.79	4.35	329.397	
1,000.00	1,000.00	1,063.23	1,062.24	3.35	3.51	48.33	949.92	1,067.22	1,429.91	1,425.08	4.84	295.682	
1,100.00	1,100.00	1,157.82	1,156.68	3.71	3.85	48.48	944.62	1,066.76	1,425.84	1,420.51	5.33	267.669	
1,200.00	1,200.00	1,250.02	1,248.78	4.07	4.18	48.61	940.27	1,066.77	1,422.70	1,416.89	5.81	244.770	
1,300.00	1,300.00	1,333.05	1,331.75	4.43	4.48	48.69	937.26	1,066.55	1,420.12	1,413.84	6.28	226.309	
1,400.00	1,400.00	1,425.00	1,423.68	4.79	4.68	48.74	935.27	1,066.20	1,418.40	1,411.73	6.67	212.642	
1,500.00	1,500.00	1,519.00	1,517.67	5.14	4.70	48.75	934.33	1,065.35	1,417.08	1,410.13	6.95	204.004	
1,587.76	1,587.76	1,593.59	1,592.26	5.46	4.74	48.71	934.78	1,064.42	1,416.62	1,409.41	7.20	196.639	
1,600.00	1,600.00	1,603.77	1,602.43	5.50	4.74	48.70	934.92	1,064.31	1,416.63	1,409.39	7.24	195.657	
1,700.00	1,700.00	1,696.02	1,694.67	5.86	4.80	48.63	936.64	1,063.36	1,417.08	1,409.53	7.55	187.577	
1,800.00	1,800.00	1,794.36	1,792.97	6.22	4.89	48.53	938.86	1,062.42	1,417.86	1,409.97	7.89	179.700	
1,900.00	1,900.00	1,893.35	1,891.93	6.58	5.00	48.44	941.10	1,061.56	1,418.71	1,410.47	8.24	172.105	
2,000.00	2,000.00	1,986.06	1,984.62	6.94	5.12	48.37	943.20	1,061.11	1,419.85	1,411.24	8.61	164.989	
2,100.00	2,100.00	2,078.36	2,076.90	7.29	5.26	48.30	945.43	1,061.18	1,421.52	1,412.54	8.98	158.313	
2,200.00	2,200.00	2,172.47	2,170.96	7.65	5.42	48.24	947.96	1,061.64	1,423.67	1,414.30	9.36	152.025	
2,300.00	2,300.00	2,269.46	2,267.91	8.01	5.60	48.17	950.77	1,062.34	1,426.14	1,416.37	9.76	146.072	
2,400.00	2,399.99	2,366.49	2,364.90	8.37	5.80	-2.74	953.78	1,063.11	1,427.50	1,417.33	10.17	140.394	
2,500.00	2,499.91	2,466.26	2,464.61	8.72	6.02	-2.82	957.04	1,063.94	1,426.37	1,415.79	10.58	134.790	
2,600.00	2,599.69	2,573.21	2,571.52	9.07	6.26	-2.87	959.40	1,065.37	1,422.30	1,411.28	11.01	129.130	
2,700.00	2,699.27	2,679.66	2,677.94	9.43	6.51	-2.89	961.03	1,067.37	1,415.60	1,404.15	11.45	123.621	
2,800.00	2,798.57	2,808.24	2,806.52	9.79	6.83	-2.91	960.98	1,068.00	1,404.07	1,392.15	11.92	117.784	

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 502H
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 502H	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				
2,900.00	2,897.54	2,898.53	2,896.81	10.15	7.05	-2.94	960.76	1,068.11	1,389.68	1,377.34	12.34	112.612				
3,000.00	2,996.09	2,980.91	2,979.18	10.53	7.27	-2.97	961.04	1,068.88	1,373.68	1,360.92	12.75	107.707				
3,100.00	3,094.16	3,067.83	3,066.08	10.91	7.51	-2.99	961.81	1,070.70	1,356.28	1,343.11	13.18	102.918				
3,135.41	3,128.76	3,101.89	3,100.13	11.04	7.60	-3.00	962.07	1,071.57	1,349.61	1,336.28	13.34	101.206				
3,200.00	3,191.82	3,194.28	3,192.49	11.30	7.86	-2.99	962.15	1,073.54	1,336.73	1,323.06	13.67	97.800				
3,300.00	3,289.44	3,365.43	3,363.49	11.70	8.34	-2.86	955.70	1,073.43	1,312.50	1,298.30	14.20	92.413				
3,400.00	3,387.05	3,520.39	3,517.86	12.10	8.79	-2.66	943.34	1,068.46	1,283.27	1,268.57	14.69	87.342				
3,500.00	3,484.67	3,620.73	3,617.65	12.52	9.10	-2.62	935.07	1,062.01	1,251.66	1,236.52	15.14	82.679				
3,600.00	3,582.29	3,702.24	3,698.77	12.94	9.35	-2.64	929.55	1,056.33	1,220.60	1,205.02	15.58	78.349				
3,700.00	3,679.91	3,785.47	3,781.68	13.36	9.61	-2.73	925.43	1,050.36	1,190.56	1,174.53	16.02	74.295				
3,800.00	3,777.52	3,917.74	3,913.32	13.79	10.03	-2.88	917.98	1,039.94	1,159.63	1,143.14	16.49	70.310				
3,900.00	3,875.14	4,033.83	4,028.45	14.22	10.41	-2.82	906.44	1,030.58	1,125.71	1,108.77	16.95	66.421				
4,000.00	3,972.76	4,115.33	4,109.23	14.66	10.68	-2.74	897.72	1,024.22	1,091.61	1,074.20	17.41	62.708				
4,100.00	4,070.38	4,195.44	4,188.82	15.10	10.95	-2.70	890.64	1,018.52	1,059.11	1,041.23	17.87	59.262				
4,200.00	4,168.00	4,280.81	4,273.72	15.55	11.24	-2.71	884.06	1,012.35	1,027.30	1,008.97	18.34	56.019				
4,300.00	4,265.61	4,350.00	4,342.62	15.99	11.48	-2.70	879.28	1,008.37	997.11	978.31	18.81	53.016				
4,400.00	4,363.23	4,435.38	4,427.78	16.44	11.77	-2.67	874.23	1,004.78	968.63	949.34	19.28	50.239				
4,500.00	4,460.85	4,529.81	4,522.02	16.90	12.08	-2.61	869.08	1,001.74	941.10	921.34	19.76	47.634				
4,600.00	4,558.47	4,647.20	4,639.04	17.35	12.48	-2.45	860.71	997.81	912.39	892.16	20.23	45.098				
4,700.00	4,656.08	4,742.19	4,733.66	17.81	12.81	-2.31	853.29	993.85	882.68	861.97	20.71	42.622				
4,800.00	4,753.70	4,838.11	4,829.21	18.27	13.15	-2.19	846.12	989.59	853.00	831.81	21.19	40.257				
4,900.00	4,851.32	4,938.48	4,929.18	18.73	13.50	-2.05	838.43	984.93	823.06	801.39	21.67	37.989				
5,000.00	4,948.94	5,037.28	5,027.51	19.19	13.85	-1.90	830.29	979.80	792.36	770.22	22.14	35.784				
5,100.00	5,046.56	5,133.55	5,123.34	19.66	14.20	-1.78	822.80	974.51	761.74	739.11	22.62	33.669				
5,200.00	5,144.17	5,239.43	5,228.61	20.13	14.58	-1.56	813.14	968.55	730.18	707.09	23.09	31.627				
5,300.00	5,241.79	5,338.71	5,327.07	20.59	14.95	-1.11	801.42	963.63	697.44	673.88	23.56	29.602				
5,400.00	5,339.41	5,430.63	5,418.21	21.06	15.29	-0.63	790.23	959.32	664.73	640.67	24.05	27.634				
5,500.00	5,437.03	5,520.83	5,507.69	21.53	15.63	-0.10	779.55	955.48	632.58	608.02	24.56	25.759				
5,600.00	5,534.65	5,615.45	5,601.61	22.01	15.98	0.52	768.70	951.89	601.05	576.00	25.05	23.994				
5,700.00	5,632.26	5,714.19	5,699.61	22.48	16.35	1.12	757.73	946.89	568.85	543.32	25.53	22.283				
5,800.00	5,729.88	5,804.91	5,789.68	22.95	16.69	1.66	748.14	941.88	536.70	510.66	26.04	20.611				
5,900.00	5,827.50	5,893.59	5,877.86	23.43	17.03	2.23	739.64	937.70	505.76	479.19	26.56	19.040				
6,000.00	5,925.12	5,986.55	5,970.35	23.90	17.37	2.88	731.19	933.85	475.61	448.54	27.07	17.568				
6,100.00	6,022.73	6,080.54	6,063.90	24.38	17.72	3.63	722.85	930.11	445.78	418.19	27.58	16.163				
6,200.00	6,120.35	6,176.54	6,159.48	24.85	18.08	4.47	714.66	926.49	416.37	388.29	28.08	14.827				
6,300.00	6,217.97	6,278.11	6,260.52	25.33	18.46	5.47	705.50	921.54	385.93	357.38	28.55	13.520				
6,400.00	6,315.59	6,375.09	6,356.86	25.81	18.83	6.61	696.04	915.80	354.37	325.33	29.04	12.204				
6,500.00	6,413.21	6,469.33	6,450.49	26.29	19.19	7.92	686.86	910.22	322.97	293.41	29.56	10.926				
6,600.00	6,510.82	6,563.64	6,544.16	26.77	19.55	9.58	677.42	904.81	291.78	261.68	30.09	9.695				
6,700.00	6,608.44	6,656.61	6,636.55	27.25	19.91	11.58	668.35	899.72	261.20	230.53	30.66	8.518				
6,719.26	6,627.24	6,674.39	6,654.23	27.34	19.97	12.00	666.70	898.79	255.44	224.66	30.78	8.299				
6,800.00	6,706.24	6,750.11	6,729.57	27.73	20.26	13.81	660.06	895.04	232.57	201.32	31.25	7.441				
6,900.00	6,804.54	6,845.84	6,824.86	28.18	20.62	16.35	652.20	890.41	207.18	175.33	31.85	6.505				
7,000.00	6,903.29	6,943.04	6,921.67	28.61	20.99	19.05	645.12	885.37	184.73	152.28	32.45	5.693				
7,100.00	7,002.41	7,040.52	7,018.82	29.02	21.35	21.58	639.50	879.62	164.97	131.92	33.06	4.991				
7,200.00	7,101.85	7,138.15	7,116.17	29.41	21.70	24.11	634.66	874.05	148.37	114.69	33.68	4.405				
7,300.00	7,201.53	7,236.40	7,214.16	29.78	22.06	26.75	629.93	868.81	134.86	100.54	34.32	3.930				
7,400.00	7,301.38	7,335.70	7,313.25	30.13	22.42	29.18	625.71	863.70	124.26	89.33	34.93	3.557				
7,500.00	7,401.34	7,434.53	7,411.86	30.46	22.78	31.25	621.78	858.60	116.17	80.63	35.54	3.268				
7,554.66	7,456.00	7,488.38	7,465.62	30.63	22.97	83.00	619.78	856.23	113.19	77.31	35.88	3.155				
7,600.00	7,501.34	7,533.11	7,510.30	30.77	23.13	83.64	618.31	854.48	111.25	75.11	36.14	3.078				
7,700.00	7,601.34	7,630.93	7,608.04	31.07	23.47	84.58	616.21	851.62	108.12	71.41	36.72	2.945				

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 502H
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 502H	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				
7,800.00	7,701.34	7,729.00	7,706.11	31.38	23.80	84.52	616.22	850.54	107.03	69.81	37.22	2.876				
7,815.07	7,716.40	7,743.80	7,720.90	31.43	23.85	84.46	616.33	850.51	107.01	69.72	37.29	2.870				
7,900.00	7,801.34	7,828.60	7,805.71	31.69	24.11	84.17	616.88	850.53	107.08	69.42	37.66	2.843				
8,000.00	7,901.34	7,928.14	7,905.25	32.00	24.43	84.09	617.05	850.83	107.40	69.27	38.13	2.817				
8,100.00	8,001.34	8,027.51	8,004.61	32.32	24.74	84.25	616.84	851.68	108.24	69.63	38.61	2.804				
8,200.00	8,101.34	8,126.92	8,104.01	32.63	25.06	84.57	616.38	853.13	109.64	70.55	39.09	2.805				
8,300.00	8,201.34	8,227.00	8,204.07	32.94	25.38	84.96	615.78	854.91	111.35	71.77	39.58	2.813				
8,400.00	8,301.34	8,329.40	8,306.46	33.26	25.72	85.29	615.18	855.50	111.88	71.84	40.04	2.794				
8,500.00	8,401.34	8,431.04	8,408.09	33.57	26.07	85.33	614.99	853.88	110.27	69.79	40.48	2.724				
8,600.00	8,501.34	8,529.95	8,506.99	33.89	26.40	85.21	615.08	852.37	108.75	67.78	40.97	2.655				
8,700.00	8,601.34	8,629.38	8,606.42	34.20	26.73	85.00	615.41	851.63	108.04	66.61	41.44	2.607				
8,800.00	8,701.34	8,729.34	8,706.37	34.52	27.06	84.77	615.81	851.07	107.52	65.62	41.90	2.566				
8,900.00	8,801.34	8,829.48	8,806.52	34.84	27.39	84.54	616.19	850.53	107.02	64.67	42.36	2.527				
9,000.00	8,901.34	8,929.96	8,906.99	35.16	27.73	84.32	616.51	849.64	106.17	63.36	42.81	2.480				
9,100.00	9,001.34	9,030.25	9,007.27	35.48	28.07	84.00	616.97	848.32	104.91	61.64	43.27	2.425				
9,200.00	9,101.34	9,130.23	9,107.23	35.80	28.40	83.46	617.79	846.84	103.53	59.81	43.72	2.368				
9,300.00	9,201.34	9,230.19	9,207.18	36.12	28.73	82.73	618.94	845.38	102.21	58.05	44.16	2.315				
9,400.00	9,301.34	9,330.31	9,307.27	36.45	29.06	81.87	620.26	843.83	100.86	56.27	44.59	2.262				
9,500.00	9,401.34	9,430.49	9,407.43	36.77	29.40	80.93	621.66	842.10	99.35	54.33	45.02	2.207				
9,600.00	9,501.34	9,530.68	9,507.59	37.09	29.73	79.89	623.14	840.12	97.65	52.20	45.45	2.148				
9,700.00	9,601.34	9,630.52	9,607.40	37.42	30.07	78.85	624.55	838.11	95.93	50.04	45.89	2.090				
9,800.00	9,701.34	9,730.66	9,707.51	37.74	30.41	77.91	625.74	836.13	94.24	47.91	46.33	2.034				
9,900.00	9,801.34	9,830.91	9,807.72	38.07	30.75	76.83	626.98	833.67	92.11	45.35	46.76	1.970				
9,952.28	9,853.62	9,881.31	9,858.12	38.24	30.91	76.59	627.24	833.08	91.58	44.52	47.05	1.946 CC, ES				
10,000.00	9,901.34	9,927.57	9,904.37	38.39	31.07	76.84	626.94	833.58	92.01	44.69	47.32	1.945 SF				
10,036.70	9,938.04	9,963.72	9,940.51	38.51	31.19	77.16	626.60	834.36	92.70	45.19	47.51	1.951				
10,050.00	9,951.34	9,976.82	9,953.61	38.55	31.23	-99.48	626.47	834.70	93.03	45.46	47.57	1.956				
10,100.00	10,001.21	10,026.20	10,002.96	38.69	31.39	-100.78	626.01	836.20	94.99	47.24	47.75	1.989				
10,150.00	10,050.60	10,075.60	10,052.34	38.82	31.55	-104.42	625.66	837.77	98.13	50.29	47.83	2.051				
10,200.00	10,099.14	10,124.10	10,100.81	38.93	31.71	-109.86	625.45	839.29	103.17	55.29	47.89	2.154				
10,250.00	10,146.45	10,171.29	10,147.98	39.02	31.86	-116.30	625.36	840.78	111.23	63.26	47.97	2.319				
10,300.00	10,192.17	10,217.02	10,193.69	39.10	32.01	-122.91	625.36	842.25	123.27	75.14	48.13	2.561				
10,350.00	10,235.96	10,261.11	10,237.75	39.16	32.15	-129.04	625.33	843.60	139.81	91.44	48.37	2.890				
10,400.00	10,277.48	10,303.02	10,279.64	39.21	32.29	-134.26	625.27	844.80	161.04	112.37	48.67	3.309				
10,450.00	10,316.42	10,342.48	10,319.09	39.23	32.42	-138.48	625.22	845.75	186.81	137.82	48.99	3.814				
10,500.00	10,352.48	10,378.98	10,355.59	39.25	32.54	-141.64	625.19	846.42	216.82	167.53	49.29	4.399				
10,550.00	10,385.38	10,412.22	10,388.83	39.25	32.64	-143.77	625.17	846.93	250.69	201.12	49.57	5.057				
10,600.00	10,414.88	10,442.16	10,418.76	39.23	32.74	-144.87	625.10	847.42	287.99	238.17	49.81	5.781				
10,650.00	10,440.75	10,468.57	10,445.16	39.21	32.83	-144.90	624.99	847.89	328.23	278.22	50.02	6.562				
10,700.00	10,462.80	10,491.21	10,467.81	39.18	32.90	-143.71	624.87	848.32	371.00	320.81	50.19	7.392				
10,750.00	10,480.85	10,509.87	10,486.46	39.13	32.97	-140.88	624.75	848.66	415.87	365.54	50.33	8.263				
10,800.00	10,494.77	10,524.39	10,500.97	39.09	33.01	-135.59	624.66	848.93	462.41	411.97	50.44	9.168				
10,850.00	10,504.45	10,534.64	10,511.23	39.04	33.05	-126.16	624.58	849.12	510.23	459.70	50.53	10.098				
10,900.00	10,509.82	10,540.54	10,517.13	39.00	33.07	-109.67	624.54	849.22	558.91	508.31	50.60	11.047				
10,936.70	10,511.00	10,542.06	10,518.64	38.97	33.07	-91.70	624.53	849.25	594.95	544.32	50.63	11.750				
11,000.00	10,511.00	10,542.60	10,519.18	38.94	33.07	-92.28	624.53	849.26	657.44	606.76	50.68	12.972				
11,073.75	10,511.00	10,543.20	10,519.78	38.93	33.08	-93.28	624.52	849.27	730.64	679.92	50.72	14.404				
11,100.00	10,511.00	10,543.41	10,519.99	38.94	33.08	-93.44	624.52	849.27	756.76	706.02	50.74	14.916				
11,200.00	10,511.00	10,544.21	10,520.79	39.03	33.08	-94.05	624.51	849.29	856.32	805.55	50.77	16.866				
11,300.00	10,511.00	10,545.01	10,521.59	39.25	33.08	-94.66	624.51	849.30	955.98	905.17	50.80	18.817				
11,400.00	10,511.00	10,545.81	10,522.40	39.60	33.08	-95.27	624.50	849.32	1,055.70	1,004.87	50.83	20.769				
11,500.00	10,511.00	10,546.63	10,523.21	40.03	33.09	-95.88	624.49	849.33	1,155.47	1,104.61	50.85	22.721				

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 502H
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 502H	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 - Bus Driver Fed Com 602H - OH - OH													Offset Well Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1352-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		
11,600.00	10,511.00	10,547.45	10,524.03	40.53	33.09	-96.50	624.49	849.35	1,255.27	1,204.40	50.88	24.673		
11,700.00	10,511.00	12,937.53	11,834.92	41.10	46.51	-177.23	-723.61	851.54	1,320.98	1,285.37	35.61	37.098		
11,800.00	10,511.00	13,003.52	11,835.85	41.73	47.18	-177.32	-789.57	850.01	1,322.37	1,286.41	35.97	36.768		
11,900.00	10,511.00	13,079.11	11,839.30	42.41	47.96	-177.39	-865.08	849.48	1,326.70	1,290.31	36.39	36.461		
12,000.00	10,511.00	13,189.74	11,844.10	43.14	49.15	-177.44	-975.61	849.46	1,330.98	1,294.04	36.94	36.031		
12,100.00	10,511.00	13,301.32	11,848.19	43.93	50.38	-177.48	-1,087.11	849.92	1,334.63	1,297.10	37.53	35.565		
12,200.00	10,511.00	13,405.28	11,851.19	44.75	51.56	-177.51	-1,191.03	850.30	1,337.48	1,299.36	38.11	35.092		
12,300.00	10,511.00	13,488.76	11,853.94	45.62	52.53	-177.52	-1,274.46	850.99	1,340.79	1,302.15	38.64	34.696		
12,400.00	10,511.00	13,631.13	11,858.27	46.53	54.22	-177.39	-1,416.67	855.74	1,344.23	1,304.77	39.46	34.069		
12,500.00	10,511.00	13,751.67	11,856.88	47.48	55.69	-177.32	-1,537.17	858.43	1,342.88	1,302.67	40.21	33.395		
12,524.09	10,511.00	13,767.13	11,856.83	47.72	55.88	-177.32	-1,552.62	858.63	1,342.81	1,302.48	40.32	33.301		
12,600.00	10,511.00	13,819.23	11,857.36	48.47	56.52	-177.31	-1,604.71	859.27	1,343.55	1,302.85	40.70	33.013		
12,700.00	10,511.00	13,900.39	11,859.33	49.49	57.54	-177.24	-1,685.81	861.72	1,346.07	1,304.79	41.28	32.607		
12,800.00	10,511.00	14,021.85	11,861.87	50.55	59.09	-177.12	-1,807.17	865.96	1,348.24	1,306.14	42.10	32.024		
12,900.00	10,511.00	14,147.99	11,863.12	51.63	60.72	-177.06	-1,933.26	868.67	1,349.40	1,306.43	42.98	31.398		
13,000.00	10,511.00	14,244.64	11,862.42	52.75	61.99	-177.10	-2,029.91	868.55	1,348.64	1,304.95	43.69	30.868		
13,006.80	10,511.00	14,249.99	11,862.42	52.82	62.06	-177.11	-2,035.26	868.52	1,348.64	1,304.91	43.73	30.838		
13,100.00	10,511.00	14,314.07	11,863.04	53.89	62.91	-177.14	-2,099.34	868.32	1,349.53	1,305.28	44.25	30.496		
13,200.00	10,511.00	14,381.92	11,865.43	55.05	63.82	-177.12	-2,167.13	869.59	1,353.03	1,308.21	44.82	30.186		
13,300.00	10,511.00	14,493.64	11,869.98	56.24	65.34	-177.05	-2,278.71	872.63	1,357.19	1,311.51	45.68	29.714		
13,400.00	10,511.00	14,602.10	11,873.34	57.46	66.82	-177.00	-2,387.10	875.01	1,360.33	1,313.81	46.52	29.241		
13,500.00	10,511.00	14,700.57	11,876.37	58.69	68.18	-176.95	-2,485.49	877.38	1,363.48	1,316.16	47.32	28.814		
13,600.00	10,511.00	14,821.01	11,879.50	59.94	69.86	-176.89	-2,605.86	880.04	1,366.20	1,317.92	48.28	28.298		
13,700.00	10,511.00	14,935.78	11,880.65	61.22	71.47	-176.91	-2,720.62	880.89	1,367.17	1,317.96	49.21	27.782		
13,800.00	10,511.00	15,009.69	11,881.75	62.51	72.52	-176.91	-2,794.52	881.52	1,368.65	1,318.78	49.87	27.445		
13,900.00	10,511.00	15,102.52	11,884.55	63.81	73.84	-176.94	-2,887.30	881.96	1,371.62	1,320.95	50.67	27.071		
14,000.00	10,511.00	15,238.58	11,887.19	65.13	75.79	-176.98	-3,023.33	882.47	1,373.60	1,321.82	51.79	26.524		
14,100.00	10,511.00	15,302.20	11,888.65	66.47	76.71	-177.04	-3,086.93	881.80	1,375.62	1,323.23	52.39	26.257		
14,200.00	10,511.00	15,380.56	11,891.80	67.82	77.84	-177.14	-3,165.21	880.12	1,379.46	1,326.36	53.10	25.977		
14,300.00	10,511.00	15,477.56	11,896.74	69.18	79.25	-177.28	-3,262.06	878.02	1,384.39	1,330.43	53.96	25.656		
14,400.00	10,511.00	15,576.70	11,901.59	70.56	80.70	-177.43	-3,361.05	875.72	1,389.13	1,334.29	54.84	25.330		
14,500.00	10,511.00	15,669.80	11,906.37	71.95	82.08	-177.48	-3,454.03	875.49	1,394.20	1,338.51	55.69	25.036		
14,600.00	10,511.00	15,795.09	11,912.29	73.34	83.93	-177.53	-3,579.18	875.73	1,398.96	1,342.16	56.79	24.633		
14,700.00	10,511.00	15,885.00	11,915.97	74.75	85.26	-177.58	-3,669.01	875.52	1,402.98	1,345.35	57.63	24.346		
14,800.00	10,511.00	15,975.18	11,920.21	76.17	86.61	-177.62	-3,759.09	875.57	1,407.63	1,349.16	58.47	24.074		
14,900.00	10,511.00	16,059.39	11,924.84	77.60	87.87	-177.66	-3,843.18	875.72	1,413.10	1,353.83	59.27	23.841		
15,000.00	10,511.00	16,145.34	11,930.49	79.03	89.16	-177.69	-3,928.93	876.01	1,419.64	1,359.55	60.09	23.626		
15,100.00	10,511.00	16,263.33	11,938.33	80.47	90.94	-177.71	-4,046.66	876.87	1,426.32	1,365.14	61.18	23.315		
15,200.00	10,511.00	16,358.00	11,943.06	81.93	92.37	-177.75	-4,141.21	877.02	1,431.32	1,369.25	62.08	23.057		
15,300.00	10,511.00	16,453.00	11,949.00	83.38	93.81	-177.69	-4,235.97	879.70	1,437.65	1,374.65	62.99	22.823		
15,400.00	10,511.00	16,641.79	11,955.45	84.85	96.69	-177.46	-4,424.41	887.68	1,441.37	1,376.67	64.70	22.278		
15,500.00	10,511.00	16,643.00	11,955.45	86.32	96.71	-177.46	-4,425.62	887.70	1,445.03	1,380.19	64.83	22.288		
15,600.00	10,511.00	16,643.00	11,955.45	87.80	96.71	-177.46	-4,425.62	887.70	1,455.56	1,390.68	64.88	22.435		
15,700.00	10,511.00	16,643.00	11,955.45	89.29	96.71	-177.46	-4,425.62	887.70	1,472.82	1,407.98	64.84	22.713		
15,800.00	10,511.00	16,643.00	11,955.45	90.78	96.71	-177.46	-4,425.62	887.70	1,496.58	1,431.85	64.74	23.118		
15,900.00	10,511.00	16,643.00	11,955.45	92.27	96.71	-177.46	-4,425.62	887.70	1,526.54	1,461.97	64.57	23.643		
16,000.00	10,511.00	16,643.00	11,955.45	93.77	96.71	-177.46	-4,425.62	887.70	1,562.33	1,497.98	64.34	24.281		
16,100.00	10,511.00	16,643.00	11,955.45	95.28	96.71	-177.46	-4,425.62	887.70	1,603.57	1,539.48	64.09	25.022		
16,200.00	10,511.00	16,643.00	11,955.45	96.79	96.71	-177.46	-4,425.62	887.70	1,649.84	1,586.04	63.80	25.860		
16,300.00	10,511.00	16,643.00	11,955.45	98.31	96.71	-177.46	-4,425.62	887.70	1,700.74	1,637.25	63.50	26.785		
16,400.00	10,511.00	16,643.00	11,955.45	99.83	96.71	-177.46	-4,425.62	887.70	1,755.87	1,692.69	63.19	27.789		
16,500.00	10,511.00	16,643.00	11,955.45	101.35	96.71	-177.46	-4,425.62	887.70	1,814.84	1,751.96	62.88	28.864		

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 502H
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 502H	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				
16,600.00	10,511.00	16,643.00	11,955.45	102.88	96.71	-177.46	-4,425.62	887.70	1,877.28	1,814.71	62.57	30.003				
16,700.00	10,511.00	16,643.00	11,955.45	104.41	96.71	-177.46	-4,425.62	887.70	1,942.87	1,880.59	62.28	31.198				
16,800.00	10,511.00	16,643.00	11,955.45	105.94	96.71	-177.46	-4,425.62	887.70	2,011.29	1,949.30	62.00	32.443				
16,900.00	10,511.00	16,643.00	11,955.45	107.48	96.71	-177.46	-4,425.62	887.70	2,082.27	2,020.54	61.73	33.732				
17,000.00	10,511.00	16,643.00	11,955.45	109.02	96.71	-177.46	-4,425.62	887.70	2,155.55	2,094.07	61.48	35.061				
17,100.00	10,511.00	16,643.00	11,955.45	110.57	96.71	-177.46	-4,425.62	887.70	2,230.91	2,169.66	61.25	36.425				
17,200.00	10,511.00	16,643.00	11,955.45	112.12	96.71	-177.46	-4,425.62	887.70	2,308.14	2,247.11	61.03	37.820				
17,300.00	10,511.00	16,643.00	11,955.45	113.67	96.71	-177.46	-4,425.62	887.70	2,387.06	2,326.23	60.83	39.242				
17,400.00	10,511.00	16,643.00	11,955.45	115.22	96.71	-177.46	-4,425.62	887.70	2,467.51	2,406.87	60.65	40.687				
17,500.00	10,511.00	16,643.00	11,955.45	116.78	96.71	-177.46	-4,425.62	887.70	2,549.35	2,488.87	60.48	42.154				
17,600.00	10,511.00	16,643.00	11,955.45	118.34	96.71	-177.46	-4,425.62	887.70	2,632.44	2,572.11	60.32	43.638				
17,700.00	10,511.00	16,643.00	11,955.45	119.90	96.71	-177.46	-4,425.62	887.70	2,716.67	2,656.48	60.18	45.139				
17,800.00	10,511.00	16,643.00	11,955.45	121.46	96.71	-177.46	-4,425.62	887.70	2,801.93	2,741.88	60.06	46.654				
17,900.00	10,511.00	16,643.00	11,955.45	123.03	96.71	-177.46	-4,425.62	887.70	2,888.14	2,828.20	59.94	48.182				
18,000.00	10,511.00	16,643.00	11,955.45	124.59	96.71	-177.46	-4,425.62	887.70	2,975.22	2,915.38	59.84	49.720				
18,100.00	10,511.00	16,643.00	11,955.45	126.16	96.71	-177.46	-4,425.62	887.70	3,063.08	3,003.34	59.75	51.267				
18,200.00	10,511.00	16,643.00	11,955.45	127.74	96.71	-177.46	-4,425.62	887.70	3,151.67	3,092.01	59.66	52.823				
18,300.00	10,511.00	16,643.00	11,955.45	129.31	96.71	-177.46	-4,425.62	887.70	3,240.92	3,181.33	59.59	54.386				
18,400.00	10,511.00	16,643.00	11,955.45	130.89	96.71	-177.46	-4,425.62	887.70	3,330.79	3,271.26	59.53	55.955				
18,500.00	10,511.00	16,643.00	11,955.45	132.46	96.71	-177.46	-4,425.62	887.70	3,421.21	3,361.74	59.47	57.530				
18,600.00	10,511.00	16,643.00	11,955.45	134.04	96.71	-177.46	-4,425.62	887.70	3,512.16	3,452.74	59.42	59.110				
18,700.00	10,511.00	16,643.00	11,955.45	135.63	96.71	-177.46	-4,425.62	887.70	3,603.58	3,544.21	59.37	60.693				
18,800.00	10,511.00	16,643.00	11,955.45	137.21	96.71	-177.46	-4,425.62	887.70	3,695.45	3,636.11	59.34	62.280				
18,900.00	10,511.00	16,643.00	11,955.45	138.79	96.71	-177.46	-4,425.62	887.70	3,787.73	3,728.43	59.31	63.868				
19,000.00	10,511.00	16,643.00	11,955.45	140.38	96.71	-177.46	-4,425.62	887.70	3,880.39	3,821.11	59.28	65.458				
19,100.00	10,511.00	16,643.00	11,955.45	141.97	96.71	-177.46	-4,425.62	887.70	3,973.41	3,914.15	59.26	67.049				
19,200.00	10,511.00	16,643.00	11,955.45	143.56	96.71	-177.46	-4,425.62	887.70	4,066.76	4,007.52	59.25	68.641				
19,300.00	10,511.00	16,643.00	11,955.45	145.15	96.71	-177.46	-4,425.62	887.70	4,160.42	4,101.19	59.23	70.236				
19,400.00	10,511.00	16,643.00	11,955.45	146.74	96.71	-177.46	-4,425.62	887.70	4,254.37	4,195.14	59.23	71.831				
19,500.00	10,511.00	16,643.00	11,955.45	148.33	96.71	-177.46	-4,425.62	887.70	4,348.59	4,289.36	59.22	73.426				
19,600.00	10,511.00	16,643.00	11,955.45	149.93	96.71	-177.46	-4,425.62	887.70	4,443.06	4,383.84	59.22	75.020				
19,700.00	10,511.00	16,643.00	11,955.45	151.52	96.71	-177.46	-4,425.62	887.70	4,537.77	4,478.54	59.23	76.614				
19,800.00	10,511.00	16,643.00	11,955.45	153.12	96.71	-177.46	-4,425.62	887.70	4,632.70	4,573.46	59.24	78.207				
19,900.00	10,511.00	16,643.00	11,955.45	154.72	96.71	-177.46	-4,425.62	887.70	4,727.84	4,668.59	59.25	79.799				
20,000.00	10,511.00	16,643.00	11,955.45	156.32	96.71	-177.46	-4,425.62	887.70	4,823.17	4,763.91	59.26	81.389				
20,100.00	10,511.00	16,643.00	11,955.45	157.92	96.71	-177.46	-4,425.62	887.70	4,918.69	4,859.42	59.28	82.977				

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 502H
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 502H	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	48.00	971.90	1,079.37	1,452.46							
100.00	100.00	101.15	101.15	0.13	0.13	47.99	972.06	1,079.39	1,452.58	1,452.39	0.18	7,949.768				
178.05	178.05	182.55	182.55	0.41	0.39	47.99	972.08	1,079.36	1,452.57	1,452.00	0.56	2,579.441				
200.00	200.00	199.15	199.15	0.48	0.45	47.99	972.13	1,079.36	1,452.61	1,451.95	0.66	2,200.467				
300.00	300.00	302.73	302.73	0.84	0.82	47.95	973.01	1,078.84	1,452.81	1,451.63	1.17	1,237.631				
400.00	400.00	408.10	408.06	1.20	1.20	47.85	974.93	1,077.02	1,452.75	1,451.06	1.69	857.675				
500.00	500.00	528.15	528.07	1.56	1.62	47.74	976.07	1,074.17	1,451.59	1,449.34	2.25	645.028				
600.00	600.00	655.91	655.77	1.92	2.07	47.70	974.59	1,071.00	1,448.96	1,446.14	2.82	513.484				
700.00	700.00	767.22	766.98	2.28	2.46	47.76	970.55	1,068.68	1,444.97	1,441.63	3.35	431.650				
800.00	800.00	893.69	893.09	2.63	2.90	48.03	961.13	1,068.39	1,439.81	1,435.90	3.91	368.353				
900.00	900.00	971.42	970.60	2.99	3.18	48.17	955.39	1,067.54	1,434.14	1,429.79	4.35	329.397				
1,000.00	1,000.00	1,063.23	1,062.24	3.35	3.51	48.33	949.92	1,067.22	1,429.91	1,425.08	4.84	295.682				
1,100.00	1,100.00	1,157.82	1,156.68	3.71	3.85	48.48	944.62	1,066.76	1,425.84	1,420.51	5.33	267.669				
1,200.00	1,200.00	1,250.02	1,248.78	4.07	4.18	48.61	940.27	1,066.77	1,422.70	1,416.89	5.81	244.770				
1,300.00	1,300.00	1,333.05	1,331.75	4.43	4.48	48.69	937.26	1,066.55	1,420.12	1,413.84	6.28	226.309				
1,400.00	1,400.00	1,425.00	1,423.68	4.79	4.68	48.74	935.27	1,066.20	1,418.40	1,411.73	6.67	212.642				
1,500.00	1,500.00	1,519.00	1,517.67	5.14	4.70	48.75	934.33	1,065.35	1,417.08	1,410.13	6.95	204.004				
1,587.76	1,587.76	1,593.59	1,592.26	5.46	4.74	48.71	934.78	1,064.42	1,416.62	1,409.41	7.20	196.639				
1,600.00	1,600.00	1,603.77	1,602.43	5.50	4.74	48.70	934.92	1,064.31	1,416.63	1,409.39	7.24	195.657				
1,700.00	1,700.00	1,696.02	1,694.67	5.86	4.80	48.63	936.64	1,063.36	1,417.08	1,409.53	7.55	187.577				
1,800.00	1,800.00	1,794.36	1,792.97	6.22	4.89	48.53	938.86	1,062.42	1,417.86	1,409.97	7.89	179.700				
1,900.00	1,900.00	1,893.35	1,891.93	6.58	5.00	48.44	941.10	1,061.56	1,418.71	1,410.47	8.24	172.105				
2,000.00	2,000.00	1,986.06	1,984.62	6.94	5.12	48.37	943.20	1,061.11	1,419.85	1,411.24	8.61	164.989				
2,100.00	2,100.00	2,078.36	2,076.90	7.29	5.26	48.30	945.43	1,061.18	1,421.52	1,412.54	8.98	158.313				
2,200.00	2,200.00	2,172.47	2,170.96	7.65	5.42	48.24	947.96	1,061.64	1,423.67	1,414.30	9.36	152.025				
2,300.00	2,300.00	2,269.46	2,267.91	8.01	5.60	48.17	950.77	1,062.34	1,426.14	1,416.37	9.76	146.072				
2,400.00	2,399.99	2,366.49	2,364.90	8.37	5.80	-2.74	953.78	1,063.11	1,427.50	1,417.33	10.17	140.394				
2,500.00	2,499.91	2,466.26	2,464.61	8.72	6.02	-2.82	957.04	1,063.94	1,426.37	1,415.79	10.58	134.790				
2,600.00	2,599.69	2,573.21	2,571.52	9.07	6.26	-2.87	959.40	1,065.37	1,422.30	1,411.28	11.01	129.130				
2,700.00	2,699.27	2,679.66	2,677.94	9.43	6.51	-2.89	961.03	1,067.37	1,415.60	1,404.15	11.45	123.621				
2,800.00	2,798.57	2,808.24	2,806.52	9.79	6.83	-2.91	960.98	1,068.00	1,404.07	1,392.15	11.92	117.784				
2,900.00	2,897.54	2,898.53	2,896.81	10.15	7.05	-2.94	960.76	1,068.11	1,389.68	1,377.34	12.34	112.612				
3,000.00	2,996.09	2,980.91	2,979.18	10.53	7.27	-2.97	961.04	1,068.88	1,373.68	1,360.92	12.75	107.707				
3,100.00	3,094.16	3,067.83	3,066.08	10.91	7.51	-2.99	961.81	1,070.70	1,356.28	1,343.11	13.18	102.918				
3,135.41	3,128.76	3,101.89	3,100.13	11.04	7.60	-3.00	962.07	1,071.57	1,349.61	1,336.28	13.34	101.206				
3,200.00	3,191.82	3,194.28	3,192.49	11.30	7.86	-2.99	962.15	1,073.54	1,336.73	1,323.06	13.67	97.800				
3,300.00	3,289.44	3,365.43	3,363.49	11.70	8.34	-2.86	955.70	1,073.43	1,312.50	1,298.30	14.20	92.413				
3,400.00	3,387.05	3,520.39	3,517.86	12.10	8.79	-2.66	943.34	1,068.46	1,283.27	1,268.57	14.69	87.342				
3,500.00	3,484.67	3,620.73	3,617.65	12.52	9.10	-2.62	935.07	1,062.01	1,251.66	1,236.52	15.14	82.679				
3,600.00	3,582.29	3,702.24	3,698.77	12.94	9.35	-2.64	929.55	1,056.33	1,220.60	1,205.02	15.58	78.349				
3,700.00	3,679.91	3,785.47	3,781.68	13.36	9.61	-2.73	925.43	1,050.36	1,190.56	1,174.53	16.02	74.295				
3,800.00	3,777.52	3,917.74	3,913.32	13.79	10.03	-2.88	917.98	1,039.94	1,159.63	1,143.14	16.49	70.310				
3,900.00	3,875.14	4,033.83	4,028.45	14.22	10.41	-2.82	906.44	1,030.58	1,125.71	1,108.77	16.95	66.421				
4,000.00	3,972.76	4,115.33	4,109.23	14.66	10.68	-2.74	897.72	1,024.22	1,091.61	1,074.20	17.41	62.708				
4,100.00	4,070.38	4,195.44	4,188.82	15.10	10.95	-2.70	890.64	1,018.52	1,059.11	1,041.23	17.87	59.262				
4,200.00	4,168.00	4,280.81	4,273.72	15.55	11.24	-2.71	884.06	1,012.35	1,027.30	1,008.97	18.34	56.019				
4,300.00	4,265.61	4,350.00	4,342.62	15.99	11.48	-2.70	879.28	1,008.37	997.11	978.31	18.81	53.016				
4,400.00	4,363.23	4,435.38	4,427.78	16.44	11.77	-2.67	874.23	1,004.78	968.63	949.34	19.28	50.239				
4,500.00	4,460.85	4,529.81	4,522.02	16.90	12.08	-2.61	869.08	1,001.74	941.10	921.34	19.76	47.634				
4,600.00	4,558.47	4,647.20	4,639.04	17.35	12.48	-2.45	860.71	997.81	912.39	892.16	20.23	45.098				
4,700.00	4,656.08	4,742.19	4,733.66	17.81	12.81	-2.31	853.29	993.85	882.68	861.97	20.71	42.622				
4,800.00	4,753.70	4,838.11	4,829.21	18.27	13.15	-2.19	846.12	989.59	853.00	831.81	21.19	40.257				

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 502H
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 502H	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	4,851.32	4,938.48	4,929.18	18.73	13.50	-2.05	838.43	984.93	823.06	801.39	21.67	37.989				
5,000.00	4,948.94	5,037.28	5,027.51	19.19	13.85	-1.90	830.29	979.80	792.36	770.22	22.14	35.784				
5,100.00	5,046.56	5,133.55	5,123.34	19.66	14.20	-1.78	822.80	974.51	761.74	739.11	22.62	33.669				
5,200.00	5,144.17	5,239.43	5,228.61	20.13	14.58	-1.56	813.14	968.55	730.18	707.09	23.09	31.627				
5,300.00	5,241.79	5,338.71	5,327.07	20.59	14.95	-1.11	801.42	963.63	697.44	673.88	23.56	29.602				
5,400.00	5,339.41	5,430.63	5,418.21	21.06	15.29	-0.63	790.23	959.32	664.73	640.67	24.05	27.634				
5,500.00	5,437.03	5,520.83	5,507.69	21.53	15.63	-0.10	779.55	955.48	632.58	608.02	24.56	25.759				
5,600.00	5,534.65	5,615.45	5,601.61	22.01	15.98	0.52	768.70	951.89	601.05	576.00	25.05	23.994				
5,700.00	5,632.26	5,714.19	5,699.61	22.48	16.35	1.12	757.73	946.89	568.85	543.32	25.53	22.283				
5,800.00	5,729.88	5,804.91	5,789.68	22.95	16.69	1.66	748.14	941.88	536.70	510.66	26.04	20.611				
5,900.00	5,827.50	5,893.59	5,877.86	23.43	17.03	2.23	739.64	937.70	505.76	479.19	26.56	19.040				
6,000.00	5,925.12	5,986.55	5,970.35	23.90	17.37	2.88	731.19	933.85	475.61	448.54	27.07	17.568				
6,100.00	6,022.73	6,080.54	6,063.90	24.38	17.72	3.63	722.85	930.11	445.78	418.19	27.58	16.163				
6,200.00	6,120.35	6,176.54	6,159.48	24.85	18.08	4.47	714.66	926.49	416.37	388.29	28.08	14.827				
6,300.00	6,217.97	6,278.11	6,260.52	25.33	18.46	5.47	705.50	921.54	385.93	357.38	28.55	13.520				
6,400.00	6,315.59	6,375.09	6,356.86	25.81	18.83	6.61	696.04	915.80	354.37	325.33	29.04	12.204				
6,500.00	6,413.21	6,469.33	6,450.49	26.29	19.19	7.92	686.86	910.22	322.97	293.41	29.56	10.926				
6,600.00	6,510.82	6,563.64	6,544.16	26.77	19.55	9.58	677.42	904.81	291.78	261.68	30.09	9.695				
6,700.00	6,608.44	6,656.61	6,636.55	27.25	19.91	11.58	668.35	899.72	261.20	230.53	30.66	8.518				
6,719.26	6,627.24	6,674.39	6,654.23	27.34	19.97	12.00	666.70	898.79	255.44	224.66	30.78	8.299				
6,800.00	6,706.24	6,750.11	6,729.57	27.73	20.26	13.81	660.06	895.04	232.57	201.32	31.25	7.441				
6,900.00	6,804.54	6,845.84	6,824.86	28.18	20.62	16.35	652.20	890.41	207.18	175.33	31.85	6.505				
7,000.00	6,903.29	6,943.04	6,921.67	28.61	20.99	19.05	645.12	885.37	184.73	152.28	32.45	5.693				
7,100.00	7,002.41	7,040.52	7,018.82	29.02	21.35	21.58	639.50	879.62	164.97	131.92	33.06	4.991				
7,200.00	7,101.85	7,138.15	7,116.17	29.41	21.70	24.11	634.66	874.05	148.37	114.69	33.68	4.405				
7,300.00	7,201.53	7,236.40	7,214.16	29.78	22.06	26.75	629.93	868.81	134.86	100.54	34.32	3.930				
7,400.00	7,301.38	7,335.70	7,313.25	30.13	22.42	29.18	625.71	863.70	124.26	89.33	34.93	3.557				
7,500.00	7,401.34	7,434.53	7,411.86	30.46	22.78	31.25	621.78	858.60	116.17	80.63	35.54	3.268				
7,554.66	7,456.00	7,488.38	7,465.62	30.63	22.97	83.00	619.78	856.23	113.19	77.31	35.88	3.155				
7,600.00	7,501.34	7,533.11	7,510.30	30.77	23.13	83.64	618.31	854.48	111.25	75.11	36.14	3.078				
7,700.00	7,601.34	7,630.93	7,608.04	31.07	23.47	84.58	616.21	851.62	108.12	71.41	36.72	2.945				
7,800.00	7,701.34	7,729.00	7,706.11	31.38	23.80	84.52	616.22	850.54	107.03	69.81	37.22	2.876				
7,815.07	7,716.40	7,743.80	7,720.90	31.43	23.85	84.46	616.33	850.51	107.01	69.72	37.29	2.870				
7,900.00	7,801.34	7,828.60	7,805.71	31.69	24.11	84.17	616.88	850.53	107.08	69.42	37.66	2.843				
8,000.00	7,901.34	7,928.14	7,905.25	32.00	24.43	84.09	617.05	850.83	107.40	69.27	38.13	2.817				
8,100.00	8,001.34	8,027.51	8,004.61	32.32	24.74	84.25	616.84	851.68	108.24	69.63	38.61	2.804				
8,200.00	8,101.34	8,126.92	8,104.01	32.63	25.06	84.57	616.38	853.13	109.64	70.55	39.09	2.805				
8,300.00	8,201.34	8,227.00	8,204.07	32.94	25.38	84.96	615.78	854.91	111.35	71.77	39.58	2.813				
8,400.00	8,301.34	8,329.40	8,306.46	33.26	25.72	85.29	615.18	855.50	111.88	71.84	40.04	2.794				
8,500.00	8,401.34	8,431.04	8,408.09	33.57	26.07	85.33	614.99	853.88	110.27	69.79	40.48	2.724				
8,600.00	8,501.34	8,529.95	8,506.99	33.89	26.40	85.21	615.08	852.37	108.75	67.78	40.97	2.655				
8,700.00	8,601.34	8,629.38	8,606.42	34.20	26.73	85.00	615.41	851.63	108.04	66.61	41.44	2.607				
8,800.00	8,701.34	8,729.34	8,706.37	34.52	27.06	84.77	615.81	851.07	107.52	65.62	41.90	2.566				
8,900.00	8,801.34	8,829.48	8,806.52	34.84	27.39	84.54	616.19	850.53	107.02	64.67	42.36	2.527				
9,000.00	8,901.34	8,929.96	8,906.99	35.16	27.73	84.32	616.51	849.64	106.17	63.36	42.81	2.480				
9,100.00	9,001.34	9,030.25	9,007.27	35.48	28.07	84.00	616.97	848.32	104.91	61.64	43.27	2.425				
9,200.00	9,101.34	9,130.23	9,107.23	35.80	28.40	83.46	617.79	846.84	103.53	59.81	43.72	2.368				
9,300.00	9,201.34	9,230.19	9,207.18	36.12	28.73	82.73	618.94	845.38	102.21	58.05	44.16	2.315				
9,400.00	9,301.34	9,330.31	9,307.27	36.45	29.06	81.87	620.26	843.83	100.86	56.27	44.59	2.262				
9,500.00	9,401.34	9,430.49	9,407.43	36.77	29.40	80.93	621.66	842.10	99.35	54.33	45.02	2.207				
9,600.00	9,501.34	9,530.68	9,507.59	37.09	29.73	79.89	623.14	840.12	97.65	52.20	45.45	2.148				
9,700.00	9,601.34	9,630.52	9,607.40	37.42	30.07	78.85	624.55	838.11	95.93	50.04	45.89	2.090				

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 502H
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 502H	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, 1425-OWSG (Rev2) MWD, 12083-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
9,800.00	9,701.34	9,730.66	9,707.51	37.74	30.41	77.91	625.74	836.13	94.24	47.91	46.33	2.034	
9,900.00	9,801.34	9,830.91	9,807.72	38.07	30.75	76.83	626.98	833.67	92.11	45.35	46.76	1.970	
9,952.28	9,853.62	9,881.31	9,858.12	38.24	30.91	76.59	627.24	833.08	91.58	44.52	47.05	1.946 CC, ES	
10,000.00	9,901.34	9,927.57	9,904.37	38.39	31.07	76.84	626.94	833.58	92.01	44.69	47.32	1.945 SF	
10,036.70	9,938.04	9,963.72	9,940.51	38.51	31.19	77.16	626.60	834.36	92.70	45.19	47.51	1.951	
10,050.00	9,951.34	9,976.82	9,953.61	38.55	31.23	-99.48	626.47	834.70	93.03	45.46	47.57	1.956	
10,100.00	10,001.21	10,026.20	10,002.96	38.69	31.39	-100.78	626.01	836.20	94.99	47.24	47.75	1.989	
10,150.00	10,050.60	10,075.60	10,052.34	38.82	31.55	-104.42	625.66	837.77	98.13	50.29	47.83	2.051	
10,200.00	10,099.14	10,124.10	10,100.81	38.93	31.71	-109.86	625.45	839.29	103.17	55.29	47.89	2.154	
10,250.00	10,146.45	10,171.29	10,147.98	39.02	31.86	-116.30	625.36	840.78	111.23	63.26	47.97	2.319	
10,300.00	10,192.17	10,217.02	10,193.69	39.10	32.01	-122.91	625.36	842.25	123.27	75.14	48.13	2.561	
10,350.00	10,235.96	10,261.11	10,237.75	39.16	32.15	-129.04	625.33	843.60	139.81	91.44	48.37	2.890	
10,400.00	10,277.48	10,303.02	10,279.64	39.21	32.29	-134.26	625.27	844.80	161.04	112.37	48.67	3.309	
10,450.00	10,316.42	10,342.48	10,319.09	39.23	32.42	-138.48	625.22	845.75	186.81	137.82	48.99	3.814	
10,500.00	10,352.48	10,378.98	10,355.59	39.25	32.54	-141.64	625.19	846.42	216.82	167.53	49.29	4.399	
10,550.00	10,385.38	10,412.22	10,388.83	39.25	32.64	-143.77	625.17	846.93	250.69	201.12	49.57	5.057	
10,600.00	10,414.88	10,442.16	10,418.76	39.23	32.74	-144.87	625.10	847.42	287.99	238.17	49.81	5.781	
10,650.00	10,440.75	10,468.57	10,445.16	39.21	32.83	-144.90	624.99	847.89	328.23	278.22	50.02	6.562	
10,700.00	10,462.80	10,491.21	10,467.81	39.18	32.90	-143.71	624.87	848.32	371.00	320.81	50.19	7.392	
10,750.00	10,480.85	10,509.87	10,486.46	39.13	32.97	-140.88	624.75	848.66	415.87	365.54	50.33	8.263	
10,800.00	10,494.77	10,524.39	10,500.97	39.09	33.01	-135.59	624.66	848.93	462.41	411.97	50.44	9.168	
10,850.00	10,504.45	10,534.64	10,511.23	39.04	33.05	-126.16	624.58	849.12	510.23	459.70	50.53	10.098	
10,900.00	10,509.82	10,540.54	10,517.13	39.00	33.07	-109.67	624.54	849.22	558.91	508.31	50.60	11.047	
10,936.70	10,511.00	10,542.06	10,518.64	38.97	33.07	-91.70	624.53	849.25	594.95	544.32	50.63	11.750	
11,000.00	10,511.00	10,542.60	10,519.18	38.94	33.07	-92.28	624.53	849.26	657.44	606.76	50.68	12.972	
11,073.75	10,511.00	10,543.20	10,519.78	38.93	33.08	-93.28	624.52	849.27	730.64	679.92	50.72	14.404	
11,100.00	10,511.00	10,543.41	10,519.99	38.94	33.08	-93.44	624.52	849.27	756.76	706.02	50.74	14.916	
11,200.00	10,511.00	10,544.21	10,520.79	39.03	33.08	-94.05	624.51	849.29	856.32	805.55	50.77	16.866	
11,300.00	10,511.00	10,545.01	10,521.59	39.25	33.08	-94.66	624.51	849.30	955.98	905.17	50.80	18.817	
11,400.00	10,511.00	10,545.81	10,522.40	39.60	33.08	-95.27	624.50	849.32	1,055.70	1,004.87	50.83	20.769	
11,500.00	10,511.00	10,546.63	10,523.21	40.03	33.09	-95.88	624.49	849.33	1,155.47	1,104.61	50.85	22.721	
11,600.00	10,511.00	10,547.45	10,524.03	40.53	33.09	-96.50	624.49	849.35	1,255.27	1,204.40	50.88	24.673	
11,700.00	10,511.00	12,916.64	11,842.37	41.10	46.28	-176.98	-703.20	857.38	1,328.96	1,293.41	35.55	37.382	
11,800.00	10,511.00	13,016.62	11,844.29	41.73	47.29	-176.99	-803.15	858.26	1,330.86	1,294.84	36.02	36.947	
11,900.00	10,511.00	13,116.61	11,846.20	42.41	48.33	-177.00	-903.11	859.14	1,332.77	1,296.25	36.52	36.496	
12,000.00	10,511.00	13,216.59	11,848.11	43.14	49.41	-177.01	-1,003.07	860.02	1,334.67	1,297.63	37.04	36.031	
12,100.00	10,511.00	13,316.57	11,850.02	43.93	50.52	-177.02	-1,103.03	860.90	1,336.58	1,298.98	37.59	35.554	
12,200.00	10,511.00	13,416.55	11,851.93	44.75	51.66	-177.03	-1,202.99	861.78	1,338.48	1,300.31	38.17	35.068	
12,300.00	10,511.00	13,516.53	11,853.85	45.62	52.82	-177.03	-1,302.95	862.66	1,340.39	1,301.62	38.77	34.576	
12,400.00	10,511.00	13,616.51	11,855.76	46.53	54.01	-177.04	-1,402.91	863.54	1,342.29	1,302.90	39.39	34.080	
12,500.00	10,511.00	13,716.50	11,857.67	47.48	55.23	-177.05	-1,502.87	864.42	1,344.20	1,304.17	40.03	33.580	
12,600.00	10,511.00	13,816.48	11,859.58	48.47	56.46	-177.06	-1,602.83	865.29	1,346.10	1,305.41	40.69	33.080	
12,700.00	10,511.00	13,916.46	11,861.49	49.49	57.72	-177.07	-1,702.79	866.17	1,348.00	1,306.63	41.37	32.581	
12,800.00	10,511.00	14,016.44	11,863.40	50.55	58.99	-177.08	-1,802.75	867.05	1,349.91	1,307.84	42.07	32.084	
12,900.00	10,511.00	14,116.42	11,865.32	51.63	60.29	-177.08	-1,902.71	867.93	1,351.81	1,309.02	42.79	31.590	
13,000.00	10,511.00	14,216.40	11,867.23	52.75	61.60	-177.09	-2,002.67	868.81	1,353.72	1,310.19	43.53	31.101	
13,100.00	10,511.00	14,316.39	11,869.14	53.89	62.93	-177.10	-2,102.63	869.69	1,355.62	1,311.35	44.28	30.617	
13,200.00	10,511.00	14,416.37	11,871.05	55.05	64.27	-177.11	-2,202.59	870.57	1,357.53	1,312.49	45.04	30.140	
13,300.00	10,511.00	14,516.35	11,872.96	56.24	65.62	-177.12	-2,302.55	871.45	1,359.43	1,313.61	45.82	29.669	
13,400.00	10,511.00	14,616.33	11,874.88	57.46	66.99	-177.12	-2,402.51	872.33	1,361.34	1,314.73	46.61	29.206	
13,500.00	10,511.00	14,716.31	11,876.79	58.69	68.38	-177.13	-2,502.47	873.21	1,363.24	1,315.83	47.42	28.750	
13,600.00	10,511.00	14,816.29	11,878.70	59.94	69.77	-177.14	-2,602.43	874.09	1,365.15	1,316.91	48.24	28.302	

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 502H
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 502H	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									
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			
13,700.00	10,511.00	14,916.28	11,880.61	61.22	71.18	-177.15	-2,702.39	874.97	1,367.05	1,317.99	49.06	27.862				
13,800.00	10,511.00	15,016.26	11,882.52	62.51	72.59	-177.16	-2,802.35	875.84	1,368.96	1,319.05	49.91	27.431				
13,900.00	10,511.00	15,116.24	11,884.44	63.81	74.01	-177.16	-2,902.30	876.72	1,370.86	1,320.11	50.76	27.009				
14,000.00	10,511.00	15,216.22	11,886.35	65.13	75.45	-177.17	-3,002.26	877.60	1,372.77	1,321.15	51.62	26.595				
14,100.00	10,511.00	15,300.00	11,887.97	66.47	76.66	-177.18	-3,086.03	878.34	1,374.79	1,322.42	52.37	26.252				
14,200.00	10,511.00	15,387.07	11,891.02	67.82	77.92	-177.19	-3,173.04	879.10	1,378.29	1,325.14	53.15	25.931				
14,300.00	10,511.00	15,486.99	11,895.05	69.18	79.38	-177.20	-3,272.87	879.98	1,382.31	1,328.27	54.04	25.580				
14,400.00	10,511.00	15,586.91	11,899.07	70.56	80.85	-177.21	-3,372.71	880.86	1,386.33	1,331.40	54.93	25.236				
14,500.00	10,511.00	15,686.83	11,903.09	71.95	82.32	-177.22	-3,472.54	881.74	1,390.35	1,334.51	55.84	24.901				
14,600.00	10,511.00	15,786.75	11,907.12	73.34	83.80	-177.24	-3,572.37	882.61	1,394.37	1,337.62	56.75	24.572				
14,700.00	10,511.00	15,886.66	11,911.14	74.75	85.28	-177.25	-3,672.21	883.49	1,398.38	1,340.72	57.66	24.252				
14,800.00	10,511.00	15,986.58	11,915.17	76.17	86.78	-177.26	-3,772.04	884.37	1,402.40	1,343.82	58.58	23.938				
14,900.00	10,511.00	16,086.50	11,919.19	77.60	88.27	-177.27	-3,871.88	885.25	1,406.42	1,346.90	59.51	23.631				
15,000.00	10,511.00	16,186.42	11,923.21	79.03	89.78	-177.28	-3,971.71	886.12	1,410.44	1,349.99	60.45	23.332				
15,100.00	10,511.00	16,286.34	11,927.24	80.47	91.28	-177.30	-4,071.54	887.00	1,414.45	1,353.06	61.39	23.039				
15,200.00	10,511.00	16,386.26	11,931.26	81.93	92.80	-177.31	-4,171.38	887.88	1,418.47	1,356.13	62.34	22.754				
15,300.00	10,511.00	16,486.18	11,935.28	83.38	94.31	-177.32	-4,271.21	888.75	1,422.49	1,359.20	63.29	22.475				
15,400.00	10,511.00	16,586.10	11,939.31	84.85	95.84	-177.33	-4,371.04	889.63	1,426.51	1,362.26	64.25	22.202				
15,500.00	10,511.00	16,686.02	11,943.33	86.32	97.36	-177.34	-4,470.88	890.51	1,430.53	1,365.31	65.21	21.936				
15,600.00	10,511.00	16,785.93	11,947.36	87.80	98.89	-177.35	-4,570.71	891.39	1,434.55	1,368.36	66.18	21.676				
15,700.00	10,511.00	16,885.85	11,951.38	89.29	100.42	-177.36	-4,670.55	892.26	1,438.56	1,371.41	67.15	21.423				
15,800.00	10,511.00	16,985.77	11,955.40	90.78	101.96	-177.38	-4,770.38	893.14	1,442.58	1,374.46	68.13	21.175				
15,900.00	10,511.00	17,085.69	11,959.43	92.27	103.50	-177.39	-4,870.21	894.02	1,446.60	1,377.49	69.11	20.933				
16,000.00	10,511.00	17,185.61	11,963.45	93.77	105.05	-177.40	-4,970.05	894.90	1,450.62	1,380.53	70.09	20.697				
16,100.00	10,511.00	17,285.53	11,967.48	95.28	106.59	-177.41	-5,069.88	895.77	1,454.64	1,383.56	71.08	20.466				
16,200.00	10,511.00	17,385.45	11,971.50	96.79	108.14	-177.42	-5,169.72	896.65	1,458.66	1,386.59	72.07	20.240				
16,300.00	10,511.00	17,485.37	11,975.52	98.31	109.70	-177.43	-5,269.55	897.53	1,462.67	1,389.61	73.06	20.020				
16,400.00	10,511.00	17,585.29	11,979.55	99.83	111.25	-177.44	-5,369.38	898.41	1,466.69	1,392.64	74.06	19.805				
16,500.00	10,511.00	17,685.20	11,983.57	101.35	112.81	-177.45	-5,469.22	899.28	1,470.71	1,395.65	75.06	19.594				
16,600.00	10,511.00	17,785.12	11,987.59	102.88	114.37	-177.46	-5,569.05	900.16	1,474.73	1,398.67	76.06	19.388				
16,700.00	10,511.00	17,885.04	11,991.62	104.41	115.94	-177.47	-5,668.89	901.04	1,478.75	1,401.68	77.07	19.187				
16,800.00	10,511.00	17,984.96	11,995.64	105.94	117.50	-177.48	-5,768.72	901.91	1,482.77	1,404.69	78.08	18.991				
16,900.00	10,511.00	18,084.88	11,999.67	107.48	119.07	-177.49	-5,868.55	902.79	1,486.79	1,407.70	79.09	18.798				
17,000.00	10,511.00	18,184.80	12,003.69	109.02	120.64	-177.51	-5,968.39	903.67	1,490.81	1,410.70	80.11	18.610				
17,100.00	10,511.00	18,284.72	12,007.71	110.57	122.21	-177.52	-6,068.22	904.55	1,494.83	1,413.70	81.12	18.427				
17,200.00	10,511.00	18,384.64	12,011.74	112.12	123.79	-177.53	-6,168.06	905.42	1,498.85	1,416.70	82.14	18.247				
17,300.00	10,511.00	18,484.55	12,015.76	113.67	125.37	-177.54	-6,267.89	906.30	1,502.86	1,419.70	83.16	18.071				
17,400.00	10,511.00	18,584.47	12,019.79	115.22	126.94	-177.55	-6,367.72	907.18	1,506.88	1,422.70	84.19	17.899				
17,500.00	10,511.00	18,684.39	12,023.81	116.78	128.52	-177.56	-6,467.56	908.06	1,510.90	1,425.69	85.21	17.731				
17,600.00	10,511.00	18,784.31	12,027.83	118.34	130.11	-177.57	-6,567.39	908.93	1,514.92	1,428.68	86.24	17.566				
17,700.00	10,511.00	18,884.23	12,031.86	119.90	131.69	-177.58	-6,667.22	909.81	1,518.94	1,431.67	87.27	17.405				
17,800.00	10,511.00	18,984.15	12,035.88	121.46	133.27	-177.59	-6,767.06	910.69	1,522.96	1,434.66	88.30	17.247				
17,900.00	10,511.00	19,083.14	12,039.74	123.03	134.85	-177.60	-6,866.89	911.58	1,527.00	1,438.67	89.33	17.141				
18,000.00	10,511.00	19,182.99	12,043.13	124.59	136.12	-177.61	-6,945.66	912.66	1,533.19	1,443.03	90.16	17.004				
18,100.00	10,511.00	19,282.85	12,047.02	126.16	137.70	-177.62	-7,045.36	913.13	1,538.58	1,447.38	91.20	16.870				
18,200.00	10,511.00	19,382.70	12,050.91	127.74	139.30	-177.63	-7,145.07	914.01	1,543.97	1,451.73	92.24	16.739				
18,300.00	10,511.00	19,482.56	12,061.30	129.31	140.89	-177.64	-7,244.77	914.89	1,549.36	1,456.08	93.28	16.610				
18,400.00	10,511.00	19,582.41	12,066.69	130.89	142.48	-177.66	-7,344.47	915.76	1,554.75	1,460.43	94.32	16.484				
18,500.00	10,511.00	19,682.26	12,072.08	132.46	144.07	-177.67	-7,444.18	916.64	1,560.13	1,464.77	95.36	16.360				
18,600.00	10,511.00	19,782.12	12,077.46	134.04	145.67	-177.68	-7,543.88	917.51	1,565.52	1,469.12	96.41	16.239				
18,700.00	10,511.00	19,881.97	12,082.85	135.63	147.27	-177.69	-7,643.59	918.39	1,570.91	1,473.46	97.45	16.120				
18,800.00	10,511.00	19,981.83	12,088.24	137.21	148.86	-177.70	-7,743.29	919.27	1,576.30	1,477.80	98.50	16.004				

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 502H
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 502H	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 - Bus Driver Fed Com 602H - OH - Plan #6													Offset Well Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1425-OWSG (Rev2) MWD, 12083-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		
18,900.00	10,511.00	20,061.68	12,093.63	138.79	150.46	-177.71	-7,843.00	920.14	1,581.69	1,482.14	99.54	15.889		
19,000.00	10,511.00	20,161.54	12,099.02	140.38	152.06	-177.72	-7,942.70	921.02	1,587.08	1,486.48	100.59	15.777		
19,100.00	10,511.00	20,261.39	12,104.41	141.97	153.66	-177.74	-8,042.41	921.90	1,592.47	1,490.82	101.64	15.667		
19,200.00	10,511.00	20,361.24	12,109.80	143.56	155.26	-177.75	-8,142.11	922.77	1,597.86	1,495.16	102.70	15.559		
19,300.00	10,511.00	20,461.10	12,115.19	145.15	156.87	-177.76	-8,241.82	923.65	1,603.24	1,499.49	103.75	15.453		
19,400.00	10,511.00	20,560.95	12,120.58	146.74	158.47	-177.77	-8,341.52	924.52	1,608.63	1,503.83	104.80	15.349		
19,500.00	10,511.00	20,660.81	12,125.97	148.33	160.08	-177.78	-8,441.23	925.40	1,614.02	1,508.16	105.86	15.247		
19,600.00	10,511.00	20,760.66	12,131.36	149.93	161.68	-177.79	-8,540.93	926.28	1,619.41	1,512.50	106.92	15.147		
19,700.00	10,511.00	20,860.52	12,136.74	151.52	163.29	-177.80	-8,640.64	927.15	1,624.80	1,516.83	107.97	15.048		
19,800.00	10,511.00	20,960.37	12,142.13	153.12	164.90	-177.81	-8,740.34	928.03	1,630.19	1,521.16	109.03	14.951		
19,900.00	10,511.00	21,060.22	12,147.52	154.72	166.50	-177.82	-8,840.05	928.90	1,635.58	1,525.49	110.09	14.856		
20,000.00	10,511.00	21,160.08	12,152.91	156.32	168.11	-177.83	-8,939.75	929.78	1,640.97	1,529.82	111.15	14.763		
20,100.00	10,511.00	21,259.93	12,158.30	157.92	169.72	-177.84	-9,039.46	930.66	1,646.36	1,534.15	112.21	14.672		
20,200.00	10,511.00	21,359.79	12,163.69	159.52	171.33	-177.85	-9,139.16	931.53	1,651.75	1,538.47	113.27	14.582		
20,300.00	10,511.00	21,459.64	12,169.08	161.12	172.94	-177.86	-9,238.87	932.41	1,657.14	1,542.80	114.34	14.493		
20,400.00	10,511.00	21,559.49	12,174.47	162.72	174.55	-177.87	-9,338.57	933.29	1,662.53	1,547.13	115.40	14.407		
20,500.00	10,511.00	21,659.35	12,179.86	164.33	176.17	-177.88	-9,438.28	934.16	1,667.92	1,551.45	116.47	14.321		
20,600.00	10,511.00	21,748.36	12,184.66	165.93	177.60	-177.89	-9,527.15	934.94	1,673.34	1,555.93	117.41	14.252		
20,700.00	10,511.00	21,818.16	12,189.28	167.54	178.73	-177.90	-9,596.80	935.55	1,680.04	1,561.92	118.13	14.222		
20,800.00	10,511.00	21,888.50	12,195.57	169.14	179.87	-177.91	-9,666.85	936.17	1,688.91	1,570.08	118.82	14.214		
20,900.00	10,511.00	21,988.04	12,205.09	170.75	181.48	-177.93	-9,765.93	937.04	1,698.46	1,578.57	119.89	14.167		
21,000.00	10,511.00	22,087.58	12,214.60	172.36	183.09	-177.94	-9,865.01	937.91	1,708.01	1,587.06	120.95	14.121		
21,100.00	10,511.00	22,187.12	12,224.12	173.97	184.70	-177.96	-9,964.09	938.78	1,717.56	1,595.54	122.02	14.076		
21,200.00	10,511.00	22,286.66	12,233.64	175.58	186.31	-177.97	-10,063.17	939.65	1,727.11	1,604.03	123.08	14.032		
21,300.00	10,511.00	22,386.20	12,243.16	177.19	187.92	-177.99	-10,162.26	940.53	1,736.67	1,612.52	124.15	13.989		
21,400.00	10,511.00	22,485.75	12,252.67	178.80	189.53	-178.00	-10,261.34	941.40	1,746.22	1,621.00	125.21	13.946		
21,500.00	10,511.00	22,585.29	12,262.19	180.41	191.14	-178.01	-10,360.42	942.27	1,755.77	1,629.49	126.28	13.904		
21,600.00	10,511.00	22,684.83	12,271.71	182.03	192.75	-178.03	-10,459.50	943.14	1,765.32	1,637.97	127.35	13.862		
21,700.00	10,511.00	22,784.37	12,281.23	183.64	194.36	-178.04	-10,558.58	944.01	1,774.88	1,646.46	128.42	13.821		
21,800.00	10,511.00	22,883.91	12,290.74	185.25	195.98	-178.05	-10,657.67	944.88	1,784.43	1,654.94	129.49	13.781		
21,900.00	10,511.00	22,983.46	12,300.26	186.87	197.59	-178.07	-10,756.75	945.75	1,793.98	1,663.42	130.56	13.741		
22,000.00	10,511.00	23,083.00	12,309.78	188.49	199.20	-178.08	-10,855.83	946.62	1,803.53	1,671.91	131.63	13.702		
22,046.30	10,511.00	23,129.08	12,314.19	189.23	199.95	-178.09	-10,901.70	947.03	1,807.96	1,675.83	132.12	13.684		

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 502H
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 502H	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									
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	47.07	971.57	1,044.38	1,426.43							
100.00	100.00	115.71	115.68	0.13	0.20	47.00	972.72	1,043.19	1,426.38	1,426.15	0.23	6,312.884				
134.68	134.68	139.22	139.18	0.25	0.28	46.98	973.05	1,042.75	1,426.24	1,425.87	0.37	3,873.357				
200.00	200.00	202.41	202.37	0.48	0.49	46.95	973.58	1,042.29	1,426.27	1,425.58	0.69	2,063.902				
300.00	300.00	325.38	325.32	0.84	0.93	46.89	974.09	1,040.56	1,425.50	1,424.24	1.26	1,134.975				
400.00	400.00	431.13	431.05	1.20	1.31	46.83	973.96	1,038.16	1,423.75	1,421.98	1.78	801.528				
500.00	500.00	552.58	552.42	1.56	1.75	46.73	973.56	1,034.03	1,421.03	1,418.69	2.34	607.285				
600.00	600.00	655.93	655.68	1.92	2.12	46.62	973.20	1,029.69	1,417.74	1,414.89	2.86	496.419				
700.00	700.00	740.00	739.68	2.28	2.43	46.53	972.89	1,026.27	1,414.56	1,411.24	3.32	425.896				
800.00	800.00	841.46	841.10	2.63	2.79	46.47	972.35	1,023.50	1,412.22	1,408.39	3.83	368.569				
900.00	900.00	939.95	939.55	2.99	3.15	46.43	971.20	1,020.99	1,409.57	1,405.24	4.33	325.307				
1,000.00	1,000.00	1,040.44	1,040.01	3.35	3.51	46.41	969.98	1,018.92	1,407.24	1,402.40	4.84	290.810				
1,100.00	1,100.00	1,148.07	1,147.60	3.71	3.89	46.39	968.12	1,016.39	1,404.34	1,398.97	5.36	261.857				
1,200.00	1,200.00	1,233.81	1,233.31	4.07	4.20	46.37	967.07	1,014.51	1,401.89	1,396.05	5.83	240.351				
1,300.00	1,300.00	1,327.81	1,327.30	4.43	4.50	46.35	966.33	1,012.92	1,400.11	1,393.81	6.30	222.321				
1,400.00	1,400.00	1,415.37	1,414.85	4.79	4.66	46.32	966.03	1,011.77	1,398.93	1,392.26	6.67	209.886				
1,500.00	1,500.00	1,513.77	1,513.24	5.14	4.71	46.30	966.03	1,010.89	1,398.28	1,391.33	6.96	201.032				
1,600.00	1,600.00	1,613.00	1,612.47	5.50	4.76	46.28	965.91	1,010.21	1,397.71	1,390.45	7.26	192.542				
1,700.00	1,700.00	1,708.79	1,708.26	5.86	4.84	46.28	965.81	1,009.78	1,397.31	1,389.73	7.58	184.274				
1,800.00	1,800.00	1,806.73	1,806.20	6.22	4.94	46.27	965.81	1,009.53	1,397.12	1,389.19	7.93	176.276				
1,900.00	1,900.00	1,906.42	1,905.88	6.58	5.06	46.26	965.91	1,009.28	1,397.01	1,388.72	8.29	168.594				
2,000.00	2,000.00	2,005.83	2,005.29	6.94	5.21	46.25	965.97	1,009.08	1,396.90	1,388.24	8.66	161.291				
2,016.06	2,016.06	2,021.10	2,020.56	6.99	5.24	46.25	965.99	1,009.06	1,396.90	1,388.18	8.72	160.165				
2,100.00	2,100.00	2,101.43	2,100.90	7.29	5.37	46.24	966.25	1,008.97	1,397.02	1,387.98	9.04	154.503				
2,200.00	2,200.00	2,199.86	2,199.32	7.65	5.54	46.22	966.75	1,008.92	1,397.34	1,387.90	9.44	148.094				
2,300.00	2,300.00	2,297.66	2,297.12	8.01	5.73	46.21	967.29	1,008.98	1,397.76	1,387.92	9.84	142.088				
2,400.00	2,399.99	2,393.79	2,393.25	8.37	5.93	-4.65	968.05	1,009.18	1,397.15	1,386.91	10.24	136.412				
2,500.00	2,499.91	2,492.42	2,491.87	8.72	6.14	-4.68	968.93	1,009.47	1,394.07	1,383.41	10.66	130.831				
2,600.00	2,599.69	2,610.53	2,609.97	9.07	6.42	-4.74	969.85	1,009.69	1,388.31	1,377.20	11.10	125.034				
2,700.00	2,699.27	2,758.37	2,757.78	9.43	6.79	-4.84	968.23	1,006.66	1,376.93	1,365.33	11.60	118.744				
2,800.00	2,798.57	2,845.04	2,844.39	9.79	7.01	-4.94	966.96	1,003.96	1,361.96	1,349.94	12.02	113.347				
2,900.00	2,897.54	2,937.50	2,936.81	10.15	7.26	-5.04	965.74	1,001.61	1,344.95	1,332.50	12.45	108.060				
3,000.00	2,996.09	3,103.59	3,102.68	10.53	7.73	-5.24	961.09	994.89	1,323.51	1,310.55	12.97	102.049				
3,100.00	3,094.16	3,294.15	3,291.86	10.91	8.31	-5.67	949.16	975.82	1,292.69	1,279.21	13.48	95.877				
3,135.41	3,128.76	3,337.87	3,335.03	11.04	8.46	-5.81	945.53	969.91	1,279.93	1,266.28	13.64	93.811				
3,200.00	3,191.82	3,407.08	3,403.29	11.30	8.69	-6.01	939.49	960.19	1,255.99	1,242.07	13.93	90.175				
3,300.00	3,289.44	3,480.78	3,476.02	11.70	8.93	-6.24	933.33	950.03	1,219.37	1,205.00	14.36	84.898				
3,400.00	3,387.05	3,573.73	3,567.89	12.10	9.25	-6.55	926.27	937.74	1,183.65	1,168.84	14.81	79.929				
3,500.00	3,484.67	3,717.84	3,709.67	12.52	9.78	-7.17	914.32	915.03	1,145.87	1,130.61	15.26	75.093				
3,600.00	3,582.29	3,826.38	3,815.59	12.94	10.20	-7.84	904.83	893.34	1,105.00	1,089.29	15.71	70.358				
3,700.00	3,679.91	3,918.48	3,905.22	13.36	10.57	-8.55	897.35	873.51	1,063.69	1,047.52	16.16	65.808				
3,800.00	3,777.52	4,007.60	3,991.88	13.79	10.93	-9.33	890.49	853.89	1,022.50	1,005.86	16.63	61.481				
3,900.00	3,875.14	4,096.60	4,078.49	14.22	11.31	-10.15	883.55	834.64	981.66	964.56	17.11	57.389				
4,000.00	3,972.76	4,184.90	4,164.61	14.66	11.68	-10.91	875.43	816.87	940.98	923.40	17.58	53.514				
4,100.00	4,070.38	4,255.00	4,233.20	15.10	11.97	-11.46	868.50	804.16	901.30	883.22	18.09	49.831				
4,200.00	4,168.00	4,328.40	4,305.39	15.55	12.27	-11.98	861.60	792.89	863.77	845.18	18.59	46.466				
4,300.00	4,265.61	4,399.35	4,375.58	15.99	12.54	-12.44	855.84	784.31	829.06	809.97	19.09	43.418				
4,400.00	4,363.23	4,479.05	4,454.70	16.44	12.84	-12.94	850.45	776.31	796.66	777.06	19.59	40.657				
4,500.00	4,460.85	4,568.47	4,543.54	16.90	13.18	-13.55	845.22	767.70	765.30	745.20	20.09	38.089				
4,600.00	4,558.47	4,656.67	4,631.23	17.35	13.51	-14.25	840.81	759.18	734.67	714.07	20.60	35.668				
4,700.00	4,656.08	4,743.75	4,717.91	17.81	13.83	-14.96	837.09	751.76	705.35	684.24	21.11	33.418				
4,800.00	4,753.70	4,844.44	4,818.15	18.27	14.20	-15.81	832.63	743.46	676.20	654.59	21.61	31.290				

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 502H
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 502H	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		
4,900.00	4,851.32	4,942.32	4,915.51	18.73	14.56	-16.75	827.70	734.64	646.28	624.16	22.12	29.216		
5,000.00	4,948.94	5,040.35	5,013.05	19.19	14.93	-17.75	822.80	726.24	616.82	594.19	22.63	27.253		
5,100.00	5,046.56	5,157.11	5,128.93	19.66	15.38	-19.11	814.90	714.40	585.35	562.24	23.10	25.338		
5,200.00	5,144.17	5,270.91	5,241.12	20.13	15.85	-20.88	804.37	698.54	550.12	526.56	23.56	23.351		
5,300.00	5,241.79	5,368.37	5,336.71	20.59	16.27	-22.82	794.24	682.40	513.12	489.02	24.09	21.299		
5,400.00	5,339.41	5,461.04	5,427.48	21.06	16.68	-24.99	784.30	666.61	476.18	451.51	24.67	19.302		
5,500.00	5,437.03	5,551.89	5,516.46	21.53	17.09	-27.44	774.42	651.19	439.84	414.56	25.29	17.394		
5,600.00	5,534.65	5,644.05	5,606.76	22.01	17.50	-30.31	764.34	635.75	404.39	378.46	25.93	15.596		
5,700.00	5,632.26	5,735.64	5,696.43	22.48	17.91	-33.72	754.19	620.16	369.82	343.20	26.62	13.891		
5,800.00	5,729.88	5,824.65	5,783.65	22.95	18.31	-37.60	744.44	605.27	336.89	309.50	27.40	12.297		
5,900.00	5,827.50	5,913.75	5,871.18	23.43	18.70	-42.02	735.17	591.50	306.58	278.35	28.23	10.860		
6,000.00	5,925.12	6,005.93	5,961.95	23.90	19.10	-47.25	725.92	578.31	279.03	249.93	29.10	9.588		
6,100.00	6,022.73	6,099.91	6,054.54	24.38	19.50	-53.42	715.99	565.64	253.81	223.79	30.02	8.455		
6,200.00	6,120.35	6,192.88	6,146.14	24.85	19.90	-60.57	705.75	553.50	231.66	200.65	31.01	7.471		
6,300.00	6,217.97	6,285.63	6,237.59	25.33	20.30	-68.79	695.55	541.81	213.94	181.92	32.02	6.682		
6,400.00	6,315.59	6,378.34	6,328.97	25.81	20.70	-78.09	685.23	530.08	201.69	168.74	32.95	6.121		
6,500.00	6,413.21	6,470.01	6,419.35	26.29	21.09	-87.99	675.18	518.50	196.20	162.51	33.69	5.824		
6,521.26	6,433.96	6,489.43	6,438.53	26.39	21.17	-90.09	673.21	516.12	196.03	162.22	33.81	5.799 CC, ES, SF		
6,600.00	6,510.82	6,560.90	6,509.17	26.77	21.47	-97.59	666.61	507.58	198.41	164.28	34.13	5.814		
6,700.00	6,608.44	6,651.91	6,599.23	27.25	21.85	-106.42	659.70	496.50	208.12	173.79	34.32	6.064		
6,719.26	6,627.24	6,669.58	6,616.73	27.34	21.93	-108.03	658.47	494.30	210.72	176.38	34.34	6.136		
6,800.00	6,706.24	6,745.11	6,691.49	27.73	22.24	-114.42	653.48	484.78	223.45	189.03	34.42	6.492		
6,900.00	6,804.54	6,841.69	6,787.14	28.18	22.64	-121.11	647.17	473.00	241.12	206.56	34.56	6.977		
7,000.00	6,903.29	6,940.01	6,884.64	28.61	23.04	-126.44	640.83	462.02	258.97	224.21	34.76	7.451		
7,100.00	7,002.41	7,039.18	6,983.11	29.02	23.43	-130.58	634.82	451.92	276.01	240.99	35.02	7.882		
7,200.00	7,101.85	7,136.62	7,079.96	29.41	23.82	-133.66	629.55	442.69	291.73	256.43	35.31	8.263		
7,300.00	7,201.53	7,233.58	7,176.36	29.78	24.19	-135.87	625.38	433.07	306.79	271.15	35.64	8.609		
7,400.00	7,301.38	7,334.23	7,276.43	30.13	24.59	-137.61	621.04	423.13	320.25	284.21	36.04	8.886		
7,500.00	7,401.34	7,437.80	7,379.49	30.46	24.98	-138.90	616.63	414.02	330.91	294.42	36.49	9.068		
7,554.66	7,456.00	7,493.87	7,435.37	30.63	25.19	-88.49	614.78	409.66	335.39	298.65	36.74	9.128		
7,600.00	7,501.34	7,539.83	7,481.18	30.77	25.36	-88.72	613.54	406.24	338.74	301.79	36.95	9.167		
7,700.00	7,601.34	7,641.97	7,583.05	31.07	25.73	-89.07	611.62	399.10	345.70	308.27	37.43	9.237		
7,800.00	7,701.34	7,746.37	7,687.25	31.38	26.10	-89.26	610.55	392.86	351.66	313.74	37.93	9.272		
7,900.00	7,801.34	7,852.06	7,792.84	31.69	26.46	-89.45	609.44	388.16	356.09	317.66	38.43	9.266		
8,000.00	7,901.34	7,956.01	7,896.72	32.00	26.81	-89.66	608.15	384.90	359.22	320.31	38.91	9.231		
8,100.00	8,001.34	8,059.79	8,000.49	32.32	27.15	-89.65	608.20	382.95	361.10	321.69	39.40	9.164		
8,200.00	8,101.34	8,160.38	8,101.06	32.63	27.46	-89.46	609.43	381.56	362.49	322.61	39.88	9.089		
8,300.00	8,201.34	8,261.35	8,202.01	32.94	27.78	-89.28	610.60	380.33	363.72	323.36	40.36	9.012		
8,400.00	8,301.34	8,363.39	8,304.05	33.26	28.09	-89.16	611.34	379.53	364.51	323.67	40.84	8.926		
8,500.00	8,401.34	8,465.58	8,406.24	33.57	28.40	-89.09	611.76	379.36	364.69	323.38	41.31	8.829		
8,600.00	8,501.34	8,566.78	8,507.44	33.89	28.70	-89.04	612.11	379.68	364.38	322.61	41.77	8.724		
8,700.00	8,601.34	8,667.76	8,608.42	34.20	28.99	-89.00	612.37	380.25	363.81	321.59	42.22	8.616		
8,800.00	8,701.34	8,770.21	8,710.86	34.52	29.28	-89.02	612.22	381.29	362.80	320.12	42.68	8.500		
8,900.00	8,801.34	8,871.75	8,812.39	34.84	29.57	-89.06	611.90	382.92	361.18	318.05	43.14	8.373		
9,000.00	8,901.34	8,972.42	8,913.03	35.16	29.86	-89.01	612.19	384.86	359.27	315.67	43.59	8.241		
9,100.00	9,001.34	9,072.04	9,012.63	35.48	30.14	-88.87	613.05	386.81	357.32	313.27	44.06	8.111		
9,200.00	9,101.34	9,172.17	9,112.74	35.80	30.43	-88.67	614.25	388.75	355.41	310.89	44.52	7.983		
9,300.00	9,201.34	9,272.89	9,213.43	36.12	30.72	-88.43	615.70	390.84	353.38	308.38	44.99	7.854		
9,400.00	9,301.34	9,373.60	9,314.10	36.45	31.01	-88.21	616.98	393.19	351.08	305.62	45.46	7.722		
9,500.00	9,401.34	9,473.19	9,413.65	36.77	31.30	-87.96	618.39	395.51	348.79	302.86	45.93	7.594		
9,600.00	9,501.34	9,569.37	9,509.80	37.09	31.58	-87.72	619.79	397.52	346.77	300.37	46.40	7.474		
9,639.62	9,540.96	9,605.03	9,545.46	37.22	31.69	-87.64	620.30	397.75	346.55	299.97	46.58	7.440		

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 502H
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 502H	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 - Bus Driver Fed Com 702H - OH - OH													Offset Well Error:	0.00 usft
Survey Program: 16-OWSG (Rev2) MWD, 1424-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		
9,700.00	9,601.34	9,661.84	9,602.26	37.42	31.87	-87.50	621.11	397.39	346.96	300.11	46.85	7.406		
9,800.00	9,701.34	9,761.26	9,701.66	37.74	32.19	-87.25	622.69	396.20	348.23	300.90	47.33	7.357		
9,900.00	9,801.34	9,864.59	9,804.97	38.07	32.52	-87.01	624.18	395.45	349.03	301.20	47.83	7.297		
10,000.00	9,901.34	9,965.82	9,906.20	38.39	32.83	-86.81	625.43	395.66	348.88	300.56	48.31	7.221		
10,020.35	9,921.69	9,985.81	9,926.19	38.46	32.89	-86.76	625.71	395.69	348.87	300.46	48.41	7.206		
10,036.70	9,938.04	10,001.88	9,942.25	38.51	32.94	-86.72	625.94	395.70	348.87	300.38	48.49	7.195		
10,050.00	9,951.34	10,015.09	9,955.46	38.55	32.99	96.63	626.15	395.70	348.90	300.35	48.55	7.186		
10,100.00	10,001.21	10,065.11	10,005.48	38.69	33.14	97.25	626.85	395.70	349.35	300.55	48.81	7.158		
10,150.00	10,050.60	10,114.57	10,054.93	38.82	33.30	98.46	627.43	395.72	350.44	301.36	49.08	7.140		
10,200.00	10,099.14	10,163.20	10,103.56	38.93	33.45	100.14	627.45	395.70	352.46	303.07	49.39	7.137		
10,250.00	10,146.45	10,210.42	10,150.78	39.02	33.61	102.13	626.79	395.60	355.75	306.05	49.70	7.158		
10,300.00	10,192.17	10,254.89	10,195.24	39.10	33.75	104.31	625.95	395.34	360.91	310.88	50.03	7.214		
10,350.00	10,235.96	10,297.75	10,238.08	39.16	33.90	106.60	625.07	394.87	368.48	318.12	50.36	7.317		
10,400.00	10,277.48	10,339.35	10,279.67	39.21	34.04	108.90	624.14	394.29	378.88	328.19	50.69	7.474		
10,450.00	10,316.42	10,378.57	10,318.88	39.23	34.17	111.00	623.20	393.67	392.50	341.49	51.01	7.695		
10,500.00	10,352.48	10,415.95	10,356.24	39.25	34.30	112.82	622.25	393.05	409.63	358.32	51.30	7.985		
10,550.00	10,385.38	10,450.40	10,390.68	39.25	34.42	114.18	621.38	392.55	430.42	378.86	51.56	8.348		
10,600.00	10,414.88	10,481.43	10,421.70	39.23	34.52	114.92	620.61	392.15	454.96	403.19	51.77	8.788		
10,650.00	10,440.75	10,508.58	10,448.83	39.21	34.61	114.86	619.94	391.84	483.17	431.24	51.93	9.304		
10,700.00	10,462.80	10,531.90	10,472.15	39.18	34.69	113.91	619.36	391.59	514.84	462.79	52.05	9.891		
10,750.00	10,480.85	10,551.23	10,491.47	39.13	34.76	111.89	618.89	391.39	549.65	497.52	52.13	10.543		
10,800.00	10,494.77	10,566.43	10,506.66	39.09	34.81	108.61	618.52	391.24	587.20	535.02	52.18	11.253		
10,850.00	10,504.45	10,575.00	10,515.23	39.04	34.84	103.51	618.31	391.16	627.04	574.84	52.20	12.013		
10,900.00	10,509.82	10,583.20	10,523.43	39.00	34.86	97.37	618.12	391.09	668.68	616.49	52.19	12.812		
10,936.70	10,511.00	10,585.03	10,525.26	38.97	34.87	91.59	618.08	391.07	700.12	647.95	52.17	13.419		
11,000.00	10,511.00	10,586.30	10,526.53	38.94	34.88	91.73	618.05	391.06	755.19	703.06	52.13	14.486		
11,073.75	10,511.00	10,587.77	10,528.00	38.93	34.88	91.87	618.01	391.05	820.06	767.97	52.09	15.745		
11,100.00	10,511.00	10,588.29	10,528.51	38.94	34.88	91.94	618.00	391.04	843.35	791.28	52.07	16.197		
11,200.00	10,511.00	10,590.22	10,530.45	39.03	34.89	92.23	617.96	391.03	933.50	881.50	52.00	17.950		
11,300.00	10,511.00	10,592.10	10,532.32	39.25	34.89	92.51	617.92	391.01	1,025.48	973.53	51.95	19.740		
11,400.00	10,511.00	10,593.92	10,534.14	39.60	34.90	92.78	617.88	390.99	1,118.84	1,066.94	51.90	21.558		
11,500.00	10,511.00	10,595.69	10,535.91	40.03	34.91	93.05	617.84	390.98	1,213.24	1,161.39	51.85	23.397		
11,600.00	10,511.00	10,597.41	10,537.63	40.53	34.91	93.30	617.81	390.96	1,308.48	1,256.67	51.82	25.252		
11,700.00	10,511.00	10,599.08	10,539.30	41.10	34.92	93.55	617.77	390.95	1,404.38	1,352.59	51.79	27.119		
11,800.00	10,511.00	10,600.70	10,540.92	41.73	34.92	93.79	617.74	390.94	1,500.81	1,449.05	51.76	28.997		
11,900.00	10,511.00	10,602.28	10,542.50	42.41	34.93	94.03	617.71	390.92	1,597.68	1,545.94	51.74	30.882		
12,000.00	10,511.00	10,603.82	10,544.04	43.14	34.93	94.25	617.68	390.91	1,694.91	1,643.19	51.72	32.773		
12,100.00	10,511.00	10,605.31	10,545.53	43.93	34.94	94.48	617.65	390.90	1,792.44	1,740.74	51.70	34.669		
12,200.00	10,511.00	10,606.77	10,546.99	44.75	34.94	94.69	617.62	390.88	1,890.23	1,838.54	51.69	36.570		
12,300.00	10,511.00	10,608.19	10,548.41	45.62	34.95	94.90	617.60	390.87	1,988.24	1,936.56	51.68	38.473		
12,400.00	10,511.00	10,609.58	10,549.79	46.53	34.95	95.11	617.57	390.86	2,086.43	2,034.76	51.67	40.378		
12,500.00	10,511.00	10,610.92	10,551.14	47.48	34.96	95.31	617.55	390.85	2,184.79	2,133.12	51.67	42.285		
12,600.00	10,511.00	10,612.24	10,552.46	48.47	34.96	95.50	617.52	390.84	2,283.29	2,231.63	51.67	44.193		
12,700.00	10,511.00	10,613.52	10,553.74	49.49	34.97	95.69	617.50	390.83	2,381.92	2,330.25	51.67	46.103		
12,800.00	10,511.00	10,614.77	10,554.99	50.55	34.97	95.88	617.48	390.82	2,480.65	2,428.98	51.67	48.012		
12,900.00	10,511.00	10,616.00	10,556.21	51.63	34.97	96.06	617.46	390.81	2,579.48	2,527.81	51.67	49.921		
13,000.00	10,511.00	10,617.19	10,557.41	52.75	34.98	96.23	617.44	390.80	2,678.40	2,626.72	51.68	51.831		
13,100.00	10,511.00	10,618.35	10,558.57	53.89	34.98	96.40	617.42	390.79	2,777.39	2,725.71	51.68	53.739		
13,200.00	10,511.00	10,619.49	10,559.71	55.05	34.99	96.57	617.40	390.78	2,876.45	2,824.76	51.69	55.647		
13,300.00	10,511.00	10,620.60	10,560.82	56.24	34.99	96.74	617.38	390.77	2,975.57	2,923.87	51.70	57.554		
13,400.00	10,511.00	10,621.69	10,561.91	57.46	34.99	96.89	617.36	390.76	3,074.75	3,023.04	51.71	59.460		
13,500.00	10,511.00	10,622.75	10,562.97	58.69	35.00	97.05	617.34	390.75	3,173.99	3,122.26	51.72	61.365		

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 502H
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 502H	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		
13,600.00	10,511.00	10,623.79	10,564.01	59.94	35.00	97.20	617.33	390.74	3,273.26	3,221.53	51.74	63.268		
13,700.00	10,511.00	10,624.81	10,565.02	61.22	35.00	97.35	617.31	390.74	3,372.58	3,320.83	51.75	65.169		
13,800.00	10,511.00	10,625.80	10,566.02	62.51	35.01	97.50	617.30	390.73	3,471.94	3,420.17	51.77	67.069		
13,900.00	10,511.00	10,626.77	10,566.99	63.81	35.01	97.64	617.28	390.72	3,571.33	3,519.55	51.78	68.966		
14,000.00	10,511.00	10,627.73	10,567.94	65.13	35.01	97.78	617.27	390.71	3,670.76	3,618.96	51.80	70.862		
14,100.00	10,511.00	10,628.66	10,568.87	66.47	35.02	97.92	617.25	390.70	3,770.22	3,718.40	51.82	72.755		
14,200.00	10,511.00	10,629.57	10,569.79	67.82	35.02	98.05	617.24	390.70	3,869.70	3,817.86	51.84	74.646		
14,300.00	10,511.00	10,630.47	10,570.68	69.18	35.02	98.18	617.22	390.69	3,969.21	3,917.35	51.86	76.534		
14,400.00	10,511.00	10,631.34	10,571.56	70.56	35.03	98.31	617.21	390.68	4,068.74	4,016.86	51.88	78.420		
14,500.00	10,511.00	10,632.20	10,572.42	71.95	35.03	98.43	617.20	390.68	4,168.30	4,116.39	51.91	80.303		
14,600.00	10,511.00	10,633.04	10,573.26	73.34	35.03	98.56	617.19	390.67	4,267.87	4,215.94	51.93	82.184		
14,700.00	10,511.00	10,633.87	10,574.08	74.75	35.03	98.68	617.18	390.66	4,367.47	4,315.51	51.96	84.061		
14,800.00	10,511.00	10,634.67	10,574.89	76.17	35.04	98.79	617.16	390.66	4,467.08	4,415.10	51.98	85.936		
14,900.00	10,511.00	10,635.47	10,575.68	77.60	35.04	98.91	617.15	390.65	4,566.71	4,514.70	52.01	87.807		
15,000.00	10,511.00	11,985.00	11,879.58	79.03	39.94	163.78	407.66	379.68	4,662.48	4,609.04	53.44	87.244		
15,100.00	10,511.00	11,985.00	11,879.58	80.47	39.94	163.78	407.66	379.68	4,757.82	4,704.30	53.52	88.894		
15,200.00	10,511.00	11,985.00	11,879.58	81.93	39.94	163.78	407.66	379.68	4,853.35	4,799.75	53.60	90.546		
15,300.00	10,511.00	11,985.00	11,879.58	83.38	39.94	163.78	407.66	379.68	4,949.06	4,895.38	53.68	92.201		

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 502H
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 502H	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			
0.00	0.00	0.00	0.00	0.00	0.00	47.07	971.57	1,044.38	1,426.43							
100.00	100.00	115.71	115.68	0.13	0.20	47.00	972.72	1,043.19	1,426.38	1,426.15	0.23	6,312.884				
134.68	134.68	139.22	139.18	0.25	0.28	46.98	973.05	1,042.75	1,426.24	1,425.87	0.37	3,873.357				
200.00	200.00	202.41	202.37	0.48	0.49	46.95	973.58	1,042.29	1,426.27	1,425.58	0.69	2,063.902				
300.00	300.00	325.38	325.32	0.84	0.93	46.89	974.09	1,040.56	1,425.50	1,424.24	1.26	1,134.975				
400.00	400.00	431.13	431.05	1.20	1.31	46.83	973.96	1,038.16	1,423.75	1,421.98	1.78	801.528				
500.00	500.00	552.58	552.42	1.56	1.75	46.73	973.56	1,034.03	1,421.03	1,418.69	2.34	607.285				
600.00	600.00	655.93	655.68	1.92	2.12	46.62	973.20	1,029.69	1,417.74	1,414.89	2.86	496.419				
700.00	700.00	740.00	739.68	2.28	2.43	46.53	972.89	1,026.27	1,414.56	1,411.24	3.32	425.896				
800.00	800.00	841.46	841.10	2.63	2.79	46.47	972.35	1,023.50	1,412.22	1,408.39	3.83	368.569				
900.00	900.00	939.95	939.55	2.99	3.15	46.43	971.20	1,020.99	1,409.57	1,405.24	4.33	325.307				
1,000.00	1,000.00	1,040.44	1,040.01	3.35	3.51	46.41	969.98	1,018.92	1,407.24	1,402.40	4.84	290.810				
1,100.00	1,100.00	1,148.07	1,147.60	3.71	3.89	46.39	968.12	1,016.39	1,404.34	1,398.97	5.36	261.857				
1,200.00	1,200.00	1,233.81	1,233.31	4.07	4.20	46.37	967.07	1,014.51	1,401.89	1,396.05	5.83	240.351				
1,300.00	1,300.00	1,327.81	1,327.30	4.43	4.50	46.35	966.33	1,012.92	1,400.11	1,393.81	6.30	222.321				
1,400.00	1,400.00	1,415.37	1,414.85	4.79	4.66	46.32	966.03	1,011.77	1,398.93	1,392.26	6.67	209.886				
1,500.00	1,500.00	1,513.77	1,513.24	5.14	4.71	46.30	966.03	1,010.89	1,398.28	1,391.33	6.96	201.032				
1,600.00	1,600.00	1,613.00	1,612.47	5.50	4.76	46.28	965.91	1,010.21	1,397.71	1,390.45	7.26	192.542				
1,700.00	1,700.00	1,708.79	1,708.26	5.86	4.84	46.28	965.81	1,009.78	1,397.31	1,389.73	7.58	184.274				
1,800.00	1,800.00	1,806.73	1,806.20	6.22	4.94	46.27	965.81	1,009.53	1,397.12	1,389.19	7.93	176.276				
1,900.00	1,900.00	1,906.42	1,905.88	6.58	5.06	46.26	965.91	1,009.28	1,397.01	1,388.72	8.29	168.594				
2,000.00	2,000.00	2,005.83	2,005.29	6.94	5.21	46.25	965.97	1,009.08	1,396.90	1,388.24	8.66	161.291				
2,016.06	2,016.06	2,021.10	2,020.56	6.99	5.24	46.25	965.99	1,009.06	1,396.90	1,388.18	8.72	160.165				
2,100.00	2,100.00	2,101.43	2,100.90	7.29	5.37	46.24	966.25	1,008.97	1,397.02	1,387.98	9.04	154.503				
2,200.00	2,200.00	2,199.86	2,199.32	7.65	5.54	46.22	966.75	1,008.92	1,397.34	1,387.90	9.44	148.094				
2,300.00	2,300.00	2,297.66	2,297.12	8.01	5.73	46.21	967.29	1,008.98	1,397.76	1,387.92	9.84	142.088				
2,400.00	2,399.99	2,393.79	2,393.25	8.37	5.93	-4.65	968.05	1,009.18	1,397.15	1,386.91	10.24	136.412				
2,500.00	2,499.91	2,492.42	2,491.87	8.72	6.14	-4.68	968.93	1,009.47	1,394.07	1,383.41	10.66	130.831				
2,600.00	2,599.69	2,610.53	2,609.97	9.07	6.42	-4.74	969.85	1,009.69	1,388.31	1,377.20	11.10	125.034				
2,700.00	2,699.27	2,758.37	2,757.78	9.43	6.79	-4.84	968.23	1,006.66	1,376.93	1,365.33	11.60	118.744				
2,800.00	2,798.57	2,873.26	2,872.57	9.79	7.09	-4.96	965.94	1,002.52	1,361.36	1,349.31	12.05	112.962				
2,900.00	2,897.54	3,022.27	3,021.17	10.15	7.51	-5.19	960.58	993.19	1,340.17	1,327.62	12.55	106.821				
3,000.00	2,996.09	3,167.44	3,165.45	10.53	7.94	-5.51	952.50	979.33	1,312.83	1,299.80	13.03	100.773				
3,100.00	3,094.16	3,296.26	3,292.89	10.91	8.35	-5.89	943.00	963.16	1,279.66	1,266.18	13.49	94.879				
3,135.41	3,128.76	3,329.27	3,325.49	11.04	8.46	-6.01	940.38	958.71	1,267.01	1,253.37	13.64	92.860				
3,200.00	3,191.82	3,389.38	3,384.86	11.30	8.66	-6.19	935.62	950.60	1,243.67	1,229.74	13.93	89.297				
3,300.00	3,289.44	3,482.44	3,476.77	11.70	8.98	-6.49	928.23	938.05	1,207.55	1,193.18	14.37	84.036				
3,400.00	3,387.05	3,575.50	3,568.69	12.10	9.31	-6.81	920.85	925.49	1,171.46	1,156.64	14.82	79.065				
3,500.00	3,484.67	3,668.55	3,660.60	12.52	9.64	-7.14	913.47	912.94	1,135.40	1,120.13	15.27	74.366				
3,600.00	3,582.29	3,761.61	3,752.51	12.94	9.97	-7.50	906.08	900.39	1,099.38	1,083.66	15.72	69.920				
3,700.00	3,679.91	3,854.67	3,844.42	13.36	10.32	-7.88	898.70	887.83	1,063.40	1,047.22	16.18	65.710				
3,800.00	3,777.52	3,947.73	3,936.33	13.79	10.66	-8.29	891.32	875.28	1,027.47	1,010.82	16.65	61.723				
3,900.00	3,875.14	4,040.79	4,028.24	14.22	11.01	-8.73	883.93	862.72	991.58	974.47	17.11	57.941				
4,000.00	3,972.76	4,133.85	4,120.16	14.66	11.37	-9.20	876.55	850.17	955.75	938.17	17.58	54.353				
4,100.00	4,070.38	4,226.91	4,212.07	15.10	11.73	-9.71	869.17	837.62	919.98	901.92	18.06	50.945				
4,200.00	4,168.00	4,319.96	4,303.98	15.55	12.09	-10.26	861.78	825.06	884.28	865.74	18.54	47.705				
4,300.00	4,265.61	4,413.02	4,395.89	15.99	12.45	-10.85	854.40	812.51	848.65	829.63	19.02	44.623				
4,400.00	4,363.23	4,506.08	4,487.80	16.44	12.82	-11.50	847.02	799.96	813.12	793.61	19.50	41.689				
4,500.00	4,460.85	4,599.14	4,579.72	16.90	13.19	-12.20	839.63	787.40	777.68	757.68	19.99	38.895				
4,600.00	4,558.47	4,692.20	4,671.63	17.35	13.56	-12.97	832.25	774.85	742.35	721.86	20.49	36.231				
4,700.00	4,656.08	4,785.26	4,763.54	17.81	13.94	-13.82	824.87	762.30	707.16	686.17	20.99	33.691				
4,800.00	4,753.70	4,878.32	4,855.45	18.27	14.31	-14.75	817.49	749.74	672.12	650.62	21.50	31.268				

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 502H
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 502H	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, 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		
4,900.00	4,851.32	4,971.37	4,947.36	18.73	14.69	-15.79	810.10	737.19	637.25	615.24	22.01	28.955		
5,000.00	4,948.94	5,064.43	5,039.27	19.19	15.07	-16.94	802.72	724.64	602.59	580.06	22.53	26.749		
5,100.00	5,046.56	5,157.49	5,131.19	19.66	15.45	-18.23	795.34	712.08	568.17	545.12	23.06	24.643		
5,200.00	5,144.17	5,250.55	5,223.10	20.13	15.83	-19.68	787.95	699.53	534.05	510.45	23.60	22.633		
5,300.00	5,241.79	5,343.61	5,315.01	20.59	16.22	-21.32	780.57	686.97	500.27	476.13	24.15	20.716		
5,400.00	5,339.41	5,436.67	5,406.92	21.06	16.60	-23.20	773.19	674.42	466.93	442.21	24.72	18.889		
5,500.00	5,437.03	5,529.72	5,498.83	21.53	16.99	-25.35	765.80	661.87	434.11	408.80	25.31	17.151		
5,600.00	5,534.65	5,622.78	5,590.75	22.01	17.38	-27.84	758.42	649.31	401.94	376.01	25.93	15.501		
5,700.00	5,632.26	5,715.84	5,682.66	22.48	17.77	-30.74	751.04	636.76	370.60	344.02	26.58	13.942		
5,800.00	5,729.88	5,808.90	5,774.57	22.95	18.15	-34.14	743.65	624.21	340.32	313.04	27.28	12.475		
5,900.00	5,827.50	5,901.96	5,866.48	23.43	18.54	-38.15	736.27	611.65	311.39	283.36	28.03	11.109		
6,000.00	5,925.12	5,995.02	5,958.39	23.90	18.94	-42.90	728.89	599.10	284.24	255.39	28.85	9.853		
6,100.00	6,022.73	6,088.08	6,050.30	24.38	19.33	-48.53	721.50	586.55	259.43	229.68	29.74	8.722		
6,200.00	6,120.35	6,181.13	6,142.22	24.85	19.72	-55.17	714.12	573.99	237.68	206.97	30.71	7.739		
6,300.00	6,217.97	6,274.19	6,234.13	25.33	20.11	-62.89	706.74	561.44	219.91	188.19	31.72	6.932		
6,400.00	6,315.59	6,367.25	6,326.04	25.81	20.51	-71.61	699.36	548.89	207.15	174.45	32.71	6.334		
6,500.00	6,413.21	6,460.31	6,417.95	26.29	20.90	-81.08	691.97	536.33	200.35	166.81	33.55	5.972		
6,553.34	6,465.28	6,509.95	6,466.98	26.55	21.11	-86.29	688.03	529.64	199.40	165.49	33.91	5.881 CC, ES		
6,600.00	6,510.82	6,553.37	6,509.86	26.77	21.30	-90.85	684.59	523.78	200.13	165.97	34.16	5.859 SF		
6,700.00	6,608.44	6,646.43	6,601.77	27.25	21.69	-100.36	677.21	511.22	206.50	172.00	34.51	5.984		
6,719.26	6,627.24	6,664.35	6,619.47	27.34	21.77	-102.12	675.78	508.81	208.45	173.90	34.55	6.033		
6,800.00	6,706.24	6,739.79	6,693.99	27.73	22.09	-109.13	669.80	498.63	218.62	183.95	34.67	6.305		
6,900.00	6,804.54	6,834.04	6,787.08	28.18	22.49	-116.54	662.32	485.92	234.47	199.70	34.77	6.743		
7,000.00	6,903.29	6,929.13	6,881.00	28.61	22.90	-122.62	654.78	473.09	252.38	217.48	34.90	7.232		
7,100.00	7,002.41	7,025.00	6,975.68	29.02	23.30	-127.52	647.17	460.15	271.07	236.00	35.07	7.730		
7,200.00	7,101.85	7,121.58	7,071.07	29.41	23.72	-131.44	639.51	447.13	289.64	254.35	35.30	8.206		
7,300.00	7,201.53	7,218.79	7,167.09	29.78	24.13	-134.56	631.80	434.01	307.48	271.90	35.58	8.643		
7,400.00	7,301.38	7,319.78	7,266.87	30.13	24.56	-137.07	623.92	420.62	323.93	287.98	35.95	9.011		
7,500.00	7,401.34	7,426.25	7,372.42	30.46	25.00	-138.88	616.85	408.59	336.95	300.52	36.43	9.250		
7,554.66	7,456.00	7,484.97	7,430.79	30.63	25.23	-88.73	613.59	403.05	342.33	305.62	36.70	9.327		
7,600.00	7,501.34	7,533.87	7,479.46	30.77	25.41	-89.13	611.22	399.02	346.02	309.09	36.93	9.369		
7,700.00	7,601.34	7,642.08	7,587.36	31.07	25.81	-89.82	607.10	392.02	352.46	315.02	37.44	9.413		
7,800.00	7,701.34	7,750.66	7,695.82	31.38	26.19	-90.24	604.53	387.65	356.49	318.54	37.96	9.392		
7,900.00	7,801.34	7,859.45	7,804.59	31.69	26.54	-90.40	603.52	385.94	358.07	319.62	38.46	9.311		
8,000.00	7,901.34	7,960.70	7,905.84	32.00	26.83	-90.40	603.51	385.91	358.10	319.18	38.91	9.202		
8,100.00	8,001.34	8,060.70	8,005.84	32.32	27.13	-90.40	603.51	385.91	358.10	318.73	39.37	9.097		
8,200.00	8,101.34	8,160.70	8,105.84	32.63	27.42	-90.40	603.51	385.91	358.10	318.28	39.82	8.993		
8,300.00	8,201.34	8,260.70	8,205.84	32.94	27.72	-90.40	603.51	385.91	358.10	317.82	40.28	8.891		
8,400.00	8,301.34	8,360.70	8,305.84	33.26	28.02	-90.40	603.51	385.91	358.10	317.36	40.73	8.791		
8,500.00	8,401.34	8,460.70	8,405.84	33.57	28.32	-90.40	603.51	385.91	358.10	316.91	41.19	8.694		
8,600.00	8,501.34	8,560.70	8,505.84	33.89	28.62	-90.40	603.51	385.91	358.10	316.45	41.65	8.598		
8,700.00	8,601.34	8,660.70	8,605.84	34.20	28.92	-90.40	603.51	385.91	358.10	315.99	42.11	8.504		
8,800.00	8,701.34	8,760.70	8,705.84	34.52	29.23	-90.40	603.51	385.91	358.10	315.53	42.57	8.412		
8,900.00	8,801.34	8,860.70	8,805.84	34.84	29.53	-90.40	603.51	385.91	358.10	315.06	43.03	8.321		
9,000.00	8,901.34	8,960.70	8,905.84	35.16	29.84	-90.40	603.51	385.91	358.10	314.60	43.50	8.233		
9,100.00	9,001.34	9,060.70	9,005.84	35.48	30.15	-90.40	603.51	385.91	358.10	314.14	43.96	8.146		
9,200.00	9,101.34	9,160.70	9,105.84	35.80	30.46	-90.40	603.51	385.91	358.10	313.67	44.43	8.061		
9,300.00	9,201.34	9,260.70	9,205.84	36.12	30.76	-90.40	603.51	385.91	358.10	313.20	44.89	7.977		
9,400.00	9,301.34	9,360.70	9,305.84	36.45	31.08	-90.40	603.51	385.91	358.10	312.74	45.36	7.895		
9,500.00	9,401.34	9,460.70	9,405.84	36.77	31.39	-90.40	603.51	385.91	358.10	312.27	45.83	7.814		
9,600.00	9,501.34	9,560.70	9,505.84	37.09	31.70	-90.40	603.51	385.91	358.10	311.80	46.30	7.735		
9,700.00	9,601.34	9,660.70	9,605.84	37.42	32.01	-90.40	603.51	385.91	358.10	311.33	46.76	7.657		

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 502H
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 502H	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				
9,800.00	9,701.34	9,760.70	9,705.84	37.74	32.33	-90.40	603.51	385.91	358.10	310.86	47.23	7.581				
9,900.00	9,801.34	9,860.70	9,805.84	38.07	32.64	-90.40	603.51	385.91	358.10	310.39	47.71	7.506				
10,000.00	9,901.34	9,960.70	9,905.84	38.39	32.96	-90.40	603.51	385.91	358.10	309.92	48.18	7.433				
10,036.70	9,938.04	9,997.40	9,942.54	38.51	33.08	-90.40	603.51	385.91	358.10	309.75	48.35	7.406				
10,050.00	9,951.34	10,010.70	9,955.84	38.55	33.12	92.92	603.51	385.91	358.10	309.69	48.41	7.397				
10,100.00	10,001.21	10,060.57	10,005.71	38.69	33.28	93.44	603.51	385.91	358.29	309.63	48.66	7.363				
10,150.00	10,050.60	10,109.96	10,055.10	38.82	33.43	94.59	603.51	385.91	358.83	309.90	48.93	7.333				
10,200.00	10,099.14	10,158.50	10,103.64	38.93	33.59	96.31	603.51	385.91	360.01	310.78	49.23	7.313				
10,250.00	10,146.45	10,205.81	10,150.95	39.02	33.74	98.50	603.51	385.91	362.21	312.66	49.55	7.310				
10,300.00	10,192.17	10,251.53	10,196.67	39.10	33.89	101.00	603.51	385.91	365.95	316.06	49.89	7.336				
10,350.00	10,235.96	10,295.32	10,240.46	39.16	34.03	103.65	603.51	385.91	371.81	321.57	50.23	7.401				
10,400.00	10,277.48	10,336.84	10,281.98	39.21	34.16	106.26	603.51	385.91	380.36	329.78	50.58	7.520				
10,450.00	10,316.42	10,375.78	10,320.92	39.23	34.28	108.66	603.51	385.91	392.14	341.22	50.92	7.701				
10,500.00	10,352.48	10,411.84	10,356.98	39.25	34.40	110.67	603.51	385.91	407.56	356.33	51.23	7.956				
10,550.00	10,385.38	10,444.74	10,389.88	39.25	34.50	112.16	603.51	385.91	426.88	375.38	51.50	8.289				
10,600.00	10,414.88	10,474.24	10,419.38	39.23	34.60	112.97	603.51	385.91	450.19	398.46	51.73	8.703				
10,650.00	10,440.75	10,500.11	10,445.25	39.21	34.68	112.99	603.51	385.91	477.37	425.46	51.91	9.196				
10,700.00	10,462.80	10,522.16	10,467.30	39.18	34.75	112.06	603.51	385.91	508.20	456.16	52.04	9.765				
10,750.00	10,480.85	10,540.21	10,485.35	39.13	34.81	110.05	603.51	385.91	542.31	490.18	52.13	10.403				
10,800.00	10,494.77	10,554.13	10,499.27	39.09	34.86	106.76	603.51	385.91	579.26	527.08	52.18	11.100				
10,850.00	10,504.45	10,563.81	10,508.95	39.04	34.89	102.01	603.51	385.91	618.58	566.37	52.21	11.849				
10,900.00	10,509.82	10,569.18	10,514.32	39.00	34.90	95.67	603.51	385.91	659.75	607.55	52.20	12.638				
10,936.70	10,511.00	10,570.36	10,515.50	38.97	34.91	90.00	603.51	385.91	690.86	638.67	52.19	13.238				
11,000.00	10,511.00	10,570.36	10,515.50	38.94	34.91	90.00	603.51	385.91	745.39	693.24	52.15	14.293				
11,073.75	10,511.00	10,570.36	10,515.50	38.93	34.91	90.00	603.51	385.91	809.73	757.63	52.10	15.541				
11,100.00	10,511.00	10,570.36	10,515.50	38.94	34.91	90.00	603.51	385.91	832.86	780.77	52.09	15.990				
11,200.00	10,511.00	10,570.36	10,515.50	39.03	34.91	90.00	603.51	385.91	922.47	870.45	52.02	17.732				
11,300.00	10,511.00	10,570.36	10,515.50	39.25	34.91	90.00	603.51	385.91	1,014.04	962.07	51.97	19.513				
11,400.00	10,511.00	10,570.36	10,515.50	39.60	34.91	90.00	603.51	385.91	1,107.06	1,055.14	51.92	21.324				
11,500.00	10,511.00	10,570.36	10,515.50	40.03	34.91	90.00	603.51	385.91	1,201.20	1,149.33	51.87	23.157				
11,600.00	10,511.00	10,570.36	10,515.50	40.53	34.91	90.00	603.51	385.91	1,296.22	1,244.39	51.83	25.008				
11,700.00	10,511.00	10,570.36	10,515.50	41.10	34.91	90.00	603.51	385.91	1,391.94	1,340.15	51.80	26.872				
11,800.00	10,511.00	10,570.36	10,515.50	41.73	34.91	90.00	603.51	385.91	1,488.23	1,436.46	51.77	28.747				
11,900.00	10,511.00	10,570.36	10,515.50	42.41	34.91	90.00	603.51	385.91	1,584.97	1,533.22	51.74	30.630				
12,000.00	10,511.00	13,476.81	12,065.70	43.14	50.73	165.87	-1,012.25	400.12	1,598.73	1,558.55	40.18	39.791				
12,100.00	10,511.00	13,576.80	12,067.02	43.93	51.79	165.88	-1,112.22	401.00	1,600.02	1,559.23	40.79	39.226				
12,200.00	10,511.00	13,676.79	12,068.33	44.75	52.87	165.88	-1,212.20	401.88	1,601.32	1,559.89	41.43	38.654				
12,300.00	10,511.00	13,776.78	12,069.64	45.62	53.99	165.89	-1,312.18	402.76	1,602.62	1,560.53	42.09	38.076				
12,400.00	10,511.00	13,876.77	12,070.96	46.53	55.14	165.90	-1,412.16	403.64	1,603.91	1,561.14	42.78	37.496				
12,500.00	10,511.00	13,976.76	12,072.27	47.48	56.31	165.91	-1,512.14	404.52	1,605.21	1,561.73	43.48	36.914				
12,600.00	10,511.00	14,076.76	12,073.58	48.47	57.50	165.92	-1,612.12	405.40	1,606.51	1,562.29	44.22	36.334				
12,700.00	10,511.00	14,176.75	12,074.90	49.49	58.72	165.92	-1,712.10	406.28	1,607.80	1,562.84	44.96	35.757				
12,800.00	10,511.00	14,276.74	12,076.21	50.55	59.95	165.93	-1,812.08	407.15	1,609.10	1,563.37	45.73	35.185				
12,900.00	10,511.00	14,376.73	12,077.52	51.63	61.21	165.94	-1,912.06	408.03	1,610.40	1,563.88	46.52	34.618				
13,000.00	10,511.00	14,476.72	12,078.83	52.75	62.49	165.95	-2,012.03	408.91	1,611.70	1,564.37	47.32	34.057				
13,100.00	10,511.00	14,576.71	12,080.15	53.89	63.78	165.96	-2,112.01	409.79	1,612.99	1,564.85	48.14	33.503				
13,200.00	10,511.00	14,676.70	12,081.46	55.05	65.09	165.96	-2,211.99	410.67	1,614.29	1,565.31	48.98	32.957				
13,300.00	10,511.00	14,776.69	12,082.77	56.24	66.41	165.97	-2,311.97	411.55	1,615.59	1,565.76	49.83	32.421				
13,400.00	10,511.00	14,876.69	12,084.09	57.46	67.75	165.98	-2,411.95	412.43	1,616.89	1,566.19	50.70	31.894				
13,500.00	10,511.00	14,976.68	12,085.40	58.69	69.10	165.99	-2,511.93	413.31	1,618.18	1,566.61	51.57	31.377				
13,600.00	10,511.00	15,076.67	12,086.71	59.94	70.46	166.00	-2,611.91	414.19	1,619.48	1,567.02	52.46	30.869				
13,700.00	10,511.00	15,176.66	12,088.03	61.22	71.84	166.00	-2,711.89	415.07	1,620.78	1,567.41	53.37	30.371				

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 502H
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 502H	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				
13,800.00	10,511.00	15,276.65	12,089.34	62.51	73.23	166.01	-2,811.87	415.95	1,622.08	1,567.80	54.28	29.884				
13,900.00	10,511.00	15,376.64	12,090.65	63.81	74.62	166.02	-2,911.84	416.83	1,623.37	1,568.17	55.20	29.407				
14,000.00	10,511.00	15,476.63	12,091.97	65.13	76.03	166.03	-3,011.82	417.70	1,624.67	1,568.53	56.14	28.940				
14,100.00	10,511.00	15,576.63	12,093.28	66.47	77.45	166.04	-3,111.80	418.58	1,625.97	1,568.89	57.08	28.485				
14,200.00	10,511.00	15,676.62	12,094.59	67.82	78.88	166.04	-3,211.78	419.46	1,627.27	1,569.23	58.03	28.039				
14,300.00	10,511.00	15,776.61	12,095.90	69.18	80.31	166.05	-3,311.76	420.34	1,628.56	1,569.57	59.00	27.605				
14,400.00	10,511.00	15,876.60	12,097.22	70.56	81.76	166.06	-3,411.74	421.22	1,629.86	1,569.90	59.96	27.181				
14,500.00	10,511.00	15,976.59	12,098.53	71.95	83.21	166.07	-3,511.72	422.10	1,631.16	1,570.22	60.94	26.767				
14,600.00	10,511.00	16,076.58	12,099.84	73.34	84.67	166.07	-3,611.70	422.98	1,632.46	1,570.53	61.92	26.362				
14,700.00	10,511.00	16,176.57	12,101.16	74.75	86.13	166.08	-3,711.67	423.86	1,633.75	1,570.84	62.91	25.968				
14,800.00	10,511.00	16,276.56	12,102.47	76.17	87.61	166.09	-3,811.65	424.74	1,635.05	1,571.14	63.91	25.583				
14,900.00	10,511.00	16,376.56	12,103.78	77.60	89.08	166.10	-3,911.63	425.62	1,636.35	1,571.43	64.92	25.207				
15,000.00	10,511.00	16,476.55	12,105.10	79.03	90.57	166.11	-4,011.61	426.50	1,637.65	1,571.72	65.93	24.840				
15,100.00	10,511.00	16,576.54	12,106.41	80.47	92.06	166.11	-4,111.59	427.38	1,638.95	1,572.00	66.94	24.482				
15,200.00	10,511.00	16,676.53	12,107.72	81.93	93.55	166.12	-4,211.57	428.25	1,640.24	1,572.28	67.97	24.133				
15,300.00	10,511.00	16,776.52	12,109.04	83.38	95.06	166.13	-4,311.55	429.13	1,641.54	1,572.55	68.99	23.793				
15,400.00	10,511.00	16,876.51	12,110.35	84.85	96.56	166.14	-4,411.53	430.01	1,642.84	1,572.82	70.02	23.461				
15,500.00	10,511.00	16,976.50	12,111.66	86.32	98.07	166.14	-4,511.51	430.89	1,644.14	1,573.08	71.06	23.138				
15,600.00	10,511.00	17,076.50	12,112.97	87.80	99.59	166.15	-4,611.48	431.77	1,645.44	1,573.34	72.10	22.822				
15,700.00	10,511.00	17,176.49	12,114.29	89.29	101.11	166.16	-4,711.46	432.65	1,646.73	1,573.59	73.14	22.514				
15,800.00	10,511.00	17,276.48	12,115.60	90.78	102.63	166.17	-4,811.44	433.53	1,648.03	1,573.84	74.19	22.214				
15,900.00	10,511.00	17,376.47	12,116.91	92.27	104.16	166.18	-4,911.42	434.41	1,649.33	1,574.09	75.24	21.920				
16,000.00	10,511.00	17,476.46	12,118.23	93.77	105.69	166.18	-5,011.40	435.29	1,650.63	1,574.33	76.30	21.634				
16,100.00	10,511.00	17,576.45	12,119.54	95.28	107.22	166.19	-5,111.38	436.17	1,651.93	1,574.57	77.36	21.354				
16,200.00	10,511.00	17,676.44	12,120.85	96.79	108.76	166.20	-5,211.36	437.05	1,653.22	1,574.80	78.42	21.081				
16,300.00	10,511.00	17,776.43	12,122.17	98.31	110.30	166.21	-5,311.34	437.93	1,654.52	1,575.04	79.49	20.815				
16,400.00	10,511.00	17,876.43	12,123.48	99.83	111.85	166.21	-5,411.32	438.80	1,655.82	1,575.26	80.56	20.554				
16,500.00	10,511.00	17,976.42	12,124.79	101.35	113.39	166.22	-5,511.29	439.68	1,657.12	1,575.49	81.63	20.301				
16,600.00	10,511.00	18,076.41	12,126.11	102.88	114.94	166.23	-5,611.27	440.56	1,658.42	1,575.71	82.70	20.053				
16,700.00	10,511.00	18,176.40	12,127.42	104.41	116.50	166.24	-5,711.25	441.44	1,659.72	1,575.93	83.78	19.810				
16,800.00	10,511.00	18,276.39	12,128.73	105.94	118.05	166.24	-5,811.23	442.32	1,661.01	1,576.15	84.86	19.573				
16,900.00	10,511.00	18,376.38	12,130.04	107.48	119.61	166.25	-5,911.21	443.20	1,662.31	1,576.37	85.94	19.342				
17,000.00	10,511.00	18,476.37	12,131.36	109.02	121.17	166.26	-6,011.19	444.08	1,663.61	1,576.59	87.03	19.116				
17,100.00	10,511.00	18,576.37	12,132.67	110.57	122.73	166.27	-6,111.17	444.96	1,664.91	1,576.80	88.11	18.895				
17,200.00	10,511.00	18,676.36	12,133.98	112.12	124.30	166.27	-6,211.15	445.84	1,666.21	1,577.01	89.20	18.679				
17,300.00	10,511.00	18,776.35	12,135.30	113.67	125.87	166.28	-6,311.12	446.72	1,667.51	1,577.21	90.29	18.468				
17,400.00	10,511.00	18,876.34	12,136.61	115.22	127.44	166.29	-6,411.10	447.60	1,668.81	1,577.42	91.39	18.261				
17,500.00	10,511.00	18,976.33	12,137.92	116.78	129.01	166.30	-6,511.08	448.48	1,670.10	1,577.62	92.48	18.059				
17,600.00	10,511.00	19,076.32	12,139.24	118.34	130.58	166.30	-6,611.06	449.35	1,671.40	1,577.82	93.58	17.861				
17,700.00	10,511.00	19,176.31	12,140.55	119.90	132.16	166.31	-6,711.04	450.23	1,672.70	1,578.03	94.68	17.668				
17,800.00	10,511.00	19,276.30	12,141.86	121.46	133.73	166.32	-6,811.02	451.11	1,674.00	1,578.22	95.78	17.478				
17,900.00	10,511.00	19,376.30	12,143.18	123.03	135.31	166.33	-6,911.00	451.99	1,675.30	1,578.42	96.88	17.293				
18,000.00	10,511.00	19,476.29	12,144.49	124.59	136.89	166.33	-7,010.98	452.87	1,676.60	1,578.62	97.98	17.111				
18,100.00	10,511.00	19,576.28	12,145.80	126.16	138.48	166.34	-7,110.96	453.75	1,677.90	1,578.81	99.09	16.934				
18,200.00	10,511.00	19,676.27	12,147.11	127.74	140.06	166.35	-7,210.93	454.63	1,679.20	1,579.00	100.19	16.760				
18,300.00	10,511.00	19,776.26	12,148.43	129.31	141.65	166.36	-7,310.91	455.51	1,680.49	1,579.20	101.30	16.589				
18,400.00	10,511.00	19,876.25	12,149.74	130.89	143.23	166.36	-7,410.89	456.39	1,681.79	1,579.39	102.41	16.423				
18,500.00	10,511.00	19,976.24	12,151.05	132.46	144.82	166.37	-7,510.87	457.27	1,683.09	1,579.58	103.52	16.259				
18,600.00	10,511.00	20,076.24	12,152.37	134.04	146.41	166.38	-7,610.85	458.15	1,684.39	1,579.76	104.63	16.099				
18,700.00	10,511.00	20,176.23	12,153.68	135.63	148.00	166.38	-7,710.83	459.03	1,685.69	1,579.95	105.74	15.942				
18,800.00	10,511.00	20,276.22	12,154.99	137.21	149.60	166.39	-7,810.81	459.90	1,686.99	1,580.14	106.85	15.788				
18,900.00	10,511.00	20,376.21	12,156.31	138.79	151.19	166.40	-7,910.79	460.78	1,688.29	1,580.32	107.97	15.637				

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 502H
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 502H	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				
19,000.00	10,511.00	20,476.20	12,157.62	140.38	152.79	166.41	-8,010.77	461.66	1,689.59	1,580.50	109.08	15.489				
19,100.00	10,511.00	20,576.19	12,158.93	141.97	154.38	166.41	-8,110.74	462.54	1,690.89	1,580.69	110.20	15.344				
19,200.00	10,511.00	20,676.18	12,160.25	143.56	155.98	166.42	-8,210.72	463.42	1,692.19	1,580.87	111.31	15.202				
19,300.00	10,511.00	20,776.17	12,161.56	145.15	157.58	166.43	-8,310.70	464.30	1,693.48	1,581.05	112.43	15.062				
19,400.00	10,511.00	20,876.17	12,162.87	146.74	159.18	166.44	-8,410.68	465.18	1,694.78	1,581.23	113.55	14.925				
19,500.00	10,511.00	20,976.16	12,164.18	148.33	160.78	166.44	-8,510.66	466.06	1,696.08	1,581.41	114.67	14.791				
19,600.00	10,511.00	21,076.15	12,165.50	149.93	162.38	166.45	-8,610.64	466.94	1,697.38	1,581.59	115.79	14.659				
19,700.00	10,511.00	21,176.14	12,166.81	151.52	163.98	166.46	-8,710.62	467.82	1,698.68	1,581.77	116.91	14.530				
19,800.00	10,511.00	21,276.13	12,168.12	153.12	165.59	166.46	-8,810.60	468.70	1,699.98	1,581.95	118.03	14.403				
19,900.00	10,511.00	21,376.12	12,169.44	154.72	167.19	166.47	-8,910.57	469.58	1,701.28	1,582.12	119.16	14.278				
20,000.00	10,511.00	21,476.11	12,170.75	156.32	168.80	166.48	-9,010.55	470.45	1,702.58	1,582.30	120.28	14.155				
20,100.00	10,511.00	21,576.11	12,172.06	157.92	170.40	166.49	-9,110.53	471.33	1,703.88	1,582.48	121.40	14.035				
20,200.00	10,511.00	21,676.10	12,173.38	159.52	172.01	166.49	-9,210.51	472.21	1,705.18	1,582.65	122.53	13.917				
20,300.00	10,511.00	21,776.09	12,174.69	161.12	173.62	166.50	-9,310.49	473.09	1,706.48	1,582.82	123.65	13.801				
20,400.00	10,511.00	21,876.08	12,176.00	162.72	175.23	166.51	-9,410.47	473.97	1,707.78	1,583.00	124.78	13.686				
20,500.00	10,511.00	21,976.07	12,177.32	164.33	176.84	166.51	-9,510.45	474.85	1,709.08	1,583.17	125.90	13.574				
20,600.00	10,511.00	22,076.06	12,178.63	165.93	178.45	166.52	-9,610.43	475.73	1,710.38	1,583.35	127.03	13.464				
20,700.00	10,511.00	22,176.05	12,179.94	167.54	180.06	166.53	-9,710.41	476.61	1,711.67	1,583.52	128.16	13.356				
20,800.00	10,511.00	22,276.04	12,181.25	169.14	181.67	166.54	-9,810.38	477.49	1,712.97	1,583.69	129.29	13.250				
20,900.00	10,511.00	22,376.04	12,182.57	170.75	183.28	166.54	-9,910.36	478.37	1,714.27	1,583.86	130.41	13.145				
21,000.00	10,511.00	22,476.03	12,183.88	172.36	184.89	166.55	-10,010.34	479.25	1,715.57	1,584.03	131.54	13.042				
21,100.00	10,511.00	22,576.02	12,185.19	173.97	186.51	166.56	-10,110.32	480.13	1,716.87	1,584.20	132.67	12.941				
21,200.00	10,511.00	22,676.01	12,186.51	175.58	188.12	166.56	-10,210.30	481.00	1,718.17	1,584.37	133.80	12.841				
21,300.00	10,511.00	22,776.00	12,187.82	177.19	189.74	166.57	-10,310.28	481.88	1,719.47	1,584.54	134.93	12.744				
21,400.00	10,511.00	22,875.99	12,189.13	178.80	191.35	166.58	-10,410.26	482.76	1,720.77	1,584.71	136.06	12.647				
21,500.00	10,511.00	22,975.98	12,190.45	180.41	192.97	166.59	-10,510.24	483.64	1,722.07	1,584.88	137.19	12.552				
21,600.00	10,511.00	23,075.98	12,191.76	182.03	194.59	166.59	-10,610.22	484.52	1,723.37	1,585.05	138.32	12.459				
21,700.00	10,511.00	23,175.97	12,193.07	183.64	196.20	166.60	-10,710.19	485.40	1,724.67	1,585.22	139.45	12.367				
21,800.00	10,511.00	23,275.96	12,194.39	185.25	197.82	166.61	-10,810.17	486.28	1,725.97	1,585.39	140.58	12.277				
21,900.00	10,511.00	23,375.95	12,195.70	186.87	199.44	166.61	-10,910.15	487.16	1,727.27	1,585.56	141.71	12.188				
22,000.00	10,511.00	23,475.94	12,197.01	188.49	201.06	166.62	-11,010.13	488.04	1,728.57	1,585.72	142.85	12.101				
22,046.30	10,511.00	23,522.23	12,197.62	189.23	201.78	166.62	-11,056.42	488.44	1,729.17	1,585.86	143.31	12.066				

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 502H
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 502H	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		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
0.00	0.00	0.00	0.00	0.00	0.00	49.76	972.56	1,149.36	1,505.63							
100.00	100.00	82.39	82.38	0.13	0.12	49.74	973.47	1,149.38	1,506.39	1,506.22	0.17	8,826.167				
200.00	200.00	170.09	170.04	0.48	0.36	49.66	976.15	1,149.43	1,508.39	1,507.79	0.60	2,514.566				
300.00	300.00	265.37	265.25	0.84	0.70	49.56	979.69	1,149.50	1,510.86	1,509.76	1.09	1,383.038				
400.00	400.00	361.19	360.97	1.20	1.04	49.43	984.07	1,149.17	1,513.56	1,511.97	1.59	951.850				
500.00	500.00	453.42	453.08	1.56	1.38	49.28	988.85	1,148.83	1,516.67	1,514.59	2.08	728.889				
600.00	600.00	551.89	551.36	1.92	1.74	49.09	994.86	1,148.05	1,520.07	1,517.48	2.59	587.402				
700.00	700.00	692.16	691.46	2.28	2.25	48.89	1,000.94	1,146.89	1,522.30	1,519.11	3.20	476.113				
800.00	800.00	785.80	785.09	2.63	2.58	48.87	1,002.12	1,147.68	1,523.74	1,520.06	3.68	413.733				
900.00	900.00	878.52	877.80	2.99	2.90	48.90	1,002.59	1,149.21	1,525.31	1,521.15	4.16	366.428				
1,000.00	1,000.00	986.61	985.87	3.35	3.27	48.94	1,002.86	1,151.09	1,526.79	1,522.11	4.68	326.284				
1,100.00	1,100.00	1,079.98	1,079.22	3.71	3.60	48.99	1,002.74	1,153.07	1,528.30	1,523.14	5.16	296.122				
1,200.00	1,200.00	1,171.46	1,170.67	4.07	3.91	49.04	1,002.78	1,155.38	1,530.24	1,524.60	5.64	271.326				
1,300.00	1,300.00	1,258.10	1,257.27	4.43	4.22	49.10	1,003.19	1,158.08	1,532.89	1,526.78	6.11	250.949				
1,400.00	1,400.00	1,389.98	1,389.11	4.79	4.64	49.14	1,004.03	1,160.86	1,534.90	1,528.24	6.66	230.527				
1,500.00	1,500.00	1,494.02	1,493.15	5.14	4.69	49.16	1,004.22	1,161.70	1,535.62	1,528.66	6.95	220.834				
1,600.00	1,600.00	1,592.75	1,591.88	5.50	4.73	49.17	1,004.44	1,162.54	1,536.41	1,529.16	7.25	211.911				
1,700.00	1,700.00	1,700.39	1,699.51	5.86	4.81	49.19	1,004.40	1,163.34	1,536.94	1,529.37	7.57	202.924				
1,800.00	1,800.00	1,802.92	1,802.04	6.22	4.91	49.22	1,004.12	1,163.91	1,537.19	1,529.27	7.92	194.204				
1,900.00	1,900.00	1,903.73	1,902.85	6.58	5.03	49.23	1,003.87	1,164.26	1,537.29	1,529.02	8.27	185.835				
2,000.00	2,000.00	2,004.45	2,003.57	6.94	5.17	49.23	1,003.92	1,164.38	1,537.41	1,528.76	8.64	177.868				
2,100.00	2,100.00	2,099.50	2,098.62	7.29	5.32	49.24	1,003.85	1,164.58	1,537.53	1,528.50	9.02	170.411				
2,200.00	2,200.00	2,185.68	2,184.79	7.65	5.47	49.27	1,003.60	1,165.67	1,538.31	1,528.90	9.40	163.600				
2,300.00	2,300.00	2,269.33	2,268.40	8.01	5.64	49.35	1,003.06	1,168.15	1,540.13	1,530.34	9.79	157.355				
2,400.00	2,399.99	2,355.87	2,354.82	8.37	5.82	-1.35	1,001.82	1,172.44	1,541.65	1,531.47	10.18	151.451				
2,500.00	2,499.91	2,446.12	2,444.75	8.72	6.02	-1.09	998.56	1,179.36	1,541.24	1,530.66	10.58	145.673				
2,600.00	2,599.69	2,533.64	2,531.65	9.07	6.23	-0.74	993.63	1,188.44	1,539.03	1,528.04	10.98	140.112				
2,700.00	2,699.27	2,628.90	2,626.09	9.43	6.47	-0.31	987.69	1,199.36	1,534.75	1,523.34	11.41	134.519				
2,800.00	2,798.57	2,720.93	2,717.33	9.79	6.73	0.10	982.15	1,210.14	1,528.27	1,516.44	11.84	129.119				
2,900.00	2,897.54	2,801.00	2,796.60	10.15	6.95	0.49	977.27	1,220.27	1,520.00	1,507.75	12.25	124.117				
3,000.00	2,996.09	2,895.00	2,889.45	10.53	7.24	1.00	971.05	1,233.53	1,510.03	1,497.34	12.69	118.982				
3,100.00	3,094.16	2,989.43	2,982.41	10.91	7.54	1.59	963.61	1,248.33	1,498.06	1,484.92	13.15	113.958				
3,135.41	3,128.76	3,028.50	3,020.80	11.04	7.67	1.86	960.13	1,254.71	1,493.21	1,479.89	13.32	112.082				
3,200.00	3,191.82	3,097.36	3,088.47	11.30	7.91	2.34	953.77	1,265.77	1,483.88	1,470.24	13.64	108.792				
3,300.00	3,289.44	3,192.94	3,182.48	11.70	8.24	2.99	945.29	1,280.77	1,469.52	1,455.41	14.11	104.130				
3,400.00	3,387.05	3,290.46	3,278.59	12.10	8.59	3.63	937.61	1,295.46	1,455.42	1,440.83	14.59	99.723				
3,500.00	3,484.67	3,386.01	3,372.73	12.52	8.94	4.26	930.02	1,309.89	1,441.50	1,426.42	15.08	95.598				
3,600.00	3,582.29	3,472.15	3,457.19	12.94	9.27	4.94	921.60	1,324.52	1,428.32	1,412.77	15.55	91.860				
3,700.00	3,679.91	3,558.58	3,541.57	13.36	9.61	5.69	912.10	1,340.68	1,416.17	1,400.14	16.03	88.357				
3,800.00	3,777.52	3,650.67	3,631.38	13.79	9.99	6.51	902.11	1,358.40	1,404.87	1,388.35	16.53	85.002				
3,900.00	3,875.14	3,749.78	3,728.22	14.22	10.41	7.37	892.29	1,377.05	1,394.02	1,376.97	17.05	81.764				
4,000.00	3,972.76	3,857.43	3,833.77	14.66	10.85	8.25	882.81	1,395.97	1,382.97	1,365.37	17.60	78.598				
4,100.00	4,070.38	3,957.81	3,932.18	15.10	11.27	9.09	873.48	1,413.41	1,371.78	1,353.66	18.13	75.683				
4,200.00	4,168.00	4,058.81	4,030.96	15.55	11.71	10.02	862.58	1,431.48	1,360.65	1,341.98	18.66	72.901				
4,300.00	4,265.61	4,154.30	4,124.32	15.99	12.13	10.92	852.02	1,448.48	1,349.67	1,330.48	19.19	70.326				
4,400.00	4,363.23	4,242.24	4,210.29	16.44	12.52	11.75	842.64	1,464.47	1,339.55	1,319.86	19.70	68.003				
4,500.00	4,460.85	4,329.03	4,295.13	16.90	12.90	12.57	834.00	1,480.57	1,330.42	1,310.22	20.20	65.858				
4,600.00	4,558.47	4,404.00	4,368.45	17.35	13.24	13.24	827.62	1,494.87	1,322.75	1,302.09	20.66	64.015				
4,700.00	4,656.08	4,488.46	4,451.09	17.81	13.62	13.95	822.22	1,511.42	1,316.70	1,295.55	21.15	62.257				
4,800.00	4,753.70	4,659.66	4,619.24	18.27	14.36	15.31	812.28	1,541.89	1,309.95	1,288.05	21.91	59.794				
4,900.00	4,851.32	4,796.56	4,754.49	18.73	14.92	16.44	800.89	1,559.66	1,297.45	1,274.91	22.54	57.569				
5,000.00	4,948.94	4,876.00	4,833.12	19.19	15.25	17.08	794.80	1,569.26	1,284.90	1,261.88	23.02	55.813				

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 502H
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 502H	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	5,046.56	4,961.27	4,917.48	19.66	15.59	17.75	789.09	1,580.34	1,273.74	1,250.22	23.52	54.160				
5,200.00	5,144.17	5,059.13	5,014.28	20.13	16.00	18.49	783.62	1,593.56	1,263.64	1,239.59	24.05	52.550				
5,300.00	5,241.79	5,157.00	5,111.15	20.59	16.39	19.26	777.86	1,606.27	1,253.18	1,228.60	24.58	50.992				
5,400.00	5,339.41	5,229.95	5,183.02	21.06	16.71	19.93	771.77	1,617.11	1,244.07	1,219.03	25.05	49.670				
5,500.00	5,437.03	5,303.97	5,255.35	21.53	17.06	20.74	763.85	1,630.71	1,237.73	1,212.21	25.52	48.501				
5,600.00	5,534.65	5,389.79	5,338.86	22.01	17.47	21.72	754.06	1,647.86	1,233.20	1,207.17	26.04	47.366				
5,700.00	5,632.26	5,483.26	5,429.79	22.48	17.93	22.79	743.67	1,666.87	1,229.59	1,203.01	26.58	46.259				
5,800.00	5,729.88	5,577.41	5,521.41	22.95	18.39	23.85	733.73	1,686.13	1,226.71	1,199.59	27.13	45.220				
5,900.00	5,827.50	5,671.64	5,613.16	23.43	18.85	24.90	724.39	1,705.46	1,224.50	1,196.83	27.67	44.247				
6,000.00	5,925.12	5,769.62	5,708.59	23.90	19.32	25.96	715.19	1,725.66	1,222.95	1,194.71	28.24	43.312				
6,100.00	6,022.73	5,883.45	5,819.76	24.38	19.87	27.14	705.62	1,748.17	1,221.22	1,192.36	28.86	42.316				
6,200.00	6,120.35	5,980.34	5,914.63	24.85	20.32	28.12	697.83	1,766.26	1,218.84	1,189.42	29.41	41.437				
6,300.00	6,217.97	6,073.67	6,005.98	25.33	20.76	29.05	690.82	1,784.06	1,217.31	1,187.36	29.95	40.638				
6,400.00	6,315.59	6,168.21	6,098.49	25.81	21.21	29.98	683.95	1,802.30	1,216.41	1,185.91	30.50	39.881				
6,500.00	6,413.21	6,301.71	6,229.37	26.29	21.83	31.31	673.97	1,826.59	1,214.82	1,183.62	31.20	38.937				
6,600.00	6,510.82	6,403.32	6,329.31	26.77	22.29	32.32	666.14	1,843.16	1,211.66	1,179.88	31.78	38.131				
6,700.00	6,608.44	6,494.88	6,419.32	27.25	22.71	33.25	658.92	1,858.30	1,209.06	1,176.74	32.32	37.410				
6,719.26	6,627.24	6,512.97	6,437.10	27.34	22.79	33.43	657.48	1,861.34	1,208.65	1,176.23	32.43	37.275				
6,791.52	6,697.93	6,580.97	6,503.91	27.69	23.10	34.09	652.17	1,872.85	1,207.92	1,175.09	32.82	36.800				
6,800.00	6,706.24	6,588.97	6,511.76	27.73	23.14	34.17	651.55	1,874.22	1,207.93	1,175.05	32.87	36.748				
6,900.00	6,804.54	6,705.21	6,625.96	28.18	23.67	35.25	642.44	1,893.89	1,209.38	1,175.88	33.50	36.104				
7,000.00	6,903.29	6,853.42	6,772.41	28.61	24.30	36.50	630.76	1,913.34	1,209.15	1,174.95	34.20	35.355				
7,100.00	7,002.41	7,016.69	6,934.77	29.02	24.92	37.63	620.04	1,926.65	1,206.17	1,171.31	34.86	34.602				
7,200.00	7,101.85	7,117.28	7,035.03	29.41	25.28	38.18	614.73	1,932.58	1,203.61	1,168.23	35.38	34.019				
7,265.24	7,166.86	7,182.40	7,100.01	29.65	25.51	38.43	612.73	1,936.49	1,203.18	1,167.47	35.71	33.693 CC				
7,300.00	7,201.53	7,217.79	7,135.33	29.78	25.63	38.55	611.88	1,938.59	1,203.30	1,167.41	35.89	33.531				
7,400.00	7,301.38	7,321.67	7,239.01	30.13	25.99	38.84	609.60	1,944.55	1,204.85	1,168.46	36.38	33.115				
7,500.00	7,401.34	7,421.11	7,338.27	30.46	26.33	39.07	607.25	1,950.09	1,208.28	1,171.42	36.87	32.775				
7,554.66	7,456.00	7,478.80	7,395.85	30.63	26.53	90.00	606.04	1,953.24	1,210.97	1,173.84	37.13	32.615				
7,600.00	7,501.34	7,532.80	7,449.78	30.77	26.71	90.04	605.13	1,956.02	1,213.31	1,175.96	37.35	32.485				
7,700.00	7,601.34	7,670.53	7,587.44	31.07	27.14	90.05	604.89	1,959.86	1,216.00	1,178.17	37.82	32.149				
7,800.00	7,701.34	7,774.24	7,691.13	31.38	27.44	89.96	606.84	1,961.09	1,217.18	1,178.91	38.27	31.804				
7,900.00	7,801.34	7,870.83	7,787.69	31.69	27.73	89.88	608.63	1,962.38	1,218.52	1,179.80	38.72	31.469				
8,000.00	7,901.34	7,969.35	7,886.19	32.00	28.02	89.83	609.69	1,963.92	1,220.09	1,180.91	39.18	31.142				
8,100.00	8,001.34	8,060.18	7,977.00	32.32	28.30	89.80	610.28	1,965.67	1,222.02	1,182.38	39.64	30.829				
8,200.00	8,101.34	8,155.03	8,071.83	32.63	28.60	89.79	610.53	1,968.16	1,224.64	1,184.54	40.10	30.538				
8,300.00	8,201.34	8,282.95	8,199.72	32.94	29.01	89.80	610.28	1,970.51	1,226.53	1,185.96	40.57	30.231				
8,400.00	8,301.34	8,387.41	8,304.18	33.26	29.32	89.83	609.65	1,970.75	1,226.76	1,185.72	41.03	29.896				
8,500.00	8,401.34	8,488.30	8,405.06	33.57	29.62	89.88	608.50	1,971.22	1,227.23	1,185.73	41.50	29.574				
8,600.00	8,501.34	8,598.83	8,515.59	33.89	29.93	89.91	608.01	1,970.26	1,226.30	1,184.35	41.95	29.234				
8,700.00	8,601.34	8,701.01	8,617.73	34.20	30.23	90.00	605.94	1,969.72	1,225.78	1,183.37	42.41	28.906				
8,800.00	8,701.34	8,805.66	8,722.35	34.52	30.53	90.11	603.64	1,968.28	1,224.40	1,181.53	42.86	28.564				
8,900.00	8,801.34	8,904.68	8,821.30	34.84	30.82	90.27	600.22	1,967.01	1,223.12	1,179.78	43.33	28.226				
9,000.00	8,901.34	9,000.91	8,917.41	35.16	31.11	90.49	595.50	1,965.88	1,221.98	1,178.17	43.81	27.894				
9,100.00	9,001.34	9,103.95	9,020.29	35.48	31.42	90.76	589.82	1,964.79	1,220.98	1,176.70	44.28	27.572				
9,200.00	9,101.34	9,201.75	9,117.93	35.80	31.72	91.02	584.35	1,963.61	1,219.86	1,175.10	44.76	27.252				
9,300.00	9,201.34	9,296.65	9,212.67	36.12	32.02	91.27	578.95	1,962.76	1,219.08	1,173.83	45.24	26.945				
9,400.00	9,301.34	9,393.53	9,309.39	36.45	32.32	91.53	573.55	1,962.22	1,218.66	1,172.93	45.73	26.652				
9,474.68	9,376.01	9,464.75	9,380.51	36.69	32.55	91.71	569.68	1,962.00	1,218.55	1,172.46	46.09	26.441				
9,500.00	9,401.34	9,488.87	9,404.59	36.77	32.62	91.77	568.40	1,961.98	1,218.56	1,172.35	46.21	26.371				
9,600.00	9,501.34	9,582.77	9,498.36	37.09	32.93	92.01	563.21	1,962.14	1,218.91	1,172.22	46.69	26.105				
9,700.00	9,601.34	9,680.95	9,596.35	37.42	33.25	92.29	557.24	1,962.61	1,219.62	1,172.44	47.18	25.851				

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 502H
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 502H	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				
9,800.00	9,701.34	9,781.77	9,697.07	37.74	33.58	92.50	552.78	1,963.17	1,220.36	1,172.70	47.66	25.604				
9,900.00	9,801.34	9,876.78	9,792.06	38.07	33.88	92.52	552.20	1,964.01	1,221.28	1,173.14	48.14	25.371				
10,000.00	9,901.34	9,971.42	9,886.69	38.39	34.18	92.46	553.46	1,965.46	1,222.74	1,174.14	48.60	25.157				
10,036.70	9,938.04	10,033.75	9,948.99	38.51	34.36	92.38	555.31	1,965.86	1,222.93	1,174.16	48.77	25.077				
10,050.00	9,951.34	10,056.30	9,971.51	38.55	34.43	-84.40	556.32	1,965.70	1,222.79	1,173.97	48.82	25.047				
10,100.00	10,001.21	10,108.39	10,023.53	38.69	34.57	-84.78	558.83	1,965.06	1,221.77	1,172.75	49.02	24.922				
10,150.00	10,050.60	10,158.60	10,073.69	38.82	34.71	-85.38	561.06	1,964.38	1,220.35	1,171.13	49.21	24.797				
10,200.00	10,099.14	10,206.66	10,121.71	38.93	34.85	-86.17	562.89	1,963.70	1,218.67	1,169.28	49.39	24.674				
10,250.00	10,146.45	10,254.30	10,169.33	39.02	34.98	-87.13	564.32	1,963.01	1,216.90	1,167.34	49.55	24.558				
10,300.00	10,192.17	10,305.26	10,220.25	39.10	35.13	-88.35	565.89	1,962.12	1,215.08	1,165.39	49.70	24.450				
10,350.00	10,235.96	10,350.78	10,265.73	39.16	35.25	-89.62	567.55	1,961.12	1,213.41	1,163.58	49.83	24.351				
10,400.00	10,277.48	10,384.99	10,299.90	39.21	35.35	-90.67	569.12	1,960.44	1,212.44	1,162.47	49.97	24.266				
10,421.59	10,294.63	10,398.88	10,313.77	39.22	35.39	-91.11	569.87	1,960.20	1,212.33	1,162.31	50.02	24.237 ES				
10,450.00	10,316.42	10,416.31	10,331.16	39.23	35.44	-91.66	570.89	1,959.94	1,212.53	1,162.43	50.09	24.205				
10,500.00	10,352.48	10,445.09	10,359.88	39.25	35.52	-92.52	572.79	1,959.59	1,213.93	1,163.72	50.22	24.174				
10,550.00	10,385.38	10,472.30	10,387.02	39.25	35.59	-93.25	574.65	1,959.33	1,216.84	1,166.50	50.34	24.173				
10,600.00	10,414.88	10,496.24	10,410.91	39.23	35.66	-93.74	576.31	1,959.16	1,221.44	1,170.97	50.46	24.205				
10,650.00	10,440.75	10,516.75	10,431.36	39.21	35.72	-93.95	577.74	1,959.06	1,227.88	1,177.29	50.59	24.271				
10,700.00	10,462.80	10,531.00	10,445.58	39.18	35.76	-93.72	578.75	1,959.01	1,236.30	1,185.57	50.73	24.372				
10,750.00	10,480.85	10,547.14	10,461.68	39.13	35.81	-93.38	579.88	1,958.97	1,246.73	1,195.86	50.87	24.509				
10,800.00	10,494.77	10,556.76	10,471.27	39.09	35.83	-92.54	580.55	1,958.96	1,259.20	1,208.18	51.02	24.682				
10,850.00	10,504.45	10,562.45	10,476.96	39.04	35.85	-91.30	580.95	1,958.96	1,273.63	1,222.46	51.17	24.889				
10,900.00	10,509.82	10,564.19	10,478.68	39.00	35.86	-89.65	581.07	1,958.96	1,289.93	1,238.59	51.33	25.129				
10,936.70	10,511.00	10,562.92	10,477.42	38.97	35.85	-88.20	580.98	1,958.96	1,302.97	1,251.52	51.45	25.325				
11,000.00	10,511.00	10,558.86	10,473.38	38.94	35.84	-87.99	580.70	1,958.96	1,328.13	1,276.46	51.66	25.707				
11,073.75	10,511.00	10,554.13	10,468.65	38.93	35.83	-87.73	580.37	1,958.96	1,362.11	1,310.17	51.93	26.228				
11,100.00	10,511.00	10,552.44	10,466.97	38.94	35.82	-87.65	580.25	1,958.97	1,375.24	1,323.21	52.03	26.430				
11,200.00	10,511.00	10,545.99	10,460.54	39.03	35.80	-87.34	579.80	1,958.97	1,428.58	1,376.15	52.43	27.250				
11,300.00	10,511.00	10,539.53	10,454.09	39.25	35.78	-87.03	579.35	1,958.99	1,486.70	1,433.88	52.82	28.144				
11,400.00	10,511.00	10,531.00	10,445.58	39.60	35.76	-86.62	578.75	1,959.01	1,549.08	1,495.87	53.22	29.109				
11,500.00	10,511.00	10,531.00	10,445.58	40.03	35.76	-86.62	578.75	1,959.01	1,615.22	1,561.62	53.60	30.133				
11,600.00	10,511.00	10,520.53	10,435.13	40.53	35.73	-86.12	578.01	1,959.04	1,684.67	1,630.71	53.96	31.219				
11,700.00	10,511.00	12,916.92	11,812.41	41.10	47.62	-138.65	-673.83	1,928.61	1,728.21	1,682.33	45.88	37.666				
11,800.00	10,511.00	13,039.63	11,811.54	41.73	48.83	-138.51	-796.39	1,934.50	1,730.23	1,683.46	46.77	36.991				
11,900.00	10,511.00	13,139.52	11,808.87	42.41	49.87	-138.36	-896.13	1,939.38	1,730.83	1,683.14	47.69	36.295				
12,000.00	10,511.00	13,207.00	11,808.22	43.14	50.58	-138.25	-963.46	1,943.69	1,733.49	1,684.93	48.56	35.698				
12,100.00	10,511.00	13,382.99	11,805.98	43.93	52.52	-137.99	-1,139.10	1,954.11	1,736.91	1,687.11	49.80	34.879				
12,200.00	10,511.00	13,505.92	11,801.37	44.75	53.91	-137.86	-1,261.92	1,956.49	1,734.71	1,683.80	50.90	34.079				
12,300.00	10,511.00	13,614.25	11,797.21	45.62	55.16	-137.77	-1,370.17	1,957.54	1,731.85	1,679.86	51.99	33.309				
12,400.00	10,511.00	13,718.41	11,794.45	46.53	56.38	-137.75	-1,474.28	1,956.84	1,728.79	1,675.72	53.07	32.574				
12,500.00	10,511.00	13,810.50	11,791.75	47.48	57.47	-137.73	-1,566.33	1,956.12	1,725.46	1,671.30	54.16	31.860				
12,600.00	10,511.00	13,887.13	11,791.45	48.47	58.40	-137.77	-1,642.94	1,954.94	1,723.44	1,668.24	55.20	31.221				
12,700.00	10,511.00	14,013.64	11,791.09	49.49	59.95	-137.83	-1,769.45	1,953.23	1,721.79	1,665.41	56.38	30.537				
12,800.00	10,511.00	14,109.27	11,788.67	50.55	61.14	-137.84	-1,865.02	1,951.67	1,718.19	1,660.64	57.55	29.854				
12,900.00	10,511.00	14,181.15	11,788.30	51.63	62.05	-137.87	-1,936.90	1,950.96	1,716.43	1,657.75	58.68	29.250				
13,000.00	10,511.00	14,269.28	11,788.11	52.75	63.18	-137.88	-2,025.03	1,950.95	1,715.62	1,655.74	59.88	28.652				
13,038.08	10,511.00	14,300.23	11,788.05	53.18	63.58	-137.88	-2,055.98	1,951.23	1,715.54	1,655.20	60.34	28.431				
13,100.00	10,511.00	14,351.50	11,788.02	53.89	64.25	-137.88	-2,107.24	1,952.02	1,715.75	1,654.64	61.10	28.079				
13,200.00	10,511.00	14,438.00	11,788.02	55.05	65.39	-137.85	-2,193.72	1,953.97	1,716.62	1,654.25	62.37	27.522				
13,300.00	10,511.00	14,498.96	11,788.53	56.24	66.21	-137.82	-2,254.64	1,956.16	1,719.07	1,655.48	63.59	27.032				
13,400.00	10,511.00	14,579.22	11,790.53	57.46	67.30	-137.78	-2,334.76	1,960.37	1,723.69	1,658.79	64.90	26.560				
13,500.00	10,511.00	14,790.66	11,791.46	58.69	70.19	-137.70	-2,546.04	1,966.64	1,725.44	1,658.82	66.62	25.899				

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 502H
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 502H	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				
13,600.00	10,511.00	14,928.47	11,785.49	59.94	72.10	-137.54	-2,683.70	1,968.92	1,722.70	1,654.50	68.19	25.262				
13,700.00	10,511.00	15,041.00	11,778.41	61.22	73.67	-137.38	-2,796.00	1,969.98	1,717.98	1,648.26	69.72	24.641				
13,800.00	10,511.00	15,101.00	11,775.07	62.51	74.51	-137.30	-2,855.90	1,970.70	1,714.25	1,643.15	71.10	24.109				
13,900.00	10,511.00	15,195.00	11,772.69	63.81	75.83	-137.25	-2,949.86	1,971.42	1,712.25	1,639.70	72.55	23.601				
13,989.73	10,511.00	15,252.62	11,773.18	65.00	76.65	-137.28	-3,007.47	1,971.18	1,711.76	1,638.02	73.73	23.215				
14,000.00	10,511.00	15,261.20	11,773.33	65.13	76.77	-137.29	-3,016.05	1,971.10	1,711.76	1,637.89	73.87	23.172				
14,100.00	10,511.00	15,360.46	11,775.85	66.47	78.17	-137.41	-3,115.27	1,969.75	1,712.04	1,636.83	75.22	22.761				
14,200.00	10,511.00	15,449.23	11,778.33	67.82	79.44	-137.52	-3,204.00	1,968.36	1,712.40	1,635.85	76.55	22.371				
14,300.00	10,511.00	15,535.76	11,781.85	69.18	80.67	-137.65	-3,290.44	1,966.93	1,713.63	1,635.78	77.85	22.011				
14,400.00	10,511.00	15,613.19	11,785.72	70.56	81.79	-137.79	-3,367.77	1,965.84	1,715.76	1,636.62	79.14	21.680				
14,500.00	10,511.00	15,688.66	11,790.60	71.95	82.88	-137.92	-3,443.08	1,965.46	1,719.53	1,639.12	80.41	21.385				
14,600.00	10,511.00	15,794.65	11,796.38	73.34	84.44	-138.04	-3,548.89	1,966.94	1,723.88	1,642.06	81.81	21.071				
14,700.00	10,511.00	15,956.00	11,799.38	74.75	86.82	-138.04	-3,710.15	1,971.14	1,726.50	1,642.99	83.51	20.675				
14,800.00	10,511.00	16,056.31	11,799.63	76.17	88.30	-138.03	-3,810.44	1,972.66	1,727.04	1,642.02	85.02	20.313				
14,900.00	10,511.00	16,163.81	11,800.80	77.60	89.89	-138.10	-3,917.94	1,972.19	1,726.88	1,640.39	86.49	19.967				
14,900.48	10,511.00	16,164.14	11,800.80	77.60	89.89	-138.10	-3,918.27	1,972.18	1,726.88	1,640.39	86.49	19.966				
15,000.00	10,511.00	16,236.00	11,802.99	79.03	90.96	-138.18	-3,990.09	1,971.51	1,727.82	1,639.98	87.84	19.671				
15,100.00	10,511.00	16,330.40	11,806.94	80.47	92.36	-138.31	-4,084.40	1,970.78	1,729.76	1,640.55	89.21	19.390				
15,200.00	10,511.00	16,426.00	11,810.75	81.93	93.79	-138.43	-4,179.92	1,970.05	1,731.60	1,641.01	90.59	19.115				
15,300.00	10,511.00	16,488.83	11,813.86	83.38	94.73	-138.52	-4,242.67	1,970.01	1,734.71	1,642.82	91.89	18.878				
15,400.00	10,511.00	16,564.53	11,819.02	84.85	95.88	-138.62	-4,318.18	1,971.07	1,740.02	1,646.82	93.20	18.669				
15,500.00	10,511.00	16,652.46	11,824.60	86.32	97.21	-138.71	-4,405.91	1,973.44	1,745.94	1,651.35	94.60	18.457				
15,600.00	10,511.00	16,710.00	11,828.28	87.80	98.09	-138.74	-4,463.28	1,975.82	1,753.14	1,657.27	95.87	18.287				
15,700.00	10,511.00	16,784.55	11,833.81	89.29	99.24	-138.77	-4,537.49	1,980.19	1,762.13	1,664.90	97.23	18.124				
15,800.00	10,511.00	16,898.46	11,842.92	90.78	101.00	-138.79	-4,650.72	1,988.68	1,772.48	1,673.62	98.87	17.928				
15,900.00	10,511.00	17,053.40	11,852.57	92.27	103.40	-138.80	-4,805.06	1,998.25	1,780.73	1,680.00	100.74	17.677				
16,000.00	10,511.00	17,204.37	11,859.08	93.77	105.73	-138.86	-4,955.80	2,002.71	1,785.11	1,682.65	102.46	17.423				
16,100.00	10,511.00	17,278.00	11,862.37	95.28	106.86	-138.92	-5,029.35	2,003.77	1,788.92	1,685.09	103.83	17.229				
16,200.00	10,511.00	17,373.00	11,867.03	96.79	108.33	-138.98	-5,124.19	2,006.54	1,793.90	1,688.59	105.31	17.035				
16,300.00	10,511.00	17,490.22	11,873.70	98.31	110.14	-139.09	-5,241.19	2,008.54	1,798.69	1,691.88	106.81	16.841				
16,400.00	10,511.00	17,572.13	11,878.30	99.83	111.41	-139.17	-5,322.96	2,010.15	1,803.56	1,695.37	108.19	16.670				
16,500.00	10,511.00	17,734.53	11,886.10	101.35	113.92	-139.36	-5,485.15	2,010.51	1,806.48	1,696.72	109.77	16.457				
16,600.00	10,511.00	17,823.88	11,889.60	102.88	115.30	-139.49	-5,574.42	2,009.06	1,807.86	1,696.73	111.12	16.269				
16,700.00	10,511.00	17,885.42	11,893.59	104.41	116.25	-139.61	-5,635.82	2,008.23	1,811.29	1,698.92	112.37	16.119				
16,800.00	10,511.00	17,949.26	11,898.68	105.94	117.24	-139.72	-5,699.46	2,008.39	1,816.87	1,703.28	113.59	15.995				
16,900.00	10,511.00	18,044.21	11,906.78	107.48	118.72	-139.88	-5,794.05	2,009.53	1,823.54	1,708.63	114.91	15.870				
17,000.00	10,511.00	18,145.89	11,914.56	109.02	120.32	-140.01	-5,895.42	2,011.53	1,830.04	1,713.74	116.30	15.735				
17,100.00	10,511.00	18,225.00	11,920.81	110.57	121.56	-140.09	-5,974.22	2,014.34	1,837.66	1,720.02	117.63	15.622				
17,200.00	10,511.00	18,355.12	11,928.05	112.12	123.62	-140.10	-6,103.93	2,021.38	1,844.82	1,725.43	119.39	15.452				
17,300.00	10,511.00	18,511.15	11,933.22	113.67	126.09	-140.05	-6,259.67	2,029.27	1,850.27	1,728.95	121.33	15.250				
17,400.00	10,511.00	18,620.12	11,935.74	115.22	127.80	-140.06	-6,368.59	2,031.78	1,852.88	1,729.97	122.91	15.075				
17,500.00	10,511.00	18,698.00	11,938.79	116.78	129.03	-140.11	-6,446.38	2,033.33	1,856.44	1,732.11	124.33	14.931				
17,600.00	10,511.00	18,804.43	11,944.78	118.34	130.71	-140.23	-6,552.64	2,033.96	1,860.55	1,734.80	125.74	14.796				
17,700.00	10,511.00	18,927.53	11,952.36	119.90	132.63	-140.47	-6,675.48	2,031.38	1,863.32	1,736.29	127.04	14.668				
17,800.00	10,511.00	19,009.72	11,957.34	121.46	133.92	-140.65	-6,757.48	2,029.01	1,865.64	1,737.38	128.26	14.546				
17,900.00	10,511.00	19,077.00	11,963.14	123.03	134.97	-140.81	-6,824.49	2,027.68	1,870.22	1,740.81	129.41	14.452				
18,000.00	10,511.00	19,177.62	11,972.73	124.59	136.55	-141.06	-6,924.64	2,025.89	1,875.91	1,745.34	130.57	14.367				
18,100.00	10,511.00	19,266.00	11,979.17	126.16	137.95	-141.19	-7,012.77	2,026.37	1,881.31	1,749.46	131.85	14.269				
18,200.00	10,511.00	19,374.93	11,985.71	127.74	139.68	-141.28	-7,121.47	2,028.86	1,886.83	1,753.51	133.32	14.153				
18,300.00	10,511.00	19,510.36	11,993.59	129.31	141.83	-141.46	-7,256.67	2,028.98	1,890.77	1,756.01	134.76	14.030				
18,400.00	10,511.00	19,656.00	12,000.67	130.89	144.13	-141.69	-7,402.11	2,026.29	1,892.85	1,756.75	136.10	13.908				
18,500.00	10,511.00	19,740.00	12,004.54	132.46	145.45	-141.84	-7,485.98	2,023.83	1,894.06	1,756.73	137.33	13.792				

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 502H
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 502H	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: 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		
18,600.00	10,511.00	19,806.49	12,008.18	134.04	146.50	-141.95	-7,552.36	2,022.55	1,896.59	1,758.05	138.54	13.690		
18,700.00	10,511.00	19,904.34	12,014.53	135.63	148.05	-142.12	-7,650.00	2,021.51	1,900.45	1,760.66	139.79	13.595		
18,800.00	10,511.00	20,054.60	12,019.79	137.21	150.44	-142.27	-7,800.14	2,020.74	1,902.12	1,760.85	141.27	13.464		
18,900.00	10,511.00	20,132.04	12,021.01	138.79	151.67	-142.28	-7,877.56	2,021.92	1,903.69	1,760.97	142.71	13.339		
19,000.00	10,511.00	20,213.00	12,023.05	140.38	152.96	-142.31	-7,958.48	2,023.02	1,905.99	1,761.86	144.13	13.224		
19,100.00	10,511.00	20,308.00	12,027.64	141.97	154.48	-142.42	-8,053.36	2,022.88	1,909.13	1,763.68	145.44	13.126		
19,200.00	10,511.00	20,509.53	12,033.92	143.56	157.68	-142.65	-8,254.73	2,019.81	1,910.34	1,763.48	146.86	13.008		
19,300.00	10,511.00	20,581.90	12,033.98	145.15	158.83	-142.68	-8,327.10	2,019.35	1,909.34	1,761.04	148.29	12.875		
19,348.49	10,511.00	20,620.82	12,034.05	145.92	159.45	-142.69	-8,366.02	2,019.47	1,909.21	1,760.21	149.00	12.813		
19,400.00	10,511.00	20,662.14	12,034.50	146.74	160.11	-142.71	-8,407.34	2,019.46	1,909.35	1,759.62	149.73	12.752		
19,500.00	10,511.00	20,732.23	12,036.15	148.33	161.23	-142.76	-8,477.41	2,019.38	1,910.59	1,759.52	151.07	12.647		
19,600.00	10,511.00	20,824.42	12,039.68	149.93	162.70	-142.83	-8,569.53	2,019.99	1,913.41	1,760.97	152.44	12.552		
19,700.00	10,511.00	21,022.07	12,043.45	151.52	165.83	-143.15	-8,766.86	2,011.13	1,909.97	1,756.39	153.57	12.437		
19,792.33	10,511.00	21,065.00	12,044.67	153.00	166.51	-143.23	-8,809.72	2,009.12	1,908.85	1,754.12	154.73	12.336		
19,800.00	10,511.00	21,066.90	12,044.75	153.12	166.54	-143.24	-8,811.62	2,009.05	1,908.87	1,754.04	154.83	12.329		
19,900.00	10,511.00	21,159.00	12,048.52	154.72	168.00	-143.44	-8,903.53	2,004.44	1,908.65	1,752.73	155.92	12.241		
19,918.27	10,511.00	21,183.14	12,049.64	155.01	168.38	-143.50	-8,927.61	2,003.07	1,908.56	1,752.46	156.10	12.226		
20,000.00	10,511.00	21,223.23	12,052.10	156.32	169.02	-143.60	-8,967.57	2,001.17	1,909.82	1,752.84	156.98	12.166		
20,100.00	10,511.00	21,322.96	12,059.18	157.92	170.60	-143.84	-9,066.97	1,997.37	1,912.71	1,754.71	158.01	12.105		
20,200.00	10,511.00	21,391.50	12,063.54	159.52	171.69	-143.98	-9,135.33	1,995.12	1,915.63	1,756.58	159.05	12.044		
20,300.00	10,511.00	21,443.00	12,067.90	161.12	172.52	-144.07	-9,186.64	1,995.10	1,921.55	1,761.51	160.04	12.007		
20,400.00	10,511.00	21,497.32	12,073.35	162.72	173.39	-144.16	-9,240.67	1,996.14	1,929.93	1,768.95	160.98	11.988		
20,500.00	10,511.00	21,581.29	12,082.17	164.33	174.75	-144.27	-9,324.14	1,998.70	1,939.65	1,777.54	162.11	11.965		
20,600.00	10,511.00	21,760.33	12,095.31	165.93	177.65	-144.31	-9,502.41	2,008.25	1,948.60	1,784.33	164.28	11.862		
20,700.00	10,511.00	21,889.20	12,098.93	167.54	179.75	-144.24	-9,631.05	2,014.86	1,953.18	1,787.04	166.14	11.756		
20,800.00	10,511.00	22,037.98	12,100.22	169.14	182.16	-144.14	-9,779.66	2,021.73	1,955.85	1,787.68	168.16	11.631		
20,900.00	10,511.00	22,105.00	12,101.56	170.75	183.24	-144.12	-9,846.63	2,023.93	1,958.75	1,789.20	169.55	11.553		
21,000.00	10,511.00	22,149.02	12,103.24	172.36	183.96	-144.11	-9,890.56	2,025.96	1,963.88	1,793.17	170.71	11.504		
21,100.00	10,511.00	22,199.00	12,105.48	173.97	184.77	-144.07	-9,940.32	2,030.05	1,971.68	1,799.78	171.89	11.470		
21,200.00	10,511.00	22,291.93	12,111.47	175.58	186.29	-144.02	-10,032.75	2,037.41	1,980.97	1,807.49	173.47	11.419		
21,300.00	10,511.00	22,411.53	12,121.84	177.19	188.23	-144.10	-10,151.80	2,042.30	1,989.82	1,814.82	175.01	11.370		
21,400.00	10,511.00	22,551.84	12,134.38	178.80	190.50	-144.30	-10,291.53	2,044.14	1,997.34	1,820.91	176.43	11.321		
21,500.00	10,511.00	22,658.25	12,142.80	180.41	192.22	-144.47	-10,397.61	2,044.27	2,003.27	1,825.64	177.63	11.278		
21,600.00	10,511.00	22,744.05	12,150.04	182.03	193.60	-144.61	-10,483.10	2,044.22	2,009.56	1,830.87	178.70	11.246		
21,700.00	10,511.00	22,850.52	12,159.40	183.64	195.32	-144.78	-10,589.16	2,044.28	2,016.23	1,836.38	179.85	11.211		
21,800.00	10,511.00	22,913.18	12,165.27	185.25	196.33	-144.90	-10,651.54	2,044.26	2,023.39	1,842.63	180.76	11.194 SF		
21,900.00	10,511.00	22,955.00	12,169.75	186.87	197.01	-144.97	-10,693.12	2,044.79	2,032.73	1,851.26	181.47	11.201		
22,000.00	10,511.00	23,023.11	12,178.53	188.49	198.11	-145.09	-10,760.64	2,046.11	2,044.08	1,861.81	182.27	11.214		
22,046.30	10,511.00	23,050.00	12,182.61	189.23	198.55	-145.15	-10,787.22	2,046.66	2,050.14	1,867.58	182.56	11.230		

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 502H
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 502H	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 - OH		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	48.90	972.23	1,114.36	1,478.86							
100.00	100.00	107.33	107.33	0.13	0.14	48.89	972.27	1,114.19	1,478.76	1,478.57	0.19	7,837.944				
200.00	200.00	238.30	238.28	0.48	0.60	48.86	971.82	1,112.53	1,477.60	1,476.83	0.77	1,921.330				
300.00	300.00	344.18	344.12	0.84	0.98	48.82	970.90	1,109.74	1,475.04	1,473.75	1.29	1,143.856				
400.00	400.00	451.55	451.43	1.20	1.37	48.74	970.26	1,106.16	1,472.14	1,470.32	1.82	810.862				
500.00	500.00	556.20	556.00	1.56	1.75	48.67	969.25	1,102.24	1,468.69	1,466.35	2.33	629.096				
600.00	600.00	669.41	669.11	1.92	2.16	48.59	968.09	1,097.67	1,465.01	1,462.13	2.88	509.232				
700.00	700.00	722.00	721.63	2.28	2.35	48.54	967.39	1,095.10	1,461.30	1,458.04	3.26	448.180				
800.00	800.00	859.70	859.23	2.63	2.84	48.49	966.44	1,092.09	1,459.34	1,455.48	3.86	378.334				
900.00	900.00	968.32	967.74	2.99	3.23	48.39	965.43	1,087.15	1,455.32	1,450.93	4.39	331.716				
1,000.00	1,000.00	1,086.39	1,085.64	3.35	3.67	48.34	962.41	1,081.74	1,450.16	1,445.22	4.94	293.537				
1,100.00	1,100.00	1,176.30	1,175.42	3.71	4.00	48.30	960.09	1,077.51	1,444.94	1,439.52	5.42	266.540				
1,200.00	1,200.00	1,275.24	1,274.24	4.07	4.36	48.23	958.15	1,072.94	1,440.18	1,434.25	5.93	243.028				
1,300.00	1,300.00	1,444.01	1,442.55	4.43	4.78	48.10	952.95	1,062.04	1,433.56	1,427.11	6.45	222.368				
1,400.00	1,400.00	1,579.96	1,577.54	4.79	4.95	47.92	946.00	1,047.59	1,422.08	1,415.30	6.78	209.713				
1,500.00	1,500.00	1,658.41	1,655.45	5.14	5.03	47.83	941.44	1,039.49	1,410.55	1,403.47	7.08	199.319				
1,600.00	1,600.00	1,733.25	1,729.92	5.50	5.11	47.81	936.92	1,033.65	1,400.71	1,393.32	7.39	189.617				
1,700.00	1,700.00	1,803.99	1,800.43	5.86	5.19	47.84	932.63	1,029.89	1,392.72	1,385.02	7.71	180.706				
1,800.00	1,800.00	1,857.00	1,853.32	6.22	5.26	47.89	929.49	1,028.46	1,387.11	1,379.08	8.02	172.861				
1,900.00	1,900.00	1,932.01	1,928.20	6.58	5.35	48.03	925.26	1,028.85	1,383.91	1,375.55	8.36	165.537				
1,970.51	1,970.51	1,978.91	1,975.01	6.83	5.41	48.16	922.78	1,030.59	1,383.34	1,374.74	8.60	160.940				
2,000.00	2,000.00	1,999.63	1,995.67	6.94	5.44	48.22	921.73	1,031.61	1,383.43	1,374.74	8.70	159.101				
2,100.00	2,100.00	2,073.97	2,069.78	7.29	5.53	48.46	918.27	1,036.38	1,385.10	1,376.06	9.04	153.213				
2,200.00	2,200.00	2,159.80	2,155.31	7.65	5.65	48.73	915.08	1,042.77	1,388.23	1,378.82	9.41	147.604				
2,300.00	2,300.00	2,262.43	2,257.53	8.01	5.82	49.08	911.11	1,051.05	1,391.77	1,381.97	9.80	141.989				
2,400.00	2,399.99	2,369.30	2,363.85	8.37	6.01	-1.33	905.38	1,060.24	1,393.50	1,383.28	10.22	136.408				
2,500.00	2,499.91	2,473.44	2,467.47	8.72	6.22	-0.93	899.71	1,068.96	1,392.45	1,381.81	10.64	130.926				
2,600.00	2,599.69	2,589.50	2,582.92	9.07	6.48	-0.45	892.45	1,078.28	1,388.09	1,377.00	11.09	125.215				
2,700.00	2,699.27	2,701.67	2,694.41	9.43	6.76	0.05	883.72	1,086.97	1,379.99	1,368.45	11.54	119.565				
2,800.00	2,798.57	2,801.00	2,793.21	9.79	7.02	0.48	876.19	1,093.88	1,368.89	1,356.90	11.99	114.216				
2,900.00	2,897.54	2,895.00	2,886.87	10.15	7.27	0.83	870.50	1,099.54	1,355.47	1,343.05	12.42	109.109				
3,000.00	2,996.09	2,963.61	2,955.19	10.53	7.46	1.10	866.73	1,104.51	1,340.80	1,327.98	12.82	104.584				
3,100.00	3,094.16	3,035.84	3,026.92	10.91	7.67	1.46	862.46	1,111.88	1,325.66	1,312.44	13.23	100.236				
3,135.41	3,128.76	3,061.90	3,052.73	11.04	7.74	1.62	860.76	1,115.06	1,320.15	1,306.78	13.37	98.747				
3,200.00	3,191.82	3,131.78	3,121.83	11.30	7.95	2.06	855.87	1,124.23	1,310.12	1,296.43	13.68	95.741				
3,300.00	3,289.44	3,277.29	3,265.95	11.70	8.41	2.97	843.99	1,140.31	1,292.42	1,278.16	14.26	90.654				
3,400.00	3,387.05	3,376.54	3,364.19	12.10	8.74	3.67	833.94	1,150.24	1,272.90	1,258.16	14.74	86.347				
3,500.00	3,484.67	3,472.10	3,458.79	12.52	9.07	4.35	824.40	1,159.73	1,253.57	1,238.34	15.22	82.338				
3,600.00	3,582.29	3,587.29	3,573.11	12.94	9.46	5.10	813.99	1,169.30	1,233.64	1,217.89	15.75	78.341				
3,700.00	3,679.91	3,705.32	3,690.53	13.36	9.86	5.79	804.31	1,176.40	1,212.47	1,196.20	16.27	74.525				
3,800.00	3,777.52	3,791.83	3,776.76	13.79	10.15	6.22	798.29	1,179.73	1,190.37	1,173.64	16.74	71.128				
3,900.00	3,875.14	3,868.05	3,852.78	14.22	10.41	6.58	794.44	1,183.68	1,170.32	1,153.14	17.19	68.100				
4,000.00	3,972.76	3,962.86	3,947.15	14.66	10.73	7.14	788.37	1,190.49	1,151.35	1,133.68	17.68	65.139				
4,100.00	4,070.38	4,070.06	4,053.58	15.10	11.12	7.94	778.91	1,199.10	1,131.98	1,113.78	18.20	62.202				
4,200.00	4,168.00	4,153.79	4,136.74	15.55	11.42	8.57	771.62	1,205.49	1,112.59	1,093.91	18.68	59.562				
4,300.00	4,265.61	4,224.10	4,206.63	15.99	11.67	9.06	767.28	1,211.83	1,095.67	1,076.54	19.13	57.278				
4,400.00	4,363.23	4,312.40	4,294.44	16.44	11.98	9.63	763.55	1,220.36	1,080.44	1,060.83	19.61	55.091				
4,500.00	4,460.85	4,401.43	4,382.96	16.90	12.29	10.18	760.68	1,229.37	1,066.21	1,046.11	20.10	53.057				
4,600.00	4,558.47	4,499.76	4,480.61	17.35	12.64	10.87	756.72	1,240.29	1,052.58	1,031.98	20.61	51.079				
4,700.00	4,656.08	4,631.28	4,611.06	17.81	13.13	11.98	747.66	1,254.19	1,037.32	1,016.12	21.21	48.916				
4,800.00	4,753.70	4,741.22	4,720.29	18.27	13.53	12.93	739.25	1,263.42	1,020.08	998.32	21.75	46.896				
4,900.00	4,851.32	4,844.74	4,823.38	18.73	13.91	13.73	732.96	1,270.51	1,002.38	980.10	22.28	44.989				

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 502H
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 502H	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 - OH		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									
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			
5,000.00	4,948.94	4,951.63	4,929.83	19.19	14.30	14.59	726.09	1,277.11	984.11	961.30	22.81	43.136				
5,100.00	5,046.56	5,055.13	5,032.99	19.66	14.67	15.43	719.54	1,282.48	965.19	941.85	23.34	41.351				
5,200.00	5,144.17	5,150.50	5,128.11	20.13	15.01	16.18	714.16	1,286.90	946.24	922.38	23.86	39.662				
5,300.00	5,241.79	5,248.68	5,226.04	20.59	15.36	16.97	708.82	1,291.49	927.55	903.17	24.38	38.047				
5,400.00	5,339.41	5,342.31	5,319.41	21.06	15.70	17.77	703.63	1,296.04	909.19	884.29	24.90	36.516				
5,500.00	5,437.03	5,434.55	5,411.37	21.53	16.03	18.59	698.57	1,301.01	891.52	866.10	25.42	35.072				
5,600.00	5,534.65	5,517.59	5,494.07	22.01	16.34	19.42	693.52	1,306.62	875.12	849.19	25.93	33.746				
5,700.00	5,632.26	5,620.42	5,596.28	22.48	16.73	20.59	685.88	1,314.90	859.77	833.28	26.49	32.460				
5,800.00	5,729.88	5,724.81	5,700.04	22.95	17.13	21.86	677.32	1,322.50	843.80	816.75	27.05	31.195				
5,900.00	5,827.50	5,821.03	5,795.69	23.43	17.50	23.08	669.30	1,329.19	827.86	800.26	27.60	29.992				
6,000.00	5,925.12	5,916.31	5,890.45	23.90	17.86	24.29	661.89	1,335.82	812.46	784.31	28.16	28.855				
6,100.00	6,022.73	6,010.58	5,984.22	24.38	18.22	25.52	654.92	1,342.58	797.76	769.05	28.71	27.786				
6,200.00	6,120.35	6,106.58	6,079.69	24.85	18.59	26.80	647.90	1,349.70	783.71	754.44	29.27	26.772				
6,300.00	6,217.97	6,202.00	6,174.58	25.33	18.95	28.13	640.97	1,357.03	770.36	740.52	29.84	25.817				
6,400.00	6,315.59	6,308.60	6,280.61	25.81	19.36	29.66	633.12	1,364.72	756.98	726.55	30.43	24.877				
6,500.00	6,413.21	6,418.91	6,390.46	26.29	19.77	31.26	625.24	1,370.90	742.55	711.53	31.02	23.937				
6,600.00	6,510.82	6,527.70	6,499.00	26.77	20.17	32.76	619.20	1,374.94	726.96	695.36	31.60	23.005				
6,700.00	6,608.44	6,631.97	6,603.21	27.25	20.53	34.03	616.14	1,377.07	710.40	678.24	32.16	22.088				
6,719.26	6,627.24	6,651.57	6,622.80	27.34	20.59	34.25	615.92	1,377.35	707.17	674.90	32.27	21.915				
6,800.00	6,706.24	6,731.20	6,702.43	27.73	20.86	34.95	615.51	1,378.34	694.30	661.59	32.71	21.224				
6,900.00	6,804.54	6,829.40	6,800.61	28.18	21.18	35.76	614.96	1,379.58	680.47	647.21	33.26	20.459				
7,000.00	6,903.29	6,928.64	6,899.85	28.61	21.51	36.49	614.45	1,380.83	668.90	635.10	33.80	19.791				
7,100.00	7,002.41	7,027.83	6,999.03	29.02	21.85	37.14	613.89	1,382.02	659.50	625.17	34.33	19.211				
7,200.00	7,101.85	7,136.80	7,107.99	29.41	22.20	37.75	613.16	1,382.67	651.67	616.83	34.84	18.706				
7,300.00	7,201.53	7,246.06	7,217.24	29.78	22.54	38.23	612.33	1,381.53	644.31	608.99	35.32	18.243				
7,400.00	7,301.38	7,347.08	7,318.24	30.13	22.85	38.55	611.38	1,379.59	638.18	602.38	35.80	17.827				
7,500.00	7,401.34	7,442.71	7,413.85	30.46	23.15	38.76	610.32	1,378.06	634.43	598.15	36.28	17.486				
7,554.66	7,456.00	7,494.84	7,465.98	30.63	23.32	39.66	609.77	1,377.51	633.55	597.00	36.54	17.338				
7,600.00	7,501.34	7,539.02	7,510.15	30.77	23.46	39.69	609.37	1,377.19	633.21	596.46	36.75	17.230				
7,700.00	7,601.34	7,637.37	7,608.50	31.07	23.76	39.69	609.38	1,376.60	632.62	595.41	37.20	17.004				
7,800.00	7,701.34	7,735.10	7,706.23	31.38	24.06	39.69	609.47	1,376.42	632.43	594.78	37.66	16.794				
7,885.87	7,787.21	7,820.58	7,791.71	31.65	24.33	39.69	609.45	1,376.38	632.39	594.34	38.05	16.620				
7,900.00	7,801.34	7,834.52	7,805.65	31.69	24.37	39.69	609.44	1,376.38	632.39	594.28	38.12	16.592				
8,000.00	7,901.34	7,933.02	7,904.15	32.00	24.70	39.69	609.44	1,376.52	632.53	593.95	38.58	16.395				
8,100.00	8,001.34	8,035.54	8,006.67	32.32	25.03	39.71	609.19	1,376.77	632.78	593.74	39.04	16.208				
8,200.00	8,101.34	8,140.63	8,111.76	32.63	25.36	39.70	609.33	1,376.14	632.17	592.68	39.49	16.008				
8,300.00	8,201.34	8,238.22	8,209.34	32.94	25.66	39.63	610.11	1,375.26	631.28	591.33	39.94	15.804				
8,397.37	8,298.71	8,332.10	8,303.21	33.25	25.95	39.58	610.62	1,375.03	631.05	590.66	40.39	15.623				
8,400.00	8,301.34	8,334.65	8,305.77	33.26	25.96	39.58	610.63	1,375.03	631.05	590.64	40.40	15.619				
8,500.00	8,401.34	8,434.18	8,405.30	33.57	26.28	39.57	610.78	1,375.13	631.15	590.28	40.87	15.444				
8,600.00	8,501.34	8,524.43	8,495.55	33.89	26.59	39.58	610.61	1,375.72	631.82	590.48	41.35	15.281				
8,700.00	8,601.34	8,628.14	8,599.24	34.20	26.94	39.64	610.04	1,377.52	633.57	591.75	41.82	15.149				
8,800.00	8,701.34	8,736.29	8,707.39	34.52	27.30	39.64	609.98	1,377.92	633.93	591.65	42.28	14.993				
8,900.00	8,801.34	8,835.80	8,806.89	34.84	27.62	39.64	610.02	1,377.69	633.70	590.96	42.75	14.825				
8,960.26	8,861.59	8,895.00	8,866.09	35.03	27.82	39.67	609.66	1,377.64	633.65	590.62	43.03	14.725				
9,000.00	8,901.34	8,934.13	8,905.22	35.16	27.95	39.71	609.21	1,377.67	633.68	590.45	43.22	14.660				
9,100.00	9,001.34	9,035.44	9,006.52	35.48	28.29	39.85	607.63	1,377.79	633.80	590.09	43.70	14.502				
9,200.00	9,101.34	9,147.31	9,118.38	35.80	28.66	39.92	606.85	1,376.38	632.51	588.36	44.15	14.325				
9,300.00	9,201.34	9,247.74	9,218.78	36.12	28.98	39.95	606.56	1,374.30	630.44	585.82	44.62	14.129				
9,400.00	9,301.34	9,346.51	9,317.52	36.45	29.30	40.05	605.45	1,372.38	628.49	583.40	45.09	13.937				
9,500.00	9,401.34	9,446.29	9,417.28	36.77	29.62	40.13	604.56	1,370.57	626.68	581.11	45.57	13.752				
9,600.00	9,501.34	9,546.81	9,517.78	37.09	29.95	40.27	603.05	1,368.69	624.81	578.76	46.05	13.569				

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 502H
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 502H	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 - OH		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				
9,700.00	9,601.34	9,648.08	9,619.00	37.42	30.29	90.44	601.20	1,366.66	622.82	576.30	46.52	13.388				
9,800.00	9,701.34	9,744.43	9,715.34	37.74	30.59	90.43	601.29	1,364.76	620.85	573.85	47.00	13.210				
9,900.00	9,801.34	9,842.74	9,813.63	38.07	30.91	90.35	602.25	1,363.53	619.59	572.13	47.46	13.054				
10,000.00	9,901.34	9,938.95	9,909.83	38.39	31.21	90.26	603.15	1,362.51	618.53	570.60	47.93	12.904				
10,036.70	9,938.04	9,974.14	9,945.02	38.51	31.32	90.25	603.33	1,362.34	618.35	570.25	48.11	12.854				
10,050.00	9,951.34	9,987.49	9,958.37	38.55	31.37	-86.48	603.38	1,362.29	618.29	570.12	48.17	12.836				
10,100.00	10,001.21	10,037.55	10,008.43	38.69	31.53	-86.84	603.50	1,362.07	617.88	569.51	48.37	12.773				
10,150.00	10,050.60	10,087.64	10,058.53	38.82	31.69	-87.61	603.46	1,361.84	617.26	568.71	48.56	12.712				
10,200.00	10,099.14	10,137.39	10,108.27	38.93	31.86	-88.75	603.08	1,361.52	616.54	567.82	48.72	12.655				
10,250.00	10,146.45	10,184.64	10,155.52	39.02	32.02	-90.17	602.43	1,361.18	615.97	567.11	48.86	12.607				
10,275.67	10,170.14	10,208.04	10,178.91	39.06	32.10	-90.98	602.04	1,361.04	615.88	566.95	48.93	12.588 CC, ES				
10,300.00	10,192.17	10,229.85	10,200.72	39.10	32.17	-91.80	601.65	1,360.92	615.97	566.99	48.99	12.574				
10,350.00	10,235.96	10,271.85	10,242.71	39.16	32.32	-93.52	600.84	1,360.77	616.95	567.85	49.10	12.565 SF				
10,400.00	10,277.48	10,310.61	10,281.46	39.21	32.45	-95.22	600.23	1,360.81	619.43	570.23	49.20	12.590				
10,450.00	10,316.42	10,347.17	10,318.02	39.23	32.58	-96.85	599.81	1,361.00	623.86	574.56	49.29	12.656				
10,500.00	10,352.48	10,382.92	10,353.77	39.25	32.70	-98.42	599.54	1,361.25	630.56	581.17	49.39	12.768				
10,550.00	10,385.38	10,415.34	10,386.19	39.25	32.81	-99.68	599.40	1,361.47	639.86	590.38	49.48	12.931				
10,600.00	10,414.88	10,444.65	10,415.50	39.23	32.91	-100.56	599.37	1,361.67	652.09	602.50	49.59	13.150				
10,650.00	10,440.75	10,471.16	10,442.00	39.21	33.00	-101.01	599.40	1,361.82	667.43	617.73	49.70	13.428				
10,700.00	10,462.80	10,493.60	10,464.45	39.18	33.07	-100.85	599.45	1,361.90	685.99	636.16	49.83	13.766				
10,750.00	10,480.85	10,511.84	10,482.69	39.13	33.14	-100.00	599.52	1,361.95	707.74	657.77	49.97	14.164				
10,800.00	10,494.77	10,525.77	10,496.61	39.09	33.18	-98.39	599.58	1,361.96	732.56	682.45	50.11	14.618				
10,850.00	10,504.45	10,535.26	10,506.10	39.04	33.21	-95.95	599.63	1,361.97	760.20	709.94	50.26	15.126				
10,900.00	10,509.82	10,540.33	10,511.18	39.00	33.23	-92.65	599.66	1,361.97	790.31	739.91	50.40	15.681				
10,936.70	10,511.00	10,541.29	10,512.13	38.97	33.23	-89.69	599.67	1,361.97	813.76	763.27	50.50	16.115				
11,000.00	10,511.00	10,540.92	10,511.77	38.94	33.23	-89.65	599.67	1,361.97	856.92	806.25	50.67	16.913				
11,073.75	10,511.00	10,540.50	10,511.34	38.93	33.23	-89.59	599.66	1,361.97	911.34	860.48	50.86	17.920				
11,100.00	10,511.00	10,540.35	10,511.19	38.94	33.23	-89.58	599.66	1,361.97	931.57	880.65	50.92	18.295				
11,200.00	10,511.00	10,539.78	10,510.62	39.03	33.23	-89.52	599.66	1,361.97	1,011.16	960.01	51.15	19.767				
11,300.00	10,511.00	10,539.21	10,510.06	39.25	33.23	-89.47	599.66	1,361.97	1,094.12	1,042.75	51.36	21.301				
11,400.00	10,511.00	10,538.65	10,509.49	39.60	33.22	-89.41	599.65	1,361.97	1,179.71	1,128.16	51.55	22.884				
11,500.00	10,511.00	10,538.09	10,508.94	40.03	33.22	-89.36	599.65	1,361.97	1,267.42	1,215.70	51.72	24.506				
11,600.00	10,511.00	10,537.54	10,508.39	40.53	33.22	-89.31	599.65	1,361.97	1,356.83	1,304.96	51.87	26.160				
11,700.00	10,511.00	10,537.00	10,507.84	41.10	33.22	-89.25	599.64	1,361.97	1,447.63	1,395.63	52.00	27.839				
11,800.00	10,511.00	10,536.45	10,507.30	41.73	33.22	-89.20	599.64	1,361.97	1,539.56	1,487.45	52.12	29.540				
11,900.00	10,511.00	10,535.92	10,506.76	42.41	33.21	-89.15	599.64	1,361.97	1,632.45	1,580.23	52.22	31.260				
12,000.00	10,511.00	10,535.39	10,506.23	43.14	33.21	-89.10	599.63	1,361.97	1,726.13	1,673.81	52.32	32.994				
12,100.00	10,511.00	10,534.86	10,505.70	43.93	33.21	-89.04	599.63	1,361.97	1,820.48	1,768.08	52.40	34.740				
12,200.00	10,511.00	10,534.33	10,505.18	44.75	33.21	-88.99	599.63	1,361.97	1,915.41	1,862.92	52.48	36.497				
12,300.00	10,511.00	10,533.00	10,501.85	45.62	33.20	-88.67	599.61	1,361.97	2,010.82	1,958.27	52.55	38.264				
12,400.00	10,511.00	10,531.00	10,501.85	46.53	33.20	-88.67	599.61	1,361.97	2,106.67	2,054.05	52.62	40.036				
12,500.00	10,511.00	10,531.00	10,501.85	47.48	33.20	-88.67	599.61	1,361.97	2,202.88	2,150.20	52.68	41.815				
12,600.00	10,511.00	10,531.00	10,501.85	48.47	33.20	-88.67	599.61	1,361.97	2,299.41	2,246.67	52.74	43.599				
12,700.00	10,511.00	10,531.00	10,501.85	49.49	33.20	-88.67	599.61	1,361.97	2,396.23	2,343.44	52.80	45.387				
12,800.00	10,511.00	10,531.00	10,501.85	50.55	33.20	-88.67	599.61	1,361.97	2,493.30	2,440.45	52.85	47.179				
12,900.00	10,511.00	10,531.00	10,501.85	51.63	33.20	-88.67	599.61	1,361.97	2,590.59	2,537.70	52.90	48.974				
13,000.00	10,511.00	10,531.00	10,501.85	52.75	33.20	-88.67	599.61	1,361.97	2,688.08	2,635.14	52.95	50.771				
13,100.00	10,511.00	10,531.00	10,501.85	53.89	33.20	-88.67	599.61	1,361.97	2,785.75	2,732.76	52.99	52.570				
13,200.00	10,511.00	10,531.00	10,501.85	55.05	33.20	-88.67	599.61	1,361.97	2,883.58	2,830.55	53.04	54.371				
13,300.00	10,511.00	10,531.00	10,501.85	56.24	33.20	-88.67	599.61	1,361.97	2,981.56	2,928.48	53.08	56.173				
13,400.00	10,511.00	10,531.00	10,501.85	57.46	33.20	-88.67	599.61	1,361.97	3,079.66	3,026.54	53.12	57.975				
13,500.00	10,511.00	10,531.00	10,501.85	58.69	33.20	-88.67	599.61	1,361.97	3,177.88	3,124.72	53.16	59.778				

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 502H
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 502H	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 - OH												Offset Well Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1431-OWSG (Rev2) MWD													
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
13,600.00	10,511.00	10,531.00	10,501.85	59.94	33.20	-88.67	599.61	1,361.97	3,276.21	3,223.01	53.20	61.581	
13,700.00	10,511.00	10,531.00	10,501.85	61.22	33.20	-88.67	599.61	1,361.97	3,374.64	3,321.40	53.24	63.384	
13,800.00	10,511.00	10,531.00	10,501.85	62.51	33.20	-88.67	599.61	1,361.97	3,473.15	3,419.88	53.28	65.187	
13,900.00	10,511.00	10,531.00	10,501.85	63.81	33.20	-88.67	599.61	1,361.97	3,571.75	3,518.44	53.32	66.989	
14,000.00	10,511.00	10,531.00	10,501.85	65.13	33.20	-88.67	599.61	1,361.97	3,670.43	3,617.07	53.36	68.791	
14,100.00	10,511.00	10,531.00	10,501.85	66.47	33.20	-88.67	599.61	1,361.97	3,769.18	3,715.78	53.39	70.591	
14,200.00	10,511.00	10,531.00	10,501.85	67.82	33.20	-88.67	599.61	1,361.97	3,867.99	3,814.55	53.43	72.391	
14,300.00	10,511.00	10,531.00	10,501.85	69.18	33.20	-88.67	599.61	1,361.97	3,966.85	3,913.38	53.47	74.189	
14,400.00	10,511.00	10,531.00	10,501.85	70.56	33.20	-88.67	599.61	1,361.97	4,065.78	4,012.27	53.51	75.985	
14,500.00	10,511.00	10,531.00	10,501.85	71.95	33.20	-88.67	599.61	1,361.97	4,164.76	4,111.21	53.55	77.780	
14,600.00	10,511.00	10,531.00	10,501.85	73.34	33.20	-88.67	599.61	1,361.97	4,263.78	4,210.20	53.58	79.574	
14,700.00	10,511.00	10,531.00	10,501.85	74.75	33.20	-88.67	599.61	1,361.97	4,362.85	4,309.23	53.62	81.365	
14,800.00	10,511.00	10,531.00	10,501.85	76.17	33.20	-88.67	599.61	1,361.97	4,461.96	4,408.30	53.66	83.155	
14,900.00	10,511.00	10,531.00	10,501.85	77.60	33.20	-88.67	599.61	1,361.97	4,561.11	4,507.41	53.70	84.942	
15,000.00	10,511.00	10,531.00	10,501.85	79.03	33.20	-88.67	599.61	1,361.97	4,660.29	4,606.56	53.73	86.727	
15,100.00	10,511.00	10,521.33	10,492.17	80.47	33.17	-87.73	599.56	1,361.96	4,759.50	4,705.73	53.77	88.523	
15,200.00	10,511.00	10,520.95	10,491.79	81.93	33.17	-87.69	599.56	1,361.96	4,858.75	4,804.95	53.80	90.305	
15,300.00	10,511.00	10,520.57	10,491.41	83.38	33.16	-87.65	599.56	1,361.96	4,958.03	4,904.19	53.84	92.084	

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 502H
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 502H	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	48.90	972.23	1,114.36	1,478.86							
100.00	100.00	107.33	107.33	0.13	0.14	48.89	972.27	1,114.19	1,478.76	1,478.57	0.19	7,837.944				
200.00	200.00	238.30	238.28	0.48	0.60	48.86	971.82	1,112.53	1,477.60	1,476.83	0.77	1,921.330				
300.00	300.00	344.18	344.12	0.84	0.98	48.82	970.90	1,109.74	1,475.04	1,473.75	1.29	1,143.856				
400.00	400.00	451.55	451.43	1.20	1.37	48.74	970.26	1,106.16	1,472.14	1,470.32	1.82	810.862				
500.00	500.00	556.20	556.00	1.56	1.75	48.67	969.25	1,102.24	1,468.69	1,466.35	2.33	629.096				
600.00	600.00	669.41	669.11	1.92	2.16	48.59	968.09	1,097.67	1,465.01	1,462.13	2.88	509.232				
700.00	700.00	722.00	721.63	2.28	2.35	48.54	967.39	1,095.10	1,461.30	1,458.04	3.26	448.180				
800.00	800.00	859.70	859.23	2.63	2.84	48.49	966.44	1,092.09	1,459.34	1,455.48	3.86	378.334				
900.00	900.00	968.32	967.74	2.99	3.23	48.39	965.43	1,087.15	1,455.32	1,450.93	4.39	331.716				
1,000.00	1,000.00	1,086.39	1,085.64	3.35	3.67	48.34	962.41	1,081.74	1,450.16	1,445.22	4.94	293.537				
1,100.00	1,100.00	1,176.30	1,175.42	3.71	4.00	48.30	960.09	1,077.51	1,444.94	1,439.52	5.42	266.540				
1,200.00	1,200.00	1,275.24	1,274.24	4.07	4.36	48.23	958.15	1,072.94	1,440.18	1,434.25	5.93	243.028				
1,300.00	1,300.00	1,437.07	1,435.66	4.43	4.71	48.10	953.51	1,062.75	1,433.81	1,427.41	6.40	223.894				
1,400.00	1,400.00	1,579.97	1,577.58	4.79	4.82	47.91	946.35	1,047.70	1,422.40	1,415.71	6.69	212.762				
1,500.00	1,500.00	1,658.42	1,655.48	5.14	4.90	47.83	941.79	1,039.61	1,410.87	1,403.87	6.99	201.797				
1,600.00	1,600.00	1,733.26	1,729.95	5.50	5.00	47.80	937.27	1,033.77	1,401.03	1,393.72	7.31	191.632				
1,700.00	1,700.00	1,803.99	1,800.45	5.86	5.09	47.83	932.98	1,030.01	1,393.04	1,385.40	7.64	182.350				
1,800.00	1,800.00	1,857.00	1,853.34	6.22	5.16	47.89	929.84	1,028.58	1,387.43	1,379.46	7.96	174.236				
1,900.00	1,900.00	1,932.00	1,928.22	6.58	5.27	48.03	925.61	1,028.97	1,384.22	1,375.92	8.31	166.655				
1,970.56	1,970.56	1,978.94	1,975.06	6.83	5.33	48.15	923.13	1,030.70	1,383.66	1,375.11	8.55	161.912				
2,000.00	2,000.00	1,999.62	1,995.69	6.94	5.36	48.21	922.09	1,031.72	1,383.75	1,375.10	8.65	160.021				
2,100.00	2,100.00	2,073.96	2,069.79	7.29	5.46	48.45	918.62	1,036.49	1,385.42	1,376.42	9.00	153.961				
2,200.00	2,200.00	2,159.78	2,155.31	7.65	5.59	48.72	915.43	1,042.89	1,388.54	1,379.17	9.37	148.197				
2,300.00	2,300.00	2,262.41	2,257.53	8.01	5.77	49.07	911.46	1,051.17	1,392.09	1,382.31	9.77	142.438				
2,400.00	2,399.99	2,369.29	2,363.86	8.37	5.98	-1.34	905.73	1,060.35	1,393.81	1,383.62	10.19	136.736				
2,500.00	2,499.91	2,473.43	2,467.48	8.72	6.20	-0.93	900.06	1,069.07	1,392.76	1,382.14	10.62	131.155				
2,600.00	2,599.69	2,589.49	2,582.93	9.07	6.46	-0.46	892.80	1,078.40	1,388.40	1,377.32	11.08	125.357				
2,700.00	2,699.27	2,701.67	2,694.43	9.43	6.75	0.04	884.07	1,087.08	1,380.30	1,368.76	11.54	119.639				
2,800.00	2,798.57	2,801.00	2,793.24	9.79	7.02	0.48	876.54	1,094.00	1,369.20	1,357.21	11.99	114.242				
2,900.00	2,897.54	2,895.00	2,886.89	10.15	7.28	0.82	870.85	1,099.65	1,355.78	1,343.35	12.43	109.099				
3,000.00	2,996.09	2,963.60	2,955.21	10.53	7.47	1.09	867.08	1,104.62	1,341.10	1,328.28	12.83	104.556				
3,100.00	3,094.16	3,035.83	3,026.93	10.91	7.68	1.46	862.81	1,111.99	1,325.96	1,312.73	13.23	100.193				
3,135.41	3,128.76	3,061.89	3,052.74	11.04	7.76	1.61	861.12	1,115.18	1,320.45	1,307.07	13.38	98.699				
3,200.00	3,191.82	3,131.76	3,121.83	11.30	7.97	2.05	856.22	1,124.34	1,310.42	1,296.72	13.70	95.678				
3,300.00	3,289.44	3,277.29	3,265.97	11.70	8.44	2.96	844.34	1,140.42	1,292.72	1,278.44	14.27	90.567				
3,400.00	3,387.05	3,376.55	3,364.22	12.10	8.77	3.66	834.28	1,150.36	1,273.19	1,258.43	14.76	86.251				
3,500.00	3,484.67	3,472.10	3,458.81	12.52	9.10	4.34	824.75	1,159.84	1,253.86	1,238.61	15.25	82.237				
3,600.00	3,582.29	3,587.29	3,573.13	12.94	9.50	5.09	814.34	1,169.42	1,233.93	1,218.16	15.77	78.232				
3,700.00	3,679.91	3,705.32	3,690.55	13.36	9.91	5.78	804.66	1,176.51	1,212.76	1,196.46	16.30	74.412				
3,800.00	3,777.52	3,791.83	3,776.78	13.79	10.20	6.21	798.64	1,179.85	1,190.66	1,173.89	16.77	71.016				
3,900.00	3,875.14	3,868.04	3,852.79	14.22	10.46	6.57	794.79	1,183.79	1,170.61	1,153.39	17.22	67.990				
4,000.00	3,972.76	3,962.86	3,947.16	14.66	10.79	7.13	788.72	1,190.60	1,151.63	1,133.92	17.71	65.032				
4,100.00	4,070.38	4,070.07	4,053.61	15.10	11.18	7.93	779.26	1,199.21	1,132.26	1,114.03	18.23	62.095				
4,200.00	4,168.00	4,153.78	4,136.76	15.55	11.48	8.56	771.97	1,205.60	1,112.87	1,094.15	18.72	59.459				
4,300.00	4,265.61	4,224.09	4,206.64	15.99	11.73	9.05	767.63	1,211.94	1,095.94	1,076.78	19.17	57.179				
4,400.00	4,363.23	4,312.38	4,294.44	16.44	12.04	9.61	763.90	1,220.47	1,080.71	1,061.06	19.65	54.995				
4,500.00	4,460.85	4,401.41	4,382.96	16.90	12.35	10.16	761.03	1,229.48	1,066.47	1,046.34	20.14	52.965				
4,600.00	4,558.47	4,499.74	4,480.60	17.35	12.71	10.85	757.07	1,240.40	1,052.85	1,032.20	20.65	50.989				
4,700.00	4,656.08	4,631.27	4,611.08	17.81	13.20	11.97	748.02	1,254.30	1,037.58	1,016.33	21.25	48.828				
4,800.00	4,753.70	4,741.22	4,720.31	18.27	13.61	12.91	739.60	1,263.53	1,020.33	998.53	21.80	46.810				
4,900.00	4,851.32	4,844.74	4,823.39	18.73	13.99	13.72	733.31	1,270.63	1,002.63	980.30	22.33	44.907				

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 502H
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 502H	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				
5,000.00	4,948.94	4,951.62	4,929.85	19.19	14.38	14.58	726.44	1,277.22	984.36	961.50	22.86	43.056				
5,100.00	5,046.56	5,055.12	5,033.01	19.66	14.75	15.41	719.89	1,282.59	965.44	942.05	23.39	41.274				
5,200.00	5,144.17	5,150.50	5,128.12	20.13	15.09	16.16	714.51	1,287.02	946.48	922.57	23.91	39.589				
5,300.00	5,241.79	5,248.68	5,226.05	20.59	15.45	16.96	709.17	1,291.60	927.79	903.36	24.43	37.977				
5,400.00	5,339.41	5,342.31	5,319.43	21.06	15.78	17.75	703.98	1,296.16	909.43	884.48	24.95	36.449				
5,500.00	5,437.03	5,434.54	5,411.39	21.53	16.12	18.58	698.92	1,301.12	891.75	866.28	25.47	35.009				
5,600.00	5,534.65	5,517.59	5,494.08	22.01	16.43	19.40	693.87	1,306.74	875.35	849.36	25.99	33.686				
5,700.00	5,632.26	5,620.42	5,596.29	22.48	16.82	20.57	686.23	1,315.01	859.99	833.45	26.54	32.402				
5,800.00	5,729.88	5,724.81	5,700.06	22.95	17.22	21.84	677.67	1,322.61	844.01	816.91	27.10	31.140				
5,900.00	5,827.50	5,821.03	5,795.71	23.43	17.59	23.06	669.65	1,329.30	828.07	800.41	27.66	29.940				
6,000.00	5,925.12	5,916.31	5,890.47	23.90	17.95	24.27	662.24	1,335.93	812.66	784.45	28.21	28.805				
6,100.00	6,022.73	6,010.57	5,984.23	24.38	18.31	25.49	655.27	1,342.69	797.95	769.19	28.77	27.738				
6,200.00	6,120.35	6,106.57	6,079.71	24.85	18.68	26.78	648.25	1,349.81	783.90	754.57	29.33	26.727				
6,300.00	6,217.97	6,201.99	6,174.60	25.33	19.05	28.10	641.32	1,357.15	770.53	740.64	29.90	25.773				
6,400.00	6,315.59	6,308.60	6,280.63	25.81	19.45	29.63	633.47	1,364.83	757.15	726.66	30.49	24.835				
6,500.00	6,413.21	6,418.91	6,390.48	26.29	19.87	31.24	625.59	1,371.01	742.71	711.63	31.08	23.896				
6,600.00	6,510.82	6,527.69	6,499.02	26.77	20.26	32.73	619.55	1,375.05	727.11	695.45	31.66	22.966				
6,700.00	6,608.44	6,631.95	6,603.21	27.25	20.62	34.00	616.49	1,377.18	710.55	678.33	32.22	22.052				
6,719.26	6,627.24	6,651.55	6,622.80	27.34	20.69	34.22	616.27	1,377.46	707.32	674.99	32.33	21.879				
6,800.00	6,706.24	6,731.18	6,702.43	27.73	20.96	34.92	615.86	1,378.46	694.44	661.67	32.77	21.189				
6,900.00	6,804.54	6,829.37	6,800.61	28.18	21.28	35.73	615.31	1,379.69	680.60	647.28	33.32	20.426				
7,000.00	6,903.29	6,928.62	6,899.85	28.61	21.61	36.46	614.80	1,380.94	669.03	635.17	33.86	19.759				
7,100.00	7,002.41	7,027.81	6,999.03	29.02	21.95	37.11	614.24	1,382.14	659.62	625.23	34.39	19.180				
7,200.00	7,101.85	7,136.77	7,107.99	29.41	22.31	37.72	613.51	1,382.79	651.79	616.89	34.90	18.676				
7,300.00	7,201.53	7,246.04	7,217.25	29.78	22.65	38.20	612.68	1,381.64	644.43	609.05	35.38	18.213				
7,400.00	7,301.38	7,347.07	7,318.25	30.13	22.96	38.52	611.73	1,379.70	638.30	602.43	35.86	17.798				
7,500.00	7,401.34	7,442.69	7,413.86	30.46	23.26	38.73	610.67	1,378.18	634.55	598.20	36.35	17.458				
7,554.66	7,456.00	7,494.82	7,465.98	30.63	23.42	39.63	610.12	1,377.62	633.66	597.05	36.61	17.310				
7,600.00	7,501.34	7,539.00	7,510.16	30.77	23.56	39.66	609.72	1,377.30	633.33	596.51	36.82	17.202				
7,700.00	7,601.34	7,637.35	7,608.50	31.07	23.87	39.66	609.73	1,376.72	632.73	595.46	37.27	16.977				
7,800.00	7,701.34	7,735.08	7,706.23	31.38	24.17	39.65	609.82	1,376.54	632.55	594.82	37.72	16.767				
7,885.90	7,787.24	7,820.58	7,791.74	31.65	24.44	39.66	609.80	1,376.50	632.51	594.39	38.12	16.593				
7,900.00	7,801.34	7,834.50	7,805.65	31.69	24.48	39.66	609.79	1,376.50	632.51	594.33	38.18	16.565				
8,000.00	7,901.34	7,933.00	7,904.15	32.00	24.81	39.66	609.79	1,376.64	632.65	594.00	38.65	16.369				
8,100.00	8,001.34	8,035.52	8,006.67	32.32	25.14	39.68	609.54	1,376.89	632.90	593.79	39.11	16.182				
8,200.00	8,101.34	8,140.61	8,111.75	32.63	25.47	39.67	609.68	1,376.25	632.29	592.73	39.56	15.983				
8,300.00	8,201.34	8,238.20	8,209.34	32.94	25.77	39.60	610.46	1,375.37	631.39	591.38	40.01	15.779				
8,397.35	8,298.69	8,332.05	8,303.19	33.25	26.07	39.55	610.97	1,375.15	631.16	590.70	40.46	15.599				
8,400.00	8,301.34	8,334.63	8,305.77	33.26	26.07	39.55	610.98	1,375.15	631.16	590.69	40.47	15.594				
8,500.00	8,401.34	8,434.16	8,405.30	33.57	26.40	39.53	611.13	1,375.25	631.27	590.33	40.94	15.420				
8,600.00	8,501.34	8,524.41	8,495.55	33.89	26.70	39.55	610.96	1,375.84	631.94	590.52	41.42	15.257				
8,700.00	8,601.34	8,628.12	8,599.23	34.20	27.06	39.60	610.39	1,377.64	633.69	591.79	41.89	15.126				
8,800.00	8,701.34	8,736.27	8,707.39	34.52	27.41	39.61	610.33	1,378.03	634.05	591.69	42.35	14.970				
8,900.00	8,801.34	8,835.78	8,806.89	34.84	27.73	39.60	610.37	1,377.80	633.82	591.00	42.82	14.802				
8,960.46	8,861.80	8,895.18	8,866.30	35.03	27.93	39.64	610.01	1,377.76	633.77	590.66	43.11	14.702				
9,000.00	8,901.34	8,934.11	8,905.22	35.16	28.07	39.68	609.56	1,377.78	633.79	590.49	43.30	14.638				
9,100.00	9,001.34	9,035.42	9,006.52	35.48	28.41	39.82	607.98	1,377.91	633.91	590.13	43.78	14.480				
9,200.00	9,101.34	9,147.29	9,118.38	35.80	28.78	39.89	607.20	1,376.50	632.62	588.40	44.23	14.303				
9,300.00	9,201.34	9,247.72	9,218.79	36.12	29.10	39.92	606.91	1,374.42	630.55	585.86	44.70	14.108				
9,400.00	9,301.34	9,346.49	9,317.53	36.45	29.42	40.02	605.80	1,372.50	628.60	583.43	45.17	13.916				
9,500.00	9,401.34	9,446.27	9,417.29	36.77	29.74	40.10	604.91	1,370.68	626.79	581.15	45.65	13.732				
9,600.00	9,501.34	9,546.80	9,517.79	37.09	30.07	40.24	603.40	1,368.80	624.92	578.80	46.12	13.549				

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 502H
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 502H	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				
9,700.00	9,601.34	9,648.06	9,619.01	37.42	30.41	90.41	601.55	1,366.78	622.93	576.33	46.60	13.368				
9,800.00	9,701.34	9,744.41	9,715.34	37.74	30.72	90.40	601.64	1,364.87	620.96	573.88	47.08	13.191				
9,900.00	9,801.34	9,842.72	9,813.63	38.07	31.03	90.31	602.60	1,363.64	619.70	572.16	47.54	13.035				
10,000.00	9,901.34	9,938.93	9,909.83	38.39	31.33	90.23	603.50	1,362.63	618.64	570.63	48.01	12.885				
10,036.70	9,938.04	9,974.12	9,945.02	38.51	31.45	90.21	603.68	1,362.45	618.46	570.28	48.19	12.835				
10,050.00	9,951.34	9,987.46	9,958.37	38.55	31.49	-86.51	603.73	1,362.40	618.40	570.16	48.25	12.818				
10,100.00	10,001.21	10,037.52	10,008.43	38.69	31.65	-86.87	603.85	1,362.19	617.99	569.54	48.45	12.755				
10,150.00	10,050.60	10,087.62	10,058.53	38.82	31.81	-87.64	603.81	1,361.95	617.38	568.75	48.64	12.694				
10,200.00	10,099.14	10,137.37	10,108.27	38.93	31.98	-88.78	603.43	1,361.63	616.66	567.87	48.80	12.637				
10,250.00	10,146.45	10,184.63	10,155.53	39.02	32.14	-90.20	602.78	1,361.29	616.10	567.16	48.94	12.589				
10,274.96	10,169.49	10,207.38	10,178.28	39.06	32.22	-90.99	602.41	1,361.15	616.02	567.01	49.00	12.571	CC, ES			
10,300.00	10,192.17	10,229.84	10,200.73	39.10	32.29	-91.83	602.00	1,361.04	616.12	567.05	49.07	12.557				
10,350.00	10,235.96	10,271.84	10,242.72	39.16	32.44	-93.54	601.19	1,360.89	617.11	567.93	49.18	12.548				
10,400.00	10,277.48	10,310.59	10,281.47	39.21	32.57	-95.24	600.58	1,360.92	619.60	570.32	49.28	12.573				
10,450.00	10,316.42	10,347.15	10,318.02	39.23	32.70	-96.87	600.16	1,361.11	624.05	574.67	49.38	12.639				
10,500.00	10,352.48	10,382.90	10,353.77	39.25	32.82	-98.44	599.89	1,361.36	630.76	581.29	49.47	12.751				
10,550.00	10,385.38	10,415.32	10,386.19	39.25	32.94	-99.70	599.75	1,361.59	640.08	590.52	49.57	12.914				
10,600.00	10,414.88	10,444.63	10,415.49	39.23	33.04	-100.58	599.72	1,361.79	652.33	602.66	49.67	13.133				
10,650.00	10,440.75	10,471.13	10,442.00	39.21	33.12	-101.02	599.75	1,361.93	667.69	617.90	49.79	13.411				
10,700.00	10,462.80	10,493.58	10,464.45	39.18	33.20	-100.86	599.80	1,362.02	686.26	636.34	49.91	13.749				
10,750.00	10,480.85	10,511.82	10,482.68	39.13	33.26	-100.01	599.87	1,362.06	708.02	657.97	50.05	14.146				
10,800.00	10,494.77	10,525.74	10,496.61	39.09	33.31	-98.39	599.93	1,362.08	732.86	682.66	50.20	14.600				
10,850.00	10,504.45	10,535.23	10,506.10	39.04	33.34	-95.95	599.98	1,362.08	760.50	710.16	50.34	15.107				
10,900.00	10,509.82	10,540.31	10,511.17	39.00	33.35	-92.65	600.01	1,362.08	790.63	740.15	50.48	15.662				
10,936.70	10,511.00	10,541.26	10,512.13	38.97	33.36	-89.69	600.02	1,362.08	814.09	763.51	50.58	16.095				
11,000.00	10,511.00	10,540.90	10,511.77	38.94	33.36	-89.65	600.02	1,362.08	857.25	806.50	50.75	16.892				
11,073.75	10,511.00	10,540.47	10,511.34	38.93	33.35	-89.59	600.01	1,362.08	911.68	860.74	50.94	17.898				
11,100.00	10,511.00	10,540.32	10,511.19	38.94	33.35	-89.58	600.01	1,362.08	931.91	880.91	51.00	18.272				
11,200.00	10,511.00	10,539.75	10,510.62	39.03	33.35	-89.52	600.01	1,362.08	1,011.52	960.28	51.24	19.742				
11,300.00	10,511.00	10,539.19	10,510.05	39.25	33.35	-89.47	600.01	1,362.08	1,094.47	1,043.03	51.45	21.274				
11,400.00	10,511.00	10,538.63	10,509.49	39.60	33.35	-89.41	600.00	1,362.08	1,180.07	1,128.44	51.63	22.855				
11,500.00	10,511.00	10,538.07	10,508.94	40.03	33.35	-89.36	600.00	1,362.08	1,267.78	1,215.98	51.80	24.474				
11,600.00	10,511.00	10,537.52	10,508.39	40.53	33.35	-89.31	600.00	1,362.08	1,357.20	1,305.25	51.95	26.126				
11,700.00	10,511.00	10,536.97	10,507.84	41.10	33.34	-89.25	599.99	1,362.08	1,447.99	1,395.91	52.08	27.803				
11,800.00	10,511.00	10,536.43	10,507.30	41.73	33.34	-89.20	599.99	1,362.08	1,539.93	1,487.73	52.20	29.502				
11,900.00	10,511.00	10,535.89	10,506.76	42.41	33.34	-89.15	599.99	1,362.08	1,632.82	1,580.51	52.30	31.219				
12,000.00	10,511.00	13,460.49	12,050.00	43.14	50.32	-158.76	-1,023.95	1,386.92	1,646.30	1,605.59	40.71	40.441				
12,100.00	10,511.00	13,560.49	12,050.00	43.93	51.42	-158.77	-1,123.94	1,387.79	1,646.26	1,604.89	41.37	39.797				
12,200.00	10,511.00	13,660.49	12,050.00	44.75	52.54	-158.77	-1,223.94	1,388.67	1,646.22	1,604.17	42.06	39.144				
12,300.00	10,511.00	13,760.49	12,050.00	45.62	53.69	-158.77	-1,323.94	1,389.55	1,646.19	1,603.41	42.77	38.485				
12,400.00	10,511.00	13,860.49	12,050.00	46.53	54.87	-158.78	-1,423.93	1,390.42	1,646.15	1,602.63	43.52	37.824				
12,500.00	10,511.00	13,960.49	12,050.00	47.48	56.07	-158.78	-1,523.93	1,391.30	1,646.12	1,601.82	44.30	37.162				
12,600.00	10,511.00	14,060.49	12,050.00	48.47	57.29	-158.78	-1,623.92	1,392.17	1,646.08	1,600.98	45.09	36.503				
12,700.00	10,511.00	14,160.49	12,050.00	49.49	58.54	-158.79	-1,723.92	1,393.05	1,646.04	1,600.13	45.92	35.848				
12,800.00	10,511.00	14,260.49	12,050.00	50.55	59.80	-158.79	-1,823.92	1,393.93	1,646.01	1,599.24	46.76	35.198				
12,900.00	10,511.00	14,360.49	12,050.00	51.63	61.08	-158.79	-1,923.91	1,394.80	1,645.97	1,598.34	47.63	34.558				
13,000.00	10,511.00	14,460.49	12,050.00	52.75	62.38	-158.80	-2,023.91	1,395.68	1,645.94	1,597.42	48.51	33.927				
13,100.00	10,511.00	14,560.49	12,050.00	53.89	63.70	-158.80	-2,123.91	1,396.55	1,645.90	1,596.48	49.42	33.306				
13,200.00	10,511.00	14,660.49	12,050.00	55.05	65.03	-158.80	-2,223.90	1,397.43	1,645.86	1,595.52	50.34	32.696				
13,300.00	10,511.00	14,760.49	12,050.00	56.24	66.37	-158.81	-2,323.90	1,398.31	1,645.83	1,594.55	51.28	32.096				
13,400.00	10,511.00	14,860.49	12,050.00	57.46	67.73	-158.81	-2,423.89	1,399.18	1,645.79	1,593.56	52.23	31.509				
13,500.00	10,511.00	14,960.49	12,050.00	58.69	69.10	-158.81	-2,523.89	1,400.06	1,645.75	1,592.55	53.20	30.934				

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 502H
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 502H	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				
13,600.00	10,511.00	15,060.49	12,050.00	59.94	70.48	-158.82	-2,623.89	1,400.93	1,645.72	1,591.53	54.19	30.371				
13,700.00	10,511.00	15,160.49	12,050.00	61.22	71.88	-158.82	-2,723.88	1,401.81	1,645.68	1,590.50	55.19	29.821				
13,800.00	10,511.00	15,260.49	12,050.00	62.51	73.29	-158.82	-2,823.88	1,402.69	1,645.65	1,589.45	56.19	29.285				
13,900.00	10,511.00	15,360.49	12,050.00	63.81	74.70	-158.83	-2,923.87	1,403.56	1,645.61	1,588.40	57.21	28.763				
14,000.00	10,511.00	15,460.49	12,050.00	65.13	76.13	-158.83	-3,023.87	1,404.44	1,645.57	1,587.33	58.24	28.253				
14,100.00	10,511.00	15,560.49	12,050.00	66.47	77.56	-158.83	-3,123.87	1,405.32	1,645.54	1,586.25	59.29	27.756				
14,200.00	10,511.00	15,660.49	12,050.00	67.82	79.00	-158.84	-3,223.86	1,406.19	1,645.50	1,585.16	60.34	27.271				
14,300.00	10,511.00	15,760.49	12,050.00	69.18	80.45	-158.84	-3,323.86	1,407.07	1,645.47	1,584.07	61.40	26.798				
14,400.00	10,511.00	15,860.49	12,050.00	70.56	81.91	-158.84	-3,423.85	1,407.94	1,645.43	1,582.96	62.47	26.338				
14,500.00	10,511.00	15,960.49	12,050.00	71.95	83.38	-158.84	-3,523.85	1,408.82	1,645.39	1,581.84	63.55	25.890				
14,600.00	10,511.00	16,060.49	12,050.00	73.34	84.85	-158.85	-3,623.85	1,409.70	1,645.36	1,580.72	64.64	25.454				
14,700.00	10,511.00	16,160.49	12,050.00	74.75	86.33	-158.85	-3,723.84	1,410.57	1,645.32	1,579.59	65.73	25.030				
14,800.00	10,511.00	16,260.49	12,050.00	76.17	87.81	-158.85	-3,823.84	1,411.45	1,645.29	1,578.45	66.83	24.617				
14,900.00	10,511.00	16,360.49	12,050.00	77.60	89.30	-158.86	-3,923.84	1,412.32	1,645.25	1,577.31	67.94	24.215				
15,000.00	10,511.00	16,460.49	12,050.00	79.03	90.80	-158.86	-4,023.83	1,413.20	1,645.21	1,576.16	69.06	23.824				
15,100.00	10,511.00	16,560.49	12,050.00	80.47	92.30	-158.86	-4,123.83	1,414.08	1,645.18	1,575.00	70.18	23.444				
15,200.00	10,511.00	16,660.49	12,050.00	81.93	93.80	-158.87	-4,223.82	1,414.95	1,645.14	1,573.84	71.30	23.073				
15,300.00	10,511.00	16,760.49	12,050.00	83.38	95.32	-158.87	-4,323.82	1,415.83	1,645.11	1,572.67	72.43	22.712				
15,400.00	10,511.00	16,860.49	12,050.00	84.85	96.83	-158.87	-4,423.82	1,416.70	1,645.07	1,571.50	73.57	22.361				
15,500.00	10,511.00	16,960.49	12,050.00	86.32	98.35	-158.88	-4,523.81	1,417.58	1,645.04	1,570.33	74.71	22.019				
15,600.00	10,511.00	17,060.49	12,050.00	87.80	99.88	-158.88	-4,623.81	1,418.46	1,645.00	1,569.15	75.85	21.687				
15,700.00	10,511.00	17,160.49	12,050.00	89.29	101.40	-158.88	-4,723.80	1,419.33	1,644.96	1,567.96	77.00	21.363				
15,800.00	10,511.00	17,260.49	12,050.00	90.78	102.94	-158.89	-4,823.80	1,420.21	1,644.93	1,566.77	78.16	21.047				
15,900.00	10,511.00	17,360.49	12,050.00	92.27	104.47	-158.89	-4,923.80	1,421.08	1,644.89	1,565.58	79.31	20.739				
16,000.00	10,511.00	17,460.49	12,050.00	93.77	106.01	-158.89	-5,023.79	1,421.96	1,644.86	1,564.38	80.48	20.439				
16,100.00	10,511.00	17,560.49	12,050.00	95.28	107.55	-158.90	-5,123.79	1,422.84	1,644.82	1,563.18	81.64	20.147				
16,200.00	10,511.00	17,660.49	12,050.00	96.79	109.10	-158.90	-5,223.78	1,423.71	1,644.78	1,561.97	82.81	19.862				
16,300.00	10,511.00	17,760.49	12,050.00	98.31	110.65	-158.90	-5,323.78	1,424.59	1,644.75	1,560.77	83.98	19.585				
16,400.00	10,511.00	17,860.49	12,050.00	99.83	112.20	-158.91	-5,423.78	1,425.47	1,644.71	1,559.56	85.15	19.314				
16,500.00	10,511.00	17,960.49	12,050.00	101.35	113.75	-158.91	-5,523.77	1,426.34	1,644.68	1,558.34	86.33	19.050				
16,600.00	10,511.00	18,060.49	12,050.00	102.88	115.31	-158.91	-5,623.77	1,427.22	1,644.64	1,557.13	87.51	18.793				
16,700.00	10,511.00	18,160.49	12,050.00	104.41	116.87	-158.92	-5,723.77	1,428.09	1,644.60	1,555.91	88.69	18.543				
16,800.00	10,511.00	18,260.49	12,050.00	105.94	118.43	-158.92	-5,823.76	1,428.97	1,644.57	1,554.69	89.88	18.298				
16,900.00	10,511.00	18,360.49	12,050.00	107.48	120.00	-158.92	-5,923.76	1,429.85	1,644.53	1,553.47	91.07	18.059				
17,000.00	10,511.00	18,460.49	12,050.00	109.02	121.56	-158.93	-6,023.75	1,430.72	1,644.50	1,552.24	92.25	17.826				
17,100.00	10,511.00	18,560.49	12,050.00	110.57	123.13	-158.93	-6,123.75	1,431.60	1,644.46	1,551.02	93.44	17.598				
17,200.00	10,511.00	18,660.49	12,050.00	112.12	124.70	-158.93	-6,223.75	1,432.47	1,644.42	1,549.79	94.64	17.376				
17,300.00	10,511.00	18,760.49	12,050.00	113.67	126.28	-158.94	-6,323.74	1,433.35	1,644.39	1,548.56	95.83	17.159				
17,400.00	10,511.00	18,860.49	12,050.00	115.22	127.85	-158.94	-6,423.74	1,434.23	1,644.35	1,547.33	97.03	16.947				
17,500.00	10,511.00	18,960.49	12,050.00	116.78	129.43	-158.94	-6,523.73	1,435.10	1,644.32	1,546.09	98.23	16.740				
17,600.00	10,511.00	19,060.49	12,050.00	118.34	131.01	-158.95	-6,623.73	1,435.98	1,644.28	1,544.85	99.43	16.537				
17,700.00	10,511.00	19,160.49	12,050.00	119.90	132.59	-158.95	-6,723.73	1,436.85	1,644.25	1,543.61	100.63	16.339				
17,800.00	10,511.00	19,260.49	12,050.00	121.46	134.17	-158.95	-6,823.72	1,437.73	1,644.21	1,542.38	101.83	16.146				
17,900.00	10,511.00	19,360.49	12,050.00	123.03	135.76	-158.95	-6,923.72	1,438.61	1,644.17	1,541.14	103.04	15.957				
18,000.00	10,511.00	19,460.49	12,050.00	124.59	137.34	-158.96	-7,023.71	1,439.48	1,644.14	1,539.90	104.24	15.772				
18,100.00	10,511.00	19,560.49	12,050.00	126.16	138.93	-158.96	-7,123.71	1,440.36	1,644.10	1,538.65	105.45	15.591				
18,200.00	10,511.00	19,660.49	12,050.00	127.74	140.52	-158.96	-7,223.71	1,441.23	1,644.07	1,537.41	106.66	15.414				
18,300.00	10,511.00	19,760.49	12,050.00	129.31	142.11	-158.97	-7,323.70	1,442.11	1,644.03	1,536.16	107.87	15.241				
18,400.00	10,511.00	19,860.49	12,050.00	130.89	143.70	-158.97	-7,423.70	1,442.99	1,644.00	1,534.92	109.08	15.072				
18,500.00	10,511.00	19,960.49	12,050.00	132.46	145.29	-158.97	-7,523.70	1,443.86	1,643.96	1,533.67	110.29	14.906				
18,600.00	10,511.00	20,060.49	12,050.00	134.04	146.89	-158.98	-7,623.69	1,444.74	1,643.92	1,532.42	111.50	14.743				
18,700.00	10,511.00	20,160.49	12,050.00	135.63	148.48	-158.98	-7,723.69	1,445.62	1,643.89	1,531.17	112.71	14.585				

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 502H
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 502H	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		
18,800.00	10,511.00	20,260.49	12,050.00	137.21	150.08	-158.98	-7,823.68	1,446.49	1,643.85	1,529.93	113.93	14.429		
18,900.00	10,511.00	20,360.49	12,050.00	138.79	151.67	-158.99	-7,923.68	1,447.37	1,643.82	1,528.68	115.14	14.277		
19,000.00	10,511.00	20,460.49	12,050.00	140.38	153.27	-158.99	-8,023.68	1,448.24	1,643.78	1,527.42	116.36	14.127		
19,100.00	10,511.00	20,560.49	12,050.00	141.97	154.87	-158.99	-8,123.67	1,449.12	1,643.74	1,526.17	117.57	13.981		
19,200.00	10,511.00	20,660.49	12,050.00	143.56	156.47	-159.00	-8,223.67	1,450.00	1,643.71	1,524.92	118.79	13.837		
19,300.00	10,511.00	20,760.49	12,050.00	145.15	158.08	-159.00	-8,323.66	1,450.87	1,643.67	1,523.66	120.01	13.696		
19,400.00	10,511.00	20,860.49	12,050.00	146.74	159.68	-159.00	-8,423.66	1,451.75	1,643.64	1,522.41	121.23	13.558		
19,500.00	10,511.00	20,960.49	12,050.00	148.33	161.28	-159.01	-8,523.66	1,452.62	1,643.60	1,521.16	122.45	13.423		
19,600.00	10,511.00	21,060.49	12,050.00	149.93	162.89	-159.01	-8,623.65	1,453.50	1,643.57	1,519.90	123.66	13.291		
19,700.00	10,511.00	21,160.49	12,050.00	151.52	164.49	-159.01	-8,723.65	1,454.38	1,643.53	1,518.65	124.88	13.161		
19,800.00	10,511.00	21,260.49	12,050.00	153.12	166.10	-159.02	-8,823.65	1,455.25	1,643.49	1,517.39	126.10	13.033		
19,900.00	10,511.00	21,360.49	12,050.00	154.72	167.71	-159.02	-8,923.64	1,456.13	1,643.46	1,516.13	127.32	12.908		
20,000.00	10,511.00	21,460.49	12,050.00	156.32	169.32	-159.02	-9,023.64	1,457.00	1,643.42	1,514.88	128.55	12.785		
20,100.00	10,511.00	21,560.49	12,050.00	157.92	170.93	-159.03	-9,123.63	1,457.88	1,643.39	1,513.62	129.77	12.664		
20,200.00	10,511.00	21,660.49	12,050.00	159.52	172.54	-159.03	-9,223.63	1,458.76	1,643.35	1,512.36	130.99	12.545		
20,300.00	10,511.00	21,760.49	12,050.00	161.12	174.15	-159.03	-9,323.63	1,459.63	1,643.32	1,511.10	132.21	12.429		
20,400.00	10,511.00	21,860.49	12,050.00	162.72	175.76	-159.04	-9,423.62	1,460.51	1,643.28	1,509.85	133.44	12.315		
20,500.00	10,511.00	21,960.49	12,050.00	164.33	177.37	-159.04	-9,523.62	1,461.38	1,643.24	1,508.59	134.66	12.203		
20,600.00	10,511.00	22,060.49	12,050.00	165.93	178.98	-159.04	-9,623.61	1,462.26	1,643.21	1,507.33	135.88	12.093		
20,700.00	10,511.00	22,160.49	12,050.00	167.54	180.60	-159.05	-9,723.61	1,463.14	1,643.17	1,506.07	137.10	11.985		
20,800.00	10,511.00	22,260.49	12,050.00	169.14	182.21	-159.05	-9,823.61	1,464.01	1,643.14	1,504.81	138.33	11.879		
20,900.00	10,511.00	22,360.49	12,050.00	170.75	183.83	-159.05	-9,923.60	1,464.89	1,643.10	1,503.55	139.55	11.774		
21,000.00	10,511.00	22,460.49	12,050.00	172.36	185.44	-159.06	-10,023.60	1,465.77	1,643.07	1,502.29	140.78	11.671		
21,100.00	10,511.00	22,560.49	12,050.00	173.97	187.06	-159.06	-10,123.59	1,466.64	1,643.03	1,501.03	142.00	11.571		
21,200.00	10,511.00	22,660.49	12,050.00	175.58	188.67	-159.06	-10,223.59	1,467.52	1,643.00	1,499.77	143.22	11.471		
21,300.00	10,511.00	22,760.49	12,050.00	177.19	190.29	-159.06	-10,323.59	1,468.39	1,642.96	1,498.51	144.45	11.374		
21,400.00	10,511.00	22,860.49	12,050.00	178.80	191.91	-159.07	-10,423.58	1,469.27	1,642.92	1,497.25	145.67	11.278		
21,500.00	10,511.00	22,960.49	12,050.00	180.41	193.53	-159.07	-10,523.58	1,470.15	1,642.89	1,495.99	146.90	11.184		
21,600.00	10,511.00	23,060.49	12,050.00	182.03	195.15	-159.07	-10,623.58	1,471.02	1,642.85	1,494.73	148.12	11.091		
21,700.00	10,511.00	23,160.49	12,050.00	183.64	196.77	-159.08	-10,723.57	1,471.90	1,642.82	1,493.47	149.35	11.000		
21,800.00	10,511.00	23,260.49	12,050.00	185.25	198.39	-159.08	-10,823.57	1,472.77	1,642.78	1,492.21	150.57	10.910		
21,900.00	10,511.00	23,360.49	12,050.00	186.87	200.01	-159.08	-10,923.56	1,473.65	1,642.75	1,490.95	151.80	10.822		
22,000.00	10,511.00	23,460.49	12,050.00	188.49	201.52	-159.09	-11,023.56	1,474.53	1,642.71	1,489.83	152.88	10.745		
22,044.85	10,511.00	23,504.65	12,050.00	189.21	202.16	-159.09	-11,067.71	1,474.91	1,642.69	1,489.37	153.32	10.714		
22,046.30	10,511.00	23,504.65	12,050.00	189.23	202.16	-159.09	-11,067.71	1,474.91	1,642.70	1,489.36	153.33	10.713 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 502H
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 502H	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	-43.33	892.05	-841.41	1,226.26					
100.00	100.00	117.00	117.00	0.13	0.19	-43.33	892.05	-841.41	1,226.26	1,226.04	0.22	5,457.407		
200.00	200.00	217.00	217.00	0.48	0.54	-43.33	892.05	-841.41	1,226.26	1,225.53	0.73	1,682.675		
300.00	300.00	317.00	317.00	0.84	0.90	-43.33	892.05	-841.41	1,226.26	1,225.02	1.24	992.772		
400.00	400.00	417.00	417.00	1.20	1.26	-43.33	892.05	-841.41	1,226.26	1,224.52	1.74	703.968		
500.00	500.00	517.00	517.00	1.56	1.62	-43.33	892.05	-841.41	1,226.26	1,224.01	2.25	545.305		
600.00	600.00	617.00	617.00	1.92	1.98	-43.33	892.05	-841.41	1,226.26	1,223.50	2.76	445.000		
700.00	700.00	717.00	717.00	2.28	2.34	-43.33	892.05	-841.41	1,226.26	1,223.00	3.26	375.860		
800.00	800.00	817.00	817.00	2.63	2.70	-43.33	892.05	-841.41	1,226.26	1,222.49	3.77	325.315		
900.00	900.00	917.00	917.00	2.99	3.05	-43.33	892.05	-841.41	1,226.26	1,221.98	4.28	286.752		
1,000.00	1,000.00	1,017.00	1,017.00	3.35	3.41	-43.33	892.05	-841.41	1,226.26	1,221.48	4.78	256.362		
1,100.00	1,100.00	1,117.00	1,117.00	3.71	3.77	-43.33	892.05	-841.41	1,226.26	1,220.97	5.29	231.796		
1,200.00	1,200.00	1,217.00	1,217.00	4.07	4.13	-43.33	892.05	-841.41	1,226.26	1,220.46	5.80	211.526		
1,300.00	1,300.00	1,317.00	1,317.00	4.43	4.49	-43.33	892.05	-841.41	1,226.26	1,219.96	6.30	194.517		
1,400.00	1,400.00	1,417.00	1,417.00	4.79	4.85	-43.33	892.05	-841.41	1,226.26	1,219.45	6.81	180.039		
1,500.00	1,500.00	1,517.00	1,517.00	5.14	5.21	-43.33	892.05	-841.41	1,226.26	1,218.94	7.32	167.567		
1,600.00	1,600.00	1,617.00	1,617.00	5.50	5.56	-43.33	892.05	-841.41	1,226.26	1,218.43	7.82	156.711		
1,700.00	1,700.00	1,717.00	1,717.00	5.86	5.92	-43.33	892.05	-841.41	1,226.26	1,217.93	8.33	147.176		
1,800.00	1,800.00	1,817.00	1,817.00	6.22	6.28	-43.33	892.05	-841.41	1,226.26	1,217.42	8.84	138.735		
1,900.00	1,900.00	1,917.00	1,917.00	6.58	6.64	-43.33	892.05	-841.41	1,226.26	1,216.91	9.35	131.209		
2,000.00	2,000.00	2,017.00	2,017.00	6.94	7.00	-43.33	892.05	-841.41	1,226.26	1,216.41	9.85	124.458		
2,100.00	2,100.00	2,117.00	2,117.00	7.29	7.36	-43.33	892.05	-841.41	1,226.26	1,215.90	10.36	118.368		
2,200.00	2,200.00	2,217.00	2,217.00	7.65	7.71	-43.33	892.05	-841.41	1,226.26	1,215.39	10.87	112.846		
2,300.00	2,300.00	2,317.00	2,317.00	8.01	8.07	-43.33	892.05	-841.41	1,226.26	1,214.89	11.37	107.816 CC		
2,400.00	2,399.99	2,416.99	2,416.99	8.37	8.43	-94.22	892.05	-841.41	1,226.36	1,214.48	11.88	103.244		
2,500.00	2,499.91	2,516.91	2,516.91	8.72	8.79	-94.40	892.05	-841.41	1,226.65	1,214.27	12.38	99.079 ES		
2,600.00	2,599.69	2,616.69	2,616.69	9.07	9.15	-94.70	892.05	-841.41	1,227.17	1,214.29	12.88	95.252		
2,700.00	2,699.27	2,716.27	2,716.27	9.43	9.50	-95.11	892.05	-841.41	1,227.96	1,214.57	13.39	91.727		
2,800.00	2,798.57	2,815.57	2,815.57	9.79	9.86	-95.63	892.05	-841.41	1,229.06	1,215.17	13.89	88.470		
2,900.00	2,897.54	2,914.54	2,914.54	10.15	10.21	-96.27	892.05	-841.41	1,230.57	1,216.17	14.40	85.454		
3,000.00	2,996.09	3,013.09	3,013.09	10.53	10.57	-97.01	892.05	-841.41	1,232.56	1,217.64	14.91	82.655		
3,100.00	3,094.16	3,111.16	3,111.16	10.91	10.92	-97.85	892.05	-841.41	1,235.13	1,219.70	15.43	80.055		
3,135.41	3,128.76	3,145.76	3,145.76	11.04	11.04	-98.18	892.05	-841.41	1,236.20	1,220.59	15.61	79.179		
3,200.00	3,191.82	3,208.82	3,208.82	11.30	11.27	-98.80	892.05	-841.41	1,238.32	1,222.37	15.95	77.635		
3,300.00	3,289.44	3,306.44	3,306.44	11.70	11.62	-99.77	892.05	-841.41	1,241.90	1,225.43	16.48	75.367		
3,400.00	3,387.05	3,404.05	3,404.05	12.10	11.97	-100.73	892.05	-841.41	1,245.86	1,228.85	17.01	73.243		
3,500.00	3,484.67	3,501.67	3,501.67	12.52	12.32	-101.69	892.05	-841.41	1,250.17	1,232.63	17.55	71.253		
3,600.00	3,582.29	3,599.29	3,599.29	12.94	12.67	-102.63	892.05	-841.41	1,254.85	1,236.77	18.08	69.387		
3,700.00	3,679.91	3,696.91	3,696.91	13.36	13.02	-103.57	892.05	-841.41	1,259.88	1,241.26	18.63	67.638		
3,800.00	3,777.52	3,800.89	3,800.88	13.79	13.38	-104.61	891.25	-841.73	1,265.08	1,245.90	19.18	65.968		
3,900.00	3,875.14	3,905.72	3,905.65	14.22	13.72	-105.76	887.87	-843.11	1,270.08	1,250.36	19.72	64.420		
4,000.00	3,972.76	4,009.15	4,008.88	14.66	14.05	-107.00	881.92	-845.54	1,275.01	1,254.76	20.25	62.954		
4,100.00	4,070.38	4,107.64	4,107.01	15.10	14.38	-108.27	874.21	-848.69	1,280.12	1,259.34	20.78	61.599		
4,200.00	4,168.00	4,203.23	4,202.24	15.55	14.69	-109.51	866.51	-851.84	1,285.83	1,264.53	21.31	60.351		
4,300.00	4,265.61	4,298.82	4,297.47	15.99	15.01	-110.73	858.80	-854.99	1,292.19	1,270.35	21.83	59.188		
4,400.00	4,363.23	4,394.41	4,392.69	16.44	15.33	-111.94	851.10	-858.14	1,299.17	1,276.81	22.36	58.105		
4,500.00	4,460.85	4,490.00	4,487.92	16.90	15.65	-113.14	843.39	-861.29	1,306.78	1,283.90	22.89	57.096		
4,600.00	4,558.47	4,585.59	4,583.14	17.35	15.98	-114.33	835.69	-864.43	1,315.01	1,291.59	23.42	56.158		
4,700.00	4,656.08	4,681.18	4,678.37	17.81	16.30	-115.50	827.98	-867.58	1,323.83	1,299.89	23.95	55.285		
4,800.00	4,753.70	4,776.76	4,773.59	18.27	16.63	-116.66	820.28	-870.73	1,333.24	1,308.77	24.47	54.475		
4,900.00	4,851.32	4,872.35	4,868.82	18.73	16.96	-117.80	812.57	-873.88	1,343.23	1,318.23	25.00	53.722		
5,000.00	4,948.94	4,967.94	4,964.04	19.19	17.29	-118.93	804.87	-877.03	1,353.79	1,328.25	25.53	53.023		

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 502H
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 502H	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	5,046.56	5,063.53	5,059.27	19.66	17.63	-120.04	797.16	-880.17	1,364.89	1,338.83	26.06	52.375		
5,200.00	5,144.17	5,159.12	5,154.50	20.13	17.96	-121.13	789.46	-883.32	1,376.53	1,349.94	26.59	51.774		
5,300.00	5,241.79	5,254.71	5,249.72	20.59	18.30	-122.20	781.75	-886.47	1,388.70	1,361.58	27.11	51.218		
5,400.00	5,339.41	5,350.30	5,344.95	21.06	18.63	-123.26	774.05	-889.62	1,401.37	1,373.73	27.64	50.703		
5,500.00	5,437.03	5,445.88	5,440.17	21.53	18.97	-124.30	766.34	-892.77	1,414.54	1,386.38	28.16	50.227		
5,600.00	5,534.65	5,541.47	5,535.40	22.01	19.31	-125.32	758.64	-895.92	1,428.20	1,399.51	28.69	49.787		
5,700.00	5,632.26	5,637.06	5,630.62	22.48	19.65	-126.32	750.93	-899.06	1,442.32	1,413.11	29.21	49.380		
5,800.00	5,729.88	5,732.65	5,725.85	22.95	19.99	-127.31	743.23	-902.21	1,456.90	1,427.17	29.73	49.006		
5,900.00	5,827.50	5,828.24	5,821.07	23.43	20.33	-128.27	735.52	-905.36	1,471.92	1,441.67	30.25	48.660		
6,000.00	5,925.12	5,923.83	5,916.30	23.90	20.68	-129.22	727.82	-908.51	1,487.37	1,456.60	30.77	48.342		
6,100.00	6,022.73	6,019.41	6,011.52	24.38	21.02	-130.15	720.11	-911.66	1,503.23	1,471.95	31.28	48.050		
6,200.00	6,120.35	6,115.00	6,106.75	24.85	21.37	-131.06	712.41	-914.80	1,519.50	1,487.70	31.80	47.781		
6,300.00	6,217.97	6,210.59	6,201.98	25.33	21.71	-131.95	704.70	-917.95	1,536.15	1,503.84	32.32	47.535		
6,400.00	6,315.59	6,306.18	6,297.20	25.81	22.06	-132.83	697.00	-921.10	1,553.19	1,520.36	32.83	47.309		
6,500.00	6,413.21	6,401.77	6,392.43	26.29	22.41	-133.68	689.29	-924.25	1,570.59	1,537.24	33.34	47.103		
6,600.00	6,510.82	6,497.36	6,487.65	26.77	22.76	-134.52	681.59	-927.40	1,588.34	1,554.48	33.86	46.915		
6,700.00	6,608.44	6,592.95	6,582.88	27.25	23.10	-135.34	673.88	-930.54	1,606.43	1,572.06	34.37	46.744		
6,719.26	6,627.24	6,611.35	6,601.21	27.34	23.17	-135.50	672.40	-931.15	1,609.95	1,575.48	34.46	46.713		
6,800.00	6,706.24	6,688.78	6,678.34	27.73	23.45	-136.28	666.16	-933.70	1,624.24	1,589.37	34.88	46.573		
6,900.00	6,804.54	6,785.30	6,774.50	28.18	23.81	-137.16	658.38	-936.88	1,640.51	1,605.13	35.38	46.369		
7,000.00	6,903.29	6,882.47	6,871.30	28.61	24.16	-137.95	650.55	-940.08	1,655.11	1,619.24	35.88	46.130		
7,100.00	7,002.41	6,980.21	6,968.67	29.02	24.52	-138.65	642.67	-943.30	1,667.98	1,631.61	36.37	45.856		
7,200.00	7,101.85	7,078.46	7,066.55	29.41	24.89	-139.27	634.75	-946.53	1,679.05	1,642.18	36.87	45.544		
7,300.00	7,201.53	7,177.15	7,164.87	29.78	25.25	-139.81	626.79	-949.78	1,688.26	1,650.91	37.35	45.197		
7,400.00	7,301.38	7,276.22	7,263.55	30.13	25.61	-140.27	618.81	-953.05	1,695.57	1,657.73	37.84	44.813		
7,500.00	7,401.34	7,375.59	7,362.55	30.46	25.98	-140.65	610.80	-956.32	1,700.94	1,662.62	38.32	44.393		
7,554.66	7,456.00	7,430.01	7,416.76	30.63	26.18	-89.99	606.41	-958.11	1,703.04	1,664.47	38.58	44.149		
7,600.00	7,501.34	7,479.16	7,465.73	30.77	26.36	-90.12	602.52	-959.70	1,704.52	1,665.71	38.80	43.925		
7,700.00	7,601.34	7,599.53	7,585.84	31.07	26.80	-90.36	595.25	-962.67	1,707.02	1,667.66	39.35	43.376		
7,800.00	7,701.34	7,720.28	7,706.51	31.38	27.23	-90.49	591.48	-964.22	1,708.32	1,668.42	39.90	42.816		
7,900.00	7,801.34	7,832.11	7,818.34	31.69	27.62	-90.51	590.91	-964.45	1,708.51	1,668.10	40.41	42.279		
8,000.00	7,901.34	7,932.11	7,918.34	32.00	27.96	-90.51	590.91	-964.45	1,708.51	1,667.63	40.88	41.789		
8,100.00	8,001.34	8,032.11	8,018.34	32.32	28.30	-90.51	590.91	-964.45	1,708.51	1,667.16	41.36	41.310		
8,200.00	8,101.34	8,132.11	8,118.34	32.63	28.64	-90.51	590.91	-964.45	1,708.51	1,666.68	41.83	40.841		
8,300.00	8,201.34	8,232.11	8,218.34	32.94	28.98	-90.51	590.91	-964.45	1,708.51	1,666.21	42.31	40.382		
8,400.00	8,301.34	8,332.11	8,318.34	33.26	29.33	-90.51	590.91	-964.45	1,708.51	1,665.73	42.79	39.932		
8,500.00	8,401.34	8,432.11	8,418.34	33.57	29.67	-90.51	590.91	-964.45	1,708.51	1,665.25	43.26	39.492		
8,600.00	8,501.34	8,532.11	8,518.34	33.89	30.01	-90.51	590.91	-964.45	1,708.51	1,664.77	43.74	39.060		
8,700.00	8,601.34	8,632.11	8,618.34	34.20	30.36	-90.51	590.91	-964.45	1,708.51	1,664.30	44.22	38.638		
8,800.00	8,701.34	8,732.11	8,718.34	34.52	30.70	-90.51	590.91	-964.45	1,708.51	1,663.82	44.70	38.224		
8,900.00	8,801.34	8,832.11	8,818.34	34.84	31.05	-90.51	590.91	-964.45	1,708.51	1,663.34	45.18	37.818		
9,000.00	8,901.34	8,932.11	8,918.34	35.16	31.39	-90.51	590.91	-964.45	1,708.51	1,662.86	45.66	37.420		
9,100.00	9,001.34	9,032.11	9,018.34	35.48	31.74	-90.51	590.91	-964.45	1,708.51	1,662.38	46.14	37.030		
9,200.00	9,101.34	9,132.11	9,118.34	35.80	32.08	-90.51	590.91	-964.45	1,708.51	1,661.89	46.62	36.648		
9,300.00	9,201.34	9,232.11	9,218.34	36.12	32.43	-90.51	590.91	-964.45	1,708.51	1,661.41	47.10	36.273		
9,400.00	9,301.34	9,332.11	9,318.34	36.45	32.78	-90.51	590.91	-964.45	1,708.51	1,660.93	47.58	35.905		
9,500.00	9,401.34	9,432.11	9,418.34	36.77	33.12	-90.51	590.91	-964.45	1,708.51	1,660.45	48.07	35.544		
9,600.00	9,501.34	9,532.11	9,518.34	37.09	33.47	-90.51	590.91	-964.45	1,708.51	1,659.96	48.55	35.190		
9,700.00	9,601.34	9,632.11	9,618.34	37.42	33.82	-90.51	590.91	-964.45	1,708.51	1,659.48	49.03	34.843		
9,800.00	9,701.34	9,732.11	9,718.34	37.74	34.16	-90.51	590.91	-964.45	1,708.51	1,658.99	49.52	34.502		
9,900.00	9,801.34	9,832.11	9,818.34	38.07	34.51	-90.51	590.91	-964.45	1,708.51	1,658.51	50.00	34.167		
10,000.00	9,901.34	9,932.11	9,918.34	38.39	34.86	-90.51	590.91	-964.45	1,708.51	1,658.02	50.49	33.839		

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 502H
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 502H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,036.70	9,938.04	9,968.81	9,955.04	38.51	34.99	-90.51	590.91	-964.45	1,708.51	1,657.85	50.67	33.720		
10,050.00	9,951.34	9,982.11	9,968.34	38.55	35.03	92.80	590.91	-964.45	1,708.52	1,657.79	50.73	33.678		
10,100.00	10,001.21	10,031.98	10,018.21	38.69	35.21	92.89	590.91	-964.45	1,708.69	1,657.73	50.96	33.530		
10,150.00	10,050.60	10,081.37	10,067.60	38.82	35.38	93.11	590.91	-964.45	1,709.09	1,657.91	51.18	33.393		
10,200.00	10,099.14	10,129.90	10,116.14	38.93	35.55	93.42	590.91	-964.45	1,709.80	1,658.40	51.39	33.268		
10,250.00	10,146.45	10,177.21	10,163.45	39.02	35.71	93.83	590.91	-964.45	1,710.88	1,659.28	51.60	33.158		
10,300.00	10,192.17	10,222.94	10,209.17	39.10	35.87	94.29	590.91	-964.45	1,712.44	1,660.65	51.79	33.066		
10,350.00	10,235.96	10,266.73	10,252.96	39.16	36.02	94.77	590.91	-964.45	1,714.62	1,662.65	51.97	32.992		
10,400.00	10,277.48	10,308.25	10,294.48	39.21	36.17	95.25	590.91	-964.45	1,717.55	1,665.41	52.14	32.942		
10,450.00	10,316.42	10,347.19	10,333.42	39.23	36.31	95.68	590.91	-964.45	1,721.38	1,669.09	52.29	32.917		
10,500.00	10,352.48	10,383.24	10,369.48	39.25	36.43	96.02	590.91	-964.45	1,726.27	1,673.83	52.44	32.921		
10,550.00	10,385.38	10,416.15	10,402.38	39.25	36.55	96.23	590.91	-964.45	1,732.35	1,679.78	52.57	32.956		
10,600.00	10,414.88	10,445.65	10,431.88	39.23	36.65	96.28	590.91	-964.45	1,739.75	1,687.07	52.68	33.025		
10,650.00	10,440.75	10,471.52	10,457.75	39.21	36.74	96.12	590.91	-964.45	1,748.57	1,695.80	52.78	33.130		
10,700.00	10,462.80	10,493.56	10,479.80	39.18	36.82	95.73	590.91	-964.45	1,758.90	1,706.04	52.86	33.273		
10,750.00	10,480.85	10,511.62	10,497.85	39.13	36.88	95.07	590.91	-964.45	1,770.77	1,717.84	52.93	33.453		
10,800.00	10,494.77	10,525.54	10,511.77	39.09	36.93	94.13	590.91	-964.45	1,784.19	1,731.21	52.99	33.673		
10,850.00	10,504.45	10,535.22	10,521.45	39.04	36.96	92.88	590.91	-964.45	1,799.12	1,746.10	53.02	33.931		
10,900.00	10,509.82	10,540.59	10,526.82	39.00	36.98	91.33	590.91	-964.45	1,815.47	1,762.43	53.04	34.226		
10,936.70	10,511.00	10,541.77	10,528.00	38.97	36.98	90.00	590.91	-964.45	1,828.31	1,775.27	53.05	34.466		
11,000.00	10,511.00	10,541.77	10,528.00	38.94	36.98	90.00	590.91	-964.45	1,851.33	1,798.28	53.05	34.897		
11,073.75	10,511.00	10,541.77	10,528.00	38.93	36.98	90.00	590.91	-964.45	1,878.86	1,825.80	53.06	35.408		
11,100.00	10,511.00	10,541.77	10,528.00	38.94	36.98	90.00	590.91	-964.45	1,888.95	1,835.88	53.07	35.594		
11,200.00	10,511.00	10,541.77	10,528.00	39.03	36.98	90.00	590.91	-964.45	1,930.17	1,877.07	53.11	36.346		
11,300.00	10,511.00	10,541.77	10,528.00	39.25	36.98	90.00	590.91	-964.45	1,975.60	1,922.44	53.15	37.168		
11,400.00	10,511.00	10,541.77	10,528.00	39.60	36.98	90.00	590.91	-964.45	2,024.95	1,971.74	53.21	38.055		
11,500.00	10,511.00	10,541.77	10,528.00	40.03	36.98	90.00	590.91	-964.45	2,077.94	2,024.66	53.28	39.003		
11,600.00	10,511.00	10,541.77	10,528.00	40.53	36.98	90.00	590.91	-964.45	2,134.31	2,080.96	53.35	40.008		
11,700.00	10,511.00	10,541.77	10,528.00	41.10	36.98	90.00	590.91	-964.45	2,193.78	2,140.36	53.42	41.064		
11,800.00	10,511.00	10,541.77	10,528.00	41.73	36.98	90.00	590.91	-964.45	2,256.13	2,202.63	53.50	42.169		
11,900.00	10,511.00	13,250.57	11,973.22	42.41	51.21	129.70	-928.74	-951.19	2,262.57	2,205.73	56.84	39.807		
12,000.00	10,511.00	13,350.57	11,974.31	43.14	52.19	129.72	-1,028.73	-950.32	2,263.34	2,205.51	57.83	39.140		
12,100.00	10,511.00	13,450.56	11,975.39	43.93	53.20	129.74	-1,128.71	-949.44	2,264.11	2,205.25	58.86	38.467		
12,200.00	10,511.00	13,550.56	11,976.47	44.75	54.25	129.76	-1,228.70	-948.57	2,264.88	2,204.95	59.93	37.790		
12,300.00	10,511.00	13,650.55	11,977.55	45.62	55.32	129.78	-1,328.68	-947.70	2,265.65	2,204.60	61.05	37.112		
12,400.00	10,511.00	13,750.54	11,978.63	46.53	56.42	129.80	-1,428.67	-946.83	2,266.42	2,204.22	62.20	36.435		
12,500.00	10,511.00	13,850.54	11,979.71	47.48	57.55	129.82	-1,528.65	-945.96	2,267.19	2,203.80	63.39	35.764		
12,600.00	10,511.00	13,950.53	11,980.79	48.47	58.70	129.84	-1,628.63	-945.08	2,267.97	2,203.35	64.62	35.098		
12,700.00	10,511.00	14,050.53	11,981.87	49.49	59.87	129.86	-1,728.62	-944.21	2,268.74	2,202.86	65.87	34.440		
12,800.00	10,511.00	14,150.52	11,982.95	50.55	61.07	129.87	-1,828.60	-943.34	2,269.51	2,202.35	67.16	33.792		
12,900.00	10,511.00	14,250.51	11,984.03	51.63	62.29	129.89	-1,928.59	-942.47	2,270.28	2,201.81	68.48	33.155		
13,000.00	10,511.00	14,350.51	11,985.11	52.75	63.53	129.91	-2,028.57	-941.59	2,271.05	2,201.24	69.82	32.529		
13,100.00	10,511.00	14,450.50	11,986.19	53.89	64.78	129.93	-2,128.56	-940.72	2,271.83	2,200.65	71.18	31.916		
13,200.00	10,511.00	14,550.50	11,987.27	55.05	66.06	129.95	-2,228.54	-939.85	2,272.60	2,200.03	72.57	31.316		
13,300.00	10,511.00	14,650.49	11,988.35	56.24	67.35	129.97	-2,328.53	-938.98	2,273.37	2,199.39	73.98	30.729		
13,400.00	10,511.00	14,750.48	11,989.44	57.46	68.65	129.99	-2,428.51	-938.10	2,274.15	2,198.73	75.41	30.156		
13,500.00	10,511.00	14,850.48	11,990.52	58.69	69.97	130.01	-2,528.49	-937.23	2,274.92	2,198.06	76.86	29.597		
13,600.00	10,511.00	14,950.47	11,991.60	59.94	71.30	130.03	-2,628.48	-936.36	2,275.69	2,197.36	78.33	29.052		
13,700.00	10,511.00	15,050.47	11,992.68	61.22	72.65	130.05	-2,728.46	-935.49	2,276.47	2,196.65	79.82	28.521		
13,800.00	10,511.00	15,150.46	11,993.76	62.51	74.01	130.07	-2,828.45	-934.62	2,277.24	2,195.92	81.32	28.003		
13,900.00	10,511.00	15,250.46	11,994.84	63.81	75.38	130.09	-2,928.43	-933.74	2,278.02	2,195.18	82.84	27.499		
14,000.00	10,511.00	15,350.45	11,995.92	65.13	76.76	130.10	-3,028.42	-932.87	2,278.79	2,194.42	84.37	27.009		

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 502H
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 502H	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		
14,100.00	10,511.00	15,450.44	11,997.00	66.47	78.15	130.12	-3,128.40	-932.00	2,279.57	2,193.65	85.92	26.533		
14,200.00	10,511.00	15,550.44	11,998.08	67.82	79.56	130.14	-3,228.39	-931.13	2,280.34	2,192.87	87.47	26.069		
14,300.00	10,511.00	15,650.43	11,999.16	69.18	80.97	130.16	-3,328.37	-930.25	2,281.12	2,192.08	89.04	25.618		
14,400.00	10,511.00	15,750.43	12,000.24	70.56	82.39	130.18	-3,428.35	-929.38	2,281.90	2,191.27	90.62	25.180		
14,500.00	10,511.00	15,850.42	12,001.32	71.95	83.82	130.20	-3,528.34	-928.51	2,282.67	2,190.45	92.22	24.753		
14,600.00	10,511.00	15,950.41	12,002.40	73.34	85.26	130.22	-3,628.32	-927.64	2,283.45	2,189.63	93.82	24.339		
14,700.00	10,511.00	16,050.41	12,003.48	74.75	86.70	130.24	-3,728.31	-926.76	2,284.23	2,188.80	95.43	23.936		
14,800.00	10,511.00	16,150.40	12,004.57	76.17	88.15	130.26	-3,828.29	-925.89	2,285.00	2,187.95	97.05	23.544		
14,900.00	10,511.00	16,250.40	12,005.65	77.60	89.61	130.28	-3,928.28	-925.02	2,285.78	2,187.10	98.68	23.164		
15,000.00	10,511.00	16,350.39	12,006.73	79.03	91.08	130.30	-4,028.26	-924.15	2,286.56	2,186.25	100.31	22.794		
15,100.00	10,511.00	16,450.38	12,007.81	80.47	92.55	130.31	-4,128.25	-923.28	2,287.34	2,185.38	101.96	22.435		
15,200.00	10,511.00	16,550.38	12,008.89	81.93	94.03	130.33	-4,228.23	-922.40	2,288.11	2,184.51	103.61	22.085		
15,300.00	10,511.00	16,650.37	12,009.97	83.38	95.51	130.35	-4,328.21	-921.53	2,288.89	2,183.63	105.26	21.745		
15,400.00	10,511.00	16,750.37	12,011.05	84.85	97.00	130.37	-4,428.20	-920.66	2,289.67	2,182.74	106.93	21.414		
15,500.00	10,511.00	16,850.36	12,012.13	86.32	98.49	130.39	-4,528.18	-919.79	2,290.45	2,181.85	108.60	21.091		
15,600.00	10,511.00	16,950.36	12,013.21	87.80	99.99	130.41	-4,628.17	-918.91	2,291.23	2,180.96	110.27	20.778		
15,700.00	10,511.00	17,050.35	12,014.29	89.29	101.49	130.43	-4,728.15	-918.04	2,292.01	2,180.06	111.95	20.473		
15,800.00	10,511.00	17,150.34	12,015.37	90.78	103.00	130.45	-4,828.14	-917.17	2,292.79	2,179.15	113.64	20.177		
15,900.00	10,511.00	17,250.34	12,016.45	92.27	104.51	130.47	-4,928.12	-916.30	2,293.57	2,178.24	115.32	19.888		
16,000.00	10,511.00	17,350.33	12,017.53	93.77	106.03	130.48	-5,028.11	-915.42	2,294.35	2,177.33	117.02	19.607		
16,100.00	10,511.00	17,450.33	12,018.61	95.28	107.55	130.50	-5,128.09	-914.55	2,295.13	2,176.41	118.71	19.333		
16,200.00	10,511.00	17,550.32	12,019.70	96.79	109.08	130.52	-5,228.08	-913.68	2,295.91	2,175.49	120.41	19.067		
16,300.00	10,511.00	17,650.31	12,020.78	98.31	110.60	130.54	-5,328.06	-912.81	2,296.69	2,174.57	122.12	18.807		
16,400.00	10,511.00	17,750.31	12,021.86	99.83	112.14	130.56	-5,428.04	-911.94	2,297.47	2,173.64	123.83	18.553		
16,500.00	10,511.00	17,850.30	12,022.94	101.35	113.67	130.58	-5,528.03	-911.06	2,298.25	2,172.71	125.54	18.306		
16,600.00	10,511.00	17,950.30	12,024.02	102.88	115.21	130.60	-5,628.01	-910.19	2,299.03	2,171.77	127.26	18.066		
16,700.00	10,511.00	18,050.29	12,025.10	104.41	116.75	130.62	-5,728.00	-909.32	2,299.82	2,170.84	128.98	17.831		
16,800.00	10,511.00	18,150.28	12,026.18	105.94	118.29	130.63	-5,827.98	-908.45	2,300.60	2,169.90	130.70	17.603		
16,900.00	10,511.00	18,250.28	12,027.26	107.48	119.84	130.65	-5,927.97	-907.57	2,301.38	2,168.96	132.42	17.380		
17,000.00	10,511.00	18,350.27	12,028.34	109.02	121.39	130.67	-6,027.95	-906.70	2,302.16	2,168.02	134.14	17.162		
17,100.00	10,511.00	18,450.27	12,029.42	110.57	122.94	130.69	-6,127.94	-905.83	2,302.94	2,167.07	135.87	16.950		
17,200.00	10,511.00	18,550.26	12,030.50	112.12	124.50	130.71	-6,227.92	-904.96	2,303.73	2,166.13	137.60	16.742		
17,300.00	10,511.00	18,650.26	12,031.58	113.67	126.06	130.73	-6,327.90	-904.08	2,304.51	2,165.18	139.33	16.539		
17,400.00	10,511.00	18,750.25	12,032.66	115.22	127.62	130.75	-6,427.89	-903.21	2,305.29	2,164.23	141.07	16.342		
17,500.00	10,511.00	18,850.24	12,033.74	116.78	129.18	130.77	-6,527.87	-902.34	2,306.08	2,163.27	142.81	16.148		
17,600.00	10,511.00	18,950.24	12,034.83	118.34	130.74	130.78	-6,627.86	-901.47	2,306.86	2,162.32	144.54	15.960		
17,700.00	10,511.00	19,050.23	12,035.91	119.90	132.31	130.80	-6,727.84	-900.60	2,307.65	2,161.37	146.28	15.775		
17,800.00	10,511.00	19,150.23	12,036.99	121.46	133.88	130.82	-6,827.83	-899.72	2,308.43	2,160.41	148.02	15.595		
17,900.00	10,511.00	19,250.22	12,038.07	123.03	135.45	130.84	-6,927.81	-898.85	2,309.22	2,159.46	149.76	15.419		
18,000.00	10,511.00	19,350.21	12,039.15	124.59	137.02	130.86	-7,027.80	-897.98	2,310.00	2,158.50	151.50	15.247		
18,100.00	10,511.00	19,450.21	12,040.23	126.16	138.59	130.88	-7,127.78	-897.11	2,310.79	2,157.54	153.25	15.079		
18,200.00	10,511.00	19,550.20	12,041.31	127.74	140.17	130.90	-7,227.76	-896.23	2,311.57	2,156.58	154.99	14.914		
18,300.00	10,511.00	19,650.20	12,042.39	129.31	141.75	130.91	-7,327.75	-895.36	2,312.36	2,155.62	156.74	14.753		
18,400.00	10,511.00	19,750.19	12,043.47	130.89	143.33	130.93	-7,427.73	-894.49	2,313.14	2,154.65	158.49	14.595		
18,500.00	10,511.00	19,850.18	12,044.55	132.46	144.91	130.95	-7,527.72	-893.62	2,313.93	2,153.69	160.24	14.441		
18,600.00	10,511.00	19,950.18	12,045.63	134.04	146.49	130.97	-7,627.70	-892.74	2,314.72	2,152.73	161.98	14.290		
18,700.00	10,511.00	20,050.17	12,046.71	135.63	148.07	130.99	-7,727.69	-891.87	2,315.50	2,151.77	163.73	14.142		
18,800.00	10,511.00	20,150.17	12,047.79	137.21	149.66	131.01	-7,827.67	-891.00	2,316.29	2,150.81	165.48	13.997		
18,900.00	10,511.00	20,250.16	12,048.87	138.79	151.25	131.03	-7,927.66	-890.13	2,317.08	2,149.84	167.23	13.855		
19,000.00	10,511.00	20,350.16	12,049.96	140.38	152.83	131.04	-8,027.64	-889.26	2,317.86	2,148.88	168.98	13.716		
19,100.00	10,511.00	20,450.15	12,051.04	141.97	154.42	131.06	-8,127.62	-888.38	2,318.65	2,147.92	170.74	13.580		
19,200.00	10,511.00	20,550.14	12,052.12	143.56	156.01	131.08	-8,227.61	-887.51	2,319.44	2,146.95	172.49	13.447		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 502H
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 502H	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		
19,300.00	10,511.00	20,650.14	12,053.20	145.15	157.61	131.10	-8,327.59	-886.64	2,320.23	2,145.98	174.24	13.316		
19,400.00	10,511.00	20,750.13	12,054.28	146.74	159.20	131.12	-8,427.58	-885.77	2,321.02	2,145.02	176.00	13.188		
19,500.00	10,511.00	20,850.13	12,055.36	148.33	160.79	131.14	-8,527.56	-884.89	2,321.81	2,144.06	177.75	13.062		
19,600.00	10,511.00	20,950.12	12,056.44	149.93	162.39	131.15	-8,627.55	-884.02	2,322.59	2,143.10	179.50	12.939		
19,700.00	10,511.00	21,050.11	12,057.52	151.52	163.99	131.17	-8,727.53	-883.15	2,323.38	2,142.13	181.25	12.819		
19,800.00	10,511.00	21,150.11	12,058.60	153.12	165.58	131.19	-8,827.52	-882.28	2,324.17	2,141.17	183.00	12.700		
19,900.00	10,511.00	21,250.10	12,059.68	154.72	167.18	131.21	-8,927.50	-881.40	2,324.96	2,140.20	184.76	12.584		
20,000.00	10,511.00	21,350.10	12,060.76	156.32	168.78	131.23	-9,027.48	-880.53	2,325.75	2,139.24	186.51	12.470		
20,100.00	10,511.00	21,450.09	12,061.84	157.92	170.38	131.25	-9,127.47	-879.66	2,326.54	2,138.27	188.27	12.358		
20,200.00	10,511.00	21,550.08	12,062.92	159.52	171.99	131.26	-9,227.45	-878.79	2,327.33	2,137.31	190.02	12.248		
20,300.00	10,511.00	21,650.08	12,064.00	161.12	173.59	131.28	-9,327.44	-877.91	2,328.12	2,136.35	191.78	12.140		
20,400.00	10,511.00	21,750.07	12,065.09	162.72	175.19	131.30	-9,427.42	-877.04	2,328.91	2,135.39	193.53	12.034		
20,500.00	10,511.00	21,850.07	12,066.17	164.33	176.80	131.32	-9,527.41	-876.17	2,329.70	2,134.43	195.28	11.930		
20,600.00	10,511.00	21,950.06	12,067.25	165.93	178.40	131.34	-9,627.39	-875.30	2,330.50	2,133.46	197.03	11.828		
20,700.00	10,511.00	22,050.05	12,068.33	167.54	180.01	131.36	-9,727.38	-874.43	2,331.29	2,132.50	198.78	11.728		
20,800.00	10,511.00	22,101.01	12,068.88	169.14	180.83	131.37	-9,778.32	-873.98	2,332.59	2,132.68	199.91	11.668 SF		
20,900.00	10,511.00	22,101.01	12,068.88	170.75	180.83	131.37	-9,778.32	-873.98	2,337.63	2,137.52	200.11	11.682		
21,000.00	10,511.00	22,101.01	12,068.88	172.36	180.83	131.37	-9,778.32	-873.98	2,346.91	2,146.94	199.97	11.736		
21,100.00	10,511.00	22,101.01	12,068.88	173.97	180.83	131.37	-9,778.32	-873.98	2,360.40	2,160.91	199.49	11.832		
21,200.00	10,511.00	22,101.01	12,068.88	175.58	180.83	131.37	-9,778.32	-873.98	2,378.02	2,179.34	198.69	11.969		
21,300.00	10,511.00	22,101.01	12,068.88	177.19	180.83	131.37	-9,778.32	-873.98	2,399.69	2,202.10	197.59	12.145		
21,400.00	10,511.00	22,101.01	12,068.88	178.80	180.83	131.37	-9,778.32	-873.98	2,425.28	2,229.07	196.21	12.360		
21,500.00	10,511.00	22,101.01	12,068.88	180.41	180.83	131.37	-9,778.32	-873.98	2,454.69	2,260.10	194.59	12.615		
21,600.00	10,511.00	22,101.01	12,068.88	182.03	180.83	131.37	-9,778.32	-873.98	2,487.77	2,295.03	192.74	12.907		
21,700.00	10,511.00	22,101.01	12,068.88	183.64	180.83	131.37	-9,778.32	-873.98	2,524.38	2,333.68	190.70	13.237		
21,800.00	10,511.00	22,101.01	12,068.88	185.25	180.83	131.37	-9,778.32	-873.98	2,564.37	2,375.87	188.51	13.604		
21,900.00	10,511.00	22,101.01	12,068.88	186.87	180.83	131.37	-9,778.32	-873.98	2,607.59	2,421.40	186.18	14.006		
22,000.00	10,511.00	22,101.01	12,068.88	188.49	180.83	131.37	-9,778.32	-873.98	2,653.87	2,470.12	183.75	14.443		
22,046.30	10,511.00	22,101.01	12,068.88	189.23	180.83	131.37	-9,778.32	-873.98	2,676.29	2,493.69	182.60	14.657		

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 502H
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 502H	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	-42.10	892.37	-806.42	1,202.76					
100.00	100.00	117.00	117.00	0.13	0.19	-42.10	892.37	-806.42	1,202.76	1,202.53	0.22	5,352.813		
200.00	200.00	217.00	217.00	0.48	0.54	-42.10	892.37	-806.42	1,202.76	1,202.03	0.73	1,650.426		
300.00	300.00	317.00	317.00	0.84	0.90	-42.10	892.37	-806.42	1,202.76	1,201.52	1.24	973.745		
400.00	400.00	417.00	417.00	1.20	1.26	-42.10	892.37	-806.42	1,202.76	1,201.02	1.74	690.476		
500.00	500.00	517.00	517.00	1.56	1.62	-42.10	892.37	-806.42	1,202.76	1,200.51	2.25	534.854		
600.00	600.00	617.00	617.00	1.92	1.98	-42.10	892.37	-806.42	1,202.76	1,200.00	2.76	436.472		
700.00	700.00	717.00	717.00	2.28	2.34	-42.10	892.37	-806.42	1,202.76	1,199.50	3.26	368.657		
800.00	800.00	817.00	817.00	2.63	2.70	-42.10	892.37	-806.42	1,202.76	1,198.99	3.77	319.080		
900.00	900.00	917.00	917.00	2.99	3.05	-42.10	892.37	-806.42	1,202.76	1,198.48	4.28	281.256		
1,000.00	1,000.00	1,017.00	1,017.00	3.35	3.41	-42.10	892.37	-806.42	1,202.76	1,197.97	4.78	251.449		
1,100.00	1,100.00	1,117.00	1,117.00	3.71	3.77	-42.10	892.37	-806.42	1,202.76	1,197.47	5.29	227.354		
1,200.00	1,200.00	1,217.00	1,217.00	4.07	4.13	-42.10	892.37	-806.42	1,202.76	1,196.96	5.80	207.472		
1,300.00	1,300.00	1,317.00	1,317.00	4.43	4.49	-42.10	892.37	-806.42	1,202.76	1,196.45	6.30	190.789		
1,400.00	1,400.00	1,417.00	1,417.00	4.79	4.85	-42.10	892.37	-806.42	1,202.76	1,195.95	6.81	176.588		
1,500.00	1,500.00	1,517.00	1,517.00	5.14	5.21	-42.10	892.37	-806.42	1,202.76	1,195.44	7.32	164.356		
1,600.00	1,600.00	1,617.00	1,617.00	5.50	5.56	-42.10	892.37	-806.42	1,202.76	1,194.93	7.82	153.708		
1,700.00	1,700.00	1,717.00	1,717.00	5.86	5.92	-42.10	892.37	-806.42	1,202.76	1,194.43	8.33	144.355		
1,800.00	1,800.00	1,817.00	1,817.00	6.22	6.28	-42.10	892.37	-806.42	1,202.76	1,193.92	8.84	136.076		
1,900.00	1,900.00	1,917.00	1,917.00	6.58	6.64	-42.10	892.37	-806.42	1,202.76	1,193.41	9.35	128.695		
2,000.00	2,000.00	2,017.00	2,017.00	6.94	7.00	-42.10	892.37	-806.42	1,202.76	1,192.91	9.85	122.073		
2,100.00	2,100.00	2,117.00	2,117.00	7.29	7.36	-42.10	892.37	-806.42	1,202.76	1,192.40	10.36	116.099		
2,200.00	2,200.00	2,217.00	2,217.00	7.65	7.71	-42.10	892.37	-806.42	1,202.76	1,191.89	10.87	110.683		
2,300.00	2,300.00	2,317.00	2,317.00	8.01	8.07	-42.10	892.37	-806.42	1,202.76	1,191.38	11.37	105.750		
2,400.00	2,399.99	2,416.99	2,416.99	8.37	8.43	-93.00	892.37	-806.42	1,202.83	1,190.95	11.88	101.264		
2,500.00	2,499.91	2,516.91	2,516.91	8.72	8.79	-93.18	892.37	-806.42	1,203.04	1,190.66	12.38	97.172		
2,600.00	2,599.69	2,616.69	2,616.69	9.07	9.15	-93.49	892.37	-806.42	1,203.42	1,190.54	12.88	93.409		
2,700.00	2,699.27	2,723.33	2,723.33	9.43	9.53	-93.95	892.30	-806.39	1,203.97	1,190.56	13.40	89.834		
2,800.00	2,798.57	2,865.51	2,865.46	9.79	10.00	-94.81	889.17	-804.79	1,202.48	1,188.50	13.98	86.001		
2,900.00	2,897.54	2,994.48	2,994.19	10.15	10.42	-95.86	882.35	-801.32	1,198.01	1,183.49	14.52	82.501		
3,000.00	2,996.09	3,092.54	3,092.02	10.53	10.75	-96.83	876.25	-798.22	1,193.18	1,178.17	15.01	79.488		
3,100.00	3,094.16	3,190.09	3,189.33	10.91	11.07	-97.90	870.19	-795.14	1,189.00	1,173.50	15.51	76.675		
3,135.41	3,128.76	3,224.49	3,223.65	11.04	11.19	-98.31	868.05	-794.05	1,187.71	1,172.02	15.68	75.225		
3,200.00	3,191.82	3,287.19	3,286.19	11.30	11.40	-99.03	864.16	-792.07	1,185.54	1,169.53	16.01	74.048		
3,300.00	3,289.44	3,384.25	3,383.02	11.70	11.73	-100.16	858.13	-789.00	1,182.59	1,166.06	16.52	71.582		
3,400.00	3,387.05	3,481.31	3,479.84	12.10	12.06	-101.28	852.10	-785.93	1,180.11	1,163.08	17.04	69.269		
3,500.00	3,484.67	3,578.37	3,576.67	12.52	12.39	-102.42	846.07	-782.86	1,178.12	1,160.57	17.56	67.100		
3,600.00	3,582.29	3,675.43	3,673.49	12.94	12.73	-103.55	840.04	-779.79	1,176.63	1,158.54	18.08	65.067		
3,700.00	3,679.91	3,772.49	3,770.31	13.36	13.06	-104.69	834.00	-776.72	1,175.62	1,157.01	18.61	63.161		
3,800.00	3,777.52	3,869.55	3,867.14	13.79	13.40	-105.83	827.97	-773.66	1,175.10	1,155.96	19.15	61.377		
3,854.54	3,830.76	3,922.49	3,919.95	14.03	13.58	-106.45	824.68	-771.98	1,175.03	1,155.59	19.44	60.451 CC		
3,900.00	3,875.14	3,966.61	3,963.96	14.22	13.74	-106.96	821.94	-770.59	1,175.08	1,155.40	19.68	59.705		
4,000.00	3,972.76	4,063.67	4,060.79	14.66	14.08	-108.10	815.91	-767.52	1,175.55	1,155.33	20.22	58.140 ES		
4,100.00	4,070.38	4,160.73	4,157.61	15.10	14.42	-109.24	809.88	-764.45	1,176.51	1,155.76	20.76	56.674		
4,200.00	4,168.00	4,257.80	4,254.44	15.55	14.76	-110.38	803.85	-761.38	1,177.97	1,156.67	21.30	55.302		
4,300.00	4,265.61	4,354.86	4,351.26	15.99	15.11	-111.51	797.82	-758.31	1,179.91	1,158.07	21.84	54.017		
4,400.00	4,363.23	4,451.92	4,448.09	16.44	15.45	-112.64	791.79	-755.25	1,182.34	1,159.95	22.39	52.814		
4,500.00	4,460.85	4,548.98	4,544.91	16.90	15.80	-113.76	785.76	-752.18	1,185.25	1,162.32	22.93	51.688		
4,600.00	4,558.47	4,646.04	4,641.74	17.35	16.15	-114.88	779.73	-749.11	1,188.65	1,165.17	23.47	50.635		
4,700.00	4,656.08	4,743.10	4,738.56	17.81	16.49	-115.99	773.70	-746.04	1,192.52	1,168.50	24.02	49.649		
4,800.00	4,753.70	4,840.16	4,835.39	18.27	16.84	-117.09	767.67	-742.97	1,196.86	1,172.30	24.56	48.726		
4,900.00	4,851.32	4,937.22	4,932.21	18.73	17.19	-118.19	761.63	-739.90	1,201.67	1,176.56	25.11	47.862		

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 502H
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 502H	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	4,948.94	5,034.28	5,029.03	19.19	17.54	-119.28	755.60	-736.84	1,206.94	1,181.29	25.65	47.055		
5,100.00	5,046.56	5,131.34	5,125.86	19.66	17.89	-120.35	749.57	-733.77	1,212.66	1,186.47	26.19	46.299		
5,200.00	5,144.17	5,228.40	5,222.68	20.13	18.24	-121.42	743.54	-730.70	1,218.83	1,192.10	26.73	45.593		
5,300.00	5,241.79	5,325.46	5,319.51	20.59	18.59	-122.48	737.51	-727.63	1,225.44	1,198.17	27.27	44.932		
5,400.00	5,339.41	5,422.52	5,416.33	21.06	18.95	-123.53	731.48	-724.56	1,232.49	1,204.68	27.81	44.314		
5,500.00	5,437.03	5,519.59	5,513.16	21.53	19.30	-124.56	725.45	-721.49	1,239.97	1,211.62	28.35	43.737		
5,600.00	5,534.65	5,616.65	5,609.98	22.01	19.65	-125.58	719.42	-718.43	1,247.86	1,218.98	28.89	43.198		
5,700.00	5,632.26	5,713.71	5,706.81	22.48	20.01	-126.59	713.39	-715.36	1,256.17	1,226.75	29.42	42.694		
5,800.00	5,729.88	5,810.77	5,803.63	22.95	20.36	-127.59	707.36	-712.29	1,264.88	1,234.92	29.96	42.224		
5,900.00	5,827.50	5,907.83	5,900.46	23.43	20.71	-128.58	701.33	-709.22	1,273.98	1,243.49	30.49	41.784		
6,000.00	5,925.12	6,004.89	5,997.28	23.90	21.07	-129.55	695.30	-706.15	1,283.47	1,252.45	31.02	41.374		
6,100.00	6,022.73	6,101.95	6,094.11	24.38	21.42	-130.50	689.27	-703.08	1,293.34	1,261.79	31.55	40.992		
6,200.00	6,120.35	6,199.01	6,190.93	24.85	21.78	-131.45	683.23	-700.02	1,303.58	1,271.50	32.08	40.636		
6,300.00	6,217.97	6,296.07	6,287.75	25.33	22.14	-132.37	677.20	-696.95	1,314.18	1,281.58	32.61	40.304		
6,400.00	6,315.59	6,393.13	6,384.58	25.81	22.49	-133.29	671.17	-693.88	1,325.14	1,292.00	33.13	39.994		
6,500.00	6,413.21	6,490.19	6,481.40	26.29	22.85	-134.19	665.14	-690.81	1,336.43	1,302.78	33.66	39.706		
6,600.00	6,510.82	6,587.25	6,578.23	26.77	23.21	-135.07	659.11	-687.74	1,348.07	1,313.88	34.18	39.438		
6,700.00	6,608.44	6,684.31	6,675.05	27.25	23.56	-135.94	653.08	-684.67	1,360.02	1,325.32	34.70	39.189		
6,719.26	6,627.24	6,703.00	6,693.70	27.34	23.63	-136.11	651.92	-684.08	1,362.36	1,327.56	34.80	39.143		
6,800.00	6,706.24	6,781.57	6,772.07	27.73	23.92	-136.87	647.04	-681.60	1,371.68	1,336.46	35.22	38.941		
6,900.00	6,804.54	6,879.36	6,869.62	28.18	24.28	-137.73	640.96	-678.51	1,381.74	1,346.01	35.74	38.662		
7,000.00	6,903.29	6,977.63	6,967.66	28.61	24.64	-138.49	634.86	-675.40	1,390.10	1,353.85	36.25	38.349		
7,100.00	7,002.41	7,076.32	7,066.11	29.02	25.01	-139.15	628.72	-672.28	1,396.67	1,359.92	36.75	38.001		
7,200.00	7,101.85	7,175.36	7,164.91	29.41	25.37	-139.72	622.57	-669.15	1,401.41	1,364.16	37.25	37.619		
7,300.00	7,201.53	7,274.68	7,263.98	29.78	25.74	-140.21	616.40	-666.01	1,404.26	1,366.51	37.75	37.201		
7,400.00	7,301.38	7,374.21	7,363.27	30.13	26.11	-140.61	610.21	-662.87	1,405.17	1,366.93	38.24	36.748		
7,500.00	7,401.34	7,473.89	7,462.71	30.46	26.48	-140.92	604.02	-659.71	1,404.11	1,365.39	38.72	36.261		
7,554.66	7,456.00	7,525.08	7,513.78	30.63	26.67	-90.21	600.89	-658.12	1,402.72	1,363.75	38.97	35.991		
7,600.00	7,501.34	7,563.92	7,552.55	30.77	26.81	-90.29	598.83	-657.07	1,401.51	1,362.34	39.17	35.780		
7,700.00	7,601.34	7,649.73	7,638.27	31.07	27.12	-90.43	595.54	-655.40	1,399.58	1,359.98	39.60	35.341		
7,800.00	7,701.34	7,735.66	7,724.19	31.38	27.42	-90.49	593.96	-654.59	1,398.66	1,358.63	40.03	34.940		
7,857.13	7,758.47	7,786.95	7,775.47	31.56	27.60	-90.50	593.81	-654.52	1,398.57	1,358.29	40.28	34.722		
7,900.00	7,801.34	7,829.81	7,818.34	31.69	27.74	-90.50	593.81	-654.52	1,398.57	1,358.09	40.48	34.549		
8,000.00	7,901.34	7,929.81	7,918.34	32.00	28.08	-90.50	593.81	-654.52	1,398.57	1,357.62	40.95	34.153		
8,100.00	8,001.34	8,029.81	8,018.34	32.32	28.41	-90.50	593.81	-654.52	1,398.57	1,357.15	41.42	33.765		
8,200.00	8,101.34	8,129.81	8,118.34	32.63	28.75	-90.50	593.81	-654.52	1,398.57	1,356.68	41.89	33.385		
8,300.00	8,201.34	8,229.81	8,218.34	32.94	29.09	-90.50	593.81	-654.52	1,398.57	1,356.21	42.37	33.012		
8,400.00	8,301.34	8,329.81	8,318.34	33.26	29.43	-90.50	593.81	-654.52	1,398.57	1,355.73	42.84	32.648		
8,500.00	8,401.34	8,429.81	8,418.34	33.57	29.76	-90.50	593.81	-654.52	1,398.57	1,355.26	43.31	32.290		
8,600.00	8,501.34	8,529.81	8,518.34	33.89	30.10	-90.50	593.81	-654.52	1,398.57	1,354.78	43.79	31.940		
8,700.00	8,601.34	8,629.81	8,618.34	34.20	30.44	-90.50	593.81	-654.52	1,398.57	1,354.31	44.26	31.597		
8,800.00	8,701.34	8,729.81	8,718.34	34.52	30.78	-90.50	593.81	-654.52	1,398.57	1,353.83	44.74	31.261		
8,900.00	8,801.34	8,829.81	8,818.34	34.84	31.12	-90.50	593.81	-654.52	1,398.57	1,353.36	45.22	30.931		
9,000.00	8,901.34	8,929.81	8,918.34	35.16	31.46	-90.50	593.81	-654.52	1,398.57	1,352.88	45.69	30.608		
9,100.00	9,001.34	9,029.81	9,018.34	35.48	31.81	-90.50	593.81	-654.52	1,398.57	1,352.40	46.17	30.291		
9,200.00	9,101.34	9,129.81	9,118.34	35.80	32.15	-90.50	593.81	-654.52	1,398.57	1,351.92	46.65	29.981		
9,300.00	9,201.34	9,229.81	9,218.34	36.12	32.49	-90.50	593.81	-654.52	1,398.57	1,351.44	47.13	29.676		
9,400.00	9,301.34	9,329.81	9,318.34	36.45	32.83	-90.50	593.81	-654.52	1,398.57	1,350.96	47.61	29.377		
9,500.00	9,401.34	9,429.81	9,418.34	36.77	33.17	-90.50	593.81	-654.52	1,398.57	1,350.48	48.09	29.083		
9,600.00	9,501.34	9,529.81	9,518.34	37.09	33.52	-90.50	593.81	-654.52	1,398.57	1,350.00	48.57	28.795		
9,700.00	9,601.34	9,629.81	9,618.34	37.42	33.86	-90.50	593.81	-654.52	1,398.57	1,349.52	49.05	28.513		
9,800.00	9,701.34	9,729.81	9,718.34	37.74	34.20	-90.50	593.81	-654.52	1,398.57	1,349.04	49.53	28.235		

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 502H
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 502H	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			
9,900.00	9,801.34	9,829.81	9,818.34	38.07	34.55	-90.50	593.81	-654.52	1,398.57	1,348.56	50.02	27.963			
10,000.00	9,901.34	9,929.81	9,918.34	38.39	34.89	-90.50	593.81	-654.52	1,398.57	1,348.07	50.50	27.695			
10,036.70	9,938.04	9,966.51	9,955.04	38.51	35.02	-90.50	593.81	-654.52	1,398.57	1,347.89	50.68	27.598			
10,050.00	9,951.34	9,979.81	9,968.34	38.55	35.07	92.81	593.81	-654.52	1,398.58	1,347.84	50.74	27.564			
10,100.00	10,001.21	10,029.68	10,018.21	38.69	35.24	92.93	593.81	-654.52	1,398.75	1,347.78	50.97	27.445			
10,150.00	10,050.60	10,079.08	10,067.60	38.82	35.41	93.19	593.81	-654.52	1,399.16	1,347.97	51.19	27.335			
10,200.00	10,099.14	10,127.61	10,116.14	38.93	35.57	93.59	593.81	-654.52	1,399.89	1,348.49	51.40	27.236			
10,250.00	10,146.45	10,174.92	10,163.45	39.02	35.74	94.10	593.81	-654.52	1,401.04	1,349.44	51.60	27.152			
10,300.00	10,192.17	10,220.64	10,209.17	39.10	35.90	94.69	593.81	-654.52	1,402.73	1,350.94	51.79	27.085			
10,350.00	10,235.96	10,264.43	10,252.96	39.16	36.05	95.31	593.81	-654.52	1,405.13	1,353.16	51.97	27.037			
10,400.00	10,277.48	10,305.95	10,294.48	39.21	36.19	95.92	593.81	-654.52	1,408.41	1,356.28	52.14	27.014			
10,450.00	10,316.42	10,344.89	10,333.42	39.23	36.32	96.47	593.81	-654.52	1,412.75	1,360.46	52.29	27.018			
10,500.00	10,352.48	10,380.95	10,369.48	39.25	36.45	96.92	593.81	-654.52	1,418.34	1,365.91	52.43	27.053			
10,550.00	10,385.38	10,413.85	10,402.38	39.25	36.56	97.22	593.81	-654.52	1,425.34	1,372.78	52.55	27.122			
10,600.00	10,414.88	10,443.35	10,431.88	39.23	36.67	97.32	593.81	-654.52	1,433.90	1,381.24	52.66	27.228			
10,650.00	10,440.75	10,469.23	10,457.75	39.21	36.75	97.17	593.81	-654.52	1,444.15	1,391.40	52.76	27.374			
10,700.00	10,462.80	10,491.27	10,479.80	39.18	36.83	96.74	593.81	-654.52	1,456.18	1,403.35	52.83	27.562			
10,750.00	10,480.85	10,509.32	10,497.85	39.13	36.89	95.99	593.81	-654.52	1,470.03	1,417.13	52.89	27.792			
10,800.00	10,494.77	10,523.24	10,511.77	39.09	36.94	94.89	593.81	-654.52	1,485.68	1,432.74	52.94	28.065			
10,850.00	10,504.45	10,532.92	10,521.45	39.04	36.98	93.43	593.81	-654.52	1,503.08	1,450.12	52.96	28.380			
10,900.00	10,509.82	10,538.30	10,526.82	39.00	36.99	91.59	593.81	-654.52	1,522.13	1,469.16	52.97	28.734			
10,936.70	10,511.00	10,539.47	10,528.00	38.97	37.00	90.00	593.81	-654.52	1,537.07	1,484.10	52.97	29.019			
11,000.00	10,511.00	10,539.47	10,528.00	38.94	37.00	90.00	593.81	-654.52	1,563.91	1,510.95	52.96	29.532			
11,073.75	10,511.00	10,539.47	10,528.00	38.93	37.00	90.00	593.81	-654.52	1,596.22	1,543.27	52.95	30.146			
11,100.00	10,511.00	10,539.47	10,528.00	38.94	37.00	90.00	593.81	-654.52	1,608.08	1,555.13	52.95	30.371			
11,200.00	10,511.00	10,539.47	10,528.00	39.03	37.00	90.00	593.81	-654.52	1,656.30	1,603.34	52.95	31.279			
11,300.00	10,511.00	10,539.47	10,528.00	39.25	37.00	90.00	593.81	-654.52	1,709.01	1,656.04	52.97	32.265			
11,400.00	10,511.00	10,539.47	10,528.00	39.60	37.00	90.00	593.81	-654.52	1,765.82	1,712.83	52.99	33.323			
11,500.00	10,511.00	10,539.47	10,528.00	40.03	37.00	90.00	593.81	-654.52	1,826.34	1,773.32	53.02	34.446			
11,600.00	10,511.00	10,539.47	10,528.00	40.53	37.00	90.00	593.81	-654.52	1,890.22	1,837.16	53.06	35.627			
11,700.00	10,511.00	10,539.47	10,528.00	41.10	37.00	90.00	593.81	-654.52	1,957.12	1,904.03	53.09	36.861			
11,800.00	10,511.00	10,539.47	10,528.00	41.73	37.00	90.00	593.81	-654.52	2,026.75	1,973.62	53.13	38.143			
11,900.00	10,511.00	10,539.47	10,528.00	42.41	37.00	90.00	593.81	-654.52	2,098.84	2,045.66	53.18	39.468			
12,000.00	10,511.00	10,539.47	10,528.00	43.14	37.00	90.00	593.81	-654.52	2,173.14	2,119.91	53.22	40.832			
12,100.00	10,511.00	10,539.47	10,528.00	43.93	37.00	90.00	593.81	-654.52	2,249.43	2,196.16	53.27	42.230			
12,200.00	10,511.00	13,838.26	12,269.46	44.75	55.04	140.59	-1,222.79	-638.67	2,254.15	2,198.72	55.43	40.663			
12,300.00	10,511.00	13,938.25	12,270.54	45.62	56.10	140.60	-1,322.77	-637.79	2,255.06	2,198.65	56.41	39.979			
12,400.00	10,511.00	14,038.24	12,271.63	46.53	57.18	140.62	-1,422.76	-636.92	2,255.96	2,198.55	57.41	39.297			
12,500.00	10,511.00	14,138.24	12,272.71	47.48	58.30	140.63	-1,522.74	-636.05	2,256.86	2,198.42	58.44	38.618			
12,600.00	10,511.00	14,238.23	12,273.79	48.47	59.43	140.65	-1,622.73	-635.18	2,257.76	2,198.26	59.50	37.943			
12,700.00	10,511.00	14,338.23	12,274.88	49.49	60.59	140.66	-1,722.71	-634.30	2,258.67	2,198.07	60.59	37.275			
12,800.00	10,511.00	14,438.22	12,275.96	50.55	61.78	140.68	-1,822.70	-633.43	2,259.57	2,197.86	61.71	36.615			
12,900.00	10,511.00	14,538.21	12,277.04	51.63	62.98	140.69	-1,922.68	-632.56	2,260.47	2,197.62	62.85	35.963			
13,000.00	10,511.00	14,638.21	12,278.12	52.75	64.20	140.71	-2,022.66	-631.69	2,261.38	2,197.36	64.02	35.323			
13,100.00	10,511.00	14,738.20	12,279.21	53.89	65.45	140.73	-2,122.65	-630.82	2,262.28	2,197.07	65.21	34.693			
13,200.00	10,511.00	14,838.20	12,280.29	55.05	66.71	140.74	-2,222.63	-629.94	2,263.18	2,196.77	66.42	34.075			
13,300.00	10,511.00	14,938.19	12,281.37	56.24	67.99	140.76	-2,322.62	-629.07	2,264.09	2,196.44	67.64	33.470			
13,400.00	10,511.00	15,038.18	12,282.46	57.46	69.28	140.77	-2,422.60	-628.20	2,264.99	2,196.10	68.89	32.879			
13,500.00	10,511.00	15,138.18	12,283.54	58.69	70.59	140.79	-2,522.59	-627.33	2,265.90	2,195.75	70.15	32.301			
13,600.00	10,511.00	15,238.17	12,284.62	59.94	71.91	140.80	-2,622.57	-626.45	2,266.80	2,195.37	71.43	31.735			
13,700.00	10,511.00	15,338.17	12,285.70	61.22	73.24	140.82	-2,722.56	-625.58	2,267.71	2,194.98	72.72	31.183			
13,800.00	10,511.00	15,438.16	12,286.79	62.51	74.59	140.83	-2,822.54	-624.71	2,268.61	2,194.58	74.03	30.644			

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 502H
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 502H	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		
13,900.00	10,511.00	15,538.15	12,287.87	63.81	75.95	140.85	-2,922.52	-623.84	2,269.51	2,194.16	75.35	30.118		
14,000.00	10,511.00	15,638.15	12,288.95	65.13	77.32	140.86	-3,022.51	-622.96	2,270.42	2,193.73	76.69	29.605		
14,100.00	10,511.00	15,738.14	12,290.04	66.47	78.71	140.88	-3,122.49	-622.09	2,271.32	2,193.29	78.04	29.105		
14,200.00	10,511.00	15,838.14	12,291.12	67.82	80.10	140.89	-3,222.48	-621.22	2,272.23	2,192.83	79.40	28.618		
14,300.00	10,511.00	15,938.13	12,292.20	69.18	81.50	140.91	-3,322.46	-620.35	2,273.14	2,192.37	80.77	28.145		
14,400.00	10,511.00	16,038.13	12,293.28	70.56	82.91	140.92	-3,422.45	-619.47	2,274.04	2,191.90	82.14	27.684		
14,500.00	10,511.00	16,138.12	12,294.37	71.95	84.33	140.94	-3,522.43	-618.60	2,274.95	2,191.42	83.53	27.234		
14,600.00	10,511.00	16,238.11	12,295.45	73.34	85.76	140.95	-3,622.42	-617.73	2,275.85	2,190.92	84.93	26.797		
14,700.00	10,511.00	16,338.11	12,296.53	74.75	87.20	140.97	-3,722.40	-616.86	2,276.76	2,190.42	86.34	26.371		
14,800.00	10,511.00	16,438.10	12,297.62	76.17	88.64	140.98	-3,822.38	-615.98	2,277.67	2,189.92	87.75	25.956		
14,900.00	10,511.00	16,538.10	12,298.70	77.60	90.09	141.00	-3,922.37	-615.11	2,278.57	2,189.40	89.17	25.552		
15,000.00	10,511.00	16,638.09	12,299.78	79.03	91.55	141.01	-4,022.35	-614.24	2,279.48	2,188.88	90.60	25.159		
15,100.00	10,511.00	16,738.08	12,300.86	80.47	93.01	141.03	-4,122.34	-613.37	2,280.39	2,188.35	92.04	24.776		
15,200.00	10,511.00	16,838.08	12,301.95	81.93	94.48	141.04	-4,222.32	-612.49	2,281.29	2,187.81	93.48	24.404		
15,300.00	10,511.00	16,938.07	12,303.03	83.38	95.96	141.06	-4,322.31	-611.62	2,282.20	2,187.27	94.93	24.041		
15,400.00	10,511.00	17,038.07	12,304.11	84.85	97.44	141.08	-4,422.29	-610.75	2,283.11	2,186.73	96.38	23.688		
15,500.00	10,511.00	17,138.06	12,305.20	86.32	98.93	141.09	-4,522.28	-609.88	2,284.01	2,186.17	97.84	23.345		
15,600.00	10,511.00	17,238.05	12,306.28	87.80	100.42	141.11	-4,622.26	-609.01	2,284.92	2,185.62	99.30	23.010		
15,700.00	10,511.00	17,338.05	12,307.36	89.29	101.92	141.12	-4,722.24	-608.13	2,285.83	2,185.06	100.77	22.683		
15,800.00	10,511.00	17,438.04	12,308.44	90.78	103.42	141.14	-4,822.23	-607.26	2,286.74	2,184.49	102.25	22.365		
15,900.00	10,511.00	17,538.04	12,309.53	92.27	104.93	141.15	-4,922.21	-606.39	2,287.64	2,183.92	103.73	22.055		
16,000.00	10,511.00	17,638.03	12,310.61	93.77	106.44	141.17	-5,022.20	-605.52	2,288.55	2,183.35	105.21	21.753		
16,100.00	10,511.00	17,738.02	12,311.69	95.28	107.95	141.18	-5,122.18	-604.64	2,289.46	2,182.77	106.69	21.459		
16,200.00	10,511.00	17,838.02	12,312.78	96.79	109.47	141.20	-5,222.17	-603.77	2,290.37	2,182.19	108.18	21.172		
16,300.00	10,511.00	17,938.01	12,313.86	98.31	110.99	141.21	-5,322.15	-602.90	2,291.28	2,181.61	109.67	20.892		
16,400.00	10,511.00	18,038.01	12,314.94	99.83	112.52	141.23	-5,422.14	-602.03	2,292.19	2,181.02	111.17	20.619		
16,500.00	10,511.00	18,138.00	12,316.02	101.35	114.05	141.24	-5,522.12	-601.15	2,293.10	2,180.43	112.67	20.353		
16,600.00	10,511.00	18,238.00	12,317.11	102.88	115.58	141.25	-5,622.10	-600.28	2,294.01	2,179.84	114.17	20.093		
16,700.00	10,511.00	18,337.99	12,318.19	104.41	117.12	141.27	-5,722.09	-599.41	2,294.91	2,179.24	115.67	19.840		
16,800.00	10,511.00	18,437.98	12,319.27	105.94	118.66	141.28	-5,822.07	-598.54	2,295.82	2,178.64	117.18	19.592		
16,900.00	10,511.00	18,537.98	12,320.36	107.48	120.20	141.30	-5,922.06	-597.66	2,296.73	2,178.05	118.69	19.351		
17,000.00	10,511.00	18,637.97	12,321.44	109.02	121.74	141.31	-6,022.04	-596.79	2,297.64	2,177.44	120.20	19.115		
17,100.00	10,511.00	18,737.97	12,322.52	110.57	123.29	141.33	-6,122.03	-595.92	2,298.55	2,176.84	121.71	18.885		
17,200.00	10,511.00	18,837.96	12,323.60	112.12	124.84	141.34	-6,222.01	-595.05	2,299.46	2,176.24	123.23	18.660		
17,300.00	10,511.00	18,937.95	12,324.69	113.67	126.40	141.36	-6,321.99	-594.17	2,300.37	2,175.63	124.74	18.441		
17,400.00	10,511.00	19,037.95	12,325.77	115.22	127.95	141.37	-6,421.98	-593.30	2,301.28	2,175.02	126.26	18.226		
17,500.00	10,511.00	19,137.94	12,326.85	116.78	129.51	141.39	-6,521.96	-592.43	2,302.19	2,174.41	127.78	18.016		
17,600.00	10,511.00	19,237.94	12,327.94	118.34	131.07	141.40	-6,621.95	-591.56	2,303.10	2,173.80	129.31	17.811		
17,700.00	10,511.00	19,337.93	12,329.02	119.90	132.63	141.42	-6,721.93	-590.68	2,304.02	2,173.19	130.83	17.611		
17,800.00	10,511.00	19,437.92	12,330.10	121.46	134.20	141.43	-6,821.92	-589.81	2,304.93	2,172.57	132.35	17.415		
17,900.00	10,511.00	19,537.92	12,331.18	123.03	135.76	141.45	-6,921.90	-588.94	2,305.84	2,171.96	133.88	17.223		
18,000.00	10,511.00	19,637.91	12,332.27	124.59	137.33	141.46	-7,021.89	-588.07	2,306.75	2,171.34	135.41	17.036		
18,100.00	10,511.00	19,737.91	12,333.35	126.16	138.90	141.48	-7,121.87	-587.20	2,307.66	2,170.72	136.94	16.852		
18,200.00	10,511.00	19,837.90	12,334.43	127.74	140.48	141.49	-7,221.85	-586.32	2,308.57	2,170.11	138.46	16.673		
18,300.00	10,511.00	19,937.89	12,335.52	129.31	142.05	141.51	-7,321.84	-585.45	2,309.48	2,169.49	139.99	16.497		
18,400.00	10,511.00	20,037.89	12,336.60	130.89	143.63	141.52	-7,421.82	-584.58	2,310.40	2,168.87	141.53	16.325		
18,500.00	10,511.00	20,137.88	12,337.68	132.46	145.20	141.54	-7,521.81	-583.71	2,311.31	2,168.25	143.06	16.156		
18,600.00	10,511.00	20,237.88	12,338.76	134.04	146.78	141.55	-7,621.79	-582.83	2,312.22	2,167.63	144.59	15.992		
18,700.00	10,511.00	20,337.87	12,339.85	135.63	148.36	141.57	-7,721.78	-581.96	2,313.13	2,167.01	146.12	15.830		
18,800.00	10,511.00	20,437.86	12,340.93	137.21	149.95	141.58	-7,821.76	-581.09	2,314.04	2,166.39	147.66	15.672		
18,900.00	10,511.00	20,537.86	12,342.01	138.79	151.53	141.59	-7,921.75	-580.22	2,314.96	2,165.76	149.19	15.517		
19,000.00	10,511.00	20,637.85	12,343.10	140.38	153.11	141.61	-8,021.73	-579.34	2,315.87	2,165.14	150.73	15.365		

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 502H
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 502H	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		
19,100.00	10,511.00	20,737.85	12,344.18	141.97	154.70	141.62	-8,121.71	-578.47	2,316.78	2,164.52	152.26	15.216		
19,200.00	10,511.00	20,837.84	12,345.26	143.56	156.29	141.64	-8,221.70	-577.60	2,317.70	2,163.90	153.80	15.070		
19,300.00	10,511.00	20,937.84	12,346.34	145.15	157.88	141.65	-8,321.68	-576.73	2,318.61	2,163.27	155.34	14.926		
19,400.00	10,511.00	21,037.83	12,347.43	146.74	159.47	141.67	-8,421.67	-575.85	2,319.52	2,162.65	156.87	14.786		
19,500.00	10,511.00	21,137.82	12,348.51	148.33	161.06	141.68	-8,521.65	-574.98	2,320.44	2,162.03	158.40	14.649		
19,600.00	10,511.00	21,237.82	12,349.59	149.93	162.65	141.70	-8,621.64	-574.11	2,321.35	2,161.41	159.94	14.514		
19,700.00	10,511.00	21,337.81	12,350.68	151.52	164.25	141.71	-8,721.62	-573.24	2,322.26	2,160.78	161.48	14.381		
19,800.00	10,511.00	21,437.81	12,351.76	153.12	165.84	141.73	-8,821.61	-572.36	2,323.18	2,160.16	163.02	14.251		
19,900.00	10,511.00	21,537.80	12,352.84	154.72	167.44	141.74	-8,921.59	-571.49	2,324.09	2,159.54	164.55	14.124		
20,000.00	10,511.00	21,637.79	12,353.93	156.32	169.04	141.76	-9,021.57	-570.62	2,325.01	2,158.91	166.09	13.998		
20,100.00	10,511.00	21,737.79	12,355.01	157.92	170.63	141.77	-9,121.56	-569.75	2,325.92	2,158.29	167.63	13.875		
20,200.00	10,511.00	21,837.78	12,356.09	159.52	172.23	141.78	-9,221.54	-568.87	2,326.84	2,157.67	169.17	13.755		
20,300.00	10,511.00	21,937.78	12,357.17	161.12	173.83	141.80	-9,321.53	-568.00	2,327.75	2,157.05	170.70	13.636		
20,400.00	10,511.00	22,037.77	12,358.26	162.72	175.44	141.81	-9,421.51	-567.13	2,328.66	2,156.42	172.24	13.520		
20,500.00	10,511.00	22,137.76	12,359.34	164.33	177.04	141.83	-9,521.50	-566.26	2,329.58	2,155.80	173.78	13.406		
20,600.00	10,511.00	22,237.76	12,360.42	165.93	178.64	141.84	-9,621.48	-565.38	2,330.49	2,155.18	175.32	13.293		
20,700.00	10,511.00	22,337.75	12,361.51	167.54	180.24	141.86	-9,721.46	-564.51	2,331.41	2,154.56	176.85	13.183		
20,800.00	10,511.00	22,390.61	12,362.08	169.14	181.09	141.86	-9,774.31	-564.05	2,332.80	2,155.01	177.79	13.121 SF		
20,900.00	10,511.00	22,390.61	12,362.08	170.75	181.09	141.86	-9,774.31	-564.05	2,337.88	2,160.05	177.83	13.147		
21,000.00	10,511.00	22,390.61	12,362.08	172.36	181.09	141.86	-9,774.31	-564.05	2,347.20	2,169.63	177.58	13.218		
21,100.00	10,511.00	22,390.61	12,362.08	173.97	181.09	141.86	-9,774.31	-564.05	2,360.73	2,183.69	177.04	13.334		
21,200.00	10,511.00	22,390.61	12,362.08	175.58	181.09	141.86	-9,774.31	-564.05	2,378.39	2,202.15	176.24	13.495		
21,300.00	10,511.00	22,390.61	12,362.08	177.19	181.09	141.86	-9,774.31	-564.05	2,400.09	2,224.90	175.20	13.700		
21,400.00	10,511.00	22,390.61	12,362.08	178.80	181.09	141.86	-9,774.31	-564.05	2,425.73	2,251.81	173.92	13.947		
21,500.00	10,511.00	22,390.61	12,362.08	180.41	181.09	141.86	-9,774.31	-564.05	2,455.17	2,282.73	172.44	14.238		
21,600.00	10,511.00	22,390.61	12,362.08	182.03	181.09	141.86	-9,774.31	-564.05	2,488.28	2,317.50	170.78	14.570		
21,700.00	10,511.00	22,390.61	12,362.08	183.64	181.09	141.86	-9,774.31	-564.05	2,524.93	2,355.96	168.96	14.943		
21,800.00	10,511.00	22,390.61	12,362.08	185.25	181.09	141.86	-9,774.31	-564.05	2,564.95	2,397.92	167.03	15.356		
21,900.00	10,511.00	22,390.61	12,362.08	186.87	181.09	141.86	-9,774.31	-564.05	2,608.19	2,443.21	164.98	15.809		
22,000.00	10,511.00	22,390.61	12,362.08	188.49	181.09	141.86	-9,774.31	-564.05	2,654.49	2,491.64	162.86	16.300		
22,046.30	10,511.00	22,390.61	12,362.08	189.23	181.09	141.86	-9,774.31	-564.05	2,676.93	2,515.07	161.85	16.539		

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 502H
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 502H	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						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	74.81	931.92	3,433.26	3,557.56							
100.00	100.00	78.50	78.50	0.13	0.12	74.81	931.92	3,433.26	3,557.49	3,557.32	0.17	N/A				
200.00	200.00	178.50	178.50	0.48	0.27	74.81	931.92	3,433.26	3,557.49	3,556.94	0.55	6,422.872				
300.00	300.00	313.50	313.49	0.84	0.72	74.82	931.43	3,432.73	3,557.02	3,555.92	1.11	3,217.475				
400.00	400.00	441.94	441.93	1.20	1.17	74.83	930.53	3,431.13	3,555.64	3,553.96	1.68	2,122.569				
500.00	500.00	580.26	580.21	1.56	1.66	74.83	929.26	3,428.22	3,553.39	3,551.11	2.28	1,559.693				
600.00	600.00	710.90	710.75	1.92	2.13	74.86	926.57	3,424.23	3,549.84	3,546.97	2.86	1,239.184				
700.00	700.00	804.17	803.95	2.28	2.47	74.88	924.49	3,421.25	3,546.18	3,542.82	3.35	1,057.609				
800.00	800.00	894.09	893.81	2.63	2.80	74.90	922.16	3,418.72	3,542.78	3,538.95	3.83	924.276				
900.00	900.00	981.35	981.03	2.99	3.11	74.93	920.01	3,416.73	3,539.92	3,535.61	4.31	821.935				
1,000.00	1,000.00	1,118.47	1,118.03	3.35	3.61	74.96	917.11	3,412.17	3,536.02	3,531.11	4.91	720.115				
1,100.00	1,100.00	1,208.39	1,207.88	3.71	3.94	74.97	915.48	3,409.19	3,532.34	3,526.95	5.39	655.180				
1,200.00	1,200.00	1,320.78	1,320.19	4.07	4.35	74.98	913.60	3,405.15	3,528.43	3,522.50	5.93	594.942				
1,300.00	1,300.00	1,409.08	1,408.43	4.43	4.53	74.99	912.31	3,401.97	3,524.57	3,518.27	6.31	558.810				
1,400.00	1,400.00	1,510.31	1,509.58	4.79	4.56	74.99	911.09	3,398.36	3,520.81	3,514.23	6.58	534.898				
1,500.00	1,500.00	1,604.03	1,603.24	5.14	4.62	74.99	910.05	3,395.17	3,517.23	3,510.35	6.88	511.190				
1,600.00	1,600.00	1,700.12	1,699.26	5.50	4.70	75.00	908.96	3,391.90	3,513.65	3,506.45	7.20	487.915				
1,700.00	1,700.00	1,787.21	1,786.32	5.86	4.79	75.00	908.11	3,389.23	3,510.44	3,502.90	7.54	465.876				
1,800.00	1,800.00	1,876.76	1,875.82	6.22	4.91	75.00	907.35	3,386.69	3,507.48	3,499.59	7.89	444.803				
1,900.00	1,900.00	1,960.11	1,959.15	6.58	5.03	75.01	906.18	3,384.81	3,504.94	3,496.70	8.24	425.196				
2,000.00	2,000.00	2,044.65	2,043.66	6.94	5.17	75.03	904.47	3,383.46	3,502.87	3,494.26	8.61	406.737				
2,100.00	2,100.00	2,125.00	2,123.98	7.29	5.32	75.06	902.71	3,382.48	3,501.16	3,492.17	8.99	389.645				
2,200.00	2,200.00	2,205.38	2,204.34	7.65	5.47	75.08	901.23	3,381.88	3,500.00	3,490.64	9.37	373.654				
2,300.00	2,300.00	2,288.99	2,287.95	8.01	5.64	75.09	900.25	3,381.74	3,499.53	3,489.77	9.76	358.640				
2,400.00	2,399.99	2,376.70	2,375.66	8.37	5.82	24.28	899.64	3,381.82	3,498.25	3,488.09	10.16	344.465				
2,500.00	2,499.91	2,461.33	2,460.29	8.72	6.00	24.33	899.18	3,382.19	3,494.95	3,484.40	10.55	331.257				
2,600.00	2,599.69	2,545.56	2,544.51	9.07	6.19	24.41	899.00	3,382.90	3,489.74	3,478.80	10.95	318.758				
2,700.00	2,699.27	2,668.00	2,666.94	9.43	6.48	24.55	898.58	3,384.13	3,482.36	3,470.95	11.40	305.371				
2,800.00	2,798.57	2,798.84	2,797.69	9.79	6.82	24.79	894.18	3,384.91	3,471.35	3,459.46	11.89	292.031				
2,900.00	2,897.54	2,879.00	2,877.70	10.15	7.04	25.04	889.31	3,385.89	3,457.97	3,445.67	12.30	281.102				
3,000.00	2,996.09	2,939.24	2,937.81	10.53	7.20	25.28	885.62	3,387.13	3,443.10	3,430.41	12.69	271.366				
3,100.00	3,094.16	3,056.02	3,054.38	10.91	7.53	25.67	879.26	3,390.18	3,426.69	3,413.52	13.17	260.202				
3,135.41	3,128.76	3,303.93	3,301.40	11.04	8.29	26.44	859.15	3,388.06	3,418.52	3,404.82	13.69	249.692				
3,200.00	3,191.82	3,351.00	3,348.23	11.30	8.44	26.59	854.69	3,386.36	3,402.33	3,388.36	13.96	243.639				
3,300.00	3,289.44	3,421.57	3,418.49	11.70	8.67	26.80	848.56	3,384.10	3,377.90	3,363.51	14.39	234.769				
3,400.00	3,387.05	3,487.52	3,484.24	12.10	8.88	26.99	843.68	3,382.57	3,354.57	3,339.76	14.81	226.546				
3,500.00	3,484.67	3,607.96	3,604.41	12.52	9.27	27.32	836.14	3,379.57	3,331.43	3,316.11	15.32	217.409				
3,600.00	3,582.29	3,728.00	3,724.18	12.94	9.66	27.61	830.35	3,374.30	3,306.68	3,290.84	15.84	208.770				
3,700.00	3,679.91	3,794.44	3,790.52	13.36	9.87	27.75	828.49	3,371.38	3,282.70	3,266.43	16.27	201.817				
3,800.00	3,777.52	3,850.80	3,846.85	13.79	10.05	27.86	827.68	3,369.62	3,260.09	3,243.41	16.68	195.463				
3,900.00	3,875.14	3,917.00	3,913.03	14.22	10.26	28.00	826.40	3,368.41	3,238.62	3,221.51	17.11	189.272				
4,000.00	3,972.76	4,043.85	4,039.71	14.66	10.69	28.35	820.11	3,366.85	3,217.24	3,199.59	17.66	182.205				
4,100.00	4,070.38	4,140.47	4,136.00	15.10	11.02	28.66	812.38	3,365.50	3,195.16	3,177.01	18.16	175.967				
4,200.00	4,168.00	4,212.97	4,208.31	15.55	11.26	28.89	807.16	3,364.85	3,173.79	3,155.17	18.62	170.469				
4,300.00	4,265.61	4,327.95	4,323.13	15.99	11.65	29.22	801.12	3,363.67	3,152.78	3,133.63	19.15	164.604				
4,400.00	4,363.23	4,506.10	4,500.97	16.44	12.26	29.71	792.75	3,357.85	3,129.55	3,109.76	19.80	158.098				
4,500.00	4,460.85	4,578.00	4,572.76	16.90	12.51	29.90	789.87	3,354.87	3,105.94	3,085.68	20.26	153.307				
4,600.00	4,558.47	4,642.41	4,637.09	17.35	12.73	30.07	787.71	3,352.73	3,083.26	3,062.55	20.71	148.855				
4,700.00	4,656.08	4,710.84	4,705.47	17.81	12.96	30.25	785.53	3,351.23	3,061.71	3,040.53	21.18	144.588				
4,800.00	4,753.70	4,789.35	4,783.93	18.27	13.23	30.45	783.14	3,350.07	3,040.92	3,019.26	21.66	140.417				
4,900.00	4,851.32	4,876.93	4,871.48	18.73	13.53	30.68	780.98	3,349.08	3,020.63	2,998.47	22.15	136.346				
5,000.00	4,948.94	4,970.57	4,965.10	19.19	13.84	30.91	779.17	3,348.08	3,000.53	2,977.87	22.66	132.396				

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 502H
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 502H	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							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	5,046.56	5,070.37	5,064.88	19.66	14.18	31.16	777.15	3,347.17	2,980.63	2,957.44	23.19	128.556				
5,200.00	5,144.17	5,323.24	5,317.13	20.13	15.08	31.97	763.46	3,337.90	2,956.93	2,932.97	23.96	123.403				
5,300.00	5,241.79	5,409.85	5,403.35	20.59	15.39	32.29	756.78	3,333.24	2,932.11	2,907.63	24.48	119.794				
5,400.00	5,339.41	5,494.04	5,487.18	21.06	15.70	32.61	750.13	3,329.03	2,907.73	2,882.74	24.99	116.355				
5,500.00	5,437.03	5,594.97	5,587.65	21.53	16.07	33.01	741.90	3,324.19	2,883.65	2,858.11	25.53	112.938				
5,600.00	5,534.65	5,678.56	5,670.85	22.01	16.38	33.34	734.88	3,320.17	2,859.64	2,833.59	26.05	109.766				
5,700.00	5,632.26	5,757.45	5,749.41	22.48	16.67	33.66	728.64	3,316.77	2,836.29	2,809.72	26.57	106.765				
5,800.00	5,729.88	5,860.49	5,852.05	22.95	17.05	34.08	720.43	3,312.74	2,813.43	2,786.31	27.12	103.742				
5,900.00	5,827.50	5,986.55	5,977.41	23.43	17.53	34.63	708.58	3,306.82	2,789.81	2,762.10	27.71	100.664				
6,000.00	5,925.12	6,074.25	6,064.55	23.90	17.86	35.04	699.67	3,302.40	2,765.95	2,737.69	28.25	97.894				
6,100.00	6,022.73	6,174.06	6,163.71	24.38	18.24	35.51	689.54	3,297.45	2,742.33	2,713.51	28.82	95.166				
6,200.00	6,120.35	6,267.69	6,256.71	24.85	18.60	35.97	679.71	3,292.74	2,718.78	2,689.41	29.37	92.562				
6,300.00	6,217.97	6,341.82	6,330.37	25.33	18.88	36.33	672.11	3,289.28	2,695.78	2,665.88	29.90	90.157				
6,400.00	6,315.59	6,426.96	6,415.08	25.81	19.20	36.74	664.42	3,285.81	2,673.58	2,643.14	30.45	87.815				
6,500.00	6,413.21	6,511.99	6,499.80	26.29	19.52	37.12	657.94	3,282.48	2,651.79	2,620.80	30.99	85.574				
6,600.00	6,510.82	6,593.78	6,581.41	26.77	19.82	37.45	653.41	3,279.61	2,630.63	2,599.10	31.52	83.449				
6,700.00	6,608.44	6,677.27	6,664.77	27.25	20.12	37.79	649.35	3,277.09	2,610.09	2,578.03	32.06	81.410				
6,719.26	6,627.24	6,693.78	6,681.25	27.34	20.18	37.85	648.55	3,276.63	2,606.20	2,574.03	32.17	81.025				
6,800.00	6,706.24	6,764.56	6,751.92	27.73	20.44	37.99	645.04	3,274.83	2,590.75	2,558.14	32.60	79.463				
6,900.00	6,804.54	6,855.05	6,842.28	28.18	20.76	38.16	640.46	3,272.72	2,573.74	2,540.59	33.14	77.655				
7,000.00	6,903.29	6,935.00	6,922.11	28.61	21.05	38.29	636.42	3,271.28	2,559.37	2,525.71	33.66	76.039				
7,100.00	7,002.41	7,045.33	7,032.30	29.02	21.45	38.49	631.44	3,269.41	2,547.24	2,513.03	34.21	74.456				
7,200.00	7,101.85	7,147.62	7,134.50	29.41	21.81	38.63	627.57	3,267.20	2,536.74	2,502.00	34.74	73.023				
7,300.00	7,201.53	7,218.00	7,204.84	29.78	22.06	38.68	625.63	3,265.97	2,528.80	2,493.59	35.21	71.830				
7,400.00	7,301.38	7,312.00	7,298.82	30.13	22.39	38.75	623.85	3,265.26	2,523.83	2,488.14	35.69	70.709				
7,500.00	7,401.34	7,389.32	7,376.13	30.46	22.65	38.78	622.65	3,265.27	2,521.63	2,485.49	36.14	69.770				
7,540.98	7,442.32	7,426.96	7,413.77	30.59	22.78	38.80	622.06	3,265.35	2,521.43	2,485.10	36.33	69.402 CC				
7,554.66	7,456.00	7,439.60	7,426.41	30.63	22.83	38.94	621.87	3,265.39	2,521.45	2,485.06	36.39	69.282				
7,600.00	7,501.34	7,481.47	7,468.28	30.77	22.97	38.95	621.24	3,265.56	2,521.63	2,485.03	36.60	68.894 ES				
7,700.00	7,601.34	7,581.32	7,568.11	31.07	23.31	38.99	619.75	3,266.06	2,522.12	2,485.05	37.07	68.032				
7,800.00	7,701.34	7,673.32	7,660.10	31.38	23.62	38.92	618.37	3,266.61	2,522.72	2,485.19	37.53	67.219				
7,900.00	7,801.34	7,766.26	7,753.02	31.69	23.93	38.75	617.08	3,267.49	2,523.65	2,485.66	37.99	66.433				
8,000.00	7,901.34	7,854.47	7,841.23	32.00	24.23	38.77	616.15	3,268.61	2,524.93	2,486.49	38.43	65.694				
8,100.00	8,001.34	7,951.03	7,937.77	32.32	24.54	38.79	615.36	3,270.21	2,526.58	2,487.69	38.89	64.962				
8,200.00	8,101.34	8,043.44	8,030.16	32.63	24.84	38.80	614.92	3,271.86	2,528.36	2,489.02	39.34	64.265				
8,300.00	8,201.34	8,140.55	8,127.25	32.94	25.15	38.80	614.78	3,273.86	2,530.42	2,490.62	39.80	63.582				
8,400.00	8,301.34	8,233.66	8,220.33	33.26	25.45	38.79	615.19	3,275.89	2,532.60	2,492.36	40.24	62.932				
8,500.00	8,401.34	8,344.71	8,331.35	33.57	25.79	38.77	616.37	3,278.35	2,534.84	2,494.12	40.72	62.254				
8,600.00	8,501.34	8,437.98	8,424.59	33.89	26.08	38.73	617.74	3,280.23	2,536.85	2,495.69	41.16	61.633				
8,700.00	8,601.34	8,528.50	8,515.08	34.20	26.37	38.70	619.32	3,282.36	2,539.22	2,497.62	41.60	61.040				
8,800.00	8,701.34	8,633.63	8,620.15	34.52	26.69	38.65	621.34	3,284.96	2,541.70	2,499.64	42.06	60.425				
8,900.00	8,801.34	8,785.86	8,772.36	34.84	27.17	38.61	623.29	3,286.46	2,542.53	2,499.93	42.61	59.677				
9,000.00	8,901.34	8,891.67	8,878.17	35.16	27.51	38.59	624.16	3,286.65	2,542.71	2,499.64	43.07	59.032				
9,100.00	9,001.34	9,002.37	8,988.85	35.48	27.86	38.55	625.83	3,286.50	2,542.59	2,499.04	43.55	58.386				
9,200.00	9,101.34	9,095.73	9,082.19	35.80	28.16	38.51	627.69	3,286.25	2,542.34	2,498.34	44.00	57.783				
9,224.39	9,125.73	9,117.78	9,104.23	35.88	28.23	38.50	628.11	3,286.23	2,542.33	2,498.22	44.11	57.640				
9,300.00	9,201.34	9,185.27	9,171.71	36.12	28.44	38.47	629.33	3,286.33	2,542.45	2,498.01	44.44	57.207				
9,400.00	9,301.34	9,275.34	9,261.76	36.45	28.73	38.43	631.12	3,286.78	2,542.97	2,498.08	44.89	56.651				
9,500.00	9,401.34	9,376.11	9,362.50	36.77	29.05	38.38	633.64	3,287.50	2,543.71	2,498.36	45.35	56.090				
9,600.00	9,501.34	9,484.36	9,470.72	37.09	29.40	38.32	636.24	3,288.04	2,544.24	2,498.41	45.83	55.521				
9,700.00	9,601.34	9,577.00	9,563.33	37.42	29.69	38.27	638.47	3,288.46	2,544.72	2,498.44	46.28	54.989				
9,800.00	9,701.34	9,671.00	9,657.30	37.74	29.99	38.22	640.78	3,289.25	2,545.59	2,498.86	46.73	54.474				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 502H
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 502H	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							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				
9,900.00	9,801.34	9,740.00	9,726.27	38.07	30.22	89.18	642.32	3,290.35	2,547.17	2,500.03	47.14	54.031				
10,000.00	9,901.34	9,813.28	9,799.52	38.39	30.45	89.15	643.77	3,292.25	2,549.80	2,502.24	47.56	53.613				
10,036.70	9,938.04	9,840.02	9,826.24	38.51	30.54	89.14	644.26	3,293.14	2,551.02	2,503.31	47.71	53.467				
10,050.00	9,951.34	9,860.00	9,846.20	38.55	30.60	-87.53	644.62	3,293.87	2,551.53	2,503.74	47.79	53.396				
10,100.00	10,001.21	9,905.02	9,891.19	38.69	30.75	-87.45	645.15	3,295.50	2,553.19	2,505.20	47.99	53.203				
10,150.00	10,050.60	9,963.79	9,949.92	38.82	30.95	-87.52	645.08	3,297.41	2,554.49	2,506.28	48.21	52.990				
10,200.00	10,099.14	10,008.58	9,994.68	38.93	31.10	-87.64	644.63	3,298.84	2,555.60	2,507.22	48.38	52.820				
10,250.00	10,146.45	10,054.88	10,040.95	39.02	31.26	-87.85	643.92	3,300.39	2,556.68	2,508.13	48.55	52.663				
10,300.00	10,192.17	10,121.30	10,107.33	39.10	31.48	-88.34	642.39	3,302.36	2,557.51	2,508.77	48.74	52.470				
10,350.00	10,235.96	10,174.60	10,160.59	39.16	31.67	-88.82	640.78	3,303.62	2,558.11	2,509.21	48.90	52.315				
10,400.00	10,277.48	10,220.14	10,206.10	39.21	31.83	-89.29	639.29	3,304.62	2,558.77	2,509.75	49.03	52.191				
10,450.00	10,316.42	10,256.23	10,242.16	39.23	31.96	-89.68	638.08	3,305.39	2,559.68	2,510.56	49.13	52.102				
10,500.00	10,352.48	10,285.14	10,271.04	39.25	32.06	-89.97	637.21	3,306.10	2,561.07	2,511.87	49.21	52.046				
10,550.00	10,385.38	10,311.49	10,297.38	39.25	32.15	-90.21	636.49	3,306.81	2,563.05	2,513.77	49.28	52.012				
10,600.00	10,414.88	10,339.62	10,325.49	39.23	32.24	-90.44	635.82	3,307.65	2,565.70	2,516.35	49.35	51.990				
10,650.00	10,440.75	10,389.95	10,375.79	39.21	32.42	-91.07	634.92	3,308.85	2,568.90	2,519.43	49.47	51.933				
10,700.00	10,462.80	10,431.91	10,417.75	39.18	32.56	-91.53	634.47	3,309.46	2,572.70	2,523.13	49.56	51.906				
10,750.00	10,480.85	10,445.33	10,431.17	39.13	32.61	-91.34	634.36	3,309.63	2,577.36	2,527.74	49.62	51.946				
10,800.00	10,494.77	10,457.75	10,443.59	39.09	32.65	-91.04	634.27	3,309.79	2,582.99	2,533.32	49.67	52.001				
10,850.00	10,504.45	10,466.48	10,452.31	39.04	32.68	-90.56	634.20	3,309.90	2,589.60	2,539.87	49.73	52.075				
10,900.00	10,509.82	10,471.47	10,457.30	39.00	32.70	-89.90	634.17	3,309.97	2,597.17	2,547.38	49.79	52.167				
10,936.70	10,511.00	10,472.73	10,458.56	38.97	32.70	-89.31	634.16	3,309.99	2,603.32	2,553.49	49.83	52.246				
11,000.00	10,511.00	10,473.14	10,458.97	38.94	32.70	-89.31	634.16	3,309.99	2,615.77	2,565.85	49.92	52.402				
11,073.75	10,511.00	10,473.60	10,459.43	38.93	32.70	-89.32	634.15	3,310.00	2,633.83	2,583.78	50.06	52.616				
11,100.00	10,511.00	10,473.76	10,459.59	38.94	32.71	-89.32	634.15	3,310.00	2,641.05	2,590.94	50.12	52.699				
11,200.00	10,511.00	10,474.36	10,460.19	39.03	32.71	-89.34	634.15	3,310.01	2,670.75	2,620.37	50.38	53.014				
11,300.00	10,511.00	10,474.95	10,460.79	39.25	32.71	-89.35	634.15	3,310.02	2,703.82	2,653.12	50.70	53.331				
11,400.00	10,511.00	10,475.55	10,461.38	39.60	32.71	-89.36	634.14	3,310.03	2,740.14	2,689.07	51.07	53.657				
11,500.00	10,511.00	10,476.14	10,461.97	40.03	32.71	-89.38	634.14	3,310.03	2,779.58	2,728.11	51.48	53.994				
11,600.00	10,511.00	12,567.79	11,774.98	40.53	43.70	-117.29	-468.46	3,276.97	2,807.06	2,753.15	53.91	52.071				
11,700.00	10,511.00	12,723.10	11,783.80	41.10	45.13	-117.42	-623.42	3,281.37	2,811.54	2,756.38	55.16	50.973				
11,800.00	10,511.00	12,839.70	11,786.65	41.73	46.27	-117.45	-739.93	3,284.73	2,814.39	2,758.12	56.28	50.010				
11,900.00	10,511.00	12,982.65	11,789.34	42.41	47.73	-117.49	-882.85	3,286.84	2,815.61	2,757.97	57.64	48.846				
12,000.00	10,511.00	13,081.80	11,789.75	43.14	48.79	-117.50	-981.98	3,288.44	2,816.36	2,757.59	58.78	47.916				
12,100.00	10,511.00	13,186.51	11,790.24	43.93	49.93	-117.50	-1,086.67	3,290.08	2,817.11	2,757.10	60.01	46.946				
12,200.00	10,511.00	13,259.99	11,791.55	44.75	50.76	-117.52	-1,160.13	3,291.03	2,818.21	2,757.17	61.05	46.165				
12,300.00	10,511.00	13,333.92	11,793.22	45.62	51.61	-117.54	-1,234.03	3,292.59	2,820.27	2,758.14	62.13	45.393				
12,400.00	10,511.00	13,415.47	11,797.08	46.53	52.56	-117.61	-1,315.47	3,294.06	2,823.17	2,759.88	63.29	44.604				
12,500.00	10,511.00	13,502.56	11,802.00	47.48	53.60	-117.69	-1,402.41	3,295.62	2,826.52	2,761.99	64.53	43.800				
12,600.00	10,511.00	13,582.46	11,806.81	48.47	54.57	-117.76	-1,482.14	3,297.43	2,830.49	2,764.74	65.75	43.051				
12,700.00	10,511.00	13,660.00	11,811.78	49.49	55.53	-117.84	-1,559.49	3,299.72	2,835.23	2,768.26	66.97	42.333				
12,800.00	10,511.00	13,733.68	11,817.07	50.55	56.45	-117.92	-1,632.93	3,302.31	2,840.83	2,772.63	68.20	41.656				
12,900.00	10,511.00	13,814.77	11,823.68	51.63	57.48	-118.01	-1,713.69	3,305.47	2,847.24	2,777.74	69.50	40.968				
13,000.00	10,511.00	13,892.08	11,830.19	52.75	58.48	-118.10	-1,790.65	3,308.91	2,854.30	2,783.50	70.79	40.319				
13,100.00	10,511.00	14,196.08	11,839.41	53.89	62.46	-118.16	-2,094.04	3,322.67	2,860.15	2,786.01	74.13	38.582				
13,200.00	10,511.00	14,286.38	11,841.19	55.05	63.66	-118.20	-2,184.31	3,323.30	2,860.82	2,785.19	75.63	37.826				
13,300.00	10,511.00	14,379.71	11,844.53	56.24	64.93	-118.27	-2,277.58	3,322.97	2,861.36	2,784.20	77.16	37.083				
13,400.00	10,511.00	14,445.00	11,848.78	57.46	65.82	-118.35	-2,342.73	3,322.59	2,863.02	2,784.57	78.45	36.493				
13,500.00	10,511.00	14,487.86	11,852.52	58.69	66.41	-118.42	-2,385.43	3,322.60	2,866.25	2,786.69	79.56	36.025				
13,600.00	10,511.00	14,540.00	11,857.89	59.94	67.13	-118.51	-2,437.29	3,323.24	2,871.34	2,790.59	80.74	35.562				
13,700.00	10,511.00	14,671.86	11,870.13	61.22	68.98	-118.72	-2,568.55	3,325.50	2,876.39	2,793.76	82.63	34.809				
13,800.00	10,511.00	14,747.96	11,876.84	62.51	70.05	-118.83	-2,644.34	3,326.91	2,881.45	2,797.39	84.06	34.279				

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 502H
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 502H	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: 190-MWD, 1393-OWSG (Rev2) MWD, 21860-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		
13,900.00	10,511.00	14,822.00	11,884.75	63.81	71.10	-118.96	-2,717.94	3,328.63	2,887.73	2,802.27	85.46	33.791		
13,996.63	10,511.00	15,106.00	11,903.49	65.09	75.15	-119.33	-3,001.16	3,326.89	2,886.89	2,798.20	88.69	32.551		
14,000.00	10,511.00	15,106.00	11,903.49	65.13	75.15	-119.33	-3,001.16	3,326.89	2,886.89	2,798.18	88.72	32.540		
14,100.00	10,511.00	15,151.70	11,905.56	66.47	75.81	-119.37	-3,046.80	3,326.34	2,887.62	2,797.67	89.95	32.104		
14,200.00	10,511.00	15,200.00	11,908.98	67.82	76.51	-119.43	-3,094.97	3,326.97	2,890.93	2,799.75	91.18	31.704		
14,300.00	10,511.00	15,342.18	11,917.95	69.18	78.58	-119.58	-3,236.85	3,328.93	2,894.57	2,801.29	93.28	31.032		
14,400.00	10,511.00	15,510.00	11,919.60	70.56	81.03	-119.59	-3,404.61	3,332.14	2,895.95	2,800.26	95.70	30.261		
14,500.00	10,511.00	15,662.96	11,919.65	71.95	83.28	-119.60	-3,557.56	3,332.49	2,895.48	2,797.51	97.97	29.555		
14,600.00	10,511.00	15,862.00	11,921.79	73.34	86.21	-119.73	-3,756.41	3,324.92	2,891.77	2,791.25	100.52	28.768		
14,700.00	10,511.00	15,862.00	11,921.79	74.75	86.21	-119.73	-3,756.41	3,324.92	2,888.25	2,786.75	101.50	28.456		
14,800.00	10,511.00	15,919.69	11,922.41	76.17	87.07	-119.77	-3,814.04	3,322.79	2,885.77	2,782.85	102.92	28.039		
14,845.65	10,511.00	15,956.00	11,924.98	76.82	87.62	-119.82	-3,850.25	3,322.37	2,886.37	2,782.73	103.64	27.851		
14,900.00	10,511.00	15,956.00	11,924.98	77.60	87.62	-119.82	-3,850.25	3,322.37	2,886.88	2,782.76	104.12	27.726		
15,000.00	10,511.00	15,993.55	11,928.53	79.03	88.18	-119.89	-3,887.63	3,322.37	2,890.19	2,784.88	105.30	27.447		
15,100.00	10,511.00	16,068.35	11,935.65	80.47	89.31	-120.01	-3,962.09	3,322.79	2,894.62	2,787.82	106.80	27.103		
15,200.00	10,511.00	16,393.99	11,944.17	81.93	94.22	-120.19	-4,287.13	3,323.24	2,894.20	2,783.52	110.68	26.149		
15,300.00	10,511.00	16,429.00	11,943.29	83.38	94.75	-120.18	-4,322.12	3,323.18	2,892.28	2,780.31	111.98	25.829		
15,359.87	10,511.00	16,471.37	11,942.86	84.26	95.40	-120.17	-4,364.49	3,323.44	2,891.88	2,778.94	112.94	25.605		
15,400.00	10,511.00	16,490.20	11,942.92	84.85	95.68	-120.17	-4,383.32	3,323.67	2,892.03	2,778.53	113.49	25.482		
15,500.00	10,511.00	16,523.00	11,943.38	86.32	96.18	-120.18	-4,416.11	3,324.24	2,893.76	2,779.05	114.71	25.227		
15,600.00	10,511.00	16,588.31	11,945.72	87.80	97.18	-120.21	-4,481.35	3,325.89	2,897.07	2,780.86	116.21	24.929		
15,700.00	10,511.00	16,691.81	11,951.30	89.29	98.77	-120.28	-4,584.66	3,328.80	2,901.39	2,783.31	118.08	24.571		
15,800.00	10,511.00	16,806.00	11,956.05	90.78	100.52	-120.35	-4,698.72	3,331.48	2,904.58	2,784.51	120.07	24.190		
15,900.00	10,511.00	16,884.31	11,959.00	92.27	101.73	-120.38	-4,776.94	3,333.96	2,908.43	2,786.71	121.72	23.894		
16,000.00	10,511.00	16,955.90	11,962.03	93.77	102.83	-120.41	-4,848.40	3,336.93	2,913.31	2,790.01	123.30	23.628		
16,100.00	10,511.00	17,022.96	11,965.85	95.28	103.87	-120.45	-4,915.28	3,339.89	2,919.19	2,794.38	124.81	23.389		
16,200.00	10,511.00	17,089.00	11,969.05	96.79	104.90	-120.47	-4,981.10	3,344.15	2,926.33	2,800.01	126.32	23.167		
16,300.00	10,511.00	17,331.35	11,977.08	98.31	108.66	-120.52	-5,222.96	3,354.88	2,930.20	2,800.44	129.77	22.580		
16,400.00	10,511.00	17,372.00	11,979.10	99.83	109.29	-120.55	-5,263.55	3,355.96	2,934.07	2,803.03	131.04	22.391		
16,500.00	10,511.00	17,464.96	11,984.61	101.35	110.74	-120.62	-5,356.28	3,359.12	2,939.17	2,806.34	132.82	22.129		
16,600.00	10,511.00	17,627.81	11,994.09	102.88	113.29	-120.75	-5,518.77	3,363.63	2,944.03	2,808.73	135.30	21.760		
16,700.00	10,511.00	17,716.01	11,998.63	104.41	114.66	-120.83	-5,606.84	3,363.73	2,946.07	2,809.05	137.02	21.501		
16,800.00	10,511.00	17,992.95	12,012.81	105.94	118.99	-121.12	-5,883.31	3,361.72	2,948.78	2,808.47	140.31	21.017		
16,900.00	10,511.00	18,097.36	12,017.18	107.48	120.62	-121.25	-5,987.49	3,356.34	2,945.69	2,803.57	142.11	20.728		
17,000.00	10,511.00	18,127.00	12,018.55	109.02	121.08	-121.29	-6,017.06	3,354.87	2,943.75	2,800.35	143.39	20.529		
17,061.72	10,511.00	18,176.19	12,021.38	109.98	121.85	-121.37	-6,066.13	3,352.89	2,943.09	2,798.70	144.39	20.383		
17,100.00	10,511.00	18,191.31	12,022.45	110.57	122.09	-121.39	-6,081.21	3,352.45	2,943.24	2,798.36	144.88	20.314		
17,200.00	10,511.00	18,371.19	12,034.78	112.12	124.91	-121.67	-6,260.54	3,346.55	2,943.60	2,796.39	147.22	19.995		
17,300.00	10,511.00	18,504.00	12,040.01	113.67	126.99	-121.84	-6,393.03	3,339.69	2,940.23	2,791.02	149.21	19.706		
17,400.00	10,511.00	18,542.85	12,040.05	115.22	127.60	-121.86	-6,431.86	3,338.67	2,937.86	2,787.25	150.61	19.506		
17,435.73	10,511.00	18,551.47	12,040.18	115.78	127.74	-121.86	-6,440.48	3,338.62	2,937.69	2,786.64	151.05	19.448		
17,500.00	10,511.00	18,598.00	12,041.65	116.78	128.47	-121.88	-6,486.97	3,339.53	2,938.90	2,786.79	152.11	19.321		
17,600.00	10,511.00	18,598.00	12,041.65	118.34	128.47	-121.88	-6,486.97	3,339.53	2,941.20	2,788.18	153.02	19.222		
17,700.00	10,511.00	18,638.29	12,043.54	119.90	129.11	-121.90	-6,527.18	3,341.35	2,946.40	2,792.15	154.25	19.101		
17,800.00	10,511.00	18,692.00	12,046.24	121.46	129.96	-121.92	-6,580.73	3,344.44	2,953.16	2,797.55	155.61	18.978		
17,900.00	10,511.00	18,737.23	12,048.84	123.03	130.68	-121.93	-6,625.76	3,347.75	2,961.61	2,804.79	156.82	18.885		
18,000.00	10,511.00	18,940.18	12,061.16	124.59	133.91	-122.01	-6,827.84	3,361.15	2,969.95	2,809.95	160.00	18.563		
18,100.00	10,511.00	19,233.69	12,072.61	126.16	138.58	-122.19	-7,120.89	3,365.21	2,971.84	2,808.09	163.75	18.149		
18,200.00	10,511.00	19,338.45	12,076.24	127.74	140.24	-122.27	-7,225.57	3,363.66	2,971.63	2,806.01	165.62	17.943		
18,274.73	10,511.00	19,381.10	12,077.36	128.91	140.92	-122.30	-7,268.20	3,363.15	2,971.39	2,804.64	166.75	17.820		
18,300.00	10,511.00	19,391.96	12,077.78	129.31	141.09	-122.31	-7,279.05	3,363.07	2,971.54	2,804.45	167.09	17.784		
18,400.00	10,511.00	19,448.00	12,080.88	130.89	141.98	-122.37	-7,335.01	3,363.04	2,973.42	2,804.90	168.53	17.644		

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 502H
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 502H	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: 190-MWD, 1393-OWSG (Rev2) MWD, 21860-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		
18,500.00	10,511.00	19,496.54	12,084.13	132.46	142.76	-122.42	-7,383.44	3,363.58	2,976.87	2,807.02	169.85	17.527		
18,600.00	10,511.00	19,702.18	12,088.35	134.04	146.04	-122.44	-7,588.83	3,369.97	2,980.41	2,807.55	172.87	17.241		
18,700.00	10,511.00	19,888.54	12,083.58	135.63	149.02	-122.36	-7,775.10	3,372.78	2,979.50	2,803.80	175.69	16.958		
18,800.00	10,511.00	20,045.34	12,077.20	137.21	151.52	-122.28	-7,931.75	3,371.17	2,975.32	2,797.15	178.16	16.700		
18,900.00	10,511.00	20,109.00	12,074.78	138.79	152.53	-122.26	-7,995.36	3,370.72	2,971.79	2,791.89	179.90	16.519		
19,000.00	10,511.00	20,162.19	12,073.61	140.38	153.38	-122.24	-8,048.54	3,370.69	2,969.63	2,788.13	181.51	16.361		
19,100.00	10,511.00	20,204.00	12,073.12	141.97	154.05	-122.24	-8,090.35	3,370.89	2,968.90	2,785.94	182.96	16.227		
19,112.29	10,511.00	20,226.90	12,073.00	142.16	154.42	-122.23	-8,113.24	3,371.12	2,968.81	2,785.51	183.31	16.196		
19,200.00	10,511.00	20,272.23	12,072.99	143.56	155.14	-122.23	-8,158.57	3,372.01	2,969.54	2,784.91	184.62	16.084		
19,300.00	10,511.00	20,340.55	12,073.34	145.15	156.24	-122.22	-8,226.84	3,374.30	2,971.75	2,785.47	186.28	15.953		
19,400.00	10,511.00	20,490.25	12,073.20	146.74	158.65	-122.17	-8,376.44	3,379.77	2,974.20	2,785.37	188.82	15.751		
19,500.00	10,511.00	20,582.00	12,073.46	148.33	160.12	-122.17	-8,468.17	3,381.77	2,975.36	2,784.63	190.72	15.600		
19,600.00	10,511.00	20,740.35	12,071.27	149.93	162.66	-122.11	-8,626.44	3,385.71	2,976.08	2,782.75	193.34	15.393		
19,700.00	10,511.00	20,840.40	12,066.70	151.52	164.27	-122.02	-8,726.35	3,388.30	2,975.02	2,779.57	195.45	15.221		
19,773.46	10,511.00	20,886.68	12,064.27	152.69	165.02	-121.96	-8,772.53	3,390.04	2,974.75	2,778.01	196.74	15.120		
19,800.00	10,511.00	20,900.49	12,063.69	153.12	165.24	-121.95	-8,786.32	3,390.60	2,974.86	2,777.69	197.17	15.088		
19,900.00	10,511.00	20,958.00	12,062.22	154.72	166.17	-121.91	-8,843.76	3,393.08	2,976.27	2,777.48	198.79	14.972		
20,000.00	10,511.00	21,208.22	12,057.76	156.32	170.19	-121.83	-9,093.88	3,395.69	2,974.79	2,772.58	202.22	14.711		
20,100.00	10,511.00	21,276.21	12,056.39	157.92	171.29	-121.82	-9,161.85	3,394.99	2,972.12	2,768.16	203.97	14.572		
20,200.00	10,511.00	21,336.00	12,056.47	159.52	172.25	-121.83	-9,221.64	3,394.83	2,971.02	2,765.43	205.60	14.451		
20,300.00	10,511.00	21,423.11	12,057.32	161.12	173.65	-121.85	-9,308.74	3,395.05	2,970.89	2,763.46	207.43	14.323		
20,400.00	10,511.00	21,520.22	12,057.85	162.72	175.21	-121.87	-9,405.85	3,395.54	2,970.78	2,761.42	209.36	14.190		
20,500.00	10,511.00	21,619.00	12,057.54	164.33	176.81	-121.86	-9,504.63	3,396.64	2,970.73	2,759.39	211.34	14.057		
20,509.74	10,511.00	21,628.26	12,057.44	164.48	176.96	-121.86	-9,513.89	3,396.79	2,970.73	2,759.19	211.53	14.044		
20,600.00	10,511.00	21,706.62	12,056.20	165.93	178.22	-121.83	-9,592.21	3,398.51	2,970.91	2,757.64	213.27	13.931		
20,700.00	10,511.00	21,764.75	12,054.96	167.54	179.16	-121.79	-9,650.30	3,400.55	2,971.97	2,757.07	214.90	13.830		
20,800.00	10,511.00	21,833.12	12,053.42	169.14	183.36	-121.74	-9,718.55	3,404.23	2,974.47	2,755.89	218.58	13.608		
20,900.00	10,511.00	21,860.00	12,052.81	170.75	186.65	-121.71	-9,745.38	3,405.78	2,978.24	2,756.69	221.55	13.443		
21,000.00	10,511.00	21,860.00	12,052.81	172.36	186.65	-121.71	-9,745.38	3,405.78	2,985.24	2,763.10	222.15	13.438 SF		
21,100.00	10,511.00	21,860.00	12,052.81	173.97	186.65	-121.71	-9,745.38	3,405.78	2,995.57	2,773.05	222.51	13.462		
21,200.00	10,511.00	21,860.00	12,052.81	175.58	186.65	-121.71	-9,745.38	3,405.78	3,009.18	2,786.54	222.64	13.516		
21,300.00	10,511.00	21,860.00	12,052.81	177.19	186.65	-121.71	-9,745.38	3,405.78	3,026.04	2,803.50	222.54	13.598		
21,400.00	10,511.00	21,860.00	12,052.81	178.80	186.65	-121.71	-9,745.38	3,405.78	3,046.08	2,823.86	222.22	13.708		
21,500.00	10,511.00	21,860.00	12,052.81	180.41	186.65	-121.71	-9,745.38	3,405.78	3,069.26	2,847.57	221.70	13.844		
21,600.00	10,511.00	21,860.00	12,052.81	182.03	186.65	-121.71	-9,745.38	3,405.78	3,095.50	2,874.53	220.97	14.009		
21,700.00	10,511.00	21,860.00	12,052.81	183.64	186.65	-121.71	-9,745.38	3,405.78	3,124.72	2,904.65	220.06	14.199		
21,800.00	10,511.00	21,860.00	12,052.81	185.25	186.65	-121.71	-9,745.38	3,405.78	3,156.83	2,937.85	218.99	14.416		
21,900.00	10,511.00	21,860.00	12,052.81	186.87	186.65	-121.71	-9,745.38	3,405.78	3,191.76	2,974.01	217.75	14.658		
22,000.00	10,511.00	21,860.00	12,052.81	188.49	186.65	-121.71	-9,745.38	3,405.78	3,229.41	3,013.02	216.38	14.925		
22,046.30	10,511.00	21,860.00	12,052.81	189.23	186.65	-121.71	-9,745.38	3,405.78	3,247.73	3,032.03	215.71	15.056		

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 502H
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 502H	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 705H - OH - OH		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				
0.00	0.00	0.00	0.00	0.00	0.00	74.96	932.23	3,468.26	3,591.43							
100.00	100.00	118.47	118.46	0.13	0.17	74.95	932.55	3,467.50	3,590.93	3,590.72	0.21	N/A				
200.00	200.00	190.00	189.99	0.48	0.39	74.94	932.67	3,466.92	3,590.20	3,589.58	0.62	5,798.197				
300.00	300.00	306.00	305.99	0.84	0.80	74.93	933.14	3,466.13	3,589.64	3,588.48	1.16	3,088.945				
400.00	400.00	411.65	411.63	1.20	1.18	74.92	933.40	3,465.35	3,589.00	3,587.32	1.68	2,132.547				
500.00	500.00	539.93	539.90	1.56	1.64	74.91	934.03	3,463.44	3,587.70	3,585.43	2.26	1,585.883				
600.00	600.00	689.07	688.99	1.92	2.18	74.89	934.03	3,459.96	3,585.51	3,582.61	2.90	1,237.275				
700.00	700.00	804.19	804.05	2.28	2.59	74.88	933.78	3,455.98	3,582.09	3,578.65	3.44	1,040.136				
800.00	800.00	913.70	913.49	2.63	2.99	74.87	933.37	3,452.07	3,578.56	3,574.58	3.97	900.298				
900.00	900.00	1,049.74	1,049.39	2.99	3.48	74.85	932.75	3,446.11	3,574.17	3,569.60	4.58	780.862				
1,000.00	1,000.00	1,123.00	1,122.58	3.35	3.75	74.85	932.34	3,442.89	3,569.79	3,564.78	5.01	712.285				
1,100.00	1,100.00	1,218.00	1,217.50	3.71	4.09	74.84	931.50	3,439.18	3,565.79	3,560.28	5.50	647.786				
1,200.00	1,200.00	1,300.14	1,299.59	4.07	4.39	74.84	930.76	3,436.31	3,562.17	3,556.21	5.96	597.269				
1,300.00	1,300.00	1,403.27	1,402.65	4.43	4.64	74.83	930.73	3,432.54	3,558.64	3,552.25	6.39	556.744				
1,400.00	1,400.00	1,483.00	1,482.33	4.79	4.66	74.81	931.07	3,429.73	3,555.37	3,548.71	6.66	534.122				
1,500.00	1,500.00	1,538.93	1,538.25	5.14	4.69	74.80	931.22	3,428.31	3,553.03	3,546.09	6.94	512.269				
1,600.00	1,600.00	1,573.00	1,572.31	5.50	4.71	74.80	931.28	3,427.86	3,552.12	3,544.90	7.22	492.312				
1,627.82	1,627.82	1,599.77	1,599.07	5.60	4.72	74.80	931.33	3,427.76	3,552.04	3,544.74	7.30	486.407				
1,700.00	1,700.00	1,630.50	1,629.81	5.86	4.74	74.80	931.43	3,427.99	3,552.62	3,545.10	7.51	472.784				
1,800.00	1,800.00	1,663.00	1,662.30	6.22	4.76	74.80	931.59	3,428.62	3,554.84	3,547.03	7.81	455.396				
1,900.00	1,900.00	1,752.00	1,751.25	6.58	4.83	74.80	932.21	3,431.66	3,558.32	3,550.18	8.14	437.277				
2,000.00	2,000.00	1,819.87	1,819.05	6.94	4.90	74.80	932.85	3,434.59	3,562.61	3,554.14	8.47	420.708				
2,100.00	2,100.00	1,930.89	1,929.96	7.29	5.03	74.80	934.35	3,439.24	3,567.01	3,558.17	8.84	403.410				
2,200.00	2,200.00	2,030.42	2,029.40	7.65	5.17	74.80	935.21	3,443.30	3,571.17	3,561.95	9.22	387.285				
2,300.00	2,300.00	2,120.13	2,118.99	8.01	5.32	74.85	933.80	3,447.70	3,575.50	3,565.90	9.60	372.417				
2,400.00	2,399.99	2,213.49	2,212.12	8.37	5.49	24.07	930.17	3,453.10	3,578.87	3,568.88	9.99	358.244				
2,500.00	2,499.91	2,306.73	2,305.09	8.72	5.67	24.18	925.80	3,458.85	3,580.05	3,569.66	10.39	344.717				
2,600.00	2,599.69	2,383.49	2,381.61	9.07	5.84	24.29	922.51	3,463.81	3,579.24	3,568.48	10.77	332.400				
2,700.00	2,699.27	2,476.11	2,473.95	9.43	6.04	24.44	919.11	3,470.15	3,576.59	3,565.41	11.18	319.985				
2,800.00	2,798.57	2,588.83	2,586.31	9.79	6.31	24.67	914.50	3,477.83	3,571.45	3,559.82	11.62	307.275				
2,900.00	2,897.54	2,826.95	2,823.88	10.15	6.94	25.19	902.38	3,488.19	3,560.73	3,548.46	12.27	290.144				
3,000.00	2,996.09	2,906.62	2,903.40	10.53	7.15	25.45	898.19	3,490.62	3,547.06	3,534.37	12.69	279.573				
3,100.00	3,094.16	2,974.00	2,970.68	10.91	7.34	25.70	895.35	3,493.00	3,531.81	3,518.72	13.09	269.883				
3,135.41	3,128.76	3,004.41	3,001.05	11.04	7.43	25.80	894.32	3,494.17	3,526.03	3,512.79	13.24	266.313				
3,200.00	3,191.82	3,055.91	3,052.48	11.30	7.58	25.91	892.86	3,496.22	3,515.40	3,501.89	13.51	260.144				
3,300.00	3,289.44	3,148.47	3,144.92	11.70	7.85	26.12	889.97	3,500.21	3,499.24	3,485.28	13.96	250.614				
3,400.00	3,387.05	3,230.55	3,226.80	12.10	8.10	26.33	885.98	3,504.30	3,483.38	3,468.98	14.40	241.880				
3,500.00	3,484.67	3,321.13	3,316.58	12.52	9.00	27.13	867.92	3,514.06	3,467.02	3,451.82	15.21	227.994				
3,600.00	3,582.29	3,608.63	3,603.95	12.94	9.27	27.36	863.04	3,513.73	3,446.11	3,430.44	15.66	219.998				
3,700.00	3,679.91	3,682.88	3,678.12	13.36	9.50	27.54	859.75	3,513.76	3,425.87	3,409.76	16.10	212.747				
3,800.00	3,777.52	3,751.23	3,746.44	13.79	9.71	27.70	857.64	3,514.07	3,406.36	3,389.82	16.54	206.008				
3,900.00	3,875.14	3,823.00	3,818.17	14.22	9.94	27.86	855.54	3,515.24	3,387.96	3,370.98	16.98	199.570				
4,000.00	3,972.76	3,965.10	3,960.00	14.66	10.41	28.25	847.61	3,518.15	3,369.78	3,352.23	17.55	192.022				
4,100.00	4,070.38	4,079.51	4,074.07	15.10	10.79	28.61	838.85	3,518.90	3,349.69	3,331.61	18.08	185.301				
4,200.00	4,168.00	4,151.36	4,145.79	15.55	11.02	28.82	834.43	3,519.47	3,330.17	3,311.64	18.53	179.698				
4,300.00	4,265.61	4,235.17	4,229.50	15.99	11.30	29.04	830.68	3,520.55	3,311.48	3,292.47	19.01	174.200				
4,400.00	4,363.23	4,352.04	4,346.24	16.44	11.69	29.35	825.38	3,521.70	3,292.55	3,273.01	19.55	168.433				
4,500.00	4,460.85	4,440.72	4,434.77	16.90	11.99	29.62	820.08	3,522.56	3,273.46	3,253.42	20.04	163.335				
4,600.00	4,558.47	4,520.19	4,514.10	17.35	12.26	29.85	815.54	3,523.72	3,254.95	3,234.43	20.52	158.616				
4,700.00	4,656.08	4,609.02	4,602.80	17.81	12.57	30.11	811.15	3,525.32	3,236.96	3,215.94	21.02	153.998				
4,800.00	4,753.70	4,724.54	4,718.14	18.27	12.96	30.45	804.84	3,527.31	3,218.93	3,197.36	21.57	149.238				
4,900.00	4,851.32	4,856.65	4,849.97	18.73	13.42	30.87	796.43	3,528.55	3,200.06	3,177.91	22.15	144.469				

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 502H
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 502H	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		
5,000.00	4,948.94	4,956.21	4,949.34	19.19	13.76	31.18	790.35	3,528.82	3,180.70	3,158.02	22.68	140.270		
5,100.00	5,046.56	5,057.27	5,050.24	19.66	14.11	31.50	784.66	3,528.97	3,161.38	3,138.17	23.20	136.242		
5,200.00	5,144.17	5,140.00	5,132.85	20.13	14.40	31.75	780.21	3,528.68	3,141.76	3,118.06	23.70	132.550		
5,300.00	5,241.79	5,206.24	5,199.00	20.59	14.63	31.96	776.64	3,528.92	3,123.02	3,098.85	24.17	129.185		
5,400.00	5,339.41	5,269.01	5,261.65	21.06	14.85	32.16	773.18	3,530.31	3,105.89	3,081.25	24.64	126.038		
5,500.00	5,437.03	5,355.82	5,348.27	21.53	15.16	32.45	767.88	3,532.78	3,089.45	3,064.29	25.16	122.807		
5,600.00	5,534.65	5,453.17	5,445.39	22.01	15.50	32.78	761.88	3,535.70	3,073.26	3,047.57	25.69	119.610		
5,700.00	5,632.26	5,518.00	5,510.06	22.48	15.73	33.01	757.82	3,537.60	3,057.28	3,031.11	26.17	116.821		
5,800.00	5,729.88	5,612.00	5,603.80	22.95	16.07	33.34	751.98	3,541.42	3,042.32	3,015.61	26.71	113.922		
5,900.00	5,827.50	5,673.58	5,665.18	23.43	16.29	33.55	748.26	3,544.66	3,028.46	3,001.28	27.18	111.434		
6,000.00	5,925.12	5,768.49	5,759.79	23.90	16.64	33.89	742.67	3,549.73	3,014.98	2,987.27	27.72	108.780		
6,100.00	6,022.73	5,871.09	5,862.09	24.38	17.01	34.24	737.01	3,555.15	3,001.61	2,973.34	28.27	106.167		
6,200.00	6,120.35	5,970.44	5,961.15	24.85	17.37	34.60	731.42	3,560.24	2,988.16	2,959.34	28.82	103.670		
6,300.00	6,217.97	6,066.53	6,056.96	25.33	17.71	34.94	725.88	3,565.18	2,974.84	2,945.47	29.37	101.286		
6,400.00	6,315.59	6,166.58	6,156.73	25.81	18.08	35.30	720.38	3,570.29	2,961.62	2,931.70	29.93	98.962		
6,500.00	6,413.21	6,262.09	6,251.97	26.29	18.42	35.64	715.12	3,575.14	2,948.48	2,918.01	30.48	96.750		
6,600.00	6,510.82	6,350.85	6,340.46	26.77	18.75	35.96	710.22	3,579.81	2,935.63	2,904.62	31.01	94.662		
6,700.00	6,608.44	6,445.72	6,435.04	27.25	19.09	36.31	704.91	3,585.02	2,923.12	2,891.55	31.56	92.613		
6,719.26	6,627.24	6,464.30	6,453.57	27.34	19.16	36.38	703.88	3,586.05	2,920.73	2,889.06	31.67	92.225		
6,800.00	6,706.24	6,541.75	6,530.78	27.73	19.44	36.57	699.65	3,590.34	2,911.45	2,879.33	32.11	90.659		
6,900.00	6,804.54	6,644.25	6,632.97	28.18	19.82	36.82	694.08	3,595.98	2,901.90	2,869.23	32.67	88.820		
7,000.00	6,903.29	6,904.65	6,893.10	28.61	20.72	37.38	686.52	3,601.92	2,891.05	2,857.58	33.48	86.356		
7,100.00	7,002.41	7,004.40	6,992.84	29.02	21.04	37.41	687.91	3,601.43	2,880.11	2,846.14	33.98	84.766		
7,200.00	7,101.85	7,101.11	7,089.54	29.41	21.33	37.42	689.54	3,601.04	2,871.35	2,836.89	34.46	83.323		
7,300.00	7,201.53	7,191.31	7,179.72	29.78	21.61	37.42	691.01	3,600.84	2,864.84	2,829.92	34.93	82.022		
7,400.00	7,301.38	7,290.85	7,279.25	30.13	21.93	37.42	692.36	3,600.89	2,860.68	2,825.28	35.40	80.814		
7,500.00	7,401.34	7,387.80	7,376.20	30.46	22.23	37.41	693.44	3,600.91	2,858.56	2,822.71	35.86	79.720		
7,542.16	7,443.50	7,426.56	7,414.95	30.59	22.36	37.40	693.77	3,600.97	2,858.35	2,822.30	36.05	79.297 CC		
7,554.66	7,456.00	7,437.69	7,426.09	30.63	22.39	88.24	693.85	3,601.00	2,858.37	2,822.27	36.10	79.175		
7,600.00	7,501.34	7,478.07	7,466.47	30.77	22.53	88.23	694.10	3,601.16	2,858.55	2,822.24	36.30	78.743 ES		
7,700.00	7,601.34	7,573.70	7,562.09	31.07	22.84	88.23	694.46	3,601.71	2,859.14	2,822.38	36.76	77.785		
7,800.00	7,701.34	7,665.01	7,653.40	31.38	23.15	88.22	694.65	3,602.40	2,859.90	2,822.69	37.21	76.860		
7,900.00	7,801.34	7,752.80	7,741.18	31.69	23.45	88.22	694.75	3,603.40	2,861.04	2,823.38	37.66	75.975		
8,000.00	7,901.34	7,836.90	7,825.27	32.00	23.73	88.22	695.07	3,604.75	2,862.66	2,824.56	38.10	75.135		
8,100.00	8,001.34	7,925.18	7,913.53	32.32	24.03	88.21	695.43	3,606.67	2,864.84	2,826.29	38.55	74.316		
8,200.00	8,101.34	8,021.70	8,010.02	32.63	24.36	88.20	695.88	3,608.98	2,867.25	2,828.23	39.01	73.495		
8,300.00	8,201.34	8,119.71	8,108.00	32.94	24.69	88.19	696.77	3,611.38	2,869.73	2,830.25	39.48	72.692		
8,400.00	8,301.34	8,214.05	8,202.30	33.26	25.01	88.16	697.97	3,613.78	2,872.32	2,832.38	39.94	71.923		
8,500.00	8,401.34	8,312.55	8,300.75	33.57	25.34	88.13	699.71	3,616.48	2,875.11	2,834.71	40.40	71.166		
8,600.00	8,501.34	8,421.31	8,409.45	33.89	25.71	88.09	701.84	3,619.28	2,877.75	2,836.87	40.88	70.392		
8,700.00	8,601.34	8,533.93	8,522.02	34.20	26.09	88.05	704.00	3,621.74	2,880.00	2,838.63	41.37	69.615		
8,800.00	8,701.34	8,644.72	8,632.79	34.52	26.53	88.02	705.61	3,623.62	2,881.47	2,839.58	41.89	68.786		
8,900.00	8,801.34	8,778.71	8,766.77	34.84	26.92	88.03	704.92	3,624.35	2,882.08	2,839.69	42.39	67.988		
9,000.00	8,901.34	8,876.23	8,864.28	35.16	27.26	88.06	703.75	3,624.86	2,882.56	2,839.69	42.87	67.241		
9,100.00	9,001.34	8,971.06	8,959.09	35.48	27.60	88.09	702.10	3,625.53	2,883.21	2,839.86	43.34	66.520		
9,200.00	9,101.34	9,065.57	9,053.58	35.80	27.93	88.13	700.32	3,626.36	2,884.03	2,840.21	43.82	65.817		
9,300.00	9,201.34	9,157.29	9,145.29	36.12	28.25	88.16	698.82	3,627.38	2,885.08	2,840.79	44.29	65.142		
9,400.00	9,301.34	9,249.65	9,237.63	36.45	28.58	88.17	698.15	3,628.66	2,886.44	2,841.69	44.76	64.489		
9,500.00	9,401.34	9,340.73	9,328.70	36.77	29.03	88.17	697.99	3,630.20	2,887.69	2,842.39	45.29	63.756		
9,600.00	9,501.34	9,433.00	9,421.08	37.09	29.39	88.18	697.78	3,630.53	2,888.01	2,842.23	45.78	63.087		
9,700.00	9,601.34	9,526.79	9,514.76	37.42	29.65	88.17	698.20	3,631.08	2,888.72	2,842.50	46.22	62.499		
9,800.00	9,701.34	9,620.82	9,608.78	37.74	30.12	88.16	698.98	3,631.60	2,889.12	2,842.36	46.76	61.790		

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 502H
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 502H	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 705H - OH - OH		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				
9,900.00	9,801.34	9,795.34	9,783.29	38.07	30.44	88.19	697.33	3,631.29	2,888.74	2,841.51	47.23	61.169				
9,910.41	9,811.75	9,802.88	9,790.83	38.10	30.47	88.19	697.17	3,631.29	2,888.73	2,841.46	47.27	61.109				
10,000.00	9,901.34	9,880.70	9,868.63	38.39	30.74	88.22	695.68	3,631.67	2,889.09	2,841.40	47.69	60.583				
10,036.70	9,938.04	9,958.00	9,945.91	38.51	31.01	88.26	693.89	3,631.50	2,888.98	2,841.05	47.93	60.273				
10,050.00	9,951.34	9,970.79	9,958.70	38.55	31.05	-88.45	693.55	3,631.38	2,888.85	2,840.85	47.99	60.192				
10,100.00	10,001.21	10,024.37	10,012.25	38.69	31.24	-88.56	692.06	3,630.87	2,888.23	2,840.01	48.22	59.896				
10,150.00	10,050.60	10,070.08	10,057.94	38.82	31.39	-88.74	690.73	3,630.40	2,887.49	2,839.07	48.42	59.633				
10,200.00	10,099.14	10,108.73	10,096.58	38.93	31.53	-88.97	689.68	3,630.12	2,886.83	2,838.23	48.60	59.404				
10,250.00	10,146.45	10,147.02	10,134.85	39.02	31.66	-89.25	688.71	3,629.98	2,886.31	2,837.56	48.76	59.200				
10,300.00	10,192.17	10,191.89	10,179.71	39.10	31.82	-89.63	687.60	3,629.89	2,885.92	2,837.01	48.91	59.003				
10,350.00	10,235.96	10,235.01	10,222.82	39.16	31.97	-90.04	686.49	3,629.82	2,885.68	2,836.63	49.05	58.829				
10,373.52	10,255.79	10,250.97	10,238.77	39.18	32.03	-90.21	686.08	3,629.81	2,885.66	2,836.55	49.11	58.763				
10,400.00	10,277.48	10,267.42	10,255.21	39.21	32.08	-90.38	685.67	3,629.83	2,885.74	2,836.57	49.16	58.695				
10,450.00	10,316.42	10,296.97	10,284.75	39.23	32.19	-90.69	684.97	3,629.94	2,886.25	2,836.99	49.26	58.588				
10,500.00	10,352.48	10,333.00	10,320.77	39.25	32.32	-91.07	684.19	3,630.21	2,887.32	2,837.96	49.37	58.489				
10,550.00	10,385.38	10,352.45	10,340.22	39.25	32.38	-91.20	683.78	3,630.41	2,888.97	2,839.53	49.44	58.439				
10,600.00	10,414.88	10,379.26	10,367.02	39.23	32.48	-91.39	683.20	3,630.71	2,891.27	2,841.75	49.51	58.392				
10,650.00	10,440.75	10,402.99	10,390.74	39.21	32.56	-91.48	682.66	3,631.00	2,894.29	2,844.70	49.59	58.366				
10,700.00	10,462.80	10,428.00	10,415.74	39.18	32.65	-91.54	682.08	3,631.34	2,898.09	2,848.42	49.67	58.350				
10,750.00	10,480.85	10,441.71	10,429.45	39.13	32.70	-91.33	681.74	3,631.54	2,902.71	2,852.98	49.73	58.370				
10,800.00	10,494.77	10,456.53	10,444.26	39.09	32.75	-91.06	681.37	3,631.76	2,908.18	2,858.39	49.80	58.399				
10,850.00	10,504.45	10,467.29	10,455.02	39.04	32.79	-90.63	681.09	3,631.92	2,914.53	2,864.66	49.87	58.448				
10,900.00	10,509.82	10,473.89	10,461.61	39.00	32.82	-90.03	680.92	3,632.02	2,921.73	2,871.80	49.93	58.514				
10,936.70	10,511.00	10,476.03	10,463.75	38.97	32.82	-89.48	680.86	3,632.05	2,927.55	2,877.57	49.98	58.574				
11,000.00	10,511.00	10,477.73	10,465.46	38.94	32.83	-89.51	680.82	3,632.08	2,939.31	2,889.23	50.08	58.695				
11,073.75	10,511.00	10,479.71	10,467.43	38.93	32.84	-89.55	680.76	3,632.11	2,956.38	2,906.15	50.23	58.862				
11,100.00	10,511.00	10,480.41	10,468.13	38.94	32.84	-89.56	680.75	3,632.12	2,963.20	2,912.91	50.29	58.926				
11,200.00	10,511.00	10,483.10	10,470.82	39.03	32.85	-89.62	680.67	3,632.16	2,991.15	2,940.59	50.56	59.163				
11,300.00	10,511.00	10,485.82	10,473.54	39.25	32.86	-89.67	680.60	3,632.20	3,022.14	2,971.26	50.89	59.390				
11,400.00	10,511.00	10,488.57	10,476.29	39.60	32.87	-89.73	680.53	3,632.24	3,056.10	3,004.83	51.26	59.614				
11,500.00	10,511.00	10,491.35	10,479.07	40.03	32.88	-89.78	680.45	3,632.29	3,092.91	3,041.23	51.69	59.840				
11,600.00	10,511.00	10,494.16	10,481.88	40.53	32.89	-89.84	680.37	3,632.33	3,132.49	3,080.34	52.15	60.072				
11,700.00	10,511.00	10,497.00	10,484.72	41.10	32.90	-89.90	680.29	3,632.38	3,174.71	3,122.08	52.63	60.317				
11,800.00	10,511.00	13,186.00	11,981.49	41.73	47.72	-117.67	-816.10	3,633.35	3,212.03	3,155.16	56.87	56.480				
11,814.67	10,511.00	13,186.00	11,981.49	41.83	47.72	-117.67	-816.10	3,633.35	3,212.00	3,155.06	56.94	56.414				
11,900.00	10,511.00	13,217.02	11,983.85	42.41	48.04	-117.71	-847.03	3,632.95	3,212.94	3,155.43	57.50	55.874				
12,000.00	10,511.00	13,280.00	11,987.55	43.14	48.69	-117.78	-909.90	3,633.02	3,215.02	3,156.66	58.37	55.084				
12,100.00	10,511.00	13,322.40	11,989.62	43.93	49.15	-117.80	-952.23	3,634.00	3,218.64	3,159.48	59.16	54.408				
12,200.00	10,511.00	13,374.00	11,992.31	44.75	49.70	-117.83	-1,003.69	3,636.63	3,224.38	3,164.34	60.04	53.703				
12,300.00	10,511.00	13,402.34	11,993.94	45.62	50.02	-117.84	-1,031.92	3,638.58	3,231.82	3,171.00	60.82	53.141				
12,400.00	10,511.00	13,826.70	12,004.98	46.53	54.88	-117.98	-1,455.55	3,647.01	3,229.98	3,165.67	64.32	50.221				
12,500.00	10,511.00	13,960.81	12,002.04	47.48	56.51	-117.94	-1,589.64	3,647.24	3,228.40	3,162.45	65.95	48.952				
12,600.00	10,511.00	14,067.00	11,998.05	48.47	57.82	-117.89	-1,695.75	3,646.51	3,225.15	3,157.72	67.43	47.828				
12,700.00	10,511.00	14,138.64	11,995.36	49.49	58.72	-117.86	-1,767.33	3,646.34	3,222.42	3,153.73	68.69	46.913				
12,800.00	10,511.00	14,215.81	11,993.68	50.55	59.70	-117.84	-1,844.48	3,646.63	3,220.84	3,150.83	70.01	46.005				
12,900.00	10,511.00	14,297.95	11,993.17	51.63	60.75	-117.83	-1,926.62	3,646.66	3,219.73	3,148.34	71.39	45.102				
13,000.00	10,511.00	14,437.44	11,994.62	52.75	62.56	-117.87	-2,066.10	3,645.81	3,219.00	3,145.79	73.21	43.970				
13,072.29	10,511.00	14,445.00	11,994.66	53.57	62.66	-117.88	-2,073.66	3,645.68	3,218.19	3,144.35	73.84	43.582				
13,100.00	10,511.00	14,445.00	11,994.66	53.89	62.66	-117.88	-2,073.66	3,645.68	3,218.31	3,144.25	74.06	43.454				
13,200.00	10,511.00	14,499.41	11,995.60	55.05	63.38	-117.90	-2,128.06	3,645.75	3,219.06	3,143.77	75.29	42.757				
13,300.00	10,511.00	14,539.00	11,997.12	56.24	63.91	-117.91	-2,167.59	3,647.07	3,222.54	3,146.13	76.40	42.178				
13,400.00	10,511.00	14,539.00	11,997.12	57.46	63.91	-117.91	-2,167.59	3,647.07	3,228.24	3,151.03	77.20	41.815				

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 502H
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 502H	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		
13,500.00	10,511.00	14,787.88	12,011.73	58.69	67.30	-118.07	-2,415.68	3,657.53	3,234.85	3,154.81	80.04	40.418		
13,600.00	10,511.00	14,822.00	12,013.32	59.94	67.77	-118.10	-2,449.76	3,658.28	3,238.38	3,157.23	81.15	39.906		
13,700.00	10,511.00	15,187.90	12,022.37	61.22	72.87	-118.23	-2,815.28	3,662.32	3,241.53	3,156.59	84.94	38.161		
13,800.00	10,511.00	15,255.95	12,021.12	62.51	73.82	-118.23	-2,883.30	3,660.59	3,237.86	3,151.45	86.42	37.469		
13,900.00	10,511.00	15,429.72	12,021.17	63.81	76.28	-118.30	-3,056.91	3,654.41	3,233.65	3,144.98	88.67	36.467		
14,000.00	10,511.00	15,483.00	12,022.38	65.13	77.04	-118.34	-3,110.13	3,652.41	3,230.10	3,140.06	90.04	35.874		
14,100.00	10,511.00	15,483.00	12,022.38	66.47	77.04	-118.34	-3,110.13	3,652.41	3,228.28	3,137.28	91.00	35.474		
14,149.56	10,511.00	15,523.82	12,024.04	67.14	77.62	-118.38	-3,150.92	3,651.61	3,228.00	3,136.20	91.79	35.166		
14,200.00	10,511.00	15,548.34	12,025.12	67.82	77.98	-118.40	-3,175.41	3,651.37	3,228.20	3,135.74	92.46	34.914		
14,300.00	10,511.00	15,650.55	12,029.73	69.18	79.46	-118.48	-3,277.51	3,651.35	3,229.48	3,135.25	94.22	34.275		
14,392.53	10,511.00	15,767.00	12,032.62	70.46	81.15	-118.54	-3,393.92	3,650.59	3,229.11	3,133.06	96.05	33.619		
14,400.00	10,511.00	15,767.00	12,032.62	70.56	81.15	-118.54	-3,393.92	3,650.59	3,229.11	3,132.99	96.12	33.594		
14,500.00	10,511.00	15,810.99	12,033.69	71.95	81.80	-118.56	-3,437.89	3,650.60	3,229.88	3,132.44	97.44	33.147		
14,600.00	10,511.00	15,861.00	12,036.80	73.34	82.53	-118.60	-3,487.79	3,651.57	3,233.16	3,134.37	98.79	32.727		
14,700.00	10,511.00	15,926.96	12,042.03	74.75	83.51	-118.68	-3,553.53	3,652.78	3,237.54	3,137.28	100.26	32.290		
14,800.00	10,511.00	15,998.05	12,047.66	76.17	84.56	-118.76	-3,624.39	3,654.02	3,242.19	3,140.41	101.78	31.855		
14,900.00	10,511.00	16,050.00	12,052.04	77.60	85.33	-118.82	-3,676.11	3,656.08	3,248.65	3,145.52	103.13	31.500		
15,000.00	10,511.00	16,077.84	12,054.56	79.03	85.75	-118.85	-3,703.79	3,657.67	3,256.82	3,152.57	104.25	31.241		
15,100.00	10,511.00	16,144.00	12,061.37	80.47	86.74	-118.91	-3,769.42	3,662.53	3,267.08	3,161.37	105.71	30.905		
15,200.00	10,511.00	16,778.40	12,101.48	81.93	96.27	-119.59	-4,401.09	3,661.66	3,269.76	3,157.98	111.77	29.254		
15,300.00	10,511.00	16,806.00	12,102.11	83.38	96.68	-119.62	-4,428.61	3,659.70	3,264.50	3,151.41	113.09	28.867		
15,400.00	10,511.00	16,855.66	12,104.00	84.85	97.43	-119.68	-4,478.15	3,656.81	3,260.93	3,146.40	114.53	28.472		
15,500.00	10,511.00	16,900.00	12,106.54	86.32	98.10	-119.73	-4,522.39	3,655.36	3,259.71	3,143.79	115.92	28.120		
15,521.01	10,511.00	16,900.00	12,106.54	86.63	98.10	-119.73	-4,522.39	3,655.36	3,259.65	3,143.51	116.14	28.066		
15,600.00	10,511.00	16,936.29	12,109.04	87.80	98.65	-119.78	-4,558.59	3,654.68	3,260.28	3,143.05	117.22	27.812		
15,700.00	10,511.00	16,994.00	12,113.43	89.29	99.53	-119.86	-4,616.13	3,653.97	3,262.18	3,143.51	118.68	27.488		
15,800.00	10,511.00	17,055.58	12,118.79	90.78	100.47	-119.95	-4,677.47	3,653.68	3,265.32	3,145.18	120.14	27.179		
15,900.00	10,511.00	17,203.48	12,133.80	92.27	102.74	-120.20	-4,824.59	3,651.99	3,268.70	3,146.44	122.26	26.736		
16,000.00	10,511.00	17,276.00	12,142.41	93.77	103.85	-120.36	-4,896.57	3,650.21	3,271.68	3,147.91	123.77	26.434		
16,100.00	10,511.00	17,329.90	12,149.70	95.28	104.67	-120.48	-4,949.97	3,649.06	3,275.74	3,150.63	125.11	26.182		
16,200.00	10,511.00	17,393.83	12,159.22	96.79	105.65	-120.64	-5,013.17	3,647.84	3,280.91	3,154.40	126.51	25.934		
16,300.00	10,511.00	17,465.00	12,170.75	98.31	106.75	-120.83	-5,083.40	3,646.95	3,287.28	3,159.34	127.94	25.694		
16,400.00	10,511.00	17,588.50	12,188.70	99.83	108.66	-121.11	-5,205.58	3,646.37	3,293.59	3,163.78	129.81	25.372		
16,500.00	10,511.00	17,655.00	12,196.45	101.35	109.69	-121.23	-5,271.61	3,647.12	3,299.87	3,168.61	131.26	25.140		
16,600.00	10,511.00	17,709.62	12,202.34	102.88	110.54	-121.30	-5,325.89	3,648.77	3,307.37	3,174.76	132.61	24.940		
16,700.00	10,511.00	17,763.05	12,208.12	104.41	111.37	-121.37	-5,378.93	3,651.51	3,316.49	3,182.55	133.94	24.761		
16,800.00	10,511.00	17,960.31	12,226.58	105.94	114.46	-121.56	-5,575.01	3,662.14	3,325.56	3,188.81	136.75	24.319		
16,900.00	10,511.00	18,033.00	12,232.26	107.48	115.60	-121.62	-5,647.40	3,665.58	3,332.84	3,194.52	138.32	24.096		
17,000.00	10,511.00	18,080.73	12,236.27	109.02	116.35	-121.66	-5,694.88	3,668.33	3,341.28	3,201.66	139.62	23.932		
17,100.00	10,511.00	18,395.05	12,254.85	110.57	121.29	-121.83	-6,008.20	3,682.06	3,347.35	3,203.74	143.60	23.310		
17,200.00	10,511.00	18,586.82	12,260.42	112.12	124.30	-121.92	-6,199.85	3,683.22	3,348.39	3,202.14	146.25	22.896		
17,258.51	10,511.00	18,646.68	12,260.70	113.02	125.24	-121.93	-6,259.71	3,683.30	3,348.11	3,200.74	147.38	22.718		
17,300.00	10,511.00	18,670.28	12,260.89	113.67	125.61	-121.93	-6,283.31	3,683.49	3,348.23	3,200.20	148.02	22.620		
17,400.00	10,511.00	18,730.11	12,261.82	115.22	126.55	-121.95	-6,343.13	3,684.32	3,349.38	3,199.79	149.59	22.390		
17,500.00	10,511.00	18,786.00	12,263.60	116.78	127.43	-121.97	-6,398.98	3,685.23	3,351.69	3,200.60	151.09	22.183		
17,600.00	10,511.00	18,827.04	12,265.73	118.34	128.08	-121.99	-6,439.95	3,686.13	3,355.56	3,203.14	152.42	22.015		
17,700.00	10,511.00	18,880.00	12,269.91	119.90	128.92	-122.04	-6,492.72	3,687.85	3,361.39	3,207.58	153.81	21.854		
17,800.00	10,511.00	18,955.57	12,277.08	121.46	130.11	-122.13	-6,567.90	3,690.48	3,368.41	3,213.03	155.38	21.678		
17,900.00	10,511.00	19,353.00	12,290.68	123.03	136.41	-122.30	-6,964.56	3,696.90	3,370.34	3,210.46	159.89	21.080		
18,000.00	10,511.00	19,419.54	12,288.09	124.59	137.47	-122.26	-7,031.04	3,697.94	3,368.82	3,207.20	161.62	20.844		
18,100.00	10,511.00	19,676.03	12,268.32	126.16	141.53	-121.97	-7,286.68	3,701.19	3,363.94	3,198.89	165.05	20.381		
18,200.00	10,511.00	19,750.31	12,262.77	127.74	142.71	-121.90	-7,360.75	3,700.94	3,358.86	3,191.92	166.93	20.121		

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 502H
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 502H	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		
18,300.00	10,511.00	19,825.00	12,257.56	129.31	143.89	-121.83	-7,435.26	3,700.83	3,354.29	3,185.48	168.81	19.870		
18,400.00	10,511.00	19,864.93	12,255.55	130.89	144.52	-121.80	-7,475.13	3,700.89	3,351.08	3,180.70	170.38	19.668		
18,500.00	10,511.00	19,920.00	12,255.33	132.46	145.40	-121.80	-7,530.20	3,701.17	3,350.04	3,178.04	172.00	19.477		
18,529.11	10,511.00	19,920.00	12,255.33	132.92	145.40	-121.80	-7,530.20	3,701.17	3,349.92	3,177.58	172.34	19.438		
18,600.00	10,511.00	19,989.69	12,256.01	134.04	146.51	-121.81	-7,599.88	3,701.83	3,350.27	3,176.56	173.71	19.287		
18,700.00	10,511.00	20,100.94	12,254.41	135.63	148.28	-121.78	-7,711.10	3,703.57	3,350.00	3,174.19	175.80	19.055		
18,800.00	10,511.00	20,191.60	12,252.32	137.21	149.73	-121.74	-7,801.71	3,705.56	3,349.82	3,172.07	177.75	18.845		
18,805.12	10,511.00	20,196.19	12,252.21	137.29	149.80	-121.74	-7,806.31	3,705.68	3,349.82	3,171.97	177.85	18.835		
18,900.00	10,511.00	20,203.00	12,252.03	138.79	149.91	-121.74	-7,813.11	3,705.86	3,350.98	3,172.04	178.94	18.727		
19,000.00	10,511.00	20,261.32	12,251.10	140.38	150.85	-121.71	-7,871.37	3,708.33	3,353.46	3,172.93	180.54	18.575		
19,100.00	10,511.00	20,297.00	12,251.13	141.97	151.42	-121.69	-7,906.96	3,710.78	3,358.37	3,176.51	181.86	18.467		
19,200.00	10,511.00	20,353.13	12,251.84	143.56	152.32	-121.66	-7,962.90	3,715.27	3,364.92	3,181.55	183.37	18.351		
19,300.00	10,511.00	20,828.28	12,250.99	145.15	159.94	-121.58	-8,437.46	3,727.75	3,365.51	3,176.63	188.87	17.819		
19,400.00	10,511.00	20,941.76	12,246.19	146.74	161.75	-121.54	-8,550.82	3,725.93	3,361.06	3,170.07	190.99	17.598		
19,500.00	10,511.00	21,052.00	12,241.46	148.33	163.50	-121.50	-8,660.93	3,723.37	3,355.97	3,162.89	193.08	17.381		
19,600.00	10,511.00	21,107.14	12,239.69	149.93	164.38	-121.49	-8,716.02	3,722.00	3,351.57	3,156.78	194.80	17.206		
19,700.00	10,511.00	21,146.00	12,239.08	151.52	165.00	-121.49	-8,754.87	3,721.57	3,349.03	3,152.68	196.35	17.056		
19,800.00	10,511.00	21,409.61	12,236.19	153.12	169.21	-121.52	-9,018.33	3,716.27	3,347.44	3,148.17	199.27	16.798		
19,900.00	10,511.00	21,500.53	12,231.66	154.72	170.66	-121.49	-9,109.08	3,713.01	3,340.95	3,139.70	201.25	16.601		
20,000.00	10,511.00	21,592.43	12,226.10	156.32	172.13	-121.44	-9,200.79	3,710.78	3,334.89	3,131.62	203.27	16.406		
20,100.00	10,511.00	21,652.93	12,222.12	157.92	173.10	-121.39	-9,261.15	3,709.81	3,329.35	3,124.23	205.12	16.231		
20,200.00	10,511.00	21,713.00	12,219.22	159.52	174.06	-121.36	-9,321.15	3,709.48	3,325.38	3,118.46	206.92	16.071		
20,300.00	10,511.00	21,767.54	12,217.07	161.12	174.94	-121.33	-9,375.64	3,709.70	3,322.66	3,114.01	208.65	15.924		
20,400.00	10,511.00	21,832.87	12,214.38	162.72	175.99	-121.29	-9,440.91	3,710.58	3,320.87	3,110.41	210.46	15.779		
20,500.00	10,511.00	21,902.00	12,211.64	164.33	177.11	-121.23	-9,509.96	3,712.62	3,320.39	3,108.09	212.30	15.640		
20,508.89	10,511.00	21,902.00	12,211.64	164.47	177.11	-121.23	-9,509.96	3,712.62	3,320.38	3,107.97	212.41	15.632		
20,600.00	10,511.00	21,956.15	12,209.58	165.93	177.98	-121.19	-9,564.02	3,714.89	3,321.01	3,107.03	213.98	15.520		
20,700.00	10,511.00	22,038.78	12,206.39	167.54	179.32	-121.11	-9,646.49	3,719.06	3,322.48	3,106.53	215.96	15.385		
20,800.00	10,511.00	22,151.15	12,200.36	169.14	181.14	-120.97	-9,758.48	3,725.84	3,324.06	3,105.75	218.32	15.226		
20,900.00	10,511.00	22,230.00	12,194.93	170.75	187.87	-120.85	-9,836.98	3,730.90	3,325.30	3,101.50	223.80	14.858		
21,000.00	10,511.00	22,230.00	12,194.93	172.36	187.87	-120.85	-9,836.98	3,730.90	3,328.73	3,103.95	224.78	14.809		
21,100.00	10,511.00	22,230.00	12,194.93	173.97	187.87	-120.85	-9,836.98	3,730.90	3,335.15	3,109.59	225.56	14.786 SF		
21,200.00	10,511.00	22,230.00	12,194.93	175.58	187.87	-120.85	-9,836.98	3,730.90	3,344.55	3,118.41	226.14	14.790		
21,300.00	10,511.00	22,230.00	12,194.93	177.19	187.87	-120.85	-9,836.98	3,730.90	3,356.90	3,130.37	226.53	14.819		
21,400.00	10,511.00	22,230.00	12,194.93	178.80	187.87	-120.85	-9,836.98	3,730.90	3,372.17	3,145.43	226.74	14.873		
21,500.00	10,511.00	22,230.00	12,194.93	180.41	187.87	-120.85	-9,836.98	3,730.90	3,390.33	3,163.57	226.76	14.951		
21,600.00	10,511.00	22,230.00	12,194.93	182.03	187.87	-120.85	-9,836.98	3,730.90	3,411.32	3,184.72	226.60	15.054		
21,700.00	10,511.00	22,230.00	12,194.93	183.64	187.87	-120.85	-9,836.98	3,730.90	3,435.10	3,208.83	226.27	15.181		
21,800.00	10,511.00	22,230.00	12,194.93	185.25	187.87	-120.85	-9,836.98	3,730.90	3,461.60	3,235.81	225.79	15.331		
21,900.00	10,511.00	22,230.00	12,194.93	186.87	187.87	-120.85	-9,836.98	3,730.90	3,490.77	3,265.63	225.14	15.505		
22,000.00	10,511.00	22,230.00	12,194.93	188.49	187.87	-120.85	-9,836.98	3,730.90	3,522.54	3,298.18	224.36	15.700		
22,046.30	10,511.00	22,230.00	12,194.93	189.23	187.87	-120.85	-9,836.98	3,730.90	3,538.10	3,314.15	223.95	15.799		

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 502H
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 502H	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	-90.54	-0.47	-49.87	49.87					
100.00	100.00	100.00	100.00	0.13	0.13	-90.54	-0.47	-49.87	49.87	49.69	0.18	281.070		
200.00	200.00	200.00	200.00	0.48	0.48	-90.54	-0.47	-49.87	49.87	49.19	0.68	72.870		
300.00	300.00	300.00	300.00	0.84	0.84	-90.54	-0.47	-49.87	49.87	48.68	1.19	41.861		
400.00	400.00	400.00	400.00	1.20	1.20	-90.54	-0.47	-49.87	49.87	48.17	1.70	29.366		
500.00	500.00	500.00	500.00	1.56	1.56	-90.54	-0.47	-49.87	49.87	47.67	2.21	22.615		
600.00	600.00	600.00	600.00	1.92	1.92	-90.54	-0.47	-49.87	49.87	47.16	2.71	18.388		
700.00	700.00	700.00	700.00	2.28	2.28	-90.54	-0.47	-49.87	49.87	46.65	3.22	15.492		
800.00	800.00	800.00	800.00	2.63	2.63	-90.54	-0.47	-49.87	49.87	46.15	3.73	13.384		
900.00	900.00	900.00	900.00	2.99	2.99	-90.54	-0.47	-49.87	49.87	45.64	4.23	11.781		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-90.54	-0.47	-49.87	49.87	45.13	4.74	10.521		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-90.54	-0.47	-49.87	49.87	44.62	5.25	9.505		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.54	-0.47	-49.87	49.87	44.12	5.75	8.667		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-90.54	-0.47	-49.87	49.87	43.61	6.26	7.966		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-90.54	-0.47	-49.87	49.87	43.10	6.77	7.369		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.54	-0.47	-49.87	49.87	42.60	7.27	6.855		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.54	-0.47	-49.87	49.87	42.09	7.78	6.409		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.54	-0.47	-49.87	49.87	41.58	8.29	6.017		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.54	-0.47	-49.87	49.87	41.08	8.80	5.670		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.54	-0.47	-49.87	49.87	40.57	9.30	5.361		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.54	-0.47	-49.87	49.87	40.06	9.81	5.084 CC, ES		
2,100.00	2,100.00	2,099.22	2,099.20	7.29	7.29	-89.36	0.57	-50.64	50.65	40.33	10.31	4.911 SF		
2,200.00	2,200.00	2,198.30	2,198.21	7.65	7.64	-86.04	3.67	-52.93	53.09	42.28	10.81	4.912		
2,300.00	2,300.00	2,297.11	2,296.81	8.01	8.00	-81.17	8.81	-56.75	57.51	46.22	11.30	5.090		
2,400.00	2,399.99	2,395.53	2,394.82	8.37	8.35	-127.23	15.97	-62.05	65.06	53.29	11.78	5.524		
2,500.00	2,499.91	2,493.47	2,492.10	8.72	8.70	-123.89	25.10	-68.82	76.47	64.22	12.25	6.242		
2,600.00	2,599.69	2,592.48	2,590.31	9.07	9.06	-122.35	35.22	-76.32	90.34	77.59	12.75	7.086		
2,700.00	2,699.27	2,691.30	2,688.33	9.43	9.43	-122.37	45.32	-83.80	105.62	92.37	13.25	7.972		
2,800.00	2,798.57	2,789.87	2,786.09	9.79	9.80	-123.37	55.39	-91.26	122.31	108.55	13.75	8.893		
2,900.00	2,897.54	2,888.11	2,883.54	10.15	10.16	-124.96	65.42	-98.70	140.50	126.24	14.26	9.853		
3,000.00	2,996.09	2,985.96	2,980.59	10.53	10.53	-126.87	75.42	-106.11	160.35	145.58	14.77	10.856		
3,100.00	3,094.16	3,083.36	3,077.20	10.91	10.90	-128.95	85.37	-113.49	181.96	166.68	15.28	11.906		
3,135.41	3,128.76	3,117.72	3,111.28	11.04	11.03	-129.70	88.88	-116.09	190.07	174.60	15.47	12.290		
3,200.00	3,191.82	3,180.34	3,173.39	11.30	11.27	-131.14	95.28	-120.83	205.14	189.34	15.80	12.984		
3,300.00	3,289.44	3,277.29	3,269.56	11.70	11.65	-133.00	105.19	-128.17	228.67	212.35	16.32	14.015		
3,400.00	3,387.05	3,374.24	3,365.72	12.10	12.02	-134.51	115.09	-135.51	252.39	235.55	16.84	14.990		
3,500.00	3,484.67	3,471.20	3,461.89	12.52	12.39	-135.76	125.00	-142.85	276.24	258.88	17.36	15.913		
3,600.00	3,582.29	3,568.15	3,558.05	12.94	12.77	-136.81	134.90	-150.19	300.20	282.31	17.88	16.786		
3,700.00	3,679.91	3,665.10	3,654.22	13.36	13.15	-137.71	144.81	-157.53	324.24	305.83	18.41	17.611		
3,800.00	3,777.52	3,762.05	3,750.38	13.79	13.53	-138.48	154.72	-164.88	348.34	329.40	18.94	18.392		
3,900.00	3,875.14	3,859.00	3,846.54	14.22	13.90	-139.15	164.62	-172.22	372.50	353.03	19.47	19.131		
4,000.00	3,972.76	3,955.95	3,942.71	14.66	14.28	-139.74	174.53	-179.56	396.70	376.70	20.00	19.832		
4,100.00	4,070.38	4,052.90	4,038.87	15.10	14.67	-140.27	184.43	-186.90	420.93	400.40	20.54	20.496		
4,200.00	4,168.00	4,149.86	4,135.04	15.55	15.05	-140.73	194.34	-194.24	445.20	424.12	21.07	21.126		
4,300.00	4,265.61	4,246.81	4,231.20	15.99	15.43	-141.15	204.24	-201.58	469.49	447.88	21.61	21.725		
4,400.00	4,363.23	4,343.76	4,327.37	16.44	15.81	-141.53	214.15	-208.92	493.80	471.65	22.15	22.295		
4,500.00	4,460.85	4,440.71	4,423.53	16.90	16.20	-141.87	224.06	-216.26	518.12	495.44	22.69	22.837		
4,600.00	4,558.47	4,537.66	4,519.69	17.35	16.58	-142.18	233.96	-223.60	542.47	519.24	23.23	23.354		
4,700.00	4,656.08	4,634.61	4,615.86	17.81	16.97	-142.46	243.87	-230.95	566.82	543.05	23.77	23.846		
4,800.00	4,753.70	4,731.56	4,712.02	18.27	17.35	-142.73	253.77	-238.29	591.19	566.88	24.31	24.316		
4,900.00	4,851.32	4,828.52	4,808.19	18.73	17.74	-142.97	263.68	-245.63	615.58	590.72	24.86	24.765		
5,000.00	4,948.94	4,925.47	4,904.35	19.19	18.13	-143.19	273.58	-252.97	639.96	614.56	25.40	25.195		

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 502H
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 502H	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	5,046.56	5,022.42	5,000.52	19.66	18.51	-143.39	283.49	-260.31	664.36	638.42	25.95	25.606		
5,200.00	5,144.17	5,119.37	5,096.68	20.13	18.90	-143.58	293.40	-267.65	688.77	662.28	26.49	25.999		
5,300.00	5,241.79	5,216.32	5,192.84	20.59	19.29	-143.76	303.30	-274.99	713.18	686.14	27.04	26.376		
5,400.00	5,339.41	5,313.27	5,289.01	21.06	19.68	-143.93	313.21	-282.33	737.60	710.01	27.59	26.738		
5,500.00	5,437.03	5,410.22	5,385.17	21.53	20.06	-144.08	323.11	-289.68	762.02	733.89	28.13	27.085		
5,600.00	5,534.65	5,507.18	5,481.34	22.01	20.45	-144.23	333.02	-297.02	786.45	757.77	28.68	27.419		
5,700.00	5,632.26	5,604.13	5,577.50	22.48	20.84	-144.37	342.92	-304.36	810.88	781.65	29.23	27.739		
5,800.00	5,729.88	5,701.08	5,673.67	22.95	21.23	-144.50	352.83	-311.70	835.32	805.54	29.78	28.048		
5,900.00	5,827.50	5,798.03	5,769.83	23.43	21.62	-144.62	362.73	-319.04	859.76	829.43	30.33	28.344		
6,000.00	5,925.12	5,894.98	5,865.99	23.90	22.01	-144.73	372.64	-326.38	884.21	853.32	30.88	28.630		
6,100.00	6,022.73	5,991.93	5,962.16	24.38	22.40	-144.84	382.55	-333.72	908.66	877.22	31.44	28.906		
6,200.00	6,120.35	6,088.89	6,058.32	24.85	22.79	-144.94	392.45	-341.06	933.11	901.12	31.99	29.172		
6,300.00	6,217.97	6,185.84	6,154.49	25.33	23.18	-145.04	402.36	-348.40	957.56	925.02	32.54	29.428		
6,400.00	6,315.59	6,282.79	6,250.65	25.81	23.57	-145.14	412.26	-355.75	982.02	948.92	33.09	29.676		
6,500.00	6,413.21	6,379.74	6,346.82	26.29	23.96	-145.22	422.17	-363.09	1,006.47	972.83	33.64	29.915		
6,600.00	6,510.82	6,476.69	6,442.98	26.77	24.35	-145.31	432.07	-370.43	1,030.93	996.74	34.20	30.146		
6,700.00	6,608.44	6,573.64	6,539.14	27.25	24.74	-145.39	441.98	-377.77	1,055.40	1,020.64	34.75	30.369		
6,719.26	6,627.24	6,592.31	6,557.66	27.34	24.82	-145.40	443.89	-379.18	1,060.11	1,025.25	34.86	30.411		
6,800.00	6,706.24	6,670.77	6,635.48	27.73	25.14	-145.61	451.90	-385.12	1,079.18	1,043.87	35.31	30.567		
6,900.00	6,804.54	6,768.38	6,732.30	28.18	25.53	-145.76	461.88	-392.51	1,100.89	1,065.04	35.86	30.703		
7,000.00	6,903.29	6,866.41	6,829.54	28.61	25.93	-145.83	471.89	-399.94	1,120.50	1,084.09	36.40	30.780		
7,100.00	7,002.41	6,967.19	6,929.50	29.02	26.33	-145.80	482.16	-407.55	1,137.96	1,101.00	36.96	30.789		
7,200.00	7,101.85	7,064.43	7,046.05	29.41	26.79	-145.72	492.33	-415.08	1,152.32	1,114.73	37.59	30.656		
7,300.00	7,201.53	7,202.58	7,163.85	29.78	27.24	-145.69	499.66	-420.52	1,162.94	1,124.75	38.20	30.447		
7,400.00	7,301.38	7,321.37	7,282.50	30.13	27.67	-145.70	504.08	-423.79	1,169.80	1,131.02	38.77	30.169		
7,500.00	7,401.34	7,440.49	7,401.60	30.46	28.07	-145.74	505.53	-424.87	1,172.86	1,133.53	39.33	29.824		
7,554.66	7,456.00	7,494.89	7,456.00	30.63	28.25	-94.91	505.53	-424.87	1,173.18	1,133.60	39.58	29.638		
7,600.00	7,501.34	7,540.23	7,501.34	30.77	28.41	-94.91	505.53	-424.87	1,173.18	1,133.38	39.80	29.480		
7,700.00	7,601.34	7,640.23	7,601.34	31.07	28.74	-94.91	505.53	-424.87	1,173.18	1,132.91	40.27	29.135		
7,800.00	7,701.34	7,740.23	7,701.34	31.38	29.07	-94.91	505.53	-424.87	1,173.18	1,132.44	40.74	28.797		
7,900.00	7,801.34	7,840.23	7,801.34	31.69	29.41	-94.91	505.53	-424.87	1,173.18	1,131.97	41.21	28.467		
8,000.00	7,901.34	7,940.23	7,901.34	32.00	29.74	-94.91	505.53	-424.87	1,173.18	1,131.49	41.69	28.143		
8,013.25	7,914.59	7,953.48	7,914.59	32.04	29.79	-94.91	505.53	-424.87	1,173.18	1,131.43	41.75	28.101		
8,100.00	8,001.34	8,038.98	8,000.09	32.32	30.07	-94.92	505.48	-424.87	1,173.18	1,131.03	42.16	27.830		
8,200.00	8,101.34	8,124.69	8,085.38	32.63	30.31	-95.29	497.88	-424.79	1,173.89	1,131.36	42.54	27.598		
8,300.00	8,201.34	8,206.39	8,164.77	32.94	30.49	-96.21	478.88	-424.61	1,176.07	1,133.22	42.85	27.447		
8,400.00	8,301.34	8,281.38	8,234.59	33.26	30.62	-97.53	451.67	-424.34	1,180.38	1,137.30	43.08	27.399		
8,500.00	8,401.34	8,350.00	8,294.87	33.57	30.72	-99.10	418.97	-424.02	1,187.68	1,144.45	43.23	27.475		
8,600.00	8,501.34	8,400.00	8,336.11	33.89	30.76	-100.45	390.72	-423.74	1,198.86	1,155.64	43.22	27.735		
8,700.00	8,601.34	8,450.00	8,374.73	34.20	30.80	-101.95	358.99	-423.43	1,214.60	1,171.48	43.12	28.166		
8,800.00	8,701.34	8,500.00	8,410.44	34.52	30.82	-103.58	324.02	-423.09	1,235.41	1,192.48	42.92	28.781		
8,900.00	8,801.34	8,538.12	8,435.54	34.84	30.83	-104.91	295.34	-422.81	1,261.65	1,219.08	42.57	29.638		
9,000.00	8,901.34	8,570.39	8,455.26	35.16	30.83	-106.08	269.80	-422.55	1,293.40	1,251.30	42.09	30.727		
9,100.00	9,001.34	8,600.00	8,472.06	35.48	30.84	-107.18	245.42	-422.32	1,330.58	1,289.05	41.53	32.039		
9,200.00	9,101.34	8,622.67	8,484.06	35.80	30.83	-108.04	226.19	-422.13	1,373.01	1,332.13	40.87	33.592		
9,300.00	9,201.34	8,650.00	8,497.50	36.12	30.83	-109.09	202.40	-421.89	1,420.42	1,380.21	40.21	35.322		
9,400.00	9,301.34	8,650.00	8,497.50	36.45	30.83	-109.09	202.40	-421.89	1,472.54	1,433.17	39.37	37.401		
9,500.00	9,401.34	8,679.34	8,510.64	36.77	30.82	-110.24	176.18	-421.64	1,528.66	1,489.93	38.73	39.472		
9,600.00	9,501.34	8,700.00	8,519.09	37.09	30.82	-111.06	157.32	-421.45	1,588.84	1,550.79	38.05	41.755		
9,700.00	9,601.34	8,700.00	8,519.09	37.42	30.82	-111.06	157.32	-421.45	1,652.53	1,615.25	37.28	44.323		
9,800.00	9,701.34	8,719.23	8,526.33	37.74	30.81	-111.82	139.50	-421.28	1,719.34	1,682.66	36.68	46.875		
9,900.00	9,801.34	8,729.97	8,530.12	38.07	30.81	-112.24	129.45	-421.18	1,789.06	1,752.99	36.07	49.595		

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 502H
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 502H	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		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
							+N/-S (usft)	+E/-W (usft)						
10,000.00	9,901.34	8,750.00	8,536.67	38.39	30.81	-113.04	110.53	-420.99	1,861.46	1,825.88	35.57	52.329		
10,036.70	9,938.04	8,750.00	8,536.67	38.51	30.81	-113.04	110.53	-420.99	1,888.53	1,853.17	35.36	53.407		
10,050.00	9,951.34	8,750.00	8,536.67	38.55	30.81	68.89	110.53	-420.99	1,898.38	1,863.10	35.28	53.802		
10,100.00	10,001.21	8,750.00	8,536.67	38.69	30.81	63.93	110.53	-420.99	1,935.10	1,900.10	35.00	55.292		
10,150.00	10,050.60	8,750.00	8,536.67	38.82	30.81	59.36	110.53	-420.99	1,971.11	1,936.39	34.71	56.780		
10,200.00	10,099.14	8,750.00	8,536.67	38.93	30.81	55.22	110.53	-420.99	2,006.18	1,971.74	34.44	58.254		
10,250.00	10,146.45	8,769.71	8,542.46	39.02	30.80	51.09	91.70	-420.81	2,039.74	2,005.47	34.27	59.524		
10,300.00	10,192.17	8,777.76	8,544.65	39.10	30.80	47.72	83.94	-420.73	2,071.96	2,037.91	34.05	60.858		
10,350.00	10,235.96	8,800.00	8,550.10	39.16	30.79	44.58	62.39	-420.52	2,102.67	2,068.77	33.90	62.033		
10,400.00	10,277.48	8,800.00	8,550.10	39.21	30.79	42.20	62.39	-420.52	2,131.17	2,097.51	33.66	63.315		
10,450.00	10,316.42	8,800.00	8,550.10	39.23	30.79	40.13	62.39	-420.52	2,157.79	2,124.35	33.44	64.522		
10,500.00	10,352.48	8,800.00	8,550.10	39.25	30.79	38.34	62.39	-420.52	2,182.41	2,149.16	33.25	65.643		
10,550.00	10,385.38	8,825.08	8,555.25	39.25	30.79	36.63	37.84	-420.28	2,204.29	2,171.13	33.16	66.476		
10,600.00	10,414.88	8,850.00	8,559.29	39.23	30.79	35.23	13.26	-420.04	2,224.13	2,191.05	33.08	67.230		
10,650.00	10,440.75	8,850.00	8,559.29	39.21	30.79	34.21	13.26	-420.04	2,241.03	2,208.08	32.95	68.007		
10,700.00	10,462.80	8,850.00	8,559.29	39.18	30.79	33.37	13.26	-420.04	2,255.51	2,222.66	32.86	68.649		
10,750.00	10,480.85	8,850.00	8,559.29	39.13	30.79	32.69	13.26	-420.04	2,267.51	2,234.72	32.79	69.146		
10,800.00	10,494.77	8,879.58	8,562.70	39.09	30.79	32.16	-16.12	-419.75	2,276.13	2,243.32	32.82	69.354		
10,850.00	10,504.45	8,900.00	8,564.16	39.04	30.80	31.82	-36.48	-419.55	2,282.34	2,249.49	32.85	69.477		
10,900.00	10,509.82	8,900.00	8,564.16	39.00	30.80	31.66	-36.48	-419.55	2,285.54	2,252.65	32.89	69.498		
10,936.70	10,511.00	8,900.00	8,564.16	38.97	30.80	31.62	-36.48	-419.55	2,286.22	2,253.28	32.94	69.409		
10,970.57	10,511.00	8,918.24	8,564.86	38.95	30.81	31.64	-54.71	-419.37	2,286.03	2,253.01	33.01	69.245		
11,000.00	10,511.00	8,930.93	8,565.00	38.94	30.82	31.66	-67.40	-419.24	2,286.13	2,253.05	33.07	69.121		
11,073.75	10,511.00	8,978.29	8,565.00	38.93	30.90	31.67	-114.75	-418.78	2,286.47	2,253.22	33.25	68.770		
11,100.00	10,511.00	9,004.54	8,565.00	38.94	30.96	31.67	-141.00	-418.52	2,286.47	2,253.15	33.32	68.628		
11,200.00	10,511.00	9,104.54	8,565.00	39.03	31.25	31.67	-241.00	-417.54	2,286.47	2,252.84	33.63	67.995		
11,300.00	10,511.00	9,204.54	8,565.00	39.25	31.64	31.67	-340.99	-416.56	2,286.46	2,252.46	34.00	67.242		
11,400.00	10,511.00	9,304.54	8,565.00	39.60	32.11	31.67	-440.99	-415.58	2,286.46	2,252.02	34.44	66.380		
11,500.00	10,511.00	9,404.54	8,565.00	40.03	32.65	31.67	-540.98	-414.59	2,286.46	2,251.51	34.95	65.424		
11,600.00	10,511.00	9,504.54	8,565.00	40.53	33.26	31.67	-640.98	-413.61	2,286.46	2,250.94	35.51	64.387		
11,700.00	10,511.00	9,604.54	8,565.00	41.10	33.93	31.67	-740.97	-412.63	2,286.45	2,250.32	36.13	63.284		
11,800.00	10,511.00	9,704.54	8,565.00	41.73	34.67	31.67	-840.97	-411.65	2,286.45	2,249.65	36.80	62.126		
11,900.00	10,511.00	9,804.54	8,565.00	42.41	35.47	31.67	-940.96	-410.67	2,286.45	2,248.92	37.53	60.928		
12,000.00	10,511.00	9,904.54	8,565.00	43.14	36.32	31.67	-1,040.96	-409.69	2,286.44	2,248.14	38.30	59.700		
12,100.00	10,511.00	10,004.54	8,565.00	43.93	37.23	31.67	-1,140.95	-408.70	2,286.44	2,247.32	39.12	58.453		
12,200.00	10,511.00	10,104.54	8,565.00	44.75	38.19	31.67	-1,240.95	-407.72	2,286.44	2,246.46	39.97	57.197		
12,300.00	10,511.00	10,204.54	8,565.00	45.62	39.19	31.67	-1,340.94	-406.74	2,286.43	2,245.56	40.87	55.939		
12,400.00	10,511.00	10,304.54	8,565.00	46.53	40.23	31.67	-1,440.94	-405.76	2,286.43	2,244.62	41.81	54.687		
12,500.00	10,511.00	10,404.54	8,565.00	47.48	41.31	31.67	-1,540.93	-404.78	2,286.43	2,243.65	42.78	53.445		
12,600.00	10,511.00	10,504.54	8,565.00	48.47	42.43	31.67	-1,640.93	-403.79	2,286.42	2,242.64	43.78	52.222		
12,700.00	10,511.00	10,604.54	8,565.00	49.49	43.58	31.67	-1,740.92	-402.81	2,286.42	2,241.61	44.81	51.020		
12,800.00	10,511.00	10,704.54	8,565.00	50.55	44.77	31.67	-1,840.92	-401.83	2,286.42	2,240.54	45.87	49.842		
12,900.00	10,511.00	10,804.54	8,565.00	51.63	45.98	31.67	-1,940.91	-400.85	2,286.41	2,239.45	46.96	48.689		
13,000.00	10,511.00	10,904.54	8,565.00	52.75	47.22	31.67	-2,040.91	-399.87	2,286.41	2,238.34	48.07	47.565		
13,100.00	10,511.00	11,004.54	8,565.00	53.89	48.48	31.67	-2,140.90	-398.89	2,286.41	2,237.21	49.20	46.470		
13,200.00	10,511.00	11,104.54	8,565.00	55.05	49.77	31.67	-2,240.90	-397.90	2,286.40	2,236.05	50.36	45.405		
13,300.00	10,511.00	11,204.54	8,565.00	56.24	51.07	31.67	-2,340.89	-396.92	2,286.40	2,234.87	51.53	44.372		
13,400.00	10,511.00	11,304.54	8,565.00	57.46	52.40	31.67	-2,440.89	-395.94	2,286.40	2,233.68	52.72	43.371		
13,500.00	10,511.00	11,404.54	8,565.00	58.69	53.74	31.67	-2,540.89	-394.96	2,286.39	2,232.47	53.92	42.400		
13,600.00	10,511.00	11,504.54	8,565.00	59.94	55.10	31.67	-2,640.88	-393.98	2,286.39	2,231.24	55.15	41.460		
13,700.00	10,511.00	11,604.54	8,565.00	61.22	56.48	31.67	-2,740.88	-392.99	2,286.39	2,230.00	56.39	40.549		
13,800.00	10,511.00	11,704.54	8,565.00	62.51	57.87	31.67	-2,840.87	-392.01	2,286.38	2,228.75	57.64	39.669		

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 502H
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 502H	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		
13,900.00	10,511.00	11,804.54	8,565.00	63.81	59.27	31.67	-2,940.87	-391.03	2,286.38	2,227.48	58.90	38.819		
14,000.00	10,511.00	11,904.54	8,565.00	65.13	60.69	31.67	-3,040.86	-390.05	2,286.38	2,226.20	60.17	37.997		
14,100.00	10,511.00	12,004.54	8,565.00	66.47	62.11	31.67	-3,140.86	-389.07	2,286.37	2,224.91	61.46	37.200		
14,200.00	10,511.00	12,104.54	8,565.00	67.82	63.55	31.67	-3,240.85	-388.09	2,286.37	2,223.61	62.76	36.431		
14,300.00	10,511.00	12,204.54	8,565.00	69.18	65.00	31.67	-3,340.85	-387.10	2,286.37	2,222.30	64.06	35.688		
14,400.00	10,511.00	12,304.54	8,565.00	70.56	66.46	31.66	-3,440.84	-386.12	2,286.36	2,220.99	65.38	34.971		
14,500.00	10,511.00	12,404.54	8,565.00	71.95	67.92	31.66	-3,540.84	-385.14	2,286.36	2,219.66	66.70	34.277		
14,600.00	10,511.00	12,504.54	8,565.00	73.34	69.40	31.66	-3,640.83	-384.16	2,286.36	2,218.32	68.04	33.605		
14,700.00	10,511.00	12,604.54	8,565.00	74.75	70.88	31.66	-3,740.83	-383.18	2,286.35	2,216.98	69.38	32.956		
14,800.00	10,511.00	12,704.54	8,565.00	76.17	72.37	31.66	-3,840.82	-382.19	2,286.35	2,215.63	70.72	32.329		
14,900.00	10,511.00	12,804.54	8,565.00	77.60	73.87	31.66	-3,940.82	-381.21	2,286.35	2,214.28	72.07	31.723		
15,000.00	10,511.00	12,904.54	8,565.00	79.03	75.37	31.66	-4,040.81	-380.23	2,286.35	2,212.91	73.43	31.135		
15,100.00	10,511.00	13,004.54	8,565.00	80.47	76.88	31.66	-4,140.81	-379.25	2,286.34	2,211.54	74.80	30.567		
15,200.00	10,511.00	13,104.54	8,565.00	81.93	78.39	31.66	-4,240.80	-378.27	2,286.34	2,210.17	76.17	30.017		
15,300.00	10,511.00	13,204.54	8,565.00	83.38	79.91	31.66	-4,340.80	-377.29	2,286.34	2,208.79	77.54	29.485		
15,400.00	10,511.00	13,304.54	8,565.00	84.85	81.44	31.66	-4,440.79	-376.30	2,286.33	2,207.41	78.92	28.970		
15,500.00	10,511.00	13,404.54	8,565.00	86.32	82.97	31.66	-4,540.79	-375.32	2,286.33	2,206.02	80.31	28.470		
15,600.00	10,511.00	13,504.54	8,565.00	87.80	84.50	31.66	-4,640.78	-374.34	2,286.33	2,204.63	81.70	27.986		
15,700.00	10,511.00	13,604.54	8,565.00	89.29	86.04	31.66	-4,740.78	-373.36	2,286.32	2,203.23	83.09	27.517		
15,800.00	10,511.00	13,704.54	8,565.00	90.78	87.59	31.66	-4,840.77	-372.38	2,286.32	2,201.84	84.48	27.062		
15,900.00	10,511.00	13,804.54	8,565.00	92.27	89.13	31.66	-4,940.77	-371.39	2,286.32	2,200.43	85.88	26.621		
16,000.00	10,511.00	13,904.54	8,565.00	93.77	90.68	31.66	-5,040.76	-370.41	2,286.31	2,199.03	87.29	26.193		
16,100.00	10,511.00	14,004.54	8,565.00	95.28	92.24	31.66	-5,140.76	-369.43	2,286.31	2,197.62	88.69	25.778		
16,200.00	10,511.00	14,104.54	8,565.00	96.79	93.80	31.66	-5,240.76	-368.45	2,286.31	2,196.20	90.10	25.375		
16,300.00	10,511.00	14,204.54	8,565.00	98.31	95.36	31.66	-5,340.75	-367.47	2,286.30	2,194.79	91.51	24.983		
16,400.00	10,511.00	14,304.54	8,565.00	99.83	96.92	31.66	-5,440.75	-366.49	2,286.30	2,193.37	92.93	24.603		
16,500.00	10,511.00	14,404.54	8,565.00	101.35	98.49	31.66	-5,540.74	-365.50	2,286.30	2,191.95	94.35	24.233		
16,600.00	10,511.00	14,504.54	8,565.00	102.88	100.06	31.66	-5,640.74	-364.52	2,286.29	2,190.53	95.77	23.874		
16,700.00	10,511.00	14,604.54	8,565.00	104.41	101.63	31.66	-5,740.73	-363.54	2,286.29	2,189.10	97.19	23.525		
16,800.00	10,511.00	14,704.54	8,565.00	105.94	103.20	31.66	-5,840.73	-362.56	2,286.29	2,187.68	98.61	23.185		
16,900.00	10,511.00	14,804.54	8,565.00	107.48	104.78	31.66	-5,940.72	-361.58	2,286.28	2,186.25	100.04	22.854		
17,000.00	10,511.00	14,904.54	8,565.00	109.02	106.36	31.66	-6,040.72	-360.59	2,286.28	2,184.81	101.47	22.532		
17,100.00	10,511.00	15,004.54	8,565.00	110.57	107.94	31.66	-6,140.71	-359.61	2,286.28	2,183.38	102.89	22.220		
17,200.00	10,511.00	15,104.54	8,565.00	112.12	109.52	31.66	-6,240.71	-358.63	2,286.27	2,181.95	104.33	21.915		
17,300.00	10,511.00	15,204.54	8,565.00	113.67	111.11	31.66	-6,340.70	-357.65	2,286.27	2,180.51	105.76	21.618		
17,400.00	10,511.00	15,304.54	8,565.00	115.22	112.70	31.66	-6,440.70	-356.67	2,286.27	2,179.07	107.19	21.328		
17,500.00	10,511.00	15,404.54	8,565.00	116.78	114.28	31.66	-6,540.69	-355.69	2,286.26	2,177.64	108.63	21.047		
17,600.00	10,511.00	15,504.54	8,565.00	118.34	115.87	31.66	-6,640.69	-354.70	2,286.26	2,176.20	110.06	20.772		
17,700.00	10,511.00	15,604.54	8,565.00	119.90	117.47	31.66	-6,740.68	-353.72	2,286.26	2,174.76	111.50	20.504		
17,800.00	10,511.00	15,704.54	8,565.00	121.46	119.06	31.66	-6,840.68	-352.74	2,286.25	2,173.31	112.94	20.243		
17,900.00	10,511.00	15,804.54	8,565.00	123.03	120.66	31.66	-6,940.67	-351.76	2,286.25	2,171.87	114.38	19.987		
18,000.00	10,511.00	15,904.54	8,565.00	124.59	122.25	31.66	-7,040.67	-350.78	2,286.25	2,170.42	115.82	19.739		
18,100.00	10,511.00	16,004.54	8,565.00	126.16	123.85	31.66	-7,140.66	-349.79	2,286.25	2,168.98	117.27	19.496		
18,200.00	10,511.00	16,104.54	8,565.00	127.74	125.45	31.66	-7,240.66	-348.81	2,286.24	2,167.53	118.71	19.259		
18,300.00	10,511.00	16,204.54	8,565.00	129.31	127.05	31.66	-7,340.65	-347.83	2,286.24	2,166.08	120.15	19.027		
18,400.00	10,511.00	16,304.54	8,565.00	130.89	128.65	31.66	-7,440.65	-346.85	2,286.24	2,164.64	121.60	18.801		
18,500.00	10,511.00	16,404.54	8,565.00	132.46	130.26	31.66	-7,540.64	-345.87	2,286.23	2,163.19	123.04	18.581		
18,600.00	10,511.00	16,504.54	8,565.00	134.04	131.86	31.66	-7,640.64	-344.89	2,286.23	2,161.74	124.49	18.365		
18,700.00	10,511.00	16,604.54	8,565.00	135.63	133.47	31.66	-7,740.63	-343.90	2,286.23	2,160.29	125.94	18.153		
18,800.00	10,511.00	16,704.54	8,565.00	137.21	135.08	31.66	-7,840.63	-342.92	2,286.22	2,158.84	127.39	17.947		
18,900.00	10,511.00	16,804.54	8,565.00	138.79	136.68	31.66	-7,940.62	-341.94	2,286.22	2,157.39	128.83	17.745		
19,000.00	10,511.00	16,904.54	8,565.00	140.38	138.29	31.66	-8,040.62	-340.96	2,286.22	2,155.93	130.28	17.548		

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 502H
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 502H	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		
19,100.00	10,511.00	17,004.54	8,565.00	141.97	139.90	31.66	-8,140.62	-339.98	2,286.21	2,154.48	131.73	17.355		
19,200.00	10,511.00	17,104.54	8,565.00	143.56	141.51	31.66	-8,240.61	-339.00	2,286.21	2,153.03	133.18	17.166		
19,300.00	10,511.00	17,204.54	8,565.00	145.15	143.13	31.66	-8,340.61	-338.01	2,286.21	2,151.58	134.63	16.981		
19,400.00	10,511.00	17,304.54	8,565.00	146.74	144.74	31.66	-8,440.60	-337.03	2,286.20	2,150.12	136.08	16.800		
19,500.00	10,511.00	17,404.54	8,565.00	148.33	146.35	31.66	-8,540.60	-336.05	2,286.20	2,148.67	137.53	16.623		
19,600.00	10,511.00	17,504.54	8,565.00	149.93	147.97	31.66	-8,640.59	-335.07	2,286.20	2,147.21	138.99	16.449		
19,700.00	10,511.00	17,604.54	8,565.00	151.52	149.58	31.66	-8,740.59	-334.09	2,286.19	2,145.76	140.44	16.279		
19,800.00	10,511.00	17,704.54	8,565.00	153.12	151.20	31.66	-8,840.58	-333.10	2,286.19	2,144.30	141.89	16.113		
19,900.00	10,511.00	17,804.54	8,565.00	154.72	152.82	31.66	-8,940.58	-332.12	2,286.19	2,142.85	143.34	15.949		
20,000.00	10,511.00	17,904.54	8,565.00	156.32	154.43	31.66	-9,040.57	-331.14	2,286.18	2,141.39	144.79	15.789		
20,100.00	10,511.00	18,004.54	8,565.00	157.92	156.05	31.66	-9,140.57	-330.16	2,286.18	2,139.94	146.24	15.633		
20,200.00	10,511.00	18,104.54	8,565.00	159.52	157.67	31.66	-9,240.56	-329.18	2,286.18	2,138.48	147.70	15.479		
20,300.00	10,511.00	18,204.54	8,565.00	161.12	159.29	31.66	-9,340.56	-328.20	2,286.17	2,137.02	149.15	15.328		
20,400.00	10,511.00	18,304.54	8,565.00	162.72	160.91	31.66	-9,440.55	-327.21	2,286.17	2,135.57	150.60	15.180		
20,500.00	10,511.00	18,404.54	8,565.00	164.33	162.53	31.66	-9,540.55	-326.23	2,286.17	2,134.11	152.06	15.035		
20,600.00	10,511.00	18,504.54	8,565.00	165.93	164.15	31.66	-9,640.54	-325.25	2,286.16	2,132.66	153.51	14.893		
20,700.00	10,511.00	18,604.54	8,565.00	167.54	165.77	31.66	-9,740.54	-324.27	2,286.16	2,131.20	154.96	14.753		
20,730.26	10,511.00	18,634.72	8,565.00	168.02	166.26	31.66	-9,770.72	-323.97	2,286.16	2,130.76	155.40	14.711		
20,800.00	10,511.00	18,634.72	8,565.00	169.14	166.26	31.66	-9,770.72	-323.97	2,287.22	2,131.28	155.94	14.667		
20,900.00	10,511.00	18,634.72	8,565.00	170.75	166.26	31.66	-9,770.72	-323.97	2,292.45	2,135.96	156.49	14.649		
21,000.00	10,511.00	18,634.72	8,565.00	172.36	166.26	31.66	-9,770.72	-323.97	2,302.02	2,145.26	156.76	14.685		
21,100.00	10,511.00	18,634.72	8,565.00	173.97	166.26	31.66	-9,770.72	-323.97	2,315.87	2,159.11	156.76	14.773		
21,200.00	10,511.00	18,634.72	8,565.00	175.58	166.26	31.66	-9,770.72	-323.97	2,333.92	2,177.42	156.50	14.913		
21,300.00	10,511.00	18,634.72	8,565.00	177.19	166.26	31.66	-9,770.72	-323.97	2,356.09	2,200.10	155.99	15.104		
21,400.00	10,511.00	18,634.72	8,565.00	178.80	166.26	31.66	-9,770.72	-323.97	2,382.24	2,226.99	155.25	15.345		
21,500.00	10,511.00	18,634.72	8,565.00	180.41	166.26	31.66	-9,770.72	-323.97	2,412.27	2,257.96	154.31	15.633		
21,600.00	10,511.00	18,634.72	8,565.00	182.03	166.26	31.66	-9,770.72	-323.97	2,446.01	2,292.83	153.18	15.968		
21,700.00	10,511.00	18,634.72	8,565.00	183.64	166.26	31.66	-9,770.72	-323.97	2,483.33	2,331.44	151.89	16.350		
21,800.00	10,511.00	18,634.72	8,565.00	185.25	166.26	31.66	-9,770.72	-323.97	2,524.06	2,373.61	150.45	16.776		
21,900.00	10,511.00	18,634.72	8,565.00	186.87	166.26	31.66	-9,770.72	-323.97	2,568.04	2,419.13	148.91	17.246		
22,000.00	10,511.00	18,634.72	8,565.00	188.49	166.26	31.66	-9,770.72	-323.97	2,615.11	2,467.84	147.27	17.758		
22,046.30	10,511.00	18,634.72	8,565.00	189.23	166.26	31.66	-9,770.72	-323.97	2,637.90	2,491.42	146.48	18.009		

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 502H
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 502H	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 102H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	89.46	0.23	25.09	25.09					
100.00	100.00	100.00	100.00	0.13	0.13	89.46	0.23	25.09	25.09	24.91	0.18	141.408		
200.00	200.00	200.00	200.00	0.48	0.48	89.46	0.23	25.09	25.09	24.41	0.68	36.661		
300.00	300.00	300.00	300.00	0.84	0.84	89.46	0.23	25.09	25.09	23.90	1.19	21.061		
400.00	400.00	400.00	400.00	1.20	1.20	89.46	0.23	25.09	25.09	23.39	1.70	14.774		
500.00	500.00	500.00	500.00	1.56	1.56	89.46	0.23	25.09	25.09	22.89	2.21	11.378		
600.00	600.00	600.00	600.00	1.92	1.92	89.46	0.23	25.09	25.09	22.38	2.71	9.251		
700.00	700.00	700.00	700.00	2.28	2.28	89.46	0.23	25.09	25.09	21.87	3.22	7.794		
800.00	800.00	800.00	800.00	2.63	2.63	89.46	0.23	25.09	25.09	21.36	3.73	6.734		
900.00	900.00	900.00	900.00	2.99	2.99	89.46	0.23	25.09	25.09	20.86	4.23	5.927		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	89.46	0.23	25.09	25.09	20.35	4.74	5.293		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	89.46	0.23	25.09	25.09	19.84	5.25	4.782		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	89.46	0.23	25.09	25.09	19.34	5.75	4.361		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	89.46	0.23	25.09	25.09	18.83	6.26	4.008		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	89.46	0.23	25.09	25.09	18.32	6.77	3.707		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	89.46	0.23	25.09	25.09	17.82	7.27	3.449		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	89.46	0.23	25.09	25.09	17.31	7.78	3.224		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	89.46	0.23	25.09	25.09	16.80	8.29	3.027		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	89.46	0.23	25.09	25.09	16.29	8.80	2.853		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	89.46	0.23	25.09	25.09	15.79	9.30	2.697		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	89.46	0.23	25.09	25.09	15.28	9.81	2.558		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	89.46	0.23	25.09	25.09	14.77	10.32	2.432		
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	89.46	0.23	25.09	25.09	14.27	10.82	2.318 CC, ES		
2,300.00	2,300.00	2,299.44	2,299.43	8.01	8.01	87.87	0.97	26.15	26.18	14.85	11.32	2.312		
2,400.00	2,399.99	2,398.80	2,398.71	8.37	8.36	34.38	3.18	29.34	28.45	16.64	11.81	2.409		
2,500.00	2,499.91	2,498.09	2,497.78	8.72	8.71	32.46	6.86	34.64	30.86	18.58	12.28	2.513		
2,600.00	2,599.69	2,597.31	2,596.60	9.07	9.06	31.14	12.00	42.06	33.38	20.63	12.75	2.619		
2,700.00	2,699.27	2,696.47	2,695.07	9.43	9.42	30.29	18.59	51.57	36.00	22.79	13.21	2.725		
2,800.00	2,798.57	2,795.56	2,793.15	9.79	9.78	29.84	26.64	63.17	38.69	25.03	13.66	2.832		
2,900.00	2,897.54	2,894.58	2,890.76	10.15	10.15	29.70	36.12	76.84	41.45	27.34	14.10	2.939		
3,000.00	2,996.09	2,993.96	2,988.30	10.53	10.52	29.94	46.96	92.48	44.08	29.51	14.57	3.025		
3,100.00	3,094.16	3,093.95	3,086.35	10.91	10.91	31.58	58.12	108.58	44.88	29.79	15.09	2.974		
3,135.41	3,128.76	3,129.34	3,121.06	11.04	11.05	32.59	62.08	114.28	44.65	29.37	15.28	2.922		
3,200.00	3,191.82	3,193.91	3,184.37	11.30	11.31	34.66	69.28	124.68	44.00	28.38	15.62	2.816		
3,300.00	3,289.44	3,293.88	3,282.40	11.70	11.71	37.98	80.45	140.78	43.12	26.95	16.17	2.667		
3,400.00	3,387.05	3,393.84	3,380.43	12.10	12.12	41.43	91.61	156.88	42.39	25.66	16.73	2.534		
3,500.00	3,484.67	3,493.81	3,478.45	12.52	12.53	44.98	102.77	172.97	41.82	24.52	17.30	2.417		
3,600.00	3,582.29	3,593.77	3,576.48	12.94	12.94	48.62	113.93	189.07	41.41	23.52	17.89	2.315		
3,700.00	3,679.91	3,693.73	3,674.51	13.36	13.36	52.32	125.09	205.17	41.17	22.68	18.50	2.226		
3,786.79	3,764.63	3,780.49	3,759.58	13.73	13.73	55.55	134.78	219.14	41.11	22.07	19.03	2.160		
3,800.00	3,777.52	3,793.70	3,772.53	13.79	13.78	56.04	136.25	221.27	41.11	21.99	19.12	2.150		
3,900.00	3,875.14	3,893.66	3,870.56	14.22	14.21	59.76	147.41	237.36	41.22	21.47	19.75	2.087		
4,000.00	3,972.76	3,993.63	3,968.58	14.66	14.64	63.44	158.57	253.46	41.50	21.10	20.40	2.034		
4,100.00	4,070.38	4,093.59	4,066.61	15.10	15.07	67.06	169.73	269.56	41.95	20.90	21.06	1.992		
4,200.00	4,168.00	4,193.55	4,164.64	15.55	15.50	70.59	180.89	285.65	42.57	20.85	21.72	1.960		
4,300.00	4,265.61	4,293.52	4,262.66	15.99	15.94	74.00	192.05	301.75	43.34	20.95	22.39	1.936		
4,400.00	4,363.23	4,393.48	4,360.69	16.44	16.38	77.29	203.21	317.85	44.26	21.20	23.06	1.919		
4,500.00	4,460.85	4,493.45	4,458.72	16.90	16.82	80.43	214.38	333.95	45.32	21.59	23.73	1.910		
4,600.00	4,558.47	4,593.41	4,556.74	17.35	17.26	83.42	225.54	350.04	46.51	22.11	24.40	1.906 SF		
4,700.00	4,656.08	4,693.38	4,654.77	17.81	17.71	86.25	236.70	366.14	47.81	22.75	25.07	1.908		
4,800.00	4,753.70	4,793.34	4,752.80	18.27	18.15	88.93	247.86	382.24	49.23	23.51	25.73	1.914		
4,900.00	4,851.32	4,893.30	4,850.82	18.73	18.60	91.45	259.02	398.34	50.76	24.37	26.38	1.924		

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 502H
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 502H	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	4,948.94	4,993.27	4,948.85	19.19	19.04	93.82	270.18	414.43	52.37	25.33	27.04	1.937		
5,100.00	5,046.56	5,093.23	5,046.87	19.66	19.49	96.05	281.34	430.53	54.07	26.38	27.68	1.953		
5,200.00	5,144.17	5,193.20	5,144.90	20.13	19.94	98.13	292.50	446.63	55.84	27.52	28.32	1.972		
5,300.00	5,241.79	5,293.16	5,242.93	20.59	20.40	100.09	303.66	462.73	57.68	28.73	28.96	1.992		
5,400.00	5,339.41	5,393.13	5,340.95	21.06	20.85	101.92	314.82	478.82	59.59	30.00	29.59	2.014		
5,500.00	5,437.03	5,493.09	5,438.98	21.53	21.30	103.64	325.98	494.92	61.56	31.34	30.22	2.037		
5,600.00	5,534.65	5,593.05	5,537.01	22.01	21.76	105.25	337.14	511.02	63.57	32.73	30.84	2.061		
5,700.00	5,632.26	5,693.02	5,635.03	22.48	22.21	106.76	348.31	527.11	65.63	34.17	31.46	2.086		
5,800.00	5,729.88	5,792.98	5,733.06	22.95	22.67	108.17	359.47	543.21	67.74	35.66	32.08	2.112		
5,900.00	5,827.50	5,892.95	5,831.09	23.43	23.12	109.51	370.63	559.31	69.88	37.19	32.69	2.138		
6,000.00	5,925.12	5,992.91	5,929.11	23.90	23.58	110.76	381.79	575.41	72.06	38.76	33.31	2.164		
6,100.00	6,022.73	6,092.88	6,027.14	24.38	24.04	111.93	392.95	591.50	74.28	40.36	33.92	2.190		
6,200.00	6,120.35	6,192.84	6,125.16	24.85	24.50	113.04	404.11	607.60	76.52	42.00	34.52	2.216		
6,300.00	6,217.97	6,292.80	6,223.19	25.33	24.96	114.09	415.27	623.70	78.79	43.66	35.13	2.243		
6,400.00	6,315.59	6,392.77	6,321.22	25.81	25.42	115.07	426.43	639.80	81.08	45.35	35.73	2.269		
6,500.00	6,413.21	6,492.73	6,419.24	26.29	25.88	116.01	437.59	655.89	83.40	47.06	36.34	2.295		
6,600.00	6,510.82	6,592.70	6,517.27	26.77	26.34	116.89	448.75	671.99	85.73	48.79	36.94	2.321		
6,700.00	6,608.44	6,692.66	6,615.30	27.25	26.80	117.72	459.91	688.09	88.09	50.55	37.54	2.347		
6,719.26	6,627.24	6,711.91	6,634.17	27.34	26.89	117.88	462.06	691.19	88.55	50.89	37.66	2.351		
6,800.00	6,706.24	6,792.64	6,713.33	27.73	27.26	118.05	471.08	704.19	90.06	51.90	38.16	2.360		
6,900.00	6,804.54	6,892.27	6,811.08	28.18	27.72	117.05	482.10	720.09	90.91	52.06	38.85	2.340		
7,000.00	6,903.29	6,991.37	6,908.66	28.61	28.16	115.81	491.90	734.22	91.41	51.89	39.52	2.313		
7,100.00	7,002.41	7,090.50	7,006.70	29.02	28.58	114.61	500.26	746.28	91.76	51.60	40.17	2.285		
7,200.00	7,101.85	7,189.68	7,105.13	29.41	28.98	113.46	507.17	756.25	91.96	51.19	40.78	2.255		
7,300.00	7,201.53	7,288.91	7,203.89	29.78	29.36	112.34	512.63	764.12	92.00	50.65	41.35	2.225		
7,400.00	7,301.38	7,388.18	7,302.91	30.13	29.72	111.24	516.62	769.87	91.88	49.99	41.90	2.193		
7,500.00	7,401.34	7,487.49	7,402.13	30.46	30.06	110.17	519.14	773.52	91.60	49.19	42.41	2.160		
7,554.66	7,456.00	7,541.80	7,456.42	30.63	30.24	160.43	519.90	774.61	91.38	48.70	42.68	2.141		
7,600.00	7,501.34	7,586.86	7,501.47	30.77	30.39	160.11	520.20	775.04	91.24	48.35	42.89	2.127		
7,642.54	7,543.87	7,629.26	7,543.87	30.90	30.52	160.07	520.23	775.09	91.23	48.15	43.08	2.118		
7,700.00	7,601.34	7,686.73	7,601.34	31.07	30.70	160.07	520.23	775.09	91.23	47.89	43.33	2.105		
7,800.00	7,701.34	7,786.73	7,701.34	31.38	31.01	160.07	520.23	775.09	91.23	47.45	43.78	2.084		
7,900.00	7,801.34	7,886.73	7,801.34	31.69	31.32	160.07	520.23	775.09	91.23	47.01	44.22	2.063		
8,000.00	7,901.34	7,986.73	7,901.34	32.00	31.64	160.07	520.23	775.09	91.23	46.56	44.67	2.042		
8,100.00	8,001.34	8,086.73	8,001.34	32.32	31.95	160.07	520.23	775.09	91.23	46.11	45.11	2.022		
8,101.49	8,002.82	8,088.21	8,002.82	32.32	31.96	160.07	520.23	775.09	91.23	46.11	45.12	2.022		
8,200.00	8,101.34	8,182.62	8,097.22	32.63	32.25	160.21	519.59	775.10	91.93	46.54	45.39	2.025		
8,300.00	8,201.34	8,268.10	8,181.99	32.94	32.46	162.14	509.19	775.20	103.54	59.06	44.48	2.328		
8,400.00	8,301.34	8,350.00	8,260.89	33.26	32.63	165.15	487.51	775.41	129.08	86.15	42.93	3.007		
8,500.00	8,401.34	8,422.32	8,327.38	33.57	32.73	167.82	459.19	775.69	167.41	126.64	40.77	4.106		
8,600.00	8,501.34	8,487.46	8,383.79	33.89	32.80	169.88	426.70	776.01	216.77	178.02	38.75	5.594		
8,700.00	8,601.34	8,550.00	8,434.16	34.20	32.84	171.49	389.66	776.37	275.32	237.97	37.35	7.371		
8,800.00	8,701.34	8,600.00	8,471.33	34.52	32.85	172.54	356.25	776.70	341.10	305.47	35.63	9.574		
8,900.00	8,801.34	8,635.19	8,495.67	34.84	32.85	173.17	330.85	776.94	412.59	378.96	33.63	12.269		
9,000.00	8,901.34	8,671.37	8,519.03	35.16	32.84	173.74	303.23	777.21	488.81	456.46	32.35	15.110		
9,100.00	9,001.34	8,700.00	8,536.25	35.48	32.84	174.14	280.35	777.44	568.75	537.59	31.16	18.252		
9,200.00	9,101.34	8,729.63	8,552.84	35.80	32.82	174.51	255.81	777.68	651.63	621.24	30.38	21.447		
9,300.00	9,201.34	8,750.00	8,563.50	36.12	32.81	174.74	238.46	777.85	736.93	707.39	29.55	24.941		
9,400.00	9,301.34	8,773.86	8,575.19	36.45	32.80	174.99	217.66	778.05	824.17	795.11	29.06	28.361		
9,500.00	9,401.34	8,800.00	8,587.00	36.77	32.78	175.24	194.34	778.28	913.12	884.33	28.79	31.720		
9,600.00	9,501.34	8,800.00	8,587.00	37.09	32.78	175.24	194.34	778.28	1,003.32	975.29	28.03	35.793		
9,700.00	9,601.34	8,822.57	8,596.33	37.42	32.76	175.44	173.79	778.48	1,094.55	1,066.62	27.93	39.195		

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 502H
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 502H	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 102H - 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				
9,800.00	9,701.34	8,850.00	8,606.56	37.74	32.74	175.66	148.35	778.73	1,187.09	1,159.12	27.97	42.439				
9,900.00	9,801.34	8,850.00	8,606.56	38.07	32.74	175.66	148.35	778.73	1,279.90	1,252.29	27.61	46.361				
10,000.00	9,901.34	8,850.00	8,606.56	38.39	32.74	175.66	148.35	778.73	1,373.72	1,346.36	27.36	50.216				
10,036.70	9,938.04	8,850.00	8,606.56	38.51	32.74	175.66	148.35	778.73	1,408.36	1,381.07	27.29	51.612				
10,050.00	9,951.34	8,850.00	8,606.56	38.55	32.74	-0.97	148.35	778.73	1,420.89	1,393.63	27.26	52.118				
10,100.00	10,001.21	8,850.00	8,606.56	38.69	32.74	-0.79	148.35	778.73	1,467.14	1,439.99	27.15	54.040				
10,150.00	10,050.60	8,874.29	8,614.60	38.82	32.72	-0.56	125.43	778.96	1,511.17	1,483.86	27.30	55.348				
10,200.00	10,099.14	8,881.41	8,616.78	38.93	32.71	-0.46	118.65	779.02	1,553.73	1,526.52	27.21	57.094				
10,250.00	10,146.45	8,900.00	8,622.05	39.02	32.70	-0.35	100.82	779.20	1,594.38	1,567.15	27.23	58.555				
10,300.00	10,192.17	8,900.00	8,622.05	39.10	32.70	-0.32	100.82	779.20	1,632.50	1,605.48	27.03	60.407				
10,350.00	10,235.96	8,900.00	8,622.05	39.16	32.70	-0.29	100.82	779.20	1,668.39	1,641.57	26.82	62.202				
10,400.00	10,277.48	8,900.00	8,622.05	39.21	32.70	-0.27	100.82	779.20	1,701.92	1,675.29	26.63	63.920				
10,450.00	10,316.42	8,925.95	8,628.43	39.23	32.67	-0.20	75.68	779.44	1,732.19	1,705.54	26.65	65.009				
10,500.00	10,352.48	8,950.00	8,633.33	39.25	32.66	-0.14	52.13	779.67	1,760.15	1,733.51	26.64	66.080				
10,550.00	10,385.38	8,950.00	8,633.33	39.25	32.66	-0.14	52.13	779.67	1,784.75	1,758.30	26.46	67.460				
10,600.00	10,414.88	8,950.00	8,633.33	39.23	32.66	-0.13	52.13	779.67	1,806.59	1,780.28	26.31	68.671				
10,650.00	10,440.75	8,950.00	8,633.33	39.21	32.66	-0.13	52.13	779.67	1,825.60	1,799.41	26.19	69.706				
10,700.00	10,462.80	8,980.08	8,638.05	39.18	32.63	-0.07	22.43	779.96	1,840.69	1,814.46	26.23	70.163				
10,750.00	10,480.85	9,000.00	8,640.32	39.13	32.62	-0.04	2.64	780.16	1,853.03	1,826.79	26.24	70.619				
10,800.00	10,494.77	9,000.00	8,640.32	39.09	32.62	-0.04	2.64	780.16	1,861.94	1,835.73	26.21	71.042				
10,850.00	10,504.45	9,000.00	8,640.32	39.04	32.62	-0.04	2.64	780.16	1,867.85	1,841.63	26.22	71.231				
10,900.00	10,509.82	9,026.48	8,642.27	39.00	32.60	0.00	-23.77	780.42	1,869.95	1,843.63	26.32	71.054				
10,936.70	10,511.00	9,050.00	8,642.97	38.97	32.59	0.03	-47.27	780.65	1,869.80	1,843.40	26.40	70.829				
11,000.00	10,511.00	9,050.00	8,642.97	38.94	32.59	0.00	-47.27	780.65	1,868.11	1,841.56	26.55	70.351				
11,026.10	10,511.00	9,058.05	8,643.00	38.92	32.59	0.00	-55.32	780.73	1,868.00	1,841.36	26.64	70.115				
11,073.75	10,511.00	9,105.70	8,643.00	38.93	32.59	0.01	-102.97	781.19	1,868.00	1,841.21	26.79	69.721				
11,100.00	10,511.00	9,131.95	8,643.00	38.94	32.59	0.01	-129.22	781.45	1,868.00	1,841.12	26.88	69.487				
11,200.00	10,511.00	9,231.95	8,643.00	39.03	32.69	0.01	-229.21	782.43	1,868.00	1,840.75	27.25	68.561				
11,300.00	10,511.00	9,331.95	8,643.00	39.25	32.94	0.01	-329.21	783.41	1,868.00	1,840.35	27.65	67.561				
11,400.00	10,511.00	9,431.95	8,643.00	39.60	33.32	0.01	-429.20	784.39	1,868.00	1,839.91	28.09	66.501				
11,500.00	10,511.00	9,531.95	8,643.00	40.03	33.81	0.01	-529.20	785.37	1,868.00	1,839.43	28.57	65.389				
11,600.00	10,511.00	9,631.95	8,643.00	40.53	34.39	0.01	-629.19	786.35	1,868.00	1,838.92	29.08	64.238				
11,700.00	10,511.00	9,731.95	8,643.00	41.10	35.04	0.01	-729.19	787.33	1,868.00	1,838.38	29.62	63.057				
11,800.00	10,511.00	9,831.95	8,643.00	41.73	35.75	0.01	-829.19	788.31	1,868.00	1,837.80	30.20	61.854				
11,900.00	10,511.00	9,931.95	8,643.00	42.41	36.52	0.01	-929.18	789.28	1,868.00	1,837.20	30.80	60.640				
12,000.00	10,511.00	10,031.95	8,643.00	43.14	37.36	0.01	-1,029.18	790.26	1,868.00	1,836.56	31.44	59.419				
12,100.00	10,511.00	10,131.95	8,643.00	43.93	38.24	0.01	-1,129.17	791.24	1,868.00	1,835.90	32.10	58.200				
12,200.00	10,511.00	10,231.95	8,643.00	44.75	39.17	0.01	-1,229.17	792.22	1,868.00	1,835.22	32.78	56.988				
12,300.00	10,511.00	10,331.95	8,643.00	45.62	40.14	0.01	-1,329.16	793.20	1,868.00	1,834.52	33.48	55.786				
12,400.00	10,511.00	10,431.95	8,643.00	46.53	41.16	0.01	-1,429.16	794.18	1,868.00	1,833.79	34.21	54.601				
12,500.00	10,511.00	10,531.95	8,643.00	47.48	42.22	0.01	-1,529.15	795.16	1,868.00	1,833.04	34.96	53.433				
12,600.00	10,511.00	10,631.95	8,643.00	48.47	43.31	0.01	-1,629.15	796.14	1,868.00	1,832.27	35.73	52.287				
12,700.00	10,511.00	10,731.95	8,643.00	49.49	44.44	0.01	-1,729.14	797.12	1,868.00	1,831.49	36.51	51.165				
12,800.00	10,511.00	10,831.95	8,643.00	50.55	45.60	0.01	-1,829.14	798.10	1,868.00	1,830.69	37.31	50.067				
12,900.00	10,511.00	10,931.95	8,643.00	51.63	46.79	0.01	-1,929.13	799.08	1,868.00	1,829.87	38.13	48.996				
13,000.00	10,511.00	11,031.95	8,643.00	52.75	48.00	0.01	-2,029.13	800.06	1,868.00	1,829.04	38.96	47.952				
13,100.00	10,511.00	11,131.95	8,643.00	53.89	49.24	0.01	-2,129.12	801.04	1,868.00	1,828.20	39.80	46.935				
13,200.00	10,511.00	11,231.95	8,643.00	55.05	50.50	0.01	-2,229.12	802.02	1,868.00	1,827.34	40.66	45.946				
13,300.00	10,511.00	11,331.95	8,643.00	56.24	51.79	0.01	-2,329.11	803.00	1,868.00	1,826.48	41.53	44.985				
13,400.00	10,511.00	11,431.95	8,643.00	57.46	53.09	0.01	-2,429.11	803.97	1,868.00	1,825.60	42.41	44.051				
13,500.00	10,511.00	11,531.95	8,643.00	58.69	54.41	0.01	-2,529.10	804.95	1,868.00	1,824.70	43.30	43.145				
13,600.00	10,511.00	11,631.95	8,643.00	59.94	55.75	0.01	-2,629.10	805.93	1,868.00	1,823.80	44.20	42.266				

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 502H
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 502H	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 102H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
13,700.00	10,511.00	11,731.95	8,643.00	61.22	57.11	0.01	-2,729.09	806.91	1,868.00	1,822.89	45.11	41.414		
13,800.00	10,511.00	11,831.95	8,643.00	62.51	58.48	0.01	-2,829.09	807.89	1,868.00	1,821.98	46.02	40.587		
13,900.00	10,511.00	11,931.95	8,643.00	63.81	59.87	0.01	-2,929.08	808.87	1,868.00	1,821.05	46.95	39.786		
14,000.00	10,511.00	12,031.95	8,643.00	65.13	61.26	0.01	-3,029.08	809.85	1,868.00	1,820.11	47.89	39.009		
14,100.00	10,511.00	12,131.95	8,643.00	66.47	62.67	0.01	-3,129.07	810.83	1,868.00	1,819.17	48.83	38.256		
14,200.00	10,511.00	12,231.95	8,643.00	67.82	64.10	0.01	-3,229.07	811.81	1,868.00	1,818.22	49.78	37.527		
14,300.00	10,511.00	12,331.95	8,643.00	69.18	65.53	0.01	-3,329.07	812.79	1,868.00	1,817.27	50.73	36.820		
14,400.00	10,511.00	12,431.95	8,643.00	70.56	66.97	0.01	-3,429.06	813.77	1,868.00	1,816.30	51.70	36.135		
14,500.00	10,511.00	12,531.95	8,643.00	71.95	68.42	0.01	-3,529.06	814.75	1,868.00	1,815.34	52.66	35.471		
14,600.00	10,511.00	12,631.95	8,643.00	73.34	69.88	0.01	-3,629.05	815.73	1,868.00	1,814.36	53.64	34.827		
14,700.00	10,511.00	12,731.95	8,643.00	74.75	71.35	0.01	-3,729.05	816.71	1,868.00	1,813.39	54.61	34.203		
14,800.00	10,511.00	12,831.95	8,643.00	76.17	72.83	0.01	-3,829.04	817.69	1,868.00	1,812.40	55.60	33.599		
14,900.00	10,511.00	12,931.95	8,643.00	77.60	74.31	0.01	-3,929.04	818.66	1,868.00	1,811.41	56.59	33.012		
15,000.00	10,511.00	13,031.95	8,643.00	79.03	75.80	0.01	-4,029.03	819.64	1,868.00	1,810.42	57.58	32.443		
15,100.00	10,511.00	13,131.95	8,643.00	80.47	77.30	0.01	-4,129.03	820.62	1,868.00	1,809.43	58.57	31.891		
15,200.00	10,511.00	13,231.95	8,643.00	81.93	78.80	0.01	-4,229.02	821.60	1,868.00	1,808.42	59.58	31.355		
15,300.00	10,511.00	13,331.95	8,643.00	83.38	80.31	0.01	-4,329.02	822.58	1,868.00	1,807.42	60.58	30.835		
15,400.00	10,511.00	13,431.95	8,643.00	84.85	81.83	0.01	-4,429.01	823.56	1,868.00	1,806.41	61.59	30.331		
15,500.00	10,511.00	13,531.95	8,643.00	86.32	83.35	0.01	-4,529.01	824.54	1,868.00	1,805.40	62.60	29.841		
15,600.00	10,511.00	13,631.95	8,643.00	87.80	84.87	0.01	-4,629.00	825.52	1,868.00	1,804.39	63.61	29.365		
15,700.00	10,511.00	13,731.95	8,643.00	89.29	86.40	0.01	-4,729.00	826.50	1,868.00	1,803.37	64.63	28.902		
15,800.00	10,511.00	13,831.95	8,643.00	90.78	87.93	0.01	-4,828.99	827.48	1,868.00	1,802.35	65.65	28.453		
15,900.00	10,511.00	13,931.95	8,643.00	92.27	89.47	0.01	-4,928.99	828.46	1,868.00	1,801.32	66.68	28.016		
16,000.00	10,511.00	14,031.95	8,643.00	93.77	91.01	0.01	-5,028.98	829.44	1,868.00	1,800.30	67.70	27.591		
16,100.00	10,511.00	14,131.95	8,643.00	95.28	92.56	0.01	-5,128.98	830.42	1,868.00	1,799.27	68.73	27.178		
16,200.00	10,511.00	14,231.95	8,643.00	96.79	94.11	0.01	-5,228.97	831.40	1,868.00	1,798.24	69.76	26.776		
16,300.00	10,511.00	14,331.95	8,643.00	98.31	95.66	0.01	-5,328.97	832.38	1,868.00	1,797.20	70.80	26.385		
16,400.00	10,511.00	14,431.95	8,643.00	99.83	97.21	0.01	-5,428.96	833.35	1,868.00	1,796.17	71.83	26.005		
16,500.00	10,511.00	14,531.95	8,643.00	101.35	98.77	0.01	-5,528.96	834.33	1,868.00	1,795.13	72.87	25.634		
16,600.00	10,511.00	14,631.95	8,643.00	102.88	100.33	0.01	-5,628.96	835.31	1,868.00	1,794.09	73.91	25.273		
16,700.00	10,511.00	14,731.95	8,643.00	104.41	101.90	0.01	-5,728.95	836.29	1,868.00	1,793.05	74.95	24.922		
16,800.00	10,511.00	14,831.95	8,643.00	105.94	103.47	0.01	-5,828.95	837.27	1,868.00	1,792.00	76.00	24.580		
16,900.00	10,511.00	14,931.95	8,643.00	107.48	105.04	0.01	-5,928.94	838.25	1,868.00	1,790.96	77.04	24.246		
17,000.00	10,511.00	15,031.95	8,643.00	109.02	106.61	0.01	-6,028.94	839.23	1,868.00	1,789.91	78.09	23.920		
17,100.00	10,511.00	15,131.95	8,643.00	110.57	108.18	0.01	-6,128.93	840.21	1,868.00	1,788.86	79.14	23.603		
17,200.00	10,511.00	15,231.95	8,643.00	112.12	109.76	0.01	-6,228.93	841.19	1,868.00	1,787.81	80.19	23.294		
17,300.00	10,511.00	15,331.95	8,643.00	113.67	111.34	0.01	-6,328.92	842.17	1,868.00	1,786.75	81.25	22.992		
17,400.00	10,511.00	15,431.95	8,643.00	115.22	112.92	0.01	-6,428.92	843.15	1,868.00	1,785.70	82.30	22.697		
17,500.00	10,511.00	15,531.95	8,643.00	116.78	114.50	0.01	-6,528.91	844.13	1,868.00	1,784.64	83.36	22.410		
17,600.00	10,511.00	15,631.95	8,643.00	118.34	116.09	0.01	-6,628.91	845.11	1,868.00	1,783.59	84.41	22.129		
17,700.00	10,511.00	15,731.95	8,643.00	119.90	117.67	0.00	-6,728.90	846.09	1,868.00	1,782.53	85.47	21.855		
17,800.00	10,511.00	15,831.95	8,643.00	121.46	119.26	0.00	-6,828.90	847.07	1,868.00	1,781.47	86.53	21.588		
17,900.00	10,511.00	15,931.95	8,643.00	123.03	120.85	0.00	-6,928.89	848.04	1,868.00	1,780.41	87.59	21.326		
18,000.00	10,511.00	16,031.95	8,643.00	124.59	122.44	0.00	-7,028.89	849.02	1,868.00	1,779.35	88.65	21.071		
18,100.00	10,511.00	16,131.95	8,643.00	126.16	124.04	0.00	-7,128.88	850.00	1,868.00	1,778.28	89.72	20.821		
18,200.00	10,511.00	16,231.95	8,643.00	127.74	125.63	0.00	-7,228.88	850.98	1,868.00	1,777.22	90.78	20.577		
18,300.00	10,511.00	16,331.95	8,643.00	129.31	127.23	0.00	-7,328.87	851.96	1,868.00	1,776.15	91.85	20.338		
18,400.00	10,511.00	16,431.95	8,643.00	130.89	128.83	0.00	-7,428.87	852.94	1,868.00	1,775.09	92.91	20.105		
18,500.00	10,511.00	16,531.95	8,643.00	132.46	130.42	0.00	-7,528.86	853.92	1,868.00	1,774.02	93.98	19.876		
18,600.00	10,511.00	16,631.95	8,643.00	134.04	132.02	0.00	-7,628.86	854.90	1,868.00	1,772.95	95.05	19.653		
18,700.00	10,511.00	16,731.95	8,643.00	135.63	133.63	0.00	-7,728.85	855.88	1,868.00	1,771.88	96.12	19.434		
18,800.00	10,511.00	16,831.95	8,643.00	137.21	135.23	0.00	-7,828.85	856.86	1,868.00	1,770.81	97.19	19.220		

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 502H
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 502H	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		
18,900.00	10,511.00	16,931.95	8,643.00	138.79	136.83	0.00	-7,928.84	857.84	1,868.00	1,769.74	98.26	19.011		
19,000.00	10,511.00	17,031.95	8,643.00	140.38	138.44	0.00	-8,028.84	858.82	1,868.00	1,768.67	99.33	18.805		
19,100.00	10,511.00	17,131.95	8,643.00	141.97	140.04	0.00	-8,128.84	859.80	1,868.00	1,767.59	100.41	18.604		
19,200.00	10,511.00	17,231.95	8,643.00	143.56	141.65	0.00	-8,228.83	860.78	1,868.00	1,766.52	101.48	18.408		
19,300.00	10,511.00	17,331.95	8,643.00	145.15	143.26	0.00	-8,328.83	861.75	1,868.00	1,765.45	102.55	18.215		
19,400.00	10,511.00	17,431.95	8,643.00	146.74	144.87	0.00	-8,428.82	862.73	1,868.00	1,764.37	103.63	18.026		
19,500.00	10,511.00	17,531.95	8,643.00	148.33	146.48	0.00	-8,528.82	863.71	1,868.00	1,763.29	104.71	17.841		
19,600.00	10,511.00	17,631.95	8,643.00	149.93	148.09	0.00	-8,628.81	864.69	1,868.00	1,762.22	105.78	17.659		
19,700.00	10,511.00	17,731.95	8,643.00	151.52	149.70	0.00	-8,728.81	865.67	1,868.00	1,761.14	106.86	17.481		
19,800.00	10,511.00	17,831.95	8,643.00	153.12	151.31	0.00	-8,828.80	866.65	1,868.00	1,760.06	107.94	17.306		
19,900.00	10,511.00	17,931.95	8,643.00	154.72	152.93	0.00	-8,928.80	867.63	1,868.00	1,758.98	109.02	17.135		
20,000.00	10,511.00	18,031.95	8,643.00	156.32	154.54	0.00	-9,028.79	868.61	1,868.00	1,757.90	110.10	16.967		
20,100.00	10,511.00	18,131.95	8,643.00	157.92	156.16	0.00	-9,128.79	869.59	1,868.00	1,756.82	111.18	16.802		
20,200.00	10,511.00	18,231.95	8,643.00	159.52	157.77	0.00	-9,228.78	870.57	1,868.00	1,755.74	112.26	16.641		
20,300.00	10,511.00	18,331.95	8,643.00	161.12	159.39	0.00	-9,328.78	871.55	1,868.00	1,754.66	113.34	16.482		
20,400.00	10,511.00	18,431.95	8,643.00	162.72	161.00	0.00	-9,428.77	872.53	1,868.00	1,753.58	114.42	16.326		
20,500.00	10,511.00	18,531.95	8,643.00	164.33	162.62	0.00	-9,528.77	873.51	1,868.00	1,752.50	115.50	16.173		
20,600.00	10,511.00	18,631.95	8,643.00	165.93	164.24	0.00	-9,628.76	874.49	1,868.00	1,751.42	116.58	16.023		
20,700.00	10,511.00	18,731.95	8,643.00	167.54	165.86	0.00	-9,728.76	875.47	1,868.00	1,750.33	117.67	15.875		
20,800.00	10,511.00	18,831.95	8,643.00	169.14	167.48	0.00	-9,828.75	876.44	1,868.00	1,749.25	118.75	15.731		
20,900.00	10,511.00	18,931.95	8,643.00	170.75	169.10	0.00	-9,928.75	877.42	1,868.00	1,748.17	119.83	15.588		
21,000.00	10,511.00	19,031.95	8,643.00	172.36	170.72	0.00	-10,028.74	878.40	1,868.00	1,747.08	120.92	15.448		
21,100.00	10,511.00	19,131.95	8,643.00	173.97	172.34	0.00	-10,128.74	879.38	1,868.00	1,746.00	122.00	15.311		
21,200.00	10,511.00	19,231.95	8,643.00	175.58	173.97	0.00	-10,228.73	880.36	1,868.00	1,744.91	123.09	15.176		
21,300.00	10,511.00	19,331.95	8,643.00	177.19	175.59	0.00	-10,328.73	881.34	1,868.00	1,743.83	124.17	15.043		
21,400.00	10,511.00	19,431.95	8,643.00	178.80	177.21	0.00	-10,428.73	882.32	1,868.00	1,742.74	125.26	14.913		
21,500.00	10,511.00	19,531.95	8,643.00	180.41	178.83	0.00	-10,528.72	883.30	1,868.00	1,741.65	126.35	14.785		
21,600.00	10,511.00	19,631.95	8,643.00	182.03	180.46	0.00	-10,628.72	884.28	1,868.00	1,740.57	127.43	14.658		
21,700.00	10,511.00	19,731.95	8,643.00	183.64	182.08	0.00	-10,728.71	885.26	1,868.00	1,739.48	128.52	14.534		
21,800.00	10,511.00	19,831.95	8,643.00	185.25	183.71	0.00	-10,828.71	886.24	1,868.00	1,738.39	129.61	14.412		
21,900.00	10,511.00	19,931.95	8,643.00	186.87	185.33	0.00	-10,928.70	887.22	1,868.00	1,737.30	130.70	14.292		
22,000.00	10,511.00	20,031.95	8,643.00	188.49	186.96	0.00	-11,028.70	888.20	1,868.00	1,736.21	131.79	14.174		
22,030.91	10,511.00	20,062.86	8,643.00	188.98	187.46	0.00	-11,059.60	888.50	1,868.00	1,735.88	132.12	14.138		
22,046.30	10,511.00	20,078.25	8,643.00	189.23	187.71	0.00	-11,074.99	888.65	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 502H
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 502H	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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)			
0.00	0.00	0.00	0.00	0.00	0.00	-90.54	-0.23	-25.09	25.09					
100.00	100.00	100.00	100.00	0.13	0.13	-90.54	-0.23	-25.09	25.09	24.91	0.18	141.408		
200.00	200.00	200.00	200.00	0.48	0.48	-90.54	-0.23	-25.09	25.09	24.41	0.68	36.661		
300.00	300.00	300.00	300.00	0.84	0.84	-90.54	-0.23	-25.09	25.09	23.90	1.19	21.061		
400.00	400.00	400.00	400.00	1.20	1.20	-90.54	-0.23	-25.09	25.09	23.39	1.70	14.774		
500.00	500.00	500.00	500.00	1.56	1.56	-90.54	-0.23	-25.09	25.09	22.89	2.21	11.378		
600.00	600.00	600.00	600.00	1.92	1.92	-90.54	-0.23	-25.09	25.09	22.38	2.71	9.251		
700.00	700.00	700.00	700.00	2.28	2.28	-90.54	-0.23	-25.09	25.09	21.87	3.22	7.794		
800.00	800.00	800.00	800.00	2.63	2.63	-90.54	-0.23	-25.09	25.09	21.36	3.73	6.734		
900.00	900.00	900.00	900.00	2.99	2.99	-90.54	-0.23	-25.09	25.09	20.86	4.23	5.927		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-90.54	-0.23	-25.09	25.09	20.35	4.74	5.293		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-90.54	-0.23	-25.09	25.09	19.84	5.25	4.782		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.54	-0.23	-25.09	25.09	19.34	5.75	4.361		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-90.54	-0.23	-25.09	25.09	18.83	6.26	4.008		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-90.54	-0.23	-25.09	25.09	18.32	6.77	3.707		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.54	-0.23	-25.09	25.09	17.82	7.27	3.449		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.54	-0.23	-25.09	25.09	17.31	7.78	3.224		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.54	-0.23	-25.09	25.09	16.80	8.29	3.027		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.54	-0.23	-25.09	25.09	16.29	8.80	2.853		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.54	-0.23	-25.09	25.09	15.79	9.30	2.697		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.54	-0.23	-25.09	25.09	15.28	9.81	2.558		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	-90.54	-0.23	-25.09	25.09	14.77	10.32	2.432 CC, ES		
2,200.00	2,200.00	2,199.62	2,199.61	7.65	7.65	-88.13	0.84	-25.81	25.83	15.01	10.82	2.387 SF		
2,300.00	2,300.00	2,299.10	2,299.01	8.01	8.00	-81.72	4.07	-27.98	28.29	16.98	11.32	2.500		
2,400.00	2,399.99	2,398.31	2,398.01	8.37	8.36	-125.96	9.43	-31.58	33.77	21.97	11.80	2.861		
2,500.00	2,499.91	2,497.08	2,496.37	8.72	8.71	-122.11	16.89	-36.58	43.00	30.72	12.28	3.502		
2,600.00	2,599.69	2,595.24	2,593.86	9.07	9.07	-120.36	26.39	-42.96	55.73	42.98	12.75	4.372		
2,700.00	2,699.27	2,692.87	2,690.49	9.43	9.42	-119.83	37.86	-50.66	71.82	58.60	13.22	5.432		
2,800.00	2,798.57	2,791.21	2,787.72	9.79	9.79	-120.53	50.13	-58.89	89.90	76.18	13.73	6.550		
2,900.00	2,897.54	2,889.24	2,884.64	10.15	10.16	-122.10	62.36	-67.10	109.36	95.12	14.23	7.683		
3,000.00	2,996.09	2,986.91	2,981.20	10.53	10.53	-124.08	74.55	-75.28	130.31	115.57	14.75	8.837		
3,100.00	3,094.16	3,084.15	3,077.33	10.91	10.90	-126.24	86.68	-83.42	152.91	137.65	15.26	10.019		
3,135.41	3,128.76	3,118.45	3,111.25	11.04	11.03	-127.01	90.96	-86.29	161.33	145.89	15.45	10.445		
3,200.00	3,191.82	3,180.99	3,173.07	11.30	11.28	-128.48	98.76	-91.53	176.96	161.18	15.78	11.213		
3,300.00	3,289.44	3,277.80	3,268.79	11.70	11.65	-130.31	110.84	-99.64	201.32	185.02	16.30	12.349		
3,400.00	3,387.05	3,374.61	3,364.50	12.10	12.03	-131.74	122.92	-107.74	225.84	209.01	16.83	13.421		
3,500.00	3,484.67	3,471.42	3,460.21	12.52	12.41	-132.89	135.00	-115.85	250.46	233.11	17.36	14.431		
3,600.00	3,582.29	3,568.23	3,555.92	12.94	12.80	-133.84	147.08	-123.96	275.16	257.28	17.89	15.385		
3,700.00	3,679.91	3,665.04	3,651.63	13.36	13.18	-134.62	159.15	-132.06	299.92	281.50	18.42	16.284		
3,800.00	3,777.52	3,761.85	3,747.34	13.79	13.57	-135.29	171.23	-140.17	324.73	305.77	18.95	17.133		
3,900.00	3,875.14	3,858.66	3,843.05	14.22	13.96	-135.87	183.31	-148.27	349.57	330.07	19.49	17.935		
4,000.00	3,972.76	3,955.47	3,938.77	14.66	14.35	-136.37	195.39	-156.38	374.43	354.40	20.03	18.693		
4,100.00	4,070.38	4,052.28	4,034.48	15.10	14.74	-136.80	207.47	-164.49	399.33	378.75	20.57	19.411		
4,200.00	4,168.00	4,149.09	4,130.19	15.55	15.13	-137.19	219.55	-172.59	424.24	403.12	21.12	20.091		
4,300.00	4,265.61	4,245.90	4,225.90	15.99	15.52	-137.53	231.63	-180.70	449.16	427.50	21.66	20.736		
4,400.00	4,363.23	4,342.71	4,321.61	16.44	15.92	-137.83	243.70	-188.81	474.10	451.90	22.21	21.348		
4,500.00	4,460.85	4,439.52	4,417.32	16.90	16.31	-138.11	255.78	-196.91	499.06	476.30	22.76	21.930		
4,600.00	4,558.47	4,536.34	4,513.03	17.35	16.71	-138.36	267.86	-205.02	524.02	500.71	23.31	22.483		
4,700.00	4,656.08	4,633.15	4,608.75	17.81	17.11	-138.59	279.94	-213.13	548.99	525.13	23.86	23.010		
4,800.00	4,753.70	4,729.96	4,704.46	18.27	17.51	-138.79	292.02	-221.23	573.96	549.55	24.41	23.513		
4,900.00	4,851.32	4,826.77	4,800.17	18.73	17.90	-138.98	304.10	-229.34	598.95	573.98	24.96	23.992		
5,000.00	4,948.94	4,923.58	4,895.88	19.19	18.30	-139.16	316.18	-237.44	623.94	598.42	25.52	24.449		

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 502H
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 502H	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	5,046.56	5,020.39	4,991.59	19.66	18.70	-139.32	328.25	-245.55	648.93	622.86	26.08	24.887		
5,200.00	5,144.17	5,117.20	5,087.30	20.13	19.10	-139.47	340.33	-253.66	673.93	647.30	26.63	25.305		
5,300.00	5,241.79	5,214.01	5,183.01	20.59	19.51	-139.61	352.41	-261.76	698.93	671.74	27.19	25.705		
5,400.00	5,339.41	5,310.82	5,278.72	21.06	19.91	-139.73	364.49	-269.87	723.94	696.19	27.75	26.089		
5,500.00	5,437.03	5,407.63	5,374.44	21.53	20.31	-139.85	376.57	-277.98	748.95	720.64	28.31	26.457		
5,600.00	5,534.65	5,504.44	5,470.15	22.01	20.71	-139.97	388.65	-286.08	773.96	745.09	28.87	26.810		
5,700.00	5,632.26	5,601.25	5,565.86	22.48	21.12	-140.07	400.72	-294.19	798.98	769.55	29.43	27.148		
5,800.00	5,729.88	5,698.06	5,661.57	22.95	21.52	-140.17	412.80	-302.30	824.00	794.00	29.99	27.474		
5,900.00	5,827.50	5,794.87	5,757.28	23.43	21.92	-140.26	424.88	-310.40	849.02	818.46	30.55	27.787		
6,000.00	5,925.12	5,891.68	5,852.99	23.90	22.33	-140.35	436.96	-318.51	874.04	842.92	31.12	28.089		
6,100.00	6,022.73	5,988.49	5,948.70	24.38	22.73	-140.44	449.04	-326.61	899.06	867.38	31.68	28.379		
6,200.00	6,120.35	6,085.30	6,044.42	24.85	23.14	-140.51	461.12	-334.72	924.09	891.84	32.25	28.658		
6,300.00	6,217.97	6,182.11	6,140.13	25.33	23.54	-140.59	473.20	-342.83	949.11	916.30	32.81	28.928		
6,400.00	6,315.59	6,278.92	6,235.84	25.81	23.95	-140.66	485.27	-350.93	974.14	940.77	33.38	29.188		
6,500.00	6,413.21	6,375.73	6,331.55	26.29	24.35	-140.73	497.35	-359.04	999.17	965.23	33.94	29.438		
6,600.00	6,510.82	6,472.55	6,427.26	26.77	24.76	-140.79	509.43	-367.15	1,024.20	989.70	34.51	29.681		
6,700.00	6,608.44	6,569.36	6,522.97	27.25	25.17	-140.85	521.51	-375.25	1,049.23	1,014.16	35.07	29.915		
6,719.26	6,627.24	6,588.00	6,541.40	27.34	25.25	-140.86	523.84	-376.81	1,054.05	1,018.87	35.18	29.959		
6,800.00	6,706.24	6,666.33	6,618.85	27.73	25.57	-141.07	533.61	-383.37	1,073.63	1,037.99	35.64	30.124		
6,900.00	6,804.54	6,763.77	6,715.18	28.18	25.98	-141.23	545.77	-391.53	1,096.07	1,059.87	36.20	30.276		
7,000.00	6,903.29	6,861.61	6,811.91	28.61	26.40	-141.28	557.97	-399.73	1,116.53	1,079.77	36.76	30.373		
7,100.00	7,002.41	6,976.08	6,925.27	29.02	26.87	-141.25	571.17	-408.59	1,134.40	1,096.99	37.40	30.330		
7,200.00	7,101.85	7,094.42	7,042.90	29.41	27.34	-141.23	581.87	-415.77	1,148.61	1,110.57	38.04	30.198		
7,300.00	7,201.53	7,213.65	7,161.76	29.78	27.78	-141.24	589.59	-420.95	1,159.10	1,120.46	38.64	29.995		
7,400.00	7,301.38	7,333.49	7,281.47	30.13	28.21	-141.27	594.24	-424.06	1,165.85	1,126.63	39.22	29.727		
7,500.00	7,401.34	7,453.66	7,401.61	30.46	28.61	-141.32	595.77	-425.09	1,168.83	1,129.06	39.77	29.393		
7,554.66	7,456.00	7,508.05	7,456.00	30.63	28.79	-90.50	595.77	-425.09	1,169.13	1,129.11	40.02	29.213		
7,600.00	7,501.34	7,553.38	7,501.34	30.77	28.94	-90.50	595.77	-425.09	1,169.13	1,128.90	40.23	29.060		
7,700.00	7,601.34	7,653.38	7,601.34	31.07	29.27	-90.50	595.77	-425.09	1,169.13	1,128.44	40.70	28.727		
7,800.00	7,701.34	7,753.38	7,701.34	31.38	29.60	-90.50	595.77	-425.09	1,169.13	1,127.97	41.16	28.401		
7,900.00	7,801.34	7,853.38	7,801.34	31.69	29.93	-90.50	595.77	-425.09	1,169.13	1,127.50	41.63	28.082		
8,000.00	7,901.34	7,953.38	7,901.34	32.00	30.26	-90.50	595.77	-425.09	1,169.13	1,127.03	42.10	27.769		
8,100.00	8,001.34	8,053.38	8,001.34	32.32	30.59	-90.50	595.77	-425.09	1,169.13	1,126.56	42.57	27.463		
8,200.00	8,101.34	8,153.38	8,101.34	32.63	30.92	-90.50	595.77	-425.09	1,169.13	1,126.09	43.04	27.162		
8,300.00	8,201.34	8,253.38	8,201.34	32.94	31.25	-90.50	595.77	-425.09	1,169.13	1,125.62	43.51	26.868		
8,400.00	8,301.34	8,353.38	8,301.34	33.26	31.58	-90.50	595.77	-425.09	1,169.13	1,125.15	43.99	26.580		
8,500.00	8,401.34	8,453.38	8,401.34	33.57	31.91	-90.50	595.77	-425.09	1,169.13	1,124.67	44.46	26.297		
8,600.00	8,501.34	8,553.38	8,501.34	33.89	32.25	-90.50	595.77	-425.09	1,169.13	1,124.20	44.93	26.019		
8,700.00	8,601.34	8,653.38	8,601.34	34.20	32.58	-90.50	595.77	-425.09	1,169.13	1,123.73	45.41	25.748		
8,800.00	8,701.34	8,753.38	8,701.34	34.52	32.92	-90.50	595.77	-425.09	1,169.13	1,123.25	45.88	25.481		
8,900.00	8,801.34	8,853.38	8,801.34	34.84	33.25	-90.50	595.77	-425.09	1,169.13	1,122.78	46.36	25.219		
9,000.00	8,901.34	8,953.38	8,901.34	35.16	33.59	-90.50	595.77	-425.09	1,169.13	1,122.30	46.84	24.963		
9,100.00	9,001.34	9,053.38	9,001.34	35.48	33.92	-90.50	595.77	-425.09	1,169.13	1,121.82	47.31	24.711		
9,200.00	9,101.34	9,153.38	9,101.34	35.80	34.26	-90.50	595.77	-425.09	1,169.13	1,121.34	47.79	24.464		
9,300.00	9,201.34	9,253.38	9,201.34	36.12	34.60	-90.50	595.77	-425.09	1,169.13	1,120.87	48.27	24.221		
9,400.00	9,301.34	9,353.38	9,301.34	36.45	34.93	-90.50	595.77	-425.09	1,169.13	1,120.39	48.75	23.983		
9,500.00	9,401.34	9,453.38	9,401.34	36.77	35.27	-90.50	595.77	-425.09	1,169.13	1,119.91	49.23	23.750		
9,600.00	9,501.34	9,553.38	9,501.34	37.09	35.61	-90.50	595.77	-425.09	1,169.13	1,119.43	49.71	23.520		
9,700.00	9,601.34	9,653.38	9,601.34	37.42	35.95	-90.50	595.77	-425.09	1,169.13	1,118.95	50.19	23.295		
9,800.00	9,701.34	9,753.38	9,701.34	37.74	36.29	-90.50	595.77	-425.09	1,169.13	1,118.47	50.67	23.074		
9,900.00	9,801.34	9,853.38	9,801.34	38.07	36.63	-90.50	595.77	-425.09	1,169.13	1,117.98	51.15	22.857		
10,000.00	9,901.34	9,953.38	9,901.34	38.39	36.97	-90.50	595.77	-425.09	1,169.13	1,117.50	51.63	22.643		

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 502H
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 502H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,036.70	9,938.04	9,990.09	9,938.04	38.51	37.09	-90.50	595.77	-425.09	1,169.13	1,117.32	51.81	22.566		
10,050.00	9,951.34	10,003.38	9,951.34	38.55	37.14	92.81	595.77	-425.09	1,169.14	1,117.27	51.87	22.539		
10,100.00	10,001.21	10,053.26	10,001.21	38.69	37.31	92.95	595.77	-425.09	1,169.31	1,117.21	52.10	22.444		
10,150.00	10,050.60	10,102.75	10,050.70	38.82	37.47	93.28	595.75	-425.09	1,169.73	1,117.42	52.31	22.360		
10,200.00	10,099.14	10,153.36	10,101.23	38.93	37.62	93.67	593.10	-425.06	1,170.44	1,117.93	52.51	22.291		
10,250.00	10,146.45	10,204.85	10,152.19	39.02	37.75	94.04	585.85	-424.99	1,171.42	1,118.74	52.68	22.236		
10,300.00	10,192.17	10,257.25	10,203.17	39.10	37.87	94.39	573.80	-424.88	1,172.66	1,119.83	52.83	22.197		
10,350.00	10,235.96	10,310.60	10,253.71	39.16	37.98	94.70	556.81	-424.71	1,174.15	1,121.19	52.96	22.171		
10,400.00	10,277.48	10,364.90	10,303.31	39.21	38.07	94.98	534.76	-424.49	1,175.87	1,122.80	53.06	22.159		
10,450.00	10,316.42	10,420.15	10,351.41	39.23	38.14	95.22	507.61	-424.23	1,177.79	1,124.64	53.15	22.160		
10,500.00	10,352.48	10,476.36	10,397.43	39.25	38.19	95.42	475.37	-423.92	1,179.89	1,126.68	53.21	22.172		
10,550.00	10,385.38	10,533.49	10,440.73	39.25	38.23	95.58	438.14	-423.55	1,182.15	1,128.88	53.26	22.194		
10,600.00	10,414.88	10,591.51	10,480.70	39.23	38.26	95.69	396.12	-423.14	1,184.52	1,131.23	53.30	22.224		
10,650.00	10,440.75	10,650.35	10,516.68	39.21	38.26	95.76	349.59	-422.69	1,186.99	1,133.67	53.33	22.259		
10,700.00	10,462.80	10,709.94	10,548.06	39.18	38.26	95.78	298.97	-422.19	1,189.52	1,136.17	53.35	22.297		
10,750.00	10,480.85	10,770.18	10,574.27	39.13	38.24	95.75	244.77	-421.67	1,192.08	1,138.71	53.37	22.335		
10,800.00	10,494.77	10,830.95	10,594.79	39.09	38.22	95.66	187.60	-421.11	1,194.63	1,141.23	53.40	22.371		
10,850.00	10,504.45	10,892.12	10,609.23	39.04	38.19	95.53	128.19	-420.53	1,197.16	1,143.72	53.44	22.403		
10,900.00	10,509.82	10,953.55	10,617.27	39.00	38.17	95.34	67.32	-419.93	1,199.63	1,146.14	53.49	22.428		
10,936.70	10,511.00	10,998.72	10,619.00	38.97	38.16	95.16	22.20	-419.49	1,201.40	1,147.87	53.53	22.443		
11,000.00	10,511.00	11,061.85	10,619.00	38.94	38.17	95.15	-40.93	-418.88	1,203.72	1,150.09	53.63	22.445		
11,073.75	10,511.00	11,135.60	10,619.00	38.93	38.24	95.14	-114.67	-418.16	1,204.66	1,150.87	53.79	22.396		
11,100.00	10,511.00	11,161.85	10,619.00	38.94	38.29	95.14	-140.92	-417.90	1,204.66	1,150.80	53.86	22.367		
11,200.00	10,511.00	11,261.85	10,619.00	39.03	38.53	95.14	-240.91	-416.93	1,204.66	1,150.47	54.19	22.230		
11,300.00	10,511.00	11,361.85	10,619.00	39.25	38.85	95.14	-340.91	-415.95	1,204.66	1,150.05	54.62	22.057		
11,400.00	10,511.00	11,461.85	10,619.00	39.60	39.25	95.14	-440.90	-414.98	1,204.66	1,149.53	55.14	21.848		
11,500.00	10,511.00	11,561.85	10,619.00	40.03	39.71	95.14	-540.90	-414.00	1,204.66	1,148.91	55.75	21.607		
11,600.00	10,511.00	11,661.85	10,619.00	40.53	40.22	95.14	-640.89	-413.03	1,204.66	1,148.21	56.46	21.338		
11,700.00	10,511.00	11,761.85	10,619.00	41.10	40.80	95.14	-740.89	-412.05	1,204.67	1,147.42	57.25	21.043		
11,800.00	10,511.00	11,861.85	10,619.00	41.73	41.43	95.14	-840.88	-411.08	1,204.67	1,146.55	58.12	20.727		
11,900.00	10,511.00	11,961.85	10,619.00	42.41	42.11	95.14	-940.88	-410.10	1,204.67	1,145.60	59.07	20.394		
12,000.00	10,511.00	12,061.85	10,619.00	43.14	42.85	95.14	-1,040.87	-409.13	1,204.67	1,144.57	60.10	20.045		
12,100.00	10,511.00	12,161.85	10,619.00	43.93	43.64	95.14	-1,140.87	-408.15	1,204.67	1,143.47	61.20	19.686		
12,200.00	10,511.00	12,261.85	10,619.00	44.75	44.47	95.14	-1,240.86	-407.17	1,204.67	1,142.31	62.36	19.318		
12,300.00	10,511.00	12,361.85	10,619.00	45.62	45.34	95.14	-1,340.86	-406.20	1,204.67	1,141.08	63.59	18.944		
12,400.00	10,511.00	12,461.85	10,619.00	46.53	46.26	95.14	-1,440.86	-405.22	1,204.67	1,139.79	64.88	18.567		
12,500.00	10,511.00	12,561.85	10,619.00	47.48	47.22	95.14	-1,540.85	-404.25	1,204.67	1,138.44	66.23	18.190		
12,600.00	10,511.00	12,661.85	10,619.00	48.47	48.21	95.14	-1,640.85	-403.27	1,204.67	1,137.04	67.63	17.814		
12,700.00	10,511.00	12,761.85	10,619.00	49.49	49.24	95.14	-1,740.84	-402.30	1,204.67	1,135.59	69.08	17.440		
12,800.00	10,511.00	12,861.85	10,619.00	50.55	50.30	95.14	-1,840.84	-401.32	1,204.67	1,134.10	70.57	17.070		
12,900.00	10,511.00	12,961.85	10,619.00	51.63	51.39	95.14	-1,940.83	-400.35	1,204.67	1,132.55	72.11	16.705		
13,000.00	10,511.00	13,061.85	10,619.00	52.75	52.51	95.14	-2,040.83	-399.37	1,204.67	1,130.97	73.70	16.347		
13,100.00	10,511.00	13,161.85	10,619.00	53.89	53.66	95.14	-2,140.82	-398.40	1,204.67	1,129.35	75.32	15.995		
13,200.00	10,511.00	13,261.85	10,619.00	55.05	54.84	95.14	-2,240.82	-397.42	1,204.67	1,127.70	76.97	15.650		
13,300.00	10,511.00	13,361.85	10,619.00	56.24	56.03	95.14	-2,340.81	-396.45	1,204.67	1,126.00	78.66	15.314		
13,400.00	10,511.00	13,461.85	10,619.00	57.46	57.26	95.14	-2,440.81	-395.47	1,204.67	1,124.28	80.39	14.986		
13,500.00	10,511.00	13,561.85	10,619.00	58.69	58.50	95.14	-2,540.80	-394.49	1,204.67	1,122.53	82.14	14.666		
13,600.00	10,511.00	13,661.85	10,619.00	59.94	59.76	95.14	-2,640.80	-393.52	1,204.67	1,120.75	83.92	14.355		
13,700.00	10,511.00	13,761.85	10,619.00	61.22	61.04	95.14	-2,740.79	-392.54	1,204.67	1,118.94	85.73	14.052		
13,800.00	10,511.00	13,861.85	10,619.00	62.51	62.33	95.14	-2,840.79	-391.57	1,204.67	1,117.11	87.56	13.758		
13,900.00	10,511.00	13,961.85	10,619.00	63.81	63.65	95.14	-2,940.78	-390.59	1,204.67	1,115.26	89.42	13.473		
14,000.00	10,511.00	14,061.85	10,619.00	65.13	64.98	95.14	-3,040.78	-389.62	1,204.67	1,113.38	91.29	13.196		

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 502H
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 502H	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		
14,100.00	10,511.00	14,161.85	10,619.00	66.47	66.32	95.14	-3,140.77	-388.64	1,204.67	1,111.48	93.19	12.927		
14,200.00	10,511.00	14,261.85	10,619.00	67.82	67.68	95.14	-3,240.77	-387.67	1,204.67	1,109.57	95.10	12.667		
14,300.00	10,511.00	14,361.85	10,619.00	69.18	69.05	95.14	-3,340.77	-386.69	1,204.67	1,107.64	97.04	12.415		
14,400.00	10,511.00	14,461.85	10,619.00	70.56	70.43	95.14	-3,440.76	-385.72	1,204.67	1,105.68	98.99	12.170		
14,500.00	10,511.00	14,561.85	10,619.00	71.95	71.82	95.14	-3,540.76	-384.74	1,204.67	1,103.72	100.95	11.933		
14,600.00	10,511.00	14,661.85	10,619.00	73.34	73.22	95.14	-3,640.75	-383.77	1,204.67	1,101.74	102.94	11.703		
14,700.00	10,511.00	14,761.85	10,619.00	74.75	74.64	95.14	-3,740.75	-382.79	1,204.67	1,099.74	104.93	11.480		
14,800.00	10,511.00	14,861.85	10,619.00	76.17	76.06	95.14	-3,840.74	-381.81	1,204.67	1,097.73	106.94	11.265		
14,900.00	10,511.00	14,961.85	10,619.00	77.60	77.49	95.14	-3,940.74	-380.84	1,204.67	1,095.71	108.96	11.056		
15,000.00	10,511.00	15,061.85	10,619.00	79.03	78.94	95.14	-4,040.73	-379.86	1,204.67	1,093.68	111.00	10.853		
15,100.00	10,511.00	15,161.85	10,619.00	80.47	80.38	95.14	-4,140.73	-378.89	1,204.67	1,091.63	113.04	10.657		
15,200.00	10,511.00	15,261.85	10,619.00	81.93	81.84	95.14	-4,240.72	-377.91	1,204.67	1,089.58	115.10	10.467		
15,300.00	10,511.00	15,361.85	10,619.00	83.38	83.30	95.14	-4,340.72	-376.94	1,204.68	1,087.51	117.16	10.282		
15,400.00	10,511.00	15,461.85	10,619.00	84.85	84.78	95.14	-4,440.71	-375.96	1,204.68	1,085.44	119.24	10.103		
15,500.00	10,511.00	15,561.85	10,619.00	86.32	86.25	95.14	-4,540.71	-374.99	1,204.68	1,083.35	121.32	9.929		
15,600.00	10,511.00	15,661.85	10,619.00	87.80	87.74	95.14	-4,640.70	-374.01	1,204.68	1,081.26	123.42	9.761		
15,700.00	10,511.00	15,761.85	10,619.00	89.29	89.23	95.14	-4,740.70	-373.04	1,204.68	1,079.16	125.52	9.598		
15,800.00	10,511.00	15,861.85	10,619.00	90.78	90.72	95.14	-4,840.69	-372.06	1,204.68	1,077.05	127.63	9.439		
15,900.00	10,511.00	15,961.85	10,619.00	92.27	92.22	95.14	-4,940.69	-371.09	1,204.68	1,074.93	129.74	9.285		
16,000.00	10,511.00	16,061.85	10,619.00	93.77	93.73	95.14	-5,040.68	-370.11	1,204.68	1,072.81	131.87	9.135		
16,100.00	10,511.00	16,161.85	10,619.00	95.28	95.24	95.14	-5,140.68	-369.13	1,204.68	1,070.68	134.00	8.990		
16,200.00	10,511.00	16,261.85	10,619.00	96.79	96.75	95.14	-5,240.67	-368.16	1,204.68	1,068.54	136.14	8.849		
16,300.00	10,511.00	16,361.85	10,619.00	98.31	98.27	95.14	-5,340.67	-367.18	1,204.68	1,066.40	138.28	8.712		
16,400.00	10,511.00	16,461.85	10,619.00	99.83	99.79	95.14	-5,440.67	-366.21	1,204.68	1,064.25	140.43	8.579		
16,500.00	10,511.00	16,561.85	10,619.00	101.35	101.32	95.14	-5,540.66	-365.23	1,204.68	1,062.10	142.58	8.449		
16,600.00	10,511.00	16,661.85	10,619.00	102.88	102.85	95.14	-5,640.66	-364.26	1,204.68	1,059.94	144.74	8.323		
16,700.00	10,511.00	16,761.85	10,619.00	104.41	104.39	95.14	-5,740.65	-363.28	1,204.68	1,057.77	146.91	8.200		
16,800.00	10,511.00	16,861.85	10,619.00	105.94	105.93	95.14	-5,840.65	-362.31	1,204.68	1,055.60	149.08	8.081		
16,900.00	10,511.00	16,961.85	10,619.00	107.48	107.47	95.14	-5,940.64	-361.33	1,204.68	1,053.43	151.25	7.965		
17,000.00	10,511.00	17,061.85	10,619.00	109.02	109.01	95.14	-6,040.64	-360.36	1,204.68	1,051.25	153.43	7.852		
17,100.00	10,511.00	17,161.85	10,619.00	110.57	110.56	95.14	-6,140.63	-359.38	1,204.68	1,049.06	155.62	7.741		
17,200.00	10,511.00	17,261.85	10,619.00	112.12	112.11	95.14	-6,240.63	-358.41	1,204.68	1,046.88	157.80	7.634		
17,300.00	10,511.00	17,361.85	10,619.00	113.67	113.67	95.14	-6,340.62	-357.43	1,204.68	1,044.69	159.99	7.530		
17,400.00	10,511.00	17,461.85	10,619.00	115.22	115.22	95.14	-6,440.62	-356.45	1,204.68	1,042.49	162.19	7.428		
17,500.00	10,511.00	17,561.85	10,619.00	116.78	116.78	95.14	-6,540.61	-355.48	1,204.68	1,040.29	164.39	7.328		
17,600.00	10,511.00	17,661.85	10,619.00	118.34	118.34	95.14	-6,640.61	-354.50	1,204.68	1,038.09	166.59	7.231		
17,700.00	10,511.00	17,761.85	10,619.00	119.90	119.91	95.14	-6,740.60	-353.53	1,204.68	1,035.89	168.79	7.137		
17,800.00	10,511.00	17,861.85	10,619.00	121.46	121.47	95.14	-6,840.60	-352.55	1,204.68	1,033.68	171.00	7.045		
17,900.00	10,511.00	17,961.85	10,619.00	123.03	123.04	95.14	-6,940.59	-351.58	1,204.68	1,031.47	173.21	6.955		
18,000.00	10,511.00	18,061.85	10,619.00	124.59	124.61	95.14	-7,040.59	-350.60	1,204.68	1,029.25	175.43	6.867		
18,100.00	10,511.00	18,161.85	10,619.00	126.16	126.18	95.14	-7,140.58	-349.63	1,204.68	1,027.04	177.65	6.781		
18,200.00	10,511.00	18,261.85	10,619.00	127.74	127.76	95.14	-7,240.58	-348.65	1,204.68	1,024.82	179.87	6.698		
18,300.00	10,511.00	18,361.85	10,619.00	129.31	129.34	95.14	-7,340.57	-347.68	1,204.68	1,022.60	182.09	6.616		
18,400.00	10,511.00	18,461.85	10,619.00	130.89	130.91	95.14	-7,440.57	-346.70	1,204.68	1,020.37	184.31	6.536		
18,500.00	10,511.00	18,561.85	10,619.00	132.46	132.49	95.14	-7,540.57	-345.73	1,204.68	1,018.14	186.54	6.458		
18,600.00	10,511.00	18,661.85	10,619.00	134.04	134.08	95.14	-7,640.56	-344.75	1,204.68	1,015.91	188.77	6.382		
18,700.00	10,511.00	18,761.85	10,619.00	135.63	135.66	95.14	-7,740.56	-343.77	1,204.68	1,013.68	191.00	6.307		
18,800.00	10,511.00	18,861.85	10,619.00	137.21	137.25	95.14	-7,840.55	-342.80	1,204.68	1,011.45	193.24	6.234		
18,900.00	10,511.00	18,961.85	10,619.00	138.79	138.83	95.14	-7,940.55	-341.82	1,204.68	1,009.21	195.47	6.163		
19,000.00	10,511.00	19,061.85	10,619.00	140.38	140.42	95.14	-8,040.54	-340.85	1,204.69	1,006.97	197.71	6.093		
19,100.00	10,511.00	19,161.85	10,619.00	141.97	142.01	95.14	-8,140.54	-339.87	1,204.69	1,004.73	199.95	6.025		
19,200.00	10,511.00	19,261.85	10,619.00	143.56	143.60	95.14	-8,240.53	-338.90	1,204.69	1,002.49	202.20	5.958		

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 502H
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 502H	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		
19,300.00	10,511.00	19,361.85	10,619.00	145.15	145.19	95.14	-8,340.53	-337.92	1,204.69	1,000.25	204.44	5.893		
19,400.00	10,511.00	19,461.85	10,619.00	146.74	146.79	95.14	-8,440.52	-336.95	1,204.69	998.00	206.69	5.829		
19,500.00	10,511.00	19,561.85	10,619.00	148.33	148.38	95.14	-8,540.52	-335.97	1,204.69	995.75	208.94	5.766		
19,600.00	10,511.00	19,661.85	10,619.00	149.93	149.98	95.14	-8,640.51	-335.00	1,204.69	993.50	211.18	5.704		
19,700.00	10,511.00	19,761.85	10,619.00	151.52	151.58	95.14	-8,740.51	-334.02	1,204.69	991.25	213.44	5.644		
19,800.00	10,511.00	19,861.85	10,619.00	153.12	153.17	95.14	-8,840.50	-333.05	1,204.69	989.00	215.69	5.585		
19,900.00	10,511.00	19,961.85	10,619.00	154.72	154.77	95.14	-8,940.50	-332.07	1,204.69	986.74	217.94	5.528		
20,000.00	10,511.00	20,061.85	10,619.00	156.32	156.37	95.14	-9,040.49	-331.09	1,204.69	984.49	220.20	5.471		
20,100.00	10,511.00	20,161.85	10,619.00	157.92	157.98	95.14	-9,140.49	-330.12	1,204.69	982.23	222.46	5.415		
20,200.00	10,511.00	20,261.85	10,619.00	159.52	159.58	95.14	-9,240.48	-329.14	1,204.69	979.97	224.72	5.361		
20,300.00	10,511.00	20,361.85	10,619.00	161.12	161.18	95.14	-9,340.48	-328.17	1,204.69	977.71	226.97	5.308		
20,400.00	10,511.00	20,461.85	10,619.00	162.72	162.79	95.14	-9,440.48	-327.19	1,204.69	975.45	229.24	5.255		
20,500.00	10,511.00	20,561.85	10,619.00	164.33	164.39	95.14	-9,540.47	-326.22	1,204.69	973.19	231.50	5.204		
20,600.00	10,511.00	20,661.85	10,619.00	165.93	166.00	95.14	-9,640.47	-325.24	1,204.69	970.93	233.76	5.154		
20,700.00	10,511.00	20,761.85	10,619.00	167.54	167.49	95.14	-9,740.46	-324.27	1,204.69	968.75	235.94	5.106		
20,800.00	10,511.00	20,792.10	10,619.00	169.14	167.92	95.14	-9,770.72	-323.97	1,206.71	970.05	236.66	5.099		
20,900.00	10,511.00	20,792.10	10,619.00	170.75	167.92	95.14	-9,770.72	-323.97	1,216.59	981.37	235.22	5.172		
21,000.00	10,511.00	20,792.10	10,619.00	172.36	167.92	95.14	-9,770.72	-323.97	1,234.52	1,002.40	232.12	5.319		
21,100.00	10,511.00	20,792.10	10,619.00	173.97	167.92	95.14	-9,770.72	-323.97	1,260.15	1,032.57	227.59	5.537		
21,200.00	10,511.00	20,792.10	10,619.00	175.58	167.92	95.14	-9,770.72	-323.97	1,293.03	1,071.09	221.95	5.826		
21,300.00	10,511.00	20,792.10	10,619.00	177.19	167.92	95.14	-9,770.72	-323.97	1,332.62	1,117.10	215.52	6.183		
21,400.00	10,511.00	20,792.10	10,619.00	178.80	167.92	95.14	-9,770.72	-323.97	1,378.34	1,169.73	208.61	6.607		
21,500.00	10,511.00	20,792.10	10,619.00	180.41	167.92	95.14	-9,770.72	-323.97	1,429.61	1,228.13	201.48	7.095		
21,600.00	10,511.00	20,792.10	10,619.00	182.03	167.92	95.14	-9,770.72	-323.97	1,485.84	1,291.50	194.34	7.646		
21,700.00	10,511.00	20,792.10	10,619.00	183.64	167.92	95.14	-9,770.72	-323.97	1,546.51	1,359.17	187.33	8.255		
21,800.00	10,511.00	20,792.10	10,619.00	185.25	167.92	95.14	-9,770.72	-323.97	1,611.10	1,430.53	180.57	8.922		
21,900.00	10,511.00	20,792.10	10,619.00	186.87	167.92	95.14	-9,770.72	-323.97	1,679.16	1,505.04	174.12	9.644		
22,000.00	10,511.00	20,792.10	10,619.00	188.49	167.92	95.14	-9,770.72	-323.97	1,750.29	1,582.28	168.02	10.417		
22,046.30	10,511.00	20,792.10	10,619.00	189.23	167.92	95.14	-9,770.72	-323.97	1,784.17	1,618.85	165.32	10.792		

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 502H
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 502H	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	-27.11	74.59	-38.18	83.80					
100.00	100.00	100.00	100.00	0.13	0.13	-27.11	74.59	-38.18	83.80	83.62	0.18	472.260		
200.00	200.00	200.00	200.00	0.48	0.48	-27.11	74.59	-38.18	83.80	83.11	0.68	122.438		
300.00	300.00	300.00	300.00	0.84	0.84	-27.11	74.59	-38.18	83.80	82.60	1.19	70.337		
400.00	400.00	400.00	400.00	1.20	1.20	-27.11	74.59	-38.18	83.80	82.10	1.70	49.341		
500.00	500.00	500.00	500.00	1.56	1.56	-27.11	74.59	-38.18	83.80	81.59	2.21	37.998		
600.00	600.00	600.00	600.00	1.92	1.92	-27.11	74.59	-38.18	83.80	81.08	2.71	30.896		
700.00	700.00	700.00	700.00	2.28	2.28	-27.11	74.59	-38.18	83.80	80.58	3.22	26.030		
800.00	800.00	800.00	800.00	2.63	2.63	-27.11	74.59	-38.18	83.80	80.07	3.73	22.489		
900.00	900.00	900.00	900.00	2.99	2.99	-27.11	74.59	-38.18	83.80	79.56	4.23	19.795		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-27.11	74.59	-38.18	83.80	79.06	4.74	17.678		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-27.11	74.59	-38.18	83.80	78.55	5.25	15.970		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-27.11	74.59	-38.18	83.80	78.04	5.75	14.563		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-27.11	74.59	-38.18	83.80	77.53	6.26	13.384		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-27.11	74.59	-38.18	83.80	77.03	6.77	12.381		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-27.11	74.59	-38.18	83.80	76.52	7.27	11.519		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-27.11	74.59	-38.18	83.80	76.01	7.78	10.768		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-27.11	74.59	-38.18	83.80	75.51	8.29	10.110		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-27.11	74.59	-38.18	83.80	75.00	8.80	9.527		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-27.11	74.59	-38.18	83.80	74.49	9.30	9.008		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-27.11	74.59	-38.18	83.80	73.99	9.81	8.542 CC, ES		
2,100.00	2,100.00	2,097.91	2,097.90	7.29	7.29	-27.34	75.51	-39.04	85.03	74.72	10.31	8.250		
2,200.00	2,200.00	2,195.70	2,195.61	7.65	7.63	-28.00	78.25	-41.61	88.73	77.94	10.80	8.219 SF		
2,300.00	2,300.00	2,293.23	2,292.94	8.01	7.98	-28.98	82.80	-45.87	94.92	83.64	11.28	8.416		
2,400.00	2,399.99	2,390.35	2,389.68	8.37	8.33	-81.57	89.14	-51.80	103.42	91.67	11.75	8.802		
2,500.00	2,499.91	2,486.89	2,485.57	8.72	8.68	-84.50	97.21	-59.36	114.22	102.01	12.21	9.356		
2,600.00	2,599.69	2,583.38	2,581.12	9.07	9.03	-88.13	106.99	-68.52	127.62	114.95	12.67	10.073		
2,700.00	2,699.27	2,681.80	2,678.49	9.43	9.39	-92.14	117.49	-78.35	142.30	129.13	13.16	10.809		
2,800.00	2,798.57	2,779.92	2,775.55	9.79	9.76	-96.28	127.95	-88.15	157.87	144.21	13.66	11.555		
2,900.00	2,897.54	2,877.67	2,872.26	10.15	10.13	-100.44	138.37	-97.91	174.65	160.49	14.17	12.330		
3,000.00	2,996.09	2,975.00	2,968.54	10.53	10.51	-104.54	148.75	-107.63	192.92	178.24	14.67	13.149		
3,100.00	3,094.16	3,071.83	3,064.33	10.91	10.88	-108.52	159.07	-117.30	212.91	197.73	15.18	14.023		
3,135.41	3,128.76	3,105.98	3,098.12	11.04	11.01	-109.89	162.71	-120.70	220.44	205.08	15.37	14.346		
3,200.00	3,191.82	3,168.21	3,159.69	11.30	11.25	-112.41	169.35	-126.92	234.63	218.93	15.70	14.945		
3,300.00	3,289.44	3,264.57	3,255.00	11.70	11.63	-115.76	179.62	-136.54	257.35	241.13	16.22	15.866		
3,400.00	3,387.05	3,360.92	3,350.32	12.10	12.01	-118.57	189.89	-146.16	280.78	264.03	16.74	16.769		
3,500.00	3,484.67	3,457.27	3,445.64	12.52	12.39	-120.95	200.16	-155.78	304.76	287.49	17.27	17.647		
3,600.00	3,582.29	3,553.62	3,540.96	12.94	12.77	-122.99	210.44	-165.40	329.16	311.37	17.80	18.495		
3,700.00	3,679.91	3,649.97	3,636.28	13.36	13.16	-124.74	220.71	-175.02	353.91	335.59	18.33	19.310		
3,800.00	3,777.52	3,746.33	3,731.60	13.79	13.54	-126.27	230.98	-184.64	378.94	360.08	18.86	20.091		
3,900.00	3,875.14	3,842.68	3,826.92	14.22	13.93	-127.61	241.25	-194.26	404.18	384.79	19.40	20.839		
4,000.00	3,972.76	3,939.03	3,922.23	14.66	14.32	-128.79	251.53	-203.88	429.61	409.68	19.93	21.555		
4,100.00	4,070.38	4,035.38	4,017.55	15.10	14.71	-129.84	261.80	-213.51	455.20	434.73	20.47	22.238		
4,200.00	4,168.00	4,131.73	4,112.87	15.55	15.10	-130.78	272.07	-223.13	480.91	459.90	21.01	22.891		
4,300.00	4,265.61	4,228.08	4,208.19	15.99	15.49	-131.62	282.34	-232.75	506.73	485.18	21.55	23.516		
4,400.00	4,363.23	4,324.44	4,303.51	16.44	15.88	-132.39	292.62	-242.37	532.64	510.55	22.09	24.112		
4,500.00	4,460.85	4,420.79	4,398.83	16.90	16.28	-133.08	302.89	-251.99	558.64	536.00	22.63	24.682		
4,600.00	4,558.47	4,517.14	4,494.14	17.35	16.67	-133.71	313.16	-261.61	584.70	561.52	23.18	25.227		
4,700.00	4,656.08	4,613.49	4,589.46	17.81	17.06	-134.28	323.43	-271.23	610.83	587.10	23.72	25.749		
4,800.00	4,753.70	4,709.84	4,684.78	18.27	17.46	-134.81	333.71	-280.85	637.00	612.73	24.27	26.248		
4,900.00	4,851.32	4,806.20	4,780.10	18.73	17.86	-135.30	343.98	-290.47	663.23	638.41	24.82	26.726		
5,000.00	4,948.94	4,902.55	4,875.42	19.19	18.25	-135.75	354.25	-300.09	689.49	664.13	25.36	27.185		

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 502H
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 502H	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	5,046.56	4,998.90	4,970.74	19.66	18.65	-136.17	364.52	-309.71	715.79	689.88	25.91	27.624		
5,200.00	5,144.17	5,095.25	5,066.06	20.13	19.05	-136.56	374.80	-319.33	742.13	715.67	26.46	28.046		
5,300.00	5,241.79	5,191.60	5,161.37	20.59	19.45	-136.92	385.07	-328.95	768.49	741.48	27.01	28.451		
5,400.00	5,339.41	5,287.96	5,256.69	21.06	19.84	-137.26	395.34	-338.57	794.89	767.32	27.56	28.840		
5,500.00	5,437.03	5,384.31	5,352.01	21.53	20.24	-137.57	405.61	-348.19	821.30	793.19	28.11	29.214		
5,600.00	5,534.65	5,480.66	5,447.33	22.01	20.64	-137.87	415.89	-357.82	847.74	819.07	28.67	29.573		
5,700.00	5,632.26	5,577.01	5,542.65	22.48	21.04	-138.15	426.16	-367.44	874.20	844.98	29.22	29.919		
5,800.00	5,729.88	5,673.36	5,637.97	22.95	21.44	-138.41	436.43	-377.06	900.67	870.90	29.77	30.253		
5,900.00	5,827.50	5,769.72	5,733.29	23.43	21.84	-138.66	446.70	-386.68	927.16	896.84	30.33	30.574		
6,000.00	5,925.12	5,866.07	5,828.60	23.90	22.24	-138.89	456.98	-396.30	953.67	922.79	30.88	30.883		
6,100.00	6,022.73	5,962.42	5,923.92	24.38	22.65	-139.11	467.25	-405.92	980.19	948.76	31.43	31.182		
6,200.00	6,120.35	6,058.77	6,019.24	24.85	23.05	-139.32	477.52	-415.54	1,006.73	974.74	31.99	31.470		
6,300.00	6,217.97	6,155.12	6,114.56	25.33	23.45	-139.52	487.80	-425.16	1,033.27	1,000.73	32.55	31.748		
6,400.00	6,315.59	6,251.48	6,209.88	25.81	23.85	-139.71	498.07	-434.78	1,059.83	1,026.73	33.10	32.017		
6,500.00	6,413.21	6,347.83	6,305.20	26.29	24.25	-139.89	508.34	-444.40	1,086.40	1,052.74	33.66	32.277		
6,600.00	6,510.82	6,444.18	6,400.51	26.77	24.66	-140.06	518.61	-454.02	1,112.97	1,078.76	34.22	32.528		
6,700.00	6,608.44	6,540.53	6,495.83	27.25	25.06	-140.22	528.89	-463.64	1,139.56	1,104.79	34.77	32.771		
6,719.26	6,627.24	6,559.08	6,514.19	27.34	25.14	-140.25	530.86	-465.50	1,144.68	1,109.80	34.88	32.817		
6,800.00	6,706.24	6,637.07	6,591.34	27.73	25.46	-140.55	539.18	-473.28	1,165.52	1,130.19	35.33	32.990		
6,900.00	6,804.54	6,734.13	6,687.36	28.18	25.87	-140.83	549.53	-482.97	1,189.56	1,153.67	35.88	33.152		
7,000.00	6,903.29	6,831.66	6,783.84	28.61	26.28	-141.00	559.92	-492.71	1,211.62	1,175.19	36.43	33.259		
7,100.00	7,002.41	6,944.43	6,895.49	29.02	26.74	-141.08	571.51	-503.56	1,231.38	1,194.32	37.06	33.230		
7,200.00	7,101.85	7,070.94	7,021.19	29.41	27.25	-141.13	581.85	-513.24	1,247.17	1,209.44	37.73	33.056		
7,300.00	7,201.53	7,198.64	7,148.49	29.78	27.73	-141.19	589.20	-520.13	1,258.72	1,220.35	38.37	32.804		
7,400.00	7,301.38	7,327.16	7,276.87	30.13	28.18	-141.26	593.45	-524.11	1,265.97	1,226.99	38.98	32.481		
7,500.00	7,401.34	7,451.64	7,401.34	30.46	28.60	-141.34	594.59	-525.18	1,268.93	1,229.39	39.53	32.099		
7,554.66	7,456.00	7,506.30	7,456.00	30.63	28.78	-90.51	594.59	-525.18	1,269.23	1,229.44	39.79	31.899		
7,600.00	7,501.34	7,551.64	7,501.34	30.77	28.93	-90.51	594.59	-525.18	1,269.23	1,229.23	40.00	31.730		
7,700.00	7,601.34	7,651.64	7,601.34	31.07	29.25	-90.51	594.59	-525.18	1,269.23	1,228.76	40.47	31.363		
7,800.00	7,701.34	7,751.64	7,701.34	31.38	29.58	-90.51	594.59	-525.18	1,269.23	1,228.29	40.94	31.004		
7,900.00	7,801.34	7,851.64	7,801.34	31.69	29.91	-90.51	594.59	-525.18	1,269.23	1,227.82	41.41	30.652		
8,000.00	7,901.34	7,951.64	7,901.34	32.00	30.24	-90.51	594.59	-525.18	1,269.23	1,227.35	41.88	30.308		
8,100.00	8,001.34	8,051.64	8,001.34	32.32	30.57	-90.51	594.59	-525.18	1,269.23	1,226.88	42.35	29.970		
8,200.00	8,101.34	8,151.64	8,101.34	32.63	30.90	-90.51	594.59	-525.18	1,269.23	1,226.41	42.82	29.639		
8,300.00	8,201.34	8,251.64	8,201.34	32.94	31.23	-90.51	594.59	-525.18	1,269.23	1,225.94	43.30	29.316		
8,400.00	8,301.34	8,351.64	8,301.34	33.26	31.57	-90.51	594.59	-525.18	1,269.23	1,225.46	43.77	28.998		
8,500.00	8,401.34	8,451.64	8,401.34	33.57	31.90	-90.51	594.59	-525.18	1,269.23	1,224.99	44.24	28.687		
8,600.00	8,501.34	8,551.64	8,501.34	33.89	32.23	-90.51	594.59	-525.18	1,269.23	1,224.51	44.72	28.382		
8,700.00	8,601.34	8,651.64	8,601.34	34.20	32.57	-90.51	594.59	-525.18	1,269.23	1,224.04	45.20	28.083		
8,800.00	8,701.34	8,751.64	8,701.34	34.52	32.90	-90.51	594.59	-525.18	1,269.23	1,223.56	45.67	27.790		
8,900.00	8,801.34	8,851.64	8,801.34	34.84	33.24	-90.51	594.59	-525.18	1,269.23	1,223.08	46.15	27.503		
9,000.00	8,901.34	8,951.64	8,901.34	35.16	33.57	-90.51	594.59	-525.18	1,269.23	1,222.60	46.63	27.221		
9,100.00	9,001.34	9,051.64	9,001.34	35.48	33.91	-90.51	594.59	-525.18	1,269.23	1,222.12	47.11	26.944		
9,200.00	9,101.34	9,151.64	9,101.34	35.80	34.24	-90.51	594.59	-525.18	1,269.23	1,221.65	47.59	26.673		
9,300.00	9,201.34	9,251.64	9,201.34	36.12	34.58	-90.51	594.59	-525.18	1,269.23	1,221.17	48.07	26.406		
9,400.00	9,301.34	9,351.64	9,301.34	36.45	34.92	-90.51	594.59	-525.18	1,269.23	1,220.69	48.55	26.145		
9,500.00	9,401.34	9,451.64	9,401.34	36.77	35.26	-90.51	594.59	-525.18	1,269.23	1,220.20	49.03	25.889		
9,600.00	9,501.34	9,551.64	9,501.34	37.09	35.59	-90.51	594.59	-525.18	1,269.23	1,219.72	49.51	25.637		
9,700.00	9,601.34	9,651.64	9,601.34	37.42	35.93	-90.51	594.59	-525.18	1,269.23	1,219.24	49.99	25.390		
9,800.00	9,701.34	9,751.64	9,701.34	37.74	36.27	-90.51	594.59	-525.18	1,269.23	1,218.76	50.47	25.147		
9,900.00	9,801.34	9,851.64	9,801.34	38.07	36.61	-90.51	594.59	-525.18	1,269.23	1,218.28	50.95	24.909		
10,000.00	9,901.34	9,951.64	9,901.34	38.39	36.95	-90.51	594.59	-525.18	1,269.23	1,217.79	51.44	24.675		

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 502H
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 502H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,036.70	9,938.04	9,988.34	9,938.04	38.51	37.07	-90.51	594.59	-525.18	1,269.23	1,217.62	51.62	24.590		
10,050.00	9,951.34	10,001.64	9,951.34	38.55	37.12	92.79	594.59	-525.18	1,269.24	1,217.56	51.68	24.560		
10,100.00	10,001.21	10,051.51	10,001.21	38.69	37.29	92.92	594.59	-525.18	1,269.41	1,217.50	51.90	24.457		
10,150.00	10,050.60	10,100.91	10,050.60	38.82	37.46	93.22	594.59	-525.18	1,269.82	1,217.70	52.12	24.363		
10,200.00	10,099.14	10,149.44	10,099.14	38.93	37.62	93.67	594.59	-525.18	1,270.56	1,218.24	52.33	24.281		
10,250.00	10,146.45	10,196.75	10,146.45	39.02	37.78	94.24	594.59	-525.18	1,271.74	1,219.22	52.52	24.214		
10,300.00	10,192.17	10,242.47	10,192.17	39.10	37.94	94.89	594.59	-525.18	1,273.50	1,220.80	52.70	24.164		
10,350.00	10,235.96	10,286.26	10,235.96	39.16	38.09	95.59	594.59	-525.18	1,276.02	1,223.15	52.87	24.136		
10,400.00	10,277.48	10,327.78	10,277.48	39.21	38.23	96.28	594.59	-525.18	1,279.49	1,226.47	53.02	24.132		
10,450.00	10,316.42	10,366.72	10,316.42	39.23	38.36	96.90	594.59	-525.18	1,284.10	1,230.94	53.16	24.156		
10,500.00	10,352.48	10,402.78	10,352.48	39.25	38.48	97.42	594.59	-525.18	1,290.06	1,236.78	53.28	24.212		
10,550.00	10,385.38	10,435.68	10,385.38	39.25	38.60	97.76	594.59	-525.18	1,297.56	1,244.17	53.39	24.304		
10,600.00	10,414.88	10,465.18	10,414.88	39.23	38.70	97.89	594.59	-525.18	1,306.76	1,253.28	53.48	24.435		
10,650.00	10,440.75	10,491.06	10,440.75	39.21	38.79	97.75	594.59	-525.18	1,317.79	1,264.23	53.55	24.607		
10,700.00	10,462.80	10,513.10	10,462.80	39.18	38.86	97.30	594.59	-525.18	1,330.73	1,277.12	53.61	24.821		
10,750.00	10,480.85	10,531.15	10,480.85	39.13	38.92	96.50	594.59	-525.18	1,345.64	1,291.98	53.65	25.080		
10,800.00	10,494.77	10,545.07	10,494.77	39.09	38.97	95.32	594.59	-525.18	1,362.48	1,308.81	53.68	25.382		
10,850.00	10,504.45	10,554.75	10,504.45	39.04	39.00	93.73	594.59	-525.18	1,381.21	1,327.52	53.69	25.727		
10,900.00	10,509.82	10,560.13	10,509.82	39.00	39.02	91.73	594.59	-525.18	1,401.67	1,347.99	53.68	26.112		
10,936.70	10,511.00	10,561.30	10,511.00	38.97	39.03	90.00	594.59	-525.18	1,417.71	1,364.04	53.66	26.418		
11,000.00	10,511.00	10,561.30	10,511.00	38.94	39.03	90.00	594.59	-525.18	1,446.54	1,392.90	53.63	26.971		
11,073.75	10,511.00	10,561.30	10,511.00	38.93	39.03	90.00	594.59	-525.18	1,481.30	1,427.69	53.61	27.632		
11,100.00	10,511.00	10,561.30	10,511.00	38.94	39.03	90.00	594.59	-525.18	1,494.06	1,440.46	53.60	27.875		
11,200.00	10,511.00	10,561.30	10,511.00	39.03	39.03	90.00	594.59	-525.18	1,545.81	1,492.23	53.58	28.848		
11,300.00	10,511.00	10,561.30	10,511.00	39.25	39.03	90.00	594.59	-525.18	1,602.14	1,548.55	53.58	29.901		
11,400.00	10,511.00	10,561.30	10,511.00	39.60	39.03	90.00	594.59	-525.18	1,662.57	1,608.98	53.59	31.023		
11,500.00	10,511.00	10,561.30	10,511.00	40.03	39.03	90.00	594.59	-525.18	1,726.69	1,673.08	53.61	32.208		
11,600.00	10,511.00	10,561.30	10,511.00	40.53	39.03	90.00	594.59	-525.18	1,794.09	1,740.45	53.64	33.449		
11,700.00	10,511.00	10,561.30	10,511.00	41.10	39.03	90.00	594.59	-525.18	1,864.42	1,810.75	53.67	34.740		
11,800.00	10,511.00	10,561.30	10,511.00	41.73	39.03	90.00	594.59	-525.18	1,937.36	1,883.66	53.70	36.075		
11,900.00	10,511.00	10,561.30	10,511.00	42.41	39.03	90.00	594.59	-525.18	2,012.63	1,958.88	53.74	37.449		
12,000.00	10,511.00	10,561.30	10,511.00	43.14	39.03	90.00	594.59	-525.18	2,089.97	2,036.19	53.78	38.859		
12,100.00	10,511.00	10,561.30	10,511.00	43.93	39.03	90.00	594.59	-525.18	2,169.16	2,115.34	53.83	40.300		
12,200.00	10,511.00	10,561.30	10,511.00	44.75	39.03	90.00	594.59	-525.18	2,250.02	2,196.15	53.87	41.768		
12,300.00	10,511.00	10,561.30	10,511.00	45.62	39.03	90.00	594.59	-525.18	2,332.36	2,278.44	53.91	43.262		
12,400.00	10,511.00	14,384.91	12,544.00	46.53	52.32	147.40	-1,441.83	-505.31	2,413.06	2,361.61	51.45	46.903		
12,500.00	10,511.00	14,484.91	12,544.00	47.48	53.19	147.40	-1,541.83	-504.34	2,413.06	2,360.75	52.31	46.130		
12,600.00	10,511.00	14,584.91	12,544.00	48.47	54.10	147.40	-1,641.82	-503.36	2,413.06	2,359.86	53.20	45.355		
12,700.00	10,511.00	14,684.91	12,544.00	49.49	55.04	147.40	-1,741.82	-502.39	2,413.06	2,358.93	54.13	44.580		
12,800.00	10,511.00	14,784.91	12,544.00	50.55	56.01	147.40	-1,841.81	-501.41	2,413.06	2,357.98	55.08	43.809		
12,900.00	10,511.00	14,884.91	12,544.00	51.63	57.02	147.40	-1,941.81	-500.44	2,413.06	2,357.00	56.06	43.044		
13,000.00	10,511.00	14,984.91	12,544.00	52.75	58.05	147.40	-2,041.80	-499.46	2,413.06	2,356.00	57.06	42.288		
13,100.00	10,511.00	15,084.91	12,544.00	53.89	59.11	147.40	-2,141.80	-498.48	2,413.06	2,354.97	58.09	41.539		
13,200.00	10,511.00	15,184.91	12,544.00	55.05	60.20	147.40	-2,241.80	-497.51	2,413.06	2,353.92	59.14	40.802		
13,300.00	10,511.00	15,284.91	12,544.00	56.24	61.31	147.40	-2,341.79	-496.53	2,413.06	2,352.85	60.21	40.077		
13,400.00	10,511.00	15,384.91	12,544.00	57.46	62.45	147.40	-2,441.79	-495.56	2,413.06	2,351.76	61.30	39.363		
13,500.00	10,511.00	15,484.91	12,544.00	58.69	63.61	147.40	-2,541.78	-494.58	2,413.06	2,350.65	62.41	38.663		
13,600.00	10,511.00	15,584.91	12,544.00	59.94	64.79	147.40	-2,641.78	-493.61	2,413.06	2,349.52	63.54	37.976		
13,700.00	10,511.00	15,684.91	12,544.00	61.22	65.99	147.40	-2,741.77	-492.63	2,413.06	2,348.37	64.69	37.303		
13,800.00	10,511.00	15,784.91	12,544.00	62.51	67.21	147.40	-2,841.77	-491.66	2,413.06	2,347.21	65.85	36.644		
13,900.00	10,511.00	15,884.91	12,544.00	63.81	68.44	147.40	-2,941.76	-490.68	2,413.06	2,346.03	67.03	36.000		
14,000.00	10,511.00	15,984.91	12,544.00	65.13	69.70	147.40	-3,041.76	-489.70	2,413.06	2,344.84	68.22	35.370		

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 502H
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 502H	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		
14,100.00	10,511.00	16,084.91	12,544.00	66.47	70.97	147.40	-3,141.75	-488.73	2,413.06	2,343.63	69.43	34.755		
14,200.00	10,511.00	16,184.91	12,544.00	67.82	72.26	147.40	-3,241.75	-487.75	2,413.06	2,342.41	70.65	34.155		
14,300.00	10,511.00	16,284.91	12,544.00	69.18	73.56	147.40	-3,341.74	-486.78	2,413.06	2,341.18	71.88	33.570		
14,400.00	10,511.00	16,384.91	12,544.00	70.56	74.87	147.40	-3,441.74	-485.80	2,413.06	2,339.94	73.12	33.000		
14,500.00	10,511.00	16,484.91	12,544.00	71.95	76.20	147.40	-3,541.73	-484.83	2,413.06	2,338.69	74.37	32.445		
14,600.00	10,511.00	16,584.91	12,544.00	73.34	77.54	147.40	-3,641.73	-483.85	2,413.06	2,337.42	75.64	31.903		
14,700.00	10,511.00	16,684.91	12,544.00	74.75	78.89	147.40	-3,741.72	-482.88	2,413.06	2,336.15	76.91	31.374		
14,800.00	10,511.00	16,784.91	12,544.00	76.17	80.25	147.40	-3,841.72	-481.90	2,413.06	2,334.86	78.20	30.859		
14,900.00	10,511.00	16,884.91	12,544.00	77.60	81.62	147.40	-3,941.71	-480.92	2,413.06	2,333.57	79.49	30.357		
15,000.00	10,511.00	16,984.91	12,544.00	79.03	83.01	147.40	-4,041.71	-479.95	2,413.06	2,332.27	80.79	29.868		
15,100.00	10,511.00	17,084.91	12,544.00	80.47	84.40	147.40	-4,141.70	-478.97	2,413.06	2,330.96	82.10	29.391		
15,200.00	10,511.00	17,184.91	12,544.00	81.93	85.80	147.40	-4,241.70	-478.00	2,413.06	2,329.64	83.42	28.927		
15,300.00	10,511.00	17,284.91	12,544.00	83.38	87.21	147.40	-4,341.70	-477.02	2,413.06	2,328.32	84.74	28.476		
15,400.00	10,511.00	17,384.91	12,544.00	84.85	88.63	147.40	-4,441.69	-476.05	2,413.06	2,326.99	86.07	28.036		
15,500.00	10,511.00	17,484.91	12,544.00	86.32	90.06	147.40	-4,541.69	-475.07	2,413.06	2,325.66	87.40	27.608		
15,600.00	10,511.00	17,584.91	12,544.00	87.80	91.49	147.40	-4,641.68	-474.10	2,413.06	2,324.31	88.75	27.190		
15,700.00	10,511.00	17,684.91	12,544.00	89.29	92.94	147.40	-4,741.68	-473.12	2,413.06	2,322.97	90.10	26.783		
15,800.00	10,511.00	17,784.91	12,544.00	90.78	94.39	147.40	-4,841.67	-472.14	2,413.06	2,321.61	91.45	26.387		
15,900.00	10,511.00	17,884.91	12,544.00	92.27	95.84	147.40	-4,941.67	-471.17	2,413.06	2,320.25	92.81	26.000		
16,000.00	10,511.00	17,984.91	12,544.00	93.77	97.30	147.40	-5,041.66	-470.19	2,413.06	2,318.89	94.18	25.623		
16,100.00	10,511.00	18,084.91	12,544.00	95.28	98.77	147.40	-5,141.66	-469.22	2,413.06	2,317.51	95.55	25.255		
16,200.00	10,511.00	18,184.91	12,544.00	96.79	100.24	147.40	-5,241.65	-468.24	2,413.06	2,316.14	96.92	24.897		
16,300.00	10,511.00	18,284.91	12,544.00	98.31	101.72	147.40	-5,341.65	-467.27	2,413.06	2,314.77	98.30	24.549		
16,400.00	10,511.00	18,384.91	12,544.00	99.83	103.20	147.40	-5,441.64	-466.29	2,413.06	2,313.38	99.68	24.209		
16,500.00	10,511.00	18,484.91	12,544.00	101.35	104.69	147.40	-5,541.64	-465.32	2,413.06	2,312.00	101.06	23.877		
16,600.00	10,511.00	18,584.91	12,544.00	102.88	106.19	147.40	-5,641.63	-464.34	2,413.06	2,310.61	102.45	23.553		
16,700.00	10,511.00	18,684.91	12,544.00	104.41	107.69	147.40	-5,741.63	-463.37	2,413.06	2,309.22	103.85	23.237		
16,800.00	10,511.00	18,784.91	12,544.00	105.94	109.19	147.40	-5,841.62	-462.39	2,413.06	2,307.82	105.24	22.928		
16,900.00	10,511.00	18,884.91	12,544.00	107.48	110.69	147.40	-5,941.62	-461.41	2,413.06	2,306.42	106.64	22.627		
17,000.00	10,511.00	18,984.91	12,544.00	109.02	112.21	147.40	-6,041.61	-460.44	2,413.06	2,305.01	108.05	22.333		
17,100.00	10,511.00	19,084.91	12,544.00	110.57	113.72	147.40	-6,141.61	-459.46	2,413.06	2,303.61	109.46	22.046		
17,200.00	10,511.00	19,184.91	12,544.00	112.12	115.24	147.40	-6,241.60	-458.49	2,413.06	2,302.20	110.86	21.766		
17,300.00	10,511.00	19,284.91	12,544.00	113.67	116.76	147.40	-6,341.60	-457.51	2,413.06	2,300.79	112.27	21.493		
17,400.00	10,511.00	19,384.91	12,544.00	115.22	118.29	147.40	-6,441.60	-456.54	2,413.06	2,299.38	113.69	21.226		
17,500.00	10,511.00	19,484.91	12,544.00	116.78	119.82	147.40	-6,541.59	-455.56	2,413.06	2,297.96	115.10	20.965		
17,600.00	10,511.00	19,584.91	12,544.00	118.34	121.35	147.40	-6,641.59	-454.59	2,413.06	2,296.54	116.52	20.709		
17,700.00	10,511.00	19,684.91	12,544.00	119.90	122.88	147.40	-6,741.58	-453.61	2,413.06	2,295.12	117.94	20.460		
17,800.00	10,511.00	19,784.91	12,544.00	121.46	124.42	147.40	-6,841.58	-452.63	2,413.06	2,293.70	119.37	20.216		
17,900.00	10,511.00	19,884.91	12,544.00	123.03	125.96	147.40	-6,941.57	-451.66	2,413.06	2,292.27	120.79	19.977		
18,000.00	10,511.00	19,984.91	12,544.00	124.59	127.51	147.40	-7,041.57	-450.68	2,413.06	2,290.84	122.22	19.744		
18,100.00	10,511.00	20,084.91	12,544.00	126.16	129.05	147.40	-7,141.56	-449.71	2,413.06	2,289.41	123.65	19.515		
18,200.00	10,511.00	20,184.91	12,544.00	127.74	130.60	147.40	-7,241.56	-448.73	2,413.06	2,287.99	125.08	19.292		
18,300.00	10,511.00	20,284.91	12,544.00	129.31	132.15	147.40	-7,341.55	-447.76	2,413.06	2,286.55	126.51	19.074		
18,400.00	10,511.00	20,384.91	12,544.00	130.89	133.71	147.40	-7,441.55	-446.78	2,413.06	2,285.12	127.94	18.861		
18,500.00	10,511.00	20,484.91	12,544.00	132.46	135.26	147.40	-7,541.54	-445.81	2,413.06	2,283.69	129.38	18.651		
18,600.00	10,511.00	20,584.91	12,544.00	134.04	136.82	147.40	-7,641.54	-444.83	2,413.06	2,282.25	130.81	18.446		
18,700.00	10,511.00	20,684.91	12,544.00	135.63	138.38	147.40	-7,741.53	-443.85	2,413.06	2,280.81	132.25	18.246		
18,800.00	10,511.00	20,784.91	12,544.00	137.21	139.95	147.40	-7,841.53	-442.88	2,413.06	2,279.37	133.69	18.049		
18,900.00	10,511.00	20,884.91	12,544.00	138.79	141.51	147.40	-7,941.52	-441.90	2,413.06	2,277.93	135.14	17.857		
19,000.00	10,511.00	20,984.91	12,544.00	140.38	143.08	147.40	-8,041.52	-440.93	2,413.06	2,276.49	136.58	17.668		
19,100.00	10,511.00	21,084.91	12,544.00	141.97	144.65	147.40	-8,141.51	-439.95	2,413.06	2,275.05	138.02	17.484		
19,200.00	10,511.00	21,184.91	12,544.00	143.56	146.22	147.40	-8,241.51	-438.98	2,413.06	2,273.60	139.46	17.303		

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 502H
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 502H	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		
19,300.00	10,511.00	21,284.91	12,544.00	145.15	147.79	147.40	-8,341.50	-438.00	2,413.06	2,272.16	140.91	17.125		
19,400.00	10,511.00	21,384.91	12,544.00	146.74	149.36	147.40	-8,441.50	-437.03	2,413.06	2,270.71	142.35	16.951		
19,500.00	10,511.00	21,484.91	12,544.00	148.33	150.94	147.40	-8,541.50	-436.05	2,413.06	2,269.26	143.80	16.781		
19,600.00	10,511.00	21,584.91	12,544.00	149.93	152.51	147.40	-8,641.49	-435.07	2,413.06	2,267.82	145.25	16.613		
19,700.00	10,511.00	21,684.91	12,544.00	151.52	154.09	147.40	-8,741.49	-434.10	2,413.06	2,266.37	146.70	16.449		
19,800.00	10,511.00	21,784.91	12,544.00	153.12	155.67	147.40	-8,841.48	-433.12	2,413.06	2,264.92	148.15	16.288		
19,900.00	10,511.00	21,884.91	12,544.00	154.72	157.25	147.40	-8,941.48	-432.15	2,413.06	2,263.47	149.60	16.130		
20,000.00	10,511.00	21,984.91	12,544.00	156.32	158.84	147.40	-9,041.47	-431.17	2,413.06	2,262.02	151.05	15.975		
20,100.00	10,511.00	22,084.91	12,544.00	157.92	160.42	147.40	-9,141.47	-430.20	2,413.07	2,260.57	152.50	15.823		
20,200.00	10,511.00	22,184.91	12,544.00	159.52	162.01	147.40	-9,241.46	-429.22	2,413.07	2,259.11	153.95	15.674		
20,300.00	10,511.00	22,284.91	12,544.00	161.12	163.59	147.40	-9,341.46	-428.25	2,413.07	2,257.66	155.40	15.528		
20,400.00	10,511.00	22,384.91	12,544.00	162.72	165.18	147.40	-9,441.45	-427.27	2,413.07	2,256.21	156.86	15.384		
20,500.00	10,511.00	22,484.91	12,544.00	164.33	166.77	147.40	-9,541.45	-426.30	2,413.07	2,254.75	158.31	15.242		
20,600.00	10,511.00	22,584.91	12,544.00	165.93	168.36	147.40	-9,641.44	-425.32	2,413.07	2,253.30	159.77	15.104		
20,700.00	10,511.00	22,684.91	12,544.00	167.54	169.96	147.40	-9,741.44	-424.34	2,413.07	2,251.84	161.22	14.967		
20,800.00	10,511.00	22,715.49	12,544.00	169.14	170.44	147.40	-9,772.02	-424.05	2,414.06	2,252.24	161.82	14.918		
20,900.00	10,511.00	22,715.49	12,544.00	170.75	170.44	147.40	-9,772.02	-424.05	2,419.01	2,257.18	161.83	14.948		
21,000.00	10,511.00	22,715.49	12,544.00	172.36	170.44	147.40	-9,772.02	-424.05	2,428.06	2,266.46	161.60	15.025		
21,100.00	10,511.00	22,715.49	12,544.00	173.97	170.44	147.40	-9,772.02	-424.05	2,441.18	2,280.04	161.14	15.150		
21,200.00	10,511.00	22,715.49	12,544.00	175.58	170.44	147.40	-9,772.02	-424.05	2,458.30	2,297.85	160.45	15.322		
21,300.00	10,511.00	22,715.49	12,544.00	177.19	170.44	147.40	-9,772.02	-424.05	2,479.34	2,319.78	159.56	15.539		
21,400.00	10,511.00	22,715.49	12,544.00	178.80	170.44	147.40	-9,772.02	-424.05	2,504.20	2,345.73	158.47	15.803		
21,500.00	10,511.00	22,715.49	12,544.00	180.41	170.44	147.40	-9,772.02	-424.05	2,532.76	2,375.56	157.21	16.111		
21,600.00	10,511.00	22,715.49	12,544.00	182.03	170.44	147.40	-9,772.02	-424.05	2,564.91	2,409.12	155.79	16.464		
21,700.00	10,511.00	22,715.49	12,544.00	183.64	170.44	147.40	-9,772.02	-424.05	2,600.51	2,446.26	154.25	16.859		
21,800.00	10,511.00	22,715.49	12,544.00	185.25	170.44	147.40	-9,772.02	-424.05	2,639.42	2,486.83	152.59	17.297		
21,900.00	10,511.00	22,715.49	12,544.00	186.87	170.44	147.40	-9,772.02	-424.05	2,681.50	2,530.66	150.84	17.777		
22,000.00	10,511.00	22,715.49	12,544.00	188.49	170.44	147.40	-9,772.02	-424.05	2,726.60	2,577.57	149.02	18.297		
22,046.30	10,511.00	22,715.49	12,544.00	189.23	170.44	147.40	-9,772.02	-424.05	2,748.46	2,600.30	148.16	18.551		

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 502H
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 502H	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	-9.92	74.83	-13.09	75.96					
100.00	100.00	100.00	100.00	0.13	0.13	-9.92	74.83	-13.09	75.96	75.79	0.18	428.117		
200.00	200.00	200.00	200.00	0.48	0.48	-9.92	74.83	-13.09	75.96	75.28	0.68	110.993		
300.00	300.00	300.00	300.00	0.84	0.84	-9.92	74.83	-13.09	75.96	74.77	1.19	63.762		
400.00	400.00	400.00	400.00	1.20	1.20	-9.92	74.83	-13.09	75.96	74.26	1.70	44.729		
500.00	500.00	500.00	500.00	1.56	1.56	-9.92	74.83	-13.09	75.96	73.76	2.21	34.446		
600.00	600.00	600.00	600.00	1.92	1.92	-9.92	74.83	-13.09	75.96	73.25	2.71	28.008		
700.00	700.00	700.00	700.00	2.28	2.28	-9.92	74.83	-13.09	75.96	72.74	3.22	23.597		
800.00	800.00	800.00	800.00	2.63	2.63	-9.92	74.83	-13.09	75.96	72.24	3.73	20.387		
900.00	900.00	900.00	900.00	2.99	2.99	-9.92	74.83	-13.09	75.96	71.73	4.23	17.945		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-9.92	74.83	-13.09	75.96	71.22	4.74	16.026		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-9.92	74.83	-13.09	75.96	70.72	5.25	14.477		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-9.92	74.83	-13.09	75.96	70.21	5.75	13.202		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-9.92	74.83	-13.09	75.96	69.70	6.26	12.133		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-9.92	74.83	-13.09	75.96	69.19	6.77	11.224		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-9.92	74.83	-13.09	75.96	68.69	7.27	10.442		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-9.92	74.83	-13.09	75.96	68.18	7.78	9.762		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-9.92	74.83	-13.09	75.96	67.67	8.29	9.165		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-9.92	74.83	-13.09	75.96	67.17	8.80	8.636		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-9.92	74.83	-13.09	75.96	66.66	9.30	8.166		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-9.92	74.83	-13.09	75.96	66.15	9.81	7.744		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	-9.92	74.83	-13.09	75.96	65.65	10.32	7.363		
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	-9.92	74.83	-13.09	75.96	65.14	10.82	7.018 CC, ES		
2,300.00	2,300.00	2,298.46	2,298.45	8.01	8.01	-9.33	75.93	-12.47	76.97	65.64	11.32	6.797		
2,400.00	2,399.99	2,396.84	2,396.76	8.37	8.36	-59.22	79.25	-10.61	79.34	67.53	11.82	6.715		
2,500.00	2,499.91	2,495.14	2,494.85	8.72	8.71	-58.80	84.76	-7.51	82.43	70.13	12.30	6.701		
2,600.00	2,599.69	2,593.35	2,592.65	9.07	9.06	-58.84	92.47	-3.18	86.21	73.43	12.78	6.745		
2,700.00	2,699.27	2,691.55	2,690.20	9.43	9.41	-59.29	102.36	2.37	90.67	77.41	13.26	6.837		
2,800.00	2,798.57	2,791.44	2,789.28	9.79	9.77	-60.64	113.41	8.57	94.73	80.96	13.77	6.878		
2,900.00	2,897.54	2,891.30	2,888.33	10.15	10.14	-63.25	124.45	14.77	97.64	83.35	14.29	6.832		
3,000.00	2,996.09	2,991.05	2,987.28	10.53	10.51	-67.07	135.49	20.97	99.70	84.88	14.82	6.727		
3,100.00	3,094.16	3,090.64	3,086.06	10.91	10.88	-72.11	146.50	27.15	101.36	86.00	15.36	6.599		
3,135.41	3,128.76	3,125.84	3,120.98	11.04	11.01	-74.18	150.39	29.34	101.96	86.40	15.55	6.555		
3,200.00	3,191.82	3,190.04	3,184.66	11.30	11.25	-78.07	157.49	33.32	103.33	87.42	15.91	6.495		
3,300.00	3,289.44	3,289.43	3,283.25	11.70	11.63	-83.83	168.49	39.49	106.38	89.91	16.47	6.460 SF		
3,400.00	3,387.05	3,388.82	3,381.84	12.10	12.01	-89.23	179.48	45.67	110.44	93.41	17.03	6.486		
3,500.00	3,484.67	3,488.21	3,480.42	12.52	12.39	-94.21	190.47	51.84	115.42	97.83	17.59	6.562		
3,600.00	3,582.29	3,587.60	3,579.01	12.94	12.77	-98.75	201.46	58.01	121.21	103.05	18.15	6.677		
3,700.00	3,679.91	3,686.99	3,677.60	13.36	13.15	-102.86	212.45	64.18	127.68	108.97	18.71	6.823		
3,800.00	3,777.52	3,786.38	3,776.18	13.79	13.53	-106.56	223.45	70.35	134.75	115.48	19.27	6.991		
3,900.00	3,875.14	3,885.77	3,874.77	14.22	13.92	-109.87	234.44	76.52	142.33	122.50	19.83	7.177		
4,000.00	3,972.76	3,985.16	3,973.36	14.66	14.30	-112.85	245.43	82.69	150.33	129.94	20.39	7.373		
4,100.00	4,070.38	4,084.55	4,071.94	15.10	14.69	-115.52	256.42	88.86	158.70	137.76	20.94	7.577		
4,200.00	4,168.00	4,183.94	4,170.53	15.55	15.08	-117.92	267.41	95.04	167.38	145.88	21.50	7.785		
4,300.00	4,265.61	4,283.33	4,269.12	15.99	15.46	-120.08	278.41	101.21	176.32	154.27	22.05	7.995		
4,400.00	4,363.23	4,382.72	4,367.70	16.44	15.85	-122.03	289.40	107.38	185.49	162.88	22.61	8.205		
4,500.00	4,460.85	4,482.11	4,466.29	16.90	16.24	-123.80	300.39	113.55	194.85	171.69	23.16	8.414		
4,600.00	4,558.47	4,581.49	4,564.88	17.35	16.63	-125.40	311.38	119.72	204.37	180.66	23.71	8.620		
4,700.00	4,656.08	4,680.88	4,663.46	17.81	17.03	-126.86	322.38	125.89	214.04	189.78	24.26	8.823		
4,800.00	4,753.70	4,780.27	4,762.05	18.27	17.42	-128.19	333.37	132.06	223.84	199.03	24.81	9.021		
4,900.00	4,851.32	4,879.66	4,860.64	18.73	17.81	-129.41	344.36	138.24	233.75	208.39	25.36	9.216		
5,000.00	4,948.94	4,979.05	4,959.22	19.19	18.20	-130.53	355.35	144.41	243.75	217.84	25.92	9.406		

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 502H
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 502H	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	5,046.56	5,078.44	5,057.81	19.66	18.60	-131.57	366.34	150.58	253.84	227.38	26.47	9.591		
5,200.00	5,144.17	5,177.83	5,156.40	20.13	18.99	-132.52	377.34	156.75	264.01	236.99	27.02	9.771		
5,300.00	5,241.79	5,277.22	5,254.98	20.59	19.39	-133.40	388.33	162.92	274.24	246.67	27.57	9.947		
5,400.00	5,339.41	5,376.61	5,353.57	21.06	19.78	-134.22	399.32	169.09	284.53	256.41	28.12	10.117		
5,500.00	5,437.03	5,476.00	5,452.16	21.53	20.18	-134.98	410.31	175.26	294.88	266.20	28.68	10.283		
5,600.00	5,534.65	5,575.39	5,550.74	22.01	20.57	-135.69	421.30	181.43	305.27	276.05	29.23	10.445		
5,700.00	5,632.26	5,674.78	5,649.33	22.48	20.97	-136.36	432.30	187.61	315.71	285.93	29.78	10.601		
5,800.00	5,729.88	5,774.17	5,747.92	22.95	21.37	-136.98	443.29	193.78	326.19	295.85	30.33	10.754		
5,900.00	5,827.50	5,873.56	5,846.50	23.43	21.76	-137.56	454.28	199.95	336.70	305.81	30.89	10.901		
6,000.00	5,925.12	5,972.95	5,945.09	23.90	22.16	-138.11	465.27	206.12	347.24	315.80	31.44	11.045		
6,100.00	6,022.73	6,072.34	6,043.68	24.38	22.56	-138.62	476.26	212.29	357.82	325.83	31.99	11.184		
6,200.00	6,120.35	6,171.73	6,142.27	24.85	22.95	-139.11	487.26	218.46	368.42	335.87	32.55	11.320		
6,300.00	6,217.97	6,271.12	6,240.85	25.33	23.35	-139.56	498.25	224.63	379.04	345.94	33.10	11.451		
6,400.00	6,315.59	6,370.51	6,339.44	25.81	23.75	-140.00	509.24	230.81	389.69	356.04	33.65	11.579		
6,500.00	6,413.21	6,469.89	6,438.03	26.29	24.15	-140.41	520.23	236.98	400.36	366.15	34.21	11.704		
6,600.00	6,510.82	6,569.28	6,536.61	26.77	24.55	-140.80	531.22	243.15	411.05	376.29	34.76	11.824		
6,700.00	6,608.44	6,668.67	6,635.20	27.25	24.95	-141.17	542.22	249.32	421.76	386.44	35.32	11.942		
6,719.26	6,627.24	6,687.81	6,654.18	27.34	25.02	-141.23	544.33	250.51	423.82	388.40	35.42	11.964		
6,800.00	6,706.24	6,768.14	6,733.86	27.73	25.35	-141.52	553.22	255.50	431.81	395.94	35.87	12.037		
6,900.00	6,804.54	6,867.81	6,832.73	28.18	25.75	-141.66	564.24	261.68	439.88	403.44	36.43	12.073		
7,000.00	6,903.29	6,967.62	6,931.73	28.61	26.15	-141.56	575.28	267.88	445.89	408.89	37.00	12.052		
7,100.00	7,002.41	7,062.79	7,026.23	29.02	26.52	-141.36	585.07	273.38	450.31	412.77	37.54	11.996		
7,200.00	7,101.85	7,157.15	7,120.18	29.41	26.89	-141.21	592.78	277.71	453.91	415.86	38.06	11.928		
7,300.00	7,201.53	7,251.53	7,214.33	29.78	27.24	-141.11	598.46	280.90	456.71	418.16	38.55	11.847		
7,400.00	7,301.38	7,345.93	7,308.63	30.13	27.58	-141.07	602.12	282.95	458.68	419.66	39.02	11.755		
7,500.00	7,401.34	7,440.32	7,403.00	30.46	27.90	-141.09	603.74	283.86	459.84	420.38	39.47	11.651		
7,554.66	7,456.00	7,493.32	7,456.00	30.63	28.08	-90.27	603.83	283.91	460.10	420.38	39.71	11.585		
7,600.00	7,501.34	7,538.66	7,501.34	30.77	28.23	-90.27	603.83	283.91	460.10	420.17	39.93	11.523		
7,700.00	7,601.34	7,638.66	7,601.34	31.07	28.57	-90.27	603.83	283.91	460.10	419.70	40.40	11.389		
7,800.00	7,701.34	7,738.66	7,701.34	31.38	28.91	-90.27	603.83	283.91	460.10	419.23	40.87	11.258		
7,900.00	7,801.34	7,838.66	7,801.34	31.69	29.24	-90.27	603.83	283.91	460.10	418.75	41.34	11.129		
8,000.00	7,901.34	7,938.66	7,901.34	32.00	29.58	-90.27	603.83	283.91	460.10	418.28	41.81	11.003		
8,100.00	8,001.34	8,038.66	8,001.34	32.32	29.92	-90.27	603.83	283.91	460.10	417.81	42.29	10.880		
8,200.00	8,101.34	8,138.66	8,101.34	32.63	30.26	-90.27	603.83	283.91	460.10	417.33	42.76	10.759		
8,300.00	8,201.34	8,238.66	8,201.34	32.94	30.60	-90.27	603.83	283.91	460.10	416.86	43.24	10.641		
8,400.00	8,301.34	8,338.66	8,301.34	33.26	30.93	-90.27	603.83	283.91	460.10	416.38	43.71	10.525		
8,500.00	8,401.34	8,438.66	8,401.34	33.57	31.27	-90.27	603.83	283.91	460.10	415.91	44.19	10.412		
8,600.00	8,501.34	8,538.66	8,501.34	33.89	31.61	-90.27	603.83	283.91	460.10	415.43	44.67	10.301		
8,700.00	8,601.34	8,638.66	8,601.34	34.20	31.95	-90.27	603.83	283.91	460.10	414.95	45.14	10.192		
8,800.00	8,701.34	8,738.66	8,701.34	34.52	32.30	-90.27	603.83	283.91	460.10	414.47	45.62	10.085		
8,900.00	8,801.34	8,838.66	8,801.34	34.84	32.64	-90.27	603.83	283.91	460.10	413.99	46.10	9.980		
9,000.00	8,901.34	8,938.66	8,901.34	35.16	32.98	-90.27	603.83	283.91	460.10	413.51	46.58	9.877		
9,100.00	9,001.34	9,038.66	9,001.34	35.48	33.32	-90.27	603.83	283.91	460.10	413.03	47.06	9.776		
9,200.00	9,101.34	9,138.66	9,101.34	35.80	33.66	-90.27	603.83	283.91	460.10	412.55	47.54	9.678		
9,300.00	9,201.34	9,238.66	9,201.34	36.12	34.01	-90.27	603.83	283.91	460.10	412.07	48.02	9.581		
9,400.00	9,301.34	9,338.66	9,301.34	36.45	34.35	-90.27	603.83	283.91	460.10	411.59	48.51	9.485		
9,500.00	9,401.34	9,438.66	9,401.34	36.77	34.69	-90.27	603.83	283.91	460.10	411.11	48.99	9.392		
9,600.00	9,501.34	9,538.66	9,501.34	37.09	35.03	-90.27	603.83	283.91	460.10	410.62	49.47	9.300		
9,700.00	9,601.34	9,638.66	9,601.34	37.42	35.38	-90.27	603.83	283.91	460.10	410.14	49.95	9.210		
9,800.00	9,701.34	9,738.66	9,701.34	37.74	35.72	-90.27	603.83	283.91	460.10	409.66	50.44	9.122		
9,900.00	9,801.34	9,838.66	9,801.34	38.07	36.07	-90.27	603.83	283.91	460.10	409.17	50.92	9.035		
10,000.00	9,901.34	9,938.66	9,901.34	38.39	36.41	-90.27	603.83	283.91	460.10	408.69	51.41	8.950		

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 502H
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 502H	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			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,036.70	9,938.04	9,975.36	9,938.04	38.51	36.54	-90.27	603.83	283.91	460.10	408.51	51.58	8.919		
10,050.00	9,951.34	9,988.66	9,951.34	38.55	36.58	93.05	603.83	283.91	460.10	408.45	51.65	8.908		
10,100.00	10,001.21	10,038.53	10,001.21	38.69	36.76	93.44	603.83	283.91	460.29	408.40	51.89	8.870		
10,150.00	10,050.60	10,087.92	10,050.60	38.82	36.93	94.33	603.83	283.91	460.82	408.67	52.15	8.837		
10,200.00	10,099.14	10,136.45	10,099.14	38.93	37.09	95.66	603.83	283.91	461.89	409.49	52.41	8.813		
10,250.00	10,146.45	10,183.76	10,146.45	39.02	37.26	97.34	603.83	283.91	463.83	411.15	52.68	8.805		
10,300.00	10,192.17	10,229.49	10,192.17	39.10	37.42	99.28	603.83	283.91	467.02	414.08	52.95	8.820		
10,350.00	10,235.96	10,273.28	10,235.96	39.16	37.57	101.34	603.83	283.91	471.94	418.73	53.22	8.868		
10,400.00	10,277.48	10,314.80	10,277.48	39.21	37.71	103.38	603.83	283.91	479.07	425.59	53.47	8.959		
10,450.00	10,316.42	10,353.74	10,316.42	39.23	37.85	105.27	603.83	283.91	488.87	435.15	53.72	9.101		
10,500.00	10,352.48	10,389.79	10,352.48	39.25	37.97	106.86	603.83	283.91	501.75	447.81	53.94	9.302		
10,550.00	10,385.38	10,422.70	10,385.38	39.25	38.08	108.02	603.83	283.91	518.02	463.89	54.13	9.569		
10,600.00	10,414.88	10,452.20	10,414.88	39.23	38.19	108.64	603.83	283.91	537.85	483.56	54.29	9.906		
10,650.00	10,440.75	10,478.07	10,440.75	39.21	38.28	108.61	603.83	283.91	561.27	506.85	54.42	10.314		
10,700.00	10,462.80	10,500.11	10,462.80	39.18	38.35	107.79	603.83	283.91	588.19	533.68	54.51	10.790		
10,750.00	10,480.85	10,518.17	10,480.85	39.13	38.41	106.09	603.83	283.91	618.36	563.79	54.57	11.332		
10,800.00	10,494.77	10,532.09	10,494.77	39.09	38.46	103.36	603.83	283.91	651.47	596.87	54.60	11.932		
10,850.00	10,504.45	10,541.77	10,504.45	39.04	38.50	99.52	603.83	283.91	687.11	632.51	54.60	12.585		
10,900.00	10,509.82	10,547.14	10,509.82	39.00	38.52	94.47	603.83	283.91	724.82	670.24	54.58	13.281		
10,936.70	10,511.00	10,548.32	10,511.00	38.97	38.52	90.00	603.83	283.91	753.55	699.00	54.55	13.814		
11,000.00	10,511.00	10,548.32	10,511.00	38.94	38.52	90.00	603.83	283.91	804.24	749.75	54.49	14.758		
11,073.75	10,511.00	10,548.32	10,511.00	38.93	38.52	90.00	603.83	283.91	864.43	810.00	54.43	15.882		
11,100.00	10,511.00	10,548.32	10,511.00	38.94	38.52	90.00	603.83	283.91	886.17	831.76	54.41	16.288		
11,200.00	10,511.00	10,548.32	10,511.00	39.03	38.52	90.00	603.83	283.91	971.01	916.69	54.33	17.873		
11,300.00	10,511.00	10,548.32	10,511.00	39.25	38.52	90.00	603.83	283.91	1,058.51	1,004.25	54.26	19.508		
11,400.00	10,511.00	10,548.32	10,511.00	39.60	38.52	90.00	603.83	283.91	1,148.05	1,093.85	54.20	21.182		
11,500.00	10,511.00	10,548.32	10,511.00	40.03	38.52	90.00	603.83	283.91	1,239.19	1,185.04	54.15	22.886		
11,600.00	10,511.00	10,548.32	10,511.00	40.53	38.52	90.00	603.83	283.91	1,331.60	1,277.50	54.10	24.613		
11,700.00	10,511.00	10,548.32	10,511.00	41.10	38.52	90.00	603.83	283.91	1,425.04	1,370.97	54.06	26.358		
11,800.00	10,511.00	10,548.32	10,511.00	41.73	38.52	90.00	603.83	283.91	1,519.31	1,465.28	54.03	28.119		
11,900.00	10,511.00	10,548.32	10,511.00	42.41	38.52	90.00	603.83	283.91	1,614.27	1,560.27	54.00	29.892		
12,000.00	10,511.00	10,548.32	10,511.00	43.14	38.52	90.00	603.83	283.91	1,709.81	1,655.83	53.98	31.674		
12,100.00	10,511.00	10,548.32	10,511.00	43.93	38.52	90.00	603.83	283.91	1,805.83	1,751.87	53.96	33.465		
12,200.00	10,511.00	10,548.32	10,511.00	44.75	38.52	90.00	603.83	283.91	1,902.26	1,848.31	53.95	35.262		
12,300.00	10,511.00	14,182.44	12,446.00	45.62	51.33	168.87	-1,332.90	412.90	1,972.09	1,929.31	42.78	46.100		
12,400.00	10,511.00	14,282.44	12,446.00	46.53	52.16	168.87	-1,432.90	413.88	1,972.09	1,928.66	43.42	45.414		
12,500.00	10,511.00	14,382.44	12,446.00	47.48	53.04	168.87	-1,532.89	414.86	1,972.09	1,927.99	44.09	44.725		
12,600.00	10,511.00	14,482.44	12,446.00	48.47	53.95	168.87	-1,632.89	415.85	1,972.09	1,927.30	44.78	44.036		
12,700.00	10,511.00	14,582.44	12,446.00	49.49	54.90	168.87	-1,732.88	416.83	1,972.09	1,926.59	45.49	43.348		
12,800.00	10,511.00	14,682.44	12,446.00	50.55	55.87	168.87	-1,832.88	417.81	1,972.08	1,925.86	46.22	42.665		
12,900.00	10,511.00	14,782.44	12,446.00	51.63	56.88	168.87	-1,932.87	418.80	1,972.08	1,925.11	46.97	41.986		
13,000.00	10,511.00	14,882.44	12,446.00	52.75	57.92	168.87	-2,032.87	419.78	1,972.08	1,924.35	47.73	41.315		
13,100.00	10,511.00	14,982.44	12,446.00	53.89	58.99	168.87	-2,132.86	420.77	1,972.08	1,923.57	48.51	40.651		
13,200.00	10,511.00	15,082.44	12,446.00	55.05	60.08	168.87	-2,232.86	421.75	1,972.08	1,922.77	49.31	39.996		
13,300.00	10,511.00	15,182.44	12,446.00	56.24	61.20	168.87	-2,332.85	422.73	1,972.08	1,921.96	50.12	39.350		
13,400.00	10,511.00	15,282.44	12,446.00	57.46	62.34	168.87	-2,432.85	423.72	1,972.07	1,921.13	50.94	38.714		
13,500.00	10,511.00	15,382.44	12,446.00	58.69	63.51	168.87	-2,532.84	424.70	1,972.07	1,920.30	51.78	38.088		
13,600.00	10,511.00	15,482.44	12,446.00	59.94	64.69	168.87	-2,632.84	425.68	1,972.07	1,919.45	52.63	37.474		
13,700.00	10,511.00	15,582.44	12,446.00	61.22	65.90	168.87	-2,732.83	426.67	1,972.07	1,918.58	53.49	36.870		
13,800.00	10,511.00	15,682.44	12,446.00	62.51	67.12	168.87	-2,832.83	427.65	1,972.07	1,917.71	54.36	36.278		
13,900.00	10,511.00	15,782.44	12,446.00	63.81	68.36	168.87	-2,932.82	428.64	1,972.07	1,916.82	55.24	35.697		
14,000.00	10,511.00	15,882.44	12,446.00	65.13	69.62	168.87	-3,032.82	429.62	1,972.06	1,915.92	56.14	35.128		

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 502H
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 502H	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				Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,100.00	10,511.00	15,982.44	12,446.00	66.47	70.90	168.87	-3,132.81	430.60	1,972.06	1,915.02	57.04	34.570				
14,200.00	10,511.00	16,082.44	12,446.00	67.82	72.19	168.87	-3,232.81	431.59	1,972.06	1,914.10	57.96	34.026				
14,300.00	10,511.00	16,182.44	12,446.00	69.18	73.49	168.87	-3,332.81	432.57	1,972.06	1,913.18	58.88	33.493				
14,400.00	10,511.00	16,282.44	12,446.00	70.56	74.81	168.87	-3,432.80	433.55	1,972.06	1,912.25	59.81	32.972				
14,500.00	10,511.00	16,382.44	12,446.00	71.95	76.14	168.88	-3,532.80	434.54	1,972.06	1,911.31	60.75	32.461				
14,600.00	10,511.00	16,482.44	12,446.00	73.34	77.48	168.88	-3,632.79	435.52	1,972.06	1,910.36	61.70	31.963				
14,700.00	10,511.00	16,582.44	12,446.00	74.75	78.84	168.88	-3,732.79	436.51	1,972.05	1,909.40	62.65	31.476				
14,800.00	10,511.00	16,682.44	12,446.00	76.17	80.21	168.88	-3,832.78	437.49	1,972.05	1,908.44	63.61	31.001				
14,900.00	10,511.00	16,782.44	12,446.00	77.60	81.58	168.88	-3,932.78	438.47	1,972.05	1,907.47	64.58	30.536				
15,000.00	10,511.00	16,882.44	12,446.00	79.03	82.97	168.88	-4,032.77	439.46	1,972.05	1,906.49	65.56	30.082				
15,100.00	10,511.00	16,982.44	12,446.00	80.47	84.37	168.88	-4,132.77	440.44	1,972.05	1,905.51	66.54	29.638				
15,200.00	10,511.00	17,082.44	12,446.00	81.93	85.77	168.88	-4,232.76	441.42	1,972.05	1,904.52	67.52	29.205				
15,300.00	10,511.00	17,182.44	12,446.00	83.38	87.19	168.88	-4,332.76	442.41	1,972.04	1,903.53	68.52	28.782				
15,400.00	10,511.00	17,282.44	12,446.00	84.85	88.61	168.88	-4,432.75	443.39	1,972.04	1,902.53	69.51	28.369				
15,500.00	10,511.00	17,382.44	12,446.00	86.32	90.04	168.88	-4,532.75	444.38	1,972.04	1,901.53	70.52	27.966				
15,600.00	10,511.00	17,482.44	12,446.00	87.80	91.48	168.88	-4,632.74	445.36	1,972.04	1,900.52	71.52	27.572				
15,700.00	10,511.00	17,582.44	12,446.00	89.29	92.92	168.88	-4,732.74	446.34	1,972.04	1,899.50	72.53	27.188				
15,800.00	10,511.00	17,682.44	12,446.00	90.78	94.37	168.88	-4,832.73	447.33	1,972.04	1,898.49	73.55	26.812				
15,900.00	10,511.00	17,782.44	12,446.00	92.27	95.83	168.88	-4,932.73	448.31	1,972.04	1,897.46	74.57	26.445				
16,000.00	10,511.00	17,882.44	12,446.00	93.77	97.29	168.88	-5,032.72	449.29	1,972.03	1,896.44	75.60	26.087				
16,100.00	10,511.00	17,982.44	12,446.00	95.28	98.76	168.88	-5,132.72	450.28	1,972.03	1,895.41	76.62	25.736				
16,200.00	10,511.00	18,082.44	12,446.00	96.79	100.24	168.88	-5,232.71	451.26	1,972.03	1,894.37	77.66	25.394				
16,300.00	10,511.00	18,182.44	12,446.00	98.31	101.72	168.88	-5,332.71	452.25	1,972.03	1,893.33	78.69	25.059				
16,400.00	10,511.00	18,282.44	12,446.00	99.83	103.21	168.88	-5,432.70	453.23	1,972.03	1,892.29	79.73	24.732				
16,500.00	10,511.00	18,382.44	12,446.00	101.35	104.70	168.88	-5,532.70	454.21	1,972.03	1,891.25	80.78	24.413				
16,600.00	10,511.00	18,482.44	12,446.00	102.88	106.19	168.88	-5,632.69	455.20	1,972.02	1,890.20	81.83	24.100				
16,700.00	10,511.00	18,582.44	12,446.00	104.41	107.69	168.88	-5,732.69	456.18	1,972.02	1,889.15	82.88	23.795				
16,800.00	10,511.00	18,682.44	12,446.00	105.94	109.20	168.88	-5,832.68	457.16	1,972.02	1,888.09	83.93	23.497				
16,900.00	10,511.00	18,782.44	12,446.00	107.48	110.71	168.88	-5,932.68	458.15	1,972.02	1,887.04	84.98	23.205				
17,000.00	10,511.00	18,882.44	12,446.00	109.02	112.22	168.88	-6,032.67	459.13	1,972.02	1,885.98	86.04	22.920				
17,100.00	10,511.00	18,982.44	12,446.00	110.57	113.74	168.88	-6,132.67	460.12	1,972.02	1,884.92	87.10	22.641				
17,200.00	10,511.00	19,082.44	12,446.00	112.12	115.26	168.88	-6,232.66	461.10	1,972.01	1,883.85	88.16	22.368				
17,300.00	10,511.00	19,182.44	12,446.00	113.67	116.78	168.88	-6,332.66	462.08	1,972.01	1,882.79	89.23	22.101				
17,400.00	10,511.00	19,282.44	12,446.00	115.22	118.31	168.88	-6,432.66	463.07	1,972.01	1,881.72	90.29	21.840				
17,500.00	10,511.00	19,382.44	12,446.00	116.78	119.84	168.88	-6,532.65	464.05	1,972.01	1,880.64	91.37	21.584				
17,600.00	10,511.00	19,482.44	12,446.00	118.34	121.37	168.88	-6,632.65	465.03	1,972.01	1,879.57	92.44	21.334				
17,700.00	10,511.00	19,582.44	12,446.00	119.90	122.91	168.88	-6,732.64	466.02	1,972.01	1,878.49	93.51	21.088				
17,800.00	10,511.00	19,682.44	12,446.00	121.46	124.45	168.88	-6,832.64	467.00	1,972.01	1,877.42	94.59	20.849				
17,900.00	10,511.00	19,782.44	12,446.00	123.03	125.99	168.88	-6,932.63	467.99	1,972.00	1,876.34	95.66	20.614				
18,000.00	10,511.00	19,882.44	12,446.00	124.59	127.54	168.88	-7,032.63	468.97	1,972.00	1,875.26	96.74	20.384				
18,100.00	10,511.00	19,982.44	12,446.00	126.16	129.09	168.88	-7,132.62	469.95	1,972.00	1,874.18	97.82	20.158				
18,200.00	10,511.00	20,082.44	12,446.00	127.74	130.64	168.88	-7,232.62	470.94	1,972.00	1,873.09	98.91	19.938				
18,300.00	10,511.00	20,182.44	12,446.00	129.31	132.19	168.88	-7,332.61	471.92	1,972.00	1,872.00	99.99	19.721				
18,400.00	10,511.00	20,282.44	12,446.00	130.89	133.75	168.88	-7,432.61	472.90	1,972.00	1,870.92	101.08	19.509				
18,500.00	10,511.00	20,382.44	12,446.00	132.46	135.31	168.88	-7,532.60	473.89	1,971.99	1,869.83	102.17	19.301				
18,600.00	10,511.00	20,482.44	12,446.00	134.04	136.86	168.88	-7,632.60	474.87	1,971.99	1,868.73	103.26	19.098				
18,700.00	10,511.00	20,582.44	12,446.00	135.63	138.43	168.88	-7,732.59	475.86	1,971.99	1,867.64	104.35	18.898				
18,800.00	10,511.00	20,682.44	12,446.00	137.21	139.99	168.89	-7,832.59	476.84	1,971.99	1,866.55	105.44	18.703				
18,900.00	10,511.00	20,782.44	12,446.00	138.79	141.56	168.89	-7,932.58	477.82	1,971.99	1,865.46	106.53	18.511				
19,000.00	10,511.00	20,882.44	12,446.00	140.38	143.13	168.89	-8,032.58	478.81	1,971.99	1,864.36	107.63	18.323				
19,100.00	10,511.00	20,982.44	12,446.00	141.97	144.69	168.89	-8,132.57	479.79	1,971.99	1,863.26	108.72	18.138				
19,200.00	10,511.00	21,082.44	12,446.00	143.56	146.27	168.89	-8,232.57	480.77	1,971.98	1,862.16	109.82	17.957				

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 502H
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 502H	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			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	10,511.00	21,182.44	12,446.00	145.15	147.84	168.89	-8,332.56	481.76	1,971.98	1,861.06	110.92	17.779			
19,400.00	10,511.00	21,282.44	12,446.00	146.74	149.41	168.89	-8,432.56	482.74	1,971.98	1,859.96	112.02	17.604			
19,500.00	10,511.00	21,382.44	12,446.00	148.33	150.99	168.89	-8,532.55	483.73	1,971.98	1,858.86	113.12	17.433			
19,600.00	10,511.00	21,482.44	12,446.00	149.93	152.57	168.89	-8,632.55	484.71	1,971.98	1,857.76	114.22	17.265			
19,700.00	10,511.00	21,582.44	12,446.00	151.52	154.15	168.89	-8,732.54	485.69	1,971.98	1,856.65	115.32	17.100			
19,800.00	10,511.00	21,682.44	12,446.00	153.12	155.73	168.89	-8,832.54	486.68	1,971.97	1,855.55	116.43	16.937			
19,900.00	10,511.00	21,782.44	12,446.00	154.72	157.31	168.89	-8,932.53	487.66	1,971.97	1,854.44	117.53	16.778			
20,000.00	10,511.00	21,882.44	12,446.00	156.32	158.90	168.89	-9,032.53	488.64	1,971.97	1,853.33	118.64	16.622			
20,100.00	10,511.00	21,982.44	12,446.00	157.92	160.48	168.89	-9,132.52	489.63	1,971.97	1,852.22	119.75	16.468			
20,200.00	10,511.00	22,082.44	12,446.00	159.52	162.07	168.89	-9,232.52	490.61	1,971.97	1,851.12	120.85	16.317			
20,300.00	10,511.00	22,182.44	12,446.00	161.12	163.66	168.89	-9,332.51	491.60	1,971.97	1,850.01	121.96	16.169			
20,400.00	10,511.00	22,282.44	12,446.00	162.72	165.25	168.89	-9,432.51	492.58	1,971.96	1,848.90	123.07	16.023			
20,500.00	10,511.00	22,382.44	12,446.00	164.33	166.84	168.89	-9,532.51	493.56	1,971.96	1,847.79	124.18	15.880			
20,600.00	10,511.00	22,482.44	12,446.00	165.93	168.43	168.89	-9,632.50	494.55	1,971.96	1,846.67	125.29	15.739			
20,700.00	10,511.00	22,582.44	12,446.00	167.54	170.02	168.89	-9,732.50	495.53	1,971.96	1,845.56	126.40	15.601			
20,800.00	10,511.00	22,682.44	12,446.00	169.14	171.62	168.89	-9,832.49	496.51	1,971.96	1,844.45	127.51	15.465			
20,900.00	10,511.00	22,782.44	12,446.00	170.75	173.21	168.89	-9,932.49	497.50	1,971.96	1,843.33	128.63	15.331			
21,000.00	10,511.00	22,882.44	12,446.00	172.36	174.81	168.89	-10,032.48	498.48	1,971.96	1,842.22	129.74	15.199			
21,100.00	10,511.00	22,982.44	12,446.00	173.97	176.40	168.89	-10,132.48	499.47	1,971.95	1,841.10	130.85	15.070			
21,200.00	10,511.00	23,082.44	12,446.00	175.58	178.00	168.89	-10,232.47	500.45	1,971.95	1,839.98	131.97	14.943			
21,300.00	10,511.00	23,182.44	12,446.00	177.19	179.60	168.89	-10,332.47	501.43	1,971.95	1,838.87	133.08	14.817			
21,400.00	10,511.00	23,282.44	12,446.00	178.80	181.20	168.89	-10,432.46	502.42	1,971.95	1,837.75	134.20	14.694			
21,500.00	10,511.00	23,382.44	12,446.00	180.41	182.80	168.89	-10,532.46	503.40	1,971.95	1,836.63	135.31	14.573			
21,600.00	10,511.00	23,482.44	12,446.00	182.03	184.40	168.89	-10,632.45	504.38	1,971.95	1,835.52	136.43	14.454			
21,700.00	10,511.00	23,582.44	12,446.00	183.64	186.01	168.89	-10,732.45	505.37	1,971.94	1,834.40	137.55	14.337			
21,800.00	10,511.00	23,682.44	12,446.00	185.25	187.61	168.89	-10,832.44	506.35	1,971.94	1,833.28	138.67	14.221			
21,900.00	10,511.00	23,782.44	12,446.00	186.87	189.21	168.89	-10,932.44	507.34	1,971.94	1,832.16	139.78	14.107			
22,000.00	10,511.00	23,882.44	12,446.00	188.49	190.82	168.89	-11,032.43	508.32	1,971.94	1,831.04	140.90	13.995			
22,046.30	10,511.00	23,928.74	12,446.00	189.23	191.56	168.89	-11,078.73	508.78	1,971.94	1,830.52	141.42	13.944			

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 502H
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 502H	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	8.85	75.06	11.69	75.96					
100.00	100.00	100.00	100.00	0.13	0.13	8.85	75.06	11.69	75.96	75.79	0.18	428.117		
200.00	200.00	200.00	200.00	0.48	0.48	8.85	75.06	11.69	75.96	75.28	0.68	110.993		
300.00	300.00	300.00	300.00	0.84	0.84	8.85	75.06	11.69	75.96	74.77	1.19	63.762		
400.00	400.00	400.00	400.00	1.20	1.20	8.85	75.06	11.69	75.96	74.26	1.70	44.729		
500.00	500.00	500.00	500.00	1.56	1.56	8.85	75.06	11.69	75.96	73.76	2.21	34.446		
600.00	600.00	600.00	600.00	1.92	1.92	8.85	75.06	11.69	75.96	73.25	2.71	28.008		
700.00	700.00	700.00	700.00	2.28	2.28	8.85	75.06	11.69	75.96	72.74	3.22	23.597		
800.00	800.00	800.00	800.00	2.63	2.63	8.85	75.06	11.69	75.96	72.24	3.73	20.387		
900.00	900.00	900.00	900.00	2.99	2.99	8.85	75.06	11.69	75.96	71.73	4.23	17.945		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	8.85	75.06	11.69	75.96	71.22	4.74	16.026		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	8.85	75.06	11.69	75.96	70.72	5.25	14.477		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	8.85	75.06	11.69	75.96	70.21	5.75	13.202		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	8.85	75.06	11.69	75.96	69.70	6.26	12.133		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	8.85	75.06	11.69	75.96	69.19	6.77	11.224		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	8.85	75.06	11.69	75.96	68.69	7.27	10.442		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	8.85	75.06	11.69	75.96	68.18	7.78	9.762 CC, ES		
1,700.00	1,700.00	1,698.57	1,698.55	5.86	5.85	9.92	75.73	13.25	76.89	68.61	8.28	9.286		
1,800.00	1,800.00	1,796.91	1,796.76	6.22	6.20	12.97	77.73	17.91	79.83	71.06	8.77	9.100 SF		
1,900.00	1,900.00	1,894.79	1,894.27	6.58	6.54	17.54	81.04	25.61	85.18	75.93	9.26	9.201		
2,000.00	2,000.00	1,991.98	1,990.76	6.94	6.89	22.97	85.63	36.29	93.46	83.72	9.73	9.601		
2,100.00	2,100.00	2,088.27	2,085.91	7.29	7.24	28.59	91.44	49.83	105.09	94.89	10.19	10.308		
2,200.00	2,200.00	2,183.46	2,179.43	7.65	7.61	33.88	98.43	66.09	120.33	109.69	10.64	11.311		
2,300.00	2,300.00	2,277.36	2,271.07	8.01	7.98	38.56	106.52	84.92	139.27	128.20	11.06	12.588		
2,400.00	2,399.99	2,370.78	2,361.52	8.37	8.36	-8.27	115.73	106.36	160.56	149.08	11.48	13.986		
2,500.00	2,499.91	2,468.22	2,455.58	8.72	8.79	-5.03	125.77	129.74	181.00	169.04	11.96	15.131		
2,600.00	2,599.69	2,566.18	2,550.14	9.07	9.22	-2.50	135.87	153.25	199.31	186.86	12.45	16.006		
2,700.00	2,699.27	2,664.60	2,645.14	9.43	9.67	-0.41	146.02	176.88	215.35	202.41	12.95	16.633		
2,800.00	2,798.57	2,763.41	2,740.52	9.79	10.13	1.40	156.21	200.59	229.05	215.60	13.45	17.034		
2,900.00	2,897.54	2,862.54	2,836.21	10.15	10.60	3.04	166.43	224.38	240.35	226.40	13.95	17.229		
3,000.00	2,996.09	2,961.92	2,932.14	10.53	11.08	4.57	176.68	248.23	249.24	234.78	14.46	17.240		
3,100.00	3,094.16	3,061.49	3,028.26	10.91	11.57	6.05	186.94	272.13	255.70	240.73	14.97	17.085		
3,135.41	3,128.76	3,096.78	3,062.32	11.04	11.74	6.57	190.58	280.60	257.40	242.26	15.15	16.993		
3,200.00	3,191.82	3,161.17	3,124.47	11.30	12.06	7.53	197.22	296.05	260.27	244.79	15.48	16.814		
3,300.00	3,289.44	3,260.85	3,220.69	11.70	12.56	8.96	207.50	319.98	264.85	248.85	16.00	16.558		
3,400.00	3,387.05	3,360.53	3,316.91	12.10	13.06	10.34	217.78	343.90	269.59	253.07	16.51	16.324		
3,500.00	3,484.67	3,460.20	3,413.12	12.52	13.57	11.67	228.05	367.82	274.48	257.44	17.04	16.110		
3,600.00	3,582.29	3,559.88	3,509.34	12.94	14.08	12.96	238.33	391.75	279.51	261.95	17.56	15.914		
3,700.00	3,679.91	3,659.56	3,605.56	13.36	14.59	14.20	248.61	415.67	284.68	266.59	18.09	15.733		
3,800.00	3,777.52	3,759.24	3,701.78	13.79	15.11	15.40	258.88	439.59	289.98	271.35	18.63	15.567		
3,900.00	3,875.14	3,858.92	3,798.00	14.22	15.63	16.55	269.16	463.52	295.40	276.23	19.17	15.413		
4,000.00	3,972.76	3,958.60	3,894.21	14.66	16.15	17.66	279.44	487.44	300.94	281.23	19.71	15.270		
4,100.00	4,070.38	4,058.28	3,990.43	15.10	16.68	18.73	289.72	511.36	306.58	286.33	20.25	15.138		
4,200.00	4,168.00	4,157.96	4,086.65	15.55	17.20	19.77	299.99	535.28	312.33	291.53	20.80	15.014		
4,300.00	4,265.61	4,257.64	4,182.87	15.99	17.73	20.76	310.27	559.21	318.18	296.82	21.36	14.899		
4,400.00	4,363.23	4,357.31	4,279.09	16.44	18.26	21.72	320.55	583.13	324.11	302.20	21.91	14.790		
4,500.00	4,460.85	4,456.99	4,375.31	16.90	18.79	22.64	330.83	607.05	330.14	307.67	22.48	14.689		
4,600.00	4,558.47	4,556.67	4,471.52	17.35	19.32	23.53	341.10	630.98	336.25	313.21	23.04	14.594		
4,700.00	4,656.08	4,656.35	4,567.74	17.81	19.85	24.39	351.38	654.90	342.44	318.83	23.61	14.504		
4,800.00	4,753.70	4,756.03	4,663.96	18.27	20.39	25.22	361.66	678.82	348.70	324.51	24.18	14.419		
4,900.00	4,851.32	4,855.71	4,760.18	18.73	20.92	26.02	371.94	702.75	355.03	330.27	24.76	14.339		
5,000.00	4,948.94	4,955.39	4,856.40	19.19	21.46	26.79	382.21	726.67	361.43	336.09	25.34	14.263		

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 502H
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 502H	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	5,046.56	5,055.07	4,952.62	19.66	22.00	27.53	392.49	750.59	367.89	341.96	25.92	14.191		
5,200.00	5,144.17	5,154.75	5,048.83	20.13	22.54	28.25	402.77	774.52	374.41	347.90	26.51	14.123		
5,300.00	5,241.79	5,254.43	5,145.05	20.59	23.07	28.95	413.05	798.44	380.98	353.88	27.10	14.058		
5,400.00	5,339.41	5,354.10	5,241.27	21.06	23.61	29.62	423.32	822.36	387.61	359.92	27.70	13.996		
5,500.00	5,437.03	5,453.78	5,337.49	21.53	24.15	30.26	433.60	846.29	394.30	366.00	28.29	13.937		
5,600.00	5,534.65	5,553.46	5,433.71	22.01	24.70	30.89	443.88	870.21	401.03	372.14	28.89	13.881		
5,700.00	5,632.26	5,653.14	5,529.93	22.48	25.24	31.49	454.16	894.13	407.80	378.31	29.49	13.827		
5,800.00	5,729.88	5,752.82	5,626.14	22.95	25.78	32.08	464.43	918.06	414.62	384.53	30.10	13.776		
5,900.00	5,827.50	5,852.50	5,722.36	23.43	26.32	32.65	474.71	941.98	421.49	390.78	30.71	13.726		
6,000.00	5,925.12	5,952.18	5,818.58	23.90	26.87	33.19	484.99	965.90	428.39	397.07	31.32	13.679		
6,100.00	6,022.73	6,051.86	5,914.80	24.38	27.41	33.72	495.26	989.82	435.33	403.40	31.93	13.634		
6,200.00	6,120.35	6,151.54	6,011.02	24.85	27.95	34.24	505.54	1,013.75	442.30	409.76	32.54	13.591		
6,300.00	6,217.97	6,251.21	6,107.23	25.33	28.50	34.74	515.82	1,037.67	449.31	416.15	33.16	13.549		
6,400.00	6,315.59	6,350.89	6,203.45	25.81	29.04	35.22	526.10	1,061.59	456.36	422.57	33.78	13.509		
6,500.00	6,413.21	6,450.57	6,299.67	26.29	29.59	35.69	536.37	1,085.52	463.43	429.03	34.40	13.471		
6,600.00	6,510.82	6,550.25	6,395.89	26.77	30.13	36.14	546.65	1,109.44	470.53	435.51	35.03	13.434		
6,700.00	6,608.44	6,649.93	6,492.11	27.25	30.68	36.58	556.93	1,133.36	477.67	442.02	35.65	13.398		
6,719.26	6,627.24	6,669.12	6,510.63	27.34	30.78	36.66	558.91	1,137.97	479.04	443.27	35.77	13.391		
6,800.00	6,706.24	6,749.57	6,588.29	27.73	31.23	37.01	567.20	1,157.28	485.51	449.24	36.27	13.385		
6,900.00	6,804.54	6,857.72	6,692.81	28.18	31.81	37.30	578.16	1,182.78	495.01	458.06	36.94	13.399		
7,000.00	6,903.29	6,976.59	6,808.69	28.61	32.41	37.56	588.62	1,207.12	503.32	465.67	37.66	13.365		
7,100.00	7,002.41	7,095.95	6,926.04	29.02	32.96	37.79	597.19	1,227.09	509.87	471.56	38.31	13.310		
7,200.00	7,101.85	7,215.66	7,044.55	29.41	33.46	37.99	603.85	1,242.59	514.62	475.73	38.89	13.233		
7,300.00	7,201.53	7,335.62	7,163.90	29.78	33.90	38.17	608.56	1,253.55	517.56	478.16	39.40	13.136		
7,400.00	7,301.38	7,455.70	7,283.77	30.13	34.29	38.33	611.29	1,259.91	518.69	478.85	39.84	13.019		
7,500.00	7,401.34	7,573.29	7,401.34	30.46	34.63	38.47	612.06	1,261.69	518.03	477.80	40.23	12.877		
7,554.66	7,456.00	7,627.95	7,456.00	30.63	34.77	89.33	612.06	1,261.69	517.73	477.24	40.48	12.789		
7,600.00	7,501.34	7,673.29	7,501.34	30.77	34.90	89.33	612.06	1,261.69	517.73	477.04	40.69	12.725		
7,700.00	7,601.34	7,773.29	7,601.34	31.07	35.17	89.33	612.06	1,261.69	517.73	476.59	41.14	12.584		
7,800.00	7,701.34	7,873.29	7,701.34	31.38	35.44	89.33	612.06	1,261.69	517.73	476.13	41.59	12.447		
7,900.00	7,801.34	7,973.29	7,801.34	31.69	35.71	89.33	612.06	1,261.69	517.73	475.67	42.05	12.312		
8,000.00	7,901.34	8,073.29	7,901.34	32.00	35.99	89.33	612.06	1,261.69	517.73	475.22	42.51	12.179		
8,100.00	8,001.34	8,173.29	8,001.34	32.32	36.27	89.33	612.06	1,261.69	517.73	474.76	42.97	12.049		
8,200.00	8,101.34	8,273.29	8,101.34	32.63	36.54	89.33	612.06	1,261.69	517.73	474.30	43.43	11.922		
8,300.00	8,201.34	8,373.29	8,201.34	32.94	36.82	89.33	612.06	1,261.69	517.73	473.84	43.89	11.797		
8,400.00	8,301.34	8,473.29	8,301.34	33.26	37.10	89.33	612.06	1,261.69	517.73	473.38	44.35	11.674		
8,500.00	8,401.34	8,573.29	8,401.34	33.57	37.39	89.33	612.06	1,261.69	517.73	472.91	44.81	11.553		
8,600.00	8,501.34	8,673.29	8,501.34	33.89	37.67	89.33	612.06	1,261.69	517.73	472.45	45.27	11.435		
8,700.00	8,601.34	8,773.29	8,601.34	34.20	37.96	89.33	612.06	1,261.69	517.73	471.99	45.74	11.319		
8,800.00	8,701.34	8,873.29	8,701.34	34.52	38.24	89.33	612.06	1,261.69	517.73	471.52	46.20	11.205		
8,900.00	8,801.34	8,973.29	8,801.34	34.84	38.53	89.33	612.06	1,261.69	517.73	471.05	46.67	11.093		
9,000.00	8,901.34	9,073.29	8,901.34	35.16	38.82	89.33	612.06	1,261.69	517.73	470.59	47.14	10.983		
9,100.00	9,001.34	9,173.29	9,001.34	35.48	39.11	89.33	612.06	1,261.69	517.73	470.12	47.61	10.875		
9,200.00	9,101.34	9,273.29	9,101.34	35.80	39.40	89.33	612.06	1,261.69	517.73	469.65	48.07	10.769		
9,300.00	9,201.34	9,373.29	9,201.34	36.12	39.69	89.33	612.06	1,261.69	517.73	469.18	48.54	10.665		
9,400.00	9,301.34	9,473.29	9,301.34	36.45	39.98	89.33	612.06	1,261.69	517.73	468.71	49.01	10.563		
9,500.00	9,401.34	9,573.29	9,401.34	36.77	40.28	89.33	612.06	1,261.69	517.73	468.24	49.49	10.462		
9,600.00	9,501.34	9,673.29	9,501.34	37.09	40.57	89.33	612.06	1,261.69	517.73	467.77	49.96	10.363		
9,700.00	9,601.34	9,773.29	9,601.34	37.42	40.87	89.33	612.06	1,261.69	517.73	467.30	50.43	10.266		
9,800.00	9,701.34	9,873.29	9,701.34	37.74	41.16	89.33	612.06	1,261.69	517.73	466.82	50.90	10.171		
9,900.00	9,801.34	9,973.29	9,801.34	38.07	41.46	89.33	612.06	1,261.69	517.73	466.35	51.38	10.077		
10,000.00	9,901.34	10,073.29	9,901.34	38.39	41.76	89.33	612.06	1,261.69	517.73	465.87	51.85	9.985		

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 502H
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 502H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,036.70	9,938.04	10,109.99	9,938.04	38.51	41.87	89.33	612.06	1,261.69	517.73	465.70	52.02	9.952		
10,050.00	9,951.34	10,123.29	9,951.34	38.55	41.91	-87.39	612.06	1,261.69	517.72	465.63	52.08	9.940		
10,100.00	10,001.21	10,173.16	10,001.21	38.69	42.06	-87.77	612.06	1,261.69	517.58	465.30	52.27	9.901		
10,150.00	10,050.60	10,222.55	10,050.60	38.82	42.21	-88.63	612.06	1,261.69	517.33	464.92	52.41	9.870		
10,200.00	10,099.14	10,271.09	10,099.14	38.93	42.35	-89.93	612.06	1,261.69	517.18	464.67	52.51	9.849		
10,202.24	10,101.29	10,273.24	10,101.29	38.93	42.36	-90.00	612.06	1,261.69	517.18	464.67	52.51	9.849		
10,250.00	10,146.45	10,318.40	10,146.45	39.02	42.50	-91.60	612.06	1,261.69	517.41	464.85	52.57	9.843		
10,300.00	10,192.17	10,364.12	10,192.17	39.10	42.64	-93.54	612.06	1,261.69	518.41	465.82	52.59	9.857		
10,350.00	10,235.96	10,407.91	10,235.96	39.16	42.77	-95.64	612.06	1,261.69	520.62	468.02	52.60	9.897		
10,400.00	10,277.48	10,449.43	10,277.48	39.21	42.89	-97.77	612.06	1,261.69	524.55	471.94	52.61	9.970		
10,450.00	10,316.42	10,488.37	10,316.42	39.23	43.01	-99.80	612.06	1,261.69	530.69	478.05	52.64	10.082		
10,500.00	10,352.48	10,524.43	10,352.48	39.25	43.12	-101.59	612.06	1,261.69	539.50	486.80	52.70	10.238		
10,550.00	10,385.38	10,557.33	10,385.38	39.25	43.22	-103.01	612.06	1,261.69	551.39	498.59	52.80	10.443		
10,600.00	10,414.88	10,586.83	10,414.88	39.23	43.31	-103.94	612.06	1,261.69	566.65	513.69	52.96	10.700		
10,650.00	10,440.75	10,612.70	10,440.75	39.21	43.39	-104.28	612.06	1,261.69	585.43	532.26	53.16	11.012		
10,700.00	10,462.80	10,634.75	10,462.80	39.18	43.46	-103.92	612.06	1,261.69	607.74	554.32	53.42	11.377		
10,750.00	10,480.85	10,652.80	10,480.85	39.13	43.51	-102.76	612.06	1,261.69	633.47	579.76	53.70	11.796		
10,800.00	10,494.77	10,666.72	10,494.77	39.09	43.55	-100.71	612.06	1,261.69	662.35	608.34	54.01	12.264		
10,850.00	10,504.45	10,676.40	10,504.45	39.04	43.58	-97.68	612.06	1,261.69	694.04	639.72	54.32	12.777		
10,900.00	10,509.82	10,681.77	10,509.82	39.00	43.60	-93.63	612.06	1,261.69	728.12	673.50	54.63	13.329		
10,936.70	10,511.00	10,682.95	10,511.00	38.97	43.60	-90.00	612.06	1,261.69	754.39	699.55	54.84	13.756		
11,000.00	10,511.00	10,682.95	10,511.00	38.94	43.60	-90.00	612.06	1,261.69	802.09	746.90	55.19	14.533		
11,073.75	10,511.00	10,682.95	10,511.00	38.93	43.60	-90.00	612.06	1,261.69	861.25	805.69	55.56	15.501		
11,100.00	10,511.00	10,682.95	10,511.00	38.94	43.60	-90.00	612.06	1,261.69	883.02	827.34	55.68	15.859		
11,200.00	10,511.00	10,682.95	10,511.00	39.03	43.60	-90.00	612.06	1,261.69	968.01	911.91	56.10	17.254		
11,300.00	10,511.00	10,682.95	10,511.00	39.25	43.60	-90.00	612.06	1,261.69	1,055.63	999.16	56.47	18.694		
11,400.00	10,511.00	10,682.95	10,511.00	39.60	43.60	-90.00	612.06	1,261.69	1,145.28	1,088.50	56.78	20.170		
11,500.00	10,511.00	10,682.95	10,511.00	40.03	43.60	-90.00	612.06	1,261.69	1,236.52	1,179.46	57.05	21.673		
11,600.00	10,511.00	10,682.95	10,511.00	40.53	43.60	-90.00	612.06	1,261.69	1,329.02	1,271.73	57.29	23.199		
11,700.00	10,511.00	10,682.95	10,511.00	41.10	43.60	-90.00	612.06	1,261.69	1,422.53	1,365.04	57.49	24.743		
11,800.00	10,511.00	10,682.95	10,511.00	41.73	43.60	-90.00	612.06	1,261.69	1,516.87	1,459.20	57.67	26.302		
11,900.00	10,511.00	10,682.95	10,511.00	42.41	43.60	-90.00	612.06	1,261.69	1,611.90	1,554.07	57.83	27.873		
12,000.00	10,511.00	10,682.95	10,511.00	43.14	43.60	-90.00	612.06	1,261.69	1,707.49	1,649.52	57.97	29.454		
12,100.00	10,511.00	10,682.95	10,511.00	43.93	43.60	-90.00	612.06	1,261.69	1,803.56	1,745.46	58.10	31.043		
12,200.00	10,511.00	10,682.95	10,511.00	44.75	43.60	-90.00	612.06	1,261.69	1,900.04	1,841.83	58.21	32.639		
12,300.00	10,511.00	10,682.95	10,511.00	45.62	43.60	-90.00	612.06	1,261.69	1,996.86	1,938.55	58.32	34.242		
12,400.00	10,511.00	14,485.41	12,517.00	46.53	55.12	-163.73	-1,423.39	1,379.97	2,089.69	2,047.49	42.20	49.519		
12,500.00	10,511.00	14,585.41	12,517.00	47.48	55.92	-163.73	-1,523.39	1,380.96	2,089.69	2,046.81	42.88	48.734		
12,600.00	10,511.00	14,685.41	12,517.00	48.47	56.76	-163.73	-1,623.38	1,381.94	2,089.69	2,046.11	43.59	47.945		
12,700.00	10,511.00	14,785.41	12,517.00	49.49	57.64	-163.73	-1,723.38	1,382.92	2,089.70	2,045.38	44.31	47.156		
12,800.00	10,511.00	14,885.41	12,517.00	50.55	58.56	-163.73	-1,823.37	1,383.91	2,089.70	2,044.63	45.07	46.370		
12,900.00	10,511.00	14,985.41	12,517.00	51.63	59.50	-163.73	-1,923.37	1,384.89	2,089.70	2,043.86	45.84	45.588		
13,000.00	10,511.00	15,085.41	12,517.00	52.75	60.48	-163.73	-2,023.36	1,385.87	2,089.70	2,043.07	46.63	44.812		
13,100.00	10,511.00	15,185.41	12,517.00	53.89	61.49	-163.73	-2,123.36	1,386.86	2,089.71	2,042.26	47.45	44.044		
13,200.00	10,511.00	15,285.41	12,517.00	55.05	62.53	-163.73	-2,223.35	1,387.84	2,089.71	2,041.43	48.28	43.287		
13,300.00	10,511.00	15,385.41	12,517.00	56.24	63.59	-163.73	-2,323.35	1,388.83	2,089.71	2,040.59	49.12	42.540		
13,400.00	10,511.00	15,485.41	12,517.00	57.46	64.68	-163.73	-2,423.34	1,389.81	2,089.71	2,039.73	49.99	41.805		
13,500.00	10,511.00	15,585.41	12,517.00	58.69	65.80	-163.73	-2,523.34	1,390.79	2,089.72	2,038.85	50.87	41.081		
13,600.00	10,511.00	15,685.41	12,517.00	59.94	66.93	-163.73	-2,623.33	1,391.78	2,089.72	2,037.95	51.76	40.371		
13,700.00	10,511.00	15,785.41	12,517.00	61.22	68.09	-163.73	-2,723.33	1,392.76	2,089.72	2,037.05	52.67	39.674		
13,800.00	10,511.00	15,885.41	12,517.00	62.51	69.27	-163.73	-2,823.32	1,393.75	2,089.72	2,036.13	53.60	38.991		
13,900.00	10,511.00	15,985.41	12,517.00	63.81	70.46	-163.73	-2,923.32	1,394.73	2,089.72	2,035.19	54.53	38.323		

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 502H
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 502H	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		
14,000.00	10,511.00	16,085.41	12,517.00	65.13	71.68	-163.73	-3,023.31	1,395.71	2,089.73	2,034.25	55.48	37.669		
14,100.00	10,511.00	16,185.41	12,517.00	66.47	72.91	-163.73	-3,123.31	1,396.70	2,089.73	2,033.30	56.43	37.031		
14,200.00	10,511.00	16,285.41	12,517.00	67.82	74.16	-163.73	-3,223.30	1,397.68	2,089.73	2,032.33	57.40	36.406		
14,300.00	10,511.00	16,385.41	12,517.00	69.18	75.42	-163.73	-3,323.30	1,398.67	2,089.73	2,031.35	58.38	35.795		
14,400.00	10,511.00	16,485.41	12,517.00	70.56	76.70	-163.73	-3,423.29	1,399.65	2,089.74	2,030.37	59.37	35.199		
14,500.00	10,511.00	16,585.41	12,517.00	71.95	77.99	-163.73	-3,523.29	1,400.63	2,089.74	2,029.37	60.37	34.618		
14,600.00	10,511.00	16,685.41	12,517.00	73.34	79.29	-163.72	-3,623.29	1,401.62	2,089.74	2,028.37	61.37	34.051		
14,700.00	10,511.00	16,785.41	12,517.00	74.75	80.61	-163.72	-3,723.28	1,402.60	2,089.74	2,027.36	62.39	33.498		
14,800.00	10,511.00	16,885.41	12,517.00	76.17	81.94	-163.72	-3,823.28	1,403.59	2,089.75	2,026.34	63.41	32.958		
14,900.00	10,511.00	16,985.41	12,517.00	77.60	83.29	-163.72	-3,923.27	1,404.57	2,089.75	2,025.31	64.44	32.431		
15,000.00	10,511.00	17,085.41	12,517.00	79.03	84.64	-163.72	-4,023.27	1,405.55	2,089.75	2,024.28	65.47	31.917		
15,100.00	10,511.00	17,185.41	12,517.00	80.47	86.00	-163.72	-4,123.26	1,406.54	2,089.75	2,023.24	66.52	31.417		
15,200.00	10,511.00	17,285.41	12,517.00	81.93	87.38	-163.72	-4,223.26	1,407.52	2,089.75	2,022.19	67.57	30.929		
15,300.00	10,511.00	17,385.41	12,517.00	83.38	88.76	-163.72	-4,323.25	1,408.51	2,089.76	2,021.14	68.62	30.454		
15,400.00	10,511.00	17,485.41	12,517.00	84.85	90.15	-163.72	-4,423.25	1,409.49	2,089.76	2,020.08	69.68	29.990		
15,500.00	10,511.00	17,585.41	12,517.00	86.32	91.55	-163.72	-4,523.24	1,410.47	2,089.76	2,019.01	70.75	29.538		
15,600.00	10,511.00	17,685.41	12,517.00	87.80	92.96	-163.72	-4,623.24	1,411.46	2,089.76	2,017.94	71.82	29.097		
15,700.00	10,511.00	17,785.41	12,517.00	89.29	94.38	-163.72	-4,723.23	1,412.44	2,089.77	2,016.87	72.90	28.667		
15,800.00	10,511.00	17,885.41	12,517.00	90.78	95.80	-163.72	-4,823.23	1,413.42	2,089.77	2,015.79	73.98	28.247		
15,900.00	10,511.00	17,985.41	12,517.00	92.27	97.23	-163.72	-4,923.22	1,414.41	2,089.77	2,014.71	75.07	27.839		
16,000.00	10,511.00	18,085.41	12,517.00	93.77	98.67	-163.72	-5,023.22	1,415.39	2,089.77	2,013.62	76.16	27.441		
16,100.00	10,511.00	18,185.41	12,517.00	95.28	100.11	-163.72	-5,123.21	1,416.38	2,089.78	2,012.52	77.25	27.052		
16,200.00	10,511.00	18,285.41	12,517.00	96.79	101.56	-163.72	-5,223.21	1,417.36	2,089.78	2,011.43	78.35	26.672		
16,300.00	10,511.00	18,385.41	12,517.00	98.31	103.02	-163.72	-5,323.20	1,418.34	2,089.78	2,010.33	79.45	26.302		
16,400.00	10,511.00	18,485.41	12,517.00	99.83	104.48	-163.72	-5,423.20	1,419.33	2,089.78	2,009.23	80.56	25.941		
16,500.00	10,511.00	18,585.41	12,517.00	101.35	105.95	-163.72	-5,523.19	1,420.31	2,089.79	2,008.12	81.67	25.589		
16,600.00	10,511.00	18,685.41	12,517.00	102.88	107.42	-163.72	-5,623.19	1,421.30	2,089.79	2,007.01	82.78	25.246		
16,700.00	10,511.00	18,785.41	12,517.00	104.41	108.90	-163.72	-5,723.18	1,422.28	2,089.79	2,005.90	83.89	24.910		
16,800.00	10,511.00	18,885.41	12,517.00	105.94	110.39	-163.72	-5,823.18	1,423.26	2,089.79	2,004.78	85.01	24.582		
16,900.00	10,511.00	18,985.41	12,517.00	107.48	111.88	-163.72	-5,923.17	1,424.25	2,089.79	2,003.66	86.14	24.262		
17,000.00	10,511.00	19,085.41	12,517.00	109.02	113.37	-163.72	-6,023.17	1,425.23	2,089.80	2,002.54	87.26	23.949		
17,100.00	10,511.00	19,185.41	12,517.00	110.57	114.86	-163.72	-6,123.16	1,426.22	2,089.80	2,001.41	88.39	23.644		
17,200.00	10,511.00	19,285.41	12,517.00	112.12	116.37	-163.72	-6,223.16	1,427.20	2,089.80	2,000.29	89.52	23.346		
17,300.00	10,511.00	19,385.41	12,517.00	113.67	117.87	-163.72	-6,323.15	1,428.18	2,089.80	1,999.16	90.65	23.054		
17,400.00	10,511.00	19,485.41	12,517.00	115.22	119.38	-163.72	-6,423.15	1,429.17	2,089.81	1,998.02	91.78	22.769		
17,500.00	10,511.00	19,585.41	12,517.00	116.78	120.89	-163.72	-6,523.14	1,430.15	2,089.81	1,996.89	92.92	22.491		
17,600.00	10,511.00	19,685.41	12,517.00	118.34	122.41	-163.72	-6,623.14	1,431.14	2,089.81	1,995.75	94.06	22.219		
17,700.00	10,511.00	19,785.41	12,517.00	119.90	123.93	-163.72	-6,723.14	1,432.12	2,089.81	1,994.62	95.20	21.953		
17,800.00	10,511.00	19,885.41	12,517.00	121.46	125.45	-163.72	-6,823.13	1,433.10	2,089.82	1,993.48	96.34	21.693		
17,900.00	10,511.00	19,985.41	12,517.00	123.03	126.98	-163.72	-6,923.13	1,434.09	2,089.82	1,992.34	97.48	21.438		
18,000.00	10,511.00	20,085.41	12,517.00	124.59	128.51	-163.72	-7,023.12	1,435.07	2,089.82	1,991.19	98.63	21.189		
18,100.00	10,511.00	20,185.41	12,517.00	126.16	130.04	-163.72	-7,123.12	1,436.06	2,089.82	1,990.05	99.78	20.945		
18,200.00	10,511.00	20,285.41	12,517.00	127.74	131.58	-163.72	-7,223.11	1,437.04	2,089.82	1,988.90	100.93	20.706		
18,300.00	10,511.00	20,385.41	12,517.00	129.31	133.11	-163.72	-7,323.11	1,438.02	2,089.83	1,987.75	102.08	20.473		
18,400.00	10,511.00	20,485.41	12,517.00	130.89	134.65	-163.72	-7,423.10	1,439.01	2,089.83	1,986.60	103.23	20.245		
18,500.00	10,511.00	20,585.41	12,517.00	132.46	136.20	-163.72	-7,523.10	1,439.99	2,089.83	1,985.45	104.38	20.021		
18,600.00	10,511.00	20,685.41	12,517.00	134.04	137.74	-163.72	-7,623.09	1,440.98	2,089.83	1,984.30	105.54	19.802		
18,700.00	10,511.00	20,785.41	12,517.00	135.63	139.29	-163.72	-7,723.09	1,441.96	2,089.84	1,983.14	106.70	19.587		
18,800.00	10,511.00	20,885.41	12,517.00	137.21	140.84	-163.72	-7,823.08	1,442.94	2,089.84	1,981.98	107.85	19.377		
18,900.00	10,511.00	20,985.41	12,517.00	138.79	142.39	-163.72	-7,923.08	1,443.93	2,089.84	1,980.83	109.01	19.170		
19,000.00	10,511.00	21,085.41	12,517.00	140.38	143.95	-163.72	-8,023.07	1,444.91	2,089.84	1,979.67	110.17	18.969		
19,100.00	10,511.00	21,185.41	12,517.00	141.97	145.51	-163.72	-8,123.07	1,445.89	2,089.85	1,978.51	111.33	18.771		

CC - Min centre to center distance or covergent 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 502H
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 502H	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		
19,200.00	10,511.00	21,285.41	12,517.00	143.56	147.07	-163.71	-8,223.06	1,446.88	2,089.85	1,977.35	112.50	18.577		
19,300.00	10,511.00	21,385.41	12,517.00	145.15	148.63	-163.71	-8,323.06	1,447.86	2,089.85	1,976.19	113.66	18.387		
19,400.00	10,511.00	21,485.41	12,517.00	146.74	150.19	-163.71	-8,423.05	1,448.85	2,089.85	1,975.03	114.82	18.200		
19,500.00	10,511.00	21,585.41	12,517.00	148.33	151.75	-163.71	-8,523.05	1,449.83	2,089.85	1,973.86	115.99	18.018		
19,600.00	10,511.00	21,685.41	12,517.00	149.93	153.32	-163.71	-8,623.04	1,450.81	2,089.86	1,972.70	117.16	17.838		
19,700.00	10,511.00	21,785.41	12,517.00	151.52	154.89	-163.71	-8,723.04	1,451.80	2,089.86	1,971.53	118.32	17.662		
19,800.00	10,511.00	21,885.41	12,517.00	153.12	156.46	-163.71	-8,823.03	1,452.78	2,089.86	1,970.37	119.49	17.489		
19,900.00	10,511.00	21,985.41	12,517.00	154.72	158.03	-163.71	-8,923.03	1,453.77	2,089.86	1,969.20	120.66	17.320		
20,000.00	10,511.00	22,085.41	12,517.00	156.32	159.61	-163.71	-9,023.02	1,454.75	2,089.87	1,968.03	121.83	17.154		
20,100.00	10,511.00	22,185.41	12,517.00	157.92	161.18	-163.71	-9,123.02	1,455.73	2,089.87	1,966.87	123.00	16.991		
20,200.00	10,511.00	22,285.41	12,517.00	159.52	162.76	-163.71	-9,223.01	1,456.72	2,089.87	1,965.70	124.17	16.830		
20,300.00	10,511.00	22,385.41	12,517.00	161.12	164.34	-163.71	-9,323.01	1,457.70	2,089.87	1,964.53	125.35	16.673		
20,400.00	10,511.00	22,485.41	12,517.00	162.72	165.91	-163.71	-9,423.00	1,458.69	2,089.88	1,963.36	126.52	16.518		
20,500.00	10,511.00	22,585.41	12,517.00	164.33	167.50	-163.71	-9,523.00	1,459.67	2,089.88	1,962.19	127.69	16.366		
20,600.00	10,511.00	22,685.41	12,517.00	165.93	169.08	-163.71	-9,622.99	1,460.65	2,089.88	1,961.01	128.87	16.217		
20,700.00	10,511.00	22,785.41	12,517.00	167.54	170.66	-163.71	-9,722.99	1,461.64	2,089.88	1,959.84	130.04	16.071		
20,800.00	10,511.00	22,885.41	12,517.00	169.14	172.25	-163.71	-9,822.99	1,462.62	2,089.88	1,958.67	131.22	15.927		
20,900.00	10,511.00	22,985.41	12,517.00	170.75	173.83	-163.71	-9,922.98	1,463.61	2,089.89	1,957.50	132.39	15.786		
21,000.00	10,511.00	23,085.41	12,517.00	172.36	175.42	-163.71	-10,022.98	1,464.59	2,089.89	1,956.32	133.57	15.647		
21,100.00	10,511.00	23,185.41	12,517.00	173.97	177.01	-163.71	-10,122.97	1,465.57	2,089.89	1,955.15	134.75	15.510		
21,200.00	10,511.00	23,285.41	12,517.00	175.58	178.60	-163.71	-10,222.97	1,466.56	2,089.89	1,953.97	135.92	15.375		
21,300.00	10,511.00	23,385.41	12,517.00	177.19	180.19	-163.71	-10,322.96	1,467.54	2,089.90	1,952.79	137.10	15.243		
21,400.00	10,511.00	23,485.41	12,517.00	178.80	181.78	-163.71	-10,422.96	1,468.53	2,089.90	1,951.62	138.28	15.113		
21,500.00	10,511.00	23,585.41	12,517.00	180.41	183.37	-163.71	-10,522.95	1,469.51	2,089.90	1,950.44	139.46	14.986		
21,600.00	10,511.00	23,685.41	12,517.00	182.03	184.97	-163.71	-10,622.95	1,470.49	2,089.90	1,949.27	140.64	14.860		
21,700.00	10,511.00	23,785.41	12,517.00	183.64	186.56	-163.71	-10,722.94	1,471.48	2,089.91	1,948.09	141.82	14.736		
21,800.00	10,511.00	23,885.41	12,517.00	185.25	188.16	-163.71	-10,822.94	1,472.46	2,089.91	1,946.91	143.00	14.615		
21,900.00	10,511.00	23,985.41	12,517.00	186.87	189.75	-163.71	-10,922.93	1,473.45	2,089.91	1,945.73	144.18	14.495		
22,000.00	10,511.00	24,085.41	12,517.00	188.49	191.35	-163.71	-11,022.93	1,474.43	2,089.91	1,944.55	145.36	14.378		
22,003.85	10,511.00	24,089.26	12,517.00	188.55	191.41	-163.71	-11,026.78	1,474.47	2,089.91	1,944.51	145.40	14.373		
22,046.30	10,511.00	24,130.17	12,517.00	189.23	192.05	-163.71	-11,067.68	1,474.87	2,089.91	1,944.09	145.83	14.332		

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



Total Directional Services

Anticollision Report

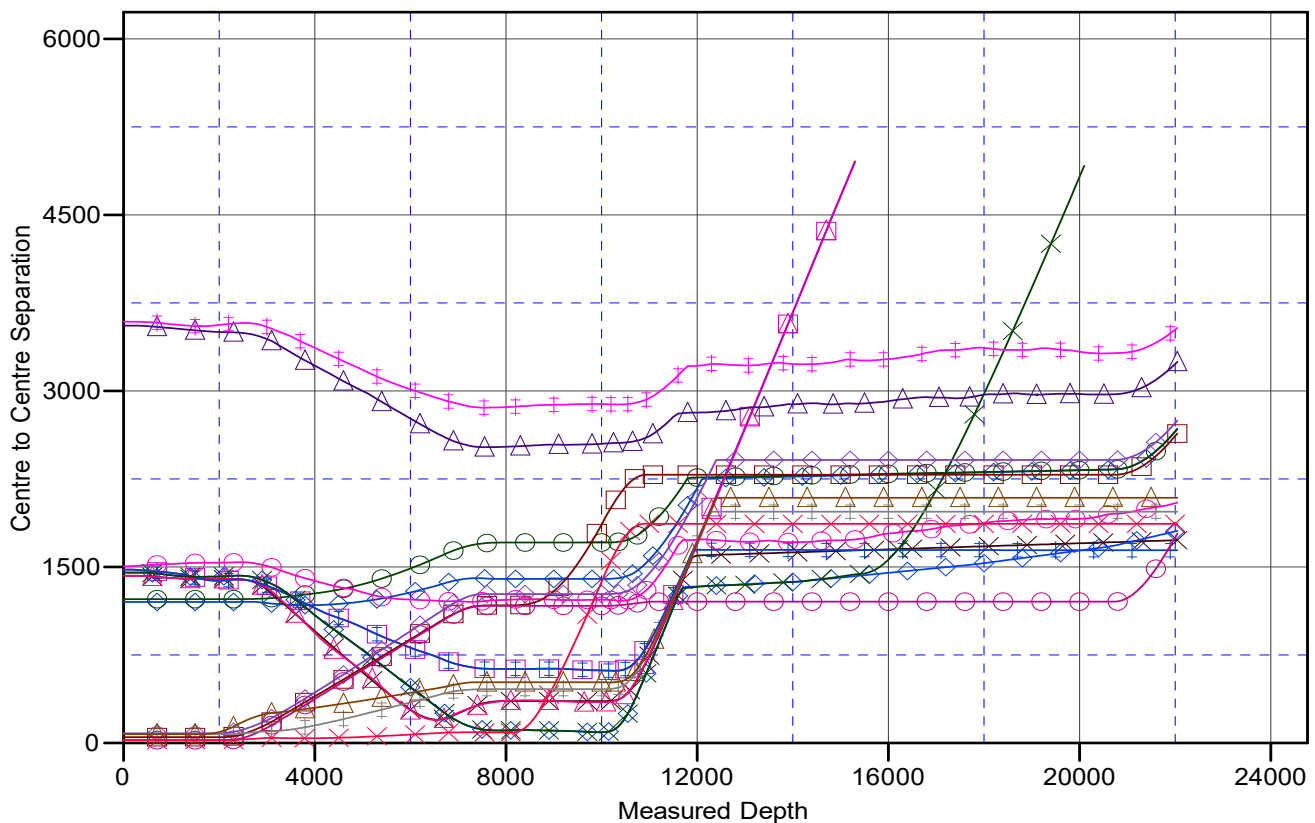


Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 502H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 502H	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 502H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.54°

Ladder Plot



LEGEND

Judge Baylor Fed Com 701H, OH, Plan #5 V0	Kaston Fed Com 603H, OH, OH V0	PF Fed Com 501H, OH, Plan #1 V0
Judge Baylor Fed Com 601H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, OH V0	PF Fed Com 102H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, Plan #5 V0	Bus Driver Fed Com 604H, OH, OH V0	PF Fed Com 801H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, OH V0	LHS Wildcat Fed Com 604H, OH, OH V0	PF Fed Com 802H, OH, Plan #1 V0
Kaston Fed Com 703H, OH, OH V0	LHS Wildcat Fed Com 705H, OH, OH V0	PF Fed Com 803H, 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



Total Directional Services

Anticollision Report

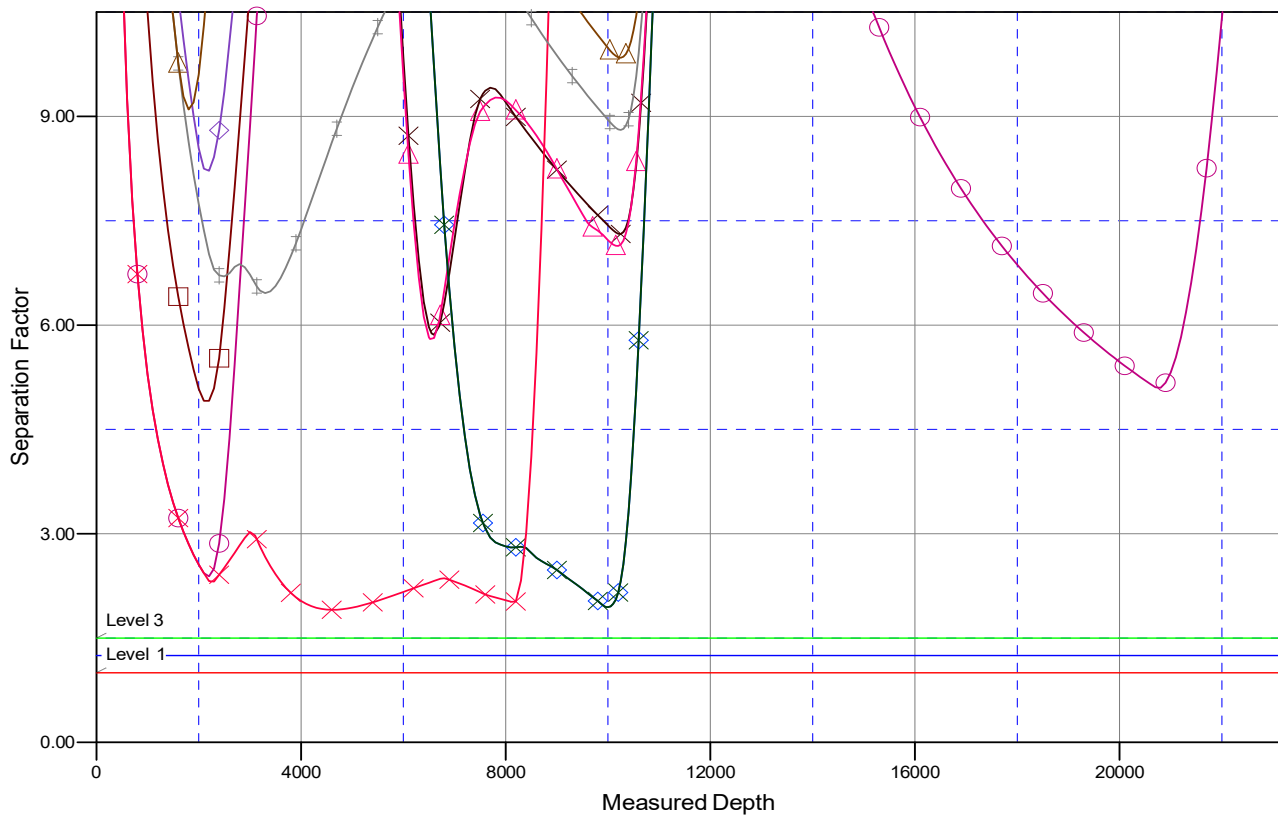


Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 502H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
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Reference Well:	PF Fed Com 502H	Survey Calculation Method:	Minimum Curvature
Well Error:	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 502H
 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	Kastoni Fed Com 603H, OH, OH V0	PF Fed Com 501H, OH, Plan #1 V0
Judge Baylor Fed Com 601H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, OH V0	PF Fed Com 102H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, OH V0	PF Fed Com 801H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, OH V0	LHS Wildcat Fed Com 604H, OH, OH V0	PF Fed Com 802H, OH, Plan #1 V0
Kastoni Fed Com 703H, OH, OH V0	LHS Wildcat Fed Com 705H, OH, OH V0	PF Fed Com 803H, OH, Plan #1 V0
Kastoni 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

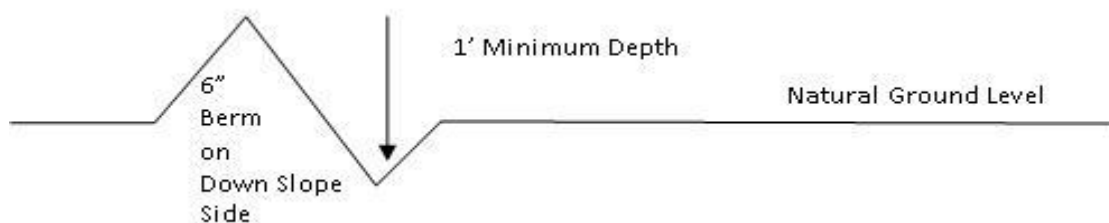
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

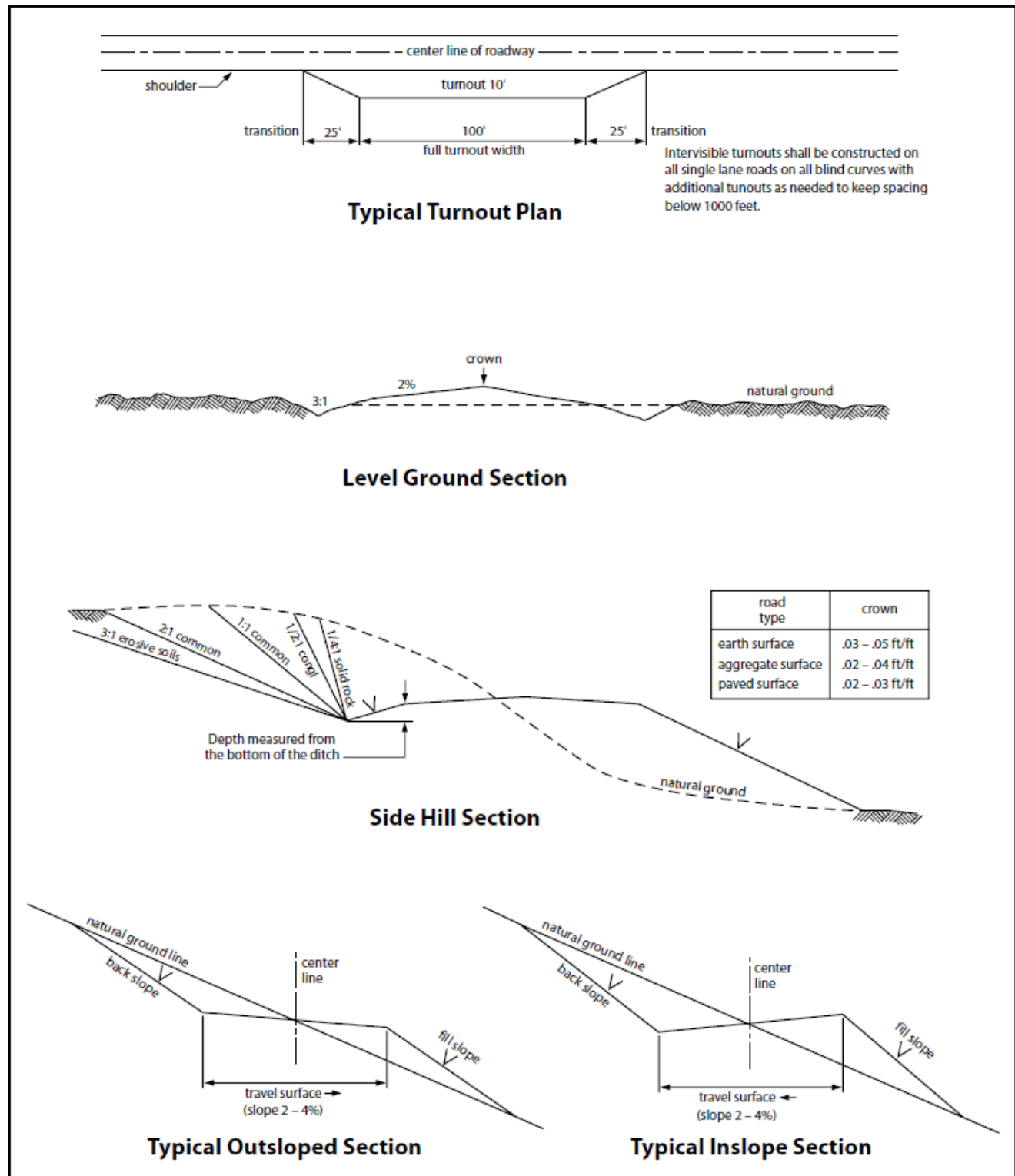


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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
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**
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 - Well Structures & Facilities
 - Pipelines
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- ☐ **Interim Reclamation**
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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

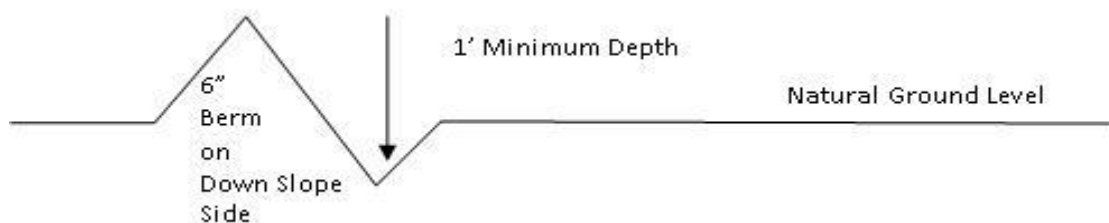
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

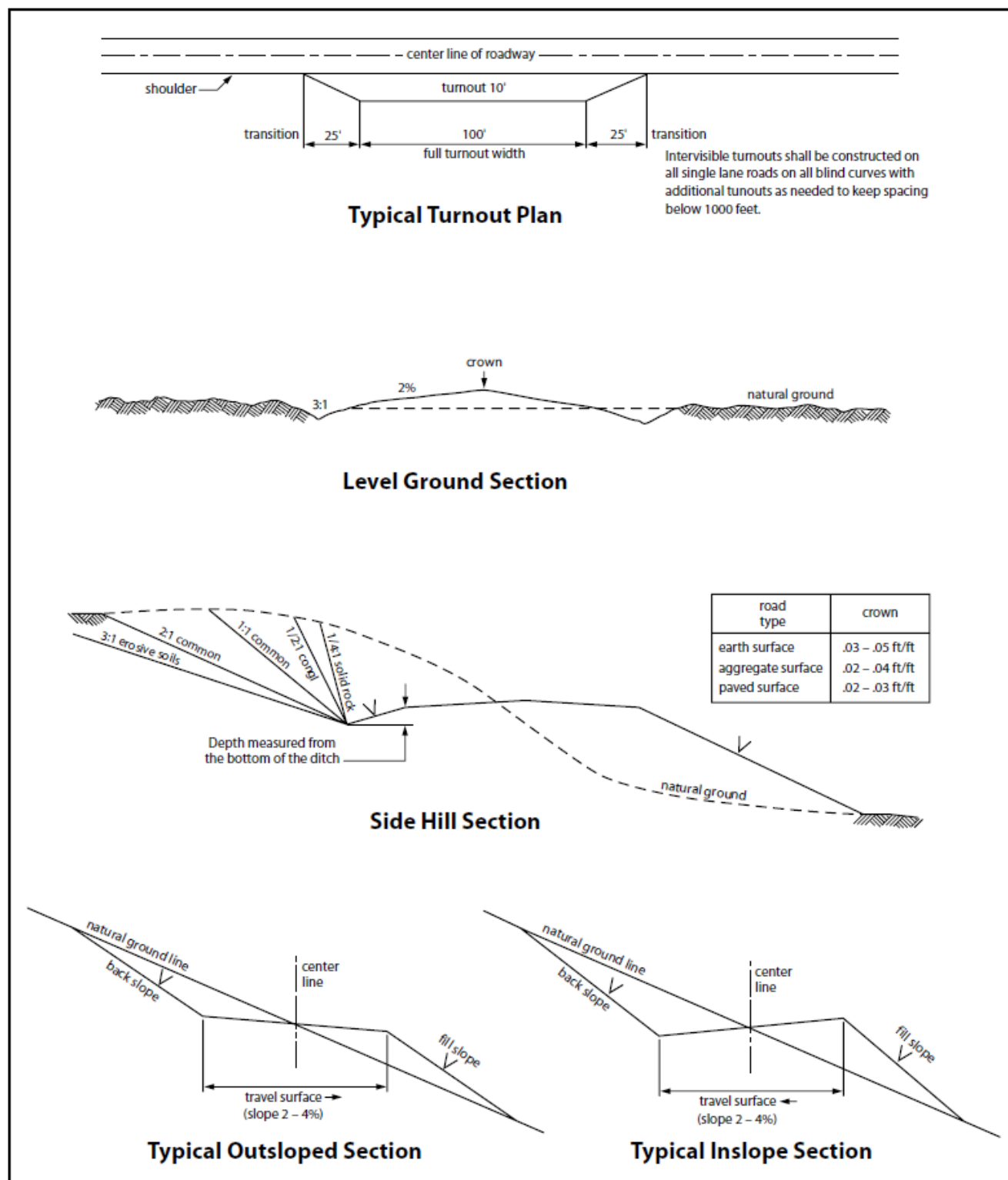


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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 88427

CONDITIONS

Operator: Franklin Mountain Energy LLC 44 Cook Street Denver, CO 80206	OGRID: 373910
	Action Number: 88427
	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