

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. 30-025-49851	
3a. Address		3b. Phone No. (include area code)	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory 11. Sec., T. R. M. or Blk. and Survey or Area	
14. Distance in miles and direction from nearest town or post office*		12. County or Parish	
13. State		15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	
16. No of acres in lease		17. Spacing Unit dedicated to this well	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.		19. Proposed Depth	
20. BLM/BIA Bond No. in file		21. Elevations (Show whether DF, KDB, RT, GL, etc.)	
22. Approximate date work will start*		23. Estimated duration	
24. Attachments The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)			
1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).		4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification. 6. Such other site specific information and/or plans as may be requested by the BLM.	
25. Signature		Name (Printed/Typed)	
Title		Date	
Approved by (Signature)		Name (Printed/Typed)	
Title		Office	
Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. Conditions of approval, if any, are attached.			
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.			

NGMP Rec 03/08/2022


 03/14/2022

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(Continued on page 2)

*(Instructions on page 2)



INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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

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

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

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

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

Additional Operator Remarks

Location of Well

0. SHL: TR A / 285 FNL / 1125 FEL / TWSP: 26S / RANGE: 35E / SECTION: 1 / LAT: 32.07879 / LONG: -103.316352 (TVD: 0 feet, MD: 0 feet)

PPP: NWSE / 0 FNL / 1881 FEL / TWSP: 26S / RANGE: 35E / SECTION: 12 / LAT: 32.05778 / LONG: -103.31878 (TVD: 8480 feet, MD: 16100 feet)

PPP: TR B / 0 FNL / 1880 FWL / TWSP: 26S / RANGE: 35E / SECTION: 12 / LAT: 32.065042 / LONG: -103.318784 (TVD: 8480 feet, MD: 13400 feet)

PPP: TR B / 701 FNL / 1881 FEL / TWSP: 26S / RANGE: 35E / SECTION: 1 / LAT: 32.077647 / LONG: -103.318792 (TVD: 8480 feet, MD: 8866 feet)

BHL: TR B / 1170 FNL / 1180 FEL / TWSP: 26S / RANGE: 35E / SECTION: 13 / LAT: 32.047321 / LONG: -103.318773 (TVD: 8480 feet, MD: 19899 feet)

BLM Point of Contact

Name: TENILLE ORTIZ

Title: Legal Instruments Examiner

Phone: (575) 234-2224

Email: tortiz@blm.gov

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Review and Appeal Rights

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

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☐ AMENDED REPORT

Released to Imaging: 3/14/2022 2:58:08 PM

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

Submit Electronically
Via E-permitting

NATURAL GAS MANAGEMENT PLAN

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

Section 1 – Plan Description

Effective May 25, 2021

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

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

If Other, please describe: _____

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

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

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

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

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

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

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

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

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

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

Section 4 - Notices

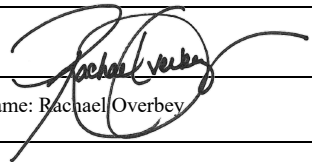
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

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

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

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

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

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

NATURAL GAS MANAGEMENT PLAN

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

Well Name	API 14 Digit	ULSTR	Surface Location FTG	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
PF Fed Com 101H	TBD	D-1-26S-35E	650 FNL 1268 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 102H	TBD	C-1-26S-35E	650 FNL 1343 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 501H	TBD	D-1-26S-35E	650 FNL 1293 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 502H	TBD	D-1-26S-35E	650 FNL 1318 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 801H	TBD	D-1-26S-35E	575 FNL 1281 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 802H	TBD	D-1-26S-35E	575 FNL 1306 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 803H	TBD	C-1-26S-35E	575 FNL 1331 FWL	800 +/-	700 +/-	600 +/-
PF Fed Com 103H	TBD 30-025-49851	A-1-26S-35E	285 FNL 1125 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 104H	TBD	A-1-26S-35E	285 FNL 1050 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 503H	TBD	A-1-26S-35E	285 FNL 1100 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 504H	TBD	A-1-26S-35E	285 FNL 1075 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 804H	TBD	A-1-26S-35E	210 FNL 1112 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 805H	TBD	A-1-26S-35E	210 FNL 1087 FEL	800 +/-	700 +/-	600 +/-
PF Fed Com 806H	TBD	A-1-26S-35E	210 FNL 1062 FEL	800 +/-	700 +/-	600 +/-

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

Well Name	API 14 Digit	Spud Date (Batch Drilling)	TD Reached Date	Completion Commencement Date	Initial Flowback Date	First Production Date
PF Fed Com 101H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 102H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 501H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 502H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 801H	TBD	10/20/2022	12/20/2022	1/5/2023	1/25/2023	1/27/2023
PF Fed Com 802H	TBD	10/20/2022	12/20/2022	1/5/2023	1/25/2023	1/27/2023
PF Fed Com 803H	TBD	10/20/2022	12/20/2022	1/5/2023	1/25/2023	1/27/2023
PF Fed Com 103H	TBD 30-025-49851	TBD	TBD	TBD	TBD	TBD
PF Fed Com 104H	TBD	9/28/2022	10/20/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 503H	TBD	TBD	TBD	TBD	TBD	TBD
PF Fed Com 504H	TBD	9/6/2022	9/27/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 804H	TBD	7/5/2022	9/5/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 805H	TBD	7/5/2022	9/5/2022	12/20/2022	1/1/2023	1/3/2023
PF Fed Com 806H	TBD	7/5/2022	9/5/2022	12/20/2022	1/1/2023	1/3/2023



Natural Gas Management Plan

Items VI-VIII

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

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

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

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



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

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

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



PF Fed Com 501H

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	2,348'	735'			Carbonates
Salado	1,855'	1,228'			Salt, Carbonate & Clastics
Base Salt	-416'	3,499'			Shaley Carbonate & Shale
Lamar	-1,913'	4,996'			Carbonate & Clastics
Bell Canyon	-2,002'	5,085'			Sandstone - oil/gas/water
Cherry Canyon	-2,865'	5,948'			Sandstone - oil/gas/water
Brushy Canyon	-4,317'	7,400'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,569'	8,652'			Shale/Carbonates - oil/gas
Avalon	-5,609'	8,692'			Shale/Carbonates - oil/gas
Chert Zone	-5,799'	8,882'			Chert/Carbonate
First Bone Spring Sand	-6,885'	9,968'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-7,070'	10,153'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,456'	10,539'			Sandstone - oil/gas/water
HZ Target at Landing	-7,536'	10,619'			Overpressure shale/sand- Oil/Gas
Third Bone Spring Carbonates	-7,957'	11,040'			Shale/Carbonates - oil/gas

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

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,085'	Oil
Bone Spring Sand	9,968'	Oil
Bone Spring Carbonate	11,040'	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	5040	1.80	1.79	3.04	3.45
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	10998	1.21	1.39	1.94	1.32
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606 TVD	20792 10619	1.32	1.49	1.26	1.05 1.76

7 5/8" casing will be set at 11,998' MD/10,619' TVD at 90° Inc. Stress calculations on 5 1/2" casing performed assuming 20,742' depth. Actual max vertical depth is 10,619'.



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	5040	1467	Lead, 12.8 ppg, Class C 5% Salt,	1.79	9.74	0	154	Tail, 14.8 ppg, Class C,	1.33	6.37	4740	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	10998	320	Lite Fill, 9.5 ppg, Class C 3lb/sk	2.13	5.97	4200	94	NeoCem 14.8 ppg, Class C	1.33	6.29	9998	50%
					Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake					0.25 pps Cello-Flake, 2% CaCl ₂				
Prod	6.75	5.5	20792	805	Tail, 14.5 ppg, Gas Migration Control	1.34	6.22	9998						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' – 10,998'	Brine	8.8-10.2	28-34	N/c
10,998' – 20,792' 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 10,619' TVD (deepest point of the well) is 170F with an estimated maximum bottom-hole pressure (BHP) at the same point of 6,626 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 2:58:08 PM

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: PF Fed Com
Well: PF Fed Com 501H
Wellbore: OH
Design: Plan #1



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

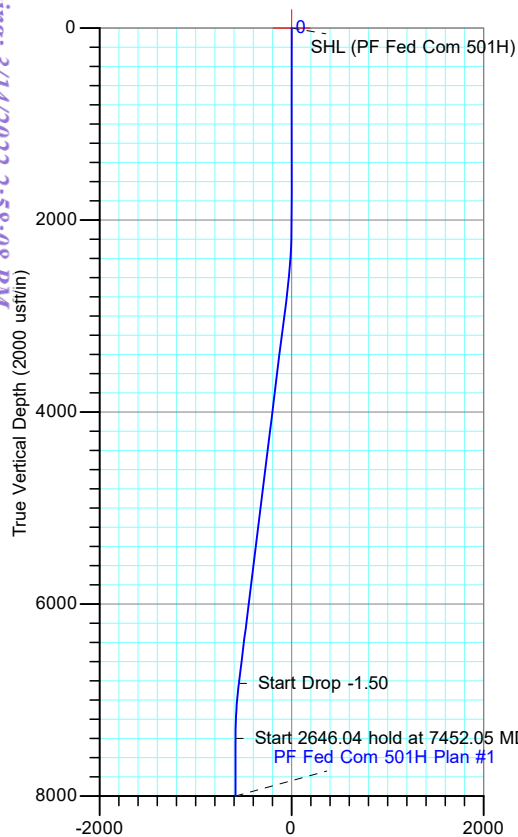
Magnetic Field
Strength: 47425.6nT
Dip Angle: 59.80°
Date: 7/16/2021
Model: IGRF2020

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 4:48:16 PM



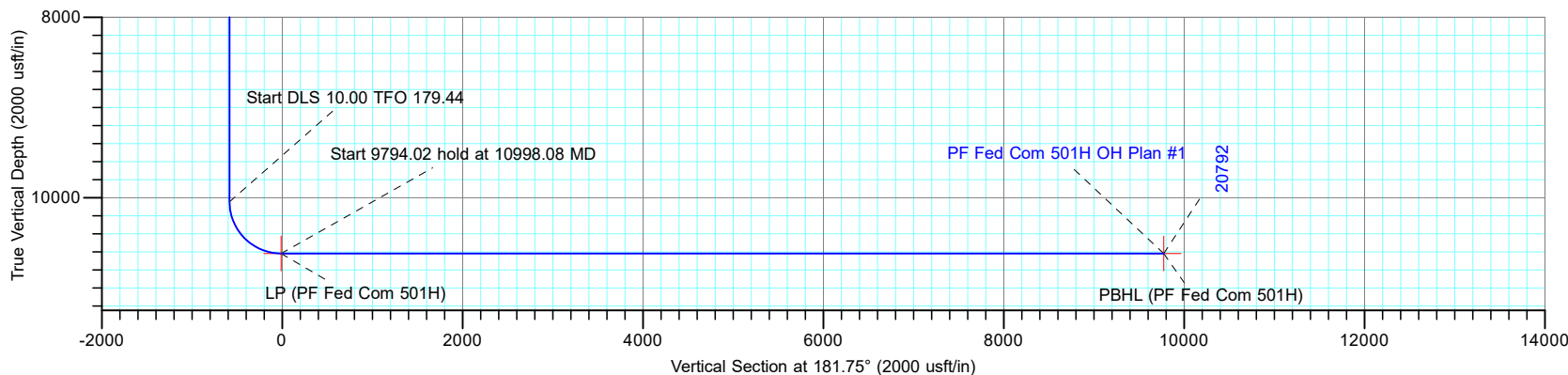
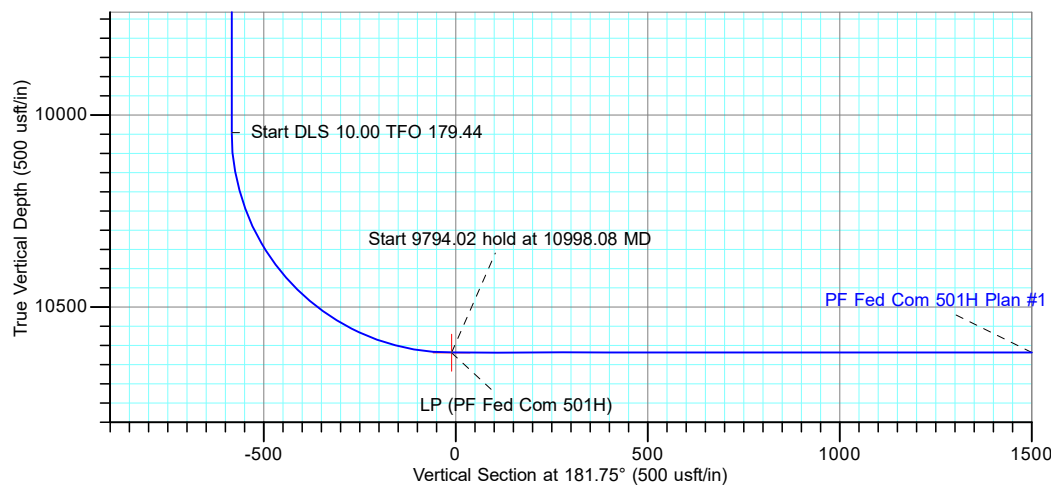
3053' GE + 30' KB @ 3083.00usft

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	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
2676.13	8.64	326.13	2673.94	36.01	-24.17	1.50	326.13	-35.25	Start 4199.79 hold at 2676.13 MD
6875.92	8.64	326.13	6826.06	559.99	-375.83	0.00	0.00	-548.24	Start Drop -1.50
7452.05	0.00	0.00	7400.00	596.00	-400.00	1.50	180.00	-583.49	Start 2646.04 hold at 7452.05 MD
10098.09	0.00	0.00	10046.04	596.00	-400.00	0.00	0.00	-583.49	Start DLS 10.00 TFO 179.44
10998.08	90.00	179.44	10619.00	23.07	-394.41	10.00	179.44	-11.00	Start 9794.02 hold at 10998.08 MD
20792.10	90.00	179.44	10619.00	-9770.48	-298.88	0.00	0.00	9775.05	TD at 20792.10

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (PF Fed Com 501H)	10619.00	23.07	-394.41	32.077861	-103.326876
PBHL (PF Fed Com 501H)	10619.00	-9770.48	-298.88	32.050940	-103.326862
SHL (PF Fed Com 501H)	0.00	0.00	0.00	32.077787	-103.325603



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

Plan: Plan #1 (PF Fed Com 501H/OH)
Created By: Dustin Ault
Date: 21:49, July 16 2021
Approved: _____ Date: _____

Page 18 of 140

Project: Lea County, NM (NAD83)
Site: PF Fed Com
Well: PF Fed Com 501H
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



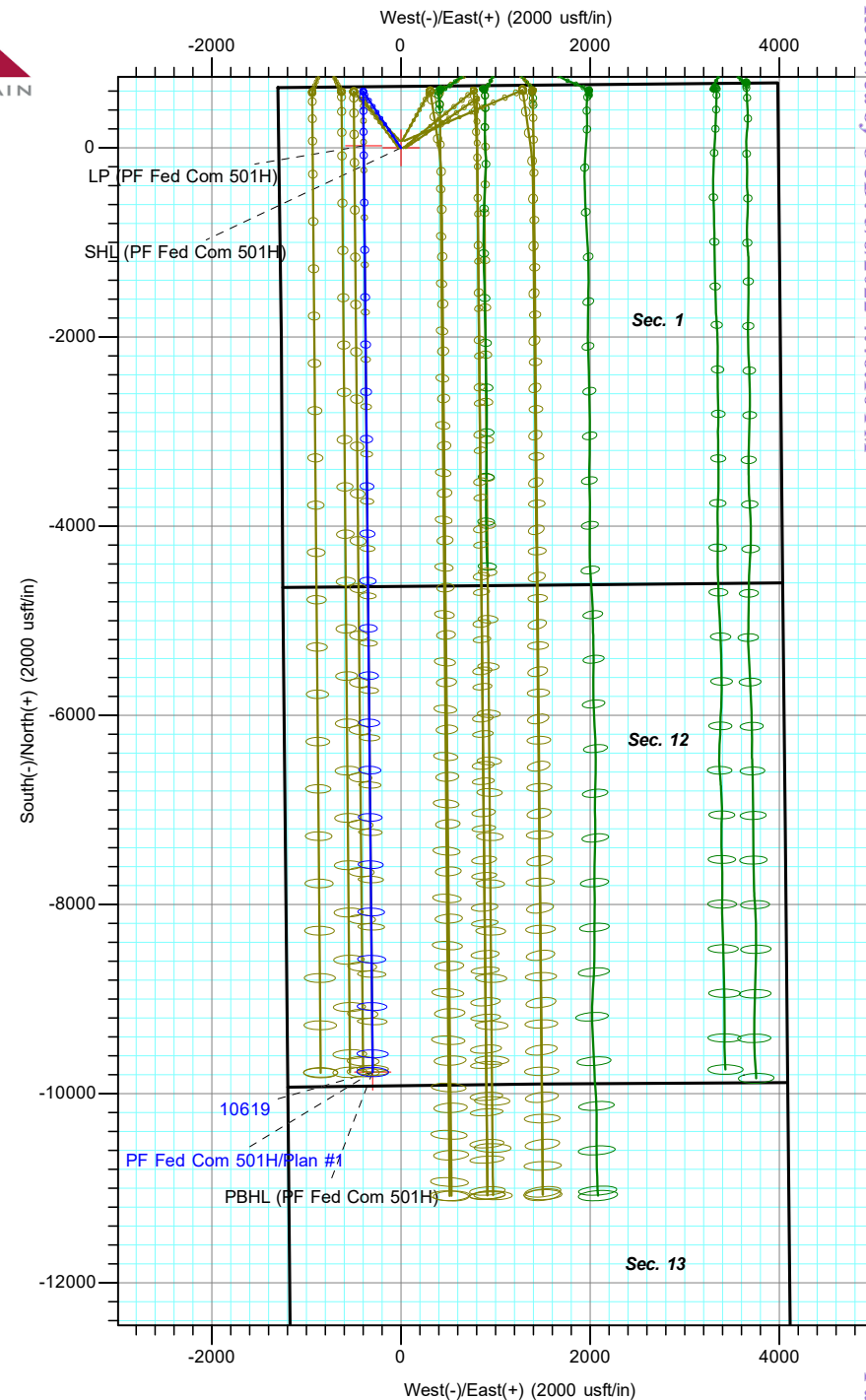
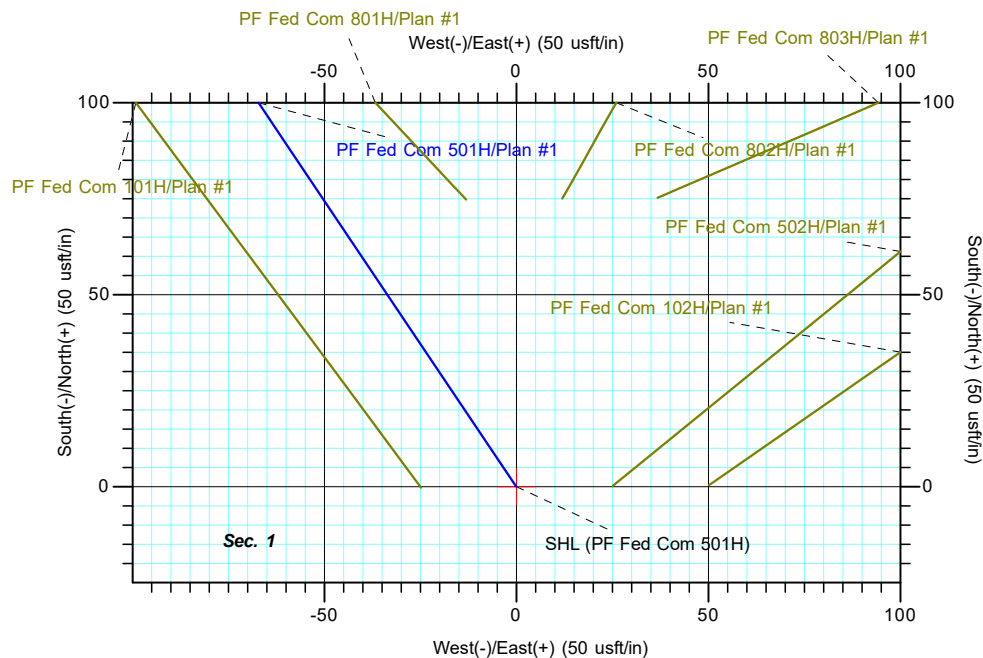
PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (PF Fed Com 501H)	10619.00	23.07	-394.41	393517.02	853070.52	32.077861	-103.326876
PBHL (PF Fed Com 501H)	10619.00	-9770.48	-298.88	383723.47	853166.05	32.050940	-103.326862
SHL (PF Fed Com 501H)	0.00	0.00	0.00	393493.95	853464.93	32.077787	-103.325603

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	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
2676.13	8.64	326.13	2673.94	36.01	-24.17	1.50	326.13	-35.25	Start 4199.79 hold at 2676.13 MD
6875.92	8.64	326.13	6826.06	559.99	-375.83	0.00	0.00	-548.24	Start Drop -1.50
7452.05	0.00	0.00	7400.00	596.00	-400.00	1.50	180.00	-583.49	Start 2646.04 hold at 7452.05 MD
10098.09	0.00	0.00	10046.04	596.00	-400.00	0.00	0.00	-583.49	Start DLS 10.00 TFO 179.44
10998.08	90.00	179.44	10619.00	23.07	-394.41	10.00	179.44	-11.00	Start 9794.02 hold at 10998.08 MD
20792.10	90.00	179.44	10619.00	-9770.48	-298.88	0.00	0.00	9775.05	TD at 20792.10



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

Plan: Plan #1 (PF Fed Com 501H/OH)
PF Fed Com

Created By: Dustin Ault Date: 21:51, July 16 2021
Date: _____
Approved: _____ Date: _____



Franklin Mountain Energy

Lea County, NM (NAD83)

PF Fed Com

PF Fed Com 501H

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 501H
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 501H	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 501H					
Well Position	+N/-S	0.23 usft	Northing:	393,493.95 usft	Latitude:	32.077787
	+E/-W	24.78 usft	Easting:	853,464.93 usft	Longitude:	-103.325603
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	47,425.59790314

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	181.75

Plan Survey Tool Program	Date	7/16/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,791.19 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	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,676.13	8.64	326.13	2,673.94	36.01	-24.17	1.50	1.50	0.00	326.13	
6,875.92	8.64	326.13	6,826.06	559.99	-375.83	0.00	0.00	0.00	0.00	
7,452.05	0.00	0.00	7,400.00	596.00	-400.00	1.50	-1.50	0.00	180.00	
10,098.09	0.00	0.00	10,046.04	596.00	-400.00	0.00	0.00	0.00	0.00	
10,998.09	90.00	179.44	10,619.00	23.07	-394.41	10.00	10.00	19.94	179.44	
20,792.10	90.00	179.44	10,619.00	-9,770.48	-298.88	0.00	0.00	0.00	0.00	PBHL (PF Fed Com 5



Total Directional Services

Planning Report



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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 501H	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 501H)									
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
Start Build 1.50									
2,200.00	1.50	326.13	2,199.99	1.09	-0.73	-1.06	1.50	1.50	0.00
2,300.00	3.00	326.13	2,299.91	4.35	-2.92	-4.26	1.50	1.50	0.00
2,400.00	4.50	326.13	2,399.69	9.78	-6.56	-9.57	1.50	1.50	0.00
2,500.00	6.00	326.13	2,499.27	17.37	-11.66	-17.01	1.50	1.50	0.00
2,600.00	7.50	326.13	2,598.57	27.13	-18.21	-26.56	1.50	1.50	0.00
2,676.13	8.64	326.13	2,673.94	36.01	-24.17	-35.25	1.50	1.50	0.00
Start 4199.79 hold at 2676.13 MD									
2,700.00	8.64	326.13	2,697.55	38.99	-26.17	-38.17	0.00	0.00	0.00
2,800.00	8.64	326.13	2,796.41	51.46	-34.54	-50.38	0.00	0.00	0.00
2,900.00	8.64	326.13	2,895.28	63.94	-42.91	-62.60	0.00	0.00	0.00
3,000.00	8.64	326.13	2,994.14	76.42	-51.29	-74.81	0.00	0.00	0.00
3,100.00	8.64	326.13	3,093.01	88.89	-59.66	-87.03	0.00	0.00	0.00
3,200.00	8.64	326.13	3,191.87	101.37	-68.03	-99.24	0.00	0.00	0.00
3,300.00	8.64	326.13	3,290.74	113.85	-76.41	-111.46	0.00	0.00	0.00
3,400.00	8.64	326.13	3,389.60	126.32	-84.78	-123.67	0.00	0.00	0.00
3,500.00	8.64	326.13	3,488.46	138.80	-93.15	-135.89	0.00	0.00	0.00
3,600.00	8.64	326.13	3,587.33	151.27	-101.53	-148.10	0.00	0.00	0.00
3,700.00	8.64	326.13	3,686.19	163.75	-109.90	-160.31	0.00	0.00	0.00
3,800.00	8.64	326.13	3,785.06	176.23	-118.27	-172.53	0.00	0.00	0.00
3,900.00	8.64	326.13	3,883.92	188.70	-126.65	-184.74	0.00	0.00	0.00
4,000.00	8.64	326.13	3,982.79	201.18	-135.02	-196.96	0.00	0.00	0.00
4,100.00	8.64	326.13	4,081.65	213.66	-143.39	-209.17	0.00	0.00	0.00
4,200.00	8.64	326.13	4,180.52	226.13	-151.77	-221.39	0.00	0.00	0.00
4,300.00	8.64	326.13	4,279.38	238.61	-160.14	-233.60	0.00	0.00	0.00
4,400.00	8.64	326.13	4,378.25	251.09	-168.51	-245.82	0.00	0.00	0.00
4,500.00	8.64	326.13	4,477.11	263.56	-176.89	-258.03	0.00	0.00	0.00
4,600.00	8.64	326.13	4,575.98	276.04	-185.26	-270.25	0.00	0.00	0.00
4,700.00	8.64	326.13	4,674.84	288.52	-193.63	-282.46	0.00	0.00	0.00
4,800.00	8.64	326.13	4,773.71	300.99	-202.01	-294.67	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 501H
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 501H	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	8.64	326.13	4,872.57	313.47	-210.38	-306.89	0.00	0.00	0.00
5,000.00	8.64	326.13	4,971.43	325.94	-218.75	-319.10	0.00	0.00	0.00
5,100.00	8.64	326.13	5,070.30	338.42	-227.13	-331.32	0.00	0.00	0.00
5,200.00	8.64	326.13	5,169.16	350.90	-235.50	-343.53	0.00	0.00	0.00
5,300.00	8.64	326.13	5,268.03	363.37	-243.87	-355.75	0.00	0.00	0.00
5,400.00	8.64	326.13	5,366.89	375.85	-252.25	-367.96	0.00	0.00	0.00
5,500.00	8.64	326.13	5,465.76	388.33	-260.62	-380.18	0.00	0.00	0.00
5,600.00	8.64	326.13	5,564.62	400.80	-269.00	-392.39	0.00	0.00	0.00
5,700.00	8.64	326.13	5,663.49	413.28	-277.37	-404.61	0.00	0.00	0.00
5,800.00	8.64	326.13	5,762.35	425.76	-285.74	-416.82	0.00	0.00	0.00
5,900.00	8.64	326.13	5,861.22	438.23	-294.12	-429.03	0.00	0.00	0.00
6,000.00	8.64	326.13	5,960.08	450.71	-302.49	-441.25	0.00	0.00	0.00
6,100.00	8.64	326.13	6,058.95	463.18	-310.86	-453.46	0.00	0.00	0.00
6,200.00	8.64	326.13	6,157.81	475.66	-319.24	-465.68	0.00	0.00	0.00
6,300.00	8.64	326.13	6,256.68	488.14	-327.61	-477.89	0.00	0.00	0.00
6,400.00	8.64	326.13	6,355.54	500.61	-335.98	-490.11	0.00	0.00	0.00
6,500.00	8.64	326.13	6,454.40	513.09	-344.36	-502.32	0.00	0.00	0.00
6,600.00	8.64	326.13	6,553.27	525.57	-352.73	-514.54	0.00	0.00	0.00
6,700.00	8.64	326.13	6,652.13	538.04	-361.10	-526.75	0.00	0.00	0.00
6,800.00	8.64	326.13	6,751.00	550.52	-369.48	-538.97	0.00	0.00	0.00
6,875.92	8.64	326.13	6,826.06	559.99	-375.83	-548.24	0.00	0.00	0.00
Start Drop -1.50									
6,900.00	8.28	326.13	6,849.87	562.93	-377.81	-551.12	1.50	-1.50	0.00
7,000.00	6.78	326.13	6,949.01	573.82	-385.11	-561.77	1.50	-1.50	0.00
7,100.00	5.28	326.13	7,048.45	582.54	-390.97	-570.31	1.50	-1.50	0.00
7,200.00	3.78	326.13	7,148.14	589.10	-395.37	-576.73	1.50	-1.50	0.00
7,300.00	2.28	326.13	7,248.00	593.49	-398.31	-581.03	1.50	-1.50	0.00
7,400.00	0.78	326.13	7,347.96	595.71	-399.80	-583.20	1.50	-1.50	0.00
7,452.05	0.00	0.00	7,400.00	596.00	-400.00	-583.49	1.50	-1.50	0.00
Start 2646.04 hold at 7452.05 MD									
7,500.00	0.00	0.00	7,447.96	596.00	-400.00	-583.49	0.00	0.00	0.00
7,600.00	0.00	0.00	7,547.96	596.00	-400.00	-583.49	0.00	0.00	0.00
7,700.00	0.00	0.00	7,647.96	596.00	-400.00	-583.49	0.00	0.00	0.00
7,800.00	0.00	0.00	7,747.96	596.00	-400.00	-583.49	0.00	0.00	0.00
7,900.00	0.00	0.00	7,847.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,000.00	0.00	0.00	7,947.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,100.00	0.00	0.00	8,047.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,200.00	0.00	0.00	8,147.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,300.00	0.00	0.00	8,247.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,400.00	0.00	0.00	8,347.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,500.00	0.00	0.00	8,447.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,600.00	0.00	0.00	8,547.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,700.00	0.00	0.00	8,647.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,800.00	0.00	0.00	8,747.96	596.00	-400.00	-583.49	0.00	0.00	0.00
8,900.00	0.00	0.00	8,847.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,000.00	0.00	0.00	8,947.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,100.00	0.00	0.00	9,047.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,200.00	0.00	0.00	9,147.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,300.00	0.00	0.00	9,247.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,400.00	0.00	0.00	9,347.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,500.00	0.00	0.00	9,447.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,600.00	0.00	0.00	9,547.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,700.00	0.00	0.00	9,647.96	596.00	-400.00	-583.49	0.00	0.00	0.00
9,800.00	0.00	0.00	9,747.96	596.00	-400.00	-583.49	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 501H
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 501H	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	9,847.96	596.00	-400.00	-583.49	0.00	0.00	0.00
10,000.00	0.00	0.00	9,947.96	596.00	-400.00	-583.49	0.00	0.00	0.00
10,098.09	0.00	0.00	10,046.04	596.00	-400.00	-583.49	0.00	0.00	0.00
Start DLS 10.00 TFO 179.44									
10,100.00	0.19	179.44	10,047.96	596.00	-400.00	-583.49	10.00	10.00	0.00
10,150.00	5.19	179.44	10,097.88	593.65	-399.98	-581.14	10.00	10.00	0.00
10,200.00	10.19	179.44	10,147.42	586.96	-399.91	-574.46	10.00	10.00	0.00
10,250.00	15.19	179.44	10,196.18	575.98	-399.80	-563.49	10.00	10.00	0.00
10,300.00	20.19	179.44	10,243.80	560.79	-399.66	-548.31	10.00	10.00	0.00
10,350.00	25.19	179.44	10,289.92	541.51	-399.47	-529.04	10.00	10.00	0.00
10,400.00	30.19	179.44	10,334.18	518.28	-399.24	-505.83	10.00	10.00	0.00
10,450.00	35.19	179.44	10,376.24	491.29	-398.98	-478.86	10.00	10.00	0.00
10,500.00	40.19	179.44	10,415.80	460.73	-398.68	-448.32	10.00	10.00	0.00
10,550.00	45.19	179.44	10,452.53	426.84	-398.35	-414.46	10.00	10.00	0.00
10,600.00	50.19	179.44	10,486.18	389.87	-397.99	-377.52	10.00	10.00	0.00
10,650.00	55.19	179.44	10,516.48	350.12	-397.60	-337.80	10.00	10.00	0.00
10,700.00	60.19	179.44	10,543.19	307.87	-397.19	-295.59	10.00	10.00	0.00
10,750.00	65.19	179.44	10,566.12	263.46	-396.76	-251.21	10.00	10.00	0.00
10,800.00	70.19	179.44	10,585.10	217.22	-396.31	-205.00	10.00	10.00	0.00
10,850.00	75.19	179.44	10,599.97	169.50	-395.84	-157.32	10.00	10.00	0.00
10,900.00	80.19	179.44	10,610.62	120.67	-395.36	-108.53	10.00	10.00	0.00
10,950.00	85.19	179.44	10,616.98	71.10	-394.88	-58.99	10.00	10.00	0.00
10,998.08	90.00	179.44	10,619.00	23.07	-394.41	-11.00	10.00	10.00	0.00
Start 9794.02 hold at 10998.08 MD - LP (PF Fed Com 501H)									
11,000.00	90.00	179.44	10,619.00	21.15	-394.39	-9.09	0.00	0.00	0.00
11,100.00	90.00	179.44	10,619.00	-78.84	-393.42	90.83	0.00	0.00	0.00
11,200.00	90.00	179.44	10,619.00	-178.84	-392.44	190.75	0.00	0.00	0.00
11,300.00	90.00	179.44	10,619.00	-278.83	-391.47	290.67	0.00	0.00	0.00
11,400.00	90.00	179.44	10,619.00	-378.83	-390.49	390.59	0.00	0.00	0.00
11,500.00	90.00	179.44	10,619.00	-478.82	-389.52	490.51	0.00	0.00	0.00
11,600.00	90.00	179.44	10,619.00	-578.82	-388.54	590.43	0.00	0.00	0.00
11,700.00	90.00	179.44	10,619.00	-678.81	-387.57	690.34	0.00	0.00	0.00
11,800.00	90.00	179.44	10,619.00	-778.81	-386.59	790.26	0.00	0.00	0.00
11,900.00	90.00	179.44	10,619.00	-878.80	-385.61	890.18	0.00	0.00	0.00
12,000.00	90.00	179.44	10,619.00	-978.80	-384.64	990.10	0.00	0.00	0.00
12,100.00	90.00	179.44	10,619.00	-1,078.79	-383.66	1,090.02	0.00	0.00	0.00
12,200.00	90.00	179.44	10,619.00	-1,178.79	-382.69	1,189.94	0.00	0.00	0.00
12,300.00	90.00	179.44	10,619.00	-1,278.78	-381.71	1,289.86	0.00	0.00	0.00
12,400.00	90.00	179.44	10,619.00	-1,378.78	-380.74	1,389.78	0.00	0.00	0.00
12,500.00	90.00	179.44	10,619.00	-1,478.77	-379.76	1,489.69	0.00	0.00	0.00
12,600.00	90.00	179.44	10,619.00	-1,578.77	-378.79	1,589.61	0.00	0.00	0.00
12,700.00	90.00	179.44	10,619.00	-1,678.76	-377.81	1,689.53	0.00	0.00	0.00
12,800.00	90.00	179.44	10,619.00	-1,778.76	-376.84	1,789.45	0.00	0.00	0.00
12,900.00	90.00	179.44	10,619.00	-1,878.76	-375.86	1,889.37	0.00	0.00	0.00
13,000.00	90.00	179.44	10,619.00	-1,978.75	-374.89	1,989.29	0.00	0.00	0.00
13,100.00	90.00	179.44	10,619.00	-2,078.75	-373.91	2,089.21	0.00	0.00	0.00
13,200.00	90.00	179.44	10,619.00	-2,178.74	-372.93	2,189.12	0.00	0.00	0.00
13,300.00	90.00	179.44	10,619.00	-2,278.74	-371.96	2,289.04	0.00	0.00	0.00
13,400.00	90.00	179.44	10,619.00	-2,378.73	-370.98	2,388.96	0.00	0.00	0.00
13,500.00	90.00	179.44	10,619.00	-2,478.73	-370.01	2,488.88	0.00	0.00	0.00
13,600.00	90.00	179.44	10,619.00	-2,578.72	-369.03	2,588.80	0.00	0.00	0.00
13,700.00	90.00	179.44	10,619.00	-2,678.72	-368.06	2,688.72	0.00	0.00	0.00
13,800.00	90.00	179.44	10,619.00	-2,778.71	-367.08	2,788.64	0.00	0.00	0.00
13,900.00	90.00	179.44	10,619.00	-2,878.71	-366.11	2,888.56	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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
14,000.00	90.00	179.44	10,619.00	-2,978.70	-365.13	2,988.47	0.00	0.00	0.00	
14,100.00	90.00	179.44	10,619.00	-3,078.70	-364.16	3,088.39	0.00	0.00	0.00	
14,200.00	90.00	179.44	10,619.00	-3,178.69	-363.18	3,188.31	0.00	0.00	0.00	
14,300.00	90.00	179.44	10,619.00	-3,278.69	-362.21	3,288.23	0.00	0.00	0.00	
14,400.00	90.00	179.44	10,619.00	-3,378.68	-361.23	3,388.15	0.00	0.00	0.00	
14,500.00	90.00	179.44	10,619.00	-3,478.68	-360.25	3,488.07	0.00	0.00	0.00	
14,600.00	90.00	179.44	10,619.00	-3,578.67	-359.28	3,587.99	0.00	0.00	0.00	
14,700.00	90.00	179.44	10,619.00	-3,678.67	-358.30	3,687.90	0.00	0.00	0.00	
14,800.00	90.00	179.44	10,619.00	-3,778.66	-357.33	3,787.82	0.00	0.00	0.00	
14,900.00	90.00	179.44	10,619.00	-3,878.66	-356.35	3,887.74	0.00	0.00	0.00	
15,000.00	90.00	179.44	10,619.00	-3,978.66	-355.38	3,987.66	0.00	0.00	0.00	
15,100.00	90.00	179.44	10,619.00	-4,078.65	-354.40	4,087.58	0.00	0.00	0.00	
15,200.00	90.00	179.44	10,619.00	-4,178.65	-353.43	4,187.50	0.00	0.00	0.00	
15,300.00	90.00	179.44	10,619.00	-4,278.64	-352.45	4,287.42	0.00	0.00	0.00	
15,400.00	90.00	179.44	10,619.00	-4,378.64	-351.48	4,387.34	0.00	0.00	0.00	
15,500.00	90.00	179.44	10,619.00	-4,478.63	-350.50	4,487.25	0.00	0.00	0.00	
15,600.00	90.00	179.44	10,619.00	-4,578.63	-349.53	4,587.17	0.00	0.00	0.00	
15,700.00	90.00	179.44	10,619.00	-4,678.62	-348.55	4,687.09	0.00	0.00	0.00	
15,800.00	90.00	179.44	10,619.00	-4,778.62	-347.57	4,787.01	0.00	0.00	0.00	
15,900.00	90.00	179.44	10,619.00	-4,878.61	-346.60	4,886.93	0.00	0.00	0.00	
16,000.00	90.00	179.44	10,619.00	-4,978.61	-345.62	4,986.85	0.00	0.00	0.00	
16,100.00	90.00	179.44	10,619.00	-5,078.60	-344.65	5,086.77	0.00	0.00	0.00	
16,200.00	90.00	179.44	10,619.00	-5,178.60	-343.67	5,186.69	0.00	0.00	0.00	
16,300.00	90.00	179.44	10,619.00	-5,278.59	-342.70	5,286.60	0.00	0.00	0.00	
16,400.00	90.00	179.44	10,619.00	-5,378.59	-341.72	5,386.52	0.00	0.00	0.00	
16,500.00	90.00	179.44	10,619.00	-5,478.58	-340.75	5,486.44	0.00	0.00	0.00	
16,600.00	90.00	179.44	10,619.00	-5,578.58	-339.77	5,586.36	0.00	0.00	0.00	
16,700.00	90.00	179.44	10,619.00	-5,678.57	-338.80	5,686.28	0.00	0.00	0.00	
16,800.00	90.00	179.44	10,619.00	-5,778.57	-337.82	5,786.20	0.00	0.00	0.00	
16,900.00	90.00	179.44	10,619.00	-5,878.56	-336.85	5,886.12	0.00	0.00	0.00	
17,000.00	90.00	179.44	10,619.00	-5,978.56	-335.87	5,986.03	0.00	0.00	0.00	
17,100.00	90.00	179.44	10,619.00	-6,078.56	-334.89	6,085.95	0.00	0.00	0.00	
17,200.00	90.00	179.44	10,619.00	-6,178.55	-333.92	6,185.87	0.00	0.00	0.00	
17,300.00	90.00	179.44	10,619.00	-6,278.55	-332.94	6,285.79	0.00	0.00	0.00	
17,400.00	90.00	179.44	10,619.00	-6,378.54	-331.97	6,385.71	0.00	0.00	0.00	
17,500.00	90.00	179.44	10,619.00	-6,478.54	-330.99	6,485.63	0.00	0.00	0.00	
17,600.00	90.00	179.44	10,619.00	-6,578.53	-330.02	6,585.55	0.00	0.00	0.00	
17,700.00	90.00	179.44	10,619.00	-6,678.53	-329.04	6,685.47	0.00	0.00	0.00	
17,800.00	90.00	179.44	10,619.00	-6,778.52	-328.07	6,785.38	0.00	0.00	0.00	
17,900.00	90.00	179.44	10,619.00	-6,878.52	-327.09	6,885.30	0.00	0.00	0.00	
18,000.00	90.00	179.44	10,619.00	-6,978.51	-326.12	6,985.22	0.00	0.00	0.00	
18,100.00	90.00	179.44	10,619.00	-7,078.51	-325.14	7,085.14	0.00	0.00	0.00	
18,200.00	90.00	179.44	10,619.00	-7,178.50	-324.17	7,185.06	0.00	0.00	0.00	
18,300.00	90.00	179.44	10,619.00	-7,278.50	-323.19	7,284.98	0.00	0.00	0.00	
18,400.00	90.00	179.44	10,619.00	-7,378.49	-322.21	7,384.90	0.00	0.00	0.00	
18,500.00	90.00	179.44	10,619.00	-7,478.49	-321.24	7,484.81	0.00	0.00	0.00	
18,600.00	90.00	179.44	10,619.00	-7,578.48	-320.26	7,584.73	0.00	0.00	0.00	
18,700.00	90.00	179.44	10,619.00	-7,678.48	-319.29	7,684.65	0.00	0.00	0.00	
18,800.00	90.00	179.44	10,619.00	-7,778.47	-318.31	7,784.57	0.00	0.00	0.00	
18,900.00	90.00	179.44	10,619.00	-7,878.47	-317.34	7,884.49	0.00	0.00	0.00	
19,000.00	90.00	179.44	10,619.00	-7,978.47	-316.36	7,984.41	0.00	0.00	0.00	
19,100.00	90.00	179.44	10,619.00	-8,078.46	-315.39	8,084.33	0.00	0.00	0.00	
19,200.00	90.00	179.44	10,619.00	-8,178.46	-314.41	8,184.25	0.00	0.00	0.00	
19,300.00	90.00	179.44	10,619.00	-8,278.45	-313.44	8,284.16	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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
19,400.00	90.00	179.44	10,619.00	-8,378.45	-312.46	8,384.08	0.00	0.00	0.00	
19,500.00	90.00	179.44	10,619.00	-8,478.44	-311.49	8,484.00	0.00	0.00	0.00	
19,600.00	90.00	179.44	10,619.00	-8,578.44	-310.51	8,583.92	0.00	0.00	0.00	
19,700.00	90.00	179.44	10,619.00	-8,678.43	-309.53	8,683.84	0.00	0.00	0.00	
19,800.00	90.00	179.44	10,619.00	-8,778.43	-308.56	8,783.76	0.00	0.00	0.00	
19,900.00	90.00	179.44	10,619.00	-8,878.42	-307.58	8,883.68	0.00	0.00	0.00	
20,000.00	90.00	179.44	10,619.00	-8,978.42	-306.61	8,983.59	0.00	0.00	0.00	
20,100.00	90.00	179.44	10,619.00	-9,078.41	-305.63	9,083.51	0.00	0.00	0.00	
20,200.00	90.00	179.44	10,619.00	-9,178.41	-304.66	9,183.43	0.00	0.00	0.00	
20,300.00	90.00	179.44	10,619.00	-9,278.40	-303.68	9,283.35	0.00	0.00	0.00	
20,400.00	90.00	179.44	10,619.00	-9,378.40	-302.71	9,383.27	0.00	0.00	0.00	
20,500.00	90.00	179.44	10,619.00	-9,478.39	-301.73	9,483.19	0.00	0.00	0.00	
20,600.00	90.00	179.44	10,619.00	-9,578.39	-300.76	9,583.11	0.00	0.00	0.00	
20,700.00	90.00	179.44	10,619.00	-9,678.38	-299.78	9,683.03	0.00	0.00	0.00	
20,792.10	90.00	179.44	10,619.00	-9,770.48	-298.88	9,775.05	0.00	0.00	0.00	
TD at 20792.10 - PBHL (PF Fed Com 501H)										

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 501H) - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	393,493.95	853,464.93	32.077787		-103.325603
LP (PF Fed Com 501H) - plan hits target center - Point	0.00	0.00	10,619.00	23.07	-394.41	393,517.02	853,070.52	32.077861		-103.326876
PBHL (PF Fed Com 501) - plan hits target center - Point	0.00	0.00	10,619.00	-9,770.48	-298.88	383,723.46	853,166.04	32.050940		-103.326862

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,100.00	2,100.00	0.00	0.00	Start Build 1.50	
2,676.13	2,673.94	36.01	-24.17	Start 4199.79 hold at 2676.13 MD	
6,875.92	6,826.06	559.99	-375.83	Start Drop -1.50	
7,452.05	7,400.00	596.00	-400.00	Start 2646.04 hold at 7452.05 MD	
10,098.09	10,046.04	596.00	-400.00	Start DLS 10.00 TFO 179.44	
10,998.09	10,619.00	23.07	-394.41	Start 9794.02 hold at 10998.08 MD	
20,792.10	10,619.00	-9,770.48	-298.88	TD at 20792.10	



Franklin Mountain Energy

Lea County, NM (NAD83)

PF Fed Com

PF Fed Com 501H

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	7/16/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	20,791.19	Plan #1 (OH)	OWSG (Rev2) MWD	OWSG MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bus Driver/Kaston Fed Com						
Bus Driver Fed Com 602H - OH - OH	9,905.18	9,880.83	1,258.56	1,211.05	26.487	CC, ES
Bus Driver Fed Com 602H - OH - OH	15,500.00	16,638.17	1,836.52	1,736.39	18.342	SF
Bus Driver Fed Com 602H - OH - Plan #6	9,905.18	9,880.83	1,258.56	1,211.05	26.487	CC, ES
Bus Driver Fed Com 602H - OH - Plan #6	20,792.10	21,843.83	2,016.75	1,841.12	11.483	SF
Bus Driver Fed Com 702H - OH - OH	8,431.64	8,443.44	804.59	763.63	19.644	CC
Bus Driver Fed Com 702H - OH - OH	8,600.00	8,607.40	805.15	763.44	19.303	ES
Bus Driver Fed Com 702H - OH - OH	10,400.00	10,413.83	824.18	774.29	16.520	SF
Bus Driver Fed Com 702H - OH - Plan #5	10,112.04	10,119.35	811.04	762.21	16.611	CC
Bus Driver Fed Com 702H - OH - Plan #5	10,200.00	10,206.78	811.09	761.89	16.486	ES
Bus Driver Fed Com 702H - OH - Plan #5	20,792.10	22,208.88	1,751.00	1,598.65	11.493	SF
Kaston Fed Com 603H - OH - OH	0.00	0.00	1,525.02			
Kaston Fed Com 603H - OH - OH	20,792.10	21,872.60	2,768.80	2,554.11	12.897	SF
Kaston Fed Com 703H - OH - OH	1,967.89	1,976.29	1,402.28	1,393.70	163.334	CC, ES
Kaston Fed Com 703H - OH - OH	10,600.00	10,516.31	1,797.33	1,747.08	35.765	SF
Kaston Fed Com 703H - OH - Plan #9	1,967.94	1,976.32	1,402.60	1,394.06	164.325	CC, ES
Kaston Fed Com 703H - OH - Plan #9	20,792.10	22,191.94	2,286.90	2,082.81	11.206	SF
Judge Baylor Fed Com						
Judge Baylor Fed Com 601H - OH - Plan #5	7,272.12	7,234.58	530.01	492.74	14.224	CC
Judge Baylor Fed Com 601H - OH - Plan #5	10,200.00	10,178.19	539.46	487.93	10.469	ES
Judge Baylor Fed Com 601H - OH - Plan #5	10,300.00	10,274.57	540.55	488.67	10.419	SF
Judge Baylor Fed Com 701H - OH - Plan #5	10,098.09	10,074.51	229.44	178.34	4.490	CC
Judge Baylor Fed Com 701H - OH - Plan #5	10,200.00	10,175.89	229.63	178.13	4.459	ES, SF
LHS Wildcat Fed Com						
LHS Wildcat Fed Com 604H - OH - OH	2,192.74	2,200.22	3,524.73	3,515.40	377.433	CC
LHS Wildcat Fed Com 604H - OH - OH	2,200.00	2,205.43	3,524.74	3,515.37	376.349	ES
LHS Wildcat Fed Com 604H - OH - OH	20,792.10	21,758.39	4,001.33	3,769.02	17.224	SF
LHS Wildcat Fed Com 705H - OH - OH	1,627.83	1,599.76	3,576.32	3,569.02	489.730	CC, ES
LHS Wildcat Fed Com 705H - OH - OH	20,792.10	22,014.07	4,352.94	4,121.35	18.796	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 501H
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 501H	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	24.78	14.97	2.526	CC
PF Fed Com 101H - OH - Plan #1	3,700.00	3,697.02	29.36	10.56	1.562	ES
PF Fed Com 101H - OH - Plan #1	3,900.00	3,896.96	30.73	10.81	1.542	SF
PF Fed Com 102H - OH - Plan #1	2,100.00	2,100.00	50.18	39.86	4.864	CC, ES
PF Fed Com 102H - OH - Plan #1	2,200.00	2,199.99	50.91	40.09	4.704	SF
PF Fed Com 502H - OH - Plan #1	2,100.00	2,100.00	25.09	14.77	2.432	CC, ES
PF Fed Com 502H - OH - Plan #1	2,200.00	2,199.99	25.83	15.01	2.387	SF
PF Fed Com 801H - OH - Plan #1	4,400.02	4,389.07	74.38	52.46	3.392	CC
PF Fed Com 801H - OH - Plan #1	10,150.00	10,148.19	100.12	47.93	1.918	ES, SF
PF Fed Com 802H - OH - Plan #1	2,398.19	2,394.35	72.87	61.07	6.176	CC
PF Fed Com 802H - OH - Plan #1	2,400.00	2,396.13	72.87	61.06	6.171	ES
PF Fed Com 802H - OH - Plan #1	2,500.00	2,493.92	73.80	61.51	6.006	SF
PF Fed Com 803H - OH - Plan #1	1,600.00	1,600.00	83.80	76.01	10.768	CC, ES
PF Fed Com 803H - OH - Plan #1	1,800.00	1,795.36	89.08	80.31	10.164	SF

Offset Design Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - OH												Offset Site Error: 0.00 usft	
Survey Program: 112-OWSG (Rev2) MWD, 1352-OWSG (Rev2) MWD												Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance					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
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)					
0.00	0.00	4.36	4.36	0.00	0.01	48.65	972.13	1,104.46	1,471.35				
100.00	100.00	101.14	101.14	0.13	0.13	48.64	972.29	1,104.48	1,471.47	1,471.29	0.18	8,053.566	
178.08	178.08	182.58	182.58	0.41	0.39	48.64	972.31	1,104.45	1,471.46	1,470.90	0.56	2,612.267	
200.00	200.00	199.14	199.14	0.48	0.45	48.64	972.36	1,104.45	1,471.50	1,470.84	0.66	2,229.164	
300.00	300.00	303.00	303.00	0.84	0.82	48.60	973.25	1,103.93	1,471.69	1,470.51	1.17	1,252.997	
400.00	400.00	408.69	408.65	1.20	1.20	48.50	975.18	1,102.10	1,471.60	1,469.91	1.70	868.042	
500.00	500.00	528.95	528.86	1.56	1.63	48.39	976.31	1,099.25	1,470.41	1,468.16	2.25	652.803	
600.00	600.00	656.65	656.52	1.92	2.08	48.35	974.80	1,096.07	1,467.76	1,464.94	2.82	519.800	
700.00	700.00	767.38	767.13	2.28	2.46	48.41	970.78	1,093.77	1,463.78	1,460.44	3.35	437.220	
800.00	800.00	894.10	893.50	2.63	2.91	48.68	961.33	1,093.47	1,458.68	1,454.77	3.91	373.071	
900.00	900.00	971.50	970.68	2.99	3.18	48.83	955.62	1,092.63	1,453.07	1,448.72	4.35	333.719	
1,000.00	1,000.00	1,063.34	1,062.35	3.35	3.51	48.98	950.15	1,092.31	1,448.89	1,444.05	4.84	299.577	
1,100.00	1,100.00	1,157.84	1,156.70	3.71	3.85	49.13	944.85	1,091.85	1,444.86	1,439.53	5.33	271.225	
1,200.00	1,200.00	1,250.16	1,248.93	4.07	4.18	49.26	940.50	1,091.86	1,441.76	1,435.95	5.81	248.022	
1,300.00	1,300.00	1,333.10	1,331.80	4.43	4.48	49.34	937.49	1,091.64	1,439.21	1,432.93	6.28	229.336	
1,400.00	1,400.00	1,425.00	1,423.68	4.79	4.68	49.40	935.50	1,091.29	1,437.51	1,430.84	6.67	215.496	
1,500.00	1,500.00	1,519.00	1,517.67	5.14	4.70	49.40	934.57	1,090.44	1,436.19	1,429.24	6.95	206.746	
1,589.10	1,589.10	1,594.94	1,593.61	5.46	4.74	49.36	935.04	1,089.49	1,435.72	1,428.51	7.21	199.170	
1,600.00	1,600.00	1,603.99	1,602.65	5.50	4.74	49.36	935.16	1,089.39	1,435.73	1,428.48	7.24	198.284	
1,700.00	1,700.00	1,696.25	1,694.89	5.86	4.80	49.28	936.87	1,088.45	1,436.16	1,428.60	7.56	190.093	
1,800.00	1,800.00	1,794.59	1,793.20	6.22	4.89	49.19	939.10	1,087.51	1,436.91	1,429.02	7.89	182.105	
1,900.00	1,900.00	1,893.54	1,892.13	6.58	5.00	49.10	941.33	1,086.65	1,437.73	1,429.49	8.24	174.406	
2,000.00	2,000.00	1,986.10	1,984.66	6.94	5.12	49.02	943.43	1,086.20	1,438.85	1,430.24	8.61	167.193	
2,100.00	2,100.00	2,078.28	2,076.82	7.29	5.26	48.96	945.66	1,086.27	1,440.50	1,431.52	8.98	160.425	
2,200.00	2,199.99	2,172.32	2,170.82	7.65	5.42	82.78	948.19	1,086.73	1,442.47	1,433.10	9.36	154.054	
2,300.00	2,299.91	2,269.27	2,267.72	8.01	5.60	82.84	951.00	1,087.43	1,444.42	1,434.66	9.76	148.003	
2,400.00	2,399.69	2,366.23	2,364.63	8.36	5.80	82.99	954.01	1,088.20	1,446.25	1,436.09	10.17	142.278	
2,500.00	2,499.27	2,465.65	2,464.00	8.72	6.01	83.25	957.26	1,089.02	1,447.92	1,437.33	10.58	136.804	
2,600.00	2,598.57	2,571.60	2,569.91	9.08	6.26	83.68	959.61	1,090.43	1,449.03	1,438.01	11.02	131.467	

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 501H
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 501H	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				
2,676.13	2,673.94	2,641.86	2,640.15	9.36	6.42	84.06	960.72	1,091.75	1,449.77	1,438.43	11.35	127.777				
2,700.00	2,697.55	2,675.29	2,673.57	9.45	6.50	84.26	961.22	1,092.39	1,450.00	1,438.53	11.47	126.462				
2,800.00	2,796.41	2,805.88	2,804.15	9.82	6.82	85.05	961.23	1,093.09	1,448.87	1,436.91	11.95	121.198				
2,900.00	2,895.28	2,896.19	2,894.46	10.20	7.05	85.59	961.00	1,093.19	1,447.58	1,435.18	12.39	116.799				
2,964.70	2,959.24	2,949.98	2,948.25	10.44	7.19	85.92	961.11	1,093.57	1,447.30	1,434.63	12.68	114.181				
3,000.00	2,994.14	2,978.00	2,976.27	10.58	7.26	86.09	961.26	1,093.92	1,447.39	1,434.57	12.83	112.826				
3,100.00	3,093.01	3,063.43	3,061.68	10.96	7.50	86.61	962.00	1,095.68	1,448.59	1,435.31	13.28	109.120				
3,200.00	3,191.87	3,190.26	3,188.47	11.35	7.85	87.42	962.42	1,098.58	1,449.98	1,436.19	13.80	105.099				
3,300.00	3,290.74	3,367.94	3,365.99	11.74	8.35	88.68	955.77	1,098.49	1,447.15	1,432.76	14.39	100.591				
3,400.00	3,389.60	3,535.23	3,532.61	12.13	8.84	89.99	942.31	1,092.71	1,439.27	1,424.33	14.94	96.312				
3,500.00	3,488.46	3,636.90	3,633.73	12.52	9.15	90.72	934.10	1,085.98	1,429.22	1,413.78	15.43	92.598				
3,600.00	3,587.33	3,722.10	3,718.55	12.92	9.41	91.29	928.65	1,080.02	1,420.01	1,404.09	15.91	89.227				
3,700.00	3,686.19	3,822.88	3,818.95	13.32	9.72	91.90	923.99	1,072.64	1,411.67	1,395.26	16.41	86.009				
3,800.00	3,785.06	3,965.41	3,960.64	13.72	10.18	92.88	913.93	1,061.17	1,401.63	1,384.68	16.95	82.692				
3,900.00	3,883.92	4,067.00	4,061.31	14.12	10.52	93.72	903.02	1,053.03	1,389.88	1,372.43	17.46	79.617				
4,000.00	3,982.79	4,142.12	4,135.84	14.53	10.77	94.34	895.42	1,047.36	1,379.15	1,361.20	17.95	76.840				
4,100.00	4,081.65	4,232.69	4,225.86	14.93	11.08	95.05	887.90	1,040.92	1,369.94	1,351.48	18.45	74.240				
4,200.00	4,180.52	4,309.02	4,301.80	15.34	11.34	95.62	882.29	1,035.66	1,361.67	1,342.73	18.95	71.874				
4,300.00	4,279.38	4,382.20	4,374.73	15.74	11.59	96.19	877.48	1,031.99	1,355.57	1,336.14	19.43	69.760				
4,400.00	4,378.25	4,463.57	4,455.92	16.15	11.86	96.81	873.00	1,028.90	1,351.27	1,331.34	19.93	67.812				
4,500.00	4,477.11	4,567.28	4,559.40	16.56	12.21	97.63	867.01	1,025.73	1,347.77	1,327.32	20.45	65.894				
4,600.00	4,575.98	4,684.76	4,676.45	16.97	12.61	98.64	857.93	1,021.39	1,343.07	1,322.06	21.00	63.950				
4,700.00	4,674.84	4,784.04	4,775.35	17.38	12.96	99.48	850.38	1,017.09	1,338.19	1,316.67	21.53	62.162				
4,800.00	4,773.71	4,885.20	4,876.12	17.79	13.31	100.34	842.79	1,012.53	1,333.50	1,311.45	22.06	60.457				
4,900.00	4,872.57	4,994.98	4,985.41	18.21	13.70	101.29	834.01	1,007.14	1,328.56	1,305.96	22.60	58.790				
5,000.00	4,971.43	5,091.92	5,081.90	18.62	14.05	102.13	826.24	1,001.92	1,323.47	1,300.34	23.13	57.229				
5,100.00	5,070.30	5,200.80	5,190.23	19.03	14.44	103.09	817.21	995.79	1,318.36	1,294.70	23.67	55.701				
5,200.00	5,169.16	5,301.03	5,289.72	19.45	14.81	104.08	806.28	990.52	1,313.00	1,288.80	24.21	54.244				
5,300.00	5,268.03	5,395.71	5,383.58	19.86	15.16	105.09	794.69	986.02	1,308.05	1,283.31	24.74	52.875				
5,400.00	5,366.89	5,484.00	5,471.14	20.28	15.49	106.03	784.10	982.08	1,303.91	1,278.65	25.26	51.611				
5,500.00	5,465.76	5,572.63	5,559.11	20.69	15.82	106.97	773.80	978.63	1,300.85	1,275.06	25.79	50.442				
5,600.00	5,564.62	5,691.19	5,676.79	21.11	16.27	108.21	760.48	973.23	1,297.73	1,271.37	26.36	49.238				
5,700.00	5,663.49	5,786.32	5,771.22	21.53	16.63	109.18	750.27	967.96	1,294.24	1,267.35	26.89	48.129				
5,800.00	5,762.35	5,868.72	5,853.12	21.94	16.93	109.99	742.19	963.89	1,291.95	1,264.55	27.41	47.139				
5,900.00	5,861.22	5,959.33	5,943.27	22.36	17.27	110.87	733.87	960.03	1,290.85	1,262.92	27.93	46.213				
6,000.00	5,960.08	6,055.56	6,039.04	22.78	17.63	111.80	725.27	956.18	1,290.42	1,261.95	28.47	45.332				
6,023.46	5,983.27	6,077.06	6,060.44	22.88	17.71	112.01	723.38	955.34	1,290.39	1,261.81	28.59	45.136				
6,100.00	6,058.95	6,148.46	6,131.52	23.20	17.97	112.69	717.29	952.67	1,290.63	1,261.64	28.99	44.515				
6,200.00	6,157.81	6,270.89	6,253.34	23.62	18.43	113.86	706.41	947.02	1,290.33	1,260.76	29.57	43.636				
6,300.00	6,256.68	6,376.67	6,358.43	24.04	18.83	114.90	696.12	940.79	1,289.02	1,258.90	30.12	42.795				
6,400.00	6,355.54	6,471.96	6,453.10	24.46	19.20	115.84	686.84	935.16	1,288.07	1,257.42	30.66	42.018				
6,500.00	6,454.40	6,566.96	6,547.46	24.88	19.56	116.79	677.32	929.71	1,287.66	1,256.47	31.19	41.286				
6,516.07	6,470.29	6,582.06	6,562.46	24.94	19.62	116.94	675.82	928.87	1,287.65	1,256.38	31.27	41.173				
6,600.00	6,553.27	6,658.46	6,638.39	25.30	19.91	117.70	668.41	924.71	1,287.93	1,256.21	31.72	40.609				
6,700.00	6,652.13	6,750.22	6,729.67	25.72	20.26	118.57	660.28	920.13	1,289.12	1,256.88	32.24	39.985				
6,800.00	6,751.00	6,848.33	6,827.33	26.14	20.63	119.48	652.24	915.38	1,290.87	1,258.10	32.77	39.388				
6,875.92	6,826.06	6,927.92	6,906.61	26.46	20.93	120.19	646.37	911.29	1,292.26	1,259.07	33.19	38.939				
6,900.00	6,849.87	6,954.51	6,933.10	26.56	21.03	120.41	644.62	909.81	1,292.61	1,259.29	33.32	38.794				
7,000.00	6,949.01	7,054.12	7,032.38	26.97	21.40	121.15	639.03	903.91	1,293.08	1,259.24	33.84	38.207				
7,100.00	7,048.45	7,148.32	7,126.31	27.36	21.74	121.71	634.39	898.58	1,292.67	1,258.32	34.35	37.633				
7,200.00	7,148.14	7,243.20	7,220.94	27.73	22.09	122.17	629.86	893.55	1,291.37	1,256.52	34.85	37.060				
7,300.00	7,248.00	7,344.97	7,322.49	28.09	22.46	122.52	625.56	888.30	1,288.92	1,253.57	35.35	36.466				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 501H
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 501H	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									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
7,400.00	7,347.96	7,436.29	7,413.61	28.44	22.79	122.72	621.95	883.61	1,285.13	1,249.32	35.82	35.882				
7,452.05	7,400.00	7,481.89	7,459.15	28.61	22.95	88.92	620.25	881.59	1,282.98	1,246.93	36.05	35.586				
7,500.00	7,447.96	7,524.35	7,501.54	28.77	23.10	88.98	618.81	879.90	1,281.04	1,244.77	36.27	35.320				
7,600.00	7,547.96	7,607.00	7,584.12	29.09	23.39	89.07	616.73	877.23	1,277.79	1,241.09	36.70	34.814				
7,700.00	7,647.96	7,687.64	7,664.74	29.42	23.66	89.09	616.30	875.89	1,276.11	1,238.99	37.12	34.376				
7,782.71	7,730.66	7,758.06	7,735.16	29.69	23.89	89.07	616.68	875.60	1,275.76	1,238.29	37.47	34.046				
7,800.00	7,747.96	7,775.09	7,752.19	29.75	23.94	89.07	616.81	875.60	1,275.77	1,238.22	37.55	33.975				
7,900.00	7,847.96	7,871.98	7,849.09	30.08	24.25	89.05	617.25	875.68	1,275.87	1,237.86	38.00	33.574				
8,000.00	7,947.96	7,965.36	7,942.46	30.41	24.54	89.05	617.23	876.17	1,276.38	1,237.94	38.44	33.201				
8,100.00	8,047.96	8,058.23	8,035.33	30.74	24.84	89.06	616.96	877.16	1,277.45	1,238.56	38.89	32.851				
8,200.00	8,147.96	8,153.00	8,130.08	31.07	25.15	89.08	616.45	878.68	1,279.04	1,239.70	39.34	32.515				
8,300.00	8,247.96	8,264.39	8,241.45	31.40	25.51	89.11	615.79	880.47	1,280.67	1,240.83	39.84	32.142				
8,400.00	8,347.96	8,404.01	8,381.06	31.74	25.98	89.14	615.22	879.57	1,280.03	1,239.60	40.43	31.659				
8,500.00	8,447.96	8,493.13	8,470.17	32.07	26.28	89.14	615.26	877.91	1,278.18	1,237.30	40.88	31.267				
8,600.00	8,547.96	8,583.78	8,560.82	32.40	26.58	89.13	615.47	876.99	1,277.16	1,235.84	41.33	30.904				
8,700.00	8,647.96	8,682.67	8,659.70	32.74	26.91	89.11	615.86	876.42	1,276.59	1,234.80	41.80	30.544				
8,800.00	8,747.96	8,781.38	8,758.41	33.07	27.23	89.09	616.25	875.90	1,276.07	1,233.81	42.26	30.193				
8,900.00	8,847.96	8,887.11	8,864.14	33.41	27.58	89.07	616.60	875.17	1,275.39	1,232.63	42.75	29.830				
9,000.00	8,947.96	8,992.67	8,969.69	33.74	27.94	89.06	616.99	873.94	1,274.23	1,230.98	43.25	29.465				
9,100.00	9,047.96	9,094.22	9,071.23	34.08	28.28	89.02	617.68	872.47	1,272.79	1,229.06	43.73	29.108				
9,200.00	9,147.96	9,193.86	9,170.85	34.42	28.61	88.98	618.73	871.00	1,271.34	1,227.14	44.20	28.763				
9,300.00	9,247.96	9,295.01	9,271.99	34.75	28.95	88.92	620.02	869.49	1,269.86	1,225.18	44.68	28.422				
9,400.00	9,347.96	9,397.64	9,374.59	35.09	29.29	88.85	621.43	867.78	1,268.23	1,223.07	45.16	28.082				
9,500.00	9,447.96	9,500.71	9,477.63	35.43	29.63	88.78	622.92	865.83	1,266.36	1,220.72	45.65	27.743				
9,600.00	9,547.96	9,600.19	9,577.08	35.77	29.97	88.71	624.38	863.79	1,264.34	1,218.22	46.12	27.413				
9,700.00	9,647.96	9,700.41	9,677.27	36.11	30.30	88.65	625.64	861.83	1,262.42	1,215.82	46.60	27.090				
9,800.00	9,747.96	9,809.64	9,786.46	36.44	30.67	88.59	626.94	859.33	1,260.17	1,213.07	47.10	26.753				
9,900.00	9,847.96	9,877.56	9,854.37	36.78	30.90	88.57	627.47	858.17	1,258.57	1,211.07	47.50	26.498				
9,905.18	9,853.14	9,880.83	9,857.63	36.80	30.91	88.57	627.47	858.17	1,258.56	1,211.05	47.52	26.487	CC, ES			
10,000.00	9,947.96	9,948.22	9,925.02	37.12	31.14	88.59	626.98	859.09	1,259.77	1,211.89	47.88	26.312				
10,098.09	10,046.04	10,033.63	10,010.39	37.46	31.41	88.63	626.18	861.52	1,262.52	1,214.23	48.30	26.140				
10,100.00	10,047.96	10,035.57	10,012.33	37.46	31.42	-90.80	626.16	861.59	1,262.58	1,214.28	48.31	26.137				
10,150.00	10,097.88	10,086.12	10,062.86	37.61	31.58	-90.73	625.84	863.19	1,264.19	1,215.66	48.53	26.049				
10,200.00	10,147.42	10,135.40	10,112.11	37.74	31.74	-90.86	625.66	864.73	1,265.86	1,217.12	48.74	25.972				
10,250.00	10,196.18	10,183.36	10,160.04	37.86	31.90	-91.14	625.59	866.26	1,267.69	1,218.75	48.94	25.905				
10,300.00	10,243.80	10,232.50	10,209.15	37.96	32.06	-91.61	625.58	867.82	1,269.74	1,220.61	49.13	25.846				
10,350.00	10,289.92	10,281.25	10,257.89	38.05	32.22	-92.22	625.54	869.28	1,272.05	1,222.74	49.31	25.797				
10,400.00	10,334.18	10,333.67	10,310.29	38.12	32.39	-93.05	625.46	870.65	1,274.72	1,225.22	49.50	25.752				
10,450.00	10,376.24	10,385.25	10,361.86	38.17	32.56	-93.99	625.43	871.61	1,277.79	1,228.11	49.68	25.722				
10,500.00	10,415.80	10,423.43	10,400.03	38.21	32.68	-94.64	625.38	872.19	1,281.66	1,231.85	49.80	25.734				
10,550.00	10,452.53	10,458.45	10,435.05	38.24	32.80	-95.18	625.27	872.79	1,286.73	1,236.81	49.92	25.778				
10,600.00	10,486.18	10,491.41	10,468.01	38.26	32.90	-95.62	625.10	873.41	1,293.17	1,243.16	50.02	25.855				
10,650.00	10,516.48	10,523.06	10,499.65	38.26	33.01	-95.93	624.90	874.00	1,301.12	1,251.01	50.11	25.965				
10,700.00	10,543.19	10,551.11	10,527.69	38.26	33.10	-96.00	624.69	874.50	1,310.71	1,260.52	50.19	26.115				
10,750.00	10,566.12	10,575.32	10,551.89	38.25	33.18	-95.79	624.50	874.92	1,322.07	1,271.81	50.25	26.307				
10,800.00	10,585.10	10,595.56	10,572.13	38.23	33.25	-95.26	624.32	875.26	1,335.26	1,284.95	50.31	26.543				
10,850.00	10,599.97	10,611.53	10,588.10	38.21	33.30	-94.36	624.19	875.52	1,350.32	1,299.98	50.34	26.822				
10,900.00	10,610.62	10,623.10	10,599.67	38.19	33.34	-93.07	624.09	875.70	1,367.22	1,316.85	50.36	27.146				
10,950.00	10,616.98	10,630.19	10,606.75	38.17	33.37	-91.38	624.03	875.81	1,385.86	1,335.49	50.37	27.512				
10,998.09	10,619.00	10,632.72	10,609.29	38.16	33.37	-89.36	624.01	875.85	1,405.31	1,354.94	50.37	27.902				
11,000.00	10,619.00	10,632.74	10,609.30	38.16	33.37	-89.36	624.01	875.85	1,406.11	1,355.75	50.37	27.918				
11,100.00	10,619.00	10,633.63	10,610.20	38.19	33.38	-89.40	624.00	875.86	1,450.94	1,400.59	50.35	28.815				

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - OH		Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1352-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
11,200.00	10,619.00	10,634.52	10,611.09	38.36	33.38	-89.44	623.99	875.88	1,501.11	1,450.74	50.36	29.806				
11,300.00	10,619.00	10,635.41	10,611.98	38.64	33.38	-89.48	623.98	875.89	1,556.09	1,505.70	50.39	30.881				
11,400.00	10,619.00	10,636.30	10,612.86	38.99	33.39	-89.52	623.98	875.90	1,615.39	1,564.96	50.43	32.031				
11,500.00	10,619.00	10,637.18	10,613.75	39.41	33.39	-89.56	623.97	875.92	1,678.56	1,628.08	50.48	33.250				
11,600.00	10,619.00	10,638.07	10,614.64	39.89	33.39	-89.60	623.96	875.93	1,745.18	1,694.64	50.54	34.529				
11,700.00	10,619.00	12,901.86	11,834.56	40.43	46.16	-133.75	-687.72	877.50	1,751.32	1,699.98	51.35	34.108				
11,800.00	10,619.00	12,989.01	11,835.46	41.03	47.03	-133.84	-774.84	875.34	1,749.67	1,697.58	52.09	33.587				
11,816.89	10,619.00	12,997.56	11,835.68	41.14	47.12	-133.85	-783.39	875.19	1,749.63	1,697.45	52.18	33.529				
11,900.00	10,619.00	13,044.00	11,837.53	41.68	47.59	-133.92	-829.79	874.70	1,750.62	1,697.98	52.64	33.258				
12,000.00	10,619.00	13,141.81	11,842.13	42.38	48.63	-134.05	-927.49	874.48	1,753.02	1,699.51	53.52	32.756				
12,100.00	10,619.00	13,241.48	11,846.13	43.14	49.71	-134.16	-1,027.07	874.73	1,755.29	1,700.83	54.46	32.228				
12,200.00	10,619.00	13,353.63	11,849.72	43.94	50.97	-134.26	-1,139.16	875.23	1,757.14	1,701.58	55.56	31.625				
12,300.00	10,619.00	13,444.65	11,852.35	44.79	52.01	-134.34	-1,230.14	875.51	1,758.71	1,702.18	56.53	31.113				
12,400.00	10,619.00	13,518.00	11,855.19	45.68	52.87	-134.39	-1,303.43	876.73	1,761.80	1,704.43	57.37	30.709				
12,500.00	10,619.00	13,684.88	11,858.05	46.62	54.87	-134.36	-1,470.16	882.47	1,765.62	1,706.46	59.16	29.844				
12,578.97	10,619.00	13,760.16	11,856.84	47.38	55.79	-134.33	-1,545.42	883.63	1,765.08	1,705.00	60.09	29.376				
12,600.00	10,619.00	13,774.63	11,856.84	47.59	55.97	-134.33	-1,559.89	883.81	1,765.12	1,704.85	60.27	29.285				
12,700.00	10,619.00	13,838.70	11,857.73	48.59	56.77	-134.34	-1,623.94	884.74	1,766.46	1,705.32	61.13	28.895				
12,800.00	10,619.00	13,903.71	11,859.43	49.64	57.58	-134.34	-1,688.89	886.95	1,769.96	1,707.95	62.02	28.540				
12,900.00	10,619.00	14,040.80	11,862.15	50.71	59.33	-134.33	-1,825.87	891.58	1,772.98	1,709.31	63.67	27.845				
13,000.00	10,619.00	14,207.56	11,862.57	51.81	61.50	-134.33	-1,992.60	893.81	1,773.43	1,707.77	65.66	27.008				
13,094.66	10,619.00	14,276.00	11,862.51	52.89	62.40	-134.35	-2,061.04	893.43	1,772.45	1,705.82	66.63	26.601				
13,100.00	10,619.00	14,276.00	11,862.51	52.95	62.40	-134.35	-2,061.04	893.43	1,772.46	1,705.82	66.64	26.596				
13,200.00	10,619.00	14,336.52	11,863.63	54.11	63.21	-134.38	-2,121.55	893.65	1,773.54	1,705.99	67.54	26.258				
13,300.00	10,619.00	14,405.37	11,866.46	55.29	64.14	-134.43	-2,190.32	895.32	1,777.29	1,708.76	68.53	25.934				
13,400.00	10,619.00	14,524.54	11,871.03	56.50	65.76	-134.49	-2,309.36	898.46	1,781.19	1,711.10	70.09	25.412				
13,500.00	10,619.00	14,626.40	11,874.07	57.72	67.16	-134.53	-2,411.15	900.65	1,784.11	1,712.63	71.48	24.958				
13,600.00	10,619.00	14,722.10	11,877.03	58.97	68.48	-134.56	-2,506.77	903.04	1,787.37	1,714.54	72.83	24.542				
13,700.00	10,619.00	14,873.21	11,880.16	60.24	70.59	-134.62	-2,657.82	905.46	1,789.27	1,714.45	74.81	23.917				
13,800.00	10,619.00	14,966.47	11,880.92	61.53	71.90	-134.63	-2,751.07	906.28	1,789.79	1,713.62	76.17	23.497				
13,900.00	10,619.00	15,049.11	11,882.91	62.83	73.08	-134.69	-2,833.69	906.80	1,791.21	1,713.82	77.39	23.145				
14,000.00	10,619.00	15,161.19	11,886.17	64.15	74.68	-134.77	-2,945.72	907.30	1,792.91	1,713.97	78.94	22.712				
14,100.00	10,619.00	15,278.96	11,888.00	65.49	76.37	-134.84	-3,063.47	907.25	1,793.23	1,712.64	80.58	22.253				
14,200.00	10,619.00	15,364.23	11,891.06	66.83	77.60	-134.97	-3,148.66	905.54	1,793.67	1,711.87	81.80	21.926				
14,300.00	10,619.00	15,461.68	11,895.95	68.20	79.02	-135.15	-3,245.97	903.53	1,795.07	1,711.94	83.13	21.593				
14,400.00	10,619.00	15,553.85	11,900.47	69.57	80.37	-135.32	-3,338.00	901.14	1,796.07	1,711.68	84.40	21.282				
14,500.00	10,619.00	15,630.12	11,904.28	70.96	81.49	-135.44	-3,414.17	900.54	1,798.37	1,712.86	85.52	21.029				
14,600.00	10,619.00	15,728.52	11,909.48	72.35	82.94	-135.57	-3,512.43	900.84	1,801.68	1,714.77	86.91	20.731				
14,700.00	10,619.00	15,844.43	11,914.23	73.76	84.66	-135.70	-3,628.25	900.69	1,803.77	1,715.25	88.52	20.377				
14,800.00	10,619.00	15,932.85	11,918.16	75.18	85.98	-135.81	-3,716.57	900.59	1,806.20	1,716.39	89.81	20.111				
14,900.00	10,619.00	16,020.74	11,922.60	76.61	87.29	-135.93	-3,804.35	900.77	1,809.29	1,718.20	91.09	19.863				
15,000.00	10,619.00	16,104.63	11,927.72	78.04	88.55	-136.05	-3,888.09	900.87	1,813.10	1,720.80	92.30	19.644				
15,100.00	10,619.00	16,194.43	11,933.98	79.49	89.90	-136.20	-3,977.67	901.57	1,817.97	1,724.39	93.58	19.428				
15,200.00	10,619.00	16,333.72	11,941.99	80.94	92.00	-136.39	-4,116.72	902.10	1,821.70	1,726.23	95.47	19.081				
15,300.00	10,619.00	16,393.34	11,944.82	82.40	92.91	-136.45	-4,176.27	902.48	1,825.16	1,728.74	96.42	18.930				
15,400.00	10,619.00	16,453.00	11,949.00	83.86	93.81	-136.51	-4,235.73	904.79	1,831.83	1,734.48	97.35	18.817				
15,500.00	10,619.00	16,638.17	11,955.38	85.34	96.63	-136.51	-4,420.56	912.64	1,836.52	1,736.39	100.13	18.342 SF				
15,600.00	10,619.00	16,643.00	11,955.45	86.82	96.71	-136.51	-4,425.39	912.79	1,841.47	1,741.12	100.35	18.350				
15,700.00	10,619.00	16,643.00	11,955.45	88.30	96.71	-136.51	-4,425.39	912.79	1,851.81	1,751.51	100.30	18.462				
15,800.00	10,619.00	16,643.00	11,955.45	89.79	96.71	-136.51	-4,425.39	912.79	1,867.45	1,767.40	100.05	18.664				
15,900.00	10,619.00	16,643.00	11,955.45	91.29	96.71	-136.51	-4,425.39	912.79	1,888.27	1,788.65	99.62	18.955				
16,000.00	10,619.00	16,643.00	11,955.45	92.79	96.71	-136.51	-4,425.39	912.79	1,914.09	1,815.08	99.01	19.333				

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 501H
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 501H	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								
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	
16,100.00	10,619.00	16,643.00	11,955.45	94.30	96.71	-136.51	-4,425.39	912.79	1,944.72	1,846.47	98.25	19.793		
16,200.00	10,619.00	16,643.00	11,955.45	95.81	96.71	-136.51	-4,425.39	912.79	1,979.93	1,882.56	97.37	20.334		
16,300.00	10,619.00	16,643.00	11,955.45	97.33	96.71	-136.51	-4,425.39	912.79	2,019.48	1,923.10	96.38	20.953		
16,400.00	10,619.00	16,643.00	11,955.45	98.85	96.71	-136.51	-4,425.39	912.79	2,063.12	1,967.81	95.32	21.645		
16,500.00	10,619.00	16,643.00	11,955.45	100.38	96.71	-136.51	-4,425.39	912.79	2,110.61	2,016.41	94.19	22.407		
16,600.00	10,619.00	16,643.00	11,955.45	101.90	96.71	-136.51	-4,425.39	912.79	2,161.68	2,068.65	93.03	23.237		
16,700.00	10,619.00	16,643.00	11,955.45	103.44	96.71	-136.51	-4,425.39	912.79	2,216.08	2,124.24	91.85	24.128		
16,800.00	10,619.00	16,643.00	11,955.45	104.97	96.71	-136.51	-4,425.39	912.79	2,273.59	2,182.93	90.66	25.079		
16,900.00	10,619.00	16,643.00	11,955.45	106.51	96.71	-136.51	-4,425.39	912.79	2,333.97	2,244.50	89.47	26.086		
17,000.00	10,619.00	16,643.00	11,955.45	108.06	96.71	-136.51	-4,425.39	912.79	2,396.99	2,308.69	88.31	27.144		
17,100.00	10,619.00	16,643.00	11,955.45	109.60	96.71	-136.51	-4,425.39	912.79	2,462.47	2,375.31	87.16	28.253		
17,200.00	10,619.00	16,643.00	11,955.45	111.15	96.71	-136.51	-4,425.39	912.79	2,530.21	2,444.16	86.04	29.406		
17,300.00	10,619.00	16,643.00	11,955.45	112.70	96.71	-136.51	-4,425.39	912.79	2,600.03	2,515.06	84.97	30.600		
17,400.00	10,619.00	16,643.00	11,955.45	114.26	96.71	-136.51	-4,425.39	912.79	2,671.76	2,587.83	83.93	31.833		
17,500.00	10,619.00	16,643.00	11,955.45	115.82	96.71	-136.51	-4,425.39	912.79	2,745.27	2,662.34	82.93	33.103		
17,600.00	10,619.00	16,643.00	11,955.45	117.38	96.71	-136.51	-4,425.39	912.79	2,820.41	2,738.43	81.98	34.406		
17,700.00	10,619.00	16,643.00	11,955.45	118.94	96.71	-136.51	-4,425.39	912.79	2,897.05	2,815.98	81.06	35.739		
17,800.00	10,619.00	16,643.00	11,955.45	120.50	96.71	-136.51	-4,425.39	912.79	2,975.07	2,894.88	80.19	37.100		
17,900.00	10,619.00	16,643.00	11,955.45	122.07	96.71	-136.51	-4,425.39	912.79	3,054.38	2,975.02	79.36	38.488		
18,000.00	10,619.00	16,643.00	11,955.45	123.64	96.71	-136.51	-4,425.39	912.79	3,134.87	3,056.30	78.57	39.898		
18,100.00	10,619.00	16,643.00	11,955.45	125.21	96.71	-136.51	-4,425.39	912.79	3,216.46	3,138.63	77.82	41.330		
18,200.00	10,619.00	16,643.00	11,955.45	126.79	96.71	-136.51	-4,425.39	912.79	3,299.06	3,221.95	77.11	42.782		
18,300.00	10,619.00	16,643.00	11,955.45	128.36	96.71	-136.51	-4,425.39	912.79	3,382.60	3,306.16	76.44	44.252		
18,400.00	10,619.00	16,643.00	11,955.45	129.94	96.71	-136.51	-4,425.39	912.79	3,467.01	3,391.21	75.80	45.736		
18,500.00	10,619.00	16,643.00	11,955.45	131.52	96.71	-136.51	-4,425.39	912.79	3,552.23	3,477.03	75.20	47.237		
18,600.00	10,619.00	16,643.00	11,955.45	133.10	96.71	-136.51	-4,425.39	912.79	3,638.20	3,563.58	74.63	48.752		
18,700.00	10,619.00	16,643.00	11,955.45	134.68	96.71	-136.51	-4,425.39	912.79	3,724.88	3,650.79	74.09	50.277		
18,800.00	10,619.00	16,643.00	11,955.45	136.26	96.71	-136.51	-4,425.39	912.79	3,812.20	3,738.63	73.58	51.813		
18,900.00	10,619.00	16,643.00	11,955.45	137.85	96.71	-136.51	-4,425.39	912.79	3,900.14	3,827.05	73.09	53.360		
19,000.00	10,619.00	16,643.00	11,955.45	139.44	96.71	-136.51	-4,425.39	912.79	3,988.64	3,916.01	72.63	54.915		
19,100.00	10,619.00	16,643.00	11,955.45	141.03	96.71	-136.51	-4,425.39	912.79	4,077.68	4,005.48	72.20	56.476		
19,200.00	10,619.00	16,643.00	11,955.45	142.62	96.71	-136.51	-4,425.39	912.79	4,167.21	4,095.41	71.79	58.044		
19,300.00	10,619.00	16,643.00	11,955.45	144.21	96.71	-136.51	-4,425.39	912.79	4,257.21	4,185.80	71.41	59.616		
19,400.00	10,619.00	16,643.00	11,955.45	145.80	96.71	-136.51	-4,425.39	912.79	4,347.64	4,276.59	71.05	61.192		
19,500.00	10,619.00	16,643.00	11,955.45	147.40	96.71	-136.51	-4,425.39	912.79	4,438.49	4,367.78	70.71	62.773		
19,600.00	10,619.00	16,643.00	11,955.45	148.99	96.71	-136.51	-4,425.39	912.79	4,529.72	4,459.34	70.38	64.362		
19,700.00	10,619.00	16,643.00	11,955.45	150.59	96.71	-136.51	-4,425.39	912.79	4,621.32	4,551.25	70.07	65.954		
19,800.00	10,619.00	16,643.00	11,955.45	152.19	96.71	-136.51	-4,425.39	912.79	4,713.25	4,643.47	69.78	67.548		
19,900.00	10,619.00	16,643.00	11,955.45	153.78	96.71	-136.51	-4,425.39	912.79	4,805.51	4,736.01	69.50	69.142		
20,000.00	10,619.00	16,643.00	11,955.45	155.38	96.71	-136.51	-4,425.39	912.79	4,898.07	4,828.83	69.24	70.738		
20,100.00	10,619.00	16,643.00	11,955.45	156.99	96.71	-136.51	-4,425.39	912.79	4,990.92	4,921.92	69.00	72.334		

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 501H
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 501H	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	48.65	972.13	1,104.46	1,471.35							
100.00	100.00	101.14	101.14	0.13	0.13	48.64	972.29	1,104.48	1,471.47	1,471.29	0.18	8,053.566				
178.08	178.08	182.58	182.58	0.41	0.39	48.64	972.31	1,104.45	1,471.46	1,470.90	0.56	2,612.267				
200.00	200.00	199.14	199.14	0.48	0.45	48.64	972.36	1,104.45	1,471.50	1,470.84	0.66	2,229.164				
300.00	300.00	303.00	303.00	0.84	0.82	48.60	973.25	1,103.93	1,471.69	1,470.51	1.17	1,252.997				
400.00	400.00	408.69	408.65	1.20	1.20	48.50	975.18	1,102.10	1,471.60	1,469.91	1.70	868.042				
500.00	500.00	528.95	528.86	1.56	1.63	48.39	976.31	1,099.25	1,470.41	1,468.16	2.25	652.803				
600.00	600.00	656.65	656.52	1.92	2.08	48.35	974.80	1,096.07	1,467.76	1,464.94	2.82	519.800				
700.00	700.00	767.38	767.13	2.28	2.46	48.41	970.78	1,093.77	1,463.78	1,460.44	3.35	437.220				
800.00	800.00	894.10	893.50	2.63	2.91	48.68	961.33	1,093.47	1,458.68	1,454.77	3.91	373.071				
900.00	900.00	971.50	970.68	2.99	3.18	48.83	955.62	1,092.63	1,453.07	1,448.72	4.35	333.719				
1,000.00	1,000.00	1,063.34	1,062.35	3.35	3.51	48.98	950.15	1,092.31	1,448.89	1,444.05	4.84	299.577				
1,100.00	1,100.00	1,157.84	1,156.70	3.71	3.85	49.13	944.85	1,091.85	1,444.86	1,439.53	5.33	271.225				
1,200.00	1,200.00	1,250.16	1,248.93	4.07	4.18	49.26	940.50	1,091.86	1,441.76	1,435.95	5.81	248.022				
1,300.00	1,300.00	1,333.10	1,331.80	4.43	4.48	49.34	937.49	1,091.64	1,439.21	1,432.93	6.28	229.336				
1,400.00	1,400.00	1,425.00	1,423.68	4.79	4.68	49.40	935.50	1,091.29	1,437.51	1,430.84	6.67	215.496				
1,500.00	1,500.00	1,519.00	1,517.67	5.14	4.70	49.40	934.57	1,090.44	1,436.19	1,429.24	6.95	206.746				
1,589.10	1,589.10	1,594.94	1,593.61	5.46	4.74	49.36	935.04	1,089.49	1,435.72	1,428.51	7.21	199.170				
1,600.00	1,600.00	1,603.99	1,602.65	5.50	4.74	49.36	935.16	1,089.39	1,435.73	1,428.48	7.24	198.284				
1,700.00	1,700.00	1,696.25	1,694.89	5.86	4.80	49.28	936.87	1,088.45	1,436.16	1,428.60	7.56	190.093				
1,800.00	1,800.00	1,794.59	1,793.20	6.22	4.89	49.19	939.10	1,087.51	1,436.91	1,429.02	7.89	182.105				
1,900.00	1,900.00	1,893.54	1,892.13	6.58	5.00	49.10	941.33	1,086.65	1,437.73	1,429.49	8.24	174.406				
2,000.00	2,000.00	1,986.10	1,984.66	6.94	5.12	49.02	943.43	1,086.20	1,438.85	1,430.24	8.61	167.193				
2,100.00	2,100.00	2,078.28	2,076.82	7.29	5.26	48.96	945.66	1,086.27	1,440.50	1,431.52	8.98	160.425				
2,200.00	2,199.99	2,172.32	2,170.82	7.65	5.42	82.78	948.19	1,086.73	1,442.47	1,433.10	9.36	154.054				
2,300.00	2,299.91	2,269.27	2,267.72	8.01	5.60	82.84	951.00	1,087.43	1,444.42	1,434.66	9.76	148.003				
2,400.00	2,399.69	2,366.23	2,364.63	8.36	5.80	82.99	954.01	1,088.20	1,446.25	1,436.09	10.17	142.278				
2,500.00	2,499.27	2,465.65	2,464.00	8.72	6.01	83.25	957.26	1,089.02	1,447.92	1,437.33	10.58	136.804				
2,600.00	2,598.57	2,571.60	2,569.91	9.08	6.26	83.68	959.61	1,090.43	1,449.03	1,438.01	11.02	131.467				
2,676.13	2,673.94	2,641.86	2,640.15	9.36	6.42	84.06	960.72	1,091.75	1,449.77	1,438.43	11.35	127.777				
2,700.00	2,697.55	2,675.29	2,673.57	9.45	6.50	84.26	961.22	1,092.39	1,450.00	1,438.53	11.47	126.462				
2,800.00	2,796.41	2,805.88	2,804.15	9.82	6.82	85.05	961.23	1,093.09	1,448.87	1,436.91	11.95	121.198				
2,900.00	2,895.28	2,896.19	2,894.46	10.20	7.05	85.59	961.00	1,093.19	1,447.58	1,435.18	12.39	116.799				
2,964.70	2,959.24	2,949.98	2,948.25	10.44	7.19	85.92	961.11	1,093.57	1,447.30	1,434.63	12.68	114.181				
3,000.00	2,994.14	2,978.00	2,976.27	10.58	7.26	86.09	961.26	1,093.92	1,447.39	1,434.57	12.83	112.826				
3,100.00	3,093.01	3,063.43	3,061.68	10.96	7.50	86.61	962.00	1,095.68	1,448.59	1,435.31	13.28	109.120				
3,200.00	3,191.87	3,190.26	3,188.47	11.35	7.85	87.42	962.42	1,098.58	1,449.98	1,436.19	13.80	105.099				
3,300.00	3,290.74	3,367.94	3,365.99	11.74	8.35	88.68	955.77	1,098.49	1,447.15	1,432.76	14.39	100.591				
3,400.00	3,389.60	3,535.23	3,532.61	12.13	8.84	89.99	942.31	1,092.71	1,439.27	1,424.33	14.94	96.312				
3,500.00	3,488.46	3,636.90	3,633.73	12.52	9.15	90.72	934.10	1,085.98	1,429.22	1,413.78	15.43	92.598				
3,600.00	3,587.33	3,722.10	3,718.55	12.92	9.41	91.29	928.65	1,080.02	1,420.01	1,404.09	15.91	89.227				
3,700.00	3,686.19	3,822.88	3,818.95	13.32	9.72	91.90	923.99	1,072.64	1,411.67	1,395.26	16.41	86.009				
3,800.00	3,785.06	3,965.41	3,960.64	13.72	10.18	92.88	913.93	1,061.17	1,401.63	1,384.68	16.95	82.692				
3,900.00	3,883.92	4,067.00	4,061.31	14.12	10.52	93.72	903.02	1,053.03	1,389.88	1,372.43	17.46	79.617				
4,000.00	3,982.79	4,142.12	4,135.84	14.53	10.77	94.34	895.42	1,047.36	1,379.15	1,361.20	17.95	76.840				
4,100.00	4,081.65	4,232.69	4,225.86	14.93	11.08	95.05	887.90	1,040.92	1,369.94	1,351.48	18.45	74.240				
4,200.00	4,180.52	4,309.02	4,301.80	15.34	11.34	95.62	882.29	1,035.66	1,361.67	1,342.73	18.95	71.874				
4,300.00	4,279.38	4,382.20	4,374.73	15.74	11.59	96.19	877.48	1,031.99	1,355.57	1,336.14	19.43	69.760				
4,400.00	4,378.25	4,463.57	4,455.92	16.15	11.86	96.81	873.00	1,028.90	1,351.27	1,331.34	19.93	67.812				
4,500.00	4,477.11	4,567.28	4,559.40	16.56	12.21	97.63	867.01	1,025.73	1,347.77	1,327.32	20.45	65.894				
4,600.00	4,575.98	4,684.76	4,676.45	16.97	12.61	98.64	857.93	1,021.39	1,343.07	1,322.06	21.00	63.950				
4,700.00	4,674.84	4,784.04	4,775.35	17.38	12.96	99.48	850.38	1,017.09	1,338.19	1,316.67	21.53	62.162				

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 501H
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 501H	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				
4,800.00	4,773.71	4,885.20	4,876.12	17.79	13.31	100.34	842.79	1,012.53	1,333.50	1,311.45	22.06	60.457				
4,900.00	4,872.57	4,994.98	4,985.41	18.21	13.70	101.29	834.01	1,007.14	1,328.56	1,305.96	22.60	58.790				
5,000.00	4,971.43	5,091.92	5,081.90	18.62	14.05	102.13	826.24	1,001.92	1,323.47	1,300.34	23.13	57.229				
5,100.00	5,070.30	5,200.80	5,190.23	19.03	14.44	103.09	817.21	995.79	1,318.36	1,294.70	23.67	55.701				
5,200.00	5,169.16	5,301.03	5,289.72	19.45	14.81	104.08	806.28	990.52	1,313.00	1,288.80	24.21	54.244				
5,300.00	5,268.03	5,395.71	5,383.58	19.86	15.16	105.09	794.69	986.02	1,308.05	1,283.31	24.74	52.875				
5,400.00	5,366.89	5,484.00	5,471.14	20.28	15.49	106.03	784.10	982.08	1,303.91	1,278.65	25.26	51.611				
5,500.00	5,465.76	5,572.63	5,559.11	20.69	15.82	106.97	773.80	978.63	1,300.85	1,275.06	25.79	50.442				
5,600.00	5,564.62	5,691.19	5,676.79	21.11	16.27	108.21	760.48	973.23	1,297.73	1,271.37	26.36	49.238				
5,700.00	5,663.49	5,786.32	5,771.22	21.53	16.63	109.18	750.27	967.96	1,294.24	1,267.35	26.89	48.129				
5,800.00	5,762.35	5,868.72	5,853.12	21.94	16.93	109.99	742.19	963.89	1,291.95	1,264.55	27.41	47.139				
5,900.00	5,861.22	5,959.33	5,943.27	22.36	17.27	110.87	733.87	960.03	1,290.85	1,262.92	27.93	46.213				
6,000.00	5,960.08	6,055.56	6,039.04	22.78	17.63	111.80	725.27	956.18	1,290.42	1,261.95	28.47	45.332				
6,023.46	5,983.27	6,077.06	6,060.44	22.88	17.71	112.01	723.38	955.34	1,290.39	1,261.81	28.59	45.136				
6,100.00	6,058.95	6,148.46	6,131.52	23.20	17.97	112.69	717.29	952.67	1,290.63	1,261.64	28.99	44.515				
6,200.00	6,157.81	6,270.89	6,253.34	23.62	18.43	113.86	706.41	947.02	1,290.33	1,260.76	29.57	43.636				
6,300.00	6,256.68	6,376.67	6,358.43	24.04	18.83	114.90	696.12	940.79	1,289.02	1,258.90	30.12	42.795				
6,400.00	6,355.54	6,471.96	6,453.10	24.46	19.20	115.84	686.84	935.16	1,288.07	1,257.42	30.66	42.018				
6,500.00	6,454.40	6,566.96	6,547.46	24.88	19.56	116.79	677.32	929.71	1,287.66	1,256.47	31.19	41.286				
6,516.07	6,470.29	6,582.06	6,562.46	24.94	19.62	116.94	675.82	928.87	1,287.65	1,256.38	31.27	41.173				
6,600.00	6,553.27	6,658.46	6,638.39	25.30	19.91	117.70	668.41	924.71	1,287.93	1,256.21	31.72	40.609				
6,700.00	6,652.13	6,750.22	6,729.67	25.72	20.26	118.57	660.28	920.13	1,289.12	1,256.88	32.24	39.985				
6,800.00	6,751.00	6,848.33	6,827.33	26.14	20.63	119.48	652.24	915.38	1,290.87	1,258.10	32.77	39.388				
6,875.92	6,826.06	6,927.92	6,906.61	26.46	20.93	120.19	646.37	911.29	1,292.26	1,259.07	33.19	38.939				
6,900.00	6,849.87	6,954.51	6,933.10	26.56	21.03	120.41	644.62	909.81	1,292.61	1,259.29	33.32	38.794				
7,000.00	6,949.01	7,054.12	7,032.38	26.97	21.40	121.15	639.03	903.91	1,293.08	1,259.24	33.84	38.207				
7,100.00	7,048.45	7,148.32	7,126.31	27.36	21.74	121.71	634.39	898.58	1,292.67	1,258.32	34.35	37.633				
7,200.00	7,148.14	7,243.20	7,220.94	27.73	22.09	122.17	629.86	893.55	1,291.37	1,256.52	34.85	37.060				
7,300.00	7,248.00	7,344.97	7,322.49	28.09	22.46	122.52	625.56	888.30	1,288.92	1,253.57	35.35	36.466				
7,400.00	7,347.96	7,436.29	7,413.61	28.44	22.79	122.72	621.95	883.61	1,285.13	1,249.32	35.82	35.882				
7,452.05	7,400.00	7,481.89	7,459.15	28.61	22.95	88.92	620.25	881.59	1,282.98	1,246.93	36.05	35.586				
7,500.00	7,447.96	7,524.35	7,501.54	28.77	23.10	88.98	618.81	879.90	1,281.04	1,244.77	36.27	35.320				
7,600.00	7,547.96	7,607.00	7,584.12	29.09	23.39	89.07	616.73	877.23	1,277.79	1,241.09	36.70	34.814				
7,700.00	7,647.96	7,687.64	7,664.74	29.42	23.66	89.09	616.30	875.89	1,276.11	1,238.99	37.12	34.376				
7,782.71	7,730.66	7,758.06	7,735.16	29.69	23.89	89.07	616.68	875.60	1,275.76	1,238.29	37.47	34.046				
7,800.00	7,747.96	7,775.09	7,752.19	29.75	23.94	89.07	616.81	875.60	1,275.77	1,238.22	37.55	33.975				
7,900.00	7,847.96	7,871.98	7,849.09	30.08	24.25	89.05	617.25	875.68	1,275.87	1,237.86	38.00	33.574				
8,000.00	7,947.96	7,965.36	7,942.46	30.41	24.54	89.05	617.23	876.17	1,276.38	1,237.94	38.44	33.201				
8,100.00	8,047.96	8,058.23	8,035.33	30.74	24.84	89.06	616.96	877.16	1,277.45	1,238.56	38.89	32.851				
8,200.00	8,147.96	8,153.00	8,130.08	31.07	25.15	89.08	616.45	878.68	1,279.04	1,239.70	39.34	32.515				
8,300.00	8,247.96	8,264.39	8,241.45	31.40	25.51	89.11	615.79	880.47	1,280.67	1,240.83	39.84	32.142				
8,400.00	8,347.96	8,404.01	8,381.06	31.74	25.98	89.14	615.22	879.57	1,280.03	1,239.60	40.43	31.659				
8,500.00	8,447.96	8,493.13	8,470.17	32.07	26.28	89.14	615.26	877.91	1,278.18	1,237.30	40.88	31.267				
8,600.00	8,547.96	8,583.78	8,560.82	32.40	26.58	89.13	615.47	876.99	1,277.16	1,235.84	41.33	30.904				
8,700.00	8,647.96	8,682.67	8,659.70	32.74	26.91	89.11	615.86	876.42	1,276.59	1,234.80	41.80	30.544				
8,800.00	8,747.96	8,781.38	8,758.41	33.07	27.23	89.09	616.25	875.90	1,276.07	1,233.81	42.26	30.193				
8,900.00	8,847.96	8,887.11	8,864.14	33.41	27.58	89.07	616.60	875.17	1,275.39	1,232.63	42.75	29.830				
9,000.00	8,947.96	8,992.67	8,969.69	33.74	27.94	89.06	616.99	873.94	1,274.23	1,230.98	43.25	29.465				
9,100.00	9,047.96	9,094.22	9,071.23	34.08	28.28	89.02	617.68	872.47	1,272.79	1,229.06	43.73	29.108				
9,200.00	9,147.96	9,193.86	9,170.85	34.42	28.61	88.98	618.73	871.00	1,271.34	1,227.14	44.20	28.763				
9,300.00	9,247.96	9,295.01	9,271.99	34.75	28.95	88.92	620.02	869.49	1,269.86	1,225.18	44.68	28.422				
9,400.00	9,347.96	9,397.64	9,374.59	35.09	29.29	88.85	621.43	867.78	1,268.23	1,223.07	45.16	28.082				

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 501H
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 501H	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				
9,500.00	9,447.96	9,500.71	9,477.63	35.43	29.63	88.78	622.92	865.83	1,266.36	1,220.72	45.65	27.743				
9,600.00	9,547.96	9,600.19	9,577.08	35.77	29.97	88.71	624.38	863.79	1,264.34	1,218.22	46.12	27.413				
9,700.00	9,647.96	9,700.41	9,677.27	36.11	30.30	88.65	625.64	861.83	1,262.42	1,215.82	46.60	27.090				
9,800.00	9,747.96	9,809.64	9,786.46	36.44	30.67	88.59	626.94	859.33	1,260.17	1,213.07	47.10	26.753				
9,900.00	9,847.96	9,877.56	9,854.37	36.78	30.90	88.57	627.47	858.17	1,258.57	1,211.07	47.50	26.498				
9,905.18	9,853.14	9,880.83	9,857.63	36.80	30.91	88.57	627.47	858.17	1,258.56	1,211.05	47.52	26.487	CC, ES			
10,000.00	9,947.96	9,948.22	9,925.02	37.12	31.14	88.59	626.98	859.09	1,259.77	1,211.89	47.88	26.312				
10,098.09	10,046.04	10,033.63	10,010.39	37.46	31.41	88.63	626.18	861.52	1,262.52	1,214.23	48.30	26.140				
10,100.00	10,047.96	10,035.57	10,012.33	37.46	31.42	-90.80	626.16	861.59	1,262.58	1,214.28	48.31	26.137				
10,150.00	10,097.88	10,086.12	10,062.86	37.61	31.58	-90.73	625.84	863.19	1,264.19	1,215.66	48.53	26.049				
10,200.00	10,147.42	10,135.40	10,112.11	37.74	31.74	-90.86	625.66	864.73	1,265.86	1,217.12	48.74	25.972				
10,250.00	10,196.18	10,183.36	10,160.04	37.86	31.90	-91.14	625.59	866.26	1,267.69	1,218.75	48.94	25.905				
10,300.00	10,243.80	10,232.50	10,209.15	37.96	32.06	-91.61	625.58	867.82	1,269.74	1,220.61	49.13	25.846				
10,350.00	10,289.92	10,281.25	10,257.89	38.05	32.22	-92.22	625.54	869.28	1,272.05	1,222.74	49.31	25.797				
10,400.00	10,334.18	10,333.67	10,310.29	38.12	32.39	-93.05	625.46	870.65	1,274.72	1,225.22	49.50	25.752				
10,450.00	10,376.24	10,385.25	10,361.86	38.17	32.56	-93.99	625.43	871.61	1,277.79	1,228.11	49.68	25.722				
10,500.00	10,415.80	10,423.43	10,400.03	38.21	32.68	-94.64	625.38	872.19	1,281.66	1,231.85	49.80	25.734				
10,550.00	10,452.53	10,458.45	10,435.05	38.24	32.80	-95.18	625.27	872.79	1,286.73	1,236.81	49.92	25.778				
10,600.00	10,486.18	10,491.41	10,468.01	38.26	32.90	-95.62	625.10	873.41	1,293.17	1,243.16	50.02	25.855				
10,650.00	10,516.48	10,523.06	10,499.65	38.26	33.01	-95.93	624.90	874.00	1,301.12	1,251.01	50.11	25.965				
10,700.00	10,543.19	10,551.11	10,527.69	38.26	33.10	-96.00	624.69	874.50	1,310.71	1,260.52	50.19	26.115				
10,750.00	10,566.12	10,575.32	10,551.89	38.25	33.18	-95.79	624.50	874.92	1,322.07	1,271.81	50.25	26.307				
10,800.00	10,585.10	10,595.56	10,572.13	38.23	33.25	-95.26	624.32	875.26	1,335.26	1,284.95	50.31	26.543				
10,850.00	10,599.97	10,611.53	10,588.10	38.21	33.30	-94.36	624.19	875.52	1,350.32	1,299.98	50.34	26.822				
10,900.00	10,610.62	10,623.10	10,599.67	38.19	33.34	-93.07	624.09	875.70	1,367.22	1,316.85	50.36	27.146				
10,950.00	10,616.98	10,630.19	10,606.75	38.17	33.37	-91.38	624.03	875.81	1,385.86	1,335.49	50.37	27.512				
10,998.09	10,619.00	10,632.72	10,609.29	38.16	33.37	-89.36	624.01	875.85	1,405.31	1,354.94	50.37	27.902				
11,000.00	10,619.00	10,632.74	10,609.30	38.16	33.37	-89.36	624.01	875.85	1,406.11	1,355.75	50.37	27.918				
11,100.00	10,619.00	10,633.63	10,610.20	38.19	33.38	-89.40	624.00	875.86	1,450.94	1,400.59	50.35	28.815				
11,200.00	10,619.00	10,634.52	10,611.09	38.36	33.38	-89.44	623.99	875.88	1,501.11	1,450.74	50.36	29.806				
11,300.00	10,619.00	10,635.41	10,611.98	38.64	33.38	-89.48	623.98	875.89	1,556.09	1,505.70	50.39	30.881				
11,400.00	10,619.00	10,636.30	10,612.86	38.99	33.39	-89.52	623.98	875.90	1,615.39	1,564.96	50.43	32.031				
11,500.00	10,619.00	10,637.18	10,613.75	39.41	33.39	-89.56	623.97	875.92	1,678.56	1,628.08	50.48	33.250				
11,600.00	10,619.00	10,638.07	10,614.64	39.89	33.39	-89.60	623.96	875.93	1,745.18	1,694.64	50.54	34.529				
11,700.00	10,619.00	12,875.07	11,841.58	40.43	45.87	-133.81	-661.40	882.11	1,759.57	1,708.44	51.13	34.412				
11,800.00	10,619.00	12,958.01	11,843.17	41.03	46.70	-133.85	-744.32	882.84	1,760.74	1,708.88	51.87	33.947				
11,900.00	10,619.00	13,057.99	11,845.08	41.68	47.72	-133.90	-844.28	883.71	1,762.00	1,709.24	52.76	33.395				
12,000.00	10,619.00	13,157.97	11,846.99	42.38	48.78	-133.94	-944.23	884.59	1,763.26	1,709.56	53.70	32.834				
12,100.00	10,619.00	13,257.95	11,848.90	43.14	49.87	-133.99	-1,044.19	885.47	1,764.52	1,709.83	54.69	32.267				
12,200.00	10,619.00	13,357.93	11,850.81	43.94	50.99	-134.04	-1,144.15	886.35	1,765.78	1,710.07	55.71	31.696				
12,300.00	10,619.00	13,457.91	11,852.72	44.79	52.14	-134.08	-1,244.11	887.23	1,767.04	1,710.27	56.77	31.125				
12,400.00	10,619.00	13,557.90	11,854.64	45.68	53.31	-134.13	-1,344.07	888.11	1,768.30	1,710.43	57.87	30.556				
12,500.00	10,619.00	13,657.88	11,856.55	46.62	54.51	-134.18	-1,444.03	888.99	1,769.56	1,710.56	59.00	29.991				
12,600.00	10,619.00	13,757.86	11,858.46	47.59	55.74	-134.22	-1,543.99	889.87	1,770.83	1,710.66	60.17	29.432				
12,700.00	10,619.00	13,857.84	11,860.37	48.59	56.98	-134.27	-1,643.95	890.75	1,772.09	1,710.73	61.36	28.881				
12,800.00	10,619.00	13,957.82	11,862.28	49.64	58.24	-134.32	-1,743.91	891.63	1,773.36	1,710.78	62.58	28.338				
12,900.00	10,619.00	14,057.80	11,864.20	50.71	59.53	-134.36	-1,843.87	892.51	1,774.63	1,710.80	63.82	27.805				
13,000.00	10,619.00	14,157.79	11,866.11	51.81	60.83	-134.41	-1,943.83	893.39	1,775.90	1,710.80	65.09	27.282				
13,100.00	10,619.00	14,257.77	11,868.02	52.95	62.15	-134.45	-2,043.79	894.26	1,777.17	1,710.78	66.39	26.770				
13,200.00	10,619.00	14,357.75	11,869.93	54.11	63.48	-134.50	-2,143.75	895.14	1,778.44	1,710.74	67.70	26.269				
13,300.00	10,619.00	14,457.73	11,871.84	55.29	64.83	-134.55	-2,243.71	896.02	1,779.71	1,710.68	69.03	25.780				
13,400.00	10,619.00	14,557.71	11,873.76	56.50	66.19	-134.59	-2,343.67	896.90	1,780.98	1,710.60	70.39	25.302				

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 501H
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 501H	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				
13,500.00	10,619.00	14,657.69	11,875.67	57.72	67.57	-134.64	-2,443.63	897.78	1,782.26	1,710.50	71.76	24.838				
13,600.00	10,619.00	14,757.68	11,877.58	58.97	68.95	-134.68	-2,543.59	898.66	1,783.54	1,710.40	73.14	24.385				
13,700.00	10,619.00	14,857.66	11,879.49	60.24	70.35	-134.73	-2,643.55	899.54	1,784.81	1,710.27	74.54	23.945				
13,800.00	10,619.00	14,957.64	11,881.40	61.53	71.76	-134.78	-2,743.51	900.42	1,786.09	1,710.14	75.95	23.516				
13,900.00	10,619.00	15,057.62	11,883.31	62.83	73.18	-134.82	-2,843.47	901.30	1,787.37	1,709.99	77.38	23.099				
14,000.00	10,619.00	15,157.60	11,885.23	64.15	74.61	-134.87	-2,943.43	902.18	1,788.65	1,709.83	78.82	22.694				
14,100.00	10,619.00	15,257.58	11,887.14	65.49	76.05	-134.91	-3,043.38	903.06	1,789.93	1,709.67	80.27	22.300				
14,200.00	10,619.00	15,336.90	11,889.04	66.83	77.19	-134.96	-3,122.68	903.75	1,791.60	1,710.13	81.47	21.990				
14,300.00	10,619.00	15,430.70	11,892.78	68.20	78.56	-135.04	-3,216.40	904.58	1,794.35	1,711.52	82.83	21.662				
14,400.00	10,619.00	15,530.62	11,896.80	69.57	80.02	-135.14	-3,316.23	905.45	1,797.14	1,712.86	84.27	21.326				
14,500.00	10,619.00	15,630.54	11,900.83	70.96	81.49	-135.23	-3,416.07	906.33	1,799.92	1,714.21	85.71	20.999				
14,600.00	10,619.00	15,730.46	11,904.85	72.35	82.96	-135.32	-3,515.90	907.21	1,802.72	1,715.56	87.16	20.682				
14,700.00	10,619.00	15,830.38	11,908.88	73.76	84.45	-135.41	-3,615.73	908.09	1,805.52	1,716.90	88.62	20.374				
14,800.00	10,619.00	15,930.30	11,912.90	75.18	85.93	-135.51	-3,715.57	908.96	1,808.32	1,718.24	90.08	20.075				
14,900.00	10,619.00	16,030.22	11,916.92	76.61	87.43	-135.60	-3,815.40	909.84	1,811.13	1,719.59	91.54	19.784				
15,000.00	10,619.00	16,130.13	11,920.95	78.04	88.93	-135.69	-3,915.24	910.72	1,813.94	1,720.93	93.01	19.502				
15,100.00	10,619.00	16,230.05	11,924.97	79.49	90.43	-135.78	-4,015.07	911.60	1,816.76	1,722.27	94.49	19.227				
15,200.00	10,619.00	16,329.97	11,928.99	80.94	91.94	-135.87	-4,114.90	912.47	1,819.58	1,723.62	95.96	18.961				
15,300.00	10,619.00	16,429.89	11,933.02	82.40	93.46	-135.96	-4,214.74	913.35	1,822.41	1,724.97	97.44	18.702				
15,400.00	10,619.00	16,529.81	11,937.04	83.86	94.98	-136.05	-4,314.57	914.23	1,825.24	1,726.31	98.93	18.450				
15,500.00	10,619.00	16,629.73	11,941.07	85.34	96.50	-136.14	-4,414.40	915.10	1,828.08	1,727.66	100.41	18.206				
15,600.00	10,619.00	16,729.65	11,945.09	86.82	98.03	-136.23	-4,514.24	915.98	1,830.92	1,729.02	101.90	17.968				
15,700.00	10,619.00	16,829.57	11,949.11	88.30	99.56	-136.32	-4,614.07	916.86	1,833.76	1,730.37	103.39	17.737				
15,800.00	10,619.00	16,929.49	11,953.14	89.79	101.10	-136.41	-4,713.91	917.74	1,836.61	1,731.73	104.88	17.512				
15,900.00	10,619.00	17,029.40	11,957.16	91.29	102.63	-136.50	-4,813.74	918.61	1,839.46	1,733.09	106.37	17.293				
16,000.00	10,619.00	17,129.32	11,961.18	92.79	104.18	-136.58	-4,913.57	919.49	1,842.32	1,734.46	107.87	17.080				
16,100.00	10,619.00	17,229.24	11,965.21	94.30	105.72	-136.67	-5,013.41	920.37	1,845.18	1,735.83	109.36	16.873				
16,200.00	10,619.00	17,329.16	11,969.23	95.81	107.27	-136.76	-5,113.24	921.25	1,848.05	1,737.20	110.85	16.671				
16,300.00	10,619.00	17,429.08	11,973.26	97.33	108.82	-136.85	-5,213.08	922.12	1,850.92	1,738.57	112.35	16.475				
16,400.00	10,619.00	17,529.00	11,977.28	98.85	110.38	-136.93	-5,312.91	923.00	1,853.80	1,739.95	113.84	16.284				
16,500.00	10,619.00	17,628.92	11,981.30	100.38	111.93	-137.02	-5,412.74	923.88	1,856.68	1,741.33	115.34	16.097				
16,600.00	10,619.00	17,728.84	11,985.33	101.90	113.49	-137.11	-5,512.58	924.76	1,859.56	1,742.72	116.84	15.916				
16,700.00	10,619.00	17,828.75	11,989.35	103.44	115.06	-137.20	-5,612.41	925.63	1,862.45	1,744.12	118.33	15.739				
16,800.00	10,619.00	17,928.67	11,993.38	104.97	116.62	-137.28	-5,712.25	926.51	1,865.34	1,745.51	119.83	15.567				
16,900.00	10,619.00	18,028.59	11,997.40	106.51	118.19	-137.37	-5,812.08	927.39	1,868.24	1,746.91	121.32	15.399				
17,000.00	10,619.00	18,128.51	12,001.42	108.06	119.76	-137.45	-5,911.91	928.26	1,871.14	1,748.32	122.81	15.235				
17,100.00	10,619.00	18,228.43	12,005.45	109.60	121.33	-137.54	-6,011.75	929.14	1,874.04	1,749.73	124.31	15.076				
17,200.00	10,619.00	18,328.35	12,009.47	111.15	122.90	-137.62	-6,111.58	930.02	1,876.95	1,751.15	125.80	14.920				
17,300.00	10,619.00	18,428.27	12,013.49	112.70	124.48	-137.71	-6,211.42	930.90	1,879.86	1,752.57	127.29	14.768				
17,400.00	10,619.00	18,528.19	12,017.52	114.26	126.05	-137.79	-6,311.25	931.77	1,882.78	1,754.00	128.78	14.620				
17,500.00	10,619.00	18,628.11	12,021.54	115.82	127.63	-137.88	-6,411.08	932.65	1,885.70	1,755.43	130.27	14.475				
17,600.00	10,619.00	18,728.02	12,025.57	117.38	129.21	-137.96	-6,510.92	933.53	1,888.63	1,756.86	131.76	14.334				
17,700.00	10,619.00	18,827.94	12,029.59	118.94	130.80	-138.05	-6,610.75	934.41	1,891.56	1,758.31	133.25	14.196				
17,800.00	10,619.00	18,927.86	12,033.61	120.50	132.38	-138.13	-6,710.59	935.28	1,894.49	1,759.75	134.74	14.061				
17,900.00	10,619.00	19,027.78	12,037.28	122.07	133.79	-138.20	-6,799.20	936.06	1,897.53	1,761.46	136.07	13.945				
18,000.00	10,619.00	19,108.23	12,042.17	123.64	135.24	-138.30	-6,890.73	936.87	1,901.44	1,764.04	137.40	13.839				
18,100.00	10,619.00	19,208.08	12,047.56	125.21	136.83	-138.41	-6,990.44	937.74	1,905.41	1,766.57	138.84	13.724				
18,200.00	10,619.00	19,307.93	12,052.95	126.79	138.42	-138.52	-7,090.14	938.62	1,909.39	1,769.12	140.27	13.612				
18,300.00	10,619.00	19,407.79	12,058.34	128.36	140.01	-138.63	-7,189.85	939.49	1,913.37	1,771.67	141.70	13.503				
18,400.00	10,619.00	19,507.64	12,063.73	129.94	141.61	-138.74	-7,289.55	940.37	1,917.37	1,774.23	143.13	13.396				
18,500.00	10,619.00	19,607.50	12,069.12	131.52	143.20	-138.85	-7,389.26	941.25	1,921.37	1,776.81	144.56	13.291				
18,600.00	10,619.00	19,707.35	12,074.51	133.10	144.79	-138.96	-7,488.96	942.12	1,925.37	1,779.39	145.98	13.189				

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 501H
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 501H	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				
18,700.00	10,619.00	19,807.20	12,079.90	134.68	146.39	-139.07	-7,588.67	943.00	1,929.39	1,781.98	147.41	13.089				
18,800.00	10,619.00	19,907.06	12,085.29	136.26	147.99	-139.17	-7,688.37	943.88	1,933.41	1,784.58	148.82	12.991				
18,900.00	10,619.00	20,006.91	12,090.68	137.85	149.59	-139.28	-7,788.08	944.75	1,937.43	1,787.19	150.24	12.896				
19,000.00	10,619.00	20,106.77	12,096.07	139.44	151.18	-139.38	-7,887.78	945.63	1,941.47	1,789.81	151.65	12.802				
19,100.00	10,619.00	20,206.62	12,101.45	141.03	152.78	-139.49	-7,987.49	946.50	1,945.51	1,792.44	153.06	12.710				
19,200.00	10,619.00	20,306.48	12,106.84	142.62	154.39	-139.60	-8,087.19	947.38	1,949.55	1,795.08	154.47	12.621				
19,300.00	10,619.00	20,406.33	12,112.23	144.21	155.99	-139.70	-8,186.90	948.26	1,953.61	1,797.73	155.88	12.533				
19,400.00	10,619.00	20,506.18	12,117.62	145.80	157.59	-139.80	-8,286.60	949.13	1,957.66	1,800.39	157.28	12.447				
19,500.00	10,619.00	20,606.04	12,123.01	147.40	159.20	-139.91	-8,386.31	950.01	1,961.73	1,803.05	158.68	12.363				
19,600.00	10,619.00	20,705.89	12,128.40	148.99	160.80	-140.01	-8,486.01	950.89	1,965.80	1,805.73	160.07	12.281				
19,700.00	10,619.00	20,805.75	12,133.79	150.59	162.41	-140.11	-8,585.72	951.76	1,969.88	1,808.41	161.47	12.200				
19,800.00	10,619.00	20,905.60	12,139.18	152.19	164.01	-140.22	-8,685.42	952.64	1,973.97	1,811.11	162.86	12.121				
19,900.00	10,619.00	21,005.46	12,144.57	153.78	165.62	-140.32	-8,785.13	953.51	1,978.06	1,813.81	164.25	12.043				
20,000.00	10,619.00	21,105.31	12,149.96	155.38	167.23	-140.42	-8,884.83	954.39	1,982.16	1,816.52	165.63	11.967				
20,100.00	10,619.00	21,205.16	12,155.34	156.99	168.84	-140.52	-8,984.54	955.27	1,986.26	1,819.25	167.01	11.893				
20,200.00	10,619.00	21,305.02	12,160.73	158.59	170.45	-140.62	-9,084.24	956.14	1,990.37	1,821.98	168.39	11.820				
20,300.00	10,619.00	21,404.87	12,166.12	160.19	172.06	-140.72	-9,183.95	957.02	1,994.49	1,824.71	169.77	11.748				
20,400.00	10,619.00	21,504.73	12,171.51	161.80	173.67	-140.82	-9,283.65	957.89	1,998.61	1,827.46	171.15	11.678				
20,500.00	10,619.00	21,604.58	12,176.90	163.40	175.28	-140.92	-9,383.36	958.77	2,002.74	1,830.22	172.52	11.609				
20,600.00	10,619.00	21,704.43	12,182.29	165.01	176.90	-141.02	-9,483.06	959.65	2,006.87	1,832.98	173.89	11.541				
20,700.00	10,619.00	21,784.51	12,186.84	166.61	178.19	-141.11	-9,563.01	960.35	2,011.29	1,836.31	174.97	11.495				
20,792.10	10,619.00	21,843.83	12,191.40	167.92	179.15	-141.19	-9,622.14	960.87	2,016.75	1,841.12	175.63	11.483 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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 16-OWSG (Rev2) MWD, 1424-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	47.74	971.80	1,069.47	1,445.06					
100.00	100.00	116.14	116.12	0.13	0.21	47.67	972.96	1,068.27	1,444.99	1,444.76	0.23	6,356.227		
135.27	135.27	139.81	139.77	0.25	0.28	47.65	973.30	1,067.83	1,444.84	1,444.47	0.37	3,892.510		
200.00	200.00	202.57	202.53	0.48	0.50	47.62	973.82	1,067.38	1,444.86	1,444.17	0.69	2,089.602		
300.00	300.00	325.97	325.91	0.84	0.93	47.56	974.32	1,065.64	1,444.07	1,442.82	1.26	1,148.334		
400.00	400.00	431.84	431.76	1.20	1.31	47.50	974.20	1,063.23	1,442.31	1,440.53	1.78	811.128		
500.00	500.00	553.58	553.42	1.56	1.75	47.40	973.79	1,059.08	1,439.55	1,437.21	2.34	614.504		
600.00	600.00	656.92	656.67	1.92	2.13	47.30	973.42	1,054.74	1,436.23	1,433.37	2.86	502.444		
700.00	700.00	740.00	739.68	2.28	2.43	47.21	973.12	1,051.36	1,433.02	1,429.70	3.32	431.472		
800.00	800.00	842.28	841.93	2.63	2.80	47.15	972.58	1,048.57	1,430.67	1,426.84	3.83	373.188		
900.00	900.00	940.47	940.07	2.99	3.15	47.12	971.43	1,046.07	1,428.01	1,423.68	4.33	329.472		
1,000.00	1,000.00	1,041.14	1,040.71	3.35	3.51	47.10	970.20	1,044.00	1,425.67	1,420.83	4.84	294.521		
1,100.00	1,100.00	1,148.73	1,148.26	3.71	3.90	47.08	968.34	1,041.46	1,422.76	1,417.39	5.36	265.216		
1,200.00	1,200.00	1,234.34	1,233.84	4.07	4.20	47.06	967.30	1,039.59	1,420.31	1,414.48	5.83	243.459		
1,300.00	1,300.00	1,328.16	1,327.64	4.43	4.50	47.04	966.56	1,038.00	1,418.53	1,412.23	6.30	225.235		
1,400.00	1,400.00	1,415.60	1,415.08	4.79	4.66	47.02	966.26	1,036.86	1,417.34	1,410.67	6.67	212.644		
1,500.00	1,500.00	1,513.97	1,513.44	5.14	4.71	46.99	966.27	1,035.98	1,416.69	1,409.73	6.96	203.683		
1,600.00	1,600.00	1,613.00	1,612.47	5.50	4.76	46.98	966.15	1,035.30	1,416.10	1,408.85	7.26	195.081		
1,700.00	1,700.00	1,708.87	1,708.33	5.86	4.84	46.97	966.05	1,034.87	1,415.71	1,408.12	7.58	186.703		
1,800.00	1,800.00	1,806.79	1,806.25	6.22	4.94	46.96	966.04	1,034.62	1,415.51	1,407.59	7.93	178.600		
1,900.00	1,900.00	1,906.48	1,905.95	6.58	5.06	46.95	966.15	1,034.37	1,415.40	1,407.11	8.29	170.816		
2,000.00	2,000.00	2,005.86	2,005.33	6.94	5.21	46.95	966.21	1,034.17	1,415.29	1,406.63	8.66	163.417		
2,016.67	2,016.67	2,021.70	2,021.17	7.00	5.24	46.94	966.22	1,034.14	1,415.29	1,406.57	8.72	162.233		
2,100.00	2,100.00	2,101.45	2,100.91	7.29	5.37	46.93	966.48	1,034.06	1,415.41	1,406.37	9.04	156.538		
2,200.00	2,199.99	2,199.85	2,199.32	7.65	5.54	80.84	966.98	1,034.01	1,415.51	1,406.08	9.43	150.043		
2,300.00	2,299.91	2,297.56	2,297.02	8.01	5.73	80.98	967.52	1,034.07	1,415.31	1,405.47	9.83	143.931		
2,400.00	2,399.69	2,393.49	2,392.95	8.36	5.93	81.22	968.28	1,034.27	1,414.99	1,404.75	10.24	138.197		
2,500.00	2,499.27	2,491.79	2,491.24	8.72	6.14	81.57	969.15	1,034.56	1,414.43	1,403.77	10.66	132.729		
2,600.00	2,598.57	2,609.21	2,608.66	9.08	6.42	82.12	970.08	1,034.79	1,413.50	1,402.39	11.11	127.220		
2,676.13	2,673.94	2,723.90	2,723.33	9.36	6.70	82.79	969.08	1,032.85	1,410.64	1,399.15	11.50	122.697		
2,700.00	2,697.55	2,758.64	2,758.04	9.45	6.79	82.99	968.46	1,031.74	1,409.33	1,397.72	11.62	121.324		
2,800.00	2,796.41	2,845.02	2,844.37	9.82	7.01	83.48	967.19	1,029.05	1,404.16	1,392.11	12.05	116.509		
2,900.00	2,895.28	2,936.86	2,936.18	10.20	7.26	84.02	965.99	1,026.71	1,399.68	1,387.18	12.50	111.963		
3,000.00	2,994.14	3,114.06	3,113.12	10.58	7.76	85.08	960.86	1,019.27	1,393.36	1,380.29	13.06	106.652		
3,100.00	3,093.01	3,322.69	3,320.05	10.96	8.41	86.25	947.03	997.06	1,379.35	1,365.72	13.63	101.218		
3,200.00	3,191.87	3,423.66	3,419.63	11.35	8.74	86.82	938.27	982.94	1,361.90	1,347.80	14.11	96.525		
3,300.00	3,290.74	3,500.94	3,495.94	11.74	9.00	87.25	932.02	972.47	1,345.30	1,330.72	14.58	92.248		
3,400.00	3,389.60	3,619.71	3,613.28	12.13	9.42	87.93	922.94	956.47	1,329.22	1,314.14	15.09	88.109		
3,500.00	3,488.46	3,788.26	3,778.45	12.52	10.04	88.78	908.34	926.35	1,308.85	1,293.25	15.60	83.915		
3,600.00	3,587.33	3,890.53	3,878.03	12.92	10.45	89.22	899.80	904.69	1,286.34	1,270.24	16.10	79.912		
3,700.00	3,686.19	3,988.25	3,973.07	13.32	10.85	89.61	892.20	883.23	1,263.60	1,247.00	16.60	76.117		
3,800.00	3,785.06	4,080.56	4,062.88	13.72	11.24	89.99	885.09	863.13	1,241.11	1,224.00	17.11	72.540		
3,900.00	3,883.92	4,170.70	4,150.74	14.12	11.62	90.46	877.05	844.70	1,219.08	1,201.45	17.62	69.183		
4,000.00	3,982.79	4,255.00	4,233.20	14.53	11.97	90.99	868.73	829.25	1,198.30	1,180.16	18.14	66.072		
4,100.00	4,081.65	4,310.02	4,287.27	14.93	12.19	91.37	863.48	820.55	1,179.79	1,161.14	18.65	63.253		
4,200.00	4,180.52	4,373.72	4,350.19	15.34	12.45	91.85	858.05	812.31	1,164.49	1,145.33	19.16	60.781		
4,300.00	4,279.38	4,444.00	4,419.88	15.74	12.71	92.39	852.94	804.78	1,151.94	1,132.28	19.66	58.589		
4,400.00	4,378.25	4,535.21	4,510.49	16.15	13.05	93.09	847.31	795.99	1,141.08	1,120.91	20.18	56.553		
4,500.00	4,477.11	4,629.50	4,604.21	16.56	13.41	93.79	842.33	786.86	1,130.85	1,110.15	20.70	54.636		
4,600.00	4,575.98	4,710.10	4,684.40	16.97	13.70	94.38	838.71	779.57	1,121.74	1,100.53	21.21	52.898		
4,700.00	4,674.84	4,810.57	4,784.44	17.38	14.07	95.13	834.43	771.39	1,113.71	1,091.98	21.73	51.243		
4,800.00	4,773.71	4,921.96	4,895.26	17.79	14.48	96.00	828.98	761.58	1,104.98	1,082.70	22.27	49.609		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - OH		Offset Site Error:	0.00 usft
Survey Program: 16-OWSG (Rev2) MWD, 1424-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
				(usft)	(usft)	(°)										
4,900.00	4,872.57	5,013.32	4,986.16	18.21	14.82	96.73	824.48	753.70	1,096.58	1,073.79	22.80	48.103				
5,000.00	4,971.43	5,162.58	5,134.35	18.62	15.40	98.01	814.68	738.83	1,086.71	1,063.35	23.36	46.528				
5,100.00	5,070.30	5,314.05	5,283.45	19.03	16.04	99.39	800.18	716.59	1,071.15	1,047.28	23.87	44.869				
5,200.00	5,169.16	5,417.15	5,384.49	19.45	16.49	100.37	789.26	699.19	1,053.69	1,029.29	24.40	43.180				
5,300.00	5,268.03	5,513.60	5,478.95	19.86	16.92	101.33	778.82	682.73	1,036.25	1,011.31	24.94	41.551				
5,400.00	5,366.89	5,609.27	5,572.68	20.28	17.34	102.31	768.40	666.70	1,019.35	993.87	25.48	40.007				
5,500.00	5,465.76	5,709.14	5,670.49	20.69	17.79	103.38	757.36	649.76	1,002.54	976.52	26.02	38.535				
5,600.00	5,564.62	5,799.99	5,759.47	21.11	18.20	104.38	747.33	634.38	986.10	959.53	26.56	37.120				
5,700.00	5,663.49	5,883.53	5,841.47	21.53	18.57	105.33	738.49	621.14	971.17	944.05	27.12	35.809				
5,800.00	5,762.35	5,969.87	5,926.43	21.94	18.94	106.32	729.81	608.45	957.86	930.19	27.67	34.613				
5,900.00	5,861.22	6,061.93	6,017.12	22.36	19.34	107.44	720.31	595.79	945.74	917.52	28.22	33.510				
6,000.00	5,960.08	6,156.96	6,110.74	22.78	19.75	108.66	709.95	583.23	934.38	905.61	28.77	32.475				
6,100.00	6,058.95	6,249.64	6,202.10	23.20	20.15	109.89	699.75	571.42	923.91	894.59	29.32	31.507				
6,200.00	6,157.81	6,348.27	6,299.33	23.62	20.57	111.23	688.82	558.98	914.05	884.17	29.88	30.595				
6,300.00	6,256.68	6,443.81	6,393.50	24.04	20.98	112.56	678.19	546.85	904.60	874.17	30.43	29.726				
6,400.00	6,355.54	6,531.95	6,480.54	24.46	21.35	113.75	669.39	536.13	896.43	865.44	30.98	28.931				
6,500.00	6,454.40	6,629.81	6,577.36	24.88	21.76	114.98	661.50	524.32	889.19	857.65	31.54	28.195				
6,600.00	6,553.27	6,729.78	6,676.31	25.30	22.18	116.17	654.71	511.79	882.11	850.03	32.09	27.491				
6,700.00	6,652.13	6,822.22	6,767.85	25.72	22.56	117.27	648.67	500.40	875.67	843.03	32.64	26.832				
6,800.00	6,751.00	6,911.44	6,856.29	26.14	22.92	118.35	642.88	490.20	870.48	837.30	33.18	26.235				
6,875.92	6,826.06	6,980.02	6,924.35	26.46	23.20	119.18	638.58	482.92	867.43	833.84	33.59	25.823				
6,900.00	6,849.87	7,001.78	6,945.95	26.56	23.29	119.43	637.27	480.71	866.58	832.86	33.72	25.698				
7,000.00	6,949.01	7,093.44	7,037.03	26.97	23.65	120.38	631.99	471.88	863.01	828.76	34.25	25.195				
7,100.00	7,048.45	7,197.58	7,140.57	27.36	24.05	121.23	627.12	461.77	858.38	823.59	34.79	24.675				
7,200.00	7,148.14	7,295.62	7,238.03	27.73	24.44	121.85	622.98	451.95	852.28	816.98	35.30	24.142				
7,300.00	7,248.00	7,386.29	7,328.21	28.09	24.79	122.29	618.93	443.46	845.55	809.75	35.80	23.620				
7,400.00	7,347.96	7,475.81	7,417.37	28.44	25.13	122.55	615.57	436.13	838.68	802.41	36.28	23.119				
7,452.05	7,400.00	7,525.43	7,466.82	28.61	25.31	88.75	614.14	432.39	834.92	798.39	36.53	22.859				
7,500.00	7,447.96	7,570.92	7,512.18	28.77	25.48	88.82	613.07	429.08	831.40	794.65	36.75	22.622				
7,600.00	7,547.96	7,664.16	7,605.19	29.09	25.81	88.92	611.58	422.75	824.58	787.37	37.22	22.157				
7,700.00	7,647.96	7,754.03	7,694.91	29.42	26.13	88.97	610.72	417.55	818.78	781.11	37.67	21.736				
7,800.00	7,747.96	7,839.00	7,779.79	29.75	26.42	89.03	609.84	413.74	814.31	776.21	38.10	21.373				
7,900.00	7,847.96	7,933.00	7,873.73	30.08	26.74	89.11	608.64	410.61	810.99	772.43	38.56	21.033				
8,000.00	7,947.96	8,028.00	7,968.70	30.41	27.05	89.13	608.23	408.52	808.77	769.76	39.01	20.730				
8,100.00	8,047.96	8,122.47	8,063.15	30.74	27.35	89.07	609.14	407.15	807.33	767.87	39.46	20.460				
8,200.00	8,147.96	8,221.47	8,162.14	31.07	27.65	88.97	610.42	405.87	806.06	766.14	39.92	20.191				
8,300.00	8,247.96	8,317.88	8,258.54	31.40	27.95	88.91	611.30	404.91	805.08	764.70	40.37	19.941				
8,400.00	8,347.96	8,413.15	8,353.81	31.74	28.25	88.87	611.80	404.46	804.62	763.80	40.82	19.711				
8,431.64	8,379.59	8,443.44	8,384.09	31.84	28.34	88.87	611.92	404.43	804.59	763.63	40.96	19.644 CC				
8,500.00	8,447.96	8,509.14	8,449.79	32.07	28.53	88.85	612.15	404.55	804.71	763.45	41.26	19.503				
8,600.00	8,547.96	8,607.40	8,548.06	32.40	28.81	88.83	612.48	404.97	805.15	763.44	41.71	19.303 ES				
8,700.00	8,647.96	8,704.63	8,645.29	32.74	29.09	88.82	612.61	405.63	805.84	763.68	42.15	19.116				
8,800.00	8,747.96	8,799.51	8,740.16	33.07	29.36	88.84	612.33	406.81	807.06	764.48	42.59	18.951				
8,900.00	8,847.96	8,896.70	8,837.33	33.41	29.64	88.86	612.12	408.47	808.77	765.74	43.03	18.794				
9,000.00	8,947.96	8,995.57	8,936.18	33.74	29.92	88.83	612.60	410.41	810.74	767.26	43.49	18.644				
9,100.00	9,047.96	9,096.00	9,036.59	34.08	30.21	88.76	613.53	412.36	812.71	768.76	43.95	18.493				
9,200.00	9,147.96	9,195.21	9,135.77	34.42	30.50	88.68	614.80	414.30	814.69	770.29	44.40	18.348				
9,300.00	9,247.96	9,293.27	9,233.80	34.75	30.78	88.58	616.22	416.38	816.84	771.99	44.85	18.212				
9,400.00	9,347.96	9,392.27	9,332.76	35.09	31.06	88.50	617.45	418.72	819.24	773.93	45.31	18.082				
9,500.00	9,447.96	9,492.89	9,433.34	35.43	31.35	88.40	618.92	421.05	821.60	775.82	45.77	17.950				
9,600.00	9,547.96	9,613.40	9,553.83	35.77	31.72	88.28	620.65	422.83	823.20	776.86	46.34	17.766				
9,700.00	9,647.96	9,722.75	9,663.16	36.11	32.06	88.17	622.30	421.77	822.26	775.41	46.85	17.552				

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 501H
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 501H	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		
9,800.00	9,747.96	9,820.00	9,760.39	36.44	32.38	88.06	623.80	420.74	821.25	773.94	47.31	17.358		
9,863.67	9,811.62	9,875.74	9,816.12	36.66	32.55	88.01	624.55	420.52	821.02	773.44	47.58	17.255		
9,900.00	9,847.96	9,908.75	9,849.13	36.78	32.66	87.98	624.95	420.58	821.09	773.36	47.74	17.200		
10,000.00	9,947.96	10,011.81	9,952.18	37.12	32.98	87.88	626.33	420.79	821.35	773.12	48.22	17.032		
10,098.09	10,046.04	10,109.55	10,049.91	37.46	33.28	87.79	627.62	420.80	821.41	772.73	48.69	16.872		
10,100.00	10,047.96	10,111.53	10,051.89	37.46	33.29	-91.65	627.63	420.81	821.42	772.72	48.69	16.869		
10,150.00	10,097.88	10,163.18	10,103.54	37.61	33.45	-91.82	627.68	420.79	821.47	772.55	48.92	16.791		
10,200.00	10,147.42	10,215.70	10,156.05	37.74	33.62	-92.25	626.93	420.67	821.57	772.42	49.14	16.717		
10,250.00	10,196.18	10,269.67	10,210.01	37.86	33.80	-92.99	625.89	420.29	821.66	772.30	49.36	16.645		
10,300.00	10,243.80	10,320.91	10,261.24	37.96	33.98	-93.98	624.80	419.65	821.90	772.34	49.56	16.584		
10,350.00	10,289.92	10,369.57	10,309.88	38.05	34.14	-95.14	623.65	418.91	822.63	772.90	49.74	16.540		
10,400.00	10,334.18	10,413.83	10,354.12	38.12	34.29	-96.34	622.54	418.17	824.18	774.29	49.89	16.520 SF		
10,450.00	10,376.24	10,454.66	10,394.94	38.17	34.43	-97.53	621.51	417.58	827.00	776.98	50.02	16.533		
10,500.00	10,415.80	10,493.45	10,433.71	38.21	34.56	-98.67	620.55	417.10	831.40	781.26	50.14	16.582		
10,550.00	10,452.53	10,530.09	10,470.33	38.24	34.69	-99.70	619.64	416.70	837.65	787.40	50.25	16.671		
10,600.00	10,486.18	10,563.78	10,504.01	38.26	34.80	-100.53	618.82	416.36	846.02	795.69	50.34	16.807		
10,650.00	10,516.48	10,593.55	10,533.77	38.26	34.90	-101.02	618.12	416.09	856.78	806.37	50.42	16.994		
10,700.00	10,543.19	10,619.30	10,559.52	38.26	34.99	-101.11	617.64	415.87	870.15	819.67	50.48	17.238		
10,750.00	10,566.12	10,641.23	10,581.44	38.25	35.06	-100.75	617.31	415.70	886.23	835.70	50.53	17.538		
10,800.00	10,585.10	10,659.23	10,599.44	38.23	35.12	-99.88	617.10	415.56	905.06	854.49	50.57	17.897		
10,850.00	10,599.97	10,674.04	10,614.25	38.21	35.17	-98.49	616.97	415.46	926.57	875.97	50.60	18.311		
10,900.00	10,610.62	10,686.04	10,626.25	38.19	35.21	-96.59	616.88	415.36	950.58	899.96	50.62	18.777		
10,950.00	10,616.98	10,693.36	10,633.57	38.17	35.24	-94.01	616.82	415.29	976.90	926.27	50.63	19.293		
10,998.09	10,619.00	10,695.95	10,636.17	38.16	35.24	-90.89	616.80	415.26	1,004.12	953.48	50.63	19.831		
11,000.00	10,619.00	10,695.97	10,636.18	38.16	35.24	-90.89	616.80	415.26	1,005.23	954.60	50.63	19.853		
11,100.00	10,619.00	10,696.81	10,637.02	38.19	35.25	-90.95	616.79	415.26	1,066.79	1,016.16	50.63	21.070		
11,200.00	10,619.00	10,697.65	10,637.86	38.36	35.25	-91.01	616.78	415.25	1,133.83	1,083.18	50.65	22.385		
11,300.00	10,619.00	10,698.49	10,638.70	38.64	35.25	-91.07	616.78	415.24	1,205.45	1,154.77	50.68	23.784		
11,400.00	10,619.00	10,699.32	10,639.53	38.99	35.26	-91.13	616.77	415.23	1,280.88	1,230.16	50.73	25.251		
11,500.00	10,619.00	10,700.15	10,640.36	39.41	35.26	-91.18	616.76	415.22	1,359.48	1,308.71	50.77	26.775		
11,600.00	10,619.00	10,700.98	10,641.19	39.89	35.26	-91.24	616.76	415.21	1,440.74	1,389.92	50.82	28.348		
11,700.00	10,619.00	10,701.81	10,642.02	40.43	35.26	-91.30	616.75	415.20	1,524.23	1,473.35	50.87	29.960		
11,800.00	10,619.00	10,702.63	10,642.84	41.03	35.27	-91.36	616.75	415.20	1,609.60	1,558.67	50.93	31.607		
11,900.00	10,619.00	10,703.45	10,643.66	41.68	35.27	-91.42	616.74	415.19	1,696.57	1,645.59	50.98	33.282		
12,000.00	10,619.00	10,704.27	10,644.48	42.38	35.27	-91.47	616.73	415.18	1,784.90	1,733.87	51.02	34.981		
12,100.00	10,619.00	10,705.09	10,645.30	43.14	35.27	-91.53	616.73	415.17	1,874.41	1,823.33	51.07	36.701		
12,200.00	10,619.00	10,705.90	10,646.11	43.94	35.28	-91.59	616.72	415.16	1,964.92	1,913.81	51.12	38.439		
12,300.00	10,619.00	10,706.71	10,646.92	44.79	35.28	-91.65	616.71	415.15	2,056.32	2,005.16	51.16	40.191		
12,400.00	10,619.00	10,707.52	10,647.73	45.68	35.28	-91.70	616.71	415.14	2,148.48	2,097.28	51.21	41.957		
12,500.00	10,619.00	10,708.33	10,648.54	46.62	35.29	-91.76	616.70	415.13	2,241.32	2,190.07	51.25	43.734		
12,600.00	10,619.00	10,709.13	10,649.34	47.59	35.29	-91.82	616.70	415.13	2,334.74	2,283.45	51.29	45.520		
12,700.00	10,619.00	10,709.93	10,650.14	48.59	35.29	-91.87	616.69	415.12	2,428.69	2,377.36	51.33	47.315		
12,800.00	10,619.00	10,710.73	10,650.94	49.64	35.29	-91.93	616.68	415.11	2,523.11	2,471.74	51.37	49.116		
12,900.00	10,619.00	10,711.53	10,651.74	50.71	35.30	-91.98	616.68	415.10	2,617.94	2,566.53	51.41	50.924		
13,000.00	10,619.00	10,712.32	10,652.53	51.81	35.30	-92.04	616.67	415.09	2,713.14	2,661.69	51.45	52.737		
13,100.00	10,619.00	10,713.11	10,653.32	52.95	35.30	-92.10	616.66	415.08	2,808.67	2,757.19	51.48	54.554		
13,200.00	10,619.00	10,713.90	10,654.11	54.11	35.30	-92.15	616.66	415.07	2,904.50	2,852.98	51.52	56.374		
13,300.00	10,619.00	10,714.69	10,654.90	55.29	35.31	-92.21	616.65	415.06	3,000.61	2,949.05	51.56	58.198		
13,400.00	10,619.00	10,715.47	10,655.68	56.50	35.31	-92.26	616.65	415.05	3,096.96	3,045.37	51.60	60.024		
13,500.00	10,619.00	10,716.26	10,656.47	57.72	35.31	-92.32	616.64	415.04	3,193.54	3,141.91	51.63	61.853		
13,600.00	10,619.00	10,717.04	10,657.25	58.97	35.32	-92.37	616.63	415.03	3,290.32	3,238.65	51.67	63.682		
13,700.00	10,619.00	10,717.81	10,658.02	60.24	35.32	-92.43	616.63	415.02	3,387.29	3,335.58	51.70	65.513		

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 501H
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 501H	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
13,800.00	10,619.00	10,718.59	10,658.80	61.53	35.32	-92.48	616.62	415.01	3,484.43	3,432.69	51.74	67.345	
13,900.00	10,619.00	10,719.36	10,659.57	62.83	35.32	-92.53	616.62	415.00	3,581.72	3,529.95	51.78	69.177	
14,000.00	10,619.00	10,720.13	10,660.34	64.15	35.33	-92.59	616.61	414.99	3,679.16	3,627.35	51.81	71.009	
14,100.00	10,619.00	10,720.90	10,661.11	65.49	35.33	-92.64	616.61	414.99	3,776.74	3,724.89	51.85	72.841	
14,200.00	10,619.00	10,721.67	10,661.88	66.83	35.33	-92.70	616.60	414.98	3,874.44	3,822.55	51.89	74.672	
14,300.00	10,619.00	11,985.00	11,879.58	68.20	39.94	-147.41	407.89	404.77	3,969.50	3,916.64	52.85	75.107	
14,400.00	10,619.00	11,985.00	11,879.58	69.57	39.94	-147.41	407.89	404.77	4,062.35	4,009.39	52.95	76.713	
14,500.00	10,619.00	11,985.00	11,879.58	70.96	39.94	-147.41	407.89	404.77	4,155.53	4,102.48	53.05	78.326	
14,600.00	10,619.00	11,985.00	11,879.58	72.35	39.94	-147.41	407.89	404.77	4,249.03	4,195.88	53.15	79.944	
14,700.00	10,619.00	11,985.00	11,879.58	73.76	39.94	-147.41	407.89	404.77	4,342.81	4,289.57	53.24	81.568	
14,800.00	10,619.00	11,985.00	11,879.58	75.18	39.94	-147.41	407.89	404.77	4,436.87	4,383.54	53.33	83.195	
14,900.00	10,619.00	11,985.00	11,879.58	76.61	39.94	-147.41	407.89	404.77	4,531.18	4,477.76	53.42	84.827	
15,000.00	10,619.00	11,985.00	11,879.58	78.04	39.94	-147.41	407.89	404.77	4,625.73	4,572.23	53.50	86.462	
15,100.00	10,619.00	11,985.00	11,879.58	79.49	39.94	-147.41	407.89	404.77	4,720.51	4,666.92	53.58	88.100	
15,200.00	10,619.00	11,985.00	11,879.58	80.94	39.94	-147.41	407.89	404.77	4,815.49	4,761.83	53.66	89.740	
15,300.00	10,619.00	11,985.00	11,879.58	82.40	39.94	-147.41	407.89	404.77	4,910.68	4,856.94	53.74	91.383	

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 501H
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 501H	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	47.74	971.80	1,069.47	1,445.06							
100.00	100.00	116.14	116.12	0.13	0.21	47.67	972.96	1,068.27	1,444.99	1,444.76	0.23	6,356.227				
135.27	135.27	139.81	139.77	0.25	0.28	47.65	973.30	1,067.83	1,444.84	1,444.47	0.37	3,892.510				
200.00	200.00	202.57	202.53	0.48	0.50	47.62	973.82	1,067.38	1,444.86	1,444.17	0.69	2,089.602				
300.00	300.00	325.97	325.91	0.84	0.93	47.56	974.32	1,065.64	1,444.07	1,442.82	1.26	1,148.334				
400.00	400.00	431.84	431.76	1.20	1.31	47.50	974.20	1,063.23	1,442.31	1,440.53	1.78	811.128				
500.00	500.00	553.58	553.42	1.56	1.75	47.40	973.79	1,059.08	1,439.55	1,437.21	2.34	614.504				
600.00	600.00	656.92	656.67	1.92	2.13	47.30	973.42	1,054.74	1,436.23	1,433.37	2.86	502.444				
700.00	700.00	740.00	739.68	2.28	2.43	47.21	973.12	1,051.36	1,433.02	1,429.70	3.32	431.472				
800.00	800.00	842.28	841.93	2.63	2.80	47.15	972.58	1,048.57	1,430.67	1,426.84	3.83	373.188				
900.00	900.00	940.47	940.07	2.99	3.15	47.12	971.43	1,046.07	1,428.01	1,423.68	4.33	329.472				
1,000.00	1,000.00	1,041.14	1,040.71	3.35	3.51	47.10	970.20	1,044.00	1,425.67	1,420.83	4.84	294.521				
1,100.00	1,100.00	1,148.73	1,148.26	3.71	3.90	47.08	968.34	1,041.46	1,422.76	1,417.39	5.36	265.216				
1,200.00	1,200.00	1,234.34	1,233.84	4.07	4.20	47.06	967.30	1,039.59	1,420.31	1,414.48	5.83	243.459				
1,300.00	1,300.00	1,328.16	1,327.64	4.43	4.50	47.04	966.56	1,038.00	1,418.53	1,412.23	6.30	225.235				
1,400.00	1,400.00	1,415.60	1,415.08	4.79	4.66	47.02	966.26	1,036.86	1,417.34	1,410.67	6.67	212.644				
1,500.00	1,500.00	1,513.97	1,513.44	5.14	4.71	46.99	966.27	1,035.98	1,416.69	1,409.73	6.96	203.683				
1,600.00	1,600.00	1,613.00	1,612.47	5.50	4.76	46.98	966.15	1,035.30	1,416.10	1,408.85	7.26	195.081				
1,700.00	1,700.00	1,708.87	1,708.33	5.86	4.84	46.97	966.05	1,034.87	1,415.71	1,408.12	7.58	186.703				
1,800.00	1,800.00	1,806.79	1,806.25	6.22	4.94	46.96	966.04	1,034.62	1,415.51	1,407.59	7.93	178.600				
1,900.00	1,900.00	1,906.48	1,905.95	6.58	5.06	46.95	966.15	1,034.37	1,415.40	1,407.11	8.29	170.816				
2,000.00	2,000.00	2,005.86	2,005.33	6.94	5.21	46.95	966.21	1,034.17	1,415.29	1,406.63	8.66	163.417				
2,016.67	2,016.67	2,021.70	2,021.17	7.00	5.24	46.94	966.22	1,034.14	1,415.29	1,406.57	8.72	162.233				
2,100.00	2,100.00	2,101.45	2,100.91	7.29	5.37	46.93	966.48	1,034.06	1,415.41	1,406.37	9.04	156.538				
2,200.00	2,199.99	2,199.85	2,199.32	7.65	5.54	80.84	966.98	1,034.01	1,415.51	1,406.08	9.43	150.043				
2,300.00	2,299.91	2,297.56	2,297.02	8.01	5.73	80.98	967.52	1,034.07	1,415.31	1,405.47	9.83	143.931				
2,400.00	2,399.69	2,393.49	2,392.95	8.36	5.93	81.22	968.28	1,034.27	1,414.99	1,404.75	10.24	138.197				
2,500.00	2,499.27	2,491.79	2,491.24	8.72	6.14	81.57	969.15	1,034.56	1,414.43	1,403.77	10.66	132.729				
2,600.00	2,598.57	2,609.21	2,608.66	9.08	6.42	82.12	970.08	1,034.79	1,413.50	1,402.39	11.11	127.220				
2,676.13	2,673.94	2,723.90	2,723.33	9.36	6.70	82.79	969.08	1,032.85	1,410.64	1,399.15	11.50	122.697				
2,700.00	2,697.55	2,758.64	2,758.04	9.45	6.79	82.99	968.46	1,031.74	1,409.33	1,397.72	11.62	121.324				
2,800.00	2,796.41	2,874.75	2,874.05	9.82	7.10	83.66	966.13	1,027.54	1,403.56	1,391.47	12.09	116.096				
2,900.00	2,895.28	3,029.26	3,028.13	10.20	7.53	84.52	960.49	1,017.72	1,394.71	1,382.10	12.61	110.585				
3,000.00	2,994.14	3,182.69	3,180.57	10.58	7.99	85.36	951.72	1,002.69	1,382.07	1,368.94	13.13	105.270				
3,100.00	3,093.01	3,312.43	3,308.86	10.96	8.41	86.07	941.96	986.07	1,365.99	1,352.37	13.63	100.256				
3,200.00	3,191.87	3,410.21	3,405.44	11.35	8.73	86.61	934.20	972.88	1,349.37	1,335.27	14.11	95.661				
3,300.00	3,290.74	3,508.00	3,502.02	11.74	9.07	87.16	926.44	959.69	1,332.88	1,318.28	14.59	91.342				
3,400.00	3,389.60	3,605.79	3,598.60	12.13	9.41	87.73	918.68	946.50	1,316.50	1,301.42	15.08	87.280				
3,500.00	3,488.46	3,703.57	3,695.18	12.52	9.76	88.31	910.92	933.30	1,300.26	1,284.68	15.58	83.459				
3,600.00	3,587.33	3,801.36	3,791.77	12.92	10.12	88.90	903.16	920.11	1,284.16	1,268.08	16.08	79.861				
3,700.00	3,686.19	3,899.15	3,888.35	13.32	10.48	89.51	895.41	906.92	1,268.19	1,251.61	16.58	76.471				
3,800.00	3,785.06	3,996.93	3,984.93	13.72	10.85	90.13	887.65	893.73	1,252.37	1,235.28	17.09	73.275				
3,900.00	3,883.92	4,094.72	4,081.51	14.12	11.22	90.77	879.89	880.54	1,236.71	1,219.10	17.60	70.259				
4,000.00	3,982.79	4,192.50	4,178.09	14.53	11.59	91.43	872.13	867.35	1,221.20	1,203.08	18.12	67.411				
4,100.00	4,081.65	4,290.29	4,274.67	14.93	11.97	92.10	864.37	854.16	1,205.85	1,187.22	18.63	64.720				
4,200.00	4,180.52	4,388.08	4,371.25	15.34	12.35	92.79	856.61	840.96	1,190.68	1,171.52	19.15	62.174				
4,300.00	4,279.38	4,485.86	4,467.83	15.74	12.74	93.50	848.86	827.77	1,175.68	1,156.00	19.67	59.765				
4,400.00	4,378.25	4,583.65	4,564.42	16.15	13.13	94.22	841.10	814.58	1,160.86	1,140.67	20.19	57.484				
4,500.00	4,477.11	4,681.44	4,661.00	16.56	13.52	94.97	833.34	801.39	1,146.23	1,125.52	20.72	55.321				
4,600.00	4,575.98	4,779.22	4,757.58	16.97	13.91	95.73	825.58	788.20	1,131.81	1,110.56	21.25	53.270				
4,700.00	4,674.84	4,877.01	4,854.16	17.38	14.31	96.51	817.82	775.01	1,117.59	1,095.81	21.78	51.324				
4,800.00	4,773.71	4,974.79	4,950.74	17.79	14.70	97.31	810.07	761.82	1,103.58	1,081.27	22.31	49.476				

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 501H
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 501H	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				
4,900.00	4,872.57	5,072.58	5,047.32	18.21	15.10	98.13	802.31	748.63	1,089.79	1,066.95	22.84	47.720				
5,000.00	4,971.43	5,170.37	5,143.90	18.62	15.50	98.97	794.55	735.43	1,076.23	1,052.86	23.37	46.052				
5,100.00	5,070.30	5,268.15	5,240.48	19.03	15.91	99.83	786.79	722.24	1,062.92	1,039.01	23.90	44.465				
5,200.00	5,169.16	5,365.94	5,337.07	19.45	16.31	100.71	779.03	709.05	1,049.85	1,025.41	24.44	42.956				
5,300.00	5,268.03	5,463.72	5,433.65	19.86	16.72	101.61	771.27	695.86	1,037.04	1,012.06	24.98	41.520				
5,400.00	5,366.89	5,561.51	5,530.23	20.28	17.12	102.54	763.52	682.67	1,024.49	998.98	25.51	40.153				
5,500.00	5,465.76	5,659.30	5,626.81	20.69	17.53	103.49	755.76	669.48	1,012.22	986.17	26.05	38.851				
5,600.00	5,564.62	5,757.08	5,723.39	21.11	17.94	104.46	748.00	656.29	1,000.24	973.65	26.59	37.611				
5,700.00	5,663.49	5,854.87	5,819.97	21.53	18.35	105.45	740.24	643.09	988.56	961.43	27.14	36.430				
5,800.00	5,762.35	5,952.66	5,916.55	21.94	18.76	106.46	732.48	629.90	977.19	949.51	27.68	35.305				
5,900.00	5,861.22	6,050.44	6,013.13	22.36	19.17	107.50	724.73	616.71	966.14	937.91	28.22	34.234				
6,000.00	5,960.08	6,148.23	6,109.72	22.78	19.58	108.56	716.97	603.52	955.41	926.64	28.77	33.213				
6,100.00	6,058.95	6,246.01	6,206.30	23.20	19.99	109.64	709.21	590.33	945.03	915.72	29.31	32.240				
6,200.00	6,157.81	6,343.80	6,302.88	23.62	20.41	110.75	701.45	577.14	935.00	905.14	29.86	31.314				
6,300.00	6,256.68	6,441.59	6,399.46	24.04	20.82	111.88	693.69	563.95	925.34	894.93	30.41	30.433				
6,400.00	6,355.54	6,539.37	6,496.04	24.46	21.24	113.03	685.93	550.76	916.05	885.09	30.95	29.593				
6,500.00	6,454.40	6,637.16	6,592.62	24.88	21.65	114.20	678.18	537.56	907.15	875.64	31.50	28.794				
6,600.00	6,553.27	6,734.94	6,689.20	25.30	22.07	115.40	670.42	524.37	898.65	866.59	32.05	28.035				
6,700.00	6,652.13	6,832.73	6,785.78	25.72	22.48	116.61	662.66	511.18	890.56	857.95	32.61	27.312				
6,800.00	6,751.00	6,930.52	6,882.36	26.14	22.90	117.85	654.90	497.99	882.89	849.73	33.16	26.626				
6,875.92	6,826.06	7,004.76	6,955.69	26.46	23.22	118.80	649.01	487.98	877.35	843.77	33.58	26.128				
6,900.00	6,849.87	7,028.31	6,978.96	26.56	23.32	119.08	647.14	484.80	875.61	841.90	33.71	25.973				
7,000.00	6,949.01	7,126.35	7,075.78	26.97	23.74	120.15	639.36	471.57	867.84	833.59	34.26	25.332				
7,100.00	7,048.45	7,224.66	7,172.89	27.36	24.16	121.09	631.56	458.31	859.10	824.30	34.80	24.688				
7,200.00	7,148.14	7,315.21	7,262.35	27.73	24.54	121.82	624.49	446.28	849.50	814.18	35.33	24.048				
7,300.00	7,248.00	7,400.00	7,346.36	28.09	24.89	122.33	618.69	436.41	840.37	804.53	35.83	23.451				
7,400.00	7,347.96	7,481.38	7,427.22	28.44	25.21	122.66	614.01	428.46	831.83	795.51	36.31	22.906				
7,452.05	7,400.00	7,524.93	7,470.56	28.61	25.38	122.80	611.86	424.81	827.60	791.05	36.56	22.639				
7,500.00	7,447.96	7,565.12	7,510.60	28.77	25.53	122.86	610.10	421.82	824.00	787.22	36.77	22.406				
7,600.00	7,547.96	7,649.16	7,594.44	29.09	25.84	122.92	607.12	416.75	817.90	780.68	37.22	21.975				
7,700.00	7,647.96	7,733.42	7,678.59	29.42	26.13	122.96	605.07	413.26	813.73	776.08	37.65	21.611				
7,800.00	7,747.96	7,817.82	7,762.96	29.75	26.41	122.99	603.96	411.37	811.48	773.41	38.07	21.315				
7,900.00	7,847.96	7,907.31	7,852.46	30.08	26.68	123.00	603.74	411.00	811.04	772.55	38.49	21.072				
8,000.00	7,947.96	8,007.31	7,952.46	30.41	26.97	123.01	603.74	411.00	811.04	772.09	38.95	20.825				
8,100.00	8,047.96	8,107.31	8,052.46	30.74	27.27	123.02	603.74	411.00	811.04	771.64	39.40	20.583				
8,200.00	8,147.96	8,207.31	8,152.46	31.07	27.56	123.03	603.74	411.00	811.04	771.18	39.86	20.346				
8,300.00	8,247.96	8,307.31	8,252.46	31.40	27.86	123.04	603.74	411.00	811.04	770.72	40.32	20.113				
8,400.00	8,347.96	8,407.31	8,352.46	31.74	28.16	123.05	603.74	411.00	811.04	770.25	40.79	19.885				
8,500.00	8,447.96	8,507.31	8,452.46	32.07	28.46	123.06	603.74	411.00	811.04	769.79	41.25	19.662				
8,600.00	8,547.96	8,607.31	8,552.46	32.40	28.76	123.07	603.74	411.00	811.04	769.33	41.71	19.444				
8,700.00	8,647.96	8,707.31	8,652.46	32.74	29.07	123.08	603.74	411.00	811.04	768.86	42.18	19.229				
8,800.00	8,747.96	8,807.31	8,752.46	33.07	29.37	123.09	603.74	411.00	811.04	768.40	42.64	19.019				
8,900.00	8,847.96	8,907.31	8,852.46	33.41	29.68	123.10	603.74	411.00	811.04	767.93	43.11	18.813				
9,000.00	8,947.96	9,007.31	8,952.46	33.74	29.98	123.11	603.74	411.00	811.04	767.46	43.58	18.612				
9,100.00	9,047.96	9,107.31	9,052.46	34.08	30.29	123.12	603.74	411.00	811.04	766.99	44.05	18.414				
9,200.00	9,147.96	9,207.31	9,152.46	34.42	30.60	123.13	603.74	411.00	811.04	766.52	44.51	18.219				
9,300.00	9,247.96	9,307.31	9,252.46	34.75	30.91	123.14	603.74	411.00	811.04	766.05	44.99	18.029				
9,400.00	9,347.96	9,407.31	9,352.46	35.09	31.22	123.15	603.74	411.00	811.04	765.58	45.46	17.842				
9,500.00	9,447.96	9,507.31	9,452.46	35.43	31.53	123.16	603.74	411.00	811.04	765.11	45.93	17.659				
9,600.00	9,547.96	9,607.31	9,552.46	35.77	31.85	123.17	603.74	411.00	811.04	764.64	46.40	17.479				
9,700.00	9,647.96	9,707.31	9,652.46	36.11	32.16	123.18	603.74	411.00	811.04	764.17	46.87	17.303				
9,800.00	9,747.96	9,807.31	9,752.46	36.44	32.48	123.19	603.74	411.00	811.04	763.69	47.35	17.130				

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 501H
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 501H	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			
9,900.00	9,847.96	9,907.31	9,852.46	36.78	32.79	89.45	603.74	411.00	811.04	763.22	47.82	16.960				
10,000.00	9,947.96	10,007.31	9,952.46	37.12	33.11	89.45	603.74	411.00	811.04	762.74	48.30	16.793				
10,098.09	10,046.04	10,105.40	10,050.54	37.46	33.42	89.45	603.74	411.00	811.04	762.28	48.76	16.632				
10,100.00	10,047.96	10,107.31	10,052.46	37.46	33.43	-89.99	603.74	411.00	811.04	762.27	48.77	16.629				
10,112.04	10,059.99	10,119.35	10,064.49	37.50	33.46	-90.00	603.74	411.00	811.04	762.21	48.83	16.611	CC			
10,150.00	10,097.88	10,157.24	10,102.38	37.61	33.58	-90.15	603.74	411.00	811.04	762.05	48.99	16.554				
10,200.00	10,147.42	10,206.78	10,151.92	37.74	33.74	-90.62	603.74	411.00	811.09	761.89	49.20	16.486	ES			
10,250.00	10,196.18	10,255.54	10,200.68	37.86	33.90	-91.35	603.74	411.00	811.28	761.89	49.39	16.425				
10,300.00	10,243.80	10,303.16	10,248.30	37.96	34.05	-92.32	603.74	411.00	811.80	762.23	49.57	16.377				
10,350.00	10,289.92	10,349.28	10,294.42	38.05	34.20	-93.47	603.74	411.00	812.86	763.12	49.73	16.345				
10,400.00	10,334.18	10,393.54	10,338.68	38.12	34.34	-94.72	603.74	411.00	814.74	764.86	49.88	16.334				
10,450.00	10,376.24	10,435.60	10,380.74	38.17	34.47	-96.01	603.74	411.00	817.75	767.74	50.01	16.351				
10,500.00	10,415.80	10,475.15	10,420.30	38.21	34.60	-97.25	603.74	411.00	822.22	772.09	50.13	16.402				
10,550.00	10,452.53	10,511.89	10,457.03	38.24	34.72	-98.35	603.74	411.00	828.46	778.23	50.23	16.493				
10,600.00	10,486.18	10,545.54	10,490.68	38.26	34.83	-99.23	603.74	411.00	836.78	786.46	50.32	16.629				
10,650.00	10,516.48	10,575.83	10,520.98	38.26	34.92	-99.81	603.74	411.00	847.45	797.05	50.40	16.815				
10,700.00	10,543.19	10,602.55	10,547.69	38.26	35.01	-100.01	603.74	411.00	860.65	810.18	50.46	17.054				
10,750.00	10,566.12	10,625.48	10,570.62	38.25	35.08	-99.76	603.74	411.00	876.51	825.99	50.52	17.350				
10,800.00	10,585.10	10,644.46	10,589.60	38.23	35.15	-98.99	603.74	411.00	895.07	844.50	50.56	17.703				
10,850.00	10,599.97	10,659.33	10,604.47	38.21	35.19	-97.65	603.74	411.00	916.27	865.68	50.59	18.111				
10,900.00	10,610.62	10,669.98	10,615.12	38.19	35.23	-95.70	603.74	411.00	939.99	889.38	50.61	18.572				
10,950.00	10,616.98	10,676.34	10,621.48	38.17	35.25	-93.10	603.74	411.00	966.00	915.38	50.62	19.083				
10,998.09	10,619.00	10,678.36	10,623.50	38.16	35.26	-90.00	603.74	411.00	992.91	942.29	50.62	19.616				
11,000.00	10,619.00	10,678.36	10,623.50	38.16	35.26	-90.00	603.74	411.00	994.02	943.40	50.62	19.638				
11,100.00	10,619.00	10,678.36	10,623.50	38.19	35.26	-90.00	603.74	411.00	1,054.99	1,004.37	50.62	20.842				
11,200.00	10,619.00	10,678.36	10,623.50	38.36	35.26	-90.00	603.74	411.00	1,121.58	1,070.94	50.64	22.148				
11,300.00	10,619.00	10,678.36	10,623.50	38.64	35.26	-90.00	603.74	411.00	1,192.85	1,142.17	50.67	23.539				
11,400.00	10,619.00	10,678.36	10,623.50	38.99	35.26	-90.00	603.74	411.00	1,268.00	1,217.28	50.72	25.001				
11,500.00	10,619.00	10,678.36	10,623.50	39.41	35.26	-90.00	603.74	411.00	1,346.39	1,295.62	50.77	26.521				
11,600.00	10,619.00	10,678.36	10,623.50	39.89	35.26	-90.00	603.74	411.00	1,427.48	1,376.67	50.82	28.090				
11,700.00	10,619.00	10,678.36	10,623.50	40.43	35.26	-90.00	603.74	411.00	1,510.84	1,459.97	50.87	29.700				
11,800.00	10,619.00	10,678.36	10,623.50	41.03	35.26	-90.00	603.74	411.00	1,596.12	1,545.20	50.92	31.344				
11,900.00	10,619.00	13,317.55	12,063.61	41.68	49.10	-150.66	-852.77	423.81	1,652.20	1,605.95	46.25	35.725				
12,000.00	10,619.00	13,417.54	12,064.93	42.38	50.11	-150.68	-952.75	424.69	1,653.30	1,606.32	46.98	35.190				
12,100.00	10,619.00	13,517.53	12,066.24	43.14	51.15	-150.71	-1,052.73	425.57	1,654.40	1,606.65	47.75	34.648				
12,200.00	10,619.00	13,617.52	12,067.55	43.94	52.22	-150.73	-1,152.71	426.45	1,655.50	1,606.95	48.55	34.100				
12,300.00	10,619.00	13,717.51	12,068.86	44.79	53.33	-150.76	-1,252.69	427.33	1,656.60	1,607.22	49.38	33.550				
12,400.00	10,619.00	13,817.50	12,070.18	45.68	54.46	-150.78	-1,352.67	428.21	1,657.69	1,607.46	50.23	33.000				
12,500.00	10,619.00	13,917.49	12,071.49	46.62	55.61	-150.81	-1,452.64	429.09	1,658.79	1,607.68	51.11	32.452				
12,600.00	10,619.00	14,017.49	12,072.80	47.59	56.79	-150.83	-1,552.62	429.96	1,659.89	1,607.87	52.02	31.907				
12,700.00	10,619.00	14,117.48	12,074.12	48.59	57.99	-150.86	-1,652.60	430.84	1,660.99	1,608.04	52.95	31.367				
12,800.00	10,619.00	14,217.47	12,075.43	49.64	59.22	-150.88	-1,752.58	431.72	1,662.09	1,608.19	53.91	30.832				
12,900.00	10,619.00	14,317.46	12,076.74	50.71	60.46	-150.91	-1,852.56	432.60	1,663.19	1,608.31	54.88	30.303				
13,000.00	10,619.00	14,417.45	12,078.06	51.81	61.73	-150.93	-1,952.54	433.48	1,664.30	1,608.41	55.88	29.783				
13,100.00	10,619.00	14,517.44	12,079.37	52.95	63.01	-150.96	-2,052.52	434.36	1,665.40	1,608.50	56.89	29.272				
13,200.00	10,619.00	14,617.43	12,080.68	54.11	64.31	-150.98	-2,152.50	435.24	1,666.50	1,608.57	57.93	28.770				
13,300.00	10,619.00	14,717.43	12,082.00	55.29	65.62	-151.00	-2,252.47	436.12	1,667.60	1,608.63	58.97	28.277				
13,400.00	10,619.00	14,817.42	12,083.31	56.50	66.95	-151.03	-2,352.45	437.00	1,668.70	1,608.66	60.04	27.794				
13,500.00	10,619.00	14,917.41	12,084.62	57.72	68.30	-151.05	-2,452.43	437.88	1,669.81	1,608.69	61.12	27.322				
13,600.00	10,619.00	15,017.40	12,085.93	58.97	69.65	-151.08	-2,552.41	438.76	1,670.91	1,608.70	62.21	26.860				
13,700.00	10,619.00	15,117.39	12,087.25	60.24	71.02	-151.10	-2,652.39	439.64	1,672.01	1,608.70	63.31	26.409				
13,800.00	10,619.00	15,217.38	12,088.56	61.53	72.40	-151.13	-2,752.37	440.51	1,673.11	1,608.69	64.43	25.969				

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 501H
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 501H	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				
13,900.00	10,619.00	15,317.37	12,089.87	62.83	73.79	-151.15	-2,852.35	441.39	1,674.22	1,608.66	65.56	25.539				
14,000.00	10,619.00	15,417.36	12,091.19	64.15	75.20	-151.18	-2,952.33	442.27	1,675.32	1,608.63	66.69	25.119				
14,100.00	10,619.00	15,517.36	12,092.50	65.49	76.61	-151.20	-3,052.31	443.15	1,676.43	1,608.58	67.84	24.710				
14,200.00	10,619.00	15,617.35	12,093.81	66.83	78.03	-151.23	-3,152.28	444.03	1,677.53	1,608.53	69.00	24.311				
14,300.00	10,619.00	15,717.34	12,095.13	68.20	79.46	-151.25	-3,252.26	444.91	1,678.64	1,608.47	70.17	23.923				
14,400.00	10,619.00	15,817.33	12,096.44	69.57	80.90	-151.28	-3,352.24	445.79	1,679.74	1,608.40	71.34	23.544				
14,500.00	10,619.00	15,917.32	12,097.75	70.96	82.35	-151.30	-3,452.22	446.67	1,680.85	1,608.32	72.53	23.175				
14,600.00	10,619.00	16,017.31	12,099.07	72.35	83.80	-151.32	-3,552.20	447.55	1,681.95	1,608.23	73.72	22.816				
14,700.00	10,619.00	16,117.30	12,100.38	73.76	85.26	-151.35	-3,652.18	448.43	1,683.06	1,608.14	74.92	22.466				
14,800.00	10,619.00	16,217.30	12,101.69	75.18	86.73	-151.37	-3,752.16	449.31	1,684.17	1,608.05	76.12	22.125				
14,900.00	10,619.00	16,317.29	12,103.00	76.61	88.21	-151.40	-3,852.14	450.19	1,685.27	1,607.94	77.33	21.793				
15,000.00	10,619.00	16,417.28	12,104.32	78.04	89.69	-151.42	-3,952.12	451.06	1,686.38	1,607.83	78.55	21.470				
15,100.00	10,619.00	16,517.27	12,105.63	79.49	91.18	-151.45	-4,052.09	451.94	1,687.49	1,607.72	79.77	21.155				
15,200.00	10,619.00	16,617.26	12,106.94	80.94	92.67	-151.47	-4,152.07	452.82	1,688.59	1,607.60	80.99	20.849				
15,300.00	10,619.00	16,717.25	12,108.26	82.40	94.17	-151.49	-4,252.05	453.70	1,689.70	1,607.48	82.22	20.550				
15,400.00	10,619.00	16,817.24	12,109.57	83.86	95.67	-151.52	-4,352.03	454.58	1,690.81	1,607.35	83.46	20.259				
15,500.00	10,619.00	16,917.23	12,110.88	85.34	97.18	-151.54	-4,452.01	455.46	1,691.92	1,607.22	84.70	19.976				
15,600.00	10,619.00	17,017.23	12,112.20	86.82	98.69	-151.57	-4,551.99	456.34	1,693.03	1,607.08	85.94	19.699				
15,700.00	10,619.00	17,117.22	12,113.51	88.30	100.21	-151.59	-4,651.97	457.22	1,694.14	1,606.94	87.19	19.430				
15,800.00	10,619.00	17,217.21	12,114.82	89.79	101.73	-151.61	-4,751.95	458.10	1,695.25	1,606.80	88.44	19.168				
15,900.00	10,619.00	17,317.20	12,116.14	91.29	103.25	-151.64	-4,851.92	458.98	1,696.36	1,606.66	89.70	18.912				
16,000.00	10,619.00	17,417.19	12,117.45	92.79	104.78	-151.66	-4,951.90	459.86	1,697.47	1,606.51	90.96	18.663				
16,100.00	10,619.00	17,517.18	12,118.76	94.30	106.31	-151.69	-5,051.88	460.74	1,698.58	1,606.36	92.22	18.420				
16,200.00	10,619.00	17,617.17	12,120.07	95.81	107.85	-151.71	-5,151.86	461.61	1,699.69	1,606.21	93.48	18.183				
16,300.00	10,619.00	17,717.17	12,121.39	97.33	109.39	-151.73	-5,251.84	462.49	1,700.80	1,606.06	94.74	17.952				
16,400.00	10,619.00	17,817.16	12,122.70	98.85	110.93	-151.76	-5,351.82	463.37	1,701.91	1,605.90	96.01	17.726				
16,500.00	10,619.00	17,917.15	12,124.01	100.38	112.48	-151.78	-5,451.80	464.25	1,703.02	1,605.74	97.28	17.506				
16,600.00	10,619.00	18,017.14	12,125.33	101.90	114.02	-151.80	-5,551.78	465.13	1,704.13	1,605.58	98.55	17.292				
16,700.00	10,619.00	18,117.13	12,126.64	103.44	115.58	-151.83	-5,651.76	466.01	1,705.25	1,605.42	99.82	17.083				
16,800.00	10,619.00	18,217.12	12,127.95	104.97	117.13	-151.85	-5,751.73	466.89	1,706.36	1,605.26	101.10	16.878				
16,900.00	10,619.00	18,317.11	12,129.27	106.51	118.69	-151.88	-5,851.71	467.77	1,707.47	1,605.10	102.38	16.679				
17,000.00	10,619.00	18,417.10	12,130.58	108.06	120.25	-151.90	-5,951.69	468.65	1,708.58	1,604.93	103.65	16.483				
17,100.00	10,619.00	18,517.10	12,131.89	109.60	121.81	-151.92	-6,051.67	469.53	1,709.70	1,604.76	104.94	16.293				
17,200.00	10,619.00	18,617.09	12,133.21	111.15	123.37	-151.95	-6,151.65	470.41	1,710.81	1,604.59	106.22	16.107				
17,300.00	10,619.00	18,717.08	12,134.52	112.70	124.94	-151.97	-6,251.63	471.29	1,711.93	1,604.43	107.50	15.925				
17,400.00	10,619.00	18,817.07	12,135.83	114.26	126.51	-151.99	-6,351.61	472.16	1,713.04	1,604.26	108.78	15.747				
17,500.00	10,619.00	18,917.06	12,137.14	115.82	128.08	-152.02	-6,451.59	473.04	1,714.15	1,604.09	110.07	15.574				
17,600.00	10,619.00	19,017.05	12,138.46	117.38	129.65	-152.04	-6,551.57	473.92	1,715.27	1,603.92	111.35	15.404				
17,700.00	10,619.00	19,117.04	12,139.77	118.94	131.22	-152.06	-6,651.54	474.80	1,716.38	1,603.75	112.64	15.238				
17,800.00	10,619.00	19,217.04	12,141.08	120.50	132.80	-152.09	-6,751.52	475.68	1,717.50	1,603.57	113.92	15.076				
17,900.00	10,619.00	19,317.03	12,142.40	122.07	134.38	-152.11	-6,851.50	476.56	1,718.61	1,603.40	115.21	14.917				
18,000.00	10,619.00	19,417.02	12,143.71	123.64	135.96	-152.13	-6,951.48	477.44	1,719.73	1,603.23	116.50	14.761				
18,100.00	10,619.00	19,517.01	12,145.02	125.21	137.54	-152.16	-7,051.46	478.32	1,720.85	1,603.06	117.79	14.609				
18,200.00	10,619.00	19,617.00	12,146.34	126.79	139.12	-152.18	-7,151.44	479.20	1,721.96	1,602.88	119.08	14.461				
18,300.00	10,619.00	19,716.99	12,147.65	128.36	140.71	-152.20	-7,251.42	480.08	1,723.08	1,602.71	120.37	14.315				
18,400.00	10,619.00	19,816.98	12,148.96	129.94	142.29	-152.23	-7,351.40	480.96	1,724.20	1,602.54	121.66	14.172				
18,500.00	10,619.00	19,916.97	12,150.28	131.52	143.88	-152.25	-7,451.37	481.84	1,725.31	1,602.36	122.95	14.033				
18,600.00	10,619.00	20,016.97	12,151.59	133.10	145.47	-152.27	-7,551.35	482.71	1,726.43	1,602.19	124.24	13.896				
18,700.00	10,619.00	20,116.96	12,152.90	134.68	147.06	-152.30	-7,651.33	483.59	1,727.55	1,602.02	125.53	13.762				
18,800.00	10,619.00	20,216.95	12,154.21	136.26	148.65	-152.32	-7,751.31	484.47	1,728.67	1,601.85	126.82	13.631				
18,900.00	10,619.00	20,316.94	12,155.53	137.85	150.25	-152.34	-7,851.29	485.35	1,729.79	1,601.67	128.11	13.502				
19,000.00	10,619.00	20,416.93	12,156.84	139.44	151.84	-152.36	-7,951.27	486.23	1,730.90	1,601.50	129.41	13.376				

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 501H
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 501H	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				
19,100.00	10,619.00	20,516.92	12,158.15	141.03	153.44	-152.39	-8,051.25	487.11	1,732.02	1,601.33	130.70	13.252				
19,200.00	10,619.00	20,616.91	12,159.47	142.62	155.03	-152.41	-8,151.23	487.99	1,733.14	1,601.15	131.99	13.131				
19,300.00	10,619.00	20,716.91	12,160.78	144.21	156.63	-152.43	-8,251.21	488.87	1,734.26	1,600.98	133.28	13.012				
19,400.00	10,619.00	20,816.90	12,162.09	145.80	158.23	-152.46	-8,351.18	489.75	1,735.38	1,600.81	134.57	12.896				
19,500.00	10,619.00	20,916.89	12,163.41	147.40	159.83	-152.48	-8,451.16	490.63	1,736.50	1,600.64	135.86	12.782				
19,600.00	10,619.00	21,016.88	12,164.72	148.99	161.43	-152.50	-8,551.14	491.51	1,737.62	1,600.47	137.15	12.669				
19,700.00	10,619.00	21,116.87	12,166.03	150.59	163.03	-152.52	-8,651.12	492.39	1,738.74	1,600.30	138.44	12.559				
19,800.00	10,619.00	21,216.86	12,167.35	152.19	164.64	-152.55	-8,751.10	493.26	1,739.86	1,600.13	139.73	12.451				
19,900.00	10,619.00	21,316.85	12,168.66	153.78	166.24	-152.57	-8,851.08	494.14	1,740.99	1,599.96	141.02	12.345				
20,000.00	10,619.00	21,416.84	12,169.97	155.38	167.84	-152.59	-8,951.06	495.02	1,742.11	1,599.79	142.31	12.241				
20,100.00	10,619.00	21,516.84	12,171.28	156.99	169.45	-152.62	-9,051.04	495.90	1,743.23	1,599.62	143.60	12.139				
20,200.00	10,619.00	21,616.83	12,172.60	158.59	171.06	-152.64	-9,151.02	496.78	1,744.35	1,599.46	144.89	12.039				
20,300.00	10,619.00	21,716.82	12,173.91	160.19	172.66	-152.66	-9,250.99	497.66	1,745.47	1,599.29	146.18	11.941				
20,400.00	10,619.00	21,816.81	12,175.22	161.80	174.27	-152.68	-9,350.97	498.54	1,746.60	1,599.13	147.47	11.844				
20,500.00	10,619.00	21,916.80	12,176.54	163.40	175.88	-152.71	-9,450.95	499.42	1,747.72	1,598.96	148.76	11.749				
20,600.00	10,619.00	22,016.79	12,177.85	165.01	177.49	-152.73	-9,550.93	500.30	1,748.84	1,598.80	150.05	11.655				
20,700.00	10,619.00	22,116.78	12,179.16	166.61	179.10	-152.75	-9,650.91	501.18	1,749.96	1,598.63	151.33	11.564				
20,792.10	10,619.00	22,208.88	12,180.37	167.92	180.59	-152.77	-9,742.99	501.99	1,751.00	1,598.65	152.35	11.493 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 501H
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 501H	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				
0.00	0.00	0.00	0.00	0.00	0.00	50.37	972.79	1,174.45	1,525.02							
100.00	100.00	82.38	82.37	0.13	0.12	50.34	973.71	1,174.47	1,525.77	1,525.60	0.17	8,944.610				
200.00	200.00	170.06	170.01	0.48	0.36	50.26	976.38	1,174.52	1,527.75	1,527.15	0.60	2,547.319				
300.00	300.00	265.38	265.27	0.84	0.70	50.16	979.93	1,174.59	1,530.18	1,529.09	1.09	1,400.697				
400.00	400.00	361.27	361.05	1.20	1.04	50.03	984.31	1,174.26	1,532.85	1,531.26	1.59	963.849				
500.00	500.00	453.50	453.16	1.56	1.38	49.88	989.09	1,173.92	1,535.91	1,533.83	2.08	738.043				
600.00	600.00	552.15	551.62	1.92	1.75	49.69	995.12	1,173.14	1,539.25	1,536.67	2.59	594.637				
700.00	700.00	692.14	691.45	2.28	2.25	49.49	1,001.18	1,171.98	1,541.45	1,538.25	3.20	482.078				
800.00	800.00	785.54	784.83	2.63	2.58	49.48	1,002.36	1,172.76	1,542.88	1,539.20	3.68	418.981				
900.00	900.00	878.03	877.31	2.99	2.90	49.50	1,002.82	1,174.29	1,544.45	1,540.29	4.16	371.118				
1,000.00	1,000.00	986.14	985.41	3.35	3.27	49.54	1,003.09	1,176.17	1,545.94	1,541.26	4.68	330.447				
1,100.00	1,100.00	1,079.45	1,078.69	3.71	3.59	49.59	1,002.98	1,178.15	1,547.47	1,542.31	5.16	299.904				
1,200.00	1,200.00	1,170.83	1,170.04	4.07	3.91	49.65	1,003.01	1,180.46	1,549.42	1,543.78	5.64	274.796				
1,300.00	1,300.00	1,257.16	1,256.33	4.43	4.21	49.70	1,003.41	1,183.13	1,552.08	1,545.98	6.11	254.183				
1,400.00	1,400.00	1,389.62	1,388.76	4.79	4.64	49.74	1,004.26	1,185.95	1,554.11	1,547.45	6.66	233.425				
1,500.00	1,500.00	1,493.82	1,492.95	5.14	4.69	49.76	1,004.45	1,186.78	1,554.84	1,547.88	6.95	223.596				
1,600.00	1,600.00	1,592.51	1,591.64	5.50	4.73	49.77	1,004.67	1,187.62	1,555.63	1,548.38	7.25	214.563				
1,700.00	1,700.00	1,700.23	1,699.35	5.86	4.81	49.79	1,004.63	1,188.43	1,556.17	1,548.60	7.57	205.463				
1,800.00	1,800.00	1,802.80	1,801.93	6.22	4.91	49.81	1,004.36	1,189.00	1,556.42	1,548.51	7.92	196.635				
1,900.00	1,900.00	1,903.67	1,902.79	6.58	5.03	49.83	1,004.11	1,189.35	1,556.53	1,548.25	8.27	188.160				
2,000.00	2,000.00	2,004.43	2,003.55	6.94	5.17	49.83	1,004.15	1,189.47	1,556.65	1,548.00	8.64	180.093				
2,100.00	2,100.00	2,099.36	2,098.48	7.29	5.32	49.84	1,004.08	1,189.67	1,556.77	1,547.75	9.02	172.545				
2,200.00	2,199.99	2,185.22	2,184.33	7.65	5.47	83.77	1,003.83	1,190.75	1,557.41	1,548.01	9.40	165.664				
2,300.00	2,299.91	2,268.30	2,267.37	8.01	5.63	83.94	1,003.30	1,193.20	1,558.84	1,549.05	9.78	159.348				
2,400.00	2,399.69	2,353.58	2,352.53	8.36	5.81	84.24	1,002.11	1,197.39	1,561.05	1,550.88	10.17	153.444				
2,500.00	2,499.27	2,441.85	2,440.50	8.72	6.01	84.73	998.99	1,204.06	1,563.83	1,553.25	10.58	147.863				
2,600.00	2,598.57	2,525.70	2,523.77	9.08	6.21	85.37	994.36	1,212.63	1,567.41	1,556.43	10.98	142.736				
2,676.13	2,673.94	2,596.44	2,593.91	9.36	6.39	85.98	989.95	1,220.69	1,570.61	1,559.30	11.31	138.889				
2,700.00	2,697.55	2,618.41	2,615.70	9.45	6.45	86.20	988.58	1,223.23	1,571.68	1,560.27	11.41	137.726				
2,800.00	2,796.41	2,706.00	2,702.52	9.82	6.68	87.05	983.26	1,233.46	1,576.63	1,564.78	11.84	133.116				
2,900.00	2,895.28	2,790.68	2,786.39	10.20	6.92	87.88	978.14	1,243.99	1,582.64	1,570.36	12.28	128.882				
3,000.00	2,994.14	2,873.07	2,867.81	10.58	7.17	88.71	972.80	1,255.39	1,589.97	1,577.26	12.72	125.005				
3,100.00	3,093.01	2,961.82	2,955.27	10.96	7.45	89.66	966.20	1,268.95	1,598.47	1,585.29	13.18	121.284				
3,200.00	3,191.87	3,064.35	3,056.03	11.35	7.79	90.80	957.09	1,285.58	1,607.55	1,593.87	13.68	117.507				
3,300.00	3,290.74	3,160.48	3,150.54	11.74	8.13	91.85	948.31	1,300.81	1,616.79	1,602.61	14.17	114.062				
3,400.00	3,389.60	3,256.85	3,245.45	12.13	8.47	92.87	940.38	1,315.56	1,626.57	1,611.90	14.67	110.845				
3,500.00	3,488.46	3,351.96	3,339.19	12.52	8.81	93.83	933.06	1,329.76	1,636.82	1,621.64	15.18	107.862				
3,600.00	3,587.33	3,432.28	3,418.17	12.92	9.11	94.68	925.98	1,342.58	1,647.95	1,632.31	15.64	105.344				
3,700.00	3,686.19	3,511.24	3,495.39	13.32	9.42	95.58	917.59	1,356.79	1,660.60	1,644.49	16.11	103.069				
3,800.00	3,785.06	3,595.16	3,577.24	13.72	9.76	96.54	908.29	1,372.81	1,674.61	1,658.02	16.60	100.903				
3,900.00	3,883.92	3,687.85	3,667.68	14.12	10.15	97.57	898.53	1,390.58	1,689.54	1,672.43	17.11	98.748				
4,000.00	3,982.79	3,792.93	3,770.48	14.53	10.58	98.68	888.60	1,409.92	1,704.81	1,687.15	17.66	96.523				
4,100.00	4,081.65	3,895.25	3,870.88	14.93	11.01	99.70	879.68	1,427.57	1,719.84	1,701.63	18.21	94.460				
4,200.00	4,180.52	3,990.06	3,963.75	15.34	11.41	100.67	870.39	1,444.22	1,735.28	1,716.55	18.73	92.641				
4,300.00	4,279.38	4,087.35	4,058.85	15.74	11.83	101.68	859.64	1,461.66	1,751.16	1,731.90	19.27	90.891				
4,400.00	4,378.25	4,175.41	4,144.96	16.15	12.22	102.58	849.97	1,477.36	1,767.52	1,747.74	19.77	89.393				
4,500.00	4,477.11	4,259.17	4,226.83	16.56	12.59	103.42	841.13	1,492.68	1,784.93	1,764.66	20.26	88.092				
4,600.00	4,575.98	4,339.98	4,305.84	16.97	12.95	104.19	833.23	1,507.72	1,803.35	1,782.61	20.74	86.955				
4,700.00	4,674.84	4,414.62	4,378.83	17.38	13.29	104.87	827.05	1,522.02	1,823.13	1,801.94	21.19	86.042				
4,800.00	4,773.71	4,499.00	4,461.41	17.79	13.66	105.57	821.93	1,538.60	1,844.30	1,822.63	21.67	85.111				
4,900.00	4,872.57	4,726.47	4,685.18	18.21	14.64	107.38	806.96	1,576.18	1,863.38	1,840.73	22.64	82.287				
5,000.00	4,971.43	4,834.40	4,791.95	18.62	15.08	108.22	798.13	1,589.27	1,877.70	1,854.50	23.20	80.920				

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 501H
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 501H	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		
5,100.00	5,070.30	4,911.42	4,868.17	19.03	15.39	108.80	792.56	1,598.82	1,892.89	1,869.22	23.67	79.984		
5,200.00	5,169.16	4,988.89	4,944.77	19.45	15.71	109.35	787.66	1,609.22	1,909.49	1,885.36	24.12	79.151		
5,300.00	5,268.03	5,095.59	5,050.38	19.86	16.14	110.07	781.93	1,623.43	1,926.49	1,901.81	24.68	78.065		
5,400.00	5,366.89	5,179.84	5,133.72	20.28	16.49	110.66	776.41	1,634.43	1,943.32	1,918.16	25.16	77.242		
5,500.00	5,465.76	5,251.00	5,203.63	20.69	16.81	111.22	769.85	1,645.89	1,962.51	1,936.91	25.60	76.674		
5,600.00	5,564.62	5,286.31	5,238.13	21.11	16.97	111.51	766.04	1,652.43	1,983.64	1,957.74	25.89	76.609		
5,700.00	5,663.49	5,355.17	5,305.19	21.53	17.30	112.09	758.25	1,665.95	2,006.77	1,980.46	26.31	76.273		
5,800.00	5,762.35	5,444.04	5,391.64	21.94	17.73	112.83	748.21	1,683.97	2,030.89	2,004.08	26.81	75.753		
5,900.00	5,861.22	5,534.00	5,479.16	22.36	18.17	113.55	738.48	1,702.33	2,055.57	2,028.26	27.31	75.263		
6,000.00	5,960.08	5,624.35	5,567.11	22.78	18.61	114.24	729.25	1,720.84	2,080.73	2,052.91	27.81	74.808		
6,100.00	6,058.95	5,712.31	5,652.77	23.20	19.04	114.89	720.72	1,738.95	2,106.35	2,078.05	28.30	74.418		
6,200.00	6,157.81	5,818.35	5,756.14	23.62	19.56	115.63	711.24	1,760.59	2,132.17	2,103.30	28.87	73.850		
6,300.00	6,256.68	5,941.53	5,876.63	24.04	20.14	116.44	701.11	1,784.06	2,156.94	2,127.43	29.51	73.097		
6,400.00	6,355.54	6,025.15	5,958.49	24.46	20.53	116.96	694.66	1,799.86	2,181.91	2,151.93	29.98	72.791		
6,500.00	6,454.40	6,114.68	6,046.11	24.88	20.96	117.50	688.06	1,817.03	2,207.40	2,176.93	30.47	72.454		
6,600.00	6,553.27	6,226.01	6,155.05	25.30	21.48	118.16	679.98	1,838.49	2,233.27	2,202.22	31.05	71.926		
6,700.00	6,652.13	6,374.79	6,301.24	25.72	22.16	119.02	668.57	1,863.64	2,256.73	2,224.95	31.78	71.008		
6,800.00	6,751.00	6,459.80	6,384.85	26.14	22.55	119.50	661.95	1,877.53	2,280.10	2,247.84	32.25	70.692		
6,875.92	6,826.06	6,525.74	6,449.65	26.46	22.85	119.87	656.71	1,888.58	2,298.27	2,265.65	32.62	70.461		
6,900.00	6,849.87	6,547.03	6,470.57	26.56	22.95	120.07	655.04	1,892.18	2,304.05	2,271.31	32.73	70.387		
7,000.00	6,949.01	6,635.72	6,557.68	26.97	23.35	120.83	648.15	1,907.32	2,327.54	2,294.32	33.21	70.076		
7,100.00	7,048.45	6,981.81	6,900.03	27.36	24.80	122.49	622.49	1,949.52	2,345.82	2,311.24	34.58	67.845		
7,200.00	7,148.14	7,096.36	7,014.17	27.73	25.21	122.97	615.83	1,956.43	2,356.02	2,320.91	35.11	67.101		
7,300.00	7,248.00	7,194.98	7,112.57	28.09	25.55	123.27	612.65	1,962.33	2,364.86	2,329.27	35.60	66.437		
7,400.00	7,347.96	7,301.89	7,219.27	28.44	25.92	123.48	610.30	1,968.53	2,372.12	2,336.03	36.09	65.720		
7,452.05	7,400.00	7,355.33	7,272.61	28.61	26.11	89.69	609.02	1,971.51	2,375.21	2,338.86	36.35	65.352		
7,500.00	7,447.96	7,402.60	7,319.79	28.77	26.27	89.71	607.91	1,974.14	2,377.88	2,341.31	36.57	65.022		
7,600.00	7,547.96	7,511.89	7,428.90	29.09	26.64	89.77	605.68	1,980.07	2,383.30	2,346.23	37.07	64.295		
7,700.00	7,647.96	7,713.10	7,630.00	29.42	27.27	89.76	605.85	1,985.47	2,385.59	2,347.83	37.76	63.176		
7,800.00	7,747.96	7,804.98	7,721.86	29.75	27.53	89.72	607.72	1,986.56	2,386.79	2,348.58	38.20	62.479		
7,900.00	7,847.96	7,898.26	7,815.12	30.08	27.81	89.68	609.22	1,987.89	2,388.22	2,349.57	38.65	61.794		
8,000.00	7,947.96	7,994.58	7,911.42	30.41	28.10	89.66	610.11	1,989.43	2,389.82	2,350.71	39.11	61.113		
8,100.00	8,047.96	8,080.00	7,996.82	30.74	28.36	89.65	610.61	1,991.25	2,391.94	2,352.40	39.54	60.490		
8,200.00	8,147.96	8,168.24	8,085.03	31.07	28.64	89.65	610.74	1,993.62	2,394.61	2,354.62	39.99	59.882		
8,300.00	8,247.96	8,330.68	8,247.45	31.40	29.15	89.66	610.31	1,995.82	2,395.87	2,355.28	40.59	59.026		
8,400.00	8,347.96	8,423.97	8,340.73	31.74	29.43	89.68	609.51	1,995.96	2,396.02	2,354.98	41.05	58.375		
8,500.00	8,447.96	8,565.58	8,482.34	32.07	29.84	89.70	608.48	1,995.69	2,395.90	2,354.32	41.58	57.621		
8,600.00	8,547.96	8,645.00	8,561.74	32.40	30.06	89.73	607.43	1,995.13	2,395.17	2,353.17	42.00	57.021		
8,700.00	8,647.96	8,770.63	8,687.34	32.74	30.43	89.79	604.75	1,993.86	2,394.13	2,351.62	42.51	56.317		
8,800.00	8,747.96	8,866.65	8,783.31	33.07	30.70	89.86	601.97	1,992.58	2,392.79	2,349.82	42.97	55.686		
8,900.00	8,847.96	8,963.37	8,879.92	33.41	30.99	89.96	597.68	1,991.37	2,391.52	2,348.09	43.43	55.064		
9,000.00	8,947.96	9,061.58	8,977.99	33.74	31.29	90.09	592.40	1,990.37	2,390.51	2,346.61	43.90	54.454		
9,100.00	9,047.96	9,164.12	9,080.36	34.08	31.61	90.22	586.71	1,989.12	2,389.30	2,344.93	44.38	53.842		
9,200.00	9,147.96	9,256.23	9,172.32	34.42	31.89	90.35	581.47	1,988.16	2,388.29	2,343.45	44.84	53.267		
9,300.00	9,247.96	9,348.41	9,264.35	34.75	32.18	90.47	576.28	1,987.53	2,387.64	2,342.35	45.30	52.711		
9,400.00	9,347.96	9,441.40	9,357.20	35.09	32.47	90.60	571.17	1,987.14	2,387.28	2,341.52	45.76	52.169		
9,452.32	9,400.28	9,489.05	9,404.78	35.27	32.63	90.66	568.62	1,987.07	2,387.22	2,341.22	46.00	51.894		
9,500.00	9,447.96	9,531.56	9,447.23	35.43	32.76	90.71	566.33	1,987.09	2,387.28	2,341.06	46.22	51.650		
9,600.00	9,547.96	9,623.61	9,539.12	35.77	33.06	90.84	561.04	1,987.41	2,387.71	2,341.02	46.68	51.145		
9,700.00	9,647.96	9,722.00	9,637.33	36.11	33.38	90.98	555.15	1,987.92	2,388.31	2,341.15	47.16	50.640		
9,800.00	9,747.96	9,817.14	9,732.43	36.44	33.69	91.05	552.41	1,988.51	2,388.99	2,341.36	47.63	50.154		
9,900.00	9,847.96	9,904.55	9,819.83	36.78	33.97	91.04	552.74	1,989.46	2,390.07	2,341.99	48.08	49.707		

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 501H
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 501H	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		
10,000.00	9,947.96	10,030.38	9,945.61	37.12	34.35	90.96	555.75	1,990.66	2,391.01	2,342.40	48.61	49.191		
10,098.09	10,046.04	10,170.58	10,085.66	37.46	34.75	90.82	561.79	1,989.30	2,389.80	2,340.67	49.13	48.640		
10,100.00	10,047.96	10,172.50	10,087.58	37.46	34.75	-88.63	561.86	1,989.27	2,389.78	2,340.64	49.14	48.631		
10,150.00	10,097.88	10,222.54	10,137.58	37.61	34.89	-88.80	563.64	1,988.56	2,388.99	2,339.63	49.36	48.402		
10,200.00	10,147.42	10,279.23	10,194.24	37.74	35.05	-89.12	565.29	1,987.70	2,388.08	2,338.51	49.58	48.169		
10,250.00	10,196.18	10,342.10	10,257.06	37.86	35.23	-89.62	567.44	1,986.41	2,386.90	2,337.10	49.80	47.932		
10,300.00	10,243.80	10,377.99	10,292.91	37.96	35.33	-90.03	569.00	1,985.65	2,385.74	2,335.77	49.97	47.742		
10,350.00	10,289.92	10,412.30	10,327.16	38.05	35.42	-90.47	570.88	1,985.08	2,384.96	2,334.82	50.13	47.572		
10,400.00	10,334.18	10,445.32	10,360.11	38.12	35.52	-90.91	573.04	1,984.67	2,384.64	2,334.35	50.29	47.420		
10,405.30	10,338.74	10,448.92	10,363.70	38.12	35.53	-90.96	573.28	1,984.64	2,384.64	2,334.34	50.30	47.406		
10,450.00	10,376.24	10,478.36	10,393.07	38.17	35.61	-91.36	575.31	1,984.37	2,384.87	2,334.43	50.43	47.287		
10,500.00	10,415.80	10,509.10	10,423.74	38.21	35.70	-91.77	577.44	1,984.18	2,385.72	2,335.15	50.57	47.177		
10,550.00	10,452.53	10,531.00	10,445.58	38.24	35.76	-91.99	578.98	1,984.10	2,387.33	2,336.64	50.68	47.102		
10,600.00	10,486.18	10,563.19	10,477.69	38.26	35.85	-92.35	581.24	1,984.05	2,389.75	2,338.93	50.82	47.028		
10,650.00	10,516.48	10,586.09	10,500.53	38.26	35.92	-92.47	582.83	1,984.07	2,393.10	2,342.17	50.92	46.993		
10,700.00	10,543.19	10,605.88	10,520.28	38.26	35.98	-92.45	584.21	1,984.12	2,397.44	2,346.42	51.03	46.985		
10,750.00	10,566.12	10,625.00	10,539.35	38.25	36.03	-92.33	585.53	1,984.20	2,402.84	2,351.72	51.12	47.001		
10,800.00	10,585.10	10,636.22	10,550.55	38.23	36.06	-91.93	586.29	1,984.26	2,409.32	2,358.12	51.20	47.053		
10,850.00	10,599.97	10,646.53	10,560.83	38.21	36.09	-91.41	586.99	1,984.32	2,416.90	2,365.61	51.28	47.129		
10,900.00	10,610.62	10,653.09	10,567.38	38.19	36.11	-90.69	587.43	1,984.37	2,425.55	2,374.19	51.35	47.234		
10,950.00	10,616.98	10,655.81	10,570.09	38.17	36.12	-89.76	587.61	1,984.39	2,435.23	2,383.82	51.41	47.366		
10,998.09	10,619.00	10,654.75	10,569.03	38.16	36.12	-88.69	587.54	1,984.38	2,445.45	2,393.99	51.46	47.519		
11,000.00	10,619.00	10,654.63	10,568.92	38.16	36.12	-88.69	587.53	1,984.38	2,445.88	2,394.41	51.46	47.526		
11,100.00	10,619.00	10,648.61	10,562.91	38.19	36.10	-88.54	587.13	1,984.34	2,470.00	2,418.42	51.58	47.889		
11,200.00	10,619.00	10,642.51	10,556.82	38.36	36.08	-88.40	586.72	1,984.30	2,497.88	2,446.16	51.72	48.293		
11,300.00	10,619.00	10,636.32	10,550.64	38.64	36.06	-88.25	586.30	1,984.26	2,529.40	2,477.50	51.90	48.739		
11,400.00	10,619.00	10,630.04	10,544.38	38.99	36.05	-88.10	585.87	1,984.23	2,564.41	2,512.31	52.10	49.225		
11,500.00	10,619.00	10,625.00	10,539.35	39.41	36.03	-87.98	585.53	1,984.20	2,602.78	2,550.46	52.32	49.750		
11,600.00	10,619.00	12,735.00	11,811.29	39.89	45.93	-116.96	-491.85	1,945.89	2,620.68	2,565.47	55.22	47.460		
11,700.00	10,619.00	12,811.87	11,811.61	40.43	46.63	-116.94	-568.64	1,949.19	2,623.77	2,567.73	56.04	46.816		
11,800.00	10,619.00	12,915.70	11,812.41	41.03	47.61	-116.92	-672.37	1,953.65	2,627.08	2,570.02	57.06	46.044		
11,900.00	10,619.00	13,018.73	11,811.91	41.68	48.62	-116.87	-775.28	1,958.52	2,630.21	2,572.07	58.14	45.240		
12,000.00	10,619.00	13,112.00	11,809.64	42.38	49.58	-116.79	-868.41	1,963.09	2,632.67	2,573.43	59.24	44.439		
12,100.00	10,619.00	13,178.14	11,808.29	43.14	50.28	-116.74	-934.44	1,966.77	2,636.12	2,575.89	60.23	43.766		
12,200.00	10,619.00	13,348.75	11,806.65	43.94	52.14	-116.62	-1,104.68	1,977.46	2,641.14	2,579.22	61.92	42.652		
12,300.00	10,619.00	13,539.57	11,800.00	44.79	54.29	-116.46	-1,295.30	1,982.09	2,640.45	2,576.63	63.82	41.372		
12,400.00	10,619.00	13,673.06	11,795.56	45.68	55.84	-116.39	-1,428.71	1,982.38	2,638.28	2,572.89	65.40	40.343		
12,500.00	10,619.00	13,775.00	11,792.71	46.62	57.05	-116.35	-1,530.61	1,981.51	2,635.40	2,568.59	66.80	39.449		
12,600.00	10,619.00	13,861.36	11,791.32	47.59	58.08	-116.34	-1,616.95	1,980.49	2,632.77	2,564.62	68.14	38.637		
12,700.00	10,619.00	13,951.80	11,791.58	48.59	59.18	-116.37	-1,707.37	1,979.09	2,630.64	2,561.11	69.52	37.839		
12,800.00	10,619.00	14,087.65	11,789.09	49.64	60.87	-116.35	-1,843.18	1,977.08	2,627.48	2,556.22	71.26	36.872		
12,900.00	10,619.00	14,154.00	11,788.31	50.71	61.70	-116.35	-1,909.52	1,976.25	2,624.91	2,552.36	72.55	36.179		
13,000.00	10,619.00	14,225.99	11,788.23	51.81	62.62	-116.36	-1,981.51	1,975.92	2,623.52	2,549.62	73.91	35.498		
13,095.07	10,619.00	14,295.37	11,788.05	52.89	63.52	-116.36	-2,050.88	1,976.26	2,623.02	2,547.81	75.22	34.873		
13,100.00	10,619.00	14,298.84	11,788.05	52.95	63.56	-116.36	-2,054.35	1,976.30	2,623.03	2,547.74	75.28	34.842		
13,200.00	10,619.00	14,374.22	11,788.02	54.11	64.55	-116.35	-2,129.73	1,977.56	2,623.61	2,546.91	76.70	34.204		
13,300.00	10,619.00	14,438.00	11,788.02	55.29	65.39	-116.34	-2,193.49	1,979.06	2,625.00	2,546.95	78.05	33.632		
13,400.00	10,619.00	14,497.32	11,788.50	56.50	66.19	-116.34	-2,252.76	1,981.17	2,627.88	2,548.50	79.37	33.108		
13,500.00	10,619.00	14,569.70	11,790.26	57.72	67.17	-116.34	-2,325.02	1,984.98	2,632.66	2,551.85	80.81	32.578		
13,600.00	10,619.00	14,835.00	11,790.07	58.97	70.80	-116.29	-2,590.12	1,992.35	2,633.84	2,549.96	83.88	31.401		
13,700.00	10,619.00	14,974.73	11,782.67	60.24	72.74	-116.14	-2,729.64	1,994.63	2,632.21	2,546.23	85.98	30.613		
13,800.00	10,619.00	15,063.54	11,777.09	61.53	73.98	-116.03	-2,818.27	1,995.30	2,629.29	2,541.59	87.70	29.979		

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 501H
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 501H	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				
13,900.00	10,619.00	15,137.51	11,773.58	62.83	75.02	-115.96	-2,892.14	1,996.24	2,627.46	2,538.16	89.31	29.421				
14,000.00	10,619.00	15,224.34	11,772.82	64.15	76.25	-115.95	-2,978.97	1,996.45	2,626.40	2,535.42	90.98	28.867				
14,100.00	10,619.00	15,328.18	11,775.03	65.49	77.71	-116.02	-3,082.77	1,995.32	2,625.48	2,532.72	92.77	28.302				
14,200.00	10,619.00	15,426.25	11,777.57	66.83	79.11	-116.09	-3,180.80	1,993.82	2,624.38	2,529.87	94.51	27.768				
14,300.00	10,619.00	15,512.95	11,780.85	68.20	80.35	-116.18	-3,267.42	1,992.39	2,623.68	2,527.51	96.17	27.283				
14,371.67	10,619.00	15,573.00	11,783.59	69.18	81.21	-116.24	-3,327.40	1,991.44	2,623.49	2,526.15	97.34	26.952				
14,400.00	10,619.00	15,592.97	11,784.60	69.57	81.50	-116.27	-3,347.34	1,991.16	2,623.52	2,525.75	97.77	26.833				
14,500.00	10,619.00	15,668.00	11,789.20	70.96	82.58	-116.37	-3,422.23	1,990.56	2,624.57	2,525.24	99.33	26.422				
14,600.00	10,619.00	15,729.64	11,793.12	72.35	83.48	-116.45	-3,483.74	1,990.83	2,626.79	2,526.00	100.79	26.063				
14,700.00	10,619.00	15,824.15	11,797.49	73.76	84.87	-116.53	-3,578.14	1,992.76	2,629.80	2,527.25	102.55	25.645				
14,800.00	10,619.00	15,981.47	11,799.33	75.18	87.19	-116.54	-3,735.37	1,996.75	2,631.76	2,526.83	104.93	25.081				
14,900.00	10,619.00	16,138.06	11,800.42	76.61	89.51	-116.57	-3,891.95	1,997.58	2,631.79	2,524.52	107.27	24.535				
15,000.00	10,619.00	16,207.35	11,801.92	78.04	90.53	-116.61	-3,961.22	1,996.83	2,630.95	2,522.08	108.87	24.166				
15,016.50	10,619.00	16,218.35	11,802.30	78.28	90.69	-116.62	-3,972.21	1,996.74	2,630.93	2,521.80	109.13	24.109				
15,100.00	10,619.00	16,293.58	11,805.41	79.49	91.81	-116.69	-4,047.38	1,996.15	2,631.16	2,520.57	110.58	23.793				
15,200.00	10,619.00	16,396.30	11,809.60	80.94	93.35	-116.79	-4,150.02	1,995.36	2,631.44	2,519.00	112.44	23.403				
15,300.00	10,619.00	16,462.54	11,812.39	82.40	94.34	-116.86	-4,216.19	1,995.01	2,632.09	2,518.10	114.00	23.089				
15,400.00	10,619.00	16,521.00	11,816.00	83.86	95.22	-116.93	-4,274.54	1,995.43	2,634.55	2,519.08	115.47	22.817				
15,500.00	10,619.00	16,591.83	11,820.82	85.34	96.29	-117.01	-4,345.19	1,996.76	2,638.38	2,521.34	117.03	22.544				
15,600.00	10,619.00	16,661.70	11,825.18	86.82	97.36	-117.08	-4,414.89	1,998.86	2,643.06	2,524.47	118.59	22.287				
15,700.00	10,619.00	16,710.00	11,828.28	88.30	98.09	-117.13	-4,463.05	2,000.91	2,649.14	2,529.22	119.92	22.091				
15,800.00	10,619.00	16,771.91	11,832.78	89.79	99.05	-117.19	-4,524.69	2,004.42	2,656.83	2,535.46	121.37	21.891				
15,900.00	10,619.00	16,852.98	11,839.56	91.29	100.30	-117.27	-4,605.25	2,010.40	2,666.27	2,543.25	123.02	21.674				
16,000.00	10,619.00	17,035.46	11,851.68	92.79	103.12	-117.40	-4,786.93	2,022.39	2,674.45	2,548.61	125.84	21.253				
16,100.00	10,619.00	17,238.47	11,860.64	94.30	106.25	-117.53	-4,989.63	2,028.19	2,677.46	2,548.70	128.76	20.795				
16,200.00	10,619.00	17,308.20	11,863.73	95.81	107.32	-117.58	-5,059.28	2,029.55	2,680.41	2,550.04	130.37	20.561				
16,300.00	10,619.00	17,373.00	11,867.03	97.33	108.33	-117.63	-5,123.96	2,031.63	2,684.71	2,552.80	131.91	20.352				
16,400.00	10,619.00	17,518.20	11,875.30	98.85	110.57	-117.78	-5,268.90	2,033.97	2,687.55	2,553.33	134.22	20.024				
16,500.00	10,619.00	17,669.73	11,883.70	100.38	112.92	-117.93	-5,420.16	2,036.31	2,691.08	2,554.54	136.54	19.708				
16,600.00	10,619.00	17,808.96	11,888.84	101.90	115.07	-118.05	-5,559.29	2,034.41	2,690.39	2,551.65	138.74	19.392				
16,609.96	10,619.00	17,815.29	11,889.15	102.06	115.17	-118.06	-5,565.60	2,034.30	2,690.38	2,551.48	138.90	19.370				
16,700.00	10,619.00	17,846.00	11,890.91	103.44	115.64	-118.10	-5,596.26	2,033.77	2,691.13	2,551.05	140.07	19.212				
16,800.00	10,619.00	17,941.00	11,897.97	104.97	117.11	-118.25	-5,690.99	2,033.41	2,693.45	2,551.60	141.85	18.988				
16,900.00	10,619.00	17,991.39	11,902.27	106.51	117.90	-118.33	-5,741.20	2,033.93	2,697.17	2,553.93	143.23	18.831				
17,000.00	10,619.00	18,084.55	11,910.05	108.06	119.36	-118.47	-5,834.02	2,035.28	2,701.57	2,556.58	144.99	18.633				
17,100.00	10,619.00	18,160.72	11,915.66	109.60	120.55	-118.56	-5,909.96	2,037.04	2,706.32	2,559.72	146.61	18.460				
17,200.00	10,619.00	18,225.00	11,920.81	111.15	121.56	-118.64	-5,973.99	2,039.43	2,712.49	2,564.41	148.08	18.317				
17,300.00	10,619.00	18,337.17	11,927.35	112.70	123.34	-118.71	-6,085.80	2,045.40	2,719.14	2,569.00	150.14	18.111				
17,400.00	10,619.00	18,481.22	11,932.34	114.26	125.61	-118.74	-6,229.55	2,053.01	2,724.59	2,571.99	152.60	17.854				
17,500.00	10,619.00	18,641.24	11,936.40	115.82	128.14	-118.79	-6,389.45	2,057.24	2,726.78	2,571.61	155.17	17.573				
17,600.00	10,619.00	18,727.87	11,940.34	117.38	129.50	-118.86	-6,475.97	2,058.96	2,729.80	2,572.84	156.95	17.392				
17,700.00	10,619.00	18,915.35	11,951.62	118.94	132.44	-119.10	-6,663.09	2,056.81	2,730.65	2,571.17	159.48	17.122				
17,800.00	10,619.00	18,982.00	11,955.57	120.50	133.48	-119.20	-6,729.59	2,054.88	2,730.42	2,569.38	161.04	16.955				
17,804.51	10,619.00	19,006.29	11,957.10	120.57	133.86	-119.24	-6,753.83	2,054.18	2,730.25	2,568.98	161.27	16.930				
17,900.00	10,619.00	19,077.00	11,963.14	122.07	134.97	-119.37	-6,824.26	2,052.77	2,731.54	2,568.76	162.78	16.781				
18,000.00	10,619.00	19,155.37	11,970.72	123.64	136.20	-119.53	-6,902.25	2,051.45	2,733.79	2,569.43	164.36	16.633				
18,100.00	10,619.00	19,220.84	11,976.20	125.21	137.24	-119.65	-6,967.48	2,050.70	2,736.19	2,570.34	165.85	16.498				
18,200.00	10,619.00	19,288.62	11,980.50	126.79	138.31	-119.72	-7,035.11	2,052.09	2,740.19	2,572.79	167.40	16.369				
18,300.00	10,619.00	19,475.12	11,991.65	128.36	141.27	-119.91	-7,221.25	2,054.24	2,743.59	2,573.55	170.04	16.135				
18,400.00	10,619.00	19,618.07	11,998.90	129.94	143.53	-120.08	-7,364.00	2,052.34	2,744.16	2,571.97	172.19	15.936				
18,500.00	10,619.00	19,740.00	12,004.54	131.52	145.45	-120.23	-7,485.75	2,048.92	2,743.17	2,569.01	174.16	15.751				
18,553.28	10,619.00	19,762.95	12,005.69	132.36	145.81	-120.26	-7,508.66	2,048.40	2,742.93	2,568.02	174.92	15.681				

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 501H
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 501H	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				
18,600.00	10,619.00	19,790.62	12,007.23	133.10	146.25	-120.29	-7,536.29	2,047.88	2,743.10	2,567.48	175.62	15.619				
18,700.00	10,619.00	19,866.67	12,012.15	134.68	147.45	-120.40	-7,612.16	2,047.00	2,744.46	2,567.23	177.24	15.485				
18,800.00	10,619.00	20,011.21	12,019.20	136.26	149.75	-120.56	-7,756.51	2,045.74	2,745.39	2,565.98	179.42	15.302				
18,814.64	10,619.00	20,034.95	12,019.50	136.50	150.12	-120.56	-7,780.26	2,045.73	2,745.36	2,565.59	179.78	15.271				
18,900.00	10,619.00	20,081.44	12,020.18	137.85	150.86	-120.58	-7,826.74	2,046.10	2,745.76	2,564.66	181.10	15.162				
19,000.00	10,619.00	20,164.77	12,021.71	139.44	152.19	-120.60	-7,910.04	2,047.57	2,747.34	2,564.45	182.89	15.022				
19,100.00	10,619.00	20,268.79	12,025.36	141.03	153.85	-120.67	-8,013.99	2,048.24	2,748.83	2,564.02	184.82	14.873				
19,200.00	10,619.00	20,447.93	12,033.45	142.62	156.70	-120.85	-8,192.92	2,046.00	2,749.49	2,562.26	187.23	14.685				
19,300.00	10,619.00	20,547.64	12,033.98	144.21	158.28	-120.89	-8,292.61	2,044.51	2,747.64	2,558.49	189.15	14.526				
19,400.00	10,619.00	20,620.75	12,034.05	145.80	159.45	-120.90	-8,365.71	2,044.56	2,746.88	2,555.98	190.90	14.389				
19,475.50	10,619.00	20,686.00	12,034.95	147.01	160.49	-120.92	-8,430.96	2,044.47	2,746.70	2,554.43	192.27	14.285				
19,500.00	10,619.00	20,686.00	12,034.95	147.40	160.49	-120.92	-8,430.96	2,044.47	2,746.81	2,554.28	192.53	14.267				
19,600.00	10,619.00	20,759.91	12,037.07	148.99	161.67	-120.97	-8,504.83	2,044.66	2,747.80	2,553.60	194.20	14.149				
19,700.00	10,619.00	21,028.24	12,043.56	150.59	165.93	-121.20	-8,772.79	2,035.90	2,743.45	2,546.31	197.14	13.916				
19,800.00	10,619.00	21,072.59	12,044.98	152.19	166.63	-121.26	-8,817.07	2,033.90	2,740.30	2,541.63	198.67	13.793				
19,900.00	10,619.00	21,159.00	12,048.52	153.78	168.00	-121.38	-8,903.29	2,029.53	2,737.41	2,537.05	200.35	13.663				
20,000.00	10,619.00	21,226.76	12,052.35	155.38	169.07	-121.49	-8,970.86	2,026.11	2,735.55	2,533.66	201.89	13.550				
20,100.00	10,619.00	21,326.18	12,059.39	156.99	170.65	-121.67	-9,069.94	2,022.33	2,735.19	2,531.63	203.57	13.436				
20,187.72	10,619.00	21,380.34	12,062.77	158.39	171.52	-121.75	-9,123.96	2,020.43	2,734.94	2,530.08	204.86	13.350				
20,200.00	10,619.00	21,384.25	12,063.03	158.59	171.58	-121.76	-9,127.86	2,020.35	2,735.04	2,530.03	205.01	13.341				
20,300.00	10,619.00	21,443.00	12,067.90	160.19	172.52	-121.85	-9,186.41	2,020.19	2,737.72	2,531.32	206.41	13.264				
20,400.00	10,619.00	21,443.00	12,067.90	161.80	172.52	-121.85	-9,186.41	2,020.19	2,742.08	2,534.91	207.17	13.236				
20,500.00	10,619.00	21,519.29	12,075.65	163.40	173.75	-121.98	-9,262.29	2,021.77	2,748.47	2,539.87	208.61	13.175				
20,600.00	10,619.00	21,590.28	12,083.07	165.01	174.90	-122.10	-9,332.85	2,024.16	2,756.06	2,546.10	209.97	13.126				
20,700.00	10,619.00	21,729.87	12,093.96	166.61	177.16	-122.22	-9,471.79	2,031.62	2,764.12	2,551.81	212.31	13.019				
20,792.10	10,619.00	21,872.60	12,098.53	167.92	179.48	-122.23	-9,614.24	2,039.09	2,768.80	2,554.11	214.68	12.897 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 501H
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 501H	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		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
0.00	0.00	4.63	4.63	0.00	0.01	49.52	972.46	1,139.45	1,498.01							
100.00	100.00	107.41	107.41	0.13	0.14	49.52	972.50	1,139.28	1,497.91	1,497.72	0.19	7,935.926				
200.00	200.00	238.87	238.85	0.48	0.60	49.49	972.05	1,137.61	1,496.73	1,495.96	0.77	1,942.198				
300.00	300.00	344.90	344.84	0.84	0.98	49.44	971.13	1,134.81	1,494.16	1,492.87	1.29	1,156.924				
400.00	400.00	452.53	452.41	1.20	1.37	49.37	970.48	1,131.21	1,491.23	1,489.42	1.82	820.192				
500.00	500.00	557.11	556.91	1.56	1.75	49.30	969.48	1,127.29	1,487.76	1,485.42	2.34	636.609				
600.00	600.00	670.89	670.59	1.92	2.16	49.22	968.30	1,122.69	1,484.05	1,481.17	2.88	515.150				
700.00	700.00	722.00	721.63	2.28	2.35	49.18	967.63	1,120.19	1,480.35	1,477.09	3.26	454.034				
800.00	800.00	860.72	860.25	2.63	2.84	49.13	966.67	1,117.13	1,478.36	1,474.50	3.86	383.010				
900.00	900.00	969.60	969.02	2.99	3.24	49.03	965.65	1,112.18	1,474.31	1,469.92	4.39	335.798				
1,000.00	1,000.00	1,087.42	1,086.66	3.35	3.67	48.99	962.61	1,106.78	1,469.13	1,464.18	4.94	297.223				
1,100.00	1,100.00	1,177.44	1,176.56	3.71	4.00	48.94	960.31	1,102.55	1,463.90	1,458.47	5.42	269.898				
1,200.00	1,200.00	1,276.66	1,275.65	4.07	4.37	48.88	958.35	1,097.96	1,459.12	1,453.19	5.93	246.081				
1,300.00	1,300.00	1,448.60	1,447.12	4.43	4.79	48.75	952.99	1,086.71	1,452.40	1,445.94	6.45	225.106				
1,400.00	1,400.00	1,583.18	1,580.75	4.79	4.95	48.58	946.06	1,072.31	1,440.81	1,434.03	6.78	212.473				
1,500.00	1,500.00	1,660.14	1,657.16	5.14	5.03	48.50	941.57	1,064.43	1,429.29	1,422.21	7.08	201.960				
1,600.00	1,600.00	1,734.49	1,731.15	5.50	5.11	48.49	937.08	1,058.66	1,419.48	1,412.09	7.39	192.154				
1,700.00	1,700.00	1,804.65	1,801.08	5.86	5.19	48.52	932.82	1,054.96	1,411.53	1,403.82	7.71	183.149				
1,800.00	1,800.00	1,857.00	1,853.32	6.22	5.26	48.57	929.72	1,053.55	1,405.96	1,397.94	8.02	175.224				
1,900.00	1,900.00	1,931.62	1,927.81	6.58	5.35	48.71	925.51	1,053.93	1,402.81	1,394.45	8.36	167.814				
1,967.89	1,967.89	1,976.29	1,972.39	6.82	5.41	48.83	923.15	1,055.56	1,402.28	1,393.70	8.59	163.334	CC, ES			
2,000.00	2,000.00	1,998.71	1,994.76	6.94	5.44	48.89	922.02	1,056.65	1,402.40	1,393.70	8.69	161.304				
2,100.00	2,100.00	2,072.51	2,068.32	7.29	5.53	49.13	918.57	1,061.37	1,404.13	1,395.09	9.04	155.347				
2,200.00	2,199.99	2,157.76	2,153.28	7.65	5.65	83.26	915.39	1,067.71	1,407.17	1,397.77	9.40	149.678				
2,300.00	2,299.91	2,259.48	2,254.59	8.01	5.81	83.71	911.47	1,075.90	1,410.39	1,400.60	9.79	143.997				
2,400.00	2,399.69	2,365.73	2,360.29	8.36	6.01	84.36	905.82	1,085.02	1,412.93	1,402.72	10.21	138.408				
2,500.00	2,499.27	2,468.19	2,462.24	8.72	6.21	85.10	900.24	1,093.62	1,415.21	1,404.58	10.63	133.123				
2,600.00	2,598.57	2,581.51	2,574.98	9.08	6.46	86.06	893.24	1,102.74	1,416.85	1,405.77	11.08	127.822				
2,676.13	2,673.94	2,666.01	2,658.98	9.36	6.67	86.89	886.87	1,109.32	1,417.44	1,406.00	11.44	123.920				
2,700.00	2,697.55	2,691.67	2,684.48	9.45	6.73	87.16	884.79	1,111.29	1,417.57	1,406.02	11.55	122.740				
2,800.00	2,796.41	2,792.03	2,784.28	9.82	6.99	88.18	877.03	1,118.41	1,418.14	1,406.13	12.01	118.072				
2,900.00	2,895.28	2,884.17	2,876.08	10.20	7.24	89.05	871.32	1,124.00	1,419.20	1,406.73	12.47	113.848				
3,000.00	2,994.14	2,953.47	2,945.10	10.58	7.43	89.70	867.53	1,128.74	1,421.69	1,408.80	12.88	110.336				
3,100.00	3,093.01	3,020.87	3,012.08	10.96	7.62	90.38	863.63	1,135.26	1,426.66	1,413.36	13.30	107.247				
3,200.00	3,191.87	3,096.13	3,086.57	11.35	7.84	91.20	858.65	1,144.70	1,433.97	1,420.23	13.74	104.390				
3,300.00	3,290.74	3,243.07	3,232.04	11.74	8.30	92.82	847.35	1,162.00	1,440.72	1,426.37	14.35	100.405				
3,400.00	3,389.60	3,352.58	3,340.49	12.13	8.66	94.04	836.72	1,172.89	1,445.43	1,430.54	14.88	97.113				
3,500.00	3,488.46	3,446.95	3,433.88	12.52	8.98	95.11	827.03	1,182.37	1,450.56	1,435.17	15.39	94.250				
3,600.00	3,587.33	3,566.64	3,552.60	12.92	9.39	96.38	816.02	1,192.87	1,455.64	1,439.68	15.96	91.217				
3,700.00	3,686.19	3,691.57	3,676.83	13.32	9.82	97.61	805.60	1,200.85	1,459.53	1,442.99	16.53	88.279				
3,800.00	3,785.06	3,786.21	3,771.16	13.72	10.13	98.46	798.86	1,204.58	1,462.18	1,445.14	17.04	85.807				
3,900.00	3,883.92	3,856.33	3,841.09	14.12	10.37	99.05	795.27	1,208.07	1,466.85	1,449.35	17.49	83.855				
4,000.00	3,982.79	3,939.31	3,923.73	14.53	10.65	99.79	790.32	1,213.74	1,473.19	1,455.21	17.97	81.961				
4,100.00	4,081.65	4,045.05	4,028.76	14.93	11.03	100.84	781.45	1,222.21	1,480.05	1,461.53	18.52	79.913				
4,200.00	4,180.52	4,138.12	4,121.17	15.34	11.36	101.76	773.08	1,229.32	1,486.82	1,467.79	19.04	78.101				
4,300.00	4,279.38	4,212.00	4,194.60	15.74	11.63	102.45	768.13	1,235.75	1,495.62	1,476.12	19.50	76.702				
4,400.00	4,378.25	4,283.52	4,265.71	16.15	11.88	103.06	764.84	1,242.65	1,506.33	1,486.38	19.94	75.525				
4,500.00	4,477.11	4,369.01	4,350.73	16.56	12.17	103.75	761.90	1,251.10	1,518.10	1,497.68	20.43	74.321				
4,600.00	4,575.98	4,456.64	4,437.81	16.97	12.48	104.45	758.94	1,260.44	1,530.88	1,509.96	20.91	73.199				
4,700.00	4,674.84	4,581.01	4,561.19	17.38	12.94	105.54	751.82	1,274.30	1,543.84	1,522.32	21.52	71.736				
4,800.00	4,773.71	4,713.01	4,692.23	17.79	13.43	106.74	741.46	1,286.34	1,554.54	1,532.39	22.15	70.177				
4,900.00	4,872.57	4,823.65	4,802.37	18.21	13.84	107.65	734.49	1,294.21	1,564.17	1,541.46	22.71	68.864				

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 501H
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 501H	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				
5,000.00	4,971.43	4,934.85	4,913.13	18.62	14.24	108.54	727.43	1,301.23	1,573.37	1,550.09	23.28	67.598				
5,100.00	5,070.30	5,046.56	5,024.45	19.03	14.64	109.42	720.28	1,307.16	1,581.90	1,558.06	23.84	66.365				
5,200.00	5,169.16	5,143.33	5,120.95	19.45	14.99	110.15	714.78	1,311.66	1,590.25	1,565.89	24.36	65.290				
5,300.00	5,268.03	5,241.61	5,218.98	19.86	15.34	110.87	709.44	1,316.25	1,598.94	1,574.06	24.88	64.266				
5,400.00	5,366.89	5,332.77	5,309.89	20.28	15.67	111.54	704.39	1,320.65	1,608.02	1,582.63	25.38	63.345				
5,500.00	5,465.76	5,421.51	5,398.37	20.69	15.99	112.18	699.51	1,325.37	1,617.83	1,591.94	25.88	62.507				
5,600.00	5,564.62	5,494.47	5,471.06	21.11	16.26	112.71	695.29	1,329.95	1,628.79	1,602.46	26.33	61.852				
5,700.00	5,663.49	5,583.56	5,559.63	21.53	16.59	113.41	688.94	1,337.12	1,641.43	1,614.60	26.83	61.174				
5,800.00	5,762.35	5,695.59	5,671.00	21.94	17.02	114.30	680.04	1,345.52	1,653.75	1,626.34	27.40	60.347				
5,900.00	5,861.22	5,795.33	5,770.14	22.36	17.40	115.10	671.63	1,352.50	1,665.82	1,637.88	27.94	59.628				
6,000.00	5,960.08	5,890.28	5,864.56	22.78	17.76	115.82	664.09	1,359.09	1,678.21	1,649.75	28.45	58.981				
6,100.00	6,058.95	5,981.95	5,955.74	23.20	18.11	116.51	657.25	1,365.58	1,691.07	1,662.11	28.96	58.397				
6,200.00	6,157.81	6,075.17	6,048.45	23.62	18.47	117.18	650.44	1,372.44	1,704.49	1,675.02	29.47	57.845				
6,300.00	6,256.68	6,166.96	6,139.74	24.04	18.82	117.84	643.74	1,379.40	1,718.38	1,688.41	29.97	57.339				
6,400.00	6,355.54	6,276.41	6,248.58	24.46	19.24	118.62	635.75	1,387.62	1,732.48	1,701.95	30.53	56.749				
6,500.00	6,454.40	6,411.43	6,383.01	24.88	19.75	119.55	625.97	1,395.64	1,745.30	1,714.14	31.16	56.003				
6,600.00	6,553.27	6,547.05	6,518.33	25.30	20.24	120.37	618.65	1,400.53	1,756.17	1,724.39	31.78	55.252				
6,700.00	6,652.13	6,663.83	6,635.06	25.72	20.63	120.95	616.07	1,402.60	1,765.56	1,733.22	32.34	54.592				
6,800.00	6,751.00	6,762.47	6,733.69	26.14	20.96	121.38	615.57	1,403.82	1,774.62	1,741.78	32.85	54.026				
6,875.92	6,826.06	6,836.87	6,808.09	26.46	21.21	121.71	615.16	1,404.76	1,781.59	1,748.36	33.23	53.611				
6,900.00	6,849.87	6,860.64	6,831.85	26.56	21.29	121.83	615.04	1,405.07	1,783.78	1,750.42	33.35	53.481				
7,000.00	6,949.01	6,961.04	6,932.24	26.97	21.62	122.32	614.51	1,406.30	1,792.00	1,758.14	33.86	52.924				
7,100.00	7,048.45	7,066.52	7,037.71	27.36	21.97	122.72	613.88	1,407.54	1,798.85	1,764.47	34.37	52.336				
7,200.00	7,148.14	7,204.27	7,175.46	27.73	22.42	123.09	612.89	1,407.26	1,802.93	1,767.99	34.94	51.602				
7,300.00	7,248.00	7,318.23	7,289.40	28.09	22.77	123.30	611.91	1,405.26	1,804.04	1,768.61	35.44	50.908				
7,400.00	7,347.96	7,408.62	7,379.77	28.44	23.05	123.39	610.95	1,403.62	1,803.70	1,767.81	35.88	50.264				
7,452.05	7,400.00	7,454.52	7,425.66	28.61	23.19	89.54	610.43	1,403.01	1,803.19	1,767.08	36.11	49.932				
7,500.00	7,447.96	7,496.68	7,467.82	28.77	23.32	89.56	609.98	1,402.58	1,802.70	1,766.38	36.32	49.630				
7,600.00	7,547.96	7,592.20	7,563.33	29.09	23.62	89.57	609.48	1,401.93	1,802.02	1,765.25	36.77	49.006				
7,700.00	7,647.96	7,684.30	7,655.43	29.42	23.90	89.56	609.70	1,401.56	1,801.61	1,764.40	37.21	48.418				
7,800.00	7,747.96	7,782.28	7,753.41	29.75	24.21	89.56	609.70	1,401.49	1,801.54	1,763.87	37.66	47.831				
7,839.28	7,787.24	7,820.61	7,791.74	29.88	24.33	89.56	609.68	1,401.47	1,801.52	1,763.68	37.84	47.603				
7,900.00	7,847.96	7,879.09	7,850.22	30.08	24.52	89.56	609.68	1,401.51	1,801.56	1,763.44	38.12	47.257				
8,000.00	7,947.96	7,974.41	7,945.54	30.41	24.83	89.57	609.58	1,401.75	1,801.81	1,763.23	38.58	46.700				
8,100.00	8,047.96	8,093.65	8,064.77	30.74	25.22	89.57	609.39	1,401.61	1,801.70	1,762.61	39.09	46.089				
8,200.00	8,147.96	8,197.66	8,168.79	31.07	25.54	89.55	610.03	1,400.64	1,800.77	1,761.21	39.56	45.522				
8,300.00	8,247.96	8,285.17	8,256.29	31.40	25.81	89.53	610.65	1,400.17	1,800.24	1,760.25	39.99	45.016				
8,350.69	8,298.64	8,332.02	8,303.14	31.57	25.95	89.53	610.86	1,400.12	1,800.18	1,759.97	40.22	44.762				
8,400.00	8,347.96	8,379.03	8,350.15	31.74	26.10	89.52	610.96	1,400.16	1,800.23	1,759.79	40.44	44.515				
8,500.00	8,447.96	8,473.32	8,444.44	32.07	26.42	89.52	611.00	1,400.28	1,800.36	1,759.46	40.90	44.018				
8,600.00	8,547.96	8,552.00	8,523.11	32.40	26.68	89.53	610.68	1,401.35	1,801.65	1,760.33	41.32	43.598				
8,700.00	8,647.96	8,673.10	8,644.19	32.74	27.09	89.55	610.15	1,402.94	1,803.01	1,761.16	41.85	43.079				
8,800.00	8,747.96	8,785.51	8,756.61	33.07	27.46	89.55	610.31	1,402.88	1,802.94	1,760.59	42.35	42.570				
8,900.00	8,847.96	8,882.05	8,853.14	33.41	27.77	89.55	610.01	1,402.73	1,802.79	1,759.97	42.82	42.104				
8,914.29	8,862.24	8,895.65	8,866.74	33.46	27.82	89.56	609.89	1,402.73	1,802.79	1,759.90	42.88	42.039				
9,000.00	8,947.96	8,979.06	8,950.14	33.74	28.10	89.59	608.80	1,402.81	1,802.86	1,759.57	43.29	41.646				
9,100.00	9,047.96	9,115.00	9,086.07	34.08	28.56	89.65	607.15	1,402.10	1,802.45	1,758.61	43.84	41.110				
9,200.00	9,147.96	9,219.57	9,190.61	34.42	28.89	89.65	606.93	1,399.98	1,800.42	1,756.10	44.32	40.622				
9,300.00	9,247.96	9,315.80	9,286.82	34.75	29.20	89.68	606.06	1,398.05	1,798.41	1,753.62	44.79	40.155				
9,400.00	9,347.96	9,413.83	9,384.83	35.09	29.52	89.71	605.10	1,396.25	1,796.56	1,751.31	45.26	39.698				
9,500.00	9,447.96	9,515.57	9,486.55	35.43	29.85	89.75	603.85	1,394.37	1,794.71	1,748.98	45.73	39.242				
9,600.00	9,547.96	9,618.16	9,589.09	35.77	30.19	89.81	601.79	1,392.38	1,792.76	1,746.54	46.22	38.790				

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1431-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,700.00	9,647.96	9,714.79	9,685.70	36.11	30.50	89.83	601.37	1,390.35	1,790.67	1,743.98	46.68	38.357		
9,800.00	9,747.96	9,802.88	9,773.78	36.44	30.78	89.81	602.07	1,389.11	1,789.24	1,742.11	47.13	37.964		
9,900.00	9,847.96	9,899.70	9,870.59	36.78	31.09	89.77	603.08	1,387.93	1,788.03	1,740.44	47.59	37.569		
10,000.00	9,947.96	9,988.86	9,959.74	37.12	31.37	89.76	603.62	1,387.37	1,787.40	1,739.36	48.04	37.206		
10,098.09	10,046.04	10,089.62	10,060.51	37.46	31.70	89.75	603.68	1,386.91	1,786.96	1,738.45	48.51	36.836		
10,100.00	10,047.96	10,091.66	10,062.55	37.46	31.70	-89.69	603.67	1,386.90	1,786.95	1,738.43	48.52	36.828		
10,150.00	10,097.88	10,144.84	10,115.72	37.61	31.88	-89.79	603.23	1,386.56	1,786.61	1,737.86	48.75	36.647		
10,200.00	10,147.42	10,192.46	10,163.33	37.74	32.04	-90.01	602.54	1,386.22	1,786.24	1,737.27	48.96	36.480		
10,250.00	10,196.18	10,238.51	10,209.37	37.86	32.20	-90.33	601.72	1,385.97	1,785.98	1,736.82	49.17	36.326		
10,278.37	10,223.37	10,262.20	10,233.06	37.92	32.28	-90.54	601.25	1,385.88	1,785.93	1,736.66	49.27	36.248		
10,300.00	10,243.80	10,279.11	10,249.97	37.96	32.34	-90.70	600.95	1,385.85	1,785.96	1,736.62	49.35	36.192		
10,350.00	10,289.92	10,317.24	10,288.09	38.05	32.47	-91.12	600.38	1,385.92	1,786.37	1,736.86	49.51	36.079		
10,400.00	10,334.18	10,356.20	10,327.05	38.12	32.61	-91.59	599.96	1,386.15	1,787.30	1,737.63	49.67	35.981		
10,450.00	10,376.24	10,397.97	10,368.82	38.17	32.75	-92.16	599.69	1,386.44	1,788.75	1,738.91	49.83	35.895		
10,500.00	10,415.80	10,437.19	10,408.03	38.21	32.89	-92.72	599.60	1,386.71	1,790.83	1,740.85	49.98	35.831		
10,550.00	10,452.53	10,478.59	10,449.44	38.24	33.02	-93.33	599.64	1,386.94	1,793.65	1,743.53	50.12	35.784		
10,600.00	10,486.18	10,516.31	10,487.16	38.26	33.15	-93.86	599.77	1,387.04	1,797.33	1,747.08	50.25	35.765 SF		
10,650.00	10,516.48	10,548.86	10,519.71	38.26	33.26	-94.21	599.95	1,387.06	1,802.06	1,751.70	50.37	35.778		
10,700.00	10,543.19	10,576.59	10,547.43	38.26	33.35	-94.36	600.14	1,387.04	1,808.01	1,757.54	50.47	35.827		
10,750.00	10,566.12	10,600.22	10,571.07	38.25	33.42	-94.30	600.32	1,387.01	1,815.29	1,764.74	50.55	35.911		
10,800.00	10,585.10	10,619.61	10,590.45	38.23	33.49	-93.99	600.50	1,386.97	1,823.99	1,773.37	50.62	36.031		
10,850.00	10,599.97	10,634.88	10,605.72	38.21	33.53	-93.43	600.65	1,386.92	1,834.16	1,783.47	50.68	36.189		
10,900.00	10,610.62	10,645.67	10,616.52	38.19	33.57	-92.57	600.76	1,386.89	1,845.78	1,795.05	50.73	36.384		
10,950.00	10,616.98	10,651.83	10,622.67	38.17	33.59	-91.41	600.83	1,386.86	1,858.82	1,808.06	50.76	36.616		
10,998.09	10,619.00	10,653.37	10,624.21	38.16	33.59	-90.02	600.85	1,386.85	1,872.63	1,821.84	50.79	36.873		
11,000.00	10,619.00	10,653.34	10,624.19	38.16	33.59	-90.02	600.85	1,386.85	1,873.20	1,822.42	50.79	36.884		
11,100.00	10,619.00	10,652.12	10,622.96	38.19	33.59	-89.98	600.84	1,386.86	1,905.61	1,854.78	50.83	37.489		
11,200.00	10,619.00	10,650.91	10,621.75	38.36	33.59	-89.94	600.82	1,386.86	1,942.63	1,891.73	50.90	38.165		
11,300.00	10,619.00	10,649.72	10,620.56	38.64	33.58	-89.91	600.81	1,386.87	1,984.00	1,933.01	50.99	38.908		
11,400.00	10,619.00	10,648.55	10,619.39	38.99	33.58	-89.87	600.79	1,386.87	2,029.46	1,978.36	51.10	39.716		
11,500.00	10,619.00	10,647.39	10,618.23	39.41	33.57	-89.83	600.78	1,386.88	2,078.74	2,027.52	51.22	40.583		
11,600.00	10,619.00	10,646.26	10,617.10	39.89	33.57	-89.79	600.77	1,386.88	2,131.57	2,080.22	51.35	41.508		
11,700.00	10,619.00	10,645.14	10,615.98	40.43	33.57	-89.76	600.76	1,386.89	2,187.70	2,136.21	51.49	42.486		
11,800.00	10,619.00	10,644.03	10,614.88	41.03	33.56	-89.72	600.74	1,386.89	2,246.88	2,195.25	51.63	43.515		
11,900.00	10,619.00	10,642.95	10,613.79	41.68	33.56	-89.69	600.73	1,386.90	2,308.88	2,257.10	51.78	44.590		
12,000.00	10,619.00	10,641.88	10,612.72	42.38	33.56	-89.65	600.72	1,386.90	2,373.47	2,321.54	51.93	45.708		
12,100.00	10,619.00	10,640.82	10,611.66	43.14	33.55	-89.62	600.71	1,386.90	2,440.45	2,388.37	52.07	46.867		
12,200.00	10,619.00	10,639.78	10,610.62	43.94	33.55	-89.59	600.70	1,386.91	2,509.62	2,457.41	52.22	48.063		
12,300.00	10,619.00	10,638.75	10,609.60	44.79	33.55	-89.55	600.69	1,386.91	2,580.82	2,528.47	52.35	49.295		
12,400.00	10,619.00	10,637.74	10,608.58	45.68	33.54	-89.52	600.68	1,386.91	2,653.88	2,601.39	52.49	50.560		
12,500.00	10,619.00	10,636.74	10,607.59	46.62	33.54	-89.49	600.67	1,386.92	2,728.64	2,676.02	52.62	51.854		
12,600.00	10,619.00	10,635.76	10,606.60	47.59	33.54	-89.46	600.66	1,386.92	2,804.98	2,752.23	52.75	53.175		
12,700.00	10,619.00	10,634.79	10,605.64	48.59	33.53	-89.43	600.65	1,386.92	2,882.76	2,829.89	52.87	54.521		
12,800.00	10,619.00	10,633.84	10,604.68	49.64	33.53	-89.40	600.64	1,386.93	2,961.88	2,908.89	52.99	55.891		
12,900.00	10,619.00	10,632.89	10,603.74	50.71	33.53	-89.37	600.63	1,386.93	3,042.23	2,989.12	53.11	57.282		
13,000.00	10,619.00	10,631.96	10,602.81	51.81	33.53	-89.34	600.62	1,386.93	3,123.71	3,070.49	53.22	58.694		
13,100.00	10,619.00	10,631.05	10,601.89	52.95	33.52	-89.31	600.61	1,386.93	3,206.24	3,152.91	53.33	60.125		
13,200.00	10,619.00	10,630.14	10,600.98	54.11	33.52	-89.28	600.60	1,386.94	3,289.74	3,236.31	53.43	61.572		
13,300.00	10,619.00	10,625.00	10,595.84	55.29	33.50	-89.11	600.55	1,386.95	3,374.14	3,320.62	53.52	63.042		
13,400.00	10,619.00	10,625.00	10,595.84	56.50	33.50	-89.11	600.55	1,386.95	3,459.37	3,405.75	53.62	64.518		
13,500.00	10,619.00	10,625.00	10,595.84	57.72	33.50	-89.11	600.55	1,386.95	3,545.36	3,491.65	53.71	66.006		
13,600.00	10,619.00	10,625.00	10,595.84	58.97	33.50	-89.11	600.55	1,386.95	3,632.08	3,578.28	53.80	67.507		

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 501H
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 501H	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						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	
13,700.00	10,619.00	10,625.00	10,595.84	60.24	33.50	-89.11	600.55	1,386.95	3,719.46	3,665.57	53.89	69.019	
13,800.00	10,619.00	10,625.00	10,595.84	61.53	33.50	-89.11	600.55	1,386.95	3,807.47	3,753.49	53.98	70.541	
13,900.00	10,619.00	10,625.00	10,595.84	62.83	33.50	-89.11	600.55	1,386.95	3,896.05	3,841.99	54.06	72.073	
14,000.00	10,619.00	10,625.00	10,595.84	64.15	33.50	-89.11	600.55	1,386.95	3,985.17	3,931.03	54.14	73.613	
14,100.00	10,619.00	10,625.00	10,595.84	65.49	33.50	-89.11	600.55	1,386.95	4,074.80	4,020.59	54.21	75.160	
14,200.00	10,619.00	10,625.00	10,595.84	66.83	33.50	-89.11	600.55	1,386.95	4,164.90	4,110.61	54.29	76.715	
14,300.00	10,619.00	10,625.00	10,595.84	68.20	33.50	-89.11	600.55	1,386.95	4,255.44	4,201.08	54.36	78.277	
14,400.00	10,619.00	10,619.80	10,590.65	69.57	33.49	-88.95	600.50	1,386.97	4,346.40	4,291.97	54.43	79.854	
14,500.00	10,619.00	10,618.97	10,589.81	70.96	33.48	-88.92	600.49	1,386.97	4,437.74	4,383.24	54.50	81.428	
14,600.00	10,619.00	10,618.14	10,588.98	72.35	33.48	-88.89	600.48	1,386.97	4,529.45	4,474.88	54.57	83.007	
14,700.00	10,619.00	10,617.32	10,588.16	73.76	33.48	-88.87	600.48	1,386.97	4,621.51	4,566.87	54.63	84.591	
14,800.00	10,619.00	10,616.51	10,587.35	75.18	33.48	-88.84	600.47	1,386.97	4,713.88	4,659.18	54.70	86.178	
14,900.00	10,619.00	10,615.70	10,586.54	76.61	33.47	-88.82	600.46	1,386.98	4,806.57	4,751.80	54.76	87.769	
15,000.00	10,619.00	10,614.90	10,585.74	78.04	33.47	-88.79	600.45	1,386.98	4,899.54	4,844.71	54.83	89.364	
15,100.00	10,619.00	10,614.10	10,584.94	79.49	33.47	-88.76	600.45	1,386.98	4,992.78	4,937.89	54.89	90.961	

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 501H
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 501H	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		
0.00	0.00	4.63	4.63	0.00	0.01	49.52	972.46	1,139.45	1,498.01					
100.00	100.00	107.41	107.41	0.13	0.14	49.52	972.50	1,139.28	1,497.91	1,497.72	0.19	7,935.926		
200.00	200.00	238.87	238.85	0.48	0.60	49.49	972.05	1,137.61	1,496.73	1,495.96	0.77	1,942.198		
300.00	300.00	344.90	344.84	0.84	0.98	49.44	971.13	1,134.81	1,494.16	1,492.87	1.29	1,156.924		
400.00	400.00	452.53	452.41	1.20	1.37	49.37	970.48	1,131.21	1,491.23	1,489.42	1.82	820.192		
500.00	500.00	557.11	556.91	1.56	1.75	49.30	969.48	1,127.29	1,487.76	1,485.42	2.34	636.609		
600.00	600.00	670.89	670.59	1.92	2.16	49.22	968.30	1,122.69	1,484.05	1,481.17	2.88	515.150		
700.00	700.00	722.00	721.63	2.28	2.35	49.18	967.63	1,120.19	1,480.35	1,477.09	3.26	454.034		
800.00	800.00	860.72	860.25	2.63	2.84	49.13	966.67	1,117.13	1,478.36	1,474.50	3.86	383.010		
900.00	900.00	969.60	969.02	2.99	3.24	49.03	965.65	1,112.18	1,474.31	1,469.92	4.39	335.798		
1,000.00	1,000.00	1,087.42	1,086.66	3.35	3.67	48.99	962.61	1,106.78	1,469.13	1,464.18	4.94	297.223		
1,100.00	1,100.00	1,177.44	1,176.56	3.71	4.00	48.94	960.31	1,102.55	1,463.90	1,458.47	5.42	269.898		
1,200.00	1,200.00	1,276.66	1,275.65	4.07	4.37	48.88	958.35	1,097.96	1,459.12	1,453.19	5.93	246.081		
1,300.00	1,300.00	1,442.08	1,440.65	4.43	4.72	48.75	953.55	1,087.39	1,452.66	1,446.25	6.40	226.838		
1,400.00	1,400.00	1,583.20	1,580.78	4.79	4.82	48.57	946.40	1,072.42	1,441.13	1,434.44	6.69	215.551		
1,500.00	1,500.00	1,660.15	1,657.19	5.14	4.91	48.50	941.92	1,064.54	1,429.61	1,422.61	6.99	204.466		
1,600.00	1,600.00	1,734.50	1,731.18	5.50	5.00	48.48	937.43	1,058.78	1,419.80	1,412.49	7.31	194.192		
1,700.00	1,700.00	1,804.65	1,801.11	5.86	5.09	48.51	933.17	1,055.07	1,411.85	1,404.21	7.64	184.813		
1,800.00	1,800.00	1,857.00	1,853.34	6.22	5.16	48.57	930.07	1,053.67	1,406.28	1,398.32	7.96	176.617		
1,900.00	1,900.00	1,931.61	1,927.83	6.58	5.27	48.70	925.86	1,054.04	1,403.13	1,394.82	8.31	168.948		
1,967.94	1,967.94	1,976.32	1,972.44	6.82	5.33	48.82	923.50	1,055.67	1,402.60	1,394.06	8.54	164.325 CC, ES		
2,000.00	2,000.00	1,998.70	1,994.77	6.94	5.36	48.88	922.37	1,056.76	1,402.71	1,394.07	8.65	162.237		
2,100.00	2,100.00	2,072.50	2,068.33	7.29	5.46	49.12	918.92	1,061.48	1,404.44	1,395.45	9.00	156.107		
2,200.00	2,199.99	2,157.74	2,153.28	7.65	5.59	83.25	915.74	1,067.82	1,407.48	1,398.12	9.37	150.282		
2,300.00	2,299.91	2,259.46	2,254.60	8.01	5.76	83.70	911.82	1,076.01	1,410.70	1,400.94	9.77	144.456		
2,400.00	2,399.69	2,365.71	2,360.30	8.36	5.97	84.36	906.17	1,085.14	1,413.24	1,403.05	10.19	138.743		
2,500.00	2,499.27	2,468.17	2,462.25	8.72	6.18	85.09	900.59	1,093.73	1,415.51	1,404.90	10.61	133.359		
2,600.00	2,598.57	2,581.50	2,574.99	9.08	6.45	86.05	893.59	1,102.86	1,417.16	1,406.08	11.07	127.971		
2,676.13	2,673.94	2,666.01	2,659.00	9.36	6.66	86.88	887.22	1,109.43	1,417.74	1,406.31	11.43	124.015		
2,700.00	2,697.55	2,691.67	2,684.50	9.45	6.72	87.15	885.14	1,111.40	1,417.87	1,406.32	11.54	122.820		
2,800.00	2,796.41	2,792.02	2,784.30	9.82	6.99	88.17	877.38	1,118.52	1,418.44	1,406.43	12.01	118.102		
2,900.00	2,895.28	2,884.17	2,876.09	10.20	7.25	89.04	871.67	1,124.11	1,419.49	1,407.02	12.47	113.841		
3,000.00	2,994.14	2,953.46	2,945.12	10.58	7.44	89.69	867.88	1,128.85	1,421.97	1,409.08	12.89	110.309		
3,100.00	3,093.01	3,020.86	3,012.09	10.96	7.64	90.37	863.98	1,135.38	1,426.94	1,413.63	13.31	107.204		
3,200.00	3,191.87	3,096.11	3,086.57	11.35	7.86	91.19	859.00	1,144.81	1,434.25	1,420.50	13.75	104.331		
3,300.00	3,290.74	3,243.06	3,232.06	11.74	8.33	92.81	847.70	1,162.12	1,441.00	1,426.63	14.36	100.317		
3,400.00	3,389.60	3,352.58	3,340.51	12.13	8.69	94.03	837.07	1,173.00	1,445.70	1,430.80	14.90	97.010		
3,500.00	3,488.46	3,446.95	3,433.91	12.52	9.02	95.10	827.38	1,182.49	1,450.83	1,435.41	15.41	94.138		
3,600.00	3,587.33	3,566.64	3,552.62	12.92	9.43	96.37	816.37	1,192.98	1,455.90	1,439.92	15.98	91.095		
3,700.00	3,686.19	3,691.57	3,676.85	13.32	9.86	97.60	805.95	1,200.96	1,459.78	1,443.22	16.56	88.148		
3,800.00	3,785.06	3,786.21	3,771.17	13.72	10.18	98.45	799.21	1,204.70	1,462.43	1,445.36	17.07	85.673		
3,900.00	3,883.92	3,856.32	3,841.10	14.12	10.42	99.04	795.62	1,208.18	1,467.09	1,449.57	17.52	83.722		
4,000.00	3,982.79	3,939.30	3,923.75	14.53	10.70	99.78	790.67	1,213.85	1,473.43	1,455.42	18.01	81.828		
4,100.00	4,081.65	4,045.06	4,028.78	14.93	11.08	100.83	781.80	1,222.32	1,480.29	1,461.74	18.55	79.779		
4,200.00	4,180.52	4,138.11	4,121.19	15.34	11.42	101.75	773.43	1,229.44	1,487.06	1,467.98	19.07	77.967		
4,300.00	4,279.38	4,212.00	4,194.62	15.74	11.69	102.44	768.48	1,235.87	1,495.85	1,476.32	19.54	76.570		
4,400.00	4,378.25	4,283.50	4,265.71	16.15	11.94	103.05	765.19	1,242.76	1,506.55	1,486.57	19.98	75.394		
4,500.00	4,477.11	4,368.99	4,350.73	16.56	12.24	103.73	762.25	1,251.22	1,518.32	1,497.86	20.46	74.192		
4,600.00	4,575.98	4,456.62	4,437.82	16.97	12.55	104.44	759.29	1,260.55	1,531.09	1,510.14	20.95	73.070		
4,700.00	4,674.84	4,581.00	4,561.21	17.38	13.01	105.53	752.17	1,274.41	1,544.05	1,522.49	21.56	71.607		
4,800.00	4,773.71	4,713.00	4,692.25	17.79	13.50	106.73	741.82	1,286.45	1,554.74	1,532.55	22.20	70.048		
4,900.00	4,872.57	4,823.64	4,802.38	18.21	13.91	107.64	734.84	1,294.32	1,564.37	1,541.62	22.76	68.736		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 112-OWSG (Rev2) MWD, 1409-OWSG (Rev2) MWD, 11286-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,971.43	4,934.85	4,913.14	18.62	14.32	108.53	727.78	1,301.35	1,573.57	1,550.25	23.32	67.472		
5,100.00	5,070.30	5,046.56	5,024.46	19.03	14.72	109.41	720.63	1,307.28	1,582.09	1,558.21	23.88	66.240		
5,200.00	5,169.16	5,143.32	5,120.96	19.45	15.07	110.14	715.13	1,311.77	1,590.44	1,566.03	24.41	65.167		
5,300.00	5,268.03	5,241.61	5,219.00	19.86	15.42	110.86	709.79	1,316.36	1,599.13	1,574.20	24.93	64.144		
5,400.00	5,366.89	5,332.76	5,309.90	20.28	15.75	111.52	704.74	1,320.76	1,608.20	1,582.77	25.44	63.226		
5,500.00	5,465.76	5,421.50	5,398.39	20.69	16.07	112.17	699.86	1,325.48	1,618.00	1,592.07	25.93	62.389		
5,600.00	5,564.62	5,494.46	5,471.08	21.11	16.34	112.70	695.64	1,330.06	1,628.97	1,602.58	26.39	61.736		
5,700.00	5,663.49	5,583.55	5,559.65	21.53	16.68	113.40	689.29	1,337.23	1,641.60	1,614.72	26.88	61.060		
5,800.00	5,762.35	5,695.59	5,671.02	21.94	17.11	114.29	680.39	1,345.64	1,653.91	1,626.45	27.46	60.235		
5,900.00	5,861.22	5,795.33	5,770.16	22.36	17.49	115.08	671.98	1,352.61	1,665.98	1,637.99	27.99	59.518		
6,000.00	5,960.08	5,890.28	5,864.58	22.78	17.85	115.81	664.44	1,359.20	1,678.36	1,649.85	28.51	58.872		
6,100.00	6,058.95	5,981.95	5,955.76	23.20	18.20	116.49	657.60	1,365.69	1,691.22	1,662.21	29.01	58.290		
6,200.00	6,157.81	6,075.16	6,048.47	23.62	18.56	117.17	650.79	1,372.55	1,704.64	1,675.11	29.52	57.739		
6,300.00	6,256.68	6,166.96	6,139.76	24.04	18.91	117.83	644.09	1,379.51	1,718.52	1,688.50	30.03	57.234		
6,400.00	6,355.54	6,276.40	6,248.60	24.46	19.33	118.61	636.10	1,387.73	1,732.62	1,702.03	30.59	56.645		
6,500.00	6,454.40	6,411.43	6,383.03	24.88	19.84	119.53	626.32	1,395.75	1,745.44	1,714.21	31.22	55.901		
6,600.00	6,553.27	6,547.03	6,518.34	25.30	20.33	120.36	619.00	1,400.65	1,756.31	1,724.46	31.85	55.151		
6,700.00	6,652.13	6,663.81	6,635.06	25.72	20.73	120.94	616.42	1,402.71	1,765.69	1,733.28	32.40	54.492		
6,800.00	6,751.00	6,762.45	6,733.69	26.14	21.06	121.37	615.92	1,403.94	1,774.75	1,741.84	32.91	53.927		
6,875.92	6,826.06	6,836.85	6,808.09	26.46	21.31	121.70	615.51	1,404.88	1,781.72	1,748.42	33.29	53.514		
6,900.00	6,849.87	6,860.62	6,831.85	26.56	21.39	121.82	615.39	1,405.18	1,783.90	1,750.49	33.42	53.384		
7,000.00	6,949.01	6,961.02	6,932.24	26.97	21.72	122.30	614.86	1,406.42	1,792.13	1,758.20	33.92	52.829		
7,100.00	7,048.45	7,066.49	7,037.71	27.36	22.07	122.71	614.23	1,407.66	1,798.96	1,764.53	34.44	52.242		
7,200.00	7,148.14	7,204.25	7,175.46	27.73	22.52	123.08	613.24	1,407.37	1,803.05	1,768.04	35.00	51.509		
7,300.00	7,248.00	7,318.21	7,289.40	28.09	22.87	123.29	612.26	1,405.37	1,804.16	1,768.66	35.50	50.816		
7,400.00	7,347.96	7,408.61	7,379.78	28.44	23.15	123.38	611.30	1,403.74	1,803.81	1,767.86	35.95	50.174		
7,452.05	7,400.00	7,454.51	7,425.67	28.61	23.30	89.53	610.78	1,403.12	1,803.31	1,767.13	36.18	49.842		
7,500.00	7,447.96	7,496.67	7,467.82	28.77	23.43	89.54	610.33	1,402.70	1,802.82	1,766.43	36.39	49.541		
7,600.00	7,547.96	7,592.18	7,563.33	29.09	23.73	89.56	609.83	1,402.05	1,802.13	1,765.29	36.84	48.918		
7,700.00	7,647.96	7,684.28	7,655.44	29.42	24.01	89.55	610.05	1,401.67	1,801.73	1,764.45	37.28	48.332		
7,800.00	7,747.96	7,782.26	7,753.41	29.75	24.32	89.55	610.04	1,401.60	1,801.65	1,763.92	37.73	47.746		
7,839.30	7,787.26	7,820.60	7,791.76	29.88	24.44	89.55	610.03	1,401.59	1,801.64	1,763.73	37.91	47.519		
7,900.00	7,847.96	7,879.07	7,850.22	30.08	24.63	89.55	610.03	1,401.62	1,801.68	1,763.49	38.19	47.174		
8,000.00	7,947.96	7,974.39	7,945.54	30.41	24.94	89.56	609.93	1,401.86	1,801.93	1,763.28	38.65	46.618		
8,100.00	8,047.96	8,093.62	8,064.77	30.74	25.33	89.56	609.74	1,401.72	1,801.82	1,762.65	39.16	46.008		
8,200.00	8,147.96	8,197.64	8,168.79	31.07	25.65	89.54	610.37	1,400.76	1,800.89	1,761.26	39.63	45.443		
8,300.00	8,247.96	8,285.15	8,256.29	31.40	25.92	89.52	611.00	1,400.29	1,800.35	1,760.29	40.06	44.938		
8,350.65	8,298.60	8,331.97	8,303.11	31.57	26.07	89.52	611.21	1,400.23	1,800.30	1,760.01	40.29	44.684		
8,400.00	8,347.96	8,379.01	8,350.14	31.74	26.22	89.51	611.31	1,400.28	1,800.34	1,759.83	40.51	44.438		
8,500.00	8,447.96	8,473.30	8,444.44	32.07	26.53	89.51	611.35	1,400.40	1,800.48	1,759.50	40.97	43.943		
8,600.00	8,547.96	8,552.00	8,523.13	32.40	26.80	89.52	611.03	1,401.46	1,801.77	1,760.37	41.40	43.523		
8,700.00	8,647.96	8,673.07	8,644.19	32.74	27.21	89.54	610.50	1,403.05	1,803.13	1,761.20	41.93	43.005		
8,800.00	8,747.96	8,785.49	8,756.61	33.07	27.57	89.53	610.66	1,402.99	1,803.06	1,760.63	42.43	42.498		
8,900.00	8,847.96	8,882.03	8,853.14	33.41	27.89	89.54	610.36	1,402.85	1,802.91	1,760.01	42.89	42.034		
8,914.37	8,862.33	8,895.71	8,866.83	33.46	27.94	89.55	610.24	1,402.85	1,802.90	1,759.94	42.96	41.968		
9,000.00	8,947.96	8,979.04	8,950.15	33.74	28.22	89.58	609.15	1,402.92	1,802.97	1,759.61	43.37	41.577		
9,100.00	9,047.96	9,114.97	9,086.06	34.08	28.67	89.63	607.50	1,402.22	1,802.57	1,758.64	43.92	41.041		
9,200.00	9,147.96	9,219.55	9,190.62	34.42	29.01	89.64	607.28	1,400.09	1,800.53	1,756.14	44.40	40.554		
9,300.00	9,247.96	9,315.78	9,286.83	34.75	29.32	89.67	606.41	1,398.16	1,798.52	1,753.66	44.86	40.089		
9,400.00	9,347.96	9,413.81	9,384.83	35.09	29.64	89.70	605.45	1,396.36	1,796.68	1,751.35	45.33	39.632		
9,500.00	9,447.96	9,515.56	9,486.56	35.43	29.97	89.74	604.20	1,394.49	1,794.83	1,749.01	45.81	39.177		
9,600.00	9,547.96	9,618.14	9,589.10	35.77	30.31	89.80	602.14	1,392.49	1,792.87	1,746.58	46.30	38.727		

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 501H
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 501H	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		
9,700.00	9,647.96	9,714.77	9,685.71	36.11	30.62	89.82	601.72	1,390.46	1,790.78	1,744.02	46.76	38.295		
9,800.00	9,747.96	9,802.85	9,773.77	36.44	30.90	89.79	602.42	1,389.22	1,789.36	1,742.15	47.21	37.903		
9,900.00	9,847.96	9,899.68	9,870.59	36.78	31.21	89.76	603.43	1,388.04	1,788.15	1,740.48	47.67	37.509		
10,000.00	9,947.96	9,988.84	9,959.74	37.12	31.49	89.74	603.97	1,387.48	1,787.52	1,739.40	48.12	37.177		
10,098.09	10,046.04	10,089.60	10,060.51	37.46	31.82	89.74	604.03	1,387.03	1,787.07	1,738.48	48.59	36.747		
10,100.00	10,047.96	10,091.64	10,062.55	37.46	31.83	-89.70	604.02	1,387.02	1,787.06	1,738.46	48.60	36.770		
10,150.00	10,097.88	10,144.83	10,115.73	37.61	32.00	-89.80	603.58	1,386.67	1,786.72	1,737.89	48.83	36.589		
10,200.00	10,147.42	10,192.44	10,163.34	37.74	32.17	-90.02	602.89	1,386.33	1,786.35	1,737.31	49.05	36.422		
10,250.00	10,196.18	10,238.49	10,209.38	37.86	32.32	-90.34	602.07	1,386.08	1,786.10	1,736.85	49.25	36.268		
10,278.00	10,223.01	10,261.89	10,232.78	37.92	32.41	-90.55	601.60	1,385.99	1,786.05	1,736.70	49.35	36.192		
10,300.00	10,243.80	10,279.10	10,249.98	37.96	32.46	-90.71	601.30	1,385.97	1,786.08	1,736.66	49.43	36.135		
10,350.00	10,289.92	10,317.23	10,288.10	38.05	32.60	-91.13	600.73	1,386.03	1,786.49	1,736.90	49.59	36.022		
10,400.00	10,334.18	10,356.18	10,327.05	38.12	32.73	-91.60	600.31	1,386.26	1,787.43	1,737.67	49.75	35.925		
10,450.00	10,376.24	10,397.95	10,368.82	38.17	32.88	-92.17	600.04	1,386.55	1,788.88	1,738.97	49.91	35.839		
10,500.00	10,415.80	10,437.16	10,408.03	38.21	33.01	-92.73	599.95	1,386.83	1,790.97	1,740.91	50.06	35.775		
10,550.00	10,452.53	10,478.57	10,449.44	38.24	33.15	-93.34	599.99	1,387.05	1,793.80	1,743.59	50.21	35.729		
10,600.00	10,486.18	10,516.29	10,487.16	38.26	33.28	-93.87	600.12	1,387.16	1,797.49	1,747.15	50.34	35.709		
10,650.00	10,516.48	10,548.84	10,519.71	38.26	33.38	-94.22	600.30	1,387.17	1,802.22	1,751.77	50.45	35.723		
10,700.00	10,543.19	10,576.56	10,547.43	38.26	33.47	-94.37	600.49	1,387.16	1,808.18	1,757.63	50.55	35.772		
10,750.00	10,566.12	10,600.20	10,571.06	38.25	33.55	-94.31	600.67	1,387.12	1,815.47	1,764.84	50.63	35.855		
10,800.00	10,585.10	10,619.58	10,590.45	38.23	33.61	-94.00	600.85	1,387.08	1,824.18	1,773.47	50.71	35.976		
10,850.00	10,599.97	10,634.85	10,605.71	38.21	33.66	-93.43	601.00	1,387.04	1,834.35	1,783.58	50.77	36.133		
10,900.00	10,610.62	10,645.65	10,616.51	38.19	33.69	-92.57	601.11	1,387.00	1,845.98	1,795.17	50.81	36.328		
10,950.00	10,616.98	10,651.80	10,622.66	38.17	33.71	-91.42	601.18	1,386.97	1,859.03	1,808.18	50.85	36.561		
10,998.09	10,619.00	10,653.34	10,624.20	38.16	33.72	-90.02	601.20	1,386.97	1,872.84	1,821.98	50.87	36.818		
11,000.00	10,619.00	10,653.32	10,624.18	38.16	33.72	-90.02	601.20	1,386.97	1,873.42	1,822.55	50.87	36.828		
11,100.00	10,619.00	10,652.09	10,622.95	38.19	33.72	-89.98	601.18	1,386.97	1,905.84	1,854.93	50.91	37.433		
11,200.00	10,619.00	10,650.88	10,621.75	38.36	33.71	-89.94	601.17	1,386.98	1,942.87	1,891.89	50.98	38.108		
11,300.00	10,619.00	10,649.69	10,620.56	38.64	33.71	-89.91	601.16	1,386.98	1,984.26	1,933.18	51.07	38.850		
11,400.00	10,619.00	10,648.52	10,619.38	38.99	33.70	-89.87	601.14	1,386.99	2,029.73	1,978.54	51.18	39.657		
11,500.00	10,619.00	10,647.37	10,618.23	39.41	33.70	-89.83	601.13	1,386.99	2,079.02	2,027.71	51.30	40.524		
11,600.00	10,619.00	10,646.23	10,617.09	39.89	33.70	-89.79	601.12	1,387.00	2,131.86	2,080.42	51.43	41.448		
11,700.00	10,619.00	10,645.11	10,615.97	40.43	33.69	-89.76	601.11	1,387.00	2,188.00	2,136.42	51.57	42.425		
11,800.00	10,619.00	10,644.01	10,614.87	41.03	33.69	-89.72	601.09	1,387.01	2,247.18	2,195.47	51.72	43.452		
11,900.00	10,619.00	13,299.84	12,050.00	41.68	48.63	-128.45	-863.07	1,410.60	2,293.81	2,238.78	55.03	41.682		
12,000.00	10,619.00	13,399.84	12,050.00	42.38	49.67	-128.46	-963.06	1,411.48	2,293.73	2,237.69	56.04	40.930		
12,100.00	10,619.00	13,499.84	12,050.00	43.14	50.75	-128.46	-1,063.06	1,412.35	2,293.65	2,236.55	57.10	40.170		
12,200.00	10,619.00	13,599.84	12,050.00	43.94	51.85	-128.46	-1,163.05	1,413.23	2,293.57	2,235.37	58.20	39.408		
12,300.00	10,619.00	13,699.84	12,050.00	44.79	52.99	-128.46	-1,263.05	1,414.10	2,293.50	2,234.15	59.35	38.647		
12,400.00	10,619.00	13,799.84	12,050.00	45.68	54.15	-128.46	-1,363.05	1,414.98	2,293.42	2,232.89	60.53	37.888		
12,500.00	10,619.00	13,899.84	12,050.00	46.62	55.34	-128.46	-1,463.04	1,415.86	2,293.34	2,231.59	61.75	37.136		
12,600.00	10,619.00	13,999.84	12,050.00	47.59	56.55	-128.47	-1,563.04	1,416.73	2,293.26	2,230.25	63.01	36.393		
12,700.00	10,619.00	14,099.84	12,050.00	48.59	57.78	-128.47	-1,663.04	1,417.61	2,293.18	2,228.88	64.31	35.659		
12,800.00	10,619.00	14,199.84	12,050.00	49.64	59.03	-128.47	-1,763.03	1,418.48	2,293.11	2,227.47	65.63	34.938		
12,900.00	10,619.00	14,299.84	12,050.00	50.71	60.30	-128.47	-1,863.03	1,419.36	2,293.03	2,226.04	66.99	34.230		
13,000.00	10,619.00	14,399.84	12,050.00	51.81	61.59	-128.47	-1,963.02	1,420.24	2,292.95	2,224.58	68.37	33.536		
13,100.00	10,619.00	14,499.84	12,050.00	52.95	62.89	-128.47	-2,063.02	1,421.11	2,292.87	2,223.09	69.78	32.857		
13,200.00	10,619.00	14,599.84	12,050.00	54.11	64.22	-128.47	-2,163.02	1,421.99	2,292.80	2,221.58	71.22	32.194		
13,300.00	10,619.00	14,699.84	12,050.00	55.29	65.55	-128.48	-2,263.01	1,422.86	2,292.72	2,220.04	72.67	31.548		
13,400.00	10,619.00	14,799.84	12,050.00	56.50	66.90	-128.48	-2,363.01	1,423.74	2,292.64	2,218.49	74.15	30.918		
13,500.00	10,619.00	14,899.84	12,050.00	57.72	68.27	-128.48	-2,463.00	1,424.62	2,292.56	2,216.91	75.65	30.305		
13,600.00	10,619.00	14,999.84	12,050.00	58.97	69.64	-128.48	-2,563.00	1,425.49	2,292.48	2,215.32	77.17	29.709		

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 501H
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 501H	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				
13,700.00	10,619.00	15,099.84	12,050.00	60.24	71.03	-128.48	-2,663.00	1,426.37	2,292.41	2,213.71	78.70	29.128				
13,800.00	10,619.00	15,199.84	12,050.00	61.53	72.43	-128.48	-2,762.99	1,427.25	2,292.33	2,212.08	80.25	28.564				
13,900.00	10,619.00	15,299.84	12,050.00	62.83	73.84	-128.49	-2,862.99	1,428.12	2,292.25	2,210.43	81.82	28.015				
14,000.00	10,619.00	15,399.84	12,050.00	64.15	75.26	-128.49	-2,962.98	1,429.00	2,292.17	2,208.77	83.41	27.482				
14,100.00	10,619.00	15,499.84	12,050.00	65.49	76.69	-128.49	-3,062.98	1,429.87	2,292.10	2,207.09	85.00	26.965				
14,200.00	10,619.00	15,599.84	12,050.00	66.83	78.12	-128.49	-3,162.98	1,430.75	2,292.02	2,205.40	86.62	26.462				
14,300.00	10,619.00	15,699.84	12,050.00	68.20	79.57	-128.49	-3,262.97	1,431.63	2,291.94	2,203.70	88.24	25.974				
14,400.00	10,619.00	15,799.84	12,050.00	69.57	81.02	-128.49	-3,362.97	1,432.50	2,291.86	2,201.99	89.87	25.501				
14,500.00	10,619.00	15,899.84	12,050.00	70.96	82.48	-128.49	-3,462.97	1,433.38	2,291.78	2,200.27	91.52	25.041				
14,600.00	10,619.00	15,999.84	12,050.00	72.35	83.95	-128.50	-3,562.96	1,434.25	2,291.71	2,198.53	93.18	24.596				
14,700.00	10,619.00	16,099.84	12,050.00	73.76	85.43	-128.50	-3,662.96	1,435.13	2,291.63	2,196.79	94.84	24.163				
14,800.00	10,619.00	16,199.84	12,050.00	75.18	86.91	-128.50	-3,762.95	1,436.01	2,291.55	2,195.04	96.52	23.743				
14,900.00	10,619.00	16,299.84	12,050.00	76.61	88.40	-128.50	-3,862.95	1,436.88	2,291.47	2,193.27	98.20	23.334				
15,000.00	10,619.00	16,399.84	12,050.00	78.04	89.89	-128.50	-3,962.95	1,437.76	2,291.40	2,191.50	99.89	22.938				
15,100.00	10,619.00	16,499.84	12,050.00	79.49	91.39	-128.50	-4,062.94	1,438.63	2,291.32	2,189.72	101.60	22.553				
15,200.00	10,619.00	16,599.84	12,050.00	80.94	92.89	-128.51	-4,162.94	1,439.51	2,291.24	2,187.93	103.31	22.179				
15,300.00	10,619.00	16,699.84	12,050.00	82.40	94.40	-128.51	-4,262.93	1,440.39	2,291.16	2,186.14	105.02	21.816				
15,400.00	10,619.00	16,799.84	12,050.00	83.86	95.91	-128.51	-4,362.93	1,441.26	2,291.09	2,184.34	106.74	21.464				
15,500.00	10,619.00	16,899.84	12,050.00	85.34	97.43	-128.51	-4,462.93	1,442.14	2,291.01	2,182.54	108.47	21.121				
15,600.00	10,619.00	16,999.84	12,050.00	86.82	98.95	-128.51	-4,562.92	1,443.01	2,290.93	2,180.72	110.21	20.788				
15,700.00	10,619.00	17,099.84	12,050.00	88.30	100.48	-128.51	-4,662.92	1,443.89	2,290.85	2,178.90	111.95	20.463				
15,800.00	10,619.00	17,199.84	12,050.00	89.79	102.01	-128.51	-4,762.91	1,444.77	2,290.77	2,177.08	113.69	20.149				
15,900.00	10,619.00	17,299.84	12,050.00	91.29	103.54	-128.52	-4,862.91	1,445.64	2,290.70	2,175.25	115.45	19.842				
16,000.00	10,619.00	17,399.84	12,050.00	92.79	105.08	-128.52	-4,962.91	1,446.52	2,290.62	2,173.42	117.20	19.544				
16,100.00	10,619.00	17,499.84	12,050.00	94.30	106.62	-128.52	-5,062.90	1,447.40	2,290.54	2,171.58	118.96	19.255				
16,200.00	10,619.00	17,599.84	12,050.00	95.81	108.16	-128.52	-5,162.90	1,448.27	2,290.46	2,169.74	120.72	18.973				
16,300.00	10,619.00	17,699.84	12,050.00	97.33	109.71	-128.52	-5,262.90	1,449.15	2,290.39	2,167.89	122.50	18.698				
16,400.00	10,619.00	17,799.84	12,050.00	98.85	111.26	-128.52	-5,362.89	1,450.02	2,290.31	2,166.04	124.27	18.430				
16,500.00	10,619.00	17,899.84	12,050.00	100.38	112.81	-128.53	-5,462.89	1,450.90	2,290.23	2,164.18	126.05	18.170				
16,600.00	10,619.00	17,999.84	12,050.00	101.90	114.37	-128.53	-5,562.88	1,451.78	2,290.15	2,162.33	127.82	17.916				
16,700.00	10,619.00	18,099.84	12,050.00	103.44	115.92	-128.53	-5,662.88	1,452.65	2,290.07	2,160.47	129.61	17.669				
16,800.00	10,619.00	18,199.84	12,050.00	104.97	117.48	-128.53	-5,762.88	1,453.53	2,290.00	2,158.60	131.40	17.428				
16,900.00	10,619.00	18,299.84	12,050.00	106.51	119.05	-128.53	-5,862.87	1,454.40	2,289.92	2,156.73	133.19	17.193				
17,000.00	10,619.00	18,399.84	12,050.00	108.06	120.61	-128.53	-5,962.87	1,455.28	2,289.84	2,154.86	134.98	16.964				
17,100.00	10,619.00	18,499.84	12,050.00	109.60	122.18	-128.53	-6,062.86	1,456.16	2,289.76	2,152.99	136.78	16.741				
17,200.00	10,619.00	18,599.84	12,050.00	111.15	123.75	-128.54	-6,162.86	1,457.03	2,289.69	2,151.11	138.58	16.523				
17,300.00	10,619.00	18,699.84	12,050.00	112.70	125.32	-128.54	-6,262.86	1,457.91	2,289.61	2,149.23	140.38	16.310				
17,400.00	10,619.00	18,799.84	12,050.00	114.26	126.90	-128.54	-6,362.85	1,458.78	2,289.53	2,147.35	142.18	16.103				
17,500.00	10,619.00	18,899.84	12,050.00	115.82	128.47	-128.54	-6,462.85	1,459.66	2,289.45	2,145.46	143.99	15.900				
17,600.00	10,619.00	18,999.84	12,050.00	117.38	130.05	-128.54	-6,562.84	1,460.54	2,289.38	2,143.58	145.80	15.703				
17,700.00	10,619.00	19,099.84	12,050.00	118.94	131.63	-128.54	-6,662.84	1,461.41	2,289.30	2,141.69	147.61	15.509				
17,800.00	10,619.00	19,199.84	12,050.00	120.50	133.21	-128.55	-6,762.84	1,462.29	2,289.22	2,139.80	149.42	15.321				
17,900.00	10,619.00	19,299.84	12,050.00	122.07	134.79	-128.55	-6,862.83	1,463.16	2,289.14	2,137.91	151.23	15.136				
18,000.00	10,619.00	19,399.84	12,050.00	123.64	136.38	-128.55	-6,962.83	1,464.04	2,289.06	2,136.02	153.05	14.956				
18,100.00	10,619.00	19,499.84	12,050.00	125.21	137.97	-128.55	-7,062.83	1,464.92	2,288.99	2,134.12	154.87	14.780				
18,200.00	10,619.00	19,599.84	12,050.00	126.79	139.55	-128.55	-7,162.82	1,465.79	2,288.91	2,132.22	156.69	14.608				
18,300.00	10,619.00	19,699.84	12,050.00	128.36	141.14	-128.55	-7,262.82	1,466.67	2,288.83	2,130.32	158.51	14.440				
18,400.00	10,619.00	19,799.84	12,050.00	129.94	142.73	-128.56	-7,362.81	1,467.55	2,288.75	2,128.42	160.33	14.275				
18,500.00	10,619.00	19,899.84	12,050.00	131.52	144.32	-128.56	-7,462.81	1,468.42	2,288.68	2,126.52	162.15	14.114				
18,600.00	10,619.00	19,999.84	12,050.00	133.10	145.92	-128.56	-7,562.81	1,469.30	2,288.60	2,124.62	163.98	13.957				
18,700.00	10,619.00	20,099.84	12,050.00	134.68	147.51	-128.56	-7,662.80	1,470.17	2,288.52	2,122.71	165.81	13.802				
18,800.00	10,619.00	20,199.84	12,050.00	136.26	149.11	-128.56	-7,762.80	1,471.05	2,288.44	2,120.81	167.64	13.651				

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 501H
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 501H	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								
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
18,900.00	10,619.00	20,299.84	12,050.00	137.85	150.71	-128.56	-7,862.79	1,471.93	2,288.37	2,118.90	169.47	13.503			
19,000.00	10,619.00	20,399.84	12,050.00	139.44	152.30	-128.56	-7,962.79	1,472.80	2,288.29	2,116.99	171.29	13.359			
19,100.00	10,619.00	20,499.84	12,050.00	141.03	153.90	-128.57	-8,062.79	1,473.68	2,288.21	2,115.08	173.13	13.217			
19,200.00	10,619.00	20,599.84	12,050.00	142.62	155.50	-128.57	-8,162.78	1,474.55	2,288.13	2,113.17	174.96	13.078			
19,300.00	10,619.00	20,699.84	12,050.00	144.21	157.10	-128.57	-8,262.78	1,475.43	2,288.05	2,111.26	176.79	12.942			
19,400.00	10,619.00	20,799.84	12,050.00	145.80	158.71	-128.57	-8,362.77	1,476.31	2,287.98	2,109.35	178.63	12.809			
19,500.00	10,619.00	20,899.84	12,050.00	147.40	160.31	-128.57	-8,462.77	1,477.18	2,287.90	2,107.44	180.46	12.678			
19,600.00	10,619.00	20,999.84	12,050.00	148.99	161.91	-128.57	-8,562.77	1,478.06	2,287.82	2,105.52	182.30	12.550			
19,700.00	10,619.00	21,099.84	12,050.00	150.59	163.52	-128.58	-8,662.76	1,478.93	2,287.74	2,103.61	184.13	12.424			
19,800.00	10,619.00	21,199.84	12,050.00	152.19	165.13	-128.58	-8,762.76	1,479.81	2,287.67	2,101.70	185.97	12.301			
19,900.00	10,619.00	21,299.84	12,050.00	153.78	166.73	-128.58	-8,862.76	1,480.69	2,287.59	2,099.78	187.81	12.180			
20,000.00	10,619.00	21,399.84	12,050.00	155.38	168.34	-128.58	-8,962.75	1,481.56	2,287.51	2,097.86	189.65	12.062			
20,100.00	10,619.00	21,499.84	12,050.00	156.99	169.95	-128.58	-9,062.75	1,482.44	2,287.43	2,095.95	191.49	11.946			
20,200.00	10,619.00	21,599.84	12,050.00	158.59	171.56	-128.58	-9,162.74	1,483.31	2,287.36	2,094.03	193.33	11.832			
20,300.00	10,619.00	21,699.84	12,050.00	160.19	173.17	-128.58	-9,262.74	1,484.19	2,287.28	2,092.11	195.16	11.720			
20,400.00	10,619.00	21,799.84	12,050.00	161.80	174.78	-128.59	-9,362.74	1,485.07	2,287.20	2,090.19	197.01	11.610			
20,500.00	10,619.00	21,899.84	12,050.00	163.40	176.39	-128.59	-9,462.73	1,485.94	2,287.12	2,088.27	198.85	11.502			
20,600.00	10,619.00	21,999.84	12,050.00	165.01	178.00	-128.59	-9,562.73	1,486.82	2,287.04	2,086.35	200.69	11.396			
20,700.00	10,619.00	22,099.84	12,050.00	166.61	179.62	-128.59	-9,662.72	1,487.69	2,286.97	2,084.44	202.53	11.292			
20,792.10	10,619.00	22,191.94	12,050.00	167.92	181.10	-128.59	-9,754.83	1,488.50	2,286.90	2,082.81	204.08	11.206 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 501H
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 501H	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	-42.45	892.28	-816.32	1,209.36					
100.00	100.00	117.00	117.00	0.13	0.19	-42.45	892.28	-816.32	1,209.36	1,209.13	0.22	5,382.173		
200.00	200.00	217.00	217.00	0.48	0.54	-42.45	892.28	-816.32	1,209.36	1,208.63	0.73	1,659.478		
300.00	300.00	317.00	317.00	0.84	0.90	-42.45	892.28	-816.32	1,209.36	1,208.12	1.24	979.086		
400.00	400.00	417.00	417.00	1.20	1.26	-42.45	892.28	-816.32	1,209.36	1,207.61	1.74	694.264		
500.00	500.00	517.00	517.00	1.56	1.62	-42.45	892.28	-816.32	1,209.36	1,207.11	2.25	537.788		
600.00	600.00	617.00	617.00	1.92	1.98	-42.45	892.28	-816.32	1,209.36	1,206.60	2.76	438.866		
700.00	700.00	717.00	717.00	2.28	2.34	-42.45	892.28	-816.32	1,209.36	1,206.09	3.26	370.679		
800.00	800.00	817.00	817.00	2.63	2.70	-42.45	892.28	-816.32	1,209.36	1,205.59	3.77	320.830		
900.00	900.00	917.00	917.00	2.99	3.05	-42.45	892.28	-816.32	1,209.36	1,205.08	4.28	282.798		
1,000.00	1,000.00	1,017.00	1,017.00	3.35	3.41	-42.45	892.28	-816.32	1,209.36	1,204.57	4.78	252.828		
1,100.00	1,100.00	1,117.00	1,117.00	3.71	3.77	-42.45	892.28	-816.32	1,209.36	1,204.07	5.29	228.601		
1,200.00	1,200.00	1,217.00	1,217.00	4.07	4.13	-42.45	892.28	-816.32	1,209.36	1,203.56	5.80	208.610		
1,300.00	1,300.00	1,317.00	1,317.00	4.43	4.49	-42.45	892.28	-816.32	1,209.36	1,203.05	6.30	191.835		
1,400.00	1,400.00	1,417.00	1,417.00	4.79	4.85	-42.45	892.28	-816.32	1,209.36	1,202.54	6.81	177.557		
1,500.00	1,500.00	1,517.00	1,517.00	5.14	5.21	-42.45	892.28	-816.32	1,209.36	1,202.04	7.32	165.257		
1,600.00	1,600.00	1,617.00	1,617.00	5.50	5.56	-42.45	892.28	-816.32	1,209.36	1,201.53	7.82	154.551		
1,700.00	1,700.00	1,717.00	1,717.00	5.86	5.92	-42.45	892.28	-816.32	1,209.36	1,201.02	8.33	145.147		
1,800.00	1,800.00	1,817.00	1,817.00	6.22	6.28	-42.45	892.28	-816.32	1,209.36	1,200.52	8.84	136.822		
1,900.00	1,900.00	1,917.00	1,917.00	6.58	6.64	-42.45	892.28	-816.32	1,209.36	1,200.01	9.35	129.401		
2,000.00	2,000.00	2,017.00	2,017.00	6.94	7.00	-42.45	892.28	-816.32	1,209.36	1,199.50	9.85	122.743		
2,100.00	2,100.00	2,117.00	2,117.00	7.29	7.36	-42.45	892.28	-816.32	1,209.36	1,199.00	10.36	116.736		
2,200.00	2,199.99	2,216.99	2,216.99	7.65	7.71	-8.60	892.28	-816.32	1,208.06	1,197.20	10.87	111.183		
2,300.00	2,299.91	2,316.91	2,316.91	8.01	8.07	-8.64	892.28	-816.32	1,204.18	1,192.81	11.37	105.906		
2,400.00	2,399.69	2,416.69	2,416.69	8.36	8.43	-8.70	892.28	-816.32	1,197.71	1,185.84	11.87	100.864		
2,500.00	2,499.27	2,516.27	2,516.27	8.72	8.79	-8.79	892.28	-816.32	1,188.67	1,176.29	12.38	96.030		
2,600.00	2,598.57	2,615.57	2,615.57	9.08	9.14	-8.90	892.28	-816.32	1,177.05	1,164.17	12.88	91.382		
2,676.13	2,673.94	2,690.94	2,690.94	9.36	9.41	-9.01	892.28	-816.32	1,166.49	1,153.23	13.26	87.954		
2,700.00	2,697.55	2,714.55	2,714.55	9.45	9.50	-9.03	892.28	-816.32	1,162.95	1,149.57	13.38	86.901		
2,800.00	2,796.41	2,813.41	2,813.41	9.82	9.85	-9.15	892.28	-816.32	1,148.11	1,134.23	13.88	82.700		
2,900.00	2,895.28	2,912.28	2,912.28	10.20	10.21	-9.27	892.28	-816.32	1,133.27	1,118.89	14.38	78.787		
3,000.00	2,994.14	3,011.14	3,011.14	10.58	10.56	-9.40	892.28	-816.32	1,118.44	1,103.55	14.89	75.133		
3,100.00	3,093.01	3,110.01	3,110.01	10.96	10.92	-9.52	892.28	-816.32	1,103.61	1,088.23	15.39	71.715		
3,200.00	3,191.87	3,208.87	3,208.87	11.35	11.27	-9.65	892.28	-816.32	1,088.79	1,072.90	15.89	68.510		
3,300.00	3,290.74	3,307.74	3,307.74	11.74	11.62	-9.79	892.28	-816.32	1,073.98	1,057.58	16.40	65.500		
3,400.00	3,389.60	3,406.60	3,406.60	12.13	11.98	-9.93	892.28	-816.32	1,059.17	1,042.27	16.90	62.667		
3,500.00	3,488.46	3,505.46	3,505.46	12.52	12.33	-10.07	892.28	-816.32	1,044.37	1,026.96	17.41	59.997		
3,600.00	3,587.33	3,604.33	3,604.33	12.92	12.69	-10.21	892.28	-816.32	1,029.57	1,011.66	17.91	57.477		
3,700.00	3,686.19	3,703.19	3,703.19	13.32	13.04	-10.37	892.28	-816.32	1,014.78	996.36	18.42	55.094		
3,800.00	3,785.06	3,811.61	3,811.60	13.72	13.41	-10.59	891.26	-816.73	999.61	980.67	18.93	52.799		
3,900.00	3,883.92	3,921.34	3,921.24	14.12	13.77	-11.00	887.37	-818.32	983.34	963.91	19.43	50.602		
4,000.00	3,982.79	4,030.20	4,029.86	14.53	14.12	-11.59	880.63	-821.08	966.04	946.11	19.93	48.470		
4,100.00	4,081.65	4,130.18	4,129.46	14.93	14.45	-12.27	872.63	-824.35	948.10	927.68	20.42	46.433		
4,200.00	4,180.52	4,227.93	4,226.85	15.34	14.77	-12.96	864.75	-827.57	930.27	909.36	20.91	44.497		
4,300.00	4,279.38	4,325.69	4,324.24	15.74	15.10	-13.67	856.87	-830.79	912.57	891.18	21.40	42.650		
4,400.00	4,378.25	4,423.45	4,421.62	16.15	15.43	-14.42	848.99	-834.00	895.02	873.13	21.89	40.888		
4,500.00	4,477.11	4,521.21	4,519.01	16.56	15.76	-15.19	841.11	-837.22	877.63	855.24	22.38	39.207		
4,600.00	4,575.98	4,618.97	4,616.40	16.97	16.09	-15.99	833.23	-840.44	860.39	837.51	22.88	37.601		
4,700.00	4,674.84	4,716.73	4,713.79	17.38	16.42	-16.83	825.35	-843.66	843.33	819.95	23.38	36.067		
4,800.00	4,773.71	4,814.49	4,811.18	17.79	16.76	-17.70	817.47	-846.88	826.46	802.57	23.89	34.601		
4,900.00	4,872.57	4,912.25	4,908.56	18.21	17.10	-18.60	809.59	-850.10	809.78	785.39	24.39	33.200		
5,000.00	4,971.43	5,010.01	5,005.95	18.62	17.44	-19.54	801.71	-853.32	793.31	768.41	24.90	31.861		

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 501H
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 501H	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	5,070.30	5,107.77	5,103.34	19.03	17.78	-20.52	793.83	-856.54	777.06	751.65	25.41	30.581		
5,200.00	5,169.16	5,205.53	5,200.73	19.45	18.12	-21.54	785.95	-859.76	761.04	735.12	25.92	29.358		
5,300.00	5,268.03	5,303.29	5,298.12	19.86	18.47	-22.61	778.07	-862.98	745.28	718.84	26.44	28.188		
5,400.00	5,366.89	5,401.05	5,395.50	20.28	18.81	-23.72	770.19	-866.20	729.78	702.82	26.96	27.070		
5,500.00	5,465.76	5,498.80	5,492.89	20.69	19.16	-24.87	762.31	-869.42	714.57	687.08	27.48	26.002		
5,600.00	5,564.62	5,596.56	5,590.28	21.11	19.51	-26.07	754.43	-872.64	699.65	671.65	28.01	24.982		
5,700.00	5,663.49	5,694.32	5,687.67	21.53	19.85	-27.33	746.55	-875.86	685.07	656.53	28.54	24.008		
5,800.00	5,762.35	5,792.08	5,785.06	21.94	20.20	-28.64	738.67	-879.08	670.82	641.75	29.07	23.078		
5,900.00	5,861.22	5,889.84	5,882.44	22.36	20.56	-30.00	730.79	-882.30	656.94	627.34	29.60	22.191		
6,000.00	5,960.08	5,987.60	5,979.83	22.78	20.91	-31.42	722.91	-885.52	643.45	613.31	30.14	21.346		
6,100.00	6,058.95	6,085.36	6,077.22	23.20	21.26	-32.89	715.03	-888.74	630.37	599.69	30.69	20.542		
6,200.00	6,157.81	6,183.12	6,174.61	23.62	21.61	-34.43	707.15	-891.96	617.74	586.50	31.24	19.777		
6,300.00	6,256.68	6,280.88	6,272.00	24.04	21.97	-36.02	699.27	-895.18	605.57	573.78	31.79	19.051		
6,400.00	6,355.54	6,378.64	6,369.38	24.46	22.32	-37.68	691.39	-898.40	593.90	561.56	32.34	18.362		
6,500.00	6,454.40	6,476.40	6,466.77	24.88	22.68	-39.40	683.51	-901.62	582.76	549.85	32.90	17.711		
6,600.00	6,553.27	6,574.16	6,564.16	25.30	23.04	-41.19	675.63	-904.84	572.17	538.70	33.47	17.096		
6,700.00	6,652.13	6,671.92	6,661.55	25.72	23.39	-43.04	667.75	-908.06	562.17	528.14	34.04	16.516		
6,800.00	6,751.00	6,769.68	6,758.94	26.14	23.75	-44.95	659.87	-911.28	552.80	518.19	34.61	15.972		
6,875.92	6,826.06	6,843.89	6,832.87	26.46	24.02	-46.44	653.89	-913.72	546.12	511.07	35.05	15.582		
6,900.00	6,849.87	6,867.45	6,856.34	26.56	24.11	-46.89	651.99	-914.50	544.13	508.94	35.19	15.464		
7,000.00	6,949.01	6,965.57	6,954.09	26.97	24.47	-48.70	644.08	-917.73	537.36	501.60	35.76	15.027		
7,100.00	7,048.45	7,064.13	7,052.27	27.36	24.83	-50.38	636.14	-920.97	532.87	496.55	36.32	14.671		
7,200.00	7,148.14	7,163.05	7,150.81	27.73	25.20	-51.89	628.16	-924.23	530.50	493.62	36.87	14.387		
7,272.12	7,220.14	7,234.58	7,222.08	27.99	25.46	-52.87	622.40	-926.59	530.01	492.74	37.26	14.224 CC		
7,300.00	7,248.00	7,262.27	7,249.66	28.09	25.56	-53.22	620.17	-927.50	530.08	492.67	37.41	14.168		
7,400.00	7,347.96	7,361.72	7,348.73	28.44	25.93	-54.34	612.15	-930.77	531.47	493.54	37.94	14.009		
7,452.05	7,400.00	7,413.55	7,400.37	28.61	26.12	-88.71	607.97	-932.48	532.88	494.67	38.21	13.948		
7,500.00	7,447.96	7,461.62	7,448.26	28.77	26.30	-89.13	604.10	-934.06	534.38	495.93	38.45	13.898		
7,600.00	7,547.96	7,566.85	7,553.20	29.09	26.68	-89.88	597.11	-936.92	537.05	498.08	38.97	13.782		
7,700.00	7,647.96	7,672.41	7,658.66	29.42	27.06	-90.34	592.78	-938.69	538.73	499.26	39.47	13.648		
7,800.00	7,747.96	7,778.14	7,764.38	29.75	27.43	-90.51	591.15	-939.35	539.37	499.41	39.96	13.497		
7,900.00	7,847.96	7,878.72	7,864.96	30.08	27.77	-90.52	591.14	-939.36	539.38	498.94	40.44	13.337		
8,000.00	7,947.96	7,978.72	7,964.96	30.41	28.12	-90.52	591.14	-939.36	539.38	498.46	40.92	13.181		
8,100.00	8,047.96	8,078.72	8,064.96	30.74	28.46	-90.52	591.14	-939.36	539.38	497.98	41.40	13.028		
8,200.00	8,147.96	8,178.72	8,164.96	31.07	28.80	-90.52	591.14	-939.36	539.38	497.50	41.88	12.879		
8,300.00	8,247.96	8,278.72	8,264.96	31.40	29.14	-90.52	591.14	-939.36	539.38	497.02	42.36	12.733		
8,400.00	8,347.96	8,378.72	8,364.96	31.74	29.49	-90.52	591.14	-939.36	539.38	496.54	42.84	12.590		
8,500.00	8,447.96	8,478.72	8,464.96	32.07	29.83	-90.52	591.14	-939.36	539.38	496.06	43.32	12.450		
8,600.00	8,547.96	8,578.72	8,564.96	32.40	30.18	-90.52	591.14	-939.36	539.38	495.57	43.81	12.313		
8,700.00	8,647.96	8,678.72	8,664.96	32.74	30.52	-90.52	591.14	-939.36	539.38	495.09	44.29	12.178		
8,800.00	8,747.96	8,778.72	8,764.96	33.07	30.86	-90.52	591.14	-939.36	539.38	494.61	44.77	12.047		
8,900.00	8,847.96	8,878.72	8,864.96	33.41	31.21	-90.52	591.14	-939.36	539.38	494.12	45.26	11.918		
9,000.00	8,947.96	8,978.72	8,964.96	33.74	31.55	-90.52	591.14	-939.36	539.38	493.64	45.74	11.792		
9,100.00	9,047.96	9,078.72	9,064.96	34.08	31.90	-90.52	591.14	-939.36	539.38	493.15	46.23	11.668		
9,200.00	9,147.96	9,178.72	9,164.96	34.42	32.25	-90.52	591.14	-939.36	539.38	492.67	46.71	11.547		
9,300.00	9,247.96	9,278.72	9,264.96	34.75	32.59	-90.52	591.14	-939.36	539.38	492.18	47.20	11.428		
9,400.00	9,347.96	9,378.72	9,364.96	35.09	32.94	-90.52	591.14	-939.36	539.38	491.69	47.69	11.311		
9,500.00	9,447.96	9,478.72	9,464.96	35.43	33.28	-90.52	591.14	-939.36	539.38	491.21	48.17	11.197		
9,600.00	9,547.96	9,578.72	9,564.96	35.77	33.63	-90.52	591.14	-939.36	539.38	490.72	48.66	11.085		
9,700.00	9,647.96	9,678.72	9,664.96	36.11	33.98	-90.52	591.14	-939.36	539.38	490.23	49.15	10.975		
9,800.00	9,747.96	9,778.72	9,764.96	36.44	34.33	-90.52	591.14	-939.36	539.38	489.74	49.63	10.867		
9,900.00	9,847.96	9,878.72	9,864.96	36.78	34.67	-90.52	591.14	-939.36	539.38	489.26	50.12	10.761		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:		0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
10,000.00	9,947.96	9,978.72	9,964.96	37.12	35.02	-90.52	591.14	-939.36	539.38	488.77	50.61	10.657			
10,098.09	10,046.04	10,076.81	10,063.04	37.46	35.36	-90.52	591.14	-939.36	539.38	488.29	51.09	10.557			
10,100.00	10,047.96	10,078.72	10,064.96	37.46	35.37	90.04	591.14	-939.36	539.38	488.28	51.10	10.555			
10,100.51	10,048.46	10,079.23	10,065.46	37.47	35.37	90.04	591.14	-939.36	539.38	488.28	51.10	10.555			
10,150.00	10,097.88	10,128.65	10,114.88	37.61	35.54	90.29	591.14	-939.36	539.39	488.06	51.33	10.509			
10,200.00	10,147.42	10,178.19	10,164.42	37.74	35.72	90.99	591.14	-939.36	539.46	487.93	51.53	10.469	ES		
10,250.00	10,196.18	10,226.95	10,213.18	37.86	35.89	92.09	591.14	-939.36	539.77	488.05	51.72	10.437			
10,300.00	10,243.80	10,274.57	10,260.80	37.96	36.05	93.55	591.14	-939.36	540.55	488.67	51.88	10.419	SF		
10,350.00	10,289.92	10,320.68	10,306.92	38.05	36.21	95.26	591.14	-939.36	542.17	490.14	52.03	10.420			
10,400.00	10,334.18	10,364.94	10,351.18	38.12	36.37	97.14	591.14	-939.36	545.01	492.85	52.16	10.449			
10,450.00	10,376.24	10,407.01	10,393.24	38.17	36.51	99.05	591.14	-939.36	549.53	497.26	52.27	10.513			
10,500.00	10,415.80	10,446.56	10,432.80	38.21	36.65	100.88	591.14	-939.36	556.18	503.81	52.37	10.620			
10,550.00	10,452.53	10,483.30	10,469.53	38.24	36.78	102.49	591.14	-939.36	565.41	512.94	52.46	10.777			
10,600.00	10,486.18	10,516.95	10,503.18	38.26	36.90	103.77	591.14	-939.36	577.57	525.02	52.55	10.992			
10,650.00	10,516.48	10,547.24	10,533.48	38.26	37.00	104.61	591.14	-939.36	592.95	540.33	52.63	11.267			
10,700.00	10,543.19	10,573.96	10,560.19	38.26	37.10	104.89	591.14	-939.36	611.71	559.01	52.70	11.607			
10,750.00	10,566.12	10,596.89	10,583.12	38.25	37.18	104.52	591.14	-939.36	633.87	581.09	52.77	12.011			
10,800.00	10,585.10	10,615.86	10,602.10	38.23	37.24	103.40	591.14	-939.36	659.33	606.49	52.84	12.477			
10,850.00	10,599.97	10,630.74	10,616.97	38.21	37.29	101.44	591.14	-939.36	687.89	634.98	52.91	13.002			
10,900.00	10,610.62	10,641.39	10,627.62	38.19	37.33	98.55	591.14	-939.36	719.22	666.25	52.96	13.579			
10,950.00	10,616.98	10,647.75	10,633.98	38.17	37.35	94.67	591.14	-939.36	752.93	699.92	53.01	14.202			
10,998.09	10,619.00	10,649.77	10,636.00	38.16	37.36	90.00	591.14	-939.36	787.19	734.14	53.05	14.837			
11,000.00	10,619.00	10,649.77	10,636.00	38.16	37.36	90.00	591.14	-939.36	788.59	735.53	53.06	14.863			
11,100.00	10,619.00	10,649.77	10,636.00	38.19	37.36	90.00	591.14	-939.36	864.25	811.11	53.14	16.264			
11,200.00	10,619.00	10,649.77	10,636.00	38.36	37.36	90.00	591.14	-939.36	944.45	891.22	53.23	17.744			
11,300.00	10,619.00	10,649.77	10,636.00	38.64	37.36	90.00	591.14	-939.36	1,028.12	974.81	53.31	19.284			
11,400.00	10,619.00	10,649.77	10,636.00	38.99	37.36	90.00	591.14	-939.36	1,114.49	1,061.09	53.40	20.871			
11,500.00	10,619.00	10,649.77	10,636.00	39.41	37.36	90.00	591.14	-939.36	1,202.97	1,149.50	53.48	22.496			
11,600.00	10,619.00	10,649.77	10,636.00	39.89	37.36	90.00	591.14	-939.36	1,293.14	1,239.59	53.55	24.149			
11,700.00	10,619.00	10,649.77	10,636.00	40.43	37.36	90.00	591.14	-939.36	1,384.65	1,331.04	53.61	25.827			
11,800.00	10,619.00	13,091.14	11,971.50	41.03	49.72	157.96	-769.09	-927.49	1,440.92	1,400.65	40.26	35.789			
11,900.00	10,619.00	13,191.13	11,972.58	41.68	50.65	157.97	-869.08	-926.62	1,441.96	1,401.13	40.83	35.320			
12,000.00	10,619.00	13,291.13	11,973.66	42.38	51.60	157.98	-969.06	-925.75	1,443.00	1,401.57	41.43	34.832			
12,100.00	10,619.00	13,391.12	11,974.74	43.14	52.60	157.99	-1,069.04	-924.87	1,444.04	1,401.98	42.06	34.333			
12,200.00	10,619.00	13,491.12	11,975.82	43.94	53.62	158.00	-1,169.03	-924.00	1,445.08	1,402.35	42.72	33.823			
12,300.00	10,619.00	13,591.11	11,976.90	44.79	54.68	158.02	-1,269.01	-923.13	1,446.12	1,402.70	43.42	33.306			
12,400.00	10,619.00	13,691.11	11,977.99	45.68	55.76	158.03	-1,369.00	-922.26	1,447.16	1,403.02	44.14	32.783			
12,500.00	10,619.00	13,791.10	11,979.07	46.62	56.87	158.04	-1,468.98	-921.38	1,448.20	1,403.30	44.89	32.258			
12,600.00	10,619.00	13,891.09	11,980.15	47.59	58.01	158.05	-1,568.97	-920.51	1,449.24	1,403.57	45.67	31.731			
12,700.00	10,619.00	13,991.09	11,981.23	48.59	59.17	158.07	-1,668.95	-919.64	1,450.28	1,403.81	46.47	31.206			
12,800.00	10,619.00	14,091.08	11,982.31	49.64	60.35	158.08	-1,768.94	-918.77	1,451.32	1,404.02	47.30	30.685			
12,900.00	10,619.00	14,191.08	11,983.39	50.71	61.56	158.09	-1,868.92	-917.90	1,452.36	1,404.22	48.14	30.167			
13,000.00	10,619.00	14,291.07	11,984.47	51.81	62.79	158.10	-1,968.90	-917.02	1,453.40	1,404.39	49.01	29.654			
13,100.00	10,619.00	14,391.06	11,985.55	52.95	64.03	158.11	-2,068.89	-916.15	1,454.45	1,404.55	49.90	29.149			
13,200.00	10,619.00	14,491.06	11,986.63	54.11	65.30	158.13	-2,168.87	-915.28	1,455.49	1,404.69	50.80	28.650			
13,300.00	10,619.00	14,591.05	11,987.71	55.29	66.58	158.14	-2,268.86	-914.41	1,456.53	1,404.80	51.72	28.160			
13,400.00	10,619.00	14,691.05	11,988.79	56.50	67.87	158.15	-2,368.84	-913.53	1,457.57	1,404.91	52.66	27.678			
13,500.00	10,619.00	14,791.04	11,989.87	57.72	69.18	158.16	-2,468.83	-912.66	1,458.61	1,405.00	53.62	27.205			
13,600.00	10,619.00	14,891.03	11,990.95	58.97	70.51	158.17	-2,568.81	-911.79	1,459.65	1,405.07	54.58	26.742			
13,700.00	10,619.00	14,991.03	11,992.03	60.24	71.85	158.19	-2,668.80	-910.92	1,460.69	1,405.13	55.56	26.288			
13,800.00	10,619.00	15,091.02	11,993.12	61.53	73.20	158.20	-2,768.78	-910.04	1,461.74	1,405.18	56.56	25.844			
13,900.00	10,619.00	15,191.02	11,994.20	62.83	74.56	158.21	-2,868.76	-909.17	1,462.78	1,405.21	57.57	25.410			

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 501H
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 501H	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	10,619.00	15,291.01	11,995.28	64.15	75.94	158.22	-2,968.75	-908.30	1,463.82	1,405.24	58.58	24.987		
14,100.00	10,619.00	15,391.00	11,996.36	65.49	77.33	158.23	-3,068.73	-907.43	1,464.86	1,405.25	59.61	24.574		
14,200.00	10,619.00	15,491.00	11,997.44	66.83	78.72	158.25	-3,168.72	-906.56	1,465.90	1,405.25	60.65	24.169		
14,300.00	10,619.00	15,590.99	11,998.52	68.20	80.13	158.26	-3,268.70	-905.68	1,466.95	1,405.25	61.70	23.776		
14,400.00	10,619.00	15,690.99	11,999.60	69.57	81.54	158.27	-3,368.69	-904.81	1,467.99	1,405.23	62.76	23.392		
14,500.00	10,619.00	15,790.98	12,000.68	70.96	82.97	158.28	-3,468.67	-903.94	1,469.03	1,405.21	63.82	23.017		
14,600.00	10,619.00	15,890.98	12,001.76	72.35	84.40	158.29	-3,568.66	-903.07	1,470.07	1,405.17	64.90	22.652		
14,700.00	10,619.00	15,990.97	12,002.84	73.76	85.84	158.31	-3,668.64	-902.19	1,471.11	1,405.13	65.98	22.297		
14,800.00	10,619.00	16,090.96	12,003.92	75.18	87.29	158.32	-3,768.63	-901.32	1,472.16	1,405.09	67.07	21.951		
14,900.00	10,619.00	16,190.96	12,005.00	76.61	88.74	158.33	-3,868.61	-900.45	1,473.20	1,405.04	68.16	21.613		
15,000.00	10,619.00	16,290.95	12,006.08	78.04	90.20	158.34	-3,968.59	-899.58	1,474.24	1,404.98	69.27	21.284		
15,100.00	10,619.00	16,390.95	12,007.16	79.49	91.67	158.35	-4,068.58	-898.70	1,475.28	1,404.91	70.37	20.964		
15,200.00	10,619.00	16,490.94	12,008.25	80.94	93.15	158.36	-4,168.56	-897.83	1,476.33	1,404.84	71.49	20.652		
15,300.00	10,619.00	16,590.93	12,009.33	82.40	94.63	158.38	-4,268.55	-896.96	1,477.37	1,404.76	72.61	20.348		
15,400.00	10,619.00	16,690.93	12,010.41	83.86	96.11	158.39	-4,368.53	-896.09	1,478.41	1,404.68	73.73	20.051		
15,500.00	10,619.00	16,790.92	12,011.49	85.34	97.60	158.40	-4,468.52	-895.21	1,479.45	1,404.59	74.86	19.763		
15,600.00	10,619.00	16,890.92	12,012.57	86.82	99.10	158.41	-4,568.50	-894.34	1,480.50	1,404.50	75.99	19.482		
15,700.00	10,619.00	16,990.91	12,013.65	88.30	100.60	158.42	-4,668.49	-893.47	1,481.54	1,404.41	77.13	19.208		
15,800.00	10,619.00	17,090.90	12,014.73	89.79	102.10	158.44	-4,768.47	-892.60	1,482.58	1,404.31	78.27	18.941		
15,900.00	10,619.00	17,190.90	12,015.81	91.29	103.61	158.45	-4,868.45	-891.73	1,483.63	1,404.21	79.42	18.681		
16,000.00	10,619.00	17,290.89	12,016.89	92.79	105.13	158.46	-4,968.44	-890.85	1,484.67	1,404.10	80.57	18.427		
16,100.00	10,619.00	17,390.89	12,017.97	94.30	106.65	158.47	-5,068.42	-889.98	1,485.71	1,403.99	81.72	18.180		
16,200.00	10,619.00	17,490.88	12,019.05	95.81	108.17	158.48	-5,168.41	-889.11	1,486.76	1,403.87	82.88	17.939		
16,300.00	10,619.00	17,590.88	12,020.13	97.33	109.70	158.49	-5,268.39	-888.24	1,487.80	1,403.76	84.04	17.703		
16,400.00	10,619.00	17,690.87	12,021.21	98.85	111.22	158.50	-5,368.38	-887.36	1,488.84	1,403.64	85.20	17.474		
16,500.00	10,619.00	17,790.86	12,022.29	100.38	112.76	158.52	-5,468.36	-886.49	1,489.89	1,403.52	86.37	17.250		
16,600.00	10,619.00	17,890.86	12,023.38	101.90	114.29	158.53	-5,568.35	-885.62	1,490.93	1,403.39	87.54	17.032		
16,700.00	10,619.00	17,990.85	12,024.46	103.44	115.83	158.54	-5,668.33	-884.75	1,491.97	1,403.27	88.71	16.819		
16,800.00	10,619.00	18,090.85	12,025.54	104.97	117.38	158.55	-5,768.31	-883.87	1,493.02	1,403.14	89.88	16.612		
16,900.00	10,619.00	18,190.84	12,026.62	106.51	118.92	158.56	-5,868.30	-883.00	1,494.06	1,403.01	91.05	16.408		
17,000.00	10,619.00	18,290.83	12,027.70	108.06	120.47	158.57	-5,968.28	-882.13	1,495.10	1,402.87	92.23	16.210		
17,100.00	10,619.00	18,390.83	12,028.78	109.60	122.02	158.59	-6,068.27	-881.26	1,496.15	1,402.73	93.41	16.017		
17,200.00	10,619.00	18,490.82	12,029.86	111.15	123.57	158.60	-6,168.25	-880.39	1,497.19	1,402.60	94.59	15.828		
17,300.00	10,619.00	18,590.82	12,030.94	112.70	125.13	158.61	-6,268.24	-879.51	1,498.23	1,402.46	95.78	15.643		
17,400.00	10,619.00	18,690.81	12,032.02	114.26	126.69	158.62	-6,368.22	-878.64	1,499.28	1,402.32	96.96	15.463		
17,500.00	10,619.00	18,790.80	12,033.10	115.82	128.25	158.63	-6,468.21	-877.77	1,500.32	1,402.18	98.15	15.287		
17,600.00	10,619.00	18,890.80	12,034.18	117.38	129.81	158.64	-6,568.19	-876.90	1,501.37	1,402.03	99.33	15.114		
17,700.00	10,619.00	18,990.79	12,035.26	118.94	131.38	158.65	-6,668.17	-876.02	1,502.41	1,401.89	100.52	14.946		
17,800.00	10,619.00	19,090.79	12,036.34	120.50	132.94	158.66	-6,768.16	-875.15	1,503.45	1,401.74	101.71	14.781		
17,900.00	10,619.00	19,190.78	12,037.42	122.07	134.51	158.68	-6,868.14	-874.28	1,504.50	1,401.59	102.91	14.620		
18,000.00	10,619.00	19,290.78	12,038.51	123.64	136.08	158.69	-6,968.13	-873.41	1,505.54	1,401.44	104.10	14.462		
18,100.00	10,619.00	19,390.77	12,039.59	125.21	137.66	158.70	-7,068.11	-872.53	1,506.59	1,401.29	105.29	14.308		
18,200.00	10,619.00	19,490.76	12,040.67	126.79	139.23	158.71	-7,168.10	-871.66	1,507.63	1,401.14	106.49	14.158		
18,300.00	10,619.00	19,590.76	12,041.75	128.36	140.81	158.72	-7,268.08	-870.79	1,508.68	1,400.99	107.68	14.010		
18,400.00	10,619.00	19,690.75	12,042.83	129.94	142.39	158.73	-7,368.07	-869.92	1,509.72	1,400.84	108.88	13.866		
18,500.00	10,619.00	19,790.75	12,043.91	131.52	143.97	158.74	-7,468.05	-869.05	1,510.76	1,400.69	110.08	13.724		
18,600.00	10,619.00	19,890.74	12,044.99	133.10	145.55	158.76	-7,568.03	-868.17	1,511.81	1,400.53	111.28	13.586		
18,700.00	10,619.00	19,990.73	12,046.07	134.68	147.13	158.77	-7,668.02	-867.30	1,512.85	1,400.37	112.48	13.450		
18,800.00	10,619.00	20,090.73	12,047.15	136.26	148.72	158.78	-7,768.00	-866.43	1,513.90	1,400.22	113.68	13.317		
18,900.00	10,619.00	20,190.72	12,048.23	137.85	150.30	158.79	-7,867.99	-865.56	1,514.94	1,400.06	114.88	13.187		
19,000.00	10,619.00	20,290.72	12,049.31	139.44	151.89	158.80	-7,967.97	-864.68	1,515.99	1,399.91	116.08	13.060		
19,100.00	10,619.00	20,390.71	12,050.39	141.03	153.48	158.81	-8,067.96	-863.81	1,517.03	1,399.75	117.28	12.935		

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 501H
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 501H	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 601H - OH - Plan #5												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,200.00	10,619.00	20,490.70	12,051.47	142.62	155.07	158.82	-8,167.94	-862.94	1,518.08	1,399.59	118.49	12.812	
19,300.00	10,619.00	20,590.70	12,052.55	144.21	156.66	158.83	-8,267.93	-862.07	1,519.12	1,399.43	119.69	12.692	
19,400.00	10,619.00	20,690.69	12,053.64	145.80	158.25	158.84	-8,367.91	-861.19	1,520.17	1,399.27	120.90	12.574	
19,500.00	10,619.00	20,790.69	12,054.72	147.40	159.85	158.86	-8,467.89	-860.32	1,521.21	1,399.11	122.10	12.459	
19,600.00	10,619.00	20,890.68	12,055.80	148.99	161.44	158.87	-8,567.88	-859.45	1,522.26	1,398.95	123.31	12.345	
19,700.00	10,619.00	20,990.67	12,056.88	150.59	163.04	158.88	-8,667.86	-858.58	1,523.30	1,398.79	124.51	12.234	
19,800.00	10,619.00	21,090.67	12,057.96	152.19	164.63	158.89	-8,767.85	-857.71	1,524.35	1,398.63	125.72	12.125	
19,900.00	10,619.00	21,190.66	12,059.04	153.78	166.23	158.90	-8,867.83	-856.83	1,525.39	1,398.47	126.92	12.018	
20,000.00	10,619.00	21,290.66	12,060.12	155.38	167.83	158.91	-8,967.82	-855.96	1,526.44	1,398.31	128.13	11.913	
20,100.00	10,619.00	21,390.65	12,061.20	156.99	169.43	158.92	-9,067.80	-855.09	1,527.48	1,398.15	129.34	11.810	
20,200.00	10,619.00	21,490.65	12,062.28	158.59	171.03	158.93	-9,167.79	-854.22	1,528.53	1,397.99	130.54	11.709	
20,300.00	10,619.00	21,590.64	12,063.36	160.19	172.64	158.94	-9,267.77	-853.34	1,529.58	1,397.83	131.75	11.610	
20,400.00	10,619.00	21,690.63	12,064.44	161.80	174.24	158.95	-9,367.76	-852.47	1,530.62	1,397.66	132.96	11.512	
20,500.00	10,619.00	21,790.63	12,065.52	163.40	175.84	158.97	-9,467.74	-851.60	1,531.67	1,397.50	134.17	11.416	
20,600.00	10,619.00	21,890.62	12,066.60	165.01	177.45	158.98	-9,567.72	-850.73	1,532.71	1,397.34	135.37	11.322	
20,700.00	10,619.00	21,990.62	12,067.68	166.61	179.05	158.99	-9,667.71	-849.85	1,533.76	1,397.18	136.58	11.230	
20,792.10	10,619.00	22,082.71	12,068.68	167.92	180.53	159.00	-9,759.80	-849.05	1,534.72	1,397.22	137.50	11.161	

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 501H
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 501H	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	-41.20	892.60	-781.33	1,186.26					
100.00	100.00	117.00	117.00	0.13	0.19	-41.20	892.60	-781.33	1,186.26	1,186.03	0.22	5,279.383		
200.00	200.00	217.00	217.00	0.48	0.54	-41.20	892.60	-781.33	1,186.26	1,185.53	0.73	1,627.785		
300.00	300.00	317.00	317.00	0.84	0.90	-41.20	892.60	-781.33	1,186.26	1,185.02	1.24	960.387		
400.00	400.00	417.00	417.00	1.20	1.26	-41.20	892.60	-781.33	1,186.26	1,184.52	1.74	681.005		
500.00	500.00	517.00	517.00	1.56	1.62	-41.20	892.60	-781.33	1,186.26	1,184.01	2.25	527.517		
600.00	600.00	617.00	617.00	1.92	1.98	-41.20	892.60	-781.33	1,186.26	1,183.50	2.76	430.484		
700.00	700.00	717.00	717.00	2.28	2.34	-41.20	892.60	-781.33	1,186.26	1,183.00	3.26	363.599		
800.00	800.00	817.00	817.00	2.63	2.70	-41.20	892.60	-781.33	1,186.26	1,182.49	3.77	314.703		
900.00	900.00	917.00	917.00	2.99	3.05	-41.20	892.60	-781.33	1,186.26	1,181.98	4.28	277.398		
1,000.00	1,000.00	1,017.00	1,017.00	3.35	3.41	-41.20	892.60	-781.33	1,186.26	1,181.48	4.78	247.999		
1,100.00	1,100.00	1,117.00	1,117.00	3.71	3.77	-41.20	892.60	-781.33	1,186.26	1,180.97	5.29	224.235		
1,200.00	1,200.00	1,217.00	1,217.00	4.07	4.13	-41.20	892.60	-781.33	1,186.26	1,180.46	5.80	204.626		
1,300.00	1,300.00	1,317.00	1,317.00	4.43	4.49	-41.20	892.60	-781.33	1,186.26	1,179.95	6.30	188.171		
1,400.00	1,400.00	1,417.00	1,417.00	4.79	4.85	-41.20	892.60	-781.33	1,186.26	1,179.45	6.81	174.166		
1,500.00	1,500.00	1,517.00	1,517.00	5.14	5.21	-41.20	892.60	-781.33	1,186.26	1,178.94	7.32	162.101		
1,600.00	1,600.00	1,617.00	1,617.00	5.50	5.56	-41.20	892.60	-781.33	1,186.26	1,178.43	7.82	151.599		
1,700.00	1,700.00	1,717.00	1,717.00	5.86	5.92	-41.20	892.60	-781.33	1,186.26	1,177.93	8.33	142.375		
1,800.00	1,800.00	1,817.00	1,817.00	6.22	6.28	-41.20	892.60	-781.33	1,186.26	1,177.42	8.84	134.209		
1,900.00	1,900.00	1,917.00	1,917.00	6.58	6.64	-41.20	892.60	-781.33	1,186.26	1,176.91	9.35	126.929		
2,000.00	2,000.00	2,017.00	2,017.00	6.94	7.00	-41.20	892.60	-781.33	1,186.26	1,176.41	9.85	120.398		
2,100.00	2,100.00	2,117.00	2,117.00	7.29	7.36	-41.20	892.60	-781.33	1,186.26	1,175.90	10.36	114.507		
2,200.00	2,199.99	2,216.99	2,216.99	7.65	7.71	-7.34	892.60	-781.33	1,184.96	1,174.09	10.87	109.057		
2,300.00	2,299.91	2,316.91	2,316.91	8.01	8.07	-7.37	892.60	-781.33	1,181.07	1,169.70	11.37	103.873		
2,400.00	2,399.69	2,416.69	2,416.69	8.36	8.43	-7.43	892.60	-781.33	1,174.58	1,162.71	11.87	98.916		
2,500.00	2,499.27	2,516.27	2,516.27	8.72	8.79	-7.50	892.60	-781.33	1,165.51	1,153.13	12.38	94.159		
2,600.00	2,598.57	2,615.57	2,615.57	9.08	9.14	-7.60	892.60	-781.33	1,153.86	1,140.97	12.88	89.580		
2,676.13	2,673.94	2,690.94	2,690.94	9.36	9.41	-7.69	892.60	-781.33	1,143.26	1,130.00	13.26	86.201		
2,700.00	2,697.55	2,720.45	2,720.45	9.45	9.52	-7.72	892.55	-781.30	1,139.67	1,126.27	13.39	85.083		
2,800.00	2,796.41	2,858.51	2,858.46	9.82	9.98	-7.91	889.67	-779.84	1,122.54	1,108.58	13.96	80.415		
2,900.00	2,895.28	2,986.81	2,986.54	10.20	10.40	-8.15	883.06	-776.47	1,102.08	1,087.59	14.48	76.088		
3,000.00	2,994.14	3,084.39	3,083.89	10.58	10.72	-8.36	876.99	-773.39	1,080.58	1,065.62	14.96	72.234		
3,100.00	3,093.01	3,181.98	3,181.24	10.96	11.05	-8.58	870.93	-770.30	1,059.09	1,043.65	15.44	68.606		
3,200.00	3,191.87	3,279.56	3,278.58	11.35	11.37	-8.80	864.87	-767.22	1,037.62	1,021.70	15.92	65.190		
3,300.00	3,290.74	3,377.14	3,375.93	11.74	11.70	-9.04	858.80	-764.13	1,016.16	999.76	16.40	61.966		
3,400.00	3,389.60	3,474.73	3,473.28	12.13	12.04	-9.28	852.74	-761.05	994.72	977.84	16.88	58.922		
3,500.00	3,488.46	3,572.31	3,570.62	12.52	12.37	-9.54	846.68	-757.96	973.30	955.93	17.37	56.043		
3,600.00	3,587.33	3,669.90	3,667.97	12.92	12.71	-9.80	840.61	-754.88	951.90	934.04	17.85	53.316		
3,700.00	3,686.19	3,767.48	3,765.32	13.32	13.04	-10.08	834.55	-751.79	930.51	912.17	18.34	50.732		
3,800.00	3,785.06	3,865.07	3,862.66	13.72	13.38	-10.38	828.49	-748.71	909.16	890.32	18.83	48.279		
3,900.00	3,883.92	3,962.65	3,960.01	14.12	13.73	-10.68	822.42	-745.62	887.82	868.50	19.32	45.948		
4,000.00	3,982.79	4,060.23	4,057.36	14.53	14.07	-11.01	816.36	-742.54	866.51	846.70	19.81	43.731		
4,100.00	4,081.65	4,157.82	4,154.70	14.93	14.41	-11.34	810.30	-739.45	845.23	824.92	20.31	41.621		
4,200.00	4,180.52	4,255.40	4,252.05	15.34	14.76	-11.70	804.23	-736.37	823.97	803.17	20.80	39.610		
4,300.00	4,279.38	4,352.99	4,349.40	15.74	15.10	-12.07	798.17	-733.28	802.75	781.45	21.30	37.692		
4,400.00	4,378.25	4,450.57	4,446.74	16.15	15.45	-12.47	792.11	-730.20	781.57	759.77	21.79	35.861		
4,500.00	4,477.11	4,548.16	4,544.09	16.56	15.80	-12.88	786.04	-727.11	760.42	738.12	22.29	34.111		
4,600.00	4,575.98	4,645.74	4,641.44	16.97	16.15	-13.32	779.98	-724.03	739.31	716.52	22.79	32.439		
4,700.00	4,674.84	4,743.32	4,738.78	17.38	16.49	-13.79	773.92	-720.94	718.24	694.95	23.29	30.838		
4,800.00	4,773.71	4,840.91	4,836.13	17.79	16.85	-14.28	767.85	-717.86	697.23	673.44	23.79	29.305		
4,900.00	4,872.57	4,938.49	4,933.48	18.21	17.20	-14.81	761.79	-714.77	676.26	651.97	24.29	27.836		
5,000.00	4,971.43	5,036.08	5,030.82	18.62	17.55	-15.36	755.73	-711.69	655.36	630.56	24.80	26.428		

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 501H
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 501H	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	5,070.30	5,133.66	5,128.17	19.03	17.90	-15.96	749.66	-708.60	634.52	609.21	25.30	25.077		
5,200.00	5,169.16	5,231.24	5,225.52	19.45	18.25	-16.59	743.60	-705.52	613.74	587.93	25.81	23.780		
5,300.00	5,268.03	5,328.83	5,322.87	19.86	18.61	-17.27	737.54	-702.43	593.05	566.73	26.32	22.534		
5,400.00	5,366.89	5,426.41	5,420.21	20.28	18.96	-17.99	731.47	-699.35	572.44	545.61	26.83	21.338		
5,500.00	5,465.76	5,524.00	5,517.56	20.69	19.32	-18.78	725.41	-696.27	551.93	524.59	27.34	20.188		
5,600.00	5,564.62	5,621.58	5,614.91	21.11	19.67	-19.62	719.35	-693.18	531.52	503.66	27.85	19.083		
5,700.00	5,663.49	5,719.17	5,712.25	21.53	20.03	-20.52	713.28	-690.10	511.23	482.86	28.37	18.020		
5,800.00	5,762.35	5,816.75	5,809.60	21.94	20.38	-21.50	707.22	-687.01	491.07	462.18	28.89	16.998		
5,900.00	5,861.22	5,914.33	5,906.95	22.36	20.74	-22.57	701.16	-683.93	471.07	441.66	29.41	16.016		
6,000.00	5,960.08	6,011.92	6,004.29	22.78	21.10	-23.72	695.09	-680.84	451.24	421.30	29.94	15.072		
6,100.00	6,058.95	6,109.50	6,101.64	23.20	21.45	-24.98	689.03	-677.76	431.60	401.13	30.47	14.165		
6,200.00	6,157.81	6,207.09	6,198.99	23.62	21.81	-26.36	682.97	-674.67	412.18	381.18	31.00	13.294		
6,300.00	6,256.68	6,304.67	6,296.33	24.04	22.17	-27.88	676.90	-671.59	393.02	361.48	31.55	12.459		
6,400.00	6,355.54	6,402.26	6,393.68	24.46	22.53	-29.54	670.84	-668.50	374.16	342.06	32.09	11.658		
6,500.00	6,454.40	6,499.84	6,491.03	24.88	22.88	-31.38	664.78	-665.42	355.63	322.98	32.65	10.893		
6,600.00	6,553.27	6,597.42	6,588.37	25.30	23.24	-33.42	658.71	-662.33	337.50	304.29	33.21	10.161		
6,700.00	6,652.13	6,695.01	6,685.72	25.72	23.60	-35.68	652.65	-659.25	319.84	286.05	33.79	9.465		
6,800.00	6,751.00	6,792.59	6,783.07	26.14	23.96	-38.19	646.59	-656.16	302.73	268.35	34.38	8.805		
6,875.92	6,826.06	6,866.68	6,856.97	26.46	24.23	-40.29	641.98	-653.82	290.16	255.32	34.84	8.329		
6,900.00	6,849.87	6,890.19	6,880.43	26.56	24.32	-40.95	640.52	-653.08	286.32	251.33	34.99	8.184		
7,000.00	6,949.01	6,988.18	6,978.18	26.97	24.68	-43.65	634.43	-649.98	271.99	236.39	35.59	7.641		
7,100.00	7,048.45	7,086.65	7,076.41	27.36	25.05	-46.27	628.32	-646.87	260.19	223.99	36.20	7.188		
7,200.00	7,148.14	7,185.55	7,175.07	27.73	25.41	-48.72	622.17	-643.74	250.76	213.97	36.80	6.815		
7,300.00	7,248.00	7,284.80	7,274.08	28.09	25.78	-50.91	616.00	-640.60	243.50	206.13	37.38	6.515		
7,400.00	7,347.96	7,384.33	7,373.37	28.44	26.15	-52.76	609.82	-637.46	238.22	200.28	37.94	6.279		
7,452.05	7,400.00	7,436.22	7,425.13	28.61	26.34	-57.43	606.60	-635.82	236.19	197.97	38.22	6.180		
7,500.00	7,447.96	7,484.06	7,472.85	28.77	26.51	-58.14	603.62	-634.30	234.56	196.08	38.48	6.096		
7,600.00	7,547.96	7,581.67	7,570.28	29.09	26.87	-59.45	598.24	-631.57	231.64	192.62	39.02	5.936		
7,700.00	7,647.96	7,678.93	7,667.46	29.42	27.22	-60.24	595.04	-629.94	229.95	190.41	39.54	5.816		
7,800.00	7,747.96	7,776.43	7,764.96	29.75	27.56	-60.49	594.04	-629.43	229.44	189.41	40.03	5.731		
7,900.00	7,847.96	7,876.43	7,864.96	30.08	27.90	-60.49	594.04	-629.43	229.44	188.93	40.51	5.664		
8,000.00	7,947.96	7,976.43	7,964.96	30.41	28.23	-60.49	594.04	-629.43	229.44	188.46	40.98	5.599		
8,100.00	8,047.96	8,076.43	8,064.96	30.74	28.57	-60.49	594.04	-629.43	229.44	187.98	41.46	5.534		
8,200.00	8,147.96	8,176.43	8,164.96	31.07	28.91	-60.49	594.04	-629.43	229.44	187.50	41.93	5.471		
8,300.00	8,247.96	8,276.43	8,264.96	31.40	29.25	-60.49	594.04	-629.43	229.44	187.02	42.41	5.410		
8,400.00	8,347.96	8,376.43	8,364.96	31.74	29.58	-60.49	594.04	-629.43	229.44	186.55	42.89	5.349		
8,500.00	8,447.96	8,476.43	8,464.96	32.07	29.92	-60.49	594.04	-629.43	229.44	186.07	43.37	5.290		
8,600.00	8,547.96	8,576.43	8,564.96	32.40	30.26	-60.49	594.04	-629.43	229.44	185.59	43.85	5.233		
8,700.00	8,647.96	8,676.43	8,664.96	32.74	30.60	-60.49	594.04	-629.43	229.44	185.11	44.33	5.176		
8,800.00	8,747.96	8,776.43	8,764.96	33.07	30.94	-60.49	594.04	-629.43	229.44	184.63	44.81	5.120		
8,900.00	8,847.96	8,876.43	8,864.96	33.41	31.28	-60.49	594.04	-629.43	229.44	184.15	45.29	5.066		
9,000.00	8,947.96	8,976.43	8,964.96	33.74	31.62	-60.49	594.04	-629.43	229.44	183.66	45.77	5.013		
9,100.00	9,047.96	9,076.43	9,064.96	34.08	31.97	-60.49	594.04	-629.43	229.44	183.18	46.25	4.960		
9,200.00	9,147.96	9,176.43	9,164.96	34.42	32.31	-60.49	594.04	-629.43	229.44	182.70	46.74	4.909		
9,300.00	9,247.96	9,276.43	9,264.96	34.75	32.65	-60.49	594.04	-629.43	229.44	182.22	47.22	4.859		
9,400.00	9,347.96	9,376.43	9,364.96	35.09	32.99	-60.49	594.04	-629.43	229.44	181.73	47.70	4.810		
9,500.00	9,447.96	9,476.43	9,464.96	35.43	33.33	-60.49	594.04	-629.43	229.44	181.25	48.19	4.761		
9,600.00	9,547.96	9,576.43	9,564.96	35.77	33.68	-60.49	594.04	-629.43	229.44	180.76	48.67	4.714		
9,700.00	9,647.96	9,676.43	9,664.96	36.11	34.02	-60.49	594.04	-629.43	229.44	180.28	49.16	4.667		
9,800.00	9,747.96	9,776.43	9,764.96	36.44	34.37	-60.49	594.04	-629.43	229.44	179.79	49.64	4.622		
9,900.00	9,847.96	9,876.43	9,864.96	36.78	34.71	-60.49	594.04	-629.43	229.44	179.31	50.13	4.577		
10,000.00	9,947.96	9,976.43	9,964.96	37.12	35.05	-60.49	594.04	-629.43	229.44	178.82	50.62	4.533		

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 501H
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 501H	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		
10,098.09	10,046.04	10,074.51	10,063.04	37.46	35.39	-90.49	594.04	-629.43	229.44	178.34	51.09	4.490 CC		
10,100.00	10,047.96	10,076.43	10,064.96	37.46	35.40	90.07	594.04	-629.43	229.44	178.33	51.10	4.490		
10,100.02	10,047.98	10,076.45	10,064.98	37.46	35.40	90.07	594.04	-629.43	229.44	178.33	51.10	4.490		
10,150.00	10,097.88	10,126.36	10,114.88	37.61	35.57	90.65	594.04	-629.43	229.45	178.13	51.32	4.471		
10,200.00	10,147.42	10,175.89	10,164.42	37.74	35.74	92.29	594.04	-629.43	229.63	178.13	51.50	4.459 ES, SF		
10,250.00	10,196.18	10,224.66	10,213.18	37.86	35.91	94.88	594.04	-629.43	230.33	178.69	51.64	4.460		
10,300.00	10,243.80	10,272.28	10,260.80	37.96	36.07	98.26	594.04	-629.43	232.16	180.42	51.75	4.486		
10,350.00	10,289.92	10,318.39	10,306.92	38.05	36.23	102.19	594.04	-629.43	235.88	184.06	51.83	4.551		
10,400.00	10,334.18	10,362.65	10,351.18	38.12	36.39	106.38	594.04	-629.43	242.33	190.44	51.89	4.670		
10,450.00	10,376.24	10,404.72	10,393.24	38.17	36.53	110.51	594.04	-629.43	252.32	200.38	51.94	4.858		
10,500.00	10,415.80	10,444.27	10,432.80	38.21	36.67	114.29	594.04	-629.43	266.49	214.48	52.01	5.124		
10,550.00	10,452.53	10,481.01	10,469.53	38.24	36.80	117.50	594.04	-629.43	285.23	233.14	52.08	5.476		
10,600.00	10,486.18	10,514.65	10,503.18	38.26	36.91	119.94	594.04	-629.43	308.62	256.45	52.17	5.915		
10,650.00	10,516.48	10,544.95	10,533.48	38.26	37.02	121.49	594.04	-629.43	336.51	284.24	52.28	6.437		
10,700.00	10,543.19	10,571.67	10,560.19	38.26	37.11	122.00	594.04	-629.43	368.55	316.16	52.38	7.035		
10,750.00	10,566.12	10,594.60	10,583.12	38.25	37.19	121.33	594.04	-629.43	404.25	351.76	52.49	7.702		
10,800.00	10,585.10	10,613.57	10,602.10	38.23	37.25	119.24	594.04	-629.43	443.10	390.52	52.58	8.427		
10,850.00	10,599.97	10,628.44	10,616.97	38.21	37.31	115.43	594.04	-629.43	484.56	431.89	52.67	9.201		
10,900.00	10,610.62	10,639.10	10,627.62	38.19	37.34	109.45	594.04	-629.43	528.08	475.34	52.73	10.014		
10,950.00	10,616.98	10,645.46	10,633.98	38.17	37.36	100.86	594.04	-629.43	573.14	520.35	52.79	10.857		
10,998.09	10,619.00	10,647.47	10,636.00	38.16	37.37	90.00	594.04	-629.43	617.45	564.62	52.83	11.688		
11,000.00	10,619.00	10,647.47	10,636.00	38.16	37.37	90.00	594.04	-629.43	619.23	566.40	52.83	11.721		
11,100.00	10,619.00	10,647.47	10,636.00	38.19	37.37	90.00	594.04	-629.43	713.07	660.18	52.89	13.481		
11,200.00	10,619.00	10,647.47	10,636.00	38.36	37.37	90.00	594.04	-629.43	808.39	755.44	52.95	15.267		
11,300.00	10,619.00	10,647.47	10,636.00	38.64	37.37	90.00	594.04	-629.43	904.73	851.73	53.00	17.071		
11,400.00	10,619.00	10,647.47	10,636.00	38.99	37.37	90.00	594.04	-629.43	1,001.78	948.74	53.04	18.888		
11,500.00	10,619.00	10,647.47	10,636.00	39.41	37.37	90.00	594.04	-629.43	1,099.36	1,046.28	53.08	20.713		
11,600.00	10,619.00	10,647.47	10,636.00	39.89	37.37	90.00	594.04	-629.43	1,197.34	1,144.23	53.11	22.545		
11,700.00	10,619.00	10,647.47	10,636.00	40.43	37.37	90.00	594.04	-629.43	1,295.63	1,242.49	53.14	24.382		
11,800.00	10,619.00	10,647.47	10,636.00	41.03	37.37	90.00	594.04	-629.43	1,394.16	1,340.99	53.17	26.223		
11,900.00	10,619.00	10,647.47	10,636.00	41.68	37.37	90.00	594.04	-629.43	1,492.89	1,439.70	53.19	28.066		
12,000.00	10,619.00	10,647.47	10,636.00	42.38	37.37	90.00	594.04	-629.43	1,591.77	1,538.56	53.22	29.911		
12,100.00	10,619.00	13,678.82	12,267.73	43.14	53.42	171.94	-1,063.14	-614.97	1,648.12	1,609.29	38.83	42.440		
12,200.00	10,619.00	13,778.82	12,268.82	43.94	54.42	171.94	-1,163.12	-614.10	1,649.21	1,609.83	39.38	41.877		
12,300.00	10,619.00	13,878.81	12,269.90	44.79	55.46	171.94	-1,263.11	-613.22	1,650.30	1,610.34	39.96	41.304		
12,400.00	10,619.00	13,978.81	12,270.98	45.68	56.53	171.94	-1,363.09	-612.35	1,651.38	1,610.83	40.55	40.722		
12,500.00	10,619.00	14,078.80	12,272.07	46.62	57.63	171.94	-1,463.08	-611.48	1,652.47	1,611.30	41.17	40.135		
12,600.00	10,619.00	14,178.79	12,273.15	47.59	58.75	171.95	-1,563.06	-610.61	1,653.56	1,611.74	41.81	39.545		
12,700.00	10,619.00	14,278.79	12,274.23	48.59	59.90	171.95	-1,663.05	-609.73	1,654.64	1,612.16	42.48	38.952		
12,800.00	10,619.00	14,378.78	12,275.31	49.64	61.07	171.95	-1,763.03	-608.86	1,655.73	1,612.57	43.16	38.361		
12,900.00	10,619.00	14,478.78	12,276.40	50.71	62.26	171.95	-1,863.01	-607.99	1,656.82	1,612.95	43.86	37.772		
13,000.00	10,619.00	14,578.77	12,277.48	51.81	63.47	171.95	-1,963.00	-607.12	1,657.90	1,613.32	44.58	37.186		
13,100.00	10,619.00	14,678.76	12,278.56	52.95	64.71	171.95	-2,062.98	-606.24	1,658.99	1,613.67	45.32	36.605		
13,200.00	10,619.00	14,778.76	12,279.65	54.11	65.96	171.96	-2,162.97	-605.37	1,660.08	1,614.00	46.08	36.029		
13,300.00	10,619.00	14,878.75	12,280.73	55.29	67.22	171.96	-2,262.95	-604.50	1,661.16	1,614.32	46.85	35.460		
13,400.00	10,619.00	14,978.75	12,281.81	56.50	68.51	171.96	-2,362.94	-603.63	1,662.25	1,614.62	47.63	34.899		
13,500.00	10,619.00	15,078.74	12,282.89	57.72	69.81	171.96	-2,462.92	-602.75	1,663.34	1,614.91	48.43	34.345		
13,600.00	10,619.00	15,178.73	12,283.98	58.97	71.12	171.96	-2,562.91	-601.88	1,664.42	1,615.18	49.24	33.801		
13,700.00	10,619.00	15,278.73	12,285.06	60.24	72.45	171.97	-2,662.89	-601.01	1,665.51	1,615.44	50.07	33.265		
13,800.00	10,619.00	15,378.72	12,286.14	61.53	73.79	171.97	-2,762.87	-600.14	1,666.60	1,615.69	50.91	32.739		
13,900.00	10,619.00	15,478.72	12,287.23	62.83	75.14	171.97	-2,862.86	-599.27	1,667.68	1,615.93	51.75	32.223		
14,000.00	10,619.00	15,578.71	12,288.31	64.15	76.51	171.97	-2,962.84	-598.39	1,668.77	1,616.15	52.62	31.716		

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 501H
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 501H	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	10,619.00	15,678.71	12,289.39	65.49	77.88	171.97	-3,062.83	-597.52	1,669.86	1,616.37	53.49	31.221		
14,200.00	10,619.00	15,778.70	12,290.47	66.83	79.27	171.97	-3,162.81	-596.65	1,670.94	1,616.58	54.36	30.736		
14,300.00	10,619.00	15,878.69	12,291.56	68.20	80.67	171.98	-3,262.80	-595.78	1,672.03	1,616.78	55.25	30.261		
14,400.00	10,619.00	15,978.69	12,292.64	69.57	82.07	171.98	-3,362.78	-594.90	1,673.12	1,616.96	56.15	29.796		
14,500.00	10,619.00	16,078.68	12,293.72	70.96	83.49	171.98	-3,462.76	-594.03	1,674.20	1,617.14	57.06	29.342		
14,600.00	10,619.00	16,178.68	12,294.81	72.35	84.91	171.98	-3,562.75	-593.16	1,675.29	1,617.32	57.97	28.898		
14,700.00	10,619.00	16,278.67	12,295.89	73.76	86.34	171.98	-3,662.73	-592.29	1,676.38	1,617.48	58.90	28.463		
14,800.00	10,619.00	16,378.66	12,296.97	75.18	87.78	171.98	-3,762.72	-591.41	1,677.46	1,617.64	59.83	28.039		
14,900.00	10,619.00	16,478.66	12,298.05	76.61	89.23	171.99	-3,862.70	-590.54	1,678.55	1,617.79	60.76	27.624		
15,000.00	10,619.00	16,578.65	12,299.14	78.04	90.68	171.99	-3,962.69	-589.67	1,679.64	1,617.93	61.71	27.219		
15,100.00	10,619.00	16,678.65	12,300.22	79.49	92.14	171.99	-4,062.67	-588.80	1,680.72	1,618.06	62.66	26.823		
15,200.00	10,619.00	16,778.64	12,301.30	80.94	93.61	171.99	-4,162.66	-587.92	1,681.81	1,618.19	63.62	26.437		
15,300.00	10,619.00	16,878.63	12,302.39	82.40	95.08	171.99	-4,262.64	-587.05	1,682.90	1,618.32	64.58	26.059		
15,400.00	10,619.00	16,978.63	12,303.47	83.86	96.56	171.99	-4,362.62	-586.18	1,683.98	1,618.43	65.55	25.691		
15,500.00	10,619.00	17,078.62	12,304.55	85.34	98.04	172.00	-4,462.61	-585.31	1,685.07	1,618.55	66.52	25.331		
15,600.00	10,619.00	17,178.62	12,305.64	86.82	99.53	172.00	-4,562.59	-584.43	1,686.16	1,618.66	67.50	24.980		
15,700.00	10,619.00	17,278.61	12,306.72	88.30	101.03	172.00	-4,662.58	-583.56	1,687.24	1,618.76	68.48	24.637		
15,800.00	10,619.00	17,378.60	12,307.80	89.79	102.53	172.00	-4,762.56	-582.69	1,688.33	1,618.86	69.47	24.303		
15,900.00	10,619.00	17,478.60	12,308.88	91.29	104.03	172.00	-4,862.55	-581.82	1,689.42	1,618.95	70.46	23.975		
16,000.00	10,619.00	17,578.59	12,309.97	92.79	105.54	172.00	-4,962.53	-580.94	1,690.50	1,619.04	71.46	23.656		
16,100.00	10,619.00	17,678.59	12,311.05	94.30	107.05	172.01	-5,062.52	-580.07	1,691.59	1,619.13	72.46	23.344		
16,200.00	10,619.00	17,778.58	12,312.13	95.81	108.57	172.01	-5,162.50	-579.20	1,692.68	1,619.21	73.47	23.040		
16,300.00	10,619.00	17,878.58	12,313.22	97.33	110.09	172.01	-5,262.48	-578.33	1,693.76	1,619.29	74.47	22.743		
16,400.00	10,619.00	17,978.57	12,314.30	98.85	111.61	172.01	-5,362.47	-577.45	1,694.85	1,619.36	75.49	22.452		
16,500.00	10,619.00	18,078.56	12,315.38	100.38	113.14	172.01	-5,462.45	-576.58	1,695.94	1,619.44	76.50	22.169		
16,600.00	10,619.00	18,178.56	12,316.46	101.90	114.67	172.01	-5,562.44	-575.71	1,697.02	1,619.50	77.52	21.892		
16,700.00	10,619.00	18,278.55	12,317.55	103.44	116.20	172.02	-5,662.42	-574.84	1,698.11	1,619.57	78.54	21.621		
16,800.00	10,619.00	18,378.55	12,318.63	104.97	117.74	172.02	-5,762.41	-573.97	1,699.20	1,619.63	79.57	21.356		
16,900.00	10,619.00	18,478.54	12,319.71	106.51	119.28	172.02	-5,862.39	-573.09	1,700.28	1,619.69	80.59	21.097		
17,000.00	10,619.00	18,578.53	12,320.80	108.06	120.83	172.02	-5,962.38	-572.22	1,701.37	1,619.74	81.63	20.844		
17,100.00	10,619.00	18,678.53	12,321.88	109.60	122.37	172.02	-6,062.36	-571.35	1,702.46	1,619.80	82.66	20.596		
17,200.00	10,619.00	18,778.52	12,322.96	111.15	123.92	172.02	-6,162.34	-570.48	1,703.54	1,619.85	83.70	20.354		
17,300.00	10,619.00	18,878.52	12,324.04	112.70	125.47	172.02	-6,262.33	-569.60	1,704.63	1,619.90	84.73	20.117		
17,400.00	10,619.00	18,978.51	12,325.13	114.26	127.03	172.03	-6,362.31	-568.73	1,705.72	1,619.94	85.78	19.886		
17,500.00	10,619.00	19,078.50	12,326.21	115.82	128.58	172.03	-6,462.30	-567.86	1,706.80	1,619.98	86.82	19.659		
17,600.00	10,619.00	19,178.50	12,327.29	117.38	130.14	172.03	-6,562.28	-566.99	1,707.89	1,620.03	87.86	19.438		
17,700.00	10,619.00	19,278.49	12,328.38	118.94	131.70	172.03	-6,662.27	-566.11	1,708.98	1,620.07	88.91	19.221		
17,800.00	10,619.00	19,378.49	12,329.46	120.50	133.27	172.03	-6,762.25	-565.24	1,710.06	1,620.10	89.96	19.009		
17,900.00	10,619.00	19,478.48	12,330.54	122.07	134.83	172.03	-6,862.24	-564.37	1,711.15	1,620.14	91.01	18.801		
18,000.00	10,619.00	19,578.47	12,331.62	123.64	136.40	172.04	-6,962.22	-563.50	1,712.24	1,620.17	92.07	18.598		
18,100.00	10,619.00	19,678.47	12,332.71	125.21	137.97	172.04	-7,062.20	-562.62	1,713.32	1,620.20	93.12	18.399		
18,200.00	10,619.00	19,778.46	12,333.79	126.79	139.54	172.04	-7,162.19	-561.75	1,714.41	1,620.23	94.18	18.204		
18,300.00	10,619.00	19,878.46	12,334.87	128.36	141.11	172.04	-7,262.17	-560.88	1,715.50	1,620.26	95.24	18.013		
18,400.00	10,619.00	19,978.45	12,335.96	129.94	142.69	172.04	-7,362.16	-560.01	1,716.58	1,620.29	96.30	17.826		
18,500.00	10,619.00	20,078.45	12,337.04	131.52	144.27	172.04	-7,462.14	-559.13	1,717.67	1,620.31	97.36	17.642		
18,600.00	10,619.00	20,178.44	12,338.12	133.10	145.84	172.05	-7,562.13	-558.26	1,718.76	1,620.33	98.42	17.463		
18,700.00	10,619.00	20,278.43	12,339.20	134.68	147.42	172.05	-7,662.11	-557.39	1,719.84	1,620.35	99.49	17.287		
18,800.00	10,619.00	20,378.43	12,340.29	136.26	149.00	172.05	-7,762.09	-556.52	1,720.93	1,620.37	100.56	17.114		
18,900.00	10,619.00	20,478.42	12,341.37	137.85	150.59	172.05	-7,862.08	-555.64	1,722.02	1,620.39	101.62	16.945		
19,000.00	10,619.00	20,578.42	12,342.45	139.44	152.17	172.05	-7,962.06	-554.77	1,723.10	1,620.41	102.69	16.779		
19,100.00	10,619.00	20,678.41	12,343.54	141.03	153.76	172.05	-8,062.05	-553.90	1,724.19	1,620.43	103.76	16.616		
19,200.00	10,619.00	20,778.40	12,344.62	142.62	155.34	172.06	-8,162.03	-553.03	1,725.28	1,620.44	104.84	16.457		

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 501H
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 501H	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	10,619.00	20,878.40	12,345.70	144.21	156.93	172.06	-8,262.02	-552.16	1,726.36	1,620.46	105.91	16.300		
19,400.00	10,619.00	20,978.39	12,346.78	145.80	158.52	172.06	-8,362.00	-551.28	1,727.45	1,620.47	106.98	16.147		
19,500.00	10,619.00	21,078.39	12,347.87	147.40	160.11	172.06	-8,461.99	-550.41	1,728.54	1,620.48	108.06	15.996		
19,600.00	10,619.00	21,178.38	12,348.95	148.99	161.71	172.06	-8,561.97	-549.54	1,729.63	1,620.49	109.14	15.848		
19,700.00	10,619.00	21,278.37	12,350.03	150.59	163.30	172.06	-8,661.95	-548.67	1,730.71	1,620.50	110.21	15.703		
19,800.00	10,619.00	21,378.37	12,351.12	152.19	164.89	172.06	-8,761.94	-547.79	1,731.80	1,620.51	111.29	15.561		
19,900.00	10,619.00	21,478.36	12,352.20	153.78	166.49	172.07	-8,861.92	-546.92	1,732.89	1,620.51	112.37	15.421		
20,000.00	10,619.00	21,578.36	12,353.28	155.38	168.09	172.07	-8,961.91	-546.05	1,733.97	1,620.52	113.45	15.284		
20,100.00	10,619.00	21,678.35	12,354.36	156.99	169.68	172.07	-9,061.89	-545.18	1,735.06	1,620.53	114.53	15.149		
20,200.00	10,619.00	21,778.34	12,355.45	158.59	171.28	172.07	-9,161.88	-544.30	1,736.15	1,620.53	115.61	15.017		
20,300.00	10,619.00	21,878.34	12,356.53	160.19	172.88	172.07	-9,261.86	-543.43	1,737.23	1,620.53	116.70	14.887		
20,400.00	10,619.00	21,978.33	12,357.61	161.80	174.48	172.07	-9,361.85	-542.56	1,738.32	1,620.54	117.78	14.759		
20,500.00	10,619.00	22,078.33	12,358.70	163.40	176.09	172.08	-9,461.83	-541.69	1,739.41	1,620.54	118.87	14.633		
20,600.00	10,619.00	22,178.32	12,359.78	165.01	177.69	172.08	-9,561.81	-540.81	1,740.49	1,620.54	119.95	14.510		
20,700.00	10,619.00	22,278.31	12,360.86	166.61	179.29	172.08	-9,661.80	-539.94	1,741.58	1,620.54	121.04	14.388		
20,792.10	10,619.00	22,370.41	12,361.86	167.92	180.77	172.08	-9,753.89	-539.14	1,742.58	1,620.74	121.84	14.303		

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 501H
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 501H	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	74.92	932.15	3,458.35	3,581.84							
100.00	100.00	78.50	78.50	0.13	0.12	74.92	932.15	3,458.35	3,581.77	3,581.60	0.17	N/A				
200.00	200.00	178.50	178.50	0.48	0.27	74.92	932.15	3,458.35	3,581.77	3,581.22	0.55	6,466.709				
300.00	300.00	313.77	313.77	0.84	0.72	74.92	931.66	3,457.82	3,581.30	3,580.20	1.11	3,237.620				
400.00	400.00	442.48	442.46	1.20	1.17	74.93	930.76	3,456.21	3,579.91	3,578.24	1.68	2,135.367				
500.00	500.00	581.41	581.36	1.56	1.67	74.94	929.48	3,453.28	3,577.67	3,575.38	2.28	1,568.275				
600.00	600.00	711.72	711.57	1.92	2.14	74.96	926.79	3,449.29	3,574.11	3,571.24	2.87	1,246.705				
700.00	700.00	804.85	804.64	2.28	2.47	74.98	924.71	3,446.32	3,570.45	3,567.09	3.35	1,064.271				
800.00	800.00	894.68	894.40	2.63	2.80	75.01	922.37	3,443.79	3,567.06	3,563.22	3.83	930.230				
900.00	900.00	981.97	981.64	2.99	3.11	75.03	920.23	3,441.81	3,564.20	3,559.89	4.31	827.266				
1,000.00	1,000.00	1,119.18	1,118.74	3.35	3.61	75.06	917.33	3,437.24	3,560.30	3,555.39	4.91	724.781				
1,100.00	1,100.00	1,209.40	1,208.90	3.71	3.94	75.07	915.70	3,434.24	3,556.62	3,551.22	5.39	659.357				
1,200.00	1,200.00	1,321.72	1,321.13	4.07	4.35	75.08	913.81	3,430.21	3,552.71	3,546.77	5.93	598.785				
1,300.00	1,300.00	1,410.03	1,409.37	4.43	4.53	75.09	912.54	3,427.03	3,548.86	3,542.55	6.31	562.645				
1,400.00	1,400.00	1,511.09	1,510.37	4.79	4.56	75.09	911.32	3,423.42	3,545.09	3,538.51	6.58	538.565				
1,500.00	1,500.00	1,604.94	1,604.15	5.14	4.62	75.10	910.28	3,420.23	3,541.52	3,534.63	6.88	514.685				
1,600.00	1,600.00	1,700.80	1,699.95	5.50	4.70	75.10	909.19	3,416.96	3,537.94	3,530.74	7.20	491.256				
1,700.00	1,700.00	1,787.91	1,787.01	5.86	4.79	75.10	908.34	3,414.30	3,534.72	3,527.19	7.54	469.065				
1,800.00	1,800.00	1,877.30	1,876.37	6.22	4.91	75.10	907.58	3,411.76	3,531.77	3,523.88	7.89	447.855				
1,900.00	1,900.00	1,960.52	1,959.55	6.58	5.03	75.11	906.41	3,409.89	3,529.23	3,520.99	8.24	428.121				
2,000.00	2,000.00	2,044.96	2,043.97	6.94	5.17	75.14	904.70	3,408.54	3,527.17	3,518.56	8.61	409.541				
2,100.00	2,100.00	2,125.00	2,123.98	7.29	5.32	75.16	902.94	3,407.57	3,525.46	3,516.48	8.99	392.347				
2,192.74	2,192.73	2,200.22	2,199.19	7.63	5.46	109.07	901.54	3,406.99	3,524.73	3,515.40	9.34	377.433 CC				
2,200.00	2,199.99	2,205.43	2,204.39	7.65	5.47	109.07	901.47	3,406.97	3,524.74	3,515.37	9.37	376.349 ES				
2,300.00	2,299.91	2,288.89	2,287.85	8.01	5.64	109.13	900.48	3,406.83	3,525.55	3,515.80	9.75	361.467				
2,400.00	2,399.69	2,376.32	2,375.28	8.36	5.82	109.19	899.87	3,406.91	3,527.62	3,517.47	10.15	347.501				
2,500.00	2,499.27	2,460.55	2,459.50	8.72	6.00	109.27	899.42	3,407.27	3,530.93	3,520.38	10.55	334.682				
2,600.00	2,598.57	2,544.13	2,543.08	9.08	6.19	109.36	899.23	3,407.97	3,535.59	3,524.64	10.95	322.797				
2,676.13	2,673.94	2,622.22	2,621.16	9.36	6.37	109.47	899.20	3,408.84	3,540.00	3,528.72	11.28	313.702				
2,700.00	2,697.55	2,663.64	2,662.58	9.45	6.47	109.58	898.87	3,409.19	3,541.37	3,529.95	11.41	310.255				
2,800.00	2,796.41	2,795.10	2,793.96	9.82	6.81	109.95	894.62	3,409.97	3,546.26	3,534.35	11.91	297.717				
2,900.00	2,895.28	2,879.00	2,877.70	10.20	7.04	110.22	889.54	3,410.98	3,551.20	3,538.85	12.35	287.595				
3,000.00	2,994.14	2,934.95	2,933.53	10.58	7.19	110.40	886.09	3,412.11	3,557.00	3,544.25	12.74	279.096				
3,100.00	3,093.01	3,042.85	3,041.23	10.96	7.49	110.75	880.26	3,415.00	3,563.76	3,550.53	13.23	269.350				
3,200.00	3,191.87	3,351.00	3,348.23	11.35	8.44	111.82	854.92	3,411.45	3,564.59	3,550.51	14.08	253.163				
3,300.00	3,290.74	3,424.01	3,420.93	11.74	8.67	112.08	848.60	3,409.12	3,565.36	3,550.83	14.53	245.382				
3,400.00	3,389.60	3,491.01	3,487.73	12.13	8.89	112.30	843.67	3,407.59	3,567.29	3,552.32	14.97	238.292				
3,500.00	3,488.46	3,667.71	3,664.02	12.52	9.46	112.84	833.13	3,402.33	3,569.22	3,553.61	15.61	228.639				
3,600.00	3,587.33	3,751.61	3,747.75	12.92	9.74	113.07	829.79	3,398.24	3,569.58	3,553.49	16.08	221.930				
3,700.00	3,686.19	3,823.00	3,819.07	13.32	9.96	113.24	828.29	3,395.50	3,571.17	3,554.63	16.54	215.974				
3,800.00	3,785.06	3,860.10	3,856.15	13.72	10.08	113.33	827.77	3,394.49	3,573.87	3,556.95	16.92	211.162				
3,900.00	3,883.92	3,923.98	3,920.01	14.12	10.29	113.49	826.46	3,393.42	3,577.83	3,560.47	17.36	206.059				
4,000.00	3,982.79	4,061.49	4,057.30	14.53	10.75	113.90	819.05	3,391.70	3,581.72	3,563.77	17.95	199.524				
4,100.00	4,081.65	4,150.40	4,145.90	14.93	11.05	114.20	811.84	3,390.47	3,585.16	3,566.71	18.45	194.325				
4,200.00	4,180.52	4,227.15	4,222.47	15.34	11.31	114.45	806.50	3,389.83	3,589.40	3,570.47	18.92	189.681				
4,300.00	4,279.38	4,389.09	4,384.19	15.74	11.86	114.92	798.53	3,387.38	3,593.66	3,574.09	19.57	183.654				
4,400.00	4,378.25	4,533.17	4,527.99	16.15	12.36	115.33	791.81	3,381.78	3,595.32	3,575.14	20.18	178.204				
4,500.00	4,477.11	4,602.40	4,597.13	16.56	12.59	115.51	789.27	3,379.06	3,597.38	3,576.75	20.64	174.320				
4,600.00	4,575.98	4,673.00	4,667.66	16.97	12.83	115.70	786.95	3,377.07	3,600.57	3,579.47	21.10	170.643				
4,700.00	4,674.84	4,732.18	4,726.80	17.38	13.03	115.85	785.10	3,375.96	3,604.71	3,583.17	21.54	167.350				
4,800.00	4,773.71	4,812.71	4,807.29	17.79	13.31	116.06	782.73	3,374.87	3,609.59	3,587.57	22.02	163.901				
4,900.00	4,872.57	4,904.10	4,898.65	18.21	13.62	116.28	780.65	3,373.88	3,614.89	3,592.36	22.53	160.459				

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 501H
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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 501H	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				
5,000.00	4,971.43	4,993.86	4,988.38	18.62	13.92	116.50	778.96	3,372.96	3,620.38	3,597.35	23.03	157.200				
5,100.00	5,070.30	5,279.19	5,273.26	19.03	14.92	117.28	767.00	3,365.39	3,624.95	3,601.00	23.94	151.412				
5,200.00	5,169.16	5,378.57	5,372.21	19.45	15.28	117.59	759.46	3,359.97	3,625.57	3,601.10	24.48	148.133				
5,300.00	5,268.03	5,463.13	5,456.40	19.86	15.59	117.87	752.81	3,355.62	3,626.58	3,601.60	24.98	145.178				
5,400.00	5,366.89	5,557.18	5,550.03	20.28	15.93	118.17	745.29	3,351.12	3,628.03	3,602.53	25.51	142.243				
5,500.00	5,465.76	5,652.34	5,644.75	20.69	16.29	118.49	737.27	3,346.48	3,629.48	3,603.44	26.03	139.409				
5,600.00	5,564.62	5,730.13	5,722.20	21.11	16.57	118.74	731.01	3,342.99	3,631.46	3,604.94	26.53	136.896				
5,700.00	5,663.49	5,813.01	5,804.76	21.53	16.88	119.01	724.56	3,339.73	3,634.12	3,607.09	27.03	134.449				
5,800.00	5,762.35	5,958.12	5,949.16	21.94	17.42	119.50	711.67	3,333.34	3,636.33	3,608.66	27.67	131.422				
5,900.00	5,861.22	6,056.79	6,047.19	22.36	17.79	119.85	701.66	3,328.35	3,637.96	3,609.74	28.21	128.955				
6,000.00	5,960.08	6,157.11	6,146.88	22.78	18.18	120.21	691.52	3,323.40	3,639.84	3,611.08	28.76	126.571				
6,100.00	6,058.95	6,254.58	6,243.69	23.20	18.55	120.56	681.34	3,318.49	3,641.74	3,612.44	29.30	124.297				
6,200.00	6,157.81	6,329.24	6,317.86	23.62	18.83	120.83	673.58	3,314.92	3,644.06	3,614.28	29.79	122.328				
6,300.00	6,256.68	6,409.57	6,397.77	24.04	19.14	121.11	666.14	3,311.60	3,647.18	3,616.89	30.29	120.407				
6,400.00	6,355.54	6,496.59	6,484.45	24.46	19.46	121.39	659.21	3,308.15	3,650.68	3,619.88	30.80	118.515				
6,500.00	6,454.40	6,575.97	6,563.64	24.88	19.75	121.62	654.55	3,305.29	3,654.72	3,623.43	31.30	116.778				
6,600.00	6,553.27	6,651.00	6,638.54	25.30	20.03	121.83	650.84	3,302.93	3,659.36	3,627.58	31.78	115.159				
6,700.00	6,652.13	6,746.00	6,733.39	25.72	20.37	122.09	646.20	3,300.38	3,664.52	3,632.22	32.30	113.447				
6,800.00	6,751.00	6,831.79	6,819.04	26.14	20.68	122.32	641.87	3,298.33	3,670.04	3,637.23	32.81	111.873				
6,875.92	6,826.06	6,889.50	6,876.67	26.46	20.89	122.48	638.94	3,297.11	3,674.50	3,641.33	33.17	110.778				
6,900.00	6,849.87	6,907.29	6,894.43	26.56	20.95	122.55	638.05	3,296.80	3,675.97	3,642.68	33.28	110.442				
7,000.00	6,949.01	7,008.43	6,995.44	26.97	21.32	122.86	633.21	3,295.18	3,681.40	3,647.59	33.82	108.866				
7,100.00	7,048.45	7,129.03	7,115.92	27.36	21.75	123.15	628.45	3,292.69	3,685.02	3,650.64	34.38	107.175				
7,200.00	7,148.14	7,199.01	7,185.86	27.73	21.99	123.28	626.31	3,291.35	3,687.38	3,652.56	34.82	105.897				
7,300.00	7,248.00	7,267.27	7,254.10	28.09	22.23	123.37	624.86	3,290.54	3,689.09	3,653.85	35.24	104.681				
7,400.00	7,347.96	7,340.99	7,327.81	28.44	22.49	123.43	623.63	3,290.32	3,690.23	3,654.57	35.66	103.473				
7,452.05	7,400.00	7,386.67	7,373.48	28.61	22.64	89.58	622.92	3,290.35	3,690.45	3,654.56	35.90	102.808				
7,500.00	7,447.96	7,429.11	7,415.92	28.77	22.79	89.59	622.26	3,290.45	3,690.56	3,654.44	36.11	102.201				
7,600.00	7,547.96	7,520.83	7,507.63	29.09	23.10	89.61	620.89	3,290.85	3,690.98	3,654.42	36.57	100.943				
7,700.00	7,647.96	7,619.32	7,606.11	29.42	23.44	89.64	619.41	3,291.34	3,691.47	3,654.43	37.04	99.672				
7,800.00	7,747.96	7,706.53	7,693.30	29.75	23.73	89.66	618.10	3,291.99	3,692.20	3,654.72	37.48	98.514				
7,900.00	7,847.96	7,796.16	7,782.92	30.08	24.03	89.67	616.98	3,292.91	3,693.22	3,655.30	37.93	97.380				
8,000.00	7,947.96	7,880.00	7,866.75	30.41	24.31	89.69	616.14	3,294.11	3,694.65	3,656.29	38.36	96.324				
8,100.00	8,047.96	7,974.00	7,960.73	30.74	24.62	89.70	615.46	3,295.69	3,696.32	3,657.51	38.81	95.242				
8,200.00	8,147.96	8,068.00	8,054.71	31.07	24.92	89.70	615.07	3,297.44	3,698.19	3,658.92	39.26	94.192				
8,300.00	8,247.96	8,162.00	8,148.69	31.40	25.22	89.70	615.05	3,299.39	3,700.26	3,660.55	39.71	93.176				
8,400.00	8,347.96	8,250.40	8,237.07	31.74	25.50	89.70	615.57	3,301.38	3,702.51	3,662.36	40.15	92.224				
8,500.00	8,447.96	8,368.08	8,354.72	32.07	25.87	89.68	616.91	3,303.88	3,704.64	3,663.99	40.65	91.131				
8,600.00	8,547.96	8,456.40	8,443.01	32.40	26.14	89.66	618.29	3,305.72	3,706.73	3,665.64	41.08	90.221				
8,700.00	8,647.96	8,543.82	8,530.38	32.74	26.41	89.63	619.83	3,307.84	3,709.16	3,667.64	41.52	89.343				
8,800.00	8,747.96	8,711.72	8,698.22	33.07	26.94	89.59	622.85	3,311.25	3,711.46	3,669.32	42.14	88.069				
8,900.00	8,847.96	8,832.97	8,819.46	33.41	27.32	89.57	623.87	3,311.67	3,711.78	3,669.12	42.66	87.016				
9,000.00	8,947.96	8,943.80	8,930.29	33.74	27.67	89.55	625.05	3,311.73	3,711.84	3,668.70	43.15	86.028				
9,100.00	9,047.96	9,049.32	9,035.79	34.08	28.01	89.52	627.01	3,311.43	3,711.57	3,667.94	43.63	85.078				
9,177.80	9,125.75	9,117.79	9,104.25	34.34	28.23	89.50	628.35	3,311.32	3,711.46	3,667.50	43.97	84.415				
9,200.00	9,147.96	9,136.68	9,123.13	34.42	28.29	89.50	628.70	3,311.33	3,711.47	3,667.41	44.06	84.232				
9,300.00	9,247.96	9,222.10	9,208.53	34.75	28.56	89.47	630.22	3,311.56	3,711.76	3,667.27	44.50	83.419				
9,400.00	9,347.96	9,311.60	9,298.01	35.09	28.84	89.44	632.25	3,312.14	3,712.42	3,667.49	44.94	82.612				
9,500.00	9,447.96	9,419.11	9,405.49	35.43	29.19	89.40	634.95	3,312.85	3,713.11	3,667.69	45.42	81.744				
9,600.00	9,547.96	9,523.02	9,509.37	35.77	29.52	89.36	637.37	3,313.28	3,713.55	3,667.65	45.90	80.902				
9,700.00	9,647.96	9,610.79	9,597.11	36.11	29.80	89.33	639.55	3,313.77	3,714.14	3,667.80	46.34	80.145				
9,800.00	9,747.96	9,688.46	9,674.76	36.44	30.05	89.30	641.42	3,314.56	3,715.19	3,668.44	46.76	79.454				

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 501H
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 501H	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		
9,900.00	9,847.96	9,765.00	9,751.26	36.78	30.30	89.27	643.07	3,316.00	3,717.06	3,669.89	47.17	78.798		
10,000.00	9,947.96	9,819.70	9,805.93	37.12	30.47	89.26	644.13	3,317.54	3,719.81	3,672.28	47.53	78.265		
10,098.09	10,046.04	9,911.22	9,897.38	37.46	30.77	89.24	645.42	3,320.81	3,723.31	3,675.33	47.98	77.605		
10,100.00	10,047.96	9,913.95	9,900.11	37.46	30.78	-90.20	645.43	3,320.90	3,723.37	3,675.38	47.99	77.589		
10,150.00	10,097.88	9,973.38	9,959.51	37.61	30.98	-90.07	645.24	3,322.80	3,724.97	3,676.73	48.24	77.223		
10,200.00	10,147.42	10,017.30	10,003.40	37.74	31.13	-89.99	644.75	3,324.22	3,726.59	3,678.16	48.43	76.943		
10,250.00	10,196.18	10,073.33	10,059.39	37.86	31.32	-90.00	643.79	3,326.08	3,728.28	3,679.63	48.65	76.630		
10,300.00	10,243.80	10,158.64	10,144.64	37.96	31.61	-90.23	641.50	3,328.33	3,729.67	3,680.73	48.94	76.205		
10,350.00	10,289.92	10,204.34	10,190.31	38.05	31.77	-90.35	640.05	3,329.36	3,730.95	3,681.83	49.12	75.960		
10,400.00	10,334.18	10,238.00	10,223.94	38.12	31.89	-90.43	638.92	3,330.08	3,732.33	3,683.08	49.25	75.784		
10,450.00	10,376.24	10,279.11	10,265.02	38.17	32.03	-90.59	637.62	3,331.03	3,733.96	3,684.56	49.39	75.596		
10,500.00	10,415.80	10,307.91	10,293.80	38.21	32.13	-90.64	636.82	3,331.80	3,735.99	3,686.49	49.50	75.478		
10,550.00	10,452.53	10,345.48	10,331.34	38.24	32.26	-90.78	635.93	3,332.90	3,738.44	3,688.82	49.62	75.342		
10,600.00	10,486.18	10,404.38	10,390.23	38.26	32.47	-91.17	635.09	3,334.03	3,740.80	3,691.01	49.79	75.125		
10,650.00	10,516.48	10,461.76	10,447.60	38.26	32.66	-91.57	634.47	3,334.93	3,743.65	3,693.69	49.96	74.933		
10,700.00	10,543.19	10,484.01	10,469.84	38.26	32.74	-91.52	634.32	3,335.24	3,747.03	3,697.00	50.03	74.893		
10,750.00	10,566.12	10,503.11	10,488.93	38.25	32.81	-91.38	634.20	3,335.52	3,751.06	3,700.97	50.09	74.881		
10,800.00	10,585.10	10,522.00	10,507.82	38.23	32.87	-91.17	634.09	3,335.83	3,755.75	3,705.60	50.16	74.882		
10,850.00	10,599.97	10,577.04	10,562.86	38.21	33.06	-91.44	633.65	3,336.11	3,760.74	3,710.42	50.31	74.747		
10,900.00	10,610.62	10,629.49	10,615.31	38.19	33.24	-91.64	633.19	3,336.23	3,766.72	3,716.26	50.46	74.645		
10,950.00	10,616.98	10,635.34	10,621.16	38.17	33.26	-91.07	633.13	3,336.20	3,773.26	3,722.77	50.49	74.727		
10,998.09	10,619.00	10,637.49	10,623.30	38.16	33.27	-90.40	633.11	3,336.19	3,780.24	3,729.72	50.52	74.831		
11,000.00	10,619.00	10,637.50	10,623.32	38.16	33.27	-90.40	633.11	3,336.19	3,780.53	3,730.01	50.52	74.836		
11,100.00	10,619.00	10,638.39	10,624.21	38.19	33.27	-90.41	633.10	3,336.19	3,797.04	3,746.46	50.58	75.069		
11,200.00	10,619.00	10,639.28	10,625.09	38.36	33.28	-90.42	633.09	3,336.18	3,816.10	3,765.41	50.69	75.290		
11,300.00	10,619.00	10,640.16	10,626.98	38.64	33.28	-90.44	633.08	3,336.18	3,837.67	3,786.84	50.83	75.499		
11,400.00	10,619.00	10,641.05	10,626.87	38.99	33.28	-90.45	633.07	3,336.17	3,861.71	3,810.70	51.01	75.700		
11,500.00	10,619.00	12,451.63	11,762.66	39.41	42.67	-107.52	-352.73	3,301.26	3,872.38	3,815.80	56.58	68.447		
11,600.00	10,619.00	12,527.00	11,771.01	39.89	43.33	-107.64	-427.63	3,301.50	3,875.10	3,817.79	57.31	67.620		
11,700.00	10,619.00	12,596.25	11,777.39	40.43	43.95	-107.72	-496.58	3,302.65	3,878.54	3,820.48	58.06	66.803		
11,800.00	10,619.00	12,735.49	11,784.09	41.03	45.25	-107.81	-635.57	3,306.85	3,882.01	3,822.64	59.37	65.391		
11,900.00	10,619.00	12,918.88	11,788.36	41.68	47.07	-107.85	-818.85	3,311.13	3,884.29	3,823.17	61.12	63.557		
12,000.00	10,619.00	13,017.64	11,789.68	42.38	48.10	-107.87	-917.59	3,312.38	3,884.97	3,822.67	62.30	62.360		
12,100.00	10,619.00	13,107.32	11,789.61	43.14	49.06	-107.87	-1,007.26	3,314.08	3,885.82	3,822.36	63.46	61.231		
12,200.00	10,619.00	13,214.78	11,790.77	43.94	50.25	-107.88	-1,114.69	3,315.43	3,886.40	3,821.57	64.83	59.950		
12,300.00	10,619.00	13,282.00	11,791.91	44.79	51.01	-107.90	-1,181.90	3,316.58	3,887.59	3,821.71	65.88	59.010		
12,400.00	10,619.00	13,358.03	11,794.17	45.68	51.89	-107.92	-1,257.88	3,318.14	3,889.52	3,822.47	67.05	58.009		
12,500.00	10,619.00	13,447.31	11,798.82	46.62	52.94	-107.98	-1,347.02	3,319.71	3,891.86	3,823.49	68.37	56.921		
12,600.00	10,619.00	13,527.12	11,803.45	47.59	53.90	-108.05	-1,426.69	3,321.21	3,894.54	3,824.90	69.64	55.922		
12,700.00	10,619.00	13,600.43	11,807.93	48.59	54.79	-108.10	-1,499.83	3,323.00	3,897.85	3,826.97	70.88	54.993		
12,800.00	10,619.00	13,660.00	11,811.78	49.64	55.53	-108.15	-1,559.25	3,324.81	3,901.91	3,829.90	72.00	54.190		
12,900.00	10,619.00	13,754.00	11,818.67	50.71	56.71	-108.24	-1,652.94	3,328.17	3,906.67	3,833.17	73.50	53.153		
13,000.00	10,619.00	13,823.08	11,824.38	51.81	57.59	-108.31	-1,721.73	3,330.90	3,912.05	3,837.28	74.77	52.324		
13,100.00	10,619.00	13,889.23	11,829.97	52.95	58.44	-108.37	-1,787.57	3,333.85	3,918.07	3,842.05	76.02	51.538		
13,200.00	10,619.00	14,229.68	11,839.85	54.11	62.90	-108.46	-2,127.40	3,348.04	3,923.23	3,842.99	80.24	48.892		
13,300.00	10,619.00	14,367.98	11,843.93	55.29	64.77	-108.52	-2,265.63	3,348.11	3,923.35	3,841.00	82.35	47.644		
13,331.67	10,619.00	14,376.48	11,844.37	55.67	64.88	-108.53	-2,274.12	3,348.08	3,923.31	3,840.66	82.65	47.470		
13,400.00	10,619.00	14,417.83	11,846.77	56.50	65.45	-108.57	-2,315.41	3,347.82	3,923.55	3,840.01	83.53	46.969		
13,500.00	10,619.00	14,445.00	11,848.78	57.72	65.82	-108.60	-2,342.50	3,347.67	3,924.98	3,840.50	84.48	46.461		
13,600.00	10,619.00	14,510.19	11,854.71	58.97	66.72	-108.68	-2,407.42	3,347.88	3,927.51	3,841.67	85.84	45.755		
13,700.00	10,619.00	14,602.30	11,864.22	60.24	68.00	-108.81	-2,499.02	3,349.45	3,931.51	3,844.01	87.50	44.931		
13,800.00	10,619.00	14,702.99	11,872.81	61.53	69.41	-108.92	-2,599.33	3,351.13	3,934.94	3,845.65	89.28	44.073		

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 501H
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 501H	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				
13,900.00	10,619.00	14,768.90	11,878.90	62.83	70.34	-109.00	-2,664.94	3,352.44	3,938.95	3,848.26	90.69	43.435				
14,000.00	10,619.00	15,106.00	11,903.49	64.15	75.15	-109.36	-3,000.92	3,351.98	3,939.93	3,844.80	95.13	41.418				
14,100.00	10,619.00	15,106.00	11,903.49	65.49	75.15	-109.36	-3,000.92	3,351.98	3,939.71	3,843.86	95.86	41.100				
14,107.92	10,619.00	15,141.96	11,905.03	65.59	75.67	-109.39	-3,036.84	3,351.45	3,939.20	3,842.88	96.32	40.897				
14,200.00	10,619.00	15,200.00	11,908.98	66.83	76.51	-109.44	-3,094.74	3,352.06	3,940.82	3,843.18	97.64	40.363				
14,300.00	10,619.00	15,200.00	11,908.98	68.20	76.51	-109.44	-3,094.74	3,352.06	3,943.30	3,844.96	98.34	40.098				
14,400.00	10,619.00	15,371.83	11,918.91	69.57	79.01	-109.57	-3,266.24	3,354.55	3,945.35	3,844.30	101.05	39.044				
14,500.00	10,619.00	15,552.73	11,919.41	70.96	81.66	-109.57	-3,447.10	3,357.71	3,946.10	3,842.18	103.92	37.973				
14,600.00	10,619.00	15,862.00	11,921.79	72.35	86.21	-109.66	-3,756.18	3,350.01	3,942.60	3,834.43	108.16	36.451				
14,700.00	10,619.00	15,862.00	11,921.79	73.76	86.21	-109.66	-3,756.18	3,350.01	3,938.44	3,829.44	109.00	36.133				
14,800.00	10,619.00	15,915.58	11,922.22	75.18	87.01	-109.68	-3,809.70	3,347.98	3,935.11	3,824.70	110.41	35.640				
14,900.00	10,619.00	15,956.00	11,924.98	76.61	87.62	-109.72	-3,850.02	3,347.46	3,934.63	3,822.97	111.66	35.239				
14,907.49	10,619.00	15,956.00	11,924.98	76.71	87.62	-109.72	-3,850.02	3,347.46	3,934.62	3,822.91	111.72	35.220				
15,000.00	10,619.00	15,956.00	11,924.98	78.04	87.62	-109.72	-3,850.02	3,347.46	3,935.71	3,823.29	112.42	35.009				
15,100.00	10,619.00	16,035.82	11,932.55	79.49	88.82	-109.82	-3,929.48	3,347.62	3,938.22	3,824.13	114.09	34.518				
15,200.00	10,619.00	16,372.54	11,944.90	80.94	93.90	-110.01	-4,265.46	3,348.49	3,940.46	3,821.64	118.82	33.164				
15,300.00	10,619.00	16,429.00	11,943.29	82.40	94.75	-109.99	-4,321.89	3,348.27	3,938.07	3,817.74	120.32	32.729				
15,400.00	10,619.00	16,461.67	11,942.89	83.86	95.25	-109.98	-4,354.55	3,348.43	3,937.00	3,815.47	121.54	32.394				
15,421.03	10,619.00	16,470.69	11,942.86	84.17	95.39	-109.98	-4,363.58	3,348.52	3,936.97	3,815.16	121.82	32.319				
15,500.00	10,619.00	16,523.00	11,943.38	85.34	96.18	-109.99	-4,415.88	3,349.33	3,937.52	3,814.45	123.07	31.993				
15,600.00	10,619.00	16,550.24	11,944.12	86.82	96.60	-110.00	-4,443.10	3,349.95	3,939.27	3,815.10	124.18	31.723				
15,700.00	10,619.00	16,618.00	11,947.44	88.30	97.64	-110.03	-4,510.75	3,351.90	3,942.57	3,816.80	125.76	31.349				
15,800.00	10,619.00	16,749.78	11,953.86	89.79	99.66	-110.11	-4,642.32	3,355.26	3,945.79	3,817.63	128.16	30.788				
15,900.00	10,619.00	16,828.48	11,956.90	91.29	100.87	-110.15	-4,720.94	3,357.17	3,948.51	3,818.61	129.90	30.397				
16,000.00	10,619.00	16,900.00	11,959.57	92.79	101.97	-110.18	-4,792.36	3,359.69	3,952.12	3,820.57	131.55	30.043				
16,100.00	10,619.00	16,959.67	11,962.22	94.30	102.89	-110.20	-4,851.93	3,362.18	3,956.57	3,823.52	133.04	29.739				
16,200.00	10,619.00	17,019.50	11,965.66	95.81	103.82	-110.24	-4,911.60	3,364.80	3,961.81	3,827.28	134.53	29.450				
16,300.00	10,619.00	17,089.00	11,969.05	97.33	104.90	-110.27	-4,980.87	3,369.24	3,968.41	3,832.27	136.14	29.149				
16,400.00	10,619.00	17,372.00	11,979.10	98.85	109.29	-110.36	-5,263.31	3,381.05	3,972.55	3,831.95	140.60	28.254				
16,500.00	10,619.00	17,375.40	11,979.30	100.38	109.34	-110.36	-5,266.70	3,381.17	3,975.79	3,834.40	141.39	28.119				
16,600.00	10,619.00	17,466.00	11,984.67	101.90	110.76	-110.42	-5,357.09	3,384.24	3,980.15	3,836.86	143.29	27.777				
16,700.00	10,619.00	17,698.63	11,997.70	103.44	114.39	-110.58	-5,589.26	3,388.65	3,982.76	3,835.77	146.99	27.095				
16,800.00	10,619.00	17,750.00	12,000.61	104.97	115.20	-110.62	-5,640.53	3,389.70	3,985.24	3,836.83	148.41	26.852				
16,900.00	10,619.00	18,109.08	12,017.72	106.51	120.80	-110.91	-5,998.95	3,380.84	3,981.55	3,828.16	153.38	25.958				
17,000.00	10,619.00	18,127.00	12,018.55	108.06	121.08	-110.93	-6,016.83	3,379.96	3,978.47	3,823.96	154.51	25.748				
17,100.00	10,619.00	18,187.75	12,022.19	109.60	122.03	-111.00	-6,077.42	3,377.64	3,976.51	3,820.44	156.08	25.478				
17,200.00	10,619.00	18,401.30	12,036.72	111.15	125.38	-111.24	-6,290.31	3,370.03	3,975.31	3,816.03	159.27	24.959				
17,300.00	10,619.00	18,504.00	12,040.01	112.70	126.99	-111.32	-6,392.79	3,364.78	3,970.78	3,809.46	161.32	24.615				
17,400.00	10,619.00	18,504.00	12,040.01	114.26	126.99	-111.32	-6,392.79	3,364.78	3,968.25	3,806.00	162.25	24.457				
17,500.00	10,619.00	18,554.90	12,040.25	115.82	127.79	-111.33	-6,443.67	3,363.71	3,966.56	3,802.82	163.74	24.225				
17,501.46	10,619.00	18,555.18	12,040.25	115.84	127.79	-111.33	-6,443.96	3,363.71	3,966.56	3,802.81	163.75	24.223				
17,600.00	10,619.00	18,598.00	12,041.65	117.38	128.47	-111.35	-6,486.74	3,364.62	3,967.91	3,802.82	165.09	24.034				
17,700.00	10,619.00	18,598.00	12,041.65	118.94	128.47	-111.35	-6,486.74	3,364.62	3,970.57	3,804.73	165.84	23.942				
17,800.00	10,619.00	18,635.56	12,043.41	120.50	129.07	-111.36	-6,524.22	3,366.30	3,975.39	3,808.34	167.05	23.798				
17,900.00	10,619.00	18,692.00	12,046.24	122.07	129.96	-111.39	-6,580.50	3,369.53	3,981.54	3,813.05	168.49	23.631				
18,000.00	10,619.00	18,692.00	12,046.24	123.64	129.96	-111.39	-6,580.50	3,369.53	3,989.37	3,820.31	169.06	23.597				
18,100.00	10,619.00	18,934.93	12,060.94	125.21	133.83	-111.51	-6,822.36	3,385.97	3,997.45	3,824.21	173.23	23.075				
18,200.00	10,619.00	19,292.59	12,074.90	126.79	139.51	-111.70	-7,179.50	3,389.39	3,996.65	3,818.07	178.58	22.380				
18,300.00	10,619.00	19,353.00	12,076.57	128.36	140.47	-111.73	-7,239.88	3,388.55	3,995.76	3,815.59	180.17	22.178				
18,335.29	10,619.00	19,390.72	12,077.73	128.92	141.07	-111.74	-7,277.59	3,388.16	3,995.49	3,814.57	180.93	22.084				
18,335.29	10,619.00	19,390.72	12,077.73	128.92	141.07	-111.74	-7,277.59	3,388.16	3,995.49	3,814.57	180.93	22.084				
18,400.00	10,619.00	19,416.46	12,078.93	129.94	141.48	-111.76	-7,303.29	3,388.07	3,995.81	3,814.03	181.78	21.981				

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 501H
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 501H	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				
18,500.00	10,619.00	19,448.00	12,080.88	131.52	141.98	-111.79	-7,334.78	3,388.13	3,997.56	3,814.60	182.96	21.849				
18,600.00	10,619.00	19,517.61	12,085.47	133.10	143.09	-111.85	-7,404.23	3,389.08	4,000.45	3,815.85	184.60	21.671				
18,700.00	10,619.00	19,699.43	12,088.21	134.68	146.00	-111.86	-7,585.85	3,394.85	4,003.20	3,815.40	187.80	21.316				
18,800.00	10,619.00	19,996.50	12,079.57	136.26	150.74	-111.75	-7,882.74	3,396.84	4,001.22	3,808.85	192.37	20.800				
18,900.00	10,619.00	20,075.81	12,075.88	137.85	152.00	-111.71	-7,961.96	3,395.99	3,997.67	3,803.37	194.29	20.575				
19,000.00	10,619.00	20,130.64	12,074.23	139.44	152.88	-111.70	-8,016.76	3,395.76	3,995.25	3,799.34	195.92	20.393				
19,100.00	10,619.00	20,204.00	12,073.12	141.03	154.05	-111.68	-8,090.11	3,395.97	3,993.97	3,796.24	197.74	20.199				
19,147.85	10,619.00	20,204.00	12,073.12	141.79	154.05	-111.68	-8,090.11	3,395.97	3,993.68	3,795.52	198.17	20.153				
19,200.00	10,619.00	20,236.29	12,072.98	142.62	154.57	-111.68	-8,122.40	3,396.35	3,993.73	3,794.70	199.03	20.066				
19,300.00	10,619.00	20,298.00	12,073.12	144.21	155.56	-111.68	-8,184.09	3,397.86	3,995.01	3,794.35	200.66	19.910				
19,400.00	10,619.00	20,343.40	12,073.35	145.80	156.29	-111.68	-8,229.46	3,399.50	3,997.37	3,795.32	202.05	19.784				
19,500.00	10,619.00	20,509.22	12,073.19	147.40	158.95	-111.65	-8,395.18	3,405.29	3,999.88	3,794.79	205.09	19.503				
19,600.00	10,619.00	20,607.01	12,073.55	148.99	160.52	-111.65	-8,492.94	3,407.41	4,001.12	3,793.93	207.19	19.311				
19,700.00	10,619.00	20,746.68	12,070.81	150.59	162.77	-111.60	-8,632.53	3,410.88	4,001.78	3,791.90	209.88	19.067				
19,758.83	10,619.00	20,815.19	12,067.99	151.53	163.87	-111.56	-8,700.96	3,412.59	4,001.70	3,790.39	211.30	18.938				
19,800.00	10,619.00	20,842.62	12,066.58	152.19	164.31	-111.54	-8,728.33	3,413.46	4,001.77	3,789.74	212.03	18.873				
19,900.00	10,619.00	20,898.61	12,063.77	153.78	165.21	-111.49	-8,784.21	3,415.61	4,002.62	3,788.97	213.65	18.734				
20,000.00	10,619.00	21,108.02	12,060.25	155.38	168.58	-111.43	-8,993.49	3,421.10	4,004.46	3,787.23	217.23	18.434				
20,100.00	10,619.00	21,241.00	12,056.96	156.99	170.72	-111.39	-9,126.42	3,420.42	4,001.97	3,782.19	219.78	18.209				
20,200.00	10,619.00	21,303.69	12,056.26	158.59	171.73	-111.39	-9,189.09	3,419.94	4,000.09	3,778.61	221.49	18.060				
20,300.00	10,619.00	21,369.07	12,056.84	160.19	172.78	-111.40	-9,254.48	3,419.99	3,999.49	3,776.30	223.19	17.919				
20,400.00	10,619.00	21,466.75	12,057.60	161.80	174.35	-111.41	-9,352.15	3,420.32	3,999.19	3,773.90	225.29	17.751				
20,500.00	10,619.00	21,557.70	12,057.90	163.40	175.82	-111.42	-9,443.10	3,420.94	3,999.04	3,771.73	227.31	17.593				
20,508.92	10,619.00	21,565.60	12,057.88	163.54	175.95	-111.42	-9,451.00	3,421.02	3,999.04	3,771.55	227.49	17.579				
20,600.00	10,619.00	21,642.38	12,057.26	165.01	177.18	-111.41	-9,527.76	3,422.13	3,999.17	3,769.90	229.27	17.443				
20,700.00	10,619.00	21,714.00	12,056.04	166.61	178.34	-111.39	-9,599.36	3,423.80	3,999.83	3,768.76	231.08	17.310				
20,792.10	10,619.00	21,758.39	12,055.10	167.92	179.06	-111.37	-9,643.71	3,425.36	4,001.33	3,769.02	232.32	17.224 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 501H
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 501H	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	75.05	932.46	3,493.35	3,615.72							
100.00	100.00	118.95	118.95	0.13	0.17	75.05	932.79	3,492.58	3,615.22	3,615.01	0.21	N/A				
200.00	200.00	190.00	189.99	0.48	0.39	75.04	932.90	3,492.01	3,614.49	3,613.87	0.62	5,837.432				
300.00	300.00	306.00	305.99	0.84	0.80	75.03	933.38	3,491.22	3,613.94	3,612.77	1.16	3,109.852				
400.00	400.00	411.98	411.96	1.20	1.18	75.02	933.64	3,490.43	3,613.29	3,611.61	1.68	2,145.910				
500.00	500.00	540.55	540.52	1.56	1.64	75.01	934.27	3,488.52	3,611.98	3,609.72	2.26	1,595.482				
600.00	600.00	689.90	689.82	1.92	2.18	74.99	934.26	3,485.02	3,609.78	3,606.88	2.90	1,244.693				
700.00	700.00	804.99	804.85	2.28	2.59	74.98	934.01	3,481.04	3,606.37	3,602.92	3.45	1,046.526				
800.00	800.00	915.18	914.96	2.63	2.99	74.97	933.60	3,477.10	3,602.83	3,598.85	3.98	905.502				
900.00	900.00	1,051.22	1,050.87	2.99	3.49	74.96	932.97	3,471.12	3,598.43	3,593.85	4.58	785.474				
1,000.00	1,000.00	1,123.00	1,122.58	3.35	3.75	74.95	932.58	3,467.98	3,594.05	3,589.04	5.01	717.124				
1,100.00	1,100.00	1,218.00	1,217.50	3.71	4.09	74.95	931.74	3,464.26	3,590.05	3,584.55	5.50	652.192				
1,200.00	1,200.00	1,300.84	1,300.29	4.07	4.39	74.95	930.99	3,461.37	3,586.44	3,580.48	5.97	601.151				
1,300.00	1,300.00	1,404.07	1,403.45	4.43	4.64	74.93	930.97	3,457.60	3,582.91	3,576.51	6.39	560.531				
1,400.00	1,400.00	1,483.00	1,482.33	4.79	4.66	74.91	931.31	3,454.82	3,579.64	3,572.98	6.66	537.767				
1,500.00	1,500.00	1,539.17	1,538.48	5.14	4.69	74.91	931.46	3,453.39	3,577.30	3,570.37	6.94	515.765				
1,600.00	1,600.00	1,573.00	1,572.31	5.50	4.71	74.90	931.51	3,452.95	3,576.40	3,569.18	7.22	495.677				
1,627.83	1,627.83	1,599.76	1,599.06	5.60	4.72	74.90	931.56	3,452.85	3,576.32	3,569.02	7.30	489.730 CC, ES				
1,700.00	1,700.00	1,630.36	1,629.67	5.86	4.74	74.90	931.67	3,453.08	3,576.89	3,569.38	7.51	476.019				
1,800.00	1,800.00	1,663.00	1,662.30	6.22	4.76	74.90	931.83	3,453.71	3,579.11	3,571.30	7.81	458.502				
1,900.00	1,900.00	1,752.00	1,751.25	6.58	4.83	74.90	932.44	3,456.75	3,582.58	3,574.44	8.14	440.256				
2,000.00	2,000.00	1,818.85	1,818.03	6.94	4.90	74.91	933.07	3,459.64	3,586.87	3,578.40	8.47	423.603				
2,100.00	2,100.00	1,929.74	1,928.81	7.29	5.03	74.90	934.57	3,464.28	3,591.27	3,582.42	8.84	406.193				
2,200.00	2,199.99	2,029.30	2,028.28	7.65	5.17	108.73	935.44	3,468.34	3,595.85	3,586.63	9.22	390.062				
2,300.00	2,299.91	2,118.57	2,117.43	8.01	5.32	108.74	934.08	3,472.71	3,601.45	3,591.85	9.60	375.342				
2,400.00	2,399.69	2,210.99	2,209.63	8.36	5.49	108.81	930.51	3,478.03	3,608.15	3,598.16	9.98	361.402				
2,500.00	2,499.27	2,303.14	2,301.51	8.72	5.67	108.92	926.21	3,483.71	3,615.91	3,605.53	10.38	348.288				
2,600.00	2,598.57	2,379.43	2,377.57	9.08	5.83	108.99	922.90	3,488.63	3,624.95	3,614.18	10.77	336.593				
2,676.13	2,673.94	2,445.10	2,443.04	9.36	5.97	109.07	920.52	3,493.10	3,632.84	3,621.76	11.08	327.864				
2,700.00	2,697.55	2,468.65	2,466.52	9.45	6.02	109.15	919.63	3,494.73	3,635.42	3,624.24	11.18	325.082				
2,800.00	2,796.41	2,578.12	2,575.64	9.82	6.29	109.49	915.19	3,502.21	3,646.16	3,634.52	11.64	313.373				
2,900.00	2,895.28	2,820.70	2,817.64	10.20	6.92	110.25	902.96	3,513.10	3,654.09	3,641.79	12.31	296.918				
3,000.00	2,994.14	2,901.13	2,897.92	10.58	7.14	110.50	898.69	3,515.54	3,661.15	3,648.41	12.74	287.379				
3,100.00	3,093.01	2,974.00	2,970.68	10.96	7.34	110.72	895.59	3,518.09	3,668.97	3,655.80	13.17	278.688				
3,200.00	3,191.87	3,049.47	3,046.05	11.35	7.56	110.93	893.26	3,521.05	3,677.52	3,663.92	13.60	270.429				
3,300.00	3,290.74	3,139.65	3,136.11	11.74	7.82	111.18	890.56	3,524.90	3,686.53	3,672.47	14.06	262.162				
3,400.00	3,389.60	3,221.46	3,217.73	12.13	8.07	111.43	886.71	3,528.90	3,695.89	3,681.37	14.52	254.616				
3,500.00	3,488.46	3,327.95	3,323.39	12.52	9.02	112.41	867.74	3,539.13	3,705.13	3,689.74	15.38	240.831				
3,600.00	3,587.33	3,611.66	3,606.98	12.92	9.28	112.66	863.12	3,538.82	3,709.51	3,693.66	15.85	234.001				
3,700.00	3,686.19	3,686.32	3,681.57	13.32	9.51	112.87	859.86	3,538.86	3,714.61	3,698.30	16.31	227.810				
3,800.00	3,785.06	3,753.44	3,748.65	13.72	9.72	113.04	857.81	3,539.18	3,720.45	3,703.70	16.75	222.165				
3,900.00	3,883.92	3,823.00	3,818.17	14.12	9.94	113.22	855.77	3,540.33	3,727.42	3,710.23	17.19	216.804				
4,000.00	3,982.79	3,979.01	3,973.88	14.53	10.45	113.70	846.79	3,543.40	3,734.67	3,716.85	17.81	209.661				
4,100.00	4,081.65	4,085.37	4,079.92	14.93	10.81	114.04	838.68	3,544.03	3,740.07	3,721.73	18.34	203.933				
4,200.00	4,180.52	4,156.04	4,150.46	15.34	11.04	114.26	834.42	3,544.61	3,746.10	3,727.30	18.80	199.296				
4,300.00	4,279.38	4,244.56	4,238.88	15.74	11.33	114.50	830.52	3,545.76	3,752.92	3,733.63	19.29	194.561				
4,400.00	4,378.25	4,363.22	4,357.41	16.15	11.73	114.84	824.99	3,546.89	3,759.46	3,739.62	19.84	189.448				
4,500.00	4,477.11	4,447.73	4,441.76	16.56	12.02	115.09	819.90	3,547.73	3,765.97	3,745.64	20.33	185.217				
4,600.00	4,575.98	4,526.71	4,520.61	16.97	12.29	115.32	815.43	3,548.92	3,773.09	3,752.28	20.81	181.306				
4,700.00	4,674.84	4,617.37	4,611.14	17.38	12.59	115.58	810.96	3,550.56	3,780.71	3,759.39	21.31	177.385				
4,800.00	4,773.71	4,740.02	4,733.58	17.79	13.02	115.94	804.13	3,552.62	3,788.23	3,766.35	21.89	173.088				
4,900.00	4,872.57	4,876.83	4,870.11	18.21	13.49	116.35	795.41	3,553.70	3,794.85	3,772.36	22.49	168.733				

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 501H
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 501H	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	4,971.43	4,976.81	4,969.91	18.62	13.83	116.64	789.38	3,553.95	3,801.11	3,778.09	23.02	165.146		
5,100.00	5,070.30	5,091.45	5,084.37	19.03	14.23	116.97	783.05	3,554.01	3,807.36	3,783.78	23.57	161.506		
5,200.00	5,169.16	5,169.30	5,162.11	19.45	14.50	117.18	778.87	3,553.70	3,813.32	3,789.26	24.05	158.531		
5,300.00	5,268.03	5,235.00	5,227.71	19.86	14.73	117.37	775.32	3,554.55	3,820.75	3,796.24	24.51	155.900		
5,400.00	5,366.89	5,275.68	5,268.31	20.28	14.87	117.49	773.03	3,555.57	3,829.26	3,804.36	24.90	153.756		
5,500.00	5,465.76	5,361.40	5,353.83	20.69	15.18	117.74	767.77	3,558.04	3,838.54	3,813.14	25.40	151.106		
5,600.00	5,564.62	5,460.02	5,452.22	21.11	15.53	118.03	761.69	3,560.99	3,848.04	3,822.11	25.93	148.391		
5,700.00	5,663.49	5,518.00	5,510.06	21.53	15.73	118.20	758.06	3,562.69	3,857.77	3,831.41	26.36	146.326		
5,800.00	5,762.35	5,612.00	5,603.80	21.94	16.07	118.48	752.22	3,566.51	3,868.50	3,841.62	26.88	143.905		
5,900.00	5,861.22	5,662.24	5,653.87	22.36	16.25	118.62	749.18	3,569.15	3,880.23	3,852.94	27.29	142.171		
6,000.00	5,960.08	5,756.53	5,747.87	22.78	16.59	118.90	743.59	3,574.18	3,892.41	3,864.60	27.81	139.960		
6,100.00	6,058.95	5,859.20	5,850.24	23.20	16.96	119.18	737.90	3,579.63	3,904.69	3,876.34	28.35	137.733		
6,200.00	6,157.81	5,960.25	5,951.00	23.62	17.33	119.47	732.24	3,584.80	3,916.87	3,887.98	28.89	135.602		
6,300.00	6,256.68	6,056.28	6,046.74	24.04	17.68	119.74	726.68	3,589.74	3,929.14	3,899.74	29.41	133.608		
6,400.00	6,355.54	6,156.57	6,146.74	24.46	18.04	120.01	721.17	3,594.87	3,941.51	3,911.57	29.94	131.639		
6,500.00	6,454.40	6,252.33	6,242.23	24.88	18.39	120.28	715.88	3,599.73	3,953.92	3,923.46	30.46	129.790		
6,600.00	6,553.27	6,339.32	6,328.97	25.30	18.70	120.51	711.10	3,604.28	3,966.56	3,935.60	30.96	128.104		
6,700.00	6,652.13	6,431.66	6,421.03	25.72	19.04	120.76	705.93	3,609.34	3,979.53	3,948.06	31.48	126.426		
6,800.00	6,751.00	6,527.12	6,516.20	26.14	19.39	121.02	700.67	3,614.61	3,992.64	3,960.64	32.00	124.776		
6,875.92	6,826.06	6,603.71	6,592.56	26.46	19.67	121.22	696.57	3,618.86	4,002.66	3,970.26	32.41	123.519		
6,900.00	6,849.87	6,628.98	6,617.75	26.56	19.76	121.33	695.17	3,620.24	4,005.79	3,973.26	32.54	123.117		
7,000.00	6,949.01	6,958.40	6,946.84	26.97	20.89	122.09	687.41	3,626.75	4,013.51	3,979.91	33.60	119.454		
7,100.00	7,048.45	7,053.34	7,041.77	27.36	21.19	122.26	688.96	3,626.31	4,018.71	3,984.64	34.08	117.927		
7,200.00	7,148.14	7,146.43	7,134.85	27.73	21.47	122.37	690.54	3,625.99	4,022.64	3,988.09	34.55	116.444		
7,300.00	7,248.00	7,233.88	7,222.28	28.09	21.75	122.44	691.85	3,625.95	4,025.47	3,990.48	34.99	115.034		
7,400.00	7,347.96	7,336.80	7,325.20	28.44	22.07	122.48	693.15	3,625.97	4,026.95	3,991.48	35.47	113.542		
7,452.05	7,400.00	7,385.24	7,373.64	28.61	22.23	88.61	693.65	3,626.00	4,027.19	3,991.49	35.70	112.811		
7,500.00	7,447.96	7,427.93	7,416.32	28.77	22.36	88.61	694.01	3,626.07	4,027.27	3,991.37	35.91	112.156		
7,600.00	7,547.96	7,514.65	7,503.05	29.09	22.65	88.60	694.49	3,626.44	4,027.72	3,991.38	36.34	110.828		
7,700.00	7,647.96	7,609.97	7,598.36	29.42	22.96	88.59	694.79	3,627.03	4,028.35	3,991.55	36.80	109.466		
7,800.00	7,747.96	7,691.00	7,679.39	29.75	23.24	88.59	694.90	3,627.74	4,029.24	3,992.01	37.23	108.232		
7,900.00	7,847.96	7,785.00	7,773.38	30.08	23.56	88.59	695.09	3,628.95	4,030.52	3,992.84	37.69	106.949		
8,000.00	7,947.96	7,855.53	7,843.89	30.41	23.80	88.59	695.38	3,630.21	4,032.29	3,994.20	38.09	105.862		
8,100.00	8,047.96	7,943.28	7,931.63	30.74	24.10	88.58	695.74	3,632.18	4,034.54	3,996.00	38.53	104.700		
8,200.00	8,147.96	8,039.43	8,027.75	31.07	24.42	88.58	696.25	3,634.50	4,036.96	3,997.96	39.00	103.514		
8,300.00	8,247.96	8,136.64	8,124.92	31.40	24.75	88.56	697.20	3,636.89	4,039.45	3,999.98	39.47	102.352		
8,400.00	8,347.96	8,227.61	8,215.86	31.74	25.06	88.55	698.42	3,639.24	4,042.06	4,002.14	39.92	101.259		
8,500.00	8,447.96	8,328.34	8,316.53	32.07	25.40	88.52	700.25	3,642.00	4,044.85	4,004.45	40.39	100.138		
8,600.00	8,547.96	8,442.72	8,430.85	32.40	25.78	88.49	702.47	3,644.88	4,047.42	4,006.52	40.90	98.957		
8,700.00	8,647.96	8,568.58	8,556.66	32.74	26.20	88.46	704.88	3,647.46	4,049.54	4,008.10	41.44	97.729		
8,800.00	8,747.96	8,714.02	8,702.08	33.07	26.70	88.45	705.75	3,649.10	4,050.66	4,008.64	42.02	96.396		
8,900.00	8,847.96	8,820.70	8,808.76	33.41	27.07	88.46	704.71	3,649.65	4,051.15	4,008.63	42.52	95.277		
9,000.00	8,947.96	8,912.62	8,900.67	33.74	27.39	88.48	703.39	3,650.18	4,051.69	4,008.71	42.99	94.258		
9,100.00	9,047.96	9,006.18	8,994.21	34.08	27.72	88.51	701.67	3,650.91	4,052.42	4,008.96	43.46	93.255		
9,200.00	9,147.96	9,097.88	9,085.88	34.42	28.04	88.53	699.97	3,651.78	4,053.32	4,009.40	43.92	92.286		
9,300.00	9,247.96	9,185.20	9,173.19	34.75	28.35	88.55	698.76	3,652.83	4,054.49	4,010.11	44.38	91.365		
9,400.00	9,347.96	9,276.71	9,264.69	35.09	28.67	88.55	698.34	3,654.16	4,055.92	4,011.08	44.84	90.451		
9,500.00	9,447.96	9,426.21	9,414.19	35.43	29.19	88.56	698.07	3,655.43	4,056.74	4,011.29	45.45	89.267		
9,600.00	9,547.96	9,513.21	9,501.18	35.77	29.49	88.56	698.09	3,655.77	4,057.13	4,011.24	45.90	88.394		
9,700.00	9,647.96	9,609.19	9,597.16	36.11	29.81	88.55	698.97	3,656.66	4,058.08	4,011.71	46.37	87.519		
9,800.00	9,747.96	9,757.61	9,745.57	36.44	30.31	88.55	698.44	3,656.48	4,057.82	4,010.86	46.95	86.420		
9,863.36	9,811.32	9,802.27	9,790.22	36.66	30.46	88.57	697.42	3,656.38	4,057.65	4,010.43	47.22	85.932		

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 501H
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 501H	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	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
9,900.00	9,847.96	9,826.17	9,814.11	36.78	30.55	88.57	696.92	3,656.43	4,057.71	4,010.34	47.37	85.664				
10,000.00	9,947.96	9,979.02	9,966.92	37.12	31.08	88.62	693.56	3,656.40	4,057.77	4,009.79	47.98	84.576				
10,098.09	10,046.04	10,074.35	10,062.21	37.46	31.41	88.66	690.84	3,655.45	4,056.73	4,008.28	48.45	83.733				
10,100.00	10,047.96	10,075.75	10,063.61	37.46	31.41	-90.78	690.81	3,655.44	4,056.72	4,008.26	48.46	83.719				
10,150.00	10,097.88	10,112.28	10,100.12	37.61	31.54	-90.83	689.82	3,655.19	4,056.38	4,007.73	48.65	83.375				
10,200.00	10,147.42	10,150.03	10,137.86	37.74	31.67	-90.90	688.87	3,655.06	4,056.27	4,007.43	48.84	83.053				
10,201.88	10,149.27	10,151.82	10,139.64	37.75	31.68	-90.90	688.83	3,655.06	4,056.27	4,007.42	48.85	83.040				
10,250.00	10,196.18	10,197.01	10,184.83	37.86	31.84	-91.02	687.70	3,654.97	4,056.33	4,007.29	49.04	82.717				
10,300.00	10,243.80	10,239.00	10,226.80	37.96	31.98	-91.16	686.62	3,654.91	4,056.52	4,007.30	49.22	82.424				
10,350.00	10,289.92	10,273.47	10,261.26	38.05	32.11	-91.29	685.76	3,654.93	4,056.97	4,007.61	49.36	82.184				
10,400.00	10,334.18	10,303.84	10,291.63	38.12	32.21	-91.40	685.05	3,655.07	4,057.80	4,008.30	49.49	81.985				
10,450.00	10,376.24	10,333.00	10,320.77	38.17	32.32	-91.49	684.43	3,655.30	4,059.02	4,009.41	49.61	81.815				
10,500.00	10,415.80	10,366.25	10,354.02	38.21	32.43	-91.61	683.72	3,655.64	4,060.66	4,010.92	49.73	81.649				
10,550.00	10,452.53	10,397.60	10,385.35	38.24	32.54	-91.69	683.02	3,656.02	4,062.72	4,012.88	49.84	81.510				
10,600.00	10,486.18	10,428.00	10,415.74	38.26	32.65	-91.75	682.31	3,656.43	4,065.26	4,015.31	49.95	81.392				
10,650.00	10,516.48	10,455.97	10,443.71	38.26	32.75	-91.75	681.62	3,656.84	4,068.30	4,018.26	50.04	81.300				
10,700.00	10,543.19	10,482.44	10,470.16	38.26	32.85	-91.70	680.93	3,657.24	4,071.89	4,021.76	50.13	81.229				
10,750.00	10,566.12	10,505.47	10,493.18	38.25	32.93	-91.57	680.29	3,657.60	4,076.05	4,025.85	50.21	81.186				
10,800.00	10,585.10	10,525.09	10,512.79	38.23	33.00	-91.34	679.73	3,657.91	4,080.83	4,030.55	50.28	81.169				
10,850.00	10,599.97	10,542.51	10,530.20	38.21	33.06	-91.03	679.22	3,658.18	4,086.23	4,035.89	50.34	81.173				
10,900.00	10,610.62	10,786.11	10,773.62	38.19	33.90	-93.79	673.32	3,654.84	4,091.88	4,040.96	50.92	80.365				
10,950.00	10,616.98	10,793.79	10,781.30	38.17	33.93	-93.27	673.18	3,654.51	4,098.10	4,047.15	50.96	80.424				
10,998.09	10,619.00	10,796.86	10,784.36	38.16	33.94	-92.63	673.12	3,654.38	4,104.88	4,053.90	50.99	80.511				
11,000.00	10,619.00	10,796.90	10,784.40	38.16	33.94	-92.63	673.12	3,654.38	4,105.17	4,054.18	50.99	80.515				
11,100.00	10,619.00	10,798.86	10,786.36	38.19	33.94	-92.66	673.08	3,654.29	4,121.27	4,070.21	51.06	80.712				
11,200.00	10,619.00	10,800.83	10,788.33	38.36	33.95	-92.69	673.04	3,654.21	4,139.73	4,088.55	51.18	80.888				
11,300.00	10,619.00	10,802.81	10,790.31	38.64	33.96	-92.72	673.01	3,654.12	4,160.51	4,109.17	51.34	81.046				
11,400.00	10,619.00	10,804.80	10,792.30	38.99	33.96	-92.74	672.97	3,654.04	4,183.57	4,132.04	51.53	81.186				
11,500.00	10,619.00	10,806.80	10,794.29	39.41	33.97	-92.77	672.93	3,653.95	4,208.89	4,157.13	51.76	81.313				
11,600.00	10,619.00	10,808.81	10,796.30	39.89	33.98	-92.80	672.89	3,653.87	4,236.41	4,184.39	52.03	81.429				
11,700.00	10,619.00	10,806.00	10,793.49	40.43	33.97	-92.76	672.95	3,653.99	4,266.11	4,213.79	52.31	81.551				
11,800.00	10,619.00	13,186.00	11,981.49	41.03	47.72	-108.89	-815.87	3,658.44	4,275.27	4,214.53	60.74	70.390				
11,876.51	10,619.00	13,186.00	11,981.49	41.53	47.72	-108.89	-815.87	3,658.44	4,274.59	4,213.53	61.05	70.015				
11,900.00	10,619.00	13,186.00	11,981.49	41.68	47.72	-108.89	-815.87	3,658.44	4,274.65	4,213.50	61.15	69.906				
12,000.00	10,619.00	13,256.98	11,986.37	42.38	48.45	-108.95	-886.68	3,657.95	4,275.38	4,213.28	62.10	68.849				
12,100.00	10,619.00	13,280.00	11,987.55	43.14	48.69	-108.97	-909.66	3,658.11	4,277.35	4,214.62	62.73	68.188				
12,200.00	10,619.00	13,325.96	11,989.80	43.94	49.19	-108.99	-955.55	3,659.22	4,280.68	4,217.12	63.56	67.344				
12,300.00	10,619.00	13,374.00	11,992.31	44.79	49.70	-109.02	-1,003.46	3,661.72	4,285.97	4,221.52	64.44	66.510				
12,400.00	10,619.00	13,783.00	12,005.65	45.68	54.36	-109.16	-1,411.63	3,672.26	4,290.65	4,222.30	68.35	62.774				
12,500.00	10,619.00	13,858.81	12,004.43	46.62	55.27	-109.14	-1,487.43	3,672.16	4,289.11	4,219.52	69.59	61.636				
12,600.00	10,619.00	14,035.69	11,999.39	47.59	57.43	-109.09	-1,664.23	3,671.82	4,287.06	4,215.29	71.77	59.732				
12,700.00	10,619.00	14,108.02	11,996.37	48.59	58.33	-109.06	-1,736.50	3,671.42	4,284.31	4,211.25	73.06	58.639				
12,800.00	10,619.00	14,162.00	11,994.73	49.64	59.01	-109.04	-1,790.45	3,671.52	4,282.57	4,208.37	74.21	57.712				
12,900.00	10,619.00	14,256.00	11,993.25	50.71	60.21	-109.02	-1,884.44	3,671.76	4,281.39	4,205.65	75.74	56.525				
13,000.00	10,619.00	14,338.47	11,993.50	51.81	61.28	-109.03	-1,966.91	3,671.70	4,280.50	4,203.31	77.20	55.450				
13,100.00	10,619.00	14,445.00	11,994.66	52.95	62.66	-109.05	-2,073.42	3,670.77	4,279.07	4,200.17	78.90	54.235				
13,192.02	10,619.00	14,481.50	11,995.15	54.01	63.15	-109.06	-2,109.92	3,670.59	4,278.64	4,198.74	79.90	53.552				
13,200.00	10,619.00	14,483.32	11,995.19	54.11	63.17	-109.06	-2,111.74	3,670.61	4,278.68	4,198.71	79.97	53.503				
13,300.00	10,619.00	14,539.00	11,997.12	55.29	63.91	-109.08	-2,167.36	3,672.16	4,280.79	4,199.57	81.22	52.706				
13,400.00	10,619.00	14,539.00	11,997.12	56.50	63.91	-109.08	-2,167.36	3,672.16	4,283.63	4,201.71	81.92	52.289				
13,500.00	10,619.00	14,539.00	11,997.12	57.72	63.91	-109.08	-2,167.36	3,672.16	4,288.81	4,206.20	82.62	51.912				
13,600.00	10,619.00	14,822.00	12,013.32	58.97	67.77	-109.25	-2,449.52	3,683.37	4,294.42	4,208.19	86.23	49.801				

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 501H
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 501H	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		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
13,700.00	10,619.00	14,822.00	12,013.32	60.24	67.77	-109.25	-2,449.52	3,683.37	4,297.68	4,210.71	86.97	49.418				
13,800.00	10,619.00	15,246.13	12,021.18	61.53	73.69	-109.35	-2,873.24	3,685.86	4,296.63	4,204.53	92.10	46.653				
13,900.00	10,619.00	15,432.29	12,021.19	62.83	76.32	-109.39	-3,059.24	3,679.37	4,292.35	4,197.57	94.78	45.289				
14,000.00	10,619.00	15,483.00	12,022.38	64.15	77.04	-109.42	-3,109.90	3,677.50	4,288.27	4,192.15	96.12	44.613				
14,100.00	10,619.00	15,483.00	12,022.38	65.49	77.04	-109.42	-3,109.90	3,677.50	4,285.46	4,188.50	96.96	44.198				
14,200.00	10,619.00	15,532.52	12,024.42	66.83	77.75	-109.45	-3,159.37	3,676.59	4,284.28	4,185.99	98.29	43.586				
14,234.19	10,619.00	15,546.65	12,025.05	67.30	77.95	-109.46	-3,173.48	3,676.47	4,284.20	4,185.48	98.72	43.397				
14,300.00	10,619.00	15,578.00	12,026.52	68.20	78.41	-109.48	-3,204.80	3,676.43	4,284.50	4,184.92	99.59	43.023				
14,400.00	10,619.00	15,748.88	12,032.22	69.57	80.89	-109.56	-3,375.57	3,675.81	4,284.27	4,182.05	102.22	41.913				
14,454.38	10,619.00	15,767.00	12,032.62	70.32	81.15	-109.57	-3,393.68	3,675.68	4,283.96	4,181.10	102.86	41.647				
14,500.00	10,619.00	15,767.00	12,032.62	70.96	81.15	-109.57	-3,393.68	3,675.68	4,284.20	4,180.96	103.24	41.497				
14,600.00	10,619.00	15,822.40	12,034.23	72.35	81.96	-109.59	-3,449.06	3,675.82	4,285.08	4,180.42	104.66	40.942				
14,700.00	10,619.00	15,861.00	12,036.80	73.76	82.53	-109.62	-3,487.56	3,676.66	4,288.11	4,182.23	105.88	40.499				
14,800.00	10,619.00	15,956.00	12,044.33	75.18	83.94	-109.71	-3,582.24	3,678.40	4,291.60	4,183.87	107.73	39.837				
14,900.00	10,619.00	16,006.38	12,048.34	76.61	84.68	-109.76	-3,632.45	3,679.36	4,295.50	4,186.42	109.08	39.379				
15,000.00	10,619.00	16,050.00	12,052.04	78.04	85.33	-109.80	-3,675.87	3,681.17	4,301.16	4,190.80	110.35	38.977				
15,100.00	10,619.00	16,050.00	12,052.04	79.49	85.33	-109.80	-3,675.87	3,681.17	4,308.44	4,197.35	111.09	38.783				
15,200.00	10,619.00	16,806.00	12,102.11	80.94	96.68	-110.44	-4,428.38	3,684.79	4,316.50	4,196.43	120.08	35.948				
15,300.00	10,619.00	16,806.00	12,102.11	82.40	96.68	-110.44	-4,428.38	3,684.79	4,310.96	4,189.90	121.06	35.611				
15,400.00	10,619.00	16,858.02	12,104.12	83.86	97.46	-110.48	-4,480.27	3,681.80	4,306.54	4,184.01	122.53	35.146				
15,500.00	10,619.00	16,900.00	12,106.54	85.34	98.10	-110.52	-4,522.16	3,680.45	4,304.23	4,180.34	123.89	34.741				
15,600.00	10,619.00	16,923.22	12,108.12	86.82	98.45	-110.54	-4,545.32	3,680.00	4,303.36	4,178.32	125.04	34.416				
15,613.92	10,619.00	16,931.16	12,108.68	87.02	98.57	-110.55	-4,553.24	3,679.86	4,303.35	4,178.10	125.25	34.358				
15,700.00	10,619.00	16,994.00	12,113.43	88.30	99.53	-110.62	-4,615.90	3,679.05	4,303.76	4,177.08	126.68	33.973				
15,800.00	10,619.00	17,034.67	12,116.87	89.79	100.15	-110.66	-4,656.42	3,678.81	4,305.11	4,177.12	127.99	33.636				
15,900.00	10,619.00	17,149.78	12,128.24	91.29	101.91	-110.81	-4,770.95	3,678.06	4,307.13	4,177.04	130.10	33.107				
16,000.00	10,619.00	17,276.00	12,142.41	92.79	103.85	-111.01	-4,896.34	3,675.30	4,308.15	4,175.85	132.30	32.563				
16,100.00	10,619.00	17,323.51	12,148.80	94.30	104.58	-111.10	-4,943.40	3,674.28	4,309.91	4,176.25	133.66	32.245				
16,200.00	10,619.00	17,371.00	12,155.72	95.81	105.30	-111.19	-4,990.38	3,673.33	4,312.61	4,177.60	135.00	31.945				
16,300.00	10,619.00	17,443.21	12,167.12	97.33	106.41	-111.34	-5,061.68	3,672.25	4,316.17	4,179.57	136.59	31.598				
16,400.00	10,619.00	17,566.20	12,185.84	98.85	108.31	-111.58	-5,183.22	3,671.44	4,320.33	4,181.58	138.75	31.138				
16,500.00	10,619.00	17,626.86	12,193.31	100.38	109.25	-111.67	-5,243.42	3,671.76	4,324.45	4,184.21	140.24	30.836				
16,600.00	10,619.00	17,655.00	12,196.45	101.90	109.69	-111.71	-5,271.38	3,672.21	4,329.63	4,188.29	141.34	30.632				
16,700.00	10,619.00	17,714.06	12,202.82	103.44	110.61	-111.78	-5,330.07	3,674.04	4,335.91	4,193.11	142.80	30.363				
16,800.00	10,619.00	17,755.79	12,207.33	104.97	111.26	-111.83	-5,371.49	3,676.18	4,343.76	4,199.72	144.03	30.158				
16,900.00	10,619.00	17,961.71	12,226.68	106.51	114.48	-112.02	-5,576.17	3,687.30	4,351.79	4,204.42	147.37	29.530				
17,000.00	10,619.00	18,033.00	12,232.26	108.06	115.60	-112.08	-5,647.16	3,690.67	4,358.21	4,209.20	149.01	29.248				
17,100.00	10,619.00	18,071.99	12,235.54	109.60	116.21	-112.11	-5,685.95	3,692.85	4,365.63	4,215.41	150.23	29.060				
17,200.00	10,619.00	18,473.46	12,258.52	111.15	122.52	-112.33	-6,086.28	3,707.84	4,370.58	4,214.62	155.96	28.025				
17,300.00	10,619.00	18,639.13	12,260.66	112.70	125.12	-112.36	-6,251.93	3,708.36	4,370.08	4,211.32	158.75	27.527				
17,326.05	10,619.00	18,652.38	12,260.74	113.11	125.33	-112.37	-6,265.18	3,708.43	4,370.04	4,210.89	159.15	27.459				
17,400.00	10,619.00	18,691.00	12,261.11	114.26	125.93	-112.37	-6,303.80	3,708.83	4,370.35	4,210.08	160.27	27.269				
17,500.00	10,619.00	18,750.83	12,262.37	115.82	126.88	-112.38	-6,363.60	3,709.73	4,371.63	4,209.77	161.86	27.009				
17,600.00	10,619.00	18,786.00	12,263.60	117.38	127.43	-112.40	-6,398.75	3,710.32	4,373.93	4,210.79	163.13	26.812				
17,700.00	10,619.00	18,835.71	12,266.31	118.94	128.22	-112.43	-6,448.36	3,711.46	4,377.47	4,212.91	164.55	26.602				
17,800.00	10,619.00	18,880.00	12,269.91	120.50	128.92	-112.46	-6,492.49	3,712.94	4,382.60	4,216.72	165.87	26.421				
17,900.00	10,619.00	19,028.71	12,283.24	122.07	131.27	-112.61	-6,640.52	3,717.51	4,388.15	4,219.68	168.47	26.047				
18,000.00	10,619.00	19,378.21	12,289.71	123.64	136.81	-112.68	-6,989.51	3,722.25	4,387.66	4,214.20	173.47	25.294				
18,100.00	10,619.00	19,640.70	12,271.39	125.21	140.97	-112.45	-7,251.25	3,726.40	4,386.96	4,209.50	177.45	24.722				
18,200.00	10,619.00	19,708.12	12,265.78	126.79	142.04	-112.39	-7,318.43	3,726.17	4,382.53	4,203.25	179.28	24.445				
18,300.00	10,619.00	19,789.90	12,260.01	128.36	143.33	-112.32	-7,400.00	3,725.95	4,378.69	4,197.43	181.25	24.158				
18,400.00	10,619.00	19,825.00	12,257.56	129.94	143.89	-112.30	-7,435.02	3,725.92	4,375.51	4,192.81	182.70	23.949				

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 501H
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 501H	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		
18,500.00	10,619.00	19,879.69	12,255.20	131.52	144.76	-112.27	-7,489.66	3,726.03	4,373.47	4,189.13	184.33	23.726		
18,590.95	10,619.00	19,920.00	12,255.33	132.95	145.40	-112.27	-7,529.96	3,726.26	4,373.06	4,187.39	185.67	23.552		
18,600.00	10,619.00	19,920.00	12,255.33	133.10	145.40	-112.27	-7,529.96	3,726.26	4,373.07	4,187.31	185.76	23.541		
18,700.00	10,619.00	20,031.07	12,255.60	134.68	147.17	-112.27	-7,641.02	3,727.49	4,373.30	4,185.31	187.99	23.264		
18,730.10	10,619.00	20,059.18	12,255.17	135.16	147.62	-112.27	-7,669.12	3,727.93	4,373.29	4,184.69	188.61	23.187		
18,800.00	10,619.00	20,122.69	12,253.95	136.26	148.63	-112.25	-7,732.61	3,729.08	4,373.33	4,183.31	190.02	23.015		
18,900.00	10,619.00	20,203.00	12,252.03	137.85	149.91	-112.22	-7,812.87	3,730.95	4,373.68	4,181.74	191.93	22.787		
19,000.00	10,619.00	20,203.00	12,252.03	139.44	149.91	-112.22	-7,812.87	3,730.95	4,375.42	4,182.58	192.83	22.690		
19,100.00	10,619.00	20,255.81	12,251.14	141.03	150.76	-112.20	-7,865.63	3,733.11	4,378.22	4,183.86	194.36	22.527		
19,200.00	10,619.00	20,297.00	12,251.13	142.62	151.42	-112.19	-7,906.73	3,735.87	4,383.12	4,187.42	195.70	22.397		
19,300.00	10,619.00	20,323.53	12,251.38	144.21	151.85	-112.19	-7,933.17	3,737.97	4,389.43	4,192.63	196.79	22.305		
19,400.00	10,619.00	20,907.72	12,247.65	145.80	161.20	-112.10	-8,516.58	3,751.57	4,388.29	4,183.44	204.85	21.422		
19,500.00	10,619.00	21,039.33	12,242.00	147.40	163.30	-112.05	-8,648.04	3,748.77	4,383.78	4,176.46	207.32	21.145		
19,600.00	10,619.00	21,095.50	12,239.97	148.99	164.20	-112.04	-8,704.15	3,747.30	4,379.28	4,170.25	209.03	20.950		
19,700.00	10,619.00	21,146.00	12,239.08	150.59	165.00	-112.03	-8,754.64	3,746.66	4,376.30	4,165.64	210.66	20.775		
19,800.00	10,619.00	21,184.87	12,238.95	152.19	165.62	-112.03	-8,793.51	3,746.47	4,374.53	4,162.41	212.13	20.622		
19,900.00	10,619.00	21,486.05	12,232.45	153.78	170.43	-112.01	-9,094.40	3,738.54	4,369.16	4,152.90	216.25	20.204		
20,000.00	10,619.00	21,563.66	12,227.96	155.38	171.67	-111.97	-9,171.85	3,736.48	4,363.61	4,145.39	218.22	19.996		
20,100.00	10,619.00	21,618.00	12,224.36	156.99	172.54	-111.93	-9,226.06	3,735.40	4,358.57	4,138.60	219.97	19.815		
20,200.00	10,619.00	21,677.82	12,220.78	158.59	173.50	-111.89	-9,285.76	3,734.68	4,354.48	4,132.74	221.74	19.638		
20,300.00	10,619.00	21,713.00	12,219.22	160.19	174.06	-111.88	-9,320.91	3,734.57	4,351.78	4,128.55	223.23	19.495		
20,400.00	10,619.00	21,807.00	12,215.45	161.80	175.57	-111.83	-9,414.83	3,735.23	4,350.02	4,124.68	225.35	19.304		
20,500.00	10,619.00	21,842.73	12,213.98	163.40	176.15	-111.81	-9,450.52	3,735.89	4,349.12	4,122.33	226.79	19.177		
20,521.97	10,619.00	21,853.20	12,213.55	163.75	176.32	-111.81	-9,460.98	3,736.15	4,349.09	4,121.96	227.13	19.148		
20,600.00	10,619.00	21,902.00	12,211.64	165.01	177.11	-111.78	-9,509.72	3,737.71	4,349.49	4,121.00	228.49	19.036		
20,700.00	10,619.00	21,950.55	12,209.79	166.61	177.89	-111.75	-9,558.20	3,739.73	4,350.89	4,120.85	230.04	18.914		
20,792.10	10,619.00	22,014.07	12,207.42	167.92	178.92	-111.71	-9,621.60	3,742.82	4,352.94	4,121.35	231.59	18.796 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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.54	-0.23	-24.78	24.78				
100.00	100.00	100.00	100.00	0.13	0.13	-90.54	-0.23	-24.78	24.78	24.60	0.18	139.662	
200.00	200.00	200.00	200.00	0.48	0.48	-90.54	-0.23	-24.78	24.78	24.10	0.68	36.209	
300.00	300.00	300.00	300.00	0.84	0.84	-90.54	-0.23	-24.78	24.78	23.59	1.19	20.801	
400.00	400.00	400.00	400.00	1.20	1.20	-90.54	-0.23	-24.78	24.78	23.08	1.70	14.592	
500.00	500.00	500.00	500.00	1.56	1.56	-90.54	-0.23	-24.78	24.78	22.58	2.21	11.237	
600.00	600.00	600.00	600.00	1.92	1.92	-90.54	-0.23	-24.78	24.78	22.07	2.71	9.137	
700.00	700.00	700.00	700.00	2.28	2.28	-90.54	-0.23	-24.78	24.78	21.56	3.22	7.698	
800.00	800.00	800.00	800.00	2.63	2.63	-90.54	-0.23	-24.78	24.78	21.05	3.73	6.651	
900.00	900.00	900.00	900.00	2.99	2.99	-90.54	-0.23	-24.78	24.78	20.55	4.23	5.854	
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-90.54	-0.23	-24.78	24.78	20.04	4.74	5.228	
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-90.54	-0.23	-24.78	24.78	19.53	5.25	4.723	
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.54	-0.23	-24.78	24.78	19.03	5.75	4.307	
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-90.54	-0.23	-24.78	24.78	18.52	6.26	3.958	
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-90.54	-0.23	-24.78	24.78	18.01	6.77	3.662	
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.54	-0.23	-24.78	24.78	17.51	7.27	3.406	
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.54	-0.23	-24.78	24.78	17.00	7.78	3.184	
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.54	-0.23	-24.78	24.78	16.49	8.29	2.990	
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.54	-0.23	-24.78	24.78	15.99	8.80	2.817	
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.54	-0.23	-24.78	24.78	15.48	9.30	2.664	
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.54	-0.23	-24.78	24.78	14.97	9.81	2.526 CC	
2,100.00	2,100.00	2,099.60	2,099.59	7.29	7.29	-88.18	0.81	-25.55	25.57	15.26	10.31	2.479	
2,200.00	2,199.99	2,199.12	2,199.03	7.65	7.65	-50.11	3.94	-27.87	27.31	16.50	10.81	2.527	
2,300.00	2,299.91	2,298.57	2,298.26	8.01	8.00	-46.60	9.14	-31.72	29.25	17.95	11.29	2.590	
2,400.00	2,399.69	2,397.95	2,397.23	8.36	8.36	-43.73	16.41	-37.11	31.36	19.58	11.77	2.663	
2,500.00	2,499.27	2,497.34	2,495.94	8.72	8.72	-41.41	25.73	-44.02	33.59	21.34	12.25	2.742	
2,600.00	2,598.57	2,597.33	2,595.12	9.08	9.08	-41.09	35.95	-51.59	34.70	21.95	12.76	2.721	
2,676.13	2,673.94	2,673.45	2,670.62	9.36	9.36	-42.79	43.73	-57.36	34.24	21.09	13.14	2.605	
2,700.00	2,697.55	2,697.31	2,694.29	9.45	9.45	-43.61	46.17	-59.16	33.93	20.66	13.27	2.557	
2,800.00	2,796.41	2,797.29	2,793.45	9.82	9.82	-47.20	56.38	-66.73	32.70	18.91	13.79	2.372	
2,900.00	2,895.28	2,897.26	2,892.61	10.20	10.20	-51.05	66.59	-74.30	31.62	17.30	14.32	2.208	
3,000.00	2,994.14	2,997.23	2,991.77	10.58	10.58	-55.15	76.81	-81.87	30.68	15.83	14.86	2.065	
3,100.00	3,093.01	3,097.20	3,090.92	10.96	10.96	-59.49	87.02	-89.44	29.92	14.52	15.40	1.943	
3,200.00	3,191.87	3,197.17	3,190.08	11.35	11.34	-64.03	97.24	-97.01	29.33	13.37	15.95	1.838	
3,300.00	3,290.74	3,297.14	3,289.24	11.74	11.72	-68.72	107.45	-104.58	28.93	12.42	16.51	1.752	
3,400.00	3,389.60	3,397.11	3,388.40	12.13	12.11	-73.51	117.66	-112.15	28.73	11.65	17.08	1.682	
3,447.27	3,436.33	3,444.37	3,435.27	12.32	12.29	-75.79	122.49	-115.73	28.71	11.36	17.35	1.655	
3,500.00	3,488.46	3,497.08	3,487.56	12.52	12.49	-78.34	127.88	-119.72	28.74	11.09	17.65	1.628	
3,600.00	3,587.33	3,597.05	3,586.72	12.92	12.88	-83.12	138.09	-127.29	28.95	10.73	18.22	1.589	
3,700.00	3,686.19	3,697.02	3,685.88	13.32	13.27	-87.81	148.31	-134.86	29.36	10.56	18.79	1.562 ES	
3,800.00	3,785.06	3,796.99	3,785.04	13.72	13.66	-92.34	158.52	-142.43	29.95	10.59	19.36	1.547	
3,900.00	3,883.92	3,896.96	3,884.20	14.12	14.05	-96.67	168.73	-150.00	30.73	10.81	19.92	1.542 SF	
4,000.00	3,982.79	3,996.93	3,983.36	14.53	14.45	-100.76	178.95	-157.57	31.67	11.19	20.48	1.546	
4,100.00	4,081.65	4,096.90	4,082.52	14.93	14.84	-104.59	189.16	-165.14	32.77	11.73	21.03	1.558	
4,200.00	4,180.52	4,196.88	4,181.67	15.34	15.23	-108.17	199.38	-172.71	34.00	12.42	21.58	1.575	
4,300.00	4,279.38	4,296.85	4,280.83	15.74	15.63	-111.48	209.59	-180.28	35.35	13.23	22.12	1.598	
4,400.00	4,378.25	4,396.82	4,379.99	16.15	16.02	-114.54	219.81	-187.85	36.82	14.16	22.66	1.625	
4,500.00	4,477.11	4,496.79	4,479.15	16.56	16.42	-117.35	230.02	-195.42	38.38	15.18	23.19	1.655	
4,600.00	4,575.98	4,596.76	4,578.31	16.97	16.82	-119.95	240.23	-202.99	40.02	16.30	23.73	1.687	
4,700.00	4,674.84	4,696.73	4,677.47	17.38	17.21	-122.33	250.45	-210.56	41.74	17.49	24.25	1.721	
4,800.00	4,773.71	4,796.70	4,776.63	17.79	17.61	-124.52	260.66	-218.13	43.53	18.75	24.78	1.757	
4,900.00	4,872.57	4,896.67	4,875.79	18.21	18.01	-126.53	270.88	-225.70	45.38	20.07	25.31	1.793	

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 501H
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 501H	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	4,971.43	4,996.64	4,974.95	18.62	18.41	-128.39	281.09	-233.27	47.27	21.44	25.83	1.830		
5,100.00	5,070.30	5,096.61	5,074.11	19.03	18.81	-130.10	291.30	-240.84	49.22	22.86	26.36	1.867		
5,200.00	5,169.16	5,196.58	5,173.27	19.45	19.21	-131.68	301.52	-248.41	51.20	24.32	26.88	1.905		
5,300.00	5,268.03	5,296.55	5,272.42	19.86	19.61	-133.14	311.73	-255.98	53.22	25.82	27.40	1.942		
5,400.00	5,366.89	5,396.52	5,371.58	20.28	20.01	-134.49	321.95	-263.55	55.27	27.35	27.93	1.979		
5,500.00	5,465.76	5,496.50	5,470.74	20.69	20.41	-135.75	332.16	-271.12	57.35	28.90	28.45	2.016		
5,600.00	5,564.62	5,596.47	5,569.90	21.11	20.81	-136.91	342.37	-278.69	59.46	30.49	28.97	2.052		
5,700.00	5,663.49	5,696.44	5,669.06	21.53	21.21	-138.00	352.59	-286.26	61.59	32.09	29.50	2.088		
5,800.00	5,762.35	5,796.41	5,768.22	21.94	21.61	-139.02	362.80	-293.83	63.74	33.72	30.02	2.123		
5,900.00	5,861.22	5,896.38	5,867.38	22.36	22.02	-139.96	373.02	-301.40	65.91	35.37	30.54	2.158		
6,000.00	5,960.08	5,996.35	5,966.54	22.78	22.42	-140.85	383.23	-308.97	68.09	37.03	31.07	2.192		
6,100.00	6,058.95	6,096.32	6,065.70	23.20	22.82	-141.68	393.45	-316.54	70.29	38.71	31.59	2.225		
6,200.00	6,157.81	6,196.29	6,164.86	23.62	23.22	-142.46	403.66	-324.11	72.51	40.40	32.11	2.258		
6,300.00	6,256.68	6,296.26	6,264.01	24.04	23.63	-143.20	413.87	-331.68	74.74	42.10	32.64	2.290		
6,400.00	6,355.54	6,396.23	6,363.17	24.46	24.03	-143.89	424.09	-339.25	76.98	43.81	33.16	2.321		
6,500.00	6,454.40	6,496.20	6,462.33	24.88	24.43	-144.54	434.30	-346.82	79.22	45.54	33.69	2.352		
6,600.00	6,553.27	6,596.17	6,561.49	25.30	24.84	-145.16	444.52	-354.39	81.48	47.27	34.21	2.382		
6,700.00	6,652.13	6,696.14	6,660.65	25.72	25.24	-145.74	454.73	-361.96	83.75	49.02	34.73	2.411		
6,800.00	6,751.00	6,796.11	6,759.81	26.14	25.64	-146.29	464.94	-369.52	86.03	50.77	35.26	2.440		
6,875.92	6,826.06	6,872.01	6,835.09	26.46	25.95	-146.69	472.70	-375.27	87.76	52.10	35.66	2.461		
6,900.00	6,849.87	6,896.09	6,858.97	26.56	26.05	-146.79	475.16	-377.09	88.25	52.46	35.79	2.466		
7,000.00	6,949.01	6,995.26	6,957.37	26.97	26.45	-146.72	485.09	-384.46	89.12	52.78	36.33	2.453		
7,100.00	7,048.45	7,093.40	7,054.99	27.36	26.83	-146.54	493.22	-390.48	89.55	52.68	36.87	2.429		
7,200.00	7,148.14	7,191.54	7,152.83	27.73	27.20	-146.41	499.34	-395.01	89.88	52.51	37.38	2.405		
7,300.00	7,248.00	7,289.68	7,250.83	28.09	27.55	-146.32	503.43	-398.04	90.11	52.25	37.85	2.380		
7,400.00	7,347.96	7,387.81	7,348.93	28.44	27.90	-146.28	505.49	-399.58	90.22	51.92	38.30	2.356		
7,452.05	7,400.00	7,438.89	7,400.00	28.61	28.07	179.86	505.77	-399.78	90.23	51.72	38.52	2.343		
7,500.00	7,447.96	7,486.84	7,447.96	28.77	28.23	179.86	505.77	-399.78	90.23	51.48	38.75	2.329		
7,600.00	7,547.96	7,586.84	7,547.96	29.09	28.56	179.86	505.77	-399.78	90.23	51.00	39.23	2.300		
7,700.00	7,647.96	7,686.84	7,647.96	29.42	28.90	179.86	505.77	-399.78	90.23	50.51	39.72	2.272		
7,800.00	7,747.96	7,786.84	7,747.96	29.75	29.23	179.86	505.77	-399.78	90.23	50.02	40.21	2.244		
7,900.00	7,847.96	7,886.84	7,847.96	30.08	29.57	179.86	505.77	-399.78	90.23	49.54	40.69	2.217		
8,000.00	7,947.96	7,986.84	7,947.96	30.41	29.90	179.86	505.77	-399.78	90.23	49.05	41.18	2.191		
8,004.33	7,952.29	7,991.18	7,952.29	30.42	29.92	179.86	505.77	-399.78	90.23	49.03	41.20	2.190		
8,100.00	8,047.96	8,079.12	8,040.18	30.74	30.19	179.85	503.74	-399.76	92.58	51.41	41.18	2.249		
8,200.00	8,147.96	8,163.23	8,123.17	31.07	30.40	179.80	490.56	-399.63	108.31	68.18	40.13	2.699		
8,300.00	8,247.96	8,241.94	8,198.31	31.40	30.56	179.73	467.35	-399.40	137.90	99.23	38.67	3.566		
8,400.00	8,347.96	8,313.14	8,262.98	31.74	30.67	179.68	437.66	-399.11	179.70	142.66	37.04	4.852		
8,500.00	8,447.96	8,376.00	8,316.62	32.07	30.74	179.64	404.97	-398.79	231.83	196.43	35.40	6.549		
8,600.00	8,547.96	8,430.64	8,360.11	32.40	30.78	179.61	371.91	-398.47	292.41	258.56	33.85	8.640		
8,700.00	8,647.96	8,477.77	8,394.94	32.74	30.81	179.59	340.19	-398.15	359.80	327.36	32.44	11.091		
8,800.00	8,747.96	8,518.31	8,422.74	33.07	30.83	179.57	310.68	-397.86	432.64	401.43	31.21	13.862		
8,900.00	8,847.96	8,550.00	8,442.97	33.41	30.83	179.56	286.30	-397.62	509.84	479.82	30.02	16.985		
9,000.00	8,947.96	8,583.41	8,462.80	33.74	30.84	179.55	259.42	-397.36	590.48	561.19	29.29	20.162		
9,100.00	9,047.96	8,600.00	8,472.06	34.08	30.84	179.55	245.66	-397.23	674.10	645.85	28.24	23.868		
9,200.00	9,147.96	8,632.48	8,489.01	34.42	30.83	179.54	217.95	-396.95	759.69	731.72	27.98	27.154		
9,300.00	9,247.96	8,650.00	8,497.50	34.75	30.83	179.53	202.63	-396.80	847.31	819.87	27.44	30.874		
9,400.00	9,347.96	8,670.29	8,506.73	35.09	30.83	179.53	184.57	-396.63	936.45	909.31	27.14	34.502		
9,500.00	9,447.96	8,700.00	8,519.09	35.43	30.82	179.52	157.55	-396.36	1,027.15	1,000.02	27.14	37.850		
9,600.00	9,547.96	8,700.00	8,519.09	35.77	30.82	179.52	157.55	-396.36	1,118.40	1,091.75	26.65	41.964		
9,700.00	9,647.96	8,700.00	8,519.09	36.11	30.82	179.52	157.55	-396.36	1,211.03	1,184.72	26.31	46.027		
9,800.00	9,747.96	8,724.02	8,528.04	36.44	30.81	179.52	135.27	-396.14	1,304.02	1,277.61	26.41	49.367		

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 501H
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 501H	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							
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	
9,900.00	9,847.96	8,750.00	8,536.67	36.78	30.81	179.52	110.77	-395.90	1,398.19	1,371.62	26.57	52.621		
10,000.00	9,947.96	8,750.00	8,536.67	37.12	30.81	179.52	110.77	-395.90	1,492.38	1,465.94	26.44	56.449		
10,098.09	10,046.04	8,750.00	8,536.67	37.46	30.81	179.52	110.77	-395.90	1,585.46	1,559.09	26.37	60.120		
10,100.00	10,047.96	8,750.00	8,536.67	37.46	30.81	0.07	110.77	-395.90	1,587.28	1,560.91	26.37	60.191		
10,150.00	10,097.88	8,750.00	8,536.67	37.61	30.81	0.06	110.77	-395.90	1,634.19	1,607.86	26.33	62.058		
10,200.00	10,147.42	8,750.00	8,536.67	37.74	30.81	0.05	110.77	-395.90	1,679.67	1,653.39	26.28	63.923		
10,250.00	10,196.18	8,750.00	8,536.67	37.86	30.81	0.04	110.77	-395.90	1,723.49	1,697.29	26.20	65.771		
10,300.00	10,243.80	8,775.10	8,543.94	37.96	30.80	0.04	86.75	-395.67	1,764.73	1,738.41	26.32	67.043		
10,350.00	10,289.92	8,800.00	8,550.10	38.05	30.79	0.03	62.62	-395.43	1,804.52	1,778.11	26.41	68.327		
10,400.00	10,334.18	8,800.00	8,550.10	38.12	30.79	0.03	62.62	-395.43	1,841.35	1,815.06	26.28	70.055		
10,450.00	10,376.24	8,800.00	8,550.10	38.17	30.79	0.03	62.62	-395.43	1,875.78	1,849.62	26.16	71.700		
10,500.00	10,415.80	8,800.00	8,550.10	38.21	30.79	0.02	62.62	-395.43	1,907.70	1,881.65	26.04	73.252		
10,550.00	10,452.53	8,800.00	8,550.10	38.24	30.79	0.02	62.62	-395.43	1,936.98	1,911.05	25.94	74.682		
10,600.00	10,486.18	8,827.09	8,555.61	38.26	30.79	0.02	36.11	-395.17	1,962.71	1,936.74	25.98	75.556		
10,650.00	10,516.48	8,850.00	8,559.29	38.26	30.79	0.02	13.49	-394.95	1,985.92	1,959.93	25.99	76.411		
10,700.00	10,543.19	8,850.00	8,559.29	38.26	30.79	0.02	13.49	-394.95	2,005.62	1,979.72	25.90	77.423		
10,750.00	10,566.12	8,850.00	8,559.29	38.25	30.79	0.02	13.49	-394.95	2,022.34	1,996.49	25.85	78.234		
10,800.00	10,585.10	8,850.00	8,559.29	38.23	30.79	0.02	13.49	-394.95	2,036.02	2,010.20	25.83	78.833		
10,850.00	10,599.97	8,879.07	8,562.65	38.21	30.79	0.02	-15.38	-394.66	2,045.69	2,019.79	25.90	78.998		
10,900.00	10,610.62	8,900.00	8,564.16	38.19	30.80	0.02	-36.25	-394.46	2,052.47	2,026.51	25.95	79.080		
10,950.00	10,616.98	8,900.00	8,564.16	38.17	30.80	0.02	-36.25	-394.46	2,055.62	2,029.62	26.01	79.047		
10,998.09	10,619.00	8,900.00	8,564.16	38.16	30.80	0.02	-36.25	-394.46	2,055.69	2,029.60	26.09	78.789		
11,000.00	10,619.00	8,900.00	8,564.16	38.16	30.80	0.02	-36.25	-394.46	2,055.64	2,029.54	26.09	78.779		
11,100.00	10,619.00	8,942.61	8,565.00	38.19	30.84	0.02	-78.85	-394.04	2,054.00	2,027.63	26.37	77.892		
11,200.00	10,619.00	9,042.61	8,565.00	38.36	31.06	0.02	-178.84	-393.06	2,054.00	2,027.33	26.67	77.013		
11,300.00	10,619.00	9,142.61	8,565.00	38.64	31.40	0.02	-278.84	-392.08	2,054.00	2,026.99	27.01	76.039		
11,400.00	10,619.00	9,242.61	8,565.00	38.99	31.82	0.02	-378.83	-391.09	2,054.00	2,026.60	27.40	74.973		
11,500.00	10,619.00	9,342.61	8,565.00	39.41	32.31	0.02	-478.83	-390.11	2,054.00	2,026.18	27.82	73.836		
11,600.00	10,619.00	9,442.61	8,565.00	39.89	32.88	0.02	-578.82	-389.13	2,054.00	2,025.72	28.28	72.637		
11,700.00	10,619.00	9,542.61	8,565.00	40.43	33.51	0.02	-678.82	-388.15	2,054.00	2,025.23	28.77	71.388		
11,800.00	10,619.00	9,642.61	8,565.00	41.03	34.21	0.02	-778.81	-387.17	2,054.00	2,024.70	29.30	70.101		
11,900.00	10,619.00	9,742.61	8,565.00	41.68	34.97	0.02	-878.81	-386.19	2,054.00	2,024.14	29.86	68.786		
12,000.00	10,619.00	9,842.61	8,565.00	42.38	35.79	0.02	-978.80	-385.20	2,054.00	2,023.55	30.45	67.452		
12,100.00	10,619.00	9,942.61	8,565.00	43.14	36.67	0.02	-1,078.80	-384.22	2,054.00	2,022.93	31.07	66.108		
12,200.00	10,619.00	10,042.61	8,565.00	43.94	37.59	0.02	-1,178.79	-383.24	2,054.00	2,022.28	31.72	64.762		
12,300.00	10,619.00	10,142.61	8,565.00	44.79	38.57	0.02	-1,278.79	-382.26	2,054.00	2,021.61	32.39	63.422		
12,400.00	10,619.00	10,242.61	8,565.00	45.68	39.58	0.02	-1,378.78	-381.28	2,054.00	2,020.92	33.08	62.092		
12,500.00	10,619.00	10,342.61	8,565.00	46.62	40.64	0.01	-1,478.78	-380.29	2,054.00	2,020.20	33.80	60.776		
12,600.00	10,619.00	10,442.61	8,565.00	47.59	41.74	0.01	-1,578.77	-379.31	2,054.00	2,019.47	34.53	59.479		
12,700.00	10,619.00	10,542.61	8,565.00	48.59	42.87	0.01	-1,678.77	-378.33	2,054.00	2,018.71	35.29	58.204		
12,800.00	10,619.00	10,642.61	8,565.00	49.64	44.03	0.01	-1,778.77	-377.35	2,054.00	2,017.94	36.06	56.953		
12,900.00	10,619.00	10,742.61	8,565.00	50.71	45.23	0.01	-1,878.76	-376.37	2,054.00	2,017.14	36.86	55.729		
13,000.00	10,619.00	10,842.61	8,565.00	51.81	46.45	0.01	-1,978.76	-375.39	2,054.00	2,016.34	37.66	54.533		
13,100.00	10,619.00	10,942.61	8,565.00	52.95	47.70	0.01	-2,078.75	-374.40	2,054.00	2,015.51	38.49	53.367		
13,200.00	10,619.00	11,042.61	8,565.00	54.11	48.97	0.01	-2,178.75	-373.42	2,054.00	2,014.67	39.33	52.231		
13,300.00	10,619.00	11,142.61	8,565.00	55.29	50.26	0.01	-2,278.74	-372.44	2,054.00	2,013.82	40.18	51.125		
13,400.00	10,619.00	11,242.61	8,565.00	56.50	51.58	0.01	-2,378.74	-371.46	2,054.00	2,012.96	41.04	50.050		
13,500.00	10,619.00	11,342.61	8,565.00	57.72	52.91	0.01	-2,478.73	-370.48	2,054.00	2,012.09	41.91	49.006		
13,600.00	10,619.00	11,442.61	8,565.00	58.97	54.26	0.01	-2,578.73	-369.49	2,054.00	2,011.20	42.80	47.992		
13,700.00	10,619.00	11,542.61	8,565.00	60.24	55.62	0.01	-2,678.72	-368.51	2,054.00	2,010.31	43.69	47.008		
13,800.00	10,619.00	11,642.61	8,565.00	61.53	57.01	0.01	-2,778.72	-367.53	2,054.00	2,009.40	44.60	46.054		
13,900.00	10,619.00	11,742.61	8,565.00	62.83	58.40	0.01	-2,878.71	-366.55	2,054.00	2,008.49	45.51	45.129		

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 501H
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 501H	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	10,619.00	11,842.61	8,565.00	64.15	59.81	0.01	-2,978.71	-365.57	2,054.00	2,007.56	46.44	44.232		
14,100.00	10,619.00	11,942.61	8,565.00	65.49	61.23	0.01	-3,078.70	-364.59	2,054.00	2,006.63	47.37	43.363		
14,200.00	10,619.00	12,042.61	8,565.00	66.83	62.66	0.01	-3,178.70	-363.60	2,054.00	2,005.69	48.31	42.520		
14,300.00	10,619.00	12,142.61	8,565.00	68.20	64.10	0.01	-3,278.69	-362.62	2,054.00	2,004.75	49.25	41.704		
14,400.00	10,619.00	12,242.61	8,565.00	69.57	65.55	0.01	-3,378.69	-361.64	2,054.00	2,003.80	50.20	40.913		
14,500.00	10,619.00	12,342.61	8,565.00	70.96	67.01	0.01	-3,478.68	-360.66	2,054.00	2,002.84	51.16	40.146		
14,600.00	10,619.00	12,442.61	8,565.00	72.35	68.48	0.01	-3,578.68	-359.68	2,054.00	2,001.87	52.13	39.403		
14,700.00	10,619.00	12,542.61	8,565.00	73.76	69.96	0.01	-3,678.67	-358.69	2,054.00	2,000.90	53.10	38.683		
14,800.00	10,619.00	12,642.61	8,565.00	75.18	71.45	0.01	-3,778.67	-357.71	2,054.00	1,999.93	54.07	37.985		
14,900.00	10,619.00	12,742.61	8,565.00	76.61	72.94	0.01	-3,878.66	-356.73	2,054.00	1,998.94	55.06	37.308		
15,000.00	10,619.00	12,842.61	8,565.00	78.04	74.44	0.01	-3,978.66	-355.75	2,054.00	1,997.96	56.04	36.652		
15,100.00	10,619.00	12,942.61	8,565.00	79.49	75.94	0.01	-4,078.65	-354.77	2,054.00	1,996.97	57.03	36.015		
15,200.00	10,619.00	13,042.61	8,565.00	80.94	77.46	0.01	-4,178.65	-353.79	2,054.00	1,995.97	58.03	35.398		
15,300.00	10,619.00	13,142.61	8,565.00	82.40	78.97	0.01	-4,278.64	-352.80	2,054.00	1,994.98	59.02	34.799		
15,400.00	10,619.00	13,242.61	8,565.00	83.86	80.50	0.01	-4,378.64	-351.82	2,054.00	1,993.97	60.03	34.218		
15,500.00	10,619.00	13,342.61	8,565.00	85.34	82.02	0.01	-4,478.64	-350.84	2,054.00	1,992.97	61.03	33.654		
15,600.00	10,619.00	13,442.61	8,565.00	86.82	83.55	0.01	-4,578.63	-349.86	2,054.00	1,991.96	62.04	33.106		
15,700.00	10,619.00	13,542.61	8,565.00	88.30	85.09	0.01	-4,678.63	-348.88	2,054.00	1,990.94	63.06	32.574		
15,800.00	10,619.00	13,642.61	8,565.00	89.79	86.63	0.01	-4,778.62	-347.89	2,054.00	1,989.93	64.07	32.057		
15,900.00	10,619.00	13,742.61	8,565.00	91.29	88.18	0.01	-4,878.62	-346.91	2,054.00	1,988.91	65.09	31.555		
16,000.00	10,619.00	13,842.61	8,565.00	92.79	89.72	0.01	-4,978.61	-345.93	2,054.00	1,987.89	66.11	31.067		
16,100.00	10,619.00	13,942.61	8,565.00	94.30	91.28	0.01	-5,078.61	-344.95	2,054.00	1,986.86	67.14	30.593		
16,200.00	10,619.00	14,042.61	8,565.00	95.81	92.83	0.01	-5,178.60	-343.97	2,054.00	1,985.83	68.17	30.132		
16,300.00	10,619.00	14,142.61	8,565.00	97.33	94.39	0.01	-5,278.60	-342.99	2,054.00	1,984.80	69.20	29.683		
16,400.00	10,619.00	14,242.61	8,565.00	98.85	95.95	0.01	-5,378.59	-342.00	2,054.00	1,983.77	70.23	29.246		
16,500.00	10,619.00	14,342.61	8,565.00	100.38	97.52	0.01	-5,478.59	-341.02	2,054.00	1,982.73	71.27	28.822		
16,600.00	10,619.00	14,442.61	8,565.00	101.90	99.08	0.01	-5,578.58	-340.04	2,054.00	1,981.70	72.30	28.408		
16,700.00	10,619.00	14,542.61	8,565.00	103.44	100.66	0.01	-5,678.58	-339.06	2,054.00	1,980.66	73.34	28.005		
16,800.00	10,619.00	14,642.61	8,565.00	104.97	102.23	0.01	-5,778.57	-338.08	2,054.00	1,979.62	74.38	27.613		
16,900.00	10,619.00	14,742.61	8,565.00	106.51	103.80	0.01	-5,878.57	-337.10	2,054.00	1,978.57	75.43	27.231		
17,000.00	10,619.00	14,842.61	8,565.00	108.06	105.38	0.01	-5,978.56	-336.11	2,054.00	1,977.53	76.47	26.859		
17,100.00	10,619.00	14,942.61	8,565.00	109.60	106.96	0.01	-6,078.56	-335.13	2,054.00	1,976.48	77.52	26.496		
17,200.00	10,619.00	15,042.61	8,565.00	111.15	108.54	0.01	-6,178.55	-334.15	2,054.00	1,975.43	78.57	26.143		
17,300.00	10,619.00	15,142.61	8,565.00	112.70	110.13	0.01	-6,278.55	-333.17	2,054.00	1,974.38	79.62	25.798		
17,400.00	10,619.00	15,242.61	8,565.00	114.26	111.71	0.01	-6,378.54	-332.19	2,054.00	1,973.33	80.67	25.461		
17,500.00	10,619.00	15,342.61	8,565.00	115.82	113.30	0.01	-6,478.54	-331.20	2,054.00	1,972.28	81.72	25.133		
17,600.00	10,619.00	15,442.61	8,565.00	117.38	114.89	0.01	-6,578.53	-330.22	2,054.00	1,971.22	82.78	24.813		
17,700.00	10,619.00	15,542.61	8,565.00	118.94	116.48	0.01	-6,678.53	-329.24	2,054.00	1,970.16	83.84	24.500		
17,800.00	10,619.00	15,642.61	8,565.00	120.50	118.07	0.01	-6,778.52	-328.26	2,054.00	1,969.11	84.89	24.195		
17,900.00	10,619.00	15,742.61	8,565.00	122.07	119.67	0.01	-6,878.52	-327.28	2,054.00	1,968.05	85.95	23.897		
18,000.00	10,619.00	15,842.61	8,565.00	123.64	121.26	0.01	-6,978.51	-326.30	2,054.00	1,966.99	87.01	23.606		
18,100.00	10,619.00	15,942.61	8,565.00	125.21	122.86	0.00	-7,078.51	-325.31	2,054.00	1,965.92	88.08	23.321		
18,200.00	10,619.00	16,042.61	8,565.00	126.79	124.46	0.00	-7,178.51	-324.33	2,054.00	1,964.86	89.14	23.043		
18,300.00	10,619.00	16,142.61	8,565.00	128.36	126.06	0.00	-7,278.50	-323.35	2,054.00	1,963.80	90.20	22.771		
18,400.00	10,619.00	16,242.61	8,565.00	129.94	127.66	0.00	-7,378.50	-322.37	2,054.00	1,962.73	91.27	22.505		
18,500.00	10,619.00	16,342.61	8,565.00	131.52	129.27	0.00	-7,478.49	-321.39	2,054.00	1,961.67	92.33	22.246		
18,600.00	10,619.00	16,442.61	8,565.00	133.10	130.87	0.00	-7,578.49	-320.40	2,054.00	1,960.60	93.40	21.991		
18,700.00	10,619.00	16,542.61	8,565.00	134.68	132.47	0.00	-7,678.48	-319.42	2,054.00	1,959.53	94.47	21.743		
18,800.00	10,619.00	16,642.61	8,565.00	136.26	134.08	0.00	-7,778.48	-318.44	2,054.00	1,958.46	95.54	21.499		
18,900.00	10,619.00	16,742.61	8,565.00	137.85	135.69	0.00	-7,878.47	-317.46	2,054.00	1,957.39	96.61	21.261		
19,000.00	10,619.00	16,842.61	8,565.00	139.44	137.30	0.00	-7,978.47	-316.48	2,054.00	1,956.32	97.68	21.028		
19,100.00	10,619.00	16,942.61	8,565.00	141.03	138.91	0.00	-8,078.46	-315.50	2,054.00	1,955.25	98.75	20.800		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PF Fed Com - PF Fed Com 101H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,200.00	10,619.00	17,042.61	8,565.00	142.62	140.52	0.00	-8,178.46	-314.51	2,054.00	1,954.18	99.82	20.577	
19,300.00	10,619.00	17,142.61	8,565.00	144.21	142.13	0.00	-8,278.45	-313.53	2,054.00	1,953.10	100.90	20.358	
19,400.00	10,619.00	17,242.61	8,565.00	145.80	143.74	0.00	-8,378.45	-312.55	2,054.00	1,952.03	101.97	20.143	
19,500.00	10,619.00	17,342.61	8,565.00	147.40	145.35	0.00	-8,478.44	-311.57	2,054.00	1,950.96	103.04	19.933	
19,600.00	10,619.00	17,442.61	8,565.00	148.99	146.97	0.00	-8,578.44	-310.59	2,054.00	1,949.88	104.12	19.727	
19,700.00	10,619.00	17,542.61	8,565.00	150.59	148.58	0.00	-8,678.43	-309.60	2,054.00	1,948.80	105.20	19.525	
19,800.00	10,619.00	17,642.61	8,565.00	152.19	150.20	0.00	-8,778.43	-308.62	2,054.00	1,947.73	106.27	19.327	
19,900.00	10,619.00	17,742.61	8,565.00	153.78	151.81	0.00	-8,878.42	-307.64	2,054.00	1,946.65	107.35	19.133	
20,000.00	10,619.00	17,842.61	8,565.00	155.38	153.43	0.00	-8,978.42	-306.66	2,054.00	1,945.57	108.43	18.943	
20,100.00	10,619.00	17,942.61	8,565.00	156.99	155.05	0.00	-9,078.41	-305.68	2,054.00	1,944.49	109.51	18.756	
20,200.00	10,619.00	18,042.61	8,565.00	158.59	156.67	0.00	-9,178.41	-304.70	2,054.00	1,943.41	110.59	18.573	
20,300.00	10,619.00	18,142.61	8,565.00	160.19	158.29	0.00	-9,278.40	-303.71	2,054.00	1,942.33	111.67	18.394	
20,400.00	10,619.00	18,242.61	8,565.00	161.80	159.91	0.00	-9,378.40	-302.73	2,054.00	1,941.25	112.75	18.217	
20,500.00	10,619.00	18,342.61	8,565.00	163.40	161.53	0.00	-9,478.39	-301.75	2,054.00	1,940.17	113.83	18.044	
20,600.00	10,619.00	18,442.61	8,565.00	165.01	163.15	0.00	-9,578.39	-300.77	2,054.00	1,939.09	114.91	17.874	
20,700.00	10,619.00	18,542.61	8,565.00	166.61	164.77	0.00	-9,678.38	-299.79	2,054.00	1,938.00	116.00	17.708	
20,761.84	10,619.00	18,604.45	8,565.00	167.49	165.77	0.00	-9,740.22	-299.18	2,054.00	1,937.49	116.51	17.630	
20,792.10	10,619.00	18,634.72	8,565.00	167.92	166.26	0.00	-9,770.48	-298.88	2,054.00	1,937.24	116.76	17.592	

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 501H
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 501H	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	89.46	0.47	50.18	50.18					
100.00	100.00	100.00	100.00	0.13	0.13	89.46	0.47	50.18	50.18	50.00	0.18	282.815		
200.00	200.00	200.00	200.00	0.48	0.48	89.46	0.47	50.18	50.18	49.50	0.68	73.323		
300.00	300.00	300.00	300.00	0.84	0.84	89.46	0.47	50.18	50.18	48.99	1.19	42.121		
400.00	400.00	400.00	400.00	1.20	1.20	89.46	0.47	50.18	50.18	48.48	1.70	29.548		
500.00	500.00	500.00	500.00	1.56	1.56	89.46	0.47	50.18	50.18	47.98	2.21	22.755		
600.00	600.00	600.00	600.00	1.92	1.92	89.46	0.47	50.18	50.18	47.47	2.71	18.502		
700.00	700.00	700.00	700.00	2.28	2.28	89.46	0.47	50.18	50.18	46.96	3.22	15.588		
800.00	800.00	800.00	800.00	2.63	2.63	89.46	0.47	50.18	50.18	46.46	3.73	13.467		
900.00	900.00	900.00	900.00	2.99	2.99	89.46	0.47	50.18	50.18	45.95	4.23	11.855		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	89.46	0.47	50.18	50.18	45.44	4.74	10.587		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	89.46	0.47	50.18	50.18	44.93	5.25	9.564		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	89.46	0.47	50.18	50.18	44.43	5.75	8.721		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	89.46	0.47	50.18	50.18	43.92	6.26	8.015		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	89.46	0.47	50.18	50.18	43.41	6.77	7.415		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	89.46	0.47	50.18	50.18	42.91	7.27	6.898		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	89.46	0.47	50.18	50.18	42.40	7.78	6.449		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	89.46	0.47	50.18	50.18	41.89	8.29	6.054		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	89.46	0.47	50.18	50.18	41.39	8.80	5.705		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	89.46	0.47	50.18	50.18	40.88	9.30	5.394		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	89.46	0.47	50.18	50.18	40.37	9.81	5.116		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	89.46	0.47	50.18	50.18	39.86	10.32	4.864 CC, ES		
2,200.00	2,199.99	2,199.99	2,199.99	7.65	7.65	124.55	0.47	50.18	50.91	40.09	10.82	4.704 SF		
2,300.00	2,299.91	2,298.81	2,298.80	8.01	8.00	127.11	1.20	51.23	54.25	42.93	11.32	4.793		
2,400.00	2,399.69	2,397.38	2,397.29	8.36	8.35	129.64	3.37	54.37	61.31	49.51	11.81	5.193		
2,500.00	2,499.27	2,495.49	2,495.19	8.72	8.70	131.76	6.98	59.57	72.10	59.81	12.29	5.865		
2,600.00	2,598.57	2,592.95	2,592.25	9.08	9.04	133.33	11.97	66.77	86.56	73.78	12.77	6.776		
2,676.13	2,673.94	2,666.59	2,665.44	9.36	9.31	134.19	16.69	73.57	99.99	86.85	13.14	7.611		
2,700.00	2,697.55	2,689.59	2,688.25	9.45	9.39	134.43	18.32	75.93	104.58	91.33	13.25	7.892		
2,800.00	2,796.41	2,785.51	2,783.22	9.82	9.74	134.73	25.99	86.99	124.86	111.14	13.72	9.098		
2,900.00	2,895.28	2,880.71	2,877.11	10.20	10.09	134.25	34.94	99.89	146.85	132.65	14.19	10.346		
3,000.00	2,994.14	2,975.76	2,970.45	10.58	10.45	133.32	45.16	114.64	170.50	155.83	14.67	11.625		
3,100.00	3,093.01	3,072.75	3,065.56	10.96	10.83	132.46	55.99	130.26	194.69	179.52	15.17	12.833		
3,200.00	3,191.87	3,169.75	3,160.68	11.35	11.21	131.79	66.82	145.88	218.92	203.24	15.68	13.960		
3,300.00	3,290.74	3,266.74	3,255.79	11.74	11.60	131.25	77.65	161.50	243.17	226.97	16.20	15.014		
3,400.00	3,389.60	3,363.73	3,350.90	12.13	11.99	130.81	88.48	177.12	267.43	250.72	16.71	16.000		
3,500.00	3,488.46	3,460.72	3,446.01	12.52	12.39	130.44	99.31	192.74	291.71	274.47	17.24	16.925		
3,600.00	3,587.33	3,557.72	3,541.13	12.92	12.79	130.13	110.14	208.35	316.00	298.24	17.76	17.792		
3,700.00	3,686.19	3,654.71	3,636.24	13.32	13.20	129.86	120.97	223.97	340.29	322.00	18.29	18.608		
3,800.00	3,785.06	3,751.70	3,731.35	13.72	13.61	129.63	131.80	239.59	364.59	345.77	18.82	19.375		
3,900.00	3,883.92	3,848.69	3,826.46	14.12	14.02	129.43	142.62	255.21	388.90	369.55	19.35	20.099		
4,000.00	3,982.79	3,945.69	3,921.58	14.53	14.43	129.25	153.45	270.83	413.21	393.32	19.88	20.782		
4,100.00	4,081.65	4,042.68	4,016.69	14.93	14.85	129.09	164.28	286.45	437.52	417.10	20.42	21.427		
4,200.00	4,180.52	4,139.67	4,111.80	15.34	15.27	128.95	175.11	302.07	461.83	440.88	20.96	22.037		
4,300.00	4,279.38	4,236.67	4,206.91	15.74	15.69	128.82	185.94	317.69	486.15	464.66	21.50	22.616		
4,400.00	4,378.25	4,333.66	4,302.02	16.15	16.12	128.70	196.77	333.31	510.47	488.44	22.04	23.164		
4,500.00	4,477.11	4,430.65	4,397.14	16.56	16.54	128.60	207.60	348.92	534.79	512.22	22.58	23.685		
4,600.00	4,575.98	4,527.64	4,492.25	16.97	16.97	128.50	218.43	364.54	559.12	536.00	23.12	24.181		
4,700.00	4,674.84	4,624.64	4,587.36	17.38	17.40	128.41	229.26	380.16	583.44	559.78	23.67	24.652		
4,800.00	4,773.71	4,721.63	4,682.47	17.79	17.83	128.33	240.09	395.78	607.77	583.56	24.21	25.101		
4,900.00	4,872.57	4,818.62	4,777.59	18.21	18.26	128.26	250.91	411.40	632.10	607.34	24.76	25.529		
5,000.00	4,971.43	4,915.61	4,872.70	18.62	18.70	128.19	261.74	427.02	656.42	631.12	25.31	25.937		

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 501H
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 501H	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	5,070.30	5,012.61	4,967.81	19.03	19.13	128.13	272.57	442.64	680.75	654.90	25.86	26.327		
5,200.00	5,169.16	5,109.60	5,062.92	19.45	19.57	128.07	283.40	458.26	705.08	678.68	26.41	26.701		
5,300.00	5,268.03	5,206.59	5,158.04	19.86	20.00	128.01	294.23	473.87	729.41	702.46	26.96	27.058		
5,400.00	5,366.89	5,303.58	5,253.15	20.28	20.44	127.96	305.06	489.49	753.74	726.23	27.51	27.400		
5,500.00	5,465.76	5,400.58	5,348.26	20.69	20.88	127.91	315.89	505.11	778.08	750.01	28.06	27.728		
5,600.00	5,564.62	5,497.57	5,443.37	21.11	21.32	127.86	326.72	520.73	802.41	773.79	28.61	28.042		
5,700.00	5,663.49	5,594.56	5,538.49	21.53	21.76	127.82	337.55	536.35	826.74	797.57	29.17	28.344		
5,800.00	5,762.35	5,691.56	5,633.60	21.94	22.20	127.78	348.38	551.97	851.07	821.35	29.72	28.635		
5,900.00	5,861.22	5,788.55	5,728.71	22.36	22.65	127.74	359.21	567.59	875.41	845.13	30.28	28.914		
6,000.00	5,960.08	5,885.54	5,823.82	22.78	23.09	127.70	370.03	583.21	899.74	868.91	30.83	29.182		
6,100.00	6,058.95	5,982.53	5,918.94	23.20	23.53	127.67	380.86	598.83	924.07	892.69	31.39	29.440		
6,200.00	6,157.81	6,079.53	6,014.05	23.62	23.98	127.64	391.69	614.44	948.41	916.46	31.94	29.689		
6,300.00	6,256.68	6,176.52	6,109.16	24.04	24.42	127.61	402.52	630.06	972.74	940.24	32.50	29.929		
6,400.00	6,355.54	6,273.51	6,204.27	24.46	24.87	127.58	413.35	645.68	997.08	964.02	33.06	30.161		
6,500.00	6,454.40	6,370.50	6,299.38	24.88	25.31	127.55	424.18	661.30	1,021.41	987.79	33.62	30.384		
6,600.00	6,553.27	6,467.50	6,394.50	25.30	25.76	127.52	435.01	676.92	1,045.75	1,011.57	34.17	30.600		
6,700.00	6,652.13	6,564.49	6,489.61	25.72	26.21	127.49	445.84	692.54	1,070.08	1,035.35	34.73	30.809		
6,800.00	6,751.00	6,661.48	6,584.72	26.14	26.65	127.47	456.67	708.16	1,094.42	1,059.13	35.29	31.010		
6,875.92	6,826.06	6,735.12	6,656.93	26.46	26.99	127.45	464.89	720.01	1,112.89	1,077.18	35.72	31.159		
6,900.00	6,849.87	6,758.49	6,679.84	26.56	27.10	127.52	467.50	723.78	1,118.71	1,082.86	35.85	31.204		
7,000.00	6,949.01	6,855.95	6,775.42	26.97	27.55	127.70	478.38	739.47	1,141.90	1,105.49	36.41	31.365		
7,100.00	7,048.45	6,983.80	6,901.19	27.36	28.12	127.75	491.44	758.31	1,162.25	1,125.11	37.14	31.298		
7,200.00	7,148.14	7,113.37	7,029.36	27.73	28.68	127.75	502.22	773.86	1,178.45	1,140.62	37.83	31.149		
7,300.00	7,248.00	7,244.30	7,159.47	28.09	29.19	127.71	510.59	785.93	1,190.44	1,151.95	38.49	30.929		
7,400.00	7,347.96	7,376.23	7,290.98	28.44	29.68	127.63	516.45	794.38	1,198.17	1,159.06	39.11	30.638		
7,452.05	7,400.00	7,445.15	7,358.81	28.61	29.92	93.70	518.48	797.31	1,200.49	1,161.08	39.41	30.461		
7,500.00	7,447.96	7,508.76	7,423.38	28.77	30.13	93.64	519.73	799.11	1,201.79	1,162.10	39.68	30.285		
7,600.00	7,547.96	7,633.34	7,547.96	29.09	30.53	93.60	520.47	800.18	1,202.55	1,162.35	40.21	29.909		
7,700.00	7,647.96	7,733.34	7,647.96	29.42	30.84	93.60	520.47	800.18	1,202.55	1,161.88	40.68	29.564		
7,800.00	7,747.96	7,833.34	7,747.96	29.75	31.16	93.60	520.47	800.18	1,202.55	1,161.41	41.15	29.226		
7,900.00	7,847.96	7,933.34	7,847.96	30.08	31.47	93.60	520.47	800.18	1,202.55	1,160.94	41.62	28.895		
8,000.00	7,947.96	8,033.34	7,947.96	30.41	31.78	93.60	520.47	800.18	1,202.55	1,160.46	42.09	28.572		
8,100.00	8,047.96	8,133.34	8,047.96	30.74	32.10	93.60	520.47	800.18	1,202.55	1,159.99	42.56	28.254		
8,200.00	8,147.96	8,222.73	8,137.19	31.07	32.36	93.79	516.52	800.22	1,202.89	1,159.90	43.00	27.977		
8,300.00	8,247.96	8,306.24	8,219.12	31.40	32.55	94.54	500.74	800.37	1,204.49	1,161.11	43.38	27.764		
8,400.00	8,347.96	8,383.70	8,292.33	31.74	32.68	95.73	475.59	800.62	1,207.92	1,164.20	43.72	27.629		
8,500.00	8,447.96	8,450.00	8,351.81	32.07	32.77	97.10	446.40	800.90	1,214.00	1,170.02	43.98	27.604		
8,600.00	8,547.96	8,514.42	8,406.00	32.40	32.82	98.73	411.64	801.24	1,223.57	1,179.41	44.16	27.706		
8,700.00	8,647.96	8,567.39	8,447.41	32.74	32.84	100.25	378.65	801.57	1,237.43	1,193.20	44.23	27.980		
8,800.00	8,747.96	8,613.00	8,480.50	33.07	32.85	101.69	347.28	801.88	1,256.15	1,211.98	44.16	28.443		
8,900.00	8,847.96	8,650.00	8,505.44	33.41	32.85	102.93	319.95	802.14	1,280.10	1,236.15	43.96	29.122		
9,000.00	8,947.96	8,685.98	8,527.95	33.74	32.84	104.19	291.90	802.42	1,309.46	1,265.82	43.64	30.004		
9,100.00	9,047.96	8,715.18	8,544.90	34.08	32.83	105.25	268.13	802.65	1,344.22	1,301.02	43.20	31.113		
9,200.00	9,147.96	8,750.00	8,563.50	34.42	32.81	106.54	238.69	802.94	1,384.31	1,341.58	42.73	32.397		
9,300.00	9,247.96	8,750.00	8,563.50	34.75	32.81	106.54	238.69	802.94	1,429.41	1,387.42	41.99	34.039		
9,400.00	9,347.96	8,782.19	8,579.07	35.09	32.79	107.76	210.52	803.21	1,479.02	1,437.59	41.43	35.703		
9,500.00	9,447.96	8,800.00	8,587.00	35.43	32.78	108.45	194.58	803.37	1,533.13	1,492.37	40.76	37.615		
9,600.00	9,547.96	8,800.00	8,587.00	35.77	32.78	108.45	194.58	803.37	1,591.44	1,551.45	39.99	39.799		
9,700.00	9,647.96	8,828.37	8,598.59	36.11	32.76	109.55	168.69	803.62	1,653.02	1,613.60	39.41	41.939		
9,800.00	9,747.96	8,850.00	8,606.56	36.44	32.74	110.39	148.58	803.82	1,718.18	1,679.35	38.83	44.250		
9,900.00	9,847.96	8,850.00	8,606.56	36.78	32.74	110.39	148.58	803.82	1,786.17	1,748.02	38.15	46.815		
10,000.00	9,947.96	8,850.00	8,606.56	37.12	32.74	110.39	148.58	803.82	1,857.07	1,819.54	37.53	49.488		

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 501H
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 501H	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		
10,098.09	10,046.04	8,870.67	8,613.47	37.46	32.72	111.20	129.10	804.01	1,928.71	1,891.63	37.07	52.024		
10,100.00	10,047.96	8,870.84	8,613.52	37.46	32.72	-68.04	128.95	804.01	1,930.13	1,893.06	37.06	52.076		
10,150.00	10,097.88	8,875.68	8,615.03	37.61	32.72	-62.92	124.34	804.06	1,966.93	1,930.12	36.80	53.443		
10,200.00	10,147.42	8,881.38	8,616.77	37.74	32.71	-58.22	118.91	804.11	2,002.91	1,966.36	36.55	54.802		
10,250.00	10,196.18	8,900.00	8,622.05	37.86	32.70	-53.67	101.06	804.29	2,037.96	2,001.60	36.36	56.051		
10,300.00	10,243.80	8,900.00	8,622.05	37.96	32.70	-50.12	101.06	804.29	2,071.45	2,035.38	36.08	57.418		
10,350.00	10,289.92	8,900.00	8,622.05	38.05	32.70	-46.98	101.06	804.29	2,103.52	2,067.72	35.80	58.754		
10,400.00	10,334.18	8,900.00	8,622.05	38.12	32.70	-44.24	101.06	804.29	2,134.00	2,098.46	35.54	60.047		
10,450.00	10,376.24	8,919.99	8,627.07	38.17	32.68	-41.57	81.71	804.48	2,162.33	2,126.96	35.38	61.124		
10,500.00	10,415.80	8,929.28	8,629.17	38.21	32.67	-39.43	72.66	804.56	2,188.71	2,153.53	35.18	62.220		
10,550.00	10,452.53	8,950.00	8,633.33	38.24	32.66	-37.50	52.37	804.76	2,212.97	2,177.93	35.04	63.162		
10,600.00	10,486.18	8,950.00	8,633.33	38.26	32.66	-36.06	52.37	804.76	2,234.63	2,199.80	34.83	64.150		
10,650.00	10,516.48	8,950.00	8,633.33	38.26	32.66	-34.84	52.37	804.76	2,254.02	2,219.36	34.66	65.037		
10,700.00	10,543.19	8,969.86	8,636.62	38.26	32.64	-33.72	32.78	804.96	2,270.65	2,236.08	34.57	65.683		
10,750.00	10,566.12	8,980.64	8,638.12	38.25	32.63	-32.87	22.11	805.06	2,284.69	2,250.21	34.48	66.267		
10,800.00	10,585.10	9,000.00	8,640.32	38.23	32.62	-32.18	2.88	805.25	2,296.05	2,261.61	34.43	66.682		
10,850.00	10,599.97	9,000.00	8,640.32	38.21	32.62	-31.72	2.88	805.25	2,304.47	2,270.10	34.37	67.044		
10,900.00	10,610.62	9,000.00	8,640.32	38.19	32.62	-31.42	2.88	805.25	2,310.29	2,275.94	34.35	67.257		
10,950.00	10,616.98	9,025.02	8,642.19	38.17	32.60	-31.25	-22.07	805.49	2,312.87	2,278.47	34.41	67.224		
10,998.09	10,619.00	9,050.00	8,642.97	38.16	32.59	-31.26	-47.03	805.74	2,313.00	2,278.51	34.48	67.079		
11,000.00	10,619.00	9,050.00	8,642.97	38.16	32.59	-31.26	-47.03	805.74	2,312.93	2,278.44	34.48	67.072		
11,085.31	10,619.00	9,055.43	8,643.00	38.18	32.59	-31.26	-52.46	805.79	2,311.53	2,276.89	34.64	66.737		
11,100.00	10,619.00	9,070.06	8,643.00	38.19	32.58	-31.26	-67.09	805.93	2,311.53	2,276.85	34.68	66.662		
11,200.00	10,619.00	9,170.06	8,643.00	38.36	32.61	-31.26	-167.09	806.91	2,311.53	2,276.54	34.99	66.060		
11,300.00	10,619.00	9,270.06	8,643.00	38.64	32.77	-31.26	-267.09	807.89	2,311.53	2,276.16	35.37	65.356		
11,400.00	10,619.00	9,370.06	8,643.00	38.99	33.07	-31.26	-367.08	808.87	2,311.53	2,275.73	35.81	64.556		
11,500.00	10,619.00	9,470.06	8,643.00	39.41	33.50	-31.26	-467.08	809.85	2,311.54	2,275.23	36.30	63.671		
11,600.00	10,619.00	9,570.06	8,643.00	39.89	34.02	-31.26	-567.07	810.83	2,311.54	2,274.68	36.86	62.714		
11,700.00	10,619.00	9,670.06	8,643.00	40.43	34.63	-31.26	-667.07	811.81	2,311.54	2,274.07	37.47	61.696		
11,800.00	10,619.00	9,770.06	8,643.00	41.03	35.30	-31.26	-767.06	812.79	2,311.54	2,273.42	38.13	60.629		
11,900.00	10,619.00	9,870.06	8,643.00	41.68	36.04	-31.26	-867.06	813.77	2,311.54	2,272.71	38.83	59.524		
12,000.00	10,619.00	9,970.06	8,643.00	42.38	36.83	-31.26	-967.05	814.75	2,311.55	2,271.96	39.59	58.389		
12,100.00	10,619.00	10,070.06	8,643.00	43.14	37.69	-31.26	-1,067.05	815.73	2,311.55	2,271.16	40.39	57.235		
12,200.00	10,619.00	10,170.06	8,643.00	43.94	38.59	-31.26	-1,167.04	816.71	2,311.55	2,270.32	41.23	56.069		
12,300.00	10,619.00	10,270.06	8,643.00	44.79	39.54	-31.26	-1,267.04	817.69	2,311.55	2,269.45	42.11	54.899		
12,400.00	10,619.00	10,370.06	8,643.00	45.68	40.53	-31.26	-1,367.03	818.66	2,311.55	2,268.53	43.02	53.732		
12,500.00	10,619.00	10,470.06	8,643.00	46.62	41.56	-31.26	-1,467.03	819.64	2,311.56	2,267.59	43.97	52.573		
12,600.00	10,619.00	10,570.06	8,643.00	47.59	42.63	-31.26	-1,567.02	820.62	2,311.56	2,266.61	44.95	51.425		
12,700.00	10,619.00	10,670.06	8,643.00	48.59	43.74	-31.26	-1,667.02	821.60	2,311.56	2,265.60	45.96	50.295		
12,800.00	10,619.00	10,770.06	8,643.00	49.64	44.88	-31.26	-1,767.01	822.58	2,311.56	2,264.56	47.00	49.184		
12,900.00	10,619.00	10,870.06	8,643.00	50.71	46.05	-31.26	-1,867.01	823.56	2,311.56	2,263.50	48.06	48.097		
13,000.00	10,619.00	10,970.06	8,643.00	51.81	47.25	-31.26	-1,967.00	824.54	2,311.57	2,262.42	49.15	47.032		
13,100.00	10,619.00	11,070.06	8,643.00	52.95	48.47	-31.26	-2,067.00	825.52	2,311.57	2,261.31	50.26	45.993		
13,200.00	10,619.00	11,170.06	8,643.00	54.11	49.72	-31.26	-2,166.99	826.50	2,311.57	2,260.18	51.39	44.982		
13,300.00	10,619.00	11,270.06	8,643.00	55.29	50.99	-31.26	-2,266.99	827.48	2,311.57	2,259.03	52.54	43.998		
13,400.00	10,619.00	11,370.06	8,643.00	56.50	52.28	-31.26	-2,366.98	828.46	2,311.57	2,257.87	53.71	43.041		
13,500.00	10,619.00	11,470.06	8,643.00	57.72	53.59	-31.26	-2,466.98	829.44	2,311.58	2,256.68	54.89	42.111		
13,600.00	10,619.00	11,570.06	8,643.00	58.97	54.92	-31.26	-2,566.98	830.42	2,311.58	2,255.48	56.09	41.209		
13,700.00	10,619.00	11,670.06	8,643.00	60.24	56.27	-31.26	-2,666.97	831.40	2,311.58	2,254.27	57.31	40.334		
13,800.00	10,619.00	11,770.06	8,643.00	61.53	57.63	-31.26	-2,766.97	832.38	2,311.58	2,253.04	58.54	39.485		
13,900.00	10,619.00	11,870.06	8,643.00	62.83	59.01	-31.26	-2,866.96	833.35	2,311.58	2,251.80	59.79	38.663		
14,000.00	10,619.00	11,970.06	8,643.00	64.15	60.40	-31.26	-2,966.96	834.33	2,311.59	2,250.54	61.04	37.867		

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 501H
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 501H	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	
14,100.00	10,619.00	12,070.06	8,643.00	65.49	61.80	-31.26	-3,066.95	835.31	2,311.59	2,249.28	62.31	37.097		
14,200.00	10,619.00	12,170.06	8,643.00	66.83	63.21	-31.26	-3,166.95	836.29	2,311.59	2,248.00	63.59	36.353		
14,300.00	10,619.00	12,270.06	8,643.00	68.20	64.64	-31.26	-3,266.94	837.27	2,311.59	2,246.72	64.87	35.632		
14,400.00	10,619.00	12,370.06	8,643.00	69.57	66.08	-31.26	-3,366.94	838.25	2,311.59	2,245.42	66.17	34.934		
14,500.00	10,619.00	12,470.06	8,643.00	70.96	67.52	-31.26	-3,466.93	839.23	2,311.60	2,244.12	67.48	34.258		
14,600.00	10,619.00	12,570.06	8,643.00	72.35	68.98	-31.26	-3,566.93	840.21	2,311.60	2,242.81	68.79	33.604		
14,700.00	10,619.00	12,670.06	8,643.00	73.76	70.44	-31.26	-3,666.92	841.19	2,311.60	2,241.49	70.11	32.970		
14,800.00	10,619.00	12,770.06	8,643.00	75.18	71.91	-31.26	-3,766.92	842.17	2,311.60	2,240.16	71.44	32.356		
14,900.00	10,619.00	12,870.06	8,643.00	76.61	73.39	-31.26	-3,866.91	843.15	2,311.60	2,238.82	72.78	31.762		
15,000.00	10,619.00	12,970.06	8,643.00	78.04	74.88	-31.26	-3,966.91	844.13	2,311.61	2,237.48	74.12	31.186		
15,100.00	10,619.00	13,070.06	8,643.00	79.49	76.37	-31.26	-4,066.90	845.11	2,311.61	2,236.14	75.47	30.629		
15,200.00	10,619.00	13,170.06	8,643.00	80.94	77.87	-31.26	-4,166.90	846.09	2,311.61	2,234.79	76.82	30.090		
15,300.00	10,619.00	13,270.06	8,643.00	82.40	79.38	-31.26	-4,266.89	847.07	2,311.61	2,233.43	78.18	29.567		
15,400.00	10,619.00	13,370.06	8,643.00	83.86	80.89	-31.26	-4,366.89	848.04	2,311.62	2,232.07	79.55	29.060		
15,500.00	10,619.00	13,470.06	8,643.00	85.34	82.40	-31.26	-4,466.88	849.02	2,311.62	2,230.70	80.91	28.569		
15,600.00	10,619.00	13,570.06	8,643.00	86.82	83.93	-31.26	-4,566.88	850.00	2,311.62	2,229.33	82.29	28.091		
15,700.00	10,619.00	13,670.06	8,643.00	88.30	85.45	-31.26	-4,666.87	850.98	2,311.62	2,227.95	83.67	27.629		
15,800.00	10,619.00	13,770.06	8,643.00	89.79	86.98	-31.26	-4,766.87	851.96	2,311.62	2,226.57	85.05	27.179		
15,900.00	10,619.00	13,870.06	8,643.00	91.29	88.52	-31.26	-4,866.86	852.94	2,311.63	2,225.19	86.44	26.743		
16,000.00	10,619.00	13,970.06	8,643.00	92.79	90.06	-31.26	-4,966.86	853.92	2,311.63	2,223.80	87.83	26.320		
16,100.00	10,619.00	14,070.06	8,643.00	94.30	91.60	-31.26	-5,066.86	854.90	2,311.63	2,222.41	89.22	25.910		
16,200.00	10,619.00	14,170.06	8,643.00	95.81	93.15	-31.26	-5,166.85	855.88	2,311.63	2,221.02	90.61	25.511		
16,300.00	10,619.00	14,270.06	8,643.00	97.33	94.70	-31.26	-5,266.85	856.86	2,311.63	2,219.62	92.01	25.123		
16,400.00	10,619.00	14,370.06	8,643.00	98.85	96.25	-31.26	-5,366.84	857.84	2,311.64	2,218.22	93.41	24.747		
16,500.00	10,619.00	14,470.06	8,643.00	100.38	97.81	-31.26	-5,466.84	858.82	2,311.64	2,216.82	94.82	24.380		
16,600.00	10,619.00	14,570.06	8,643.00	101.90	99.37	-31.26	-5,566.83	859.80	2,311.64	2,215.41	96.23	24.023		
16,700.00	10,619.00	14,670.06	8,643.00	103.44	100.93	-31.26	-5,666.83	860.78	2,311.64	2,214.01	97.64	23.676		
16,800.00	10,619.00	14,770.06	8,643.00	104.97	102.50	-31.26	-5,766.82	861.76	2,311.64	2,212.59	99.05	23.338		
16,900.00	10,619.00	14,870.06	8,643.00	106.51	104.06	-31.26	-5,866.82	862.73	2,311.65	2,211.18	100.46	23.010		
17,000.00	10,619.00	14,970.06	8,643.00	108.06	105.63	-31.26	-5,966.81	863.71	2,311.65	2,209.77	101.88	22.691		
17,100.00	10,619.00	15,070.06	8,643.00	109.60	107.21	-31.26	-6,066.81	864.69	2,311.65	2,208.36	103.29	22.380		
17,200.00	10,619.00	15,170.06	8,643.00	111.15	108.78	-31.26	-6,166.80	865.67	2,311.65	2,206.94	104.71	22.076		
17,300.00	10,619.00	15,270.06	8,643.00	112.70	110.36	-31.26	-6,266.80	866.65	2,311.65	2,205.52	106.13	21.781		
17,400.00	10,619.00	15,370.06	8,643.00	114.26	111.94	-31.26	-6,366.79	867.63	2,311.66	2,204.10	107.56	21.493		
17,500.00	10,619.00	15,470.06	8,643.00	115.82	113.52	-31.26	-6,466.79	868.61	2,311.66	2,202.68	108.98	21.212		
17,600.00	10,619.00	15,570.06	8,643.00	117.38	115.11	-31.26	-6,566.78	869.59	2,311.66	2,201.25	110.41	20.937		
17,700.00	10,619.00	15,670.06	8,643.00	118.94	116.69	-31.26	-6,666.78	870.57	2,311.66	2,199.82	111.84	20.670		
17,800.00	10,619.00	15,770.06	8,643.00	120.50	118.28	-31.26	-6,766.77	871.55	2,311.66	2,198.40	113.26	20.409		
17,900.00	10,619.00	15,870.06	8,643.00	122.07	119.87	-31.26	-6,866.77	872.53	2,311.67	2,196.97	114.69	20.155		
18,000.00	10,619.00	15,970.06	8,643.00	123.64	121.46	-31.26	-6,966.76	873.51	2,311.67	2,195.55	116.12	19.907		
18,100.00	10,619.00	16,070.06	8,643.00	125.21	123.05	-31.26	-7,066.76	874.49	2,311.67	2,194.12	117.55	19.665		
18,200.00	10,619.00	16,170.06	8,643.00	126.79	124.64	-31.26	-7,166.75	875.47	2,311.67	2,192.69	118.99	19.428		
18,300.00	10,619.00	16,270.06	8,643.00	128.36	126.24	-31.26	-7,266.75	876.45	2,311.67	2,191.25	120.42	19.197		
18,400.00	10,619.00	16,370.06	8,643.00	129.94	127.84	-31.26	-7,366.74	877.42	2,311.68	2,189.82	121.86	18.970		
18,500.00	10,619.00	16,470.06	8,643.00	131.52	129.43	-31.26	-7,466.74	878.40	2,311.68	2,188.38	123.29	18.749		
18,600.00	10,619.00	16,570.06	8,643.00	133.10	131.03	-31.26	-7,566.74	879.38	2,311.68	2,186.95	124.73	18.533		
18,700.00	10,619.00	16,670.06	8,643.00	134.68	132.63	-31.26	-7,666.73	880.36	2,311.68	2,185.51	126.17	18.322		
18,800.00	10,619.00	16,770.06	8,643.00	136.26	134.24	-31.26	-7,766.73	881.34	2,311.68	2,184.08	127.60	18.116		
18,900.00	10,619.00	16,870.06	8,643.00	137.85	135.84	-31.26	-7,866.72	882.32	2,311.69	2,182.64	129.04	17.914		
19,000.00	10,619.00	16,970.06	8,643.00	139.44	137.44	-31.26	-7,966.72	883.30	2,311.69	2,181.21	130.48	17.717		
19,100.00	10,619.00	17,070.06	8,643.00	141.03	139.05	-31.26	-8,066.71	884.28	2,311.69	2,179.77	131.92	17.523		
19,200.00	10,619.00	17,170.06	8,643.00	142.62	140.66	-31.26	-8,166.71	885.26	2,311.69	2,178.33	133.36	17.334		

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 501H
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 501H	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	
19,300.00	10,619.00	17,270.06	8,643.00	144.21	142.26	-31.26	-8,266.70	886.24	2,311.69	2,176.89	134.80	17.148	
19,400.00	10,619.00	17,370.06	8,643.00	145.80	143.87	-31.26	-8,366.70	887.22	2,311.70	2,175.45	136.25	16.967	
19,500.00	10,619.00	17,470.06	8,643.00	147.40	145.48	-31.26	-8,466.69	888.20	2,311.70	2,174.01	137.69	16.789	
19,600.00	10,619.00	17,570.06	8,643.00	148.99	147.09	-31.26	-8,566.69	889.18	2,311.70	2,172.57	139.13	16.615	
19,700.00	10,619.00	17,670.06	8,643.00	150.59	148.70	-31.26	-8,666.68	890.16	2,311.70	2,171.13	140.57	16.445	
19,800.00	10,619.00	17,770.06	8,643.00	152.19	150.31	-31.26	-8,766.68	891.13	2,311.71	2,169.69	142.01	16.278	
19,900.00	10,619.00	17,870.06	8,643.00	153.78	151.93	-31.26	-8,866.67	892.11	2,311.71	2,168.25	143.46	16.114	
20,000.00	10,619.00	17,970.06	8,643.00	155.38	153.54	-31.26	-8,966.67	893.09	2,311.71	2,166.81	144.90	15.954	
20,100.00	10,619.00	18,070.06	8,643.00	156.99	155.16	-31.26	-9,066.66	894.07	2,311.71	2,165.37	146.35	15.796	
20,200.00	10,619.00	18,170.06	8,643.00	158.59	156.77	-31.26	-9,166.66	895.05	2,311.71	2,163.92	147.79	15.642	
20,300.00	10,619.00	18,270.06	8,643.00	160.19	158.39	-31.26	-9,266.65	896.03	2,311.72	2,162.48	149.24	15.490	
20,400.00	10,619.00	18,370.06	8,643.00	161.80	160.00	-31.27	-9,366.65	897.01	2,311.72	2,161.04	150.68	15.342	
20,500.00	10,619.00	18,470.06	8,643.00	163.40	161.62	-31.27	-9,466.64	897.99	2,311.72	2,159.60	152.12	15.196	
20,600.00	10,619.00	18,570.06	8,643.00	165.01	163.24	-31.27	-9,566.64	898.97	2,311.72	2,158.15	153.57	15.053	
20,700.00	10,619.00	18,670.06	8,643.00	166.61	164.86	-31.27	-9,666.63	899.95	2,311.72	2,156.71	155.01	14.913	
20,792.10	10,619.00	18,762.17	8,643.00	167.92	166.35	-31.27	-9,758.73	900.85	2,311.73	2,155.56	156.16	14.803	

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													PF Fed Com - PF Fed Com 502H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance									
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	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 CC, ES				
2,200.00	2,199.99	2,199.99	2,199.99	7.65	7.65	125.75	0.23	25.09	25.83	15.01	10.82	2.387 SF				
2,300.00	2,299.91	2,299.91	2,299.91	8.01	8.01	132.18	0.23	25.09	28.31	16.98	11.33	2.499				
2,400.00	2,399.69	2,399.19	2,399.18	8.36	8.36	138.70	1.05	26.09	33.80	21.98	11.83	2.858				
2,500.00	2,499.27	2,498.17	2,498.08	8.72	8.71	142.45	3.48	29.07	43.06	30.74	12.32	3.495				
2,600.00	2,598.57	2,596.68	2,596.39	9.08	9.06	144.06	7.51	34.02	55.84	43.03	12.81	4.359				
2,676.13	2,673.94	2,671.25	2,670.67	9.36	9.33	144.41	11.62	39.07	67.85	54.67	13.18	5.147				
2,700.00	2,697.55	2,694.56	2,693.85	9.45	9.41	144.42	13.09	40.88	71.96	58.66	13.30	5.411				
2,800.00	2,796.41	2,791.88	2,790.52	9.82	9.76	143.59	20.21	49.61	89.96	76.18	13.78	6.526				
2,900.00	2,895.28	2,888.63	2,886.30	10.20	10.11	141.92	28.82	60.19	109.28	95.02	14.27	7.661				
3,000.00	2,994.14	2,984.70	2,981.04	10.58	10.47	139.84	38.89	72.54	130.05	115.31	14.74	8.821				
3,100.00	3,093.01	3,079.97	3,074.56	10.96	10.83	137.59	50.35	86.62	152.39	137.18	15.22	10.016				
3,200.00	3,191.87	3,175.46	3,167.86	11.35	11.20	135.33	63.19	102.38	176.28	160.58	15.70	11.230				
3,300.00	3,290.74	3,272.27	3,262.37	11.74	11.59	133.49	76.45	118.66	200.64	184.43	16.21	12.381				
3,400.00	3,389.60	3,369.08	3,356.87	12.13	11.98	132.05	89.72	134.95	225.15	208.43	16.72	13.466				
3,500.00	3,488.46	3,465.89	3,451.38	12.52	12.38	130.90	102.98	151.24	249.77	232.53	17.24	14.488				
3,600.00	3,587.33	3,562.70	3,545.88	12.92	12.78	129.95	116.25	167.52	274.47	256.70	17.76	15.451				
3,700.00	3,686.19	3,659.51	3,640.38	13.32	13.19	129.15	129.51	183.81	299.22	280.93	18.29	16.359				
3,800.00	3,785.06	3,756.32	3,734.89	13.72	13.60	128.48	142.78	200.09	324.03	305.21	18.82	17.216				
3,900.00	3,883.92	3,853.13	3,829.39	14.12	14.02	127.91	156.04	216.38	348.87	329.51	19.36	18.024				
4,000.00	3,982.79	3,949.94	3,923.90	14.53	14.44	127.41	169.31	232.67	373.73	353.84	19.89	18.788				
4,100.00	4,081.65	4,046.76	4,018.40	14.93	14.87	126.97	182.57	248.95	398.63	378.20	20.43	19.511				
4,200.00	4,180.52	4,143.57	4,112.91	15.34	15.29	126.58	195.84	265.24	423.54	402.56	20.97	20.195				
4,300.00	4,279.38	4,240.38	4,207.41	15.74	15.73	126.24	209.11	281.53	448.46	426.95	21.52	20.843				
4,400.00	4,378.25	4,337.19	4,301.91	16.15	16.16	125.93	222.37	297.81	473.40	451.34	22.06	21.459				
4,500.00	4,477.11	4,434.00	4,396.42	16.56	16.60	125.66	235.64	314.10	498.35	475.75	22.61	22.044				
4,600.00	4,575.98	4,530.81	4,490.92	16.97	17.04	125.41	248.90	330.38	523.32	500.16	23.16	22.600				
4,700.00	4,674.84	4,627.62	4,585.43	17.38	17.48	125.18	262.17	346.67	548.29	524.58	23.71	23.129				
4,800.00	4,773.71	4,724.43	4,679.93	17.79	17.92	124.97	275.43	362.96	573.26	549.01	24.26	23.633				
4,900.00	4,872.57	4,821.24	4,774.44	18.21	18.37	124.78	288.70	379.24	598.25	573.44	24.81	24.113				
5,000.00	4,971.43	4,918.05	4,868.94	18.62	18.81	124.61	301.96	395.53	623.24	597.87	25.36	24.572				

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 501H
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 501H	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	5,070.30	5,014.86	4,963.44	19.03	19.26	124.44	315.23	411.81	648.23	622.31	25.92	25.010		
5,200.00	5,169.16	5,111.67	5,057.95	19.45	19.71	124.29	328.49	428.10	673.23	646.75	26.47	25.429		
5,300.00	5,268.03	5,208.48	5,152.45	19.86	20.17	124.16	341.76	444.39	698.23	671.20	27.03	25.830		
5,400.00	5,366.89	5,305.29	5,246.96	20.28	20.62	124.03	355.02	460.67	723.24	695.65	27.59	26.214		
5,500.00	5,465.76	5,402.10	5,341.46	20.69	21.07	123.91	368.29	476.96	748.25	720.10	28.15	26.582		
5,600.00	5,564.62	5,498.91	5,435.97	21.11	21.53	123.79	381.55	493.24	773.26	744.55	28.71	26.935		
5,700.00	5,663.49	5,595.72	5,530.47	21.53	21.98	123.69	394.82	509.53	798.28	769.01	29.27	27.274		
5,800.00	5,762.35	5,692.53	5,624.97	21.94	22.44	123.59	408.09	525.82	823.29	793.46	29.83	27.599		
5,900.00	5,861.22	5,789.34	5,719.48	22.36	22.90	123.50	421.35	542.10	848.31	817.92	30.39	27.912		
6,000.00	5,960.08	5,886.15	5,813.98	22.78	23.36	123.41	434.62	558.39	873.34	842.38	30.96	28.213		
6,100.00	6,058.95	5,982.97	5,908.49	23.20	23.82	123.32	447.88	574.68	898.36	866.84	31.52	28.503		
6,200.00	6,157.81	6,079.78	6,002.99	23.62	24.28	123.25	461.15	590.96	923.38	891.30	32.08	28.782		
6,300.00	6,256.68	6,176.59	6,097.50	24.04	24.74	123.17	474.41	607.25	948.41	915.76	32.65	29.051		
6,400.00	6,355.54	6,273.40	6,192.00	24.46	25.21	123.10	487.68	623.53	973.44	940.23	33.21	29.310		
6,500.00	6,454.40	6,370.21	6,286.51	24.88	25.67	123.03	500.94	639.82	998.47	964.69	33.78	29.560		
6,600.00	6,553.27	6,467.02	6,381.01	25.30	26.13	122.97	514.21	656.11	1,023.50	989.16	34.34	29.802		
6,700.00	6,652.13	6,563.83	6,475.51	25.72	26.60	122.91	527.47	672.39	1,048.53	1,013.62	34.91	30.035		
6,800.00	6,751.00	6,660.64	6,570.02	26.14	27.06	122.85	540.74	688.68	1,073.56	1,038.09	35.48	30.261		
6,875.92	6,826.06	6,738.39	6,645.93	26.46	27.43	122.81	551.36	701.72	1,092.54	1,056.60	35.94	30.401		
6,900.00	6,849.87	6,768.46	6,675.34	26.56	27.58	122.87	555.32	706.58	1,098.37	1,062.25	36.12	30.410		
7,000.00	6,949.01	6,864.53	6,799.15	26.97	28.15	123.10	570.30	724.97	1,120.16	1,083.30	36.86	30.392		
7,100.00	7,048.45	7,022.32	6,925.38	27.36	28.70	123.26	582.85	740.37	1,138.01	1,100.45	37.56	30.298		
7,200.00	7,148.14	7,151.51	7,053.60	27.73	29.22	123.36	592.81	752.61	1,151.87	1,113.64	38.23	30.132		
7,300.00	7,248.00	7,281.77	7,183.34	28.09	29.72	123.41	600.08	761.53	1,161.67	1,122.81	38.85	29.898		
7,400.00	7,347.96	7,412.75	7,314.12	28.44	30.17	123.41	604.57	767.05	1,167.37	1,127.93	39.44	29.600		
7,452.05	7,400.00	7,481.08	7,382.43	28.61	30.40	89.52	605.79	768.54	1,168.71	1,128.99	39.72	29.421		
7,500.00	7,447.96	7,544.09	7,445.43	28.77	30.60	89.50	606.23	769.08	1,169.13	1,129.15	39.98	29.244		
7,600.00	7,547.96	7,646.62	7,547.96	29.09	30.91	89.50	606.23	769.09	1,169.13	1,128.69	40.45	28.904		
7,700.00	7,647.96	7,746.62	7,647.96	29.42	31.22	89.50	606.23	769.09	1,169.13	1,128.22	40.92	28.574		
7,800.00	7,747.96	7,846.62	7,747.96	29.75	31.53	89.50	606.23	769.09	1,169.13	1,127.75	41.38	28.252		
7,900.00	7,847.96	7,946.62	7,847.96	30.08	31.84	89.50	606.23	769.09	1,169.13	1,127.28	41.85	27.935		
8,000.00	7,947.96	8,046.62	7,947.96	30.41	32.15	89.50	606.23	769.09	1,169.13	1,126.81	42.32	27.626		
8,100.00	8,047.96	8,146.62	8,047.96	30.74	32.46	89.50	606.23	769.09	1,169.13	1,126.34	42.79	27.322		
8,200.00	8,147.96	8,246.62	8,147.96	31.07	32.77	89.50	606.23	769.09	1,169.13	1,125.87	43.26	27.024		
8,300.00	8,247.96	8,346.62	8,247.96	31.40	33.09	89.50	606.23	769.09	1,169.13	1,125.40	43.73	26.733		
8,400.00	8,347.96	8,446.62	8,347.96	31.74	33.40	89.50	606.23	769.09	1,169.13	1,124.93	44.21	26.447		
8,500.00	8,447.96	8,546.62	8,447.96	32.07	33.72	89.50	606.23	769.09	1,169.13	1,124.45	44.68	26.167		
8,600.00	8,547.96	8,646.62	8,547.96	32.40	34.04	89.50	606.23	769.09	1,169.13	1,123.98	45.15	25.892		
8,700.00	8,647.96	8,746.62	8,647.96	32.74	34.35	89.50	606.23	769.09	1,169.13	1,123.51	45.63	25.623		
8,800.00	8,747.96	8,846.62	8,747.96	33.07	34.67	89.50	606.23	769.09	1,169.13	1,123.03	46.10	25.358		
8,900.00	8,847.96	8,946.62	8,847.96	33.41	34.99	89.50	606.23	769.09	1,169.13	1,122.55	46.58	25.099		
9,000.00	8,947.96	9,046.62	8,947.96	33.74	35.31	89.50	606.23	769.09	1,169.13	1,122.08	47.06	24.845		
9,100.00	9,047.96	9,146.62	9,047.96	34.08	35.63	89.50	606.23	769.09	1,169.13	1,121.60	47.54	24.595		
9,200.00	9,147.96	9,246.62	9,147.96	34.42	35.95	89.50	606.23	769.09	1,169.13	1,121.12	48.01	24.350		
9,300.00	9,247.96	9,346.62	9,247.96	34.75	36.27	89.50	606.23	769.09	1,169.13	1,120.64	48.49	24.110		
9,400.00	9,347.96	9,446.62	9,347.96	35.09	36.60	89.50	606.23	769.09	1,169.13	1,120.16	48.97	23.874		
9,500.00	9,447.96	9,546.62	9,447.96	35.43	36.92	89.50	606.23	769.09	1,169.13	1,119.68	49.45	23.642		
9,600.00	9,547.96	9,646.62	9,547.96	35.77	37.24	89.50	606.23	769.09	1,169.13	1,119.20	49.93	23.415		
9,700.00	9,647.96	9,746.62	9,647.96	36.11	37.57	89.50	606.23	769.09	1,169.13	1,118.72	50.41	23.192		
9,800.00	9,747.96	9,846.62	9,747.96	36.44	37.89	89.50	606.23	769.09	1,169.13	1,118.24	50.89	22.972		
9,900.00	9,847.96	9,946.62	9,847.96	36.78	38.22	89.50	606.23	769.09	1,169.13	1,117.76	51.38	22.757		
9,913.00	9,860.96	9,959.62	9,860.96	36.83	38.26	89.50	606.23	769.09	1,169.13	1,117.70	51.44	22.729		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,000.00	9,947.96	10,045.72	9,947.06	37.12	38.54	89.50	606.16	769.09	1,169.14	1,117.28	51.85	22.546		
10,098.09	10,046.04	10,133.97	10,034.84	37.46	38.78	89.90	598.01	769.56	1,169.62	1,117.34	52.28	22.373		
10,100.00	10,047.96	10,135.66	10,036.51	37.46	38.78	-89.52	597.72	769.58	1,169.64	1,117.35	52.29	22.370		
10,150.00	10,097.88	10,179.57	10,079.43	37.61	38.88	-89.11	588.54	770.11	1,170.24	1,117.77	52.47	22.303		
10,200.00	10,147.42	10,223.02	10,121.09	37.74	38.97	-88.71	576.26	770.82	1,171.07	1,118.44	52.63	22.250		
10,250.00	10,196.18	10,266.06	10,161.32	37.86	39.05	-88.31	561.01	771.70	1,172.12	1,119.35	52.77	22.212		
10,300.00	10,243.80	10,308.73	10,199.97	37.96	39.11	-87.92	542.97	772.74	1,173.35	1,120.46	52.89	22.186		
10,350.00	10,289.92	10,350.00	10,235.96	38.05	39.16	-87.55	522.83	773.90	1,174.76	1,121.77	52.98	22.173		
10,400.00	10,334.18	10,393.15	10,271.94	38.12	39.20	-87.18	499.07	775.27	1,176.32	1,123.26	53.06	22.169		
10,450.00	10,376.24	10,434.97	10,305.01	38.17	39.23	-86.84	473.52	776.74	1,178.01	1,124.89	53.12	22.176		
10,500.00	10,415.80	10,476.60	10,335.97	38.21	39.24	-86.51	445.77	778.34	1,179.82	1,126.65	53.17	22.191		
10,550.00	10,452.53	10,518.05	10,364.73	38.24	39.25	-86.21	415.97	780.06	1,181.73	1,128.53	53.20	22.212		
10,600.00	10,486.18	10,559.38	10,391.18	38.26	39.24	-85.93	384.28	781.89	1,183.71	1,130.48	53.23	22.238		
10,650.00	10,516.48	10,600.00	10,414.88	38.26	39.23	-85.68	351.35	783.79	1,185.75	1,132.50	53.25	22.268		
10,700.00	10,543.19	10,641.81	10,436.77	38.26	39.21	-85.45	315.80	785.84	1,187.83	1,134.56	53.27	22.297		
10,750.00	10,566.12	10,682.98	10,455.73	38.25	39.19	-85.25	279.33	787.94	1,189.93	1,136.64	53.30	22.327		
10,800.00	10,585.10	10,724.16	10,472.03	38.23	39.15	-85.08	241.58	790.12	1,192.05	1,138.72	53.32	22.355		
10,850.00	10,599.97	10,765.41	10,485.58	38.21	39.12	-84.95	202.70	792.36	1,194.15	1,140.80	53.36	22.381		
10,900.00	10,610.62	10,806.74	10,496.32	38.19	39.08	-84.84	162.86	794.65	1,196.24	1,142.84	53.40	22.403		
10,950.00	10,616.98	10,850.00	10,504.45	38.17	39.04	-84.78	120.45	797.10	1,198.30	1,144.85	53.45	22.421		
10,998.09	10,619.00	10,888.24	10,508.95	38.16	39.01	-84.74	82.55	799.28	1,200.23	1,146.73	53.50	22.435		
11,000.00	10,619.00	10,889.84	10,509.08	38.16	39.01	-84.74	80.96	799.38	1,200.31	1,146.81	53.50	22.435		
11,100.00	10,619.00	11,012.51	10,511.00	38.19	38.93	-84.85	-41.50	805.43	1,204.28	1,150.60	53.68	22.434		
11,200.00	10,619.00	11,138.15	10,511.00	38.36	38.95	-84.86	-167.13	807.31	1,204.66	1,150.69	53.97	22.319		
11,300.00	10,619.00	11,238.15	10,511.00	38.64	39.10	-84.86	-267.13	808.29	1,204.66	1,150.32	54.34	22.168		
11,400.00	10,619.00	11,338.15	10,511.00	38.99	39.37	-84.86	-367.12	809.26	1,204.66	1,149.86	54.81	21.981		
11,500.00	10,619.00	11,438.15	10,511.00	39.41	39.75	-84.86	-467.12	810.24	1,204.66	1,149.30	55.36	21.760		
11,600.00	10,619.00	11,538.15	10,511.00	39.89	40.22	-84.86	-567.11	811.22	1,204.66	1,148.65	56.01	21.507		
11,700.00	10,619.00	11,638.15	10,511.00	40.43	40.75	-84.86	-667.11	812.19	1,204.67	1,147.92	56.75	21.228		
11,800.00	10,619.00	11,738.15	10,511.00	41.03	41.34	-84.86	-767.10	813.17	1,204.67	1,147.10	57.57	20.925		
11,900.00	10,619.00	11,838.15	10,511.00	41.68	41.99	-84.86	-867.10	814.14	1,204.67	1,146.19	58.47	20.602		
12,000.00	10,619.00	11,938.15	10,511.00	42.38	42.69	-84.86	-967.09	815.12	1,204.67	1,145.21	59.45	20.262		
12,100.00	10,619.00	12,038.15	10,511.00	43.14	43.44	-84.86	-1,067.09	816.09	1,204.67	1,144.16	60.51	19.909		
12,200.00	10,619.00	12,138.15	10,511.00	43.94	44.24	-84.86	-1,167.08	817.07	1,204.67	1,143.03	61.63	19.546		
12,300.00	10,619.00	12,238.15	10,511.00	44.79	45.08	-84.86	-1,267.08	818.05	1,204.67	1,141.84	62.82	19.176		
12,400.00	10,619.00	12,338.15	10,511.00	45.68	45.97	-84.86	-1,367.07	819.02	1,204.67	1,140.59	64.08	18.801		
12,500.00	10,619.00	12,438.15	10,511.00	46.62	46.90	-84.86	-1,467.07	820.00	1,204.67	1,139.28	65.39	18.423		
12,600.00	10,619.00	12,538.15	10,511.00	47.59	47.86	-84.86	-1,567.06	820.97	1,204.67	1,137.91	66.75	18.046		
12,700.00	10,619.00	12,638.15	10,511.00	48.59	48.86	-84.86	-1,667.06	821.95	1,204.67	1,136.49	68.17	17.671		
12,800.00	10,619.00	12,738.15	10,511.00	49.64	49.90	-84.86	-1,767.05	822.92	1,204.67	1,135.03	69.64	17.298		
12,900.00	10,619.00	12,838.15	10,511.00	50.71	50.96	-84.86	-1,867.05	823.90	1,204.67	1,133.51	71.16	16.930		
13,000.00	10,619.00	12,938.15	10,511.00	51.81	52.06	-84.86	-1,967.04	824.88	1,204.67	1,131.96	72.71	16.568		
13,100.00	10,619.00	13,038.15	10,511.00	52.95	53.18	-84.86	-2,067.04	825.85	1,204.67	1,130.36	74.31	16.211		
13,200.00	10,619.00	13,138.15	10,511.00	54.11	54.33	-84.86	-2,167.03	826.83	1,204.67	1,128.72	75.94	15.862		
13,300.00	10,619.00	13,238.15	10,511.00	55.29	55.51	-84.86	-2,267.03	827.80	1,204.67	1,127.05	77.62	15.521		
13,400.00	10,619.00	13,338.15	10,511.00	56.50	56.71	-84.86	-2,367.03	828.78	1,204.67	1,125.35	79.32	15.188		
13,500.00	10,619.00	13,438.15	10,511.00	57.72	57.93	-84.86	-2,467.02	829.75	1,204.67	1,123.62	81.05	14.863		
13,600.00	10,619.00	13,538.15	10,511.00	58.97	59.17	-84.86	-2,567.02	830.73	1,204.67	1,121.85	82.82	14.546		
13,700.00	10,619.00	13,638.15	10,511.00	60.24	60.43	-84.86	-2,667.01	831.71	1,204.67	1,120.06	84.61	14.238		
13,800.00	10,619.00	13,738.15	10,511.00	61.53	61.71	-84.86	-2,767.01	832.68	1,204.67	1,118.25	86.42	13.939		
13,900.00	10,619.00	13,838.15	10,511.00	62.83	63.00	-84.86	-2,867.00	833.66	1,204.67	1,116.41	88.27	13.648		
14,000.00	10,619.00	13,938.15	10,511.00	64.15	64.32	-84.86	-2,967.00	834.63	1,204.67	1,114.54	90.13	13.366		

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 501H
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 501H	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	10,619.00	14,038.15	10,511.00	65.49	65.64	-84.86	-3,066.99	835.61	1,204.67	1,112.66	92.01	13.092		
14,200.00	10,619.00	14,138.15	10,511.00	66.83	66.99	-84.86	-3,166.99	836.58	1,204.67	1,110.76	93.92	12.827		
14,300.00	10,619.00	14,238.15	10,511.00	68.20	68.34	-84.86	-3,266.98	837.56	1,204.67	1,108.83	95.84	12.570		
14,400.00	10,619.00	14,338.15	10,511.00	69.57	69.71	-84.86	-3,366.98	838.53	1,204.67	1,106.89	97.78	12.320		
14,500.00	10,619.00	14,438.15	10,511.00	70.96	71.09	-84.86	-3,466.97	839.51	1,204.67	1,104.94	99.74	12.079		
14,600.00	10,619.00	14,538.15	10,511.00	72.35	72.48	-84.86	-3,566.97	840.49	1,204.67	1,102.96	101.71	11.844		
14,700.00	10,619.00	14,638.15	10,511.00	73.76	73.88	-84.86	-3,666.96	841.46	1,204.67	1,100.98	103.70	11.617		
14,800.00	10,619.00	14,738.15	10,511.00	75.18	75.29	-84.86	-3,766.96	842.44	1,204.67	1,098.98	105.70	11.397		
14,900.00	10,619.00	14,838.15	10,511.00	76.61	76.71	-84.86	-3,866.95	843.41	1,204.67	1,096.96	107.71	11.184		
15,000.00	10,619.00	14,938.15	10,511.00	78.04	78.14	-84.86	-3,966.95	844.39	1,204.67	1,094.94	109.74	10.978		
15,100.00	10,619.00	15,038.15	10,511.00	79.49	79.58	-84.86	-4,066.94	845.36	1,204.67	1,092.90	111.78	10.778		
15,200.00	10,619.00	15,138.15	10,511.00	80.94	81.03	-84.86	-4,166.94	846.34	1,204.67	1,090.85	113.82	10.584		
15,300.00	10,619.00	15,238.15	10,511.00	82.40	82.48	-84.86	-4,266.93	847.32	1,204.67	1,088.79	115.88	10.395		
15,400.00	10,619.00	15,338.15	10,511.00	83.86	83.94	-84.86	-4,366.93	848.29	1,204.68	1,086.72	117.95	10.213		
15,500.00	10,619.00	15,438.15	10,511.00	85.34	85.41	-84.86	-4,466.93	849.27	1,204.68	1,084.64	120.03	10.036		
15,600.00	10,619.00	15,538.15	10,511.00	86.82	86.89	-84.86	-4,566.92	850.24	1,204.68	1,082.55	122.12	9.865		
15,700.00	10,619.00	15,638.15	10,511.00	88.30	88.37	-84.86	-4,666.92	851.22	1,204.68	1,080.46	124.22	9.698		
15,800.00	10,619.00	15,738.15	10,511.00	89.79	89.85	-84.86	-4,766.91	852.19	1,204.68	1,078.35	126.32	9.537		
15,900.00	10,619.00	15,838.15	10,511.00	91.29	91.35	-84.86	-4,866.91	853.17	1,204.68	1,076.24	128.43	9.380		
16,000.00	10,619.00	15,938.15	10,511.00	92.79	92.85	-84.86	-4,966.90	854.15	1,204.68	1,074.12	130.55	9.227		
16,100.00	10,619.00	16,038.15	10,511.00	94.30	94.35	-84.86	-5,066.90	855.12	1,204.68	1,072.00	132.68	9.080		
16,200.00	10,619.00	16,138.15	10,511.00	95.81	95.86	-84.86	-5,166.89	856.10	1,204.68	1,069.86	134.81	8.936		
16,300.00	10,619.00	16,238.15	10,511.00	97.33	97.37	-84.86	-5,266.89	857.07	1,204.68	1,067.72	136.95	8.796		
16,400.00	10,619.00	16,338.15	10,511.00	98.85	98.89	-84.86	-5,366.88	858.05	1,204.68	1,065.58	139.10	8.661		
16,500.00	10,619.00	16,438.15	10,511.00	100.38	100.41	-84.86	-5,466.88	859.02	1,204.68	1,063.43	141.25	8.529		
16,600.00	10,619.00	16,538.15	10,511.00	101.90	101.93	-84.86	-5,566.87	860.00	1,204.68	1,061.27	143.41	8.400		
16,700.00	10,619.00	16,638.15	10,511.00	103.44	103.46	-84.86	-5,666.87	860.97	1,204.68	1,059.11	145.57	8.276		
16,800.00	10,619.00	16,738.15	10,511.00	104.97	104.99	-84.86	-5,766.86	861.95	1,204.68	1,056.94	147.74	8.154		
16,900.00	10,619.00	16,838.15	10,511.00	106.51	106.53	-84.86	-5,866.86	862.93	1,204.68	1,054.77	149.91	8.036		
17,000.00	10,619.00	16,938.15	10,511.00	108.06	108.07	-84.86	-5,966.85	863.90	1,204.68	1,052.60	152.08	7.921		
17,100.00	10,619.00	17,038.15	10,511.00	109.60	109.61	-84.86	-6,066.85	864.88	1,204.68	1,050.42	154.26	7.809		
17,200.00	10,619.00	17,138.15	10,511.00	111.15	111.16	-84.86	-6,166.84	865.85	1,204.68	1,048.23	156.45	7.700		
17,300.00	10,619.00	17,238.15	10,511.00	112.70	112.71	-84.86	-6,266.84	866.83	1,204.68	1,046.04	158.64	7.594		
17,400.00	10,619.00	17,338.15	10,511.00	114.26	114.26	-84.86	-6,366.83	867.80	1,204.68	1,043.85	160.83	7.490		
17,500.00	10,619.00	17,438.15	10,511.00	115.82	115.81	-84.86	-6,466.83	868.78	1,204.68	1,041.65	163.03	7.389		
17,600.00	10,619.00	17,538.15	10,511.00	117.38	117.37	-84.86	-6,566.83	869.76	1,204.68	1,039.45	165.23	7.291		
17,700.00	10,619.00	17,638.15	10,511.00	118.94	118.93	-84.86	-6,666.82	870.73	1,204.68	1,037.25	167.43	7.195		
17,800.00	10,619.00	17,738.15	10,511.00	120.50	120.49	-84.86	-6,766.82	871.71	1,204.68	1,035.05	169.64	7.102		
17,900.00	10,619.00	17,838.15	10,511.00	122.07	122.06	-84.86	-6,866.81	872.68	1,204.68	1,032.84	171.85	7.010		
18,000.00	10,619.00	17,938.15	10,511.00	123.64	123.62	-84.86	-6,966.81	873.66	1,204.68	1,030.62	174.06	6.921		
18,100.00	10,619.00	18,038.15	10,511.00	125.21	125.19	-84.86	-7,066.80	874.63	1,204.68	1,028.41	176.27	6.834		
18,200.00	10,619.00	18,138.15	10,511.00	126.79	126.76	-84.86	-7,166.80	875.61	1,204.68	1,026.19	178.49	6.749		
18,300.00	10,619.00	18,238.15	10,511.00	128.36	128.34	-84.86	-7,266.79	876.59	1,204.68	1,023.97	180.71	6.666		
18,400.00	10,619.00	18,338.15	10,511.00	129.94	129.91	-84.86	-7,366.79	877.56	1,204.68	1,021.75	182.94	6.585		
18,500.00	10,619.00	18,438.15	10,511.00	131.52	131.49	-84.86	-7,466.78	878.54	1,204.68	1,019.52	185.16	6.506		
18,600.00	10,619.00	18,538.15	10,511.00	133.10	133.07	-84.86	-7,566.78	879.51	1,204.68	1,017.29	187.39	6.429		
18,700.00	10,619.00	18,638.15	10,511.00	134.68	134.65	-84.86	-7,666.77	880.49	1,204.68	1,015.06	189.62	6.353		
18,800.00	10,619.00	18,738.15	10,511.00	136.26	136.23	-84.86	-7,766.77	881.46	1,204.68	1,012.83	191.86	6.279		
18,900.00	10,619.00	18,838.15	10,511.00	137.85	137.81	-84.86	-7,866.76	882.44	1,204.68	1,010.59	194.09	6.207		
19,000.00	10,619.00	18,938.15	10,511.00	139.44	139.40	-84.86	-7,966.76	883.41	1,204.68	1,008.36	196.33	6.136		
19,100.00	10,619.00	19,038.15	10,511.00	141.03	140.99	-84.86	-8,066.75	884.39	1,204.69	1,006.12	198.57	6.067		
19,200.00	10,619.00	19,138.15	10,511.00	142.62	142.57	-84.86	-8,166.75	885.37	1,204.69	1,003.88	200.81	5.999		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PF Fed Com - PF Fed Com 502H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,300.00	10,619.00	19,238.15	10,511.00	144.21	144.16	-84.86	-8,266.74	886.34	1,204.69	1,001.63	203.05	5.933	
19,400.00	10,619.00	19,338.15	10,511.00	145.80	145.75	-84.86	-8,366.74	887.32	1,204.69	999.39	205.30	5.868	
19,500.00	10,619.00	19,438.15	10,511.00	147.40	147.35	-84.86	-8,466.73	888.29	1,204.69	997.14	207.54	5.804	
19,600.00	10,619.00	19,538.15	10,511.00	148.99	148.94	-84.86	-8,566.73	889.27	1,204.69	994.89	209.79	5.742	
19,700.00	10,619.00	19,638.15	10,511.00	150.59	150.53	-84.86	-8,666.73	890.24	1,204.69	992.64	212.04	5.681	
19,800.00	10,619.00	19,738.15	10,511.00	152.19	152.13	-84.86	-8,766.72	891.22	1,204.69	990.39	214.30	5.622	
19,900.00	10,619.00	19,838.15	10,511.00	153.78	153.73	-84.86	-8,866.72	892.20	1,204.69	988.14	216.55	5.563	
20,000.00	10,619.00	19,938.15	10,511.00	155.38	155.33	-84.86	-8,966.71	893.17	1,204.69	985.88	218.80	5.506	
20,100.00	10,619.00	20,038.15	10,511.00	156.99	156.93	-84.86	-9,066.71	894.15	1,204.69	983.63	221.06	5.450	
20,200.00	10,619.00	20,138.15	10,511.00	158.59	158.53	-84.86	-9,166.70	895.12	1,204.69	981.37	223.32	5.394	
20,300.00	10,619.00	20,238.15	10,511.00	160.19	160.13	-84.86	-9,266.70	896.10	1,204.69	979.11	225.58	5.340	
20,400.00	10,619.00	20,338.15	10,511.00	161.80	161.73	-84.86	-9,366.69	897.07	1,204.69	976.85	227.84	5.288	
20,500.00	10,619.00	20,438.15	10,511.00	163.40	163.33	-84.86	-9,466.69	898.05	1,204.69	974.59	230.10	5.236	
20,600.00	10,619.00	20,538.15	10,511.00	165.01	164.94	-84.86	-9,566.68	899.03	1,204.69	972.33	232.36	5.185	
20,700.00	10,619.00	20,638.15	10,511.00	166.61	166.54	-84.86	-9,666.68	900.00	1,204.69	970.06	234.62	5.135	
20,792.10	10,619.00	20,730.26	10,511.00	167.92	168.02	-84.86	-9,758.78	900.90	1,204.69	968.10	236.59	5.092	

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 501H
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 501H	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	2,098.34	2,098.33	7.29	7.29	-10.44	75.75	-13.96	77.04	66.73	10.31	7.474		
2,200.00	2,199.99	2,196.61	2,196.52	7.65	7.64	22.30	78.52	-16.55	79.11	68.31	10.80	7.325		
2,300.00	2,299.91	2,294.81	2,294.51	8.01	7.98	20.99	83.13	-20.86	80.98	69.69	11.28	7.176		
2,400.00	2,399.69	2,392.94	2,392.24	8.36	8.34	19.49	89.57	-26.89	82.67	70.91	11.76	7.028		
2,500.00	2,499.27	2,491.00	2,489.65	8.72	8.69	17.81	97.83	-34.63	84.22	71.98	12.24	6.883		
2,600.00	2,598.57	2,589.58	2,587.26	9.08	9.05	15.98	107.89	-44.05	85.54	72.83	12.71	6.729		
2,676.13	2,673.94	2,665.69	2,662.55	9.36	9.33	14.77	116.00	-51.65	85.35	72.25	13.10	6.517		
2,700.00	2,697.55	2,689.55	2,686.16	9.45	9.42	14.43	118.55	-54.04	85.07	71.85	13.22	6.436		
2,800.00	2,796.41	2,789.52	2,785.06	9.82	9.80	12.98	129.21	-64.02	83.92	70.19	13.72	6.115		
2,900.00	2,895.28	2,889.49	2,883.96	10.20	10.18	11.49	139.86	-74.00	82.82	68.59	14.23	5.820		
3,000.00	2,994.14	2,989.46	2,982.85	10.58	10.56	9.96	150.52	-83.98	81.78	67.04	14.74	5.549		
3,100.00	3,093.01	3,089.44	3,081.75	10.96	10.95	8.40	161.18	-93.96	80.80	65.56	15.25	5.300		
3,200.00	3,191.87	3,189.41	3,180.65	11.35	11.34	6.79	171.84	-103.95	79.89	64.13	15.75	5.071		
3,300.00	3,290.74	3,289.38	3,279.55	11.74	11.73	5.16	182.50	-113.93	79.03	62.77	16.26	4.860		
3,400.00	3,389.60	3,389.35	3,378.45	12.13	12.12	3.48	193.16	-123.91	78.25	61.47	16.77	4.665		
3,500.00	3,488.46	3,489.32	3,477.35	12.52	12.52	1.78	203.81	-133.89	77.53	60.24	17.28	4.486		
3,600.00	3,587.33	3,589.29	3,576.24	12.92	12.92	0.04	214.47	-143.87	76.88	59.08	17.79	4.321		
3,700.00	3,686.19	3,689.26	3,675.14	13.32	13.31	-1.72	225.13	-153.86	76.30	58.00	18.30	4.169		
3,800.00	3,785.06	3,789.23	3,774.04	13.72	13.72	-3.51	235.79	-163.84	75.80	56.98	18.82	4.028		
3,900.00	3,883.92	3,889.20	3,872.94	14.12	14.12	-5.32	246.45	-173.82	75.37	56.04	19.33	3.899		
4,000.00	3,982.79	3,989.17	3,971.84	14.53	14.52	-7.15	257.11	-183.80	75.01	55.17	19.84	3.780		
4,100.00	4,081.65	4,089.14	4,070.74	14.93	14.93	-9.00	267.76	-193.78	74.74	54.38	20.36	3.671		
4,200.00	4,180.52	4,189.11	4,169.63	15.34	15.33	-10.85	278.42	-203.77	74.54	53.66	20.88	3.570		
4,300.00	4,279.38	4,289.08	4,268.53	15.74	15.74	-12.72	289.08	-213.75	74.42	53.02	21.40	3.477		
4,400.00	4,378.25	4,389.05	4,367.43	16.15	16.15	-14.59	299.74	-223.73	74.38	52.46	21.93	3.392		
4,400.02	4,378.26	4,389.07	4,367.45	16.15	16.15	-14.59	299.74	-223.73	74.38	52.46	21.93	3.392 CC		
4,500.00	4,477.11	4,489.02	4,466.33	16.56	16.55	-16.46	310.40	-233.71	74.42	51.97	22.46	3.314		
4,600.00	4,575.98	4,588.99	4,565.23	16.97	16.96	-18.32	321.06	-243.69	74.54	51.55	22.99	3.243		
4,700.00	4,674.84	4,688.96	4,664.12	17.38	17.37	-20.18	331.71	-253.68	74.74	51.21	23.52	3.177		
4,800.00	4,773.71	4,788.93	4,763.02	17.79	17.79	-22.02	342.37	-263.66	75.01	50.95	24.06	3.117		
4,900.00	4,872.57	4,888.90	4,861.92	18.21	18.20	-23.85	353.03	-273.64	75.37	50.76	24.61	3.063		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 501H
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 501H	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	4,971.43	4,988.88	4,960.82	18.62	18.61	-25.66	363.69	-283.62	75.80	50.64	25.16	3.013		
5,100.00	5,070.30	5,088.85	5,059.72	19.03	19.02	-27.45	374.35	-293.60	76.30	50.59	25.71	2.968		
5,200.00	5,169.16	5,188.82	5,158.62	19.45	19.43	-29.22	385.01	-303.59	76.88	50.61	26.27	2.927		
5,300.00	5,268.03	5,288.79	5,257.51	19.86	19.85	-30.95	395.66	-313.57	77.53	50.70	26.83	2.890		
5,400.00	5,366.89	5,388.76	5,356.41	20.28	20.26	-32.66	406.32	-323.55	78.25	50.85	27.40	2.856		
5,500.00	5,465.76	5,488.73	5,455.31	20.69	20.68	-34.33	416.98	-333.53	79.03	51.07	27.97	2.826		
5,600.00	5,564.62	5,588.70	5,554.21	21.11	21.09	-35.97	427.64	-343.51	79.89	51.34	28.54	2.799		
5,700.00	5,663.49	5,688.67	5,653.11	21.53	21.51	-37.57	438.30	-353.50	80.80	51.68	29.12	2.775		
5,800.00	5,762.35	5,788.64	5,752.01	21.94	21.92	-39.14	448.96	-363.48	81.78	52.08	29.70	2.753		
5,900.00	5,861.22	5,888.61	5,850.90	22.36	22.34	-40.67	459.62	-373.46	82.82	52.53	30.29	2.734		
6,000.00	5,960.08	5,988.58	5,949.80	22.78	22.76	-42.15	470.27	-383.44	83.91	53.04	30.88	2.718		
6,100.00	6,058.95	6,088.55	6,048.70	23.20	23.17	-43.60	480.93	-393.42	85.07	53.59	31.47	2.703		
6,200.00	6,157.81	6,188.52	6,147.60	23.62	23.59	-45.01	491.59	-403.41	86.27	54.20	32.07	2.690		
6,300.00	6,256.68	6,288.49	6,246.50	24.04	24.01	-46.38	502.25	-413.39	87.52	54.86	32.67	2.679		
6,400.00	6,355.54	6,388.46	6,345.40	24.46	24.42	-47.71	512.91	-423.37	88.83	55.56	33.27	2.670		
6,500.00	6,454.40	6,488.43	6,444.29	24.88	24.84	-49.01	523.57	-433.35	90.18	56.31	33.87	2.662		
6,600.00	6,553.27	6,588.40	6,543.19	25.30	25.26	-50.26	534.22	-443.33	91.57	57.10	34.48	2.656		
6,700.00	6,652.13	6,688.37	6,642.09	25.72	25.68	-51.47	544.88	-453.32	93.01	57.93	35.08	2.651		
6,800.00	6,751.00	6,788.34	6,740.99	26.14	26.10	-52.65	555.54	-463.30	94.49	58.79	35.69	2.647		
6,875.92	6,826.06	6,864.24	6,816.07	26.46	26.41	-53.52	563.63	-470.88	95.63	59.48	36.15	2.645		
6,900.00	6,849.87	6,888.53	6,840.11	26.56	26.51	-53.77	566.21	-473.29	96.03	59.73	36.30	2.645		
7,000.00	6,949.01	6,990.33	6,941.04	26.97	26.93	-54.67	575.85	-482.31	97.55	60.63	36.92	2.642		
7,100.00	7,048.45	7,092.14	7,042.30	27.36	27.33	-55.41	583.52	-489.50	98.73	61.22	37.50	2.632		
7,200.00	7,148.14	7,193.95	7,143.81	27.73	27.71	-55.99	589.22	-494.84	99.56	61.51	38.05	2.617		
7,300.00	7,248.00	7,295.77	7,245.49	28.09	28.08	-56.42	592.94	-498.32	100.04	61.48	38.56	2.594		
7,400.00	7,347.96	7,397.57	7,347.27	28.44	28.42	-56.72	594.68	-499.96	100.16	61.13	39.03	2.566		
7,452.05	7,400.00	7,450.30	7,400.00	28.61	28.60	-90.67	594.83	-500.09	100.10	60.83	39.27	2.549		
7,500.00	7,447.96	7,498.26	7,447.96	28.77	28.75	-90.67	594.83	-500.09	100.10	60.60	39.50	2.534		
7,600.00	7,547.96	7,598.26	7,547.96	29.09	29.08	-90.67	594.83	-500.09	100.10	60.13	39.97	2.504		
7,700.00	7,647.96	7,698.26	7,647.96	29.42	29.41	-90.67	594.83	-500.09	100.10	59.65	40.45	2.475		
7,800.00	7,747.96	7,798.26	7,747.96	29.75	29.74	-90.67	594.83	-500.09	100.10	59.18	40.92	2.446		
7,900.00	7,847.96	7,898.26	7,847.96	30.08	30.07	-90.67	594.83	-500.09	100.10	58.70	41.40	2.418		
8,000.00	7,947.96	7,998.26	7,947.96	30.41	30.40	-90.67	594.83	-500.09	100.10	58.22	41.87	2.390		
8,100.00	8,047.96	8,098.26	8,047.96	30.74	30.73	-90.67	594.83	-500.09	100.10	57.75	42.35	2.364		
8,200.00	8,147.96	8,198.26	8,147.96	31.07	31.06	-90.67	594.83	-500.09	100.10	57.27	42.83	2.337		
8,300.00	8,247.96	8,298.26	8,247.96	31.40	31.39	-90.67	594.83	-500.09	100.10	56.79	43.31	2.311		
8,400.00	8,347.96	8,398.26	8,347.96	31.74	31.72	-90.67	594.83	-500.09	100.10	56.31	43.79	2.286		
8,500.00	8,447.96	8,498.26	8,447.96	32.07	32.06	-90.67	594.83	-500.09	100.10	55.83	44.27	2.261		
8,600.00	8,547.96	8,598.26	8,547.96	32.40	32.39	-90.67	594.83	-500.09	100.10	55.35	44.75	2.237		
8,700.00	8,647.96	8,698.26	8,647.96	32.74	32.72	-90.67	594.83	-500.09	100.10	54.87	45.23	2.213		
8,800.00	8,747.96	8,798.26	8,747.96	33.07	33.06	-90.67	594.83	-500.09	100.10	54.39	45.71	2.190		
8,900.00	8,847.96	8,898.26	8,847.96	33.41	33.39	-90.67	594.83	-500.09	100.10	53.91	46.19	2.167		
9,000.00	8,947.96	8,998.26	8,947.96	33.74	33.73	-90.67	594.83	-500.09	100.10	53.42	46.67	2.145		
9,100.00	9,047.96	9,098.26	9,047.96	34.08	34.06	-90.67	594.83	-500.09	100.10	52.94	47.16	2.123		
9,200.00	9,147.96	9,198.26	9,147.96	34.42	34.40	-90.67	594.83	-500.09	100.10	52.46	47.64	2.101		
9,300.00	9,247.96	9,298.26	9,247.96	34.75	34.74	-90.67	594.83	-500.09	100.10	51.97	48.12	2.080		
9,400.00	9,347.96	9,398.26	9,347.96	35.09	35.07	-90.67	594.83	-500.09	100.10	51.49	48.61	2.059		
9,500.00	9,447.96	9,498.26	9,447.96	35.43	35.41	-90.67	594.83	-500.09	100.10	51.00	49.09	2.039		
9,600.00	9,547.96	9,598.26	9,547.96	35.77	35.75	-90.67	594.83	-500.09	100.10	50.52	49.58	2.019		
9,700.00	9,647.96	9,698.26	9,647.96	36.11	36.09	-90.67	594.83	-500.09	100.10	50.03	50.07	1.999		
9,800.00	9,747.96	9,798.26	9,747.96	36.44	36.43	-90.67	594.83	-500.09	100.10	49.54	50.55	1.980		
9,900.00	9,847.96	9,898.26	9,847.96	36.78	36.77	-90.67	594.83	-500.09	100.10	49.06	51.04	1.961		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PF Fed Com - PF Fed Com 801H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,000.00	9,947.96	9,998.26	9,947.96	37.12	37.11	-90.67	594.83	-500.09	100.10	48.57	51.53	1.943		
10,098.09	10,046.04	10,096.34	10,046.04	37.46	37.44	-90.67	594.83	-500.09	100.10	48.09	52.00	1.925		
10,100.00	10,047.96	10,098.26	10,047.96	37.46	37.45	89.89	594.83	-500.09	100.10	48.08	52.01	1.924		
10,113.11	10,061.06	10,111.37	10,061.06	37.50	37.49	90.00	594.83	-500.09	100.10	48.03	52.07	1.922		
10,150.00	10,097.88	10,148.19	10,097.88	37.61	37.62	91.23	594.83	-500.09	100.12	47.93	52.19	1.918	ES, SF	
10,200.00	10,147.42	10,197.72	10,147.42	37.74	37.79	94.97	594.83	-500.09	100.49	48.22	52.27	1.923		
10,250.00	10,196.18	10,246.49	10,196.18	37.86	37.95	100.82	594.83	-500.09	102.04	49.79	52.25	1.953		
10,300.00	10,243.80	10,294.11	10,243.80	37.96	38.11	108.18	594.83	-500.09	106.04	53.86	52.19	2.032		
10,350.00	10,289.92	10,340.22	10,289.92	38.05	38.27	116.14	594.83	-500.09	113.87	61.73	52.14	2.184		
10,400.00	10,334.18	10,384.48	10,334.18	38.12	38.42	123.80	594.83	-500.09	126.61	74.43	52.18	2.427		
10,450.00	10,376.24	10,426.55	10,376.24	38.17	38.57	130.48	594.83	-500.09	144.72	92.41	52.31	2.767		
10,500.00	10,415.80	10,466.10	10,415.80	38.21	38.70	135.87	594.83	-500.09	168.13	115.62	52.50	3.202		
10,550.00	10,452.53	10,502.84	10,452.53	38.24	38.83	139.95	594.83	-500.09	196.40	143.67	52.73	3.725		
10,600.00	10,486.18	10,536.48	10,486.18	38.26	38.94	142.79	594.83	-500.09	228.98	176.03	52.95	4.324		
10,650.00	10,516.48	10,566.78	10,516.48	38.26	39.04	144.48	594.83	-500.09	265.30	212.15	53.15	4.991		
10,700.00	10,543.19	10,593.49	10,543.19	38.26	39.14	145.03	594.83	-500.09	304.84	251.51	53.33	5.716		
10,750.00	10,566.12	10,616.43	10,566.12	38.25	39.21	144.33	594.83	-500.09	347.10	293.62	53.48	6.490		
10,800.00	10,585.10	10,635.40	10,585.10	38.23	39.28	142.04	594.83	-500.09	391.61	338.00	53.61	7.305		
10,850.00	10,599.97	10,650.27	10,599.97	38.21	39.33	137.43	594.83	-500.09	437.91	384.21	53.70	8.154		
10,900.00	10,610.62	10,660.93	10,610.62	38.19	39.37	128.96	594.83	-500.09	485.58	431.80	53.78	9.029		
10,950.00	10,616.98	10,667.29	10,616.98	38.17	39.39	113.72	594.83	-500.09	534.19	480.35	53.84	9.922		
10,998.09	10,619.00	10,669.30	10,619.00	38.16	39.40	90.00	594.83	-500.09	581.44	527.56	53.88	10.792		
11,000.00	10,619.00	10,669.30	10,619.00	38.16	39.40	90.00	594.83	-500.09	583.33	529.45	53.88	10.827		
11,100.00	10,619.00	10,669.30	10,619.00	38.19	39.40	90.00	594.83	-500.09	682.06	628.13	53.93	12.646		
11,200.00	10,619.00	10,669.30	10,619.00	38.36	39.40	90.00	594.83	-500.09	781.12	727.14	53.98	14.471		
11,300.00	10,619.00	10,669.30	10,619.00	38.64	39.40	90.00	594.83	-500.09	880.38	826.37	54.01	16.299		
11,400.00	10,619.00	10,669.30	10,619.00	38.99	39.40	90.00	594.83	-500.09	979.80	925.76	54.04	18.130		
11,500.00	10,619.00	10,669.30	10,619.00	39.41	39.40	90.00	594.83	-500.09	1,079.33	1,025.26	54.07	19.961		
11,600.00	10,619.00	10,669.30	10,619.00	39.89	39.40	90.00	594.83	-500.09	1,178.93	1,124.84	54.09	21.794		
11,700.00	10,619.00	10,669.30	10,619.00	40.43	39.40	90.00	594.83	-500.09	1,278.60	1,224.48	54.12	23.627		
11,800.00	10,619.00	10,669.30	10,619.00	41.03	39.40	90.00	594.83	-500.09	1,378.32	1,324.18	54.14	25.460		
11,900.00	10,619.00	10,669.30	10,619.00	41.68	39.40	90.00	594.83	-500.09	1,478.07	1,423.91	54.16	27.293		
12,000.00	10,619.00	10,669.30	10,619.00	42.38	39.40	90.00	594.83	-500.09	1,577.85	1,523.68	54.17	29.126		
12,100.00	10,619.00	10,669.30	10,619.00	43.14	39.40	90.00	594.83	-500.09	1,677.66	1,623.47	54.19	30.959		
12,200.00	10,619.00	10,669.30	10,619.00	43.94	39.40	90.00	594.83	-500.09	1,777.50	1,723.29	54.21	32.790		
12,300.00	10,619.00	10,669.30	10,619.00	44.79	39.40	90.00	594.83	-500.09	1,877.35	1,823.12	54.23	34.621		
12,400.00	10,619.00	14,323.06	12,544.00	45.68	51.80	177.02	-1,379.75	-480.83	1,927.60	1,886.86	40.74	47.319		
12,500.00	10,619.00	14,423.06	12,544.00	46.62	52.65	177.02	-1,479.75	-479.85	1,927.60	1,886.27	41.33	46.634		
12,600.00	10,619.00	14,523.06	12,544.00	47.59	53.54	177.02	-1,579.75	-478.88	1,927.60	1,885.65	41.95	45.947		
12,700.00	10,619.00	14,623.06	12,544.00	48.59	54.46	177.02	-1,679.74	-477.90	1,927.60	1,885.01	42.59	45.257		
12,800.00	10,619.00	14,723.06	12,544.00	49.64	55.41	177.02	-1,779.74	-476.92	1,927.60	1,884.35	43.25	44.569		
12,900.00	10,619.00	14,823.06	12,544.00	50.71	56.39	177.02	-1,879.73	-475.95	1,927.60	1,883.67	43.93	43.882		
13,000.00	10,619.00	14,923.06	12,544.00	51.81	57.41	177.02	-1,979.73	-474.97	1,927.60	1,882.98	44.62	43.199		
13,100.00	10,619.00	15,023.06	12,544.00	52.95	58.45	177.02	-2,079.72	-474.00	1,927.60	1,882.27	45.33	42.521		
13,200.00	10,619.00	15,123.06	12,544.00	54.11	59.52	177.02	-2,179.72	-473.02	1,927.60	1,881.54	46.06	41.850		
13,300.00	10,619.00	15,223.06	12,544.00	55.29	60.62	177.02	-2,279.71	-472.05	1,927.60	1,880.80	46.80	41.186		
13,400.00	10,619.00	15,323.06	12,544.00	56.50	61.74	177.02	-2,379.71	-471.07	1,927.60	1,880.04	47.56	40.530		
13,500.00	10,619.00	15,423.06	12,544.00	57.72	62.89	177.02	-2,479.70	-470.10	1,927.60	1,879.27	48.33	39.884		
13,600.00	10,619.00	15,523.06	12,544.00	58.97	64.06	177.02	-2,579.70	-469.12	1,927.60	1,878.49	49.11	39.247		
13,700.00	10,619.00	15,623.06	12,544.00	60.24	65.24	177.02	-2,679.69	-468.14	1,927.60	1,877.69	49.91	38.621		
13,800.00	10,619.00	15,723.06	12,544.00	61.53	66.45	177.02	-2,779.69	-467.17	1,927.60	1,876.88	50.72	38.005		
13,900.00	10,619.00	15,823.06	12,544.00	62.83	67.68	177.02	-2,879.68	-466.19	1,927.60	1,876.06	51.54	37.400		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PF Fed Com - PF Fed Com 801H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
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	
14,000.00	10,619.00	15,923.06	12,544.00	64.15	68.92	177.02	-2,979.68	-465.22	1,927.60	1,875.23	52.37	36.806		
14,100.00	10,619.00	16,023.06	12,544.00	65.49	70.18	177.02	-3,079.67	-464.24	1,927.60	1,874.39	53.21	36.224		
14,200.00	10,619.00	16,123.06	12,544.00	66.83	71.46	177.02	-3,179.67	-463.27	1,927.60	1,873.54	54.07	35.653		
14,300.00	10,619.00	16,223.06	12,544.00	68.20	72.75	177.02	-3,279.66	-462.29	1,927.60	1,872.67	54.93	35.094		
14,400.00	10,619.00	16,323.06	12,544.00	69.57	74.06	177.02	-3,379.66	-461.32	1,927.60	1,871.80	55.80	34.547		
14,500.00	10,619.00	16,423.06	12,544.00	70.96	75.38	177.02	-3,479.65	-460.34	1,927.60	1,870.93	56.68	34.011		
14,600.00	10,619.00	16,523.06	12,544.00	72.35	76.71	177.02	-3,579.65	-459.36	1,927.60	1,870.04	57.56	33.487		
14,700.00	10,619.00	16,623.06	12,544.00	73.76	78.05	177.02	-3,679.65	-458.39	1,927.60	1,869.14	58.46	32.975		
14,800.00	10,619.00	16,723.06	12,544.00	75.18	79.41	177.02	-3,779.64	-457.41	1,927.60	1,868.24	59.36	32.474		
14,900.00	10,619.00	16,823.06	12,544.00	76.61	80.77	177.02	-3,879.64	-456.44	1,927.60	1,867.33	60.27	31.985		
15,000.00	10,619.00	16,923.06	12,544.00	78.04	82.15	177.02	-3,979.63	-455.46	1,927.60	1,866.42	61.18	31.506		
15,100.00	10,619.00	17,023.06	12,544.00	79.49	83.54	177.02	-4,079.63	-454.49	1,927.60	1,865.50	62.10	31.038		
15,200.00	10,619.00	17,123.06	12,544.00	80.94	84.94	177.02	-4,179.62	-453.51	1,927.60	1,864.57	63.03	30.581		
15,300.00	10,619.00	17,223.06	12,544.00	82.40	86.34	177.02	-4,279.62	-452.54	1,927.60	1,863.63	63.97	30.134		
15,400.00	10,619.00	17,323.06	12,544.00	83.86	87.75	177.02	-4,379.61	-451.56	1,927.60	1,862.69	64.91	29.698		
15,500.00	10,619.00	17,423.06	12,544.00	85.34	89.18	177.02	-4,479.61	-450.59	1,927.60	1,861.75	65.85	29.271		
15,600.00	10,619.00	17,523.06	12,544.00	86.82	90.61	177.02	-4,579.60	-449.61	1,927.60	1,860.80	66.80	28.855		
15,700.00	10,619.00	17,623.06	12,544.00	88.30	92.04	177.02	-4,679.60	-448.63	1,927.60	1,859.84	67.76	28.448		
15,800.00	10,619.00	17,723.06	12,544.00	89.79	93.49	177.02	-4,779.59	-447.66	1,927.60	1,858.88	68.72	28.050		
15,900.00	10,619.00	17,823.06	12,544.00	91.29	94.94	177.02	-4,879.59	-446.68	1,927.60	1,857.92	69.68	27.662		
16,000.00	10,619.00	17,923.06	12,544.00	92.79	96.40	177.02	-4,979.58	-445.71	1,927.60	1,856.95	70.65	27.282		
16,100.00	10,619.00	18,023.06	12,544.00	94.30	97.86	177.02	-5,079.58	-444.73	1,927.60	1,855.97	71.63	26.911		
16,200.00	10,619.00	18,123.06	12,544.00	95.81	99.33	177.02	-5,179.57	-443.76	1,927.60	1,854.99	72.61	26.549		
16,300.00	10,619.00	18,223.06	12,544.00	97.33	100.81	177.02	-5,279.57	-442.78	1,927.60	1,854.01	73.59	26.195		
16,400.00	10,619.00	18,323.06	12,544.00	98.85	102.29	177.02	-5,379.56	-441.81	1,927.60	1,853.03	74.57	25.848		
16,500.00	10,619.00	18,423.06	12,544.00	100.38	103.77	177.02	-5,479.56	-440.83	1,927.60	1,852.04	75.56	25.510		
16,600.00	10,619.00	18,523.06	12,544.00	101.90	105.26	177.02	-5,579.56	-439.85	1,927.60	1,851.05	76.55	25.179		
16,700.00	10,619.00	18,623.06	12,544.00	103.44	106.76	177.02	-5,679.55	-438.88	1,927.60	1,850.05	77.55	24.856		
16,800.00	10,619.00	18,723.06	12,544.00	104.97	108.26	177.02	-5,779.55	-437.90	1,927.60	1,849.05	78.55	24.540		
16,900.00	10,619.00	18,823.06	12,544.00	106.51	109.76	177.02	-5,879.54	-436.93	1,927.60	1,848.05	79.55	24.231		
17,000.00	10,619.00	18,923.06	12,544.00	108.06	111.27	177.02	-5,979.54	-435.95	1,927.60	1,847.04	80.56	23.929		
17,100.00	10,619.00	19,023.06	12,544.00	109.60	112.78	177.02	-6,079.53	-434.98	1,927.60	1,846.04	81.56	23.633		
17,200.00	10,619.00	19,123.06	12,544.00	111.15	114.30	177.02	-6,179.53	-434.00	1,927.60	1,845.03	82.57	23.344		
17,300.00	10,619.00	19,223.06	12,544.00	112.70	115.82	177.02	-6,279.52	-433.03	1,927.60	1,844.01	83.59	23.061		
17,400.00	10,619.00	19,323.06	12,544.00	114.26	117.34	177.02	-6,379.52	-432.05	1,927.60	1,843.00	84.60	22.784		
17,500.00	10,619.00	19,423.06	12,544.00	115.82	118.87	177.02	-6,479.51	-431.07	1,927.60	1,841.98	85.62	22.513		
17,600.00	10,619.00	19,523.06	12,544.00	117.38	120.40	177.02	-6,579.51	-430.10	1,927.60	1,840.96	86.64	22.248		
17,700.00	10,619.00	19,623.06	12,544.00	118.94	121.93	177.02	-6,679.50	-429.12	1,927.60	1,839.94	87.66	21.989		
17,800.00	10,619.00	19,723.06	12,544.00	120.50	123.47	177.02	-6,779.50	-428.15	1,927.60	1,838.91	88.69	21.735		
17,900.00	10,619.00	19,823.06	12,544.00	122.07	125.01	177.02	-6,879.49	-427.17	1,927.60	1,837.89	89.71	21.486		
18,000.00	10,619.00	19,923.06	12,544.00	123.64	126.55	177.02	-6,979.49	-426.20	1,927.60	1,836.86	90.74	21.242		
18,100.00	10,619.00	20,023.06	12,544.00	125.21	128.10	177.02	-7,079.48	-425.22	1,927.60	1,835.83	91.77	21.004		
18,200.00	10,619.00	20,123.06	12,544.00	126.79	129.64	177.02	-7,179.48	-424.25	1,927.60	1,834.79	92.81	20.770		
18,300.00	10,619.00	20,223.06	12,544.00	128.36	131.19	177.02	-7,279.47	-423.27	1,927.60	1,833.76	93.84	20.541		
18,400.00	10,619.00	20,323.06	12,544.00	129.94	132.75	177.02	-7,379.47	-422.30	1,927.60	1,832.72	94.88	20.317		
18,500.00	10,619.00	20,423.06	12,544.00	131.52	134.30	177.02	-7,479.46	-421.32	1,927.60	1,831.68	95.92	20.097		
18,600.00	10,619.00	20,523.06	12,544.00	133.10	135.86	177.02	-7,579.46	-420.34	1,927.60	1,830.64	96.96	19.881		
18,700.00	10,619.00	20,623.06	12,544.00	134.68	137.42	177.02	-7,679.46	-419.37	1,927.60	1,829.60	98.00	19.670		
18,800.00	10,619.00	20,723.06	12,544.00	136.26	138.98	177.02	-7,779.45	-418.39	1,927.60	1,828.56	99.04	19.463		
18,900.00	10,619.00	20,823.06	12,544.00	137.85	140.54	177.02	-7,879.45	-417.42	1,927.60	1,827.51	100.09	19.260		
19,000.00	10,619.00	20,923.06	12,544.00	139.44	142.11	177.02	-7,979.44	-416.44	1,927.60	1,826.47	101.13	19.060		
19,100.00	10,619.00	21,023.06	12,544.00	141.03	143.68	177.02	-8,079.44	-415.47	1,927.60	1,825.42	102.18	18.865		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PF Fed Com - PF Fed Com 801H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,200.00	10,619.00	21,123.06	12,544.00	142.62	145.24	177.02	-8,179.43	-414.49	1,927.60	1,824.37	103.23	18.673	
19,300.00	10,619.00	21,223.06	12,544.00	144.21	146.82	177.02	-8,279.43	-413.52	1,927.60	1,823.32	104.28	18.485	
19,400.00	10,619.00	21,323.06	12,544.00	145.80	148.39	177.02	-8,379.42	-412.54	1,927.60	1,822.27	105.33	18.301	
19,500.00	10,619.00	21,423.06	12,544.00	147.40	149.96	177.02	-8,479.42	-411.56	1,927.60	1,821.22	106.38	18.119	
19,600.00	10,619.00	21,523.06	12,544.00	148.99	151.54	177.02	-8,579.41	-410.59	1,927.60	1,820.16	107.44	17.942	
19,700.00	10,619.00	21,623.06	12,544.00	150.59	153.12	177.02	-8,679.41	-409.61	1,927.60	1,819.11	108.49	17.767	
19,800.00	10,619.00	21,723.06	12,544.00	152.19	154.70	177.02	-8,779.40	-408.64	1,927.60	1,818.05	109.55	17.596	
19,900.00	10,619.00	21,823.06	12,544.00	153.78	156.28	177.02	-8,879.40	-407.66	1,927.60	1,816.99	110.61	17.428	
20,000.00	10,619.00	21,923.06	12,544.00	155.38	157.86	177.02	-8,979.39	-406.69	1,927.60	1,815.93	111.67	17.262	
20,100.00	10,619.00	22,023.06	12,544.00	156.99	159.44	177.02	-9,079.39	-405.71	1,927.60	1,814.87	112.73	17.100	
20,200.00	10,619.00	22,123.06	12,544.00	158.59	161.03	177.02	-9,179.38	-404.74	1,927.60	1,813.81	113.79	16.941	
20,300.00	10,619.00	22,223.06	12,544.00	160.19	162.61	177.02	-9,279.38	-403.76	1,927.60	1,812.75	114.85	16.784	
20,400.00	10,619.00	22,323.06	12,544.00	161.80	164.20	177.02	-9,379.37	-402.78	1,927.60	1,811.69	115.91	16.630	
20,500.00	10,619.00	22,423.06	12,544.00	163.40	165.79	177.02	-9,479.37	-401.81	1,927.60	1,810.63	116.97	16.479	
20,600.00	10,619.00	22,523.06	12,544.00	165.01	167.38	177.02	-9,579.36	-400.83	1,927.60	1,809.56	118.04	16.330	
20,700.00	10,619.00	22,623.06	12,544.00	166.61	168.97	177.02	-9,679.36	-399.86	1,927.60	1,808.50	119.10	16.184	
20,792.10	10,619.00	22,715.17	12,544.00	167.92	170.44	177.02	-9,771.46	-398.96	1,927.60	1,807.74	119.86	16.083	

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 501H
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 501H	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	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)					
0.00	0.00	0.00	0.00	0.00	0.00	9.08	75.06	12.00	76.01							
100.00	100.00	100.00	100.00	0.13	0.13	9.08	75.06	12.00	76.01	75.84	0.18	428.406				
200.00	200.00	200.00	200.00	0.48	0.48	9.08	75.06	12.00	76.01	75.33	0.68	111.068				
300.00	300.00	300.00	300.00	0.84	0.84	9.08	75.06	12.00	76.01	74.82	1.19	63.805				
400.00	400.00	400.00	400.00	1.20	1.20	9.08	75.06	12.00	76.01	74.32	1.70	44.759				
500.00	500.00	500.00	500.00	1.56	1.56	9.08	75.06	12.00	76.01	73.81	2.21	34.469				
600.00	600.00	600.00	600.00	1.92	1.92	9.08	75.06	12.00	76.01	73.30	2.71	28.027				
700.00	700.00	700.00	700.00	2.28	2.28	9.08	75.06	12.00	76.01	72.79	3.22	23.613				
800.00	800.00	800.00	800.00	2.63	2.63	9.08	75.06	12.00	76.01	72.29	3.73	20.400				
900.00	900.00	900.00	900.00	2.99	2.99	9.08	75.06	12.00	76.01	71.78	4.23	17.957				
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	9.08	75.06	12.00	76.01	71.27	4.74	16.037				
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	9.08	75.06	12.00	76.01	70.77	5.25	14.487				
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	9.08	75.06	12.00	76.01	70.26	5.75	13.211				
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	9.08	75.06	12.00	76.01	69.75	6.26	12.141				
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	9.08	75.06	12.00	76.01	69.25	6.77	11.232				
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	9.08	75.06	12.00	76.01	68.74	7.27	10.449				
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	9.08	75.06	12.00	76.01	68.23	7.78	9.768				
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	9.08	75.06	12.00	76.01	67.73	8.29	9.171				
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	9.08	75.06	12.00	76.01	67.22	8.80	8.642				
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	9.08	75.06	12.00	76.01	66.71	9.30	8.171				
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	9.08	75.06	12.00	76.01	66.20	9.81	7.749				
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	9.08	75.06	12.00	76.01	65.70	10.32	7.368				
2,200.00	2,199.99	2,199.99	2,199.99	7.65	7.65	43.64	75.06	12.00	75.06	64.24	10.82	6.936				
2,300.00	2,299.91	2,298.12	2,298.10	8.01	8.00	46.06	76.16	12.62	73.50	62.18	11.32	6.493				
2,398.19	2,397.89	2,394.35	2,394.27	8.36	8.35	50.47	79.37	14.42	72.87	61.07	11.80	6.176 CC				
2,400.00	2,399.69	2,396.13	2,396.04	8.36	8.35	50.57	79.45	14.46	72.87	61.06	11.81	6.171 ES				
2,500.00	2,499.27	2,493.92	2,493.63	8.72	8.70	57.00	84.92	17.53	73.80	61.51	12.29	6.006 SF				
2,600.00	2,598.57	2,591.38	2,590.70	9.08	9.05	64.82	92.53	21.81	77.07	64.31	12.76	6.040				
2,676.13	2,673.94	2,665.29	2,664.14	9.36	9.32	71.20	99.74	25.86	81.61	68.49	13.12	6.221				
2,700.00	2,697.55	2,688.48	2,687.15	9.45	9.40	73.19	102.26	27.27	83.47	70.24	13.23	6.308				
2,800.00	2,796.41	2,787.40	2,785.27	9.82	9.76	80.67	113.20	33.41	92.48	78.73	13.75	6.727				
2,900.00	2,895.28	2,886.33	2,883.40	10.20	10.12	86.76	124.14	39.55	102.79	88.52	14.27	7.203				
3,000.00	2,994.14	2,985.26	2,981.53	10.58	10.49	91.71	135.08	45.70	114.04	99.25	14.79	7.709				
3,100.00	3,093.01	3,084.18	3,079.66	10.96	10.86	95.75	146.02	51.84	125.99	110.67	15.32	8.223				
3,200.00	3,191.87	3,183.11	3,177.78	11.35	11.23	99.08	156.96	57.98	138.45	122.60	15.85	8.735				
3,300.00	3,290.74	3,282.03	3,275.91	11.74	11.60	101.86	167.90	64.12	151.30	134.92	16.38	9.236				
3,400.00	3,389.60	3,380.96	3,374.04	12.13	11.98	104.20	178.84	70.27	164.44	147.52	16.91	9.722				
3,500.00	3,488.46	3,479.89	3,472.17	12.52	12.35	106.19	189.78	76.41	177.81	160.36	17.45	10.190				
3,600.00	3,587.33	3,578.81	3,570.29	12.92	12.73	107.90	200.73	82.55	191.37	173.38	17.99	10.640				
3,700.00	3,686.19	3,677.74	3,668.42	13.32	13.11	109.38	211.67	88.69	205.06	186.54	18.52	11.070				
3,800.00	3,785.06	3,776.67	3,766.55	13.72	13.49	110.68	222.61	94.84	218.88	199.82	19.06	11.482				
3,900.00	3,883.92	3,875.59	3,864.67	14.12	13.88	111.83	233.55	100.98	232.80	213.19	19.60	11.875				
4,000.00	3,982.79	3,974.52	3,962.80	14.53	14.26	112.84	244.49	107.12	246.80	226.65	20.15	12.250				
4,100.00	4,081.65	4,073.44	4,060.93	14.93	14.64	113.75	255.43	113.26	260.86	240.17	20.69	12.609				
4,200.00	4,180.52	4,172.37	4,159.06	15.34	15.03	114.56	266.37	119.41	274.98	253.75	21.23	12.951				
4,300.00	4,279.38	4,271.30	4,257.18	15.74	15.42	115.29	277.31	125.55	289.15	267.38	21.78	13.277				
4,400.00	4,378.25	4,370.22	4,355.31	16.15	15.80	115.96	288.25	131.69	303.37	281.04	22.32	13.589				
4,500.00	4,477.11	4,469.15	4,453.44	16.56	16.19	116.56	299.19	137.84	317.62	294.75	22.87	13.887				
4,600.00	4,575.98	4,568.07	4,551.56	16.97	16.58	117.12	310.13	143.98	331.90	308.48	23.42	14.172				
4,700.00	4,674.84	4,667.00	4,649.69	17.38	16.97	117.63	321.07	150.12	346.21	322.24	23.97	14.445				
4,800.00	4,773.71	4,765.93	4,747.82	17.79	17.36	118.09	332.01	156.26	360.54	336.02	24.52	14.706				
4,900.00	4,872.57	4,864.85	4,845.95	18.21	17.75	118.53	342.96	162.41	374.90	349.83	25.07	14.956				

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 501H
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 501H	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	4,971.43	4,963.78	4,944.07	18.62	18.14	118.93	353.90	168.55	389.27	363.65	25.62	15.195		
5,100.00	5,070.30	5,062.71	5,042.20	19.03	18.53	119.30	364.84	174.69	403.67	377.50	26.17	15.425		
5,200.00	5,169.16	5,161.63	5,140.33	19.45	18.93	119.64	375.78	180.83	418.07	391.35	26.72	15.646		
5,300.00	5,268.03	5,260.56	5,238.46	19.86	19.32	119.97	386.72	186.98	432.49	405.22	27.27	15.858		
5,400.00	5,366.89	5,359.48	5,336.58	20.28	19.71	120.27	397.66	193.12	446.93	419.10	27.83	16.061		
5,500.00	5,465.76	5,458.41	5,434.71	20.69	20.11	120.55	408.60	199.26	461.38	433.00	28.38	16.257		
5,600.00	5,564.62	5,557.34	5,532.84	21.11	20.50	120.82	419.54	205.40	475.83	446.90	28.93	16.446		
5,700.00	5,663.49	5,656.26	5,630.96	21.53	20.89	121.07	430.48	211.55	490.30	460.81	29.49	16.627		
5,800.00	5,762.35	5,755.19	5,729.09	21.94	21.29	121.30	441.42	217.69	504.77	474.73	30.04	16.802		
5,900.00	5,861.22	5,854.11	5,827.22	22.36	21.68	121.53	452.36	223.83	519.25	488.66	30.60	16.970		
6,000.00	5,960.08	5,953.04	5,925.35	22.78	22.08	121.74	463.30	229.97	533.74	502.59	31.15	17.133		
6,100.00	6,058.95	6,051.97	6,023.47	23.20	22.48	121.94	474.25	236.12	548.24	516.53	31.71	17.290		
6,200.00	6,157.81	6,150.89	6,121.60	23.62	22.87	122.13	485.19	242.26	562.74	530.48	32.27	17.441		
6,300.00	6,256.68	6,249.82	6,219.73	24.04	23.27	122.31	496.13	248.40	577.25	544.43	32.82	17.588		
6,400.00	6,355.54	6,348.75	6,317.86	24.46	23.66	122.48	507.07	254.54	591.76	558.38	33.38	17.729		
6,500.00	6,454.40	6,447.67	6,415.98	24.88	24.06	122.64	518.01	260.69	606.28	572.35	33.94	17.866		
6,600.00	6,553.27	6,546.60	6,514.11	25.30	24.46	122.79	528.95	266.83	620.80	586.31	34.49	17.998		
6,700.00	6,652.13	6,645.52	6,612.24	25.72	24.85	122.94	539.89	272.97	635.33	600.28	35.05	18.126		
6,800.00	6,751.00	6,744.45	6,710.36	26.14	25.25	123.08	550.83	279.11	649.86	614.25	35.61	18.250		
6,875.92	6,826.06	6,819.55	6,784.86	26.46	25.55	123.19	559.14	283.78	660.90	624.86	36.03	18.342		
6,900.00	6,849.87	6,843.38	6,808.50	26.56	25.65	123.26	561.77	285.26	664.36	628.19	36.17	18.370		
7,000.00	6,949.01	6,942.47	6,906.78	26.97	26.05	123.42	572.73	291.41	677.84	641.12	36.72	18.460		
7,100.00	7,048.45	7,047.50	7,011.03	27.36	26.46	123.40	583.87	297.66	689.65	652.35	37.30	18.490		
7,200.00	7,148.14	7,156.91	7,119.93	27.73	26.89	123.36	593.00	302.79	698.74	660.86	37.88	18.446		
7,300.00	7,248.00	7,266.72	7,229.50	28.09	27.29	123.31	599.42	306.40	704.98	666.54	38.44	18.341		
7,400.00	7,347.96	7,376.80	7,339.49	28.44	27.68	123.26	603.10	308.46	708.35	669.38	38.97	18.176		
7,452.05	7,400.00	7,434.15	7,396.83	28.61	27.88	89.36	603.93	308.92	708.98	669.74	39.24	18.068		
7,500.00	7,447.96	7,485.27	7,447.96	28.77	28.05	89.35	604.06	309.00	709.05	669.57	39.48	17.961		
7,600.00	7,547.96	7,585.27	7,547.96	29.09	28.39	89.35	604.06	309.00	709.05	669.09	39.95	17.748		
7,700.00	7,647.96	7,685.27	7,647.96	29.42	28.73	89.35	604.06	309.00	709.05	668.62	40.43	17.539		
7,800.00	7,747.96	7,785.27	7,747.96	29.75	29.06	89.35	604.06	309.00	709.05	668.14	40.90	17.335		
7,900.00	7,847.96	7,885.27	7,847.96	30.08	29.40	89.35	604.06	309.00	709.05	667.66	41.38	17.135		
8,000.00	7,947.96	7,985.27	7,947.96	30.41	29.74	89.35	604.06	309.00	709.05	667.19	41.86	16.939		
8,100.00	8,047.96	8,085.27	8,047.96	30.74	30.08	89.35	604.06	309.00	709.05	666.71	42.34	16.748		
8,200.00	8,147.96	8,185.27	8,147.96	31.07	30.41	89.35	604.06	309.00	709.05	666.23	42.82	16.560		
8,300.00	8,247.96	8,285.27	8,247.96	31.40	30.75	89.35	604.06	309.00	709.05	665.75	43.30	16.377		
8,400.00	8,347.96	8,385.27	8,347.96	31.74	31.09	89.35	604.06	309.00	709.05	665.27	43.78	16.197		
8,500.00	8,447.96	8,485.27	8,447.96	32.07	31.43	89.35	604.06	309.00	709.05	664.79	44.26	16.021		
8,600.00	8,547.96	8,585.27	8,547.96	32.40	31.77	89.35	604.06	309.00	709.05	664.31	44.74	15.848		
8,700.00	8,647.96	8,685.27	8,647.96	32.74	32.11	89.35	604.06	309.00	709.05	663.82	45.22	15.679		
8,800.00	8,747.96	8,785.27	8,747.96	33.07	32.45	89.35	604.06	309.00	709.05	663.34	45.70	15.514		
8,900.00	8,847.96	8,885.27	8,847.96	33.41	32.80	89.35	604.06	309.00	709.05	662.86	46.19	15.351		
9,000.00	8,947.96	8,985.27	8,947.96	33.74	33.14	89.35	604.06	309.00	709.05	662.37	46.67	15.192		
9,100.00	9,047.96	9,085.27	9,047.96	34.08	33.48	89.35	604.06	309.00	709.05	661.89	47.16	15.036		
9,200.00	9,147.96	9,185.27	9,147.96	34.42	33.82	89.35	604.06	309.00	709.05	661.41	47.64	14.883		
9,300.00	9,247.96	9,285.27	9,247.96	34.75	34.16	89.35	604.06	309.00	709.05	660.92	48.13	14.733		
9,400.00	9,347.96	9,385.27	9,347.96	35.09	34.51	89.35	604.06	309.00	709.05	660.43	48.61	14.586		
9,500.00	9,447.96	9,485.27	9,447.96	35.43	34.85	89.35	604.06	309.00	709.05	659.95	49.10	14.442		
9,600.00	9,547.96	9,585.27	9,547.96	35.77	35.20	89.35	604.06	309.00	709.05	659.46	49.58	14.300		
9,700.00	9,647.96	9,685.27	9,647.96	36.11	35.54	89.35	604.06	309.00	709.05	658.98	50.07	14.161		
9,800.00	9,747.96	9,785.27	9,747.96	36.44	35.88	89.35	604.06	309.00	709.05	658.49	50.56	14.025		
9,900.00	9,847.96	9,885.27	9,847.96	36.78	36.23	89.35	604.06	309.00	709.05	658.00	51.05	13.891		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,000.00	9,947.96	9,985.27	9,947.96	37.12	36.57	89.35	604.06	309.00	709.05	657.51	51.53	13.759		
10,098.09	10,046.04	10,083.36	10,046.04	37.46	36.91	89.35	604.06	309.00	709.05	657.03	52.01	13.632		
10,100.00	10,047.96	10,085.27	10,047.96	37.46	36.92	-90.09	604.06	309.00	709.05	657.02	52.02	13.630		
10,150.00	10,097.88	10,135.20	10,097.88	37.61	37.09	-90.28	604.06	309.00	709.05	656.80	52.25	13.570		
10,200.00	10,147.42	10,184.74	10,147.42	37.74	37.26	-90.81	604.06	309.00	709.12	656.65	52.47	13.515		
10,250.00	10,196.18	10,233.50	10,196.18	37.86	37.43	-91.65	604.06	309.00	709.36	656.68	52.68	13.466		
10,300.00	10,243.80	10,281.12	10,243.80	37.96	37.59	-92.76	604.06	309.00	709.98	657.10	52.87	13.428		
10,350.00	10,289.92	10,327.23	10,289.92	38.05	37.75	-94.06	604.06	309.00	711.22	658.17	53.05	13.406		
10,400.00	10,334.18	10,371.49	10,334.18	38.12	37.91	-95.49	604.06	309.00	713.42	660.20	53.22	13.406		
10,450.00	10,376.24	10,413.56	10,376.24	38.17	38.05	-96.96	604.06	309.00	716.90	663.54	53.37	13.434		
10,500.00	10,415.80	10,453.11	10,415.80	38.21	38.19	-98.36	604.06	309.00	722.05	668.55	53.50	13.497		
10,550.00	10,452.53	10,489.85	10,452.53	38.24	38.32	-99.61	604.06	309.00	729.21	675.60	53.61	13.601		
10,600.00	10,486.18	10,523.50	10,486.18	38.26	38.43	-100.60	604.06	309.00	738.72	685.01	53.71	13.754		
10,650.00	10,516.48	10,553.79	10,516.48	38.26	38.54	-101.25	604.06	309.00	750.85	697.06	53.79	13.959		
10,700.00	10,543.19	10,580.51	10,543.19	38.26	38.63	-101.46	604.06	309.00	765.79	711.94	53.85	14.221		
10,750.00	10,566.12	10,603.44	10,566.12	38.25	38.71	-101.17	604.06	309.00	783.64	729.75	53.89	14.541		
10,800.00	10,585.10	10,622.41	10,585.10	38.23	38.78	-100.29	604.06	309.00	804.42	750.51	53.92	14.919		
10,850.00	10,599.97	10,637.29	10,599.97	38.21	38.83	-98.76	604.06	309.00	828.03	774.11	53.93	15.355		
10,900.00	10,610.62	10,647.94	10,610.62	38.19	38.86	-96.53	604.06	309.00	854.28	800.36	53.92	15.843		
10,950.00	10,616.98	10,654.30	10,616.98	38.17	38.89	-93.56	604.06	309.00	882.89	828.99	53.90	16.380		
10,998.09	10,619.00	10,656.32	10,619.00	38.16	38.89	-90.00	604.06	309.00	912.33	858.46	53.87	16.936		
11,000.00	10,619.00	10,656.32	10,619.00	38.16	38.89	-90.00	604.06	309.00	913.53	859.66	53.87	16.959		
11,100.00	10,619.00	10,656.32	10,619.00	38.19	38.89	-90.00	604.06	309.00	979.67	925.86	53.80	18.209		
11,200.00	10,619.00	10,656.32	10,619.00	38.36	38.89	-90.00	604.06	309.00	1,051.16	997.41	53.76	19.554		
11,300.00	10,619.00	10,656.32	10,619.00	38.64	38.89	-90.00	604.06	309.00	1,127.01	1,073.28	53.73	20.976		
11,400.00	10,619.00	10,656.32	10,619.00	38.99	38.89	-90.00	604.06	309.00	1,206.38	1,152.67	53.71	22.460		
11,500.00	10,619.00	10,656.32	10,619.00	39.41	38.89	-90.00	604.06	309.00	1,288.63	1,234.92	53.71	23.994		
11,600.00	10,619.00	10,656.32	10,619.00	39.89	38.89	-90.00	604.06	309.00	1,373.23	1,319.53	53.70	25.570		
11,700.00	10,619.00	10,656.32	10,619.00	40.43	38.89	-90.00	604.06	309.00	1,459.78	1,406.07	53.71	27.179		
11,800.00	10,619.00	10,656.32	10,619.00	41.03	38.89	-90.00	604.06	309.00	1,547.96	1,494.24	53.72	28.817		
11,900.00	10,619.00	10,656.32	10,619.00	41.68	38.89	-90.00	604.06	309.00	1,637.49	1,583.76	53.73	30.477		
12,000.00	10,619.00	10,656.32	10,619.00	42.38	38.89	-90.00	604.06	309.00	1,728.17	1,674.43	53.74	32.157		
12,100.00	10,619.00	10,656.32	10,619.00	43.14	38.89	-90.00	604.06	309.00	1,819.83	1,766.07	53.76	33.854		
12,200.00	10,619.00	10,656.32	10,619.00	43.94	38.89	-90.00	604.06	309.00	1,912.32	1,858.55	53.77	35.564		
12,300.00	10,619.00	14,120.49	12,446.00	44.79	50.83	-155.85	-1,270.73	437.38	2,002.22	1,956.53	45.69	43.820		
12,400.00	10,619.00	14,220.49	12,446.00	45.68	51.64	-155.85	-1,370.72	438.36	2,002.23	1,955.82	46.40	43.149		
12,500.00	10,619.00	14,320.49	12,446.00	46.62	52.49	-155.85	-1,470.72	439.34	2,002.23	1,955.09	47.14	42.471		
12,600.00	10,619.00	14,420.49	12,446.00	47.59	53.38	-155.85	-1,570.71	440.33	2,002.23	1,954.32	47.91	41.789		
12,700.00	10,619.00	14,520.49	12,446.00	48.59	54.31	-155.85	-1,670.71	441.31	2,002.24	1,953.53	48.71	41.107		
12,800.00	10,619.00	14,620.49	12,446.00	49.64	55.27	-155.85	-1,770.70	442.29	2,002.24	1,952.71	49.53	40.426		
12,900.00	10,619.00	14,720.49	12,446.00	50.71	56.26	-155.85	-1,870.70	443.28	2,002.24	1,951.87	50.37	39.749		
13,000.00	10,619.00	14,820.49	12,446.00	51.81	57.28	-155.85	-1,970.69	444.26	2,002.25	1,951.01	51.24	39.077		
13,100.00	10,619.00	14,920.49	12,446.00	52.95	58.33	-155.85	-2,070.69	445.25	2,002.25	1,950.12	52.13	38.411		
13,200.00	10,619.00	15,020.49	12,446.00	54.11	59.40	-155.85	-2,170.68	446.23	2,002.25	1,949.22	53.04	37.753		
13,300.00	10,619.00	15,120.49	12,446.00	55.29	60.50	-155.85	-2,270.68	447.21	2,002.26	1,948.29	53.96	37.103		
13,400.00	10,619.00	15,220.49	12,446.00	56.50	61.63	-155.85	-2,370.67	448.20	2,002.26	1,947.35	54.91	36.463		
13,500.00	10,619.00	15,320.49	12,446.00	57.72	62.78	-155.85	-2,470.67	449.18	2,002.26	1,946.39	55.88	35.833		
13,600.00	10,619.00	15,420.49	12,446.00	58.97	63.95	-155.85	-2,570.66	450.16	2,002.27	1,945.41	56.86	35.214		
13,700.00	10,619.00	15,520.49	12,446.00	60.24	65.15	-155.85	-2,670.66	451.15	2,002.27	1,944.41	57.86	34.607		
13,800.00	10,619.00	15,620.49	12,446.00	61.53	66.36	-155.85	-2,770.65	452.13	2,002.28	1,943.40	58.87	34.011		
13,900.00	10,619.00	15,720.49	12,446.00	62.83	67.59	-155.85	-2,870.65	453.12	2,002.28	1,942.38	59.90	33.428		
14,000.00	10,619.00	15,820.49	12,446.00	64.15	68.84	-155.85	-2,970.64	454.10	2,002.28	1,941.34	60.94	32.858		

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 501H
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 501H	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	10,619.00	15,920.49	12,446.00	65.49	70.10	-155.85	-3,070.64	455.08	2,002.29	1,940.30	61.99	32.301		
14,200.00	10,619.00	16,020.49	12,446.00	66.83	71.38	-155.85	-3,170.63	456.07	2,002.29	1,939.24	63.05	31.757		
14,300.00	10,619.00	16,120.49	12,446.00	68.20	72.68	-155.85	-3,270.63	457.05	2,002.29	1,938.17	64.13	31.224		
14,400.00	10,619.00	16,220.49	12,446.00	69.57	73.99	-155.85	-3,370.62	458.03	2,002.30	1,937.08	65.21	30.704		
14,500.00	10,619.00	16,320.49	12,446.00	70.96	75.31	-155.85	-3,470.62	459.02	2,002.30	1,935.99	66.31	30.197		
14,600.00	10,619.00	16,420.49	12,446.00	72.35	76.65	-155.85	-3,570.61	460.00	2,002.30	1,934.89	67.41	29.701		
14,700.00	10,619.00	16,520.49	12,446.00	73.76	78.00	-155.85	-3,670.61	460.99	2,002.31	1,933.78	68.53	29.218		
14,800.00	10,619.00	16,620.49	12,446.00	75.18	79.36	-155.85	-3,770.60	461.97	2,002.31	1,932.65	69.66	28.746		
14,900.00	10,619.00	16,720.49	12,446.00	76.61	80.73	-155.85	-3,870.60	462.95	2,002.31	1,931.53	70.79	28.286		
15,000.00	10,619.00	16,820.49	12,446.00	78.04	82.11	-155.85	-3,970.59	463.94	2,002.32	1,930.39	71.93	27.838		
15,100.00	10,619.00	16,920.49	12,446.00	79.49	83.50	-155.84	-4,070.59	464.92	2,002.32	1,929.25	73.07	27.402		
15,200.00	10,619.00	17,020.49	12,446.00	80.94	84.90	-155.84	-4,170.58	465.90	2,002.32	1,928.10	74.23	26.976		
15,300.00	10,619.00	17,120.49	12,446.00	82.40	86.31	-155.84	-4,270.58	466.89	2,002.33	1,926.94	75.39	26.561		
15,400.00	10,619.00	17,220.49	12,446.00	83.86	87.73	-155.84	-4,370.58	467.87	2,002.33	1,925.78	76.55	26.156		
15,500.00	10,619.00	17,320.49	12,446.00	85.34	89.15	-155.84	-4,470.57	468.86	2,002.33	1,924.61	77.73	25.761		
15,600.00	10,619.00	17,420.49	12,446.00	86.82	90.58	-155.84	-4,570.57	469.84	2,002.34	1,923.43	78.91	25.376		
15,700.00	10,619.00	17,520.49	12,446.00	88.30	92.02	-155.84	-4,670.56	470.82	2,002.34	1,922.25	80.09	25.001		
15,800.00	10,619.00	17,620.49	12,446.00	89.79	93.47	-155.84	-4,770.56	471.81	2,002.34	1,921.06	81.28	24.635		
15,900.00	10,619.00	17,720.49	12,446.00	91.29	94.93	-155.84	-4,870.55	472.79	2,002.35	1,919.87	82.48	24.278		
16,000.00	10,619.00	17,820.49	12,446.00	92.79	96.39	-155.84	-4,970.55	473.77	2,002.35	1,918.68	83.67	23.931		
16,100.00	10,619.00	17,920.49	12,446.00	94.30	97.85	-155.84	-5,070.54	474.76	2,002.35	1,917.48	84.88	23.592		
16,200.00	10,619.00	18,020.49	12,446.00	95.81	99.32	-155.84	-5,170.54	475.74	2,002.36	1,916.27	86.08	23.261		
16,300.00	10,619.00	18,120.49	12,446.00	97.33	100.80	-155.84	-5,270.53	476.73	2,002.36	1,915.07	87.29	22.938		
16,400.00	10,619.00	18,220.49	12,446.00	98.85	102.29	-155.84	-5,370.53	477.71	2,002.36	1,913.85	88.51	22.623		
16,500.00	10,619.00	18,320.49	12,446.00	100.38	103.77	-155.84	-5,470.52	478.69	2,002.37	1,912.64	89.73	22.315		
16,600.00	10,619.00	18,420.49	12,446.00	101.90	105.27	-155.84	-5,570.52	479.68	2,002.37	1,911.42	90.95	22.015		
16,700.00	10,619.00	18,520.49	12,446.00	103.44	106.76	-155.84	-5,670.51	480.66	2,002.37	1,910.19	92.18	21.723		
16,800.00	10,619.00	18,620.49	12,446.00	104.97	108.27	-155.84	-5,770.51	481.64	2,002.38	1,908.97	93.41	21.437		
16,900.00	10,619.00	18,720.49	12,446.00	106.51	109.77	-155.84	-5,870.50	482.63	2,002.38	1,907.74	94.64	21.158		
17,000.00	10,619.00	18,820.49	12,446.00	108.06	111.28	-155.84	-5,970.50	483.61	2,002.38	1,906.51	95.87	20.885		
17,100.00	10,619.00	18,920.49	12,446.00	109.60	112.80	-155.84	-6,070.49	484.60	2,002.39	1,905.28	97.11	20.619		
17,200.00	10,619.00	19,020.49	12,446.00	111.15	114.32	-155.84	-6,170.49	485.58	2,002.39	1,904.04	98.35	20.359		
17,300.00	10,619.00	19,120.49	12,446.00	112.70	115.84	-155.84	-6,270.48	486.56	2,002.39	1,902.80	99.60	20.105		
17,400.00	10,619.00	19,220.49	12,446.00	114.26	117.36	-155.84	-6,370.48	487.55	2,002.40	1,901.56	100.84	19.857		
17,500.00	10,619.00	19,320.49	12,446.00	115.82	118.89	-155.84	-6,470.47	488.53	2,002.40	1,900.31	102.09	19.614		
17,600.00	10,619.00	19,420.49	12,446.00	117.38	120.42	-155.84	-6,570.47	489.51	2,002.41	1,899.06	103.34	19.377		
17,700.00	10,619.00	19,520.49	12,446.00	118.94	121.96	-155.84	-6,670.46	490.50	2,002.41	1,897.82	104.59	19.145		
17,800.00	10,619.00	19,620.49	12,446.00	120.50	123.50	-155.84	-6,770.46	491.48	2,002.41	1,896.57	105.85	18.918		
17,900.00	10,619.00	19,720.49	12,446.00	122.07	125.04	-155.84	-6,870.45	492.47	2,002.42	1,895.31	107.10	18.697		
18,000.00	10,619.00	19,820.49	12,446.00	123.64	126.58	-155.84	-6,970.45	493.45	2,002.42	1,894.06	108.36	18.480		
18,100.00	10,619.00	19,920.49	12,446.00	125.21	128.13	-155.84	-7,070.44	494.43	2,002.42	1,892.80	109.62	18.267		
18,200.00	10,619.00	20,020.49	12,446.00	126.79	129.68	-155.84	-7,170.44	495.42	2,002.43	1,891.55	110.88	18.059		
18,300.00	10,619.00	20,120.49	12,446.00	128.36	131.23	-155.84	-7,270.43	496.40	2,002.43	1,890.29	112.14	17.856		
18,400.00	10,619.00	20,220.49	12,446.00	129.94	132.78	-155.84	-7,370.43	497.38	2,002.43	1,889.03	113.41	17.657		
18,500.00	10,619.00	20,320.49	12,446.00	131.52	134.34	-155.84	-7,470.43	498.37	2,002.44	1,887.76	114.67	17.462		
18,600.00	10,619.00	20,420.49	12,446.00	133.10	135.90	-155.84	-7,570.42	499.35	2,002.44	1,886.50	115.94	17.271		
18,700.00	10,619.00	20,520.49	12,446.00	134.68	137.46	-155.84	-7,670.42	500.34	2,002.44	1,885.24	117.21	17.085		
18,800.00	10,619.00	20,620.49	12,446.00	136.26	139.02	-155.84	-7,770.41	501.32	2,002.45	1,883.97	118.48	16.902		
18,900.00	10,619.00	20,720.49	12,446.00	137.85	140.59	-155.84	-7,870.41	502.30	2,002.45	1,882.70	119.75	16.722		
19,000.00	10,619.00	20,820.49	12,446.00	139.44	142.15	-155.84	-7,970.40	503.29	2,002.45	1,881.43	121.02	16.547		
19,100.00	10,619.00	20,920.49	12,446.00	141.03	143.72	-155.84	-8,070.40	504.27	2,002.46	1,880.16	122.29	16.374		
19,200.00	10,619.00	21,020.49	12,446.00	142.62	145.29	-155.84	-8,170.39	505.25	2,002.46	1,878.89	123.57	16.205		

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 501H
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 501H	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	10,619.00	21,120.49	12,446.00	144.21	146.87	-155.84	-8,270.39	506.24	2,002.46	1,877.62	124.84	16.040	
19,400.00	10,619.00	21,220.49	12,446.00	145.80	148.44	-155.84	-8,370.38	507.22	2,002.47	1,876.35	126.12	15.878	
19,500.00	10,619.00	21,320.49	12,446.00	147.40	150.01	-155.84	-8,470.38	508.21	2,002.47	1,875.07	127.40	15.719	
19,600.00	10,619.00	21,420.49	12,446.00	148.99	151.59	-155.84	-8,570.37	509.19	2,002.47	1,873.80	128.67	15.563	
19,700.00	10,619.00	21,520.49	12,446.00	150.59	153.17	-155.83	-8,670.37	510.17	2,002.48	1,872.53	129.95	15.410	
19,800.00	10,619.00	21,620.49	12,446.00	152.19	154.75	-155.83	-8,770.36	511.16	2,002.48	1,871.25	131.23	15.259	
19,900.00	10,619.00	21,720.49	12,446.00	153.78	156.33	-155.83	-8,870.36	512.14	2,002.48	1,869.98	132.51	15.112	
20,000.00	10,619.00	21,820.49	12,446.00	155.38	157.92	-155.83	-8,970.35	513.13	2,002.49	1,868.70	133.79	14.967	
20,100.00	10,619.00	21,920.49	12,446.00	156.99	159.50	-155.83	-9,070.35	514.11	2,002.49	1,867.42	135.07	14.825	
20,200.00	10,619.00	22,020.49	12,446.00	158.59	161.09	-155.83	-9,170.34	515.09	2,002.49	1,866.14	136.35	14.686	
20,300.00	10,619.00	22,120.49	12,446.00	160.19	162.67	-155.83	-9,270.34	516.08	2,002.50	1,864.86	137.64	14.549	
20,400.00	10,619.00	22,220.49	12,446.00	161.80	164.26	-155.83	-9,370.33	517.06	2,002.50	1,863.58	138.92	14.415	
20,500.00	10,619.00	22,320.49	12,446.00	163.40	165.85	-155.83	-9,470.33	518.04	2,002.50	1,862.30	140.20	14.283	
20,600.00	10,619.00	22,420.49	12,446.00	165.01	167.44	-155.83	-9,570.32	519.03	2,002.51	1,861.02	141.49	14.153	
20,700.00	10,619.00	22,520.49	12,446.00	166.61	169.04	-155.83	-9,670.32	520.01	2,002.51	1,859.74	142.77	14.026	
20,792.10	10,619.00	22,612.60	12,446.00	167.92	170.50	-155.83	-9,762.42	520.92	2,002.51	1,858.76	143.75	13.930	



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 501H
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 501H	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	26.03	75.29	36.78	83.80					
100.00	100.00	100.00	100.00	0.13	0.13	26.03	75.29	36.78	83.80	83.62	0.18	472.260		
200.00	200.00	200.00	200.00	0.48	0.48	26.03	75.29	36.78	83.80	83.11	0.68	122.438		
300.00	300.00	300.00	300.00	0.84	0.84	26.03	75.29	36.78	83.80	82.60	1.19	70.337		
400.00	400.00	400.00	400.00	1.20	1.20	26.03	75.29	36.78	83.80	82.10	1.70	49.341		
500.00	500.00	500.00	500.00	1.56	1.56	26.03	75.29	36.78	83.80	81.59	2.21	37.998		
600.00	600.00	600.00	600.00	1.92	1.92	26.03	75.29	36.78	83.80	81.08	2.71	30.896		
700.00	700.00	700.00	700.00	2.28	2.28	26.03	75.29	36.78	83.80	80.58	3.22	26.030		
800.00	800.00	800.00	800.00	2.63	2.63	26.03	75.29	36.78	83.80	80.07	3.73	22.489		
900.00	900.00	900.00	900.00	2.99	2.99	26.03	75.29	36.78	83.80	79.56	4.23	19.795		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	26.03	75.29	36.78	83.80	79.06	4.74	17.678		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	26.03	75.29	36.78	83.80	78.55	5.25	15.970		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	26.03	75.29	36.78	83.80	78.04	5.75	14.563		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	26.03	75.29	36.78	83.80	77.53	6.26	13.384		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	26.03	75.29	36.78	83.80	77.03	6.77	12.381		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	26.03	75.29	36.78	83.80	76.52	7.27	11.519		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	26.03	75.29	36.78	83.80	76.01	7.78	10.768 CC, ES		
1,700.00	1,700.00	1,697.79	1,697.77	5.86	5.85	26.77	75.95	38.31	85.10	76.82	8.28	10.281		
1,800.00	1,800.00	1,795.36	1,795.21	6.22	6.19	28.83	77.92	42.90	89.08	80.31	8.76	10.164 SF		
1,900.00	1,900.00	1,892.47	1,891.97	6.58	6.53	31.88	81.18	50.48	95.93	86.69	9.24	10.380		
2,000.00	2,000.00	1,988.92	1,987.72	6.94	6.88	35.44	85.70	61.00	105.90	96.19	9.71	10.907		
2,100.00	2,100.00	2,084.48	2,082.18	7.29	7.23	39.11	91.42	74.33	119.17	109.01	10.16	11.726		
2,200.00	2,199.99	2,178.92	2,174.98	7.65	7.59	76.73	98.30	90.34	135.54	124.94	10.60	12.788		
2,300.00	2,299.91	2,271.91	2,265.76	8.01	7.96	80.85	106.25	108.84	155.05	144.04	11.01	14.077		
2,400.00	2,399.69	2,363.55	2,354.55	8.36	8.33	84.98	115.22	129.71	178.12	166.70	11.42	15.603		
2,500.00	2,499.27	2,459.23	2,446.90	8.72	8.75	89.03	125.08	152.68	203.35	191.45	11.89	17.096		
2,600.00	2,598.57	2,554.52	2,538.89	9.08	9.17	92.73	134.91	175.55	229.61	217.23	12.38	18.549		
2,676.13	2,673.94	2,626.76	2,608.62	9.36	9.50	95.36	142.36	192.88	250.38	237.63	12.75	19.637		
2,700.00	2,697.55	2,649.37	2,630.44	9.45	9.60	96.24	144.69	198.31	257.03	244.16	12.87	19.975		
2,800.00	2,796.41	2,744.08	2,721.87	9.82	10.04	99.49	154.45	221.04	285.46	272.09	13.36	21.360		
2,900.00	2,895.28	2,838.79	2,813.29	10.20	10.49	102.16	164.22	243.77	314.59	300.72	13.87	22.685		
3,000.00	2,994.14	2,933.50	2,904.71	10.58	10.94	104.37	173.98	266.50	344.25	329.87	14.38	23.946		
3,100.00	3,093.01	3,028.21	2,996.13	10.96	11.40	106.24	183.75	289.23	374.31	359.42	14.89	25.140		
3,200.00	3,191.87	3,122.92	3,087.55	11.35	11.87	107.84	193.51	311.96	404.68	389.28	15.41	26.267		
3,300.00	3,290.74	3,217.63	3,178.97	11.74	12.34	109.21	203.28	334.69	435.31	419.38	15.93	27.330		
3,400.00	3,389.60	3,312.34	3,270.39	12.13	12.82	110.40	213.04	357.42	466.13	449.68	16.45	28.332		
3,500.00	3,488.46	3,407.05	3,361.81	12.52	13.30	111.45	222.81	380.15	497.11	480.13	16.98	29.277		
3,600.00	3,587.33	3,501.75	3,453.23	12.92	13.78	112.37	232.57	402.88	528.22	510.72	17.51	30.169		
3,700.00	3,686.19	3,596.46	3,544.65	13.32	14.27	113.19	242.34	425.61	559.45	541.41	18.04	31.010		
3,800.00	3,785.06	3,691.17	3,636.07	13.72	14.76	113.93	252.10	448.34	590.77	572.19	18.58	31.804		
3,900.00	3,883.92	3,785.88	3,727.49	14.12	15.25	114.59	261.87	471.08	622.17	603.06	19.11	32.554		
4,000.00	3,982.79	3,880.59	3,818.92	14.53	15.74	115.18	271.63	493.81	653.64	633.99	19.65	33.263		
4,100.00	4,081.65	3,975.30	3,910.34	14.93	16.24	115.73	281.40	516.54	685.16	664.97	20.19	33.935		
4,200.00	4,180.52	4,070.01	4,001.76	15.34	16.74	116.22	291.16	539.27	716.74	696.00	20.73	34.572		
4,300.00	4,279.38	4,164.72	4,093.18	15.74	17.24	116.68	300.93	562.00	748.36	727.08	21.27	35.175		
4,400.00	4,378.25	4,259.43	4,184.60	16.15	17.74	117.09	310.69	584.73	780.02	758.20	21.82	35.749		
4,500.00	4,477.11	4,354.14	4,276.02	16.56	18.24	117.48	320.46	607.46	811.71	789.34	22.37	36.293		
4,600.00	4,575.98	4,448.84	4,367.44	16.97	18.75	117.83	330.22	630.19	843.43	820.52	22.91	36.812		
4,700.00	4,674.84	4,543.55	4,458.86	17.38	19.25	118.16	339.99	652.92	875.18	851.72	23.46	37.305		
4,800.00	4,773.71	4,638.26	4,550.28	17.79	19.76	118.47	349.75	675.65	906.96	882.95	24.01	37.776		
4,900.00	4,872.57	4,732.97	4,641.70	18.21	20.26	118.76	359.52	698.38	938.76	914.20	24.56	38.224		
5,000.00	4,971.43	4,827.68	4,733.12	18.62	20.77	119.03	369.28	721.11	970.57	945.46	25.11	38.653		

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 501H
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 501H	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	5,070.30	4,922.39	4,824.54	19.03	21.28	119.28	379.05	743.84	1,002.41	976.75	25.66	39.062		
5,200.00	5,169.16	5,017.10	4,915.97	19.45	21.79	119.51	388.81	766.57	1,034.26	1,008.05	26.21	39.454		
5,300.00	5,268.03	5,111.81	5,007.39	19.86	22.30	119.73	398.58	789.30	1,066.13	1,039.36	26.77	39.829		
5,400.00	5,366.89	5,206.52	5,098.81	20.28	22.82	119.94	408.34	812.03	1,098.01	1,070.68	27.32	40.188		
5,500.00	5,465.76	5,301.23	5,190.23	20.69	23.33	120.14	418.11	834.76	1,129.90	1,102.02	27.88	40.532		
5,600.00	5,564.62	5,395.93	5,281.65	21.11	23.84	120.32	427.87	857.49	1,161.80	1,133.37	28.43	40.862		
5,700.00	5,663.49	5,490.64	5,373.07	21.53	24.35	120.50	437.64	880.22	1,193.71	1,164.72	28.99	41.179		
5,800.00	5,762.35	5,585.35	5,464.49	21.94	24.87	120.66	447.40	902.95	1,225.64	1,196.09	29.54	41.484		
5,900.00	5,861.22	5,680.06	5,555.91	22.36	25.38	120.82	457.17	925.68	1,257.57	1,227.47	30.10	41.777		
6,000.00	5,960.08	5,774.77	5,647.33	22.78	25.90	120.97	466.93	948.41	1,289.51	1,258.85	30.66	42.058		
6,100.00	6,058.95	5,869.48	5,738.75	23.20	26.41	121.12	476.70	971.14	1,321.46	1,290.24	31.22	42.330		
6,200.00	6,157.81	5,964.19	5,830.17	23.62	26.93	121.25	486.46	993.87	1,353.41	1,321.63	31.78	42.591		
6,300.00	6,256.68	6,058.90	5,921.59	24.04	27.45	121.38	496.23	1,016.60	1,385.37	1,353.03	32.34	42.843		
6,400.00	6,355.54	6,153.61	6,013.02	24.46	27.96	121.51	505.99	1,039.33	1,417.34	1,384.44	32.90	43.085		
6,500.00	6,454.40	6,248.32	6,104.44	24.88	28.48	121.63	515.75	1,062.06	1,449.31	1,415.86	33.46	43.320		
6,600.00	6,553.27	6,343.02	6,195.86	25.30	29.00	121.74	525.52	1,084.79	1,481.29	1,447.27	34.02	43.546		
6,700.00	6,652.13	6,437.73	6,287.28	25.72	29.52	121.85	535.28	1,107.53	1,513.27	1,478.70	34.58	43.764		
6,800.00	6,751.00	6,532.44	6,378.70	26.14	30.04	121.95	545.05	1,130.26	1,545.26	1,510.12	35.14	43.975		
6,875.92	6,826.06	6,604.34	6,448.10	26.46	30.43	122.03	552.46	1,147.51	1,569.55	1,533.98	35.57	44.131		
6,900.00	6,849.87	6,627.17	6,470.13	26.56	30.55	122.15	554.82	1,152.99	1,577.22	1,541.52	35.70	44.179		
7,000.00	6,949.01	6,722.23	6,561.89	26.97	31.08	122.60	564.62	1,175.80	1,608.23	1,571.97	36.26	44.358		
7,100.00	7,048.45	6,833.16	6,669.01	27.36	31.68	122.93	576.00	1,202.30	1,637.83	1,600.94	36.90	44.388		
7,200.00	7,148.14	7,040.06	6,870.98	27.73	32.71	123.11	593.65	1,243.39	1,662.04	1,624.00	38.03	43.702		
7,300.00	7,248.00	7,253.56	7,082.20	28.09	33.60	123.23	605.79	1,271.64	1,678.21	1,639.21	39.00	43.029		
7,400.00	7,347.96	7,471.13	7,299.19	28.44	34.34	123.30	611.74	1,285.49	1,686.07	1,646.29	39.78	42.384		
7,452.05	7,400.00	7,571.95	7,400.00	28.61	34.62	89.45	612.29	1,286.78	1,686.86	1,646.77	40.09	42.075		
7,500.00	7,447.96	7,619.90	7,447.96	28.77	34.75	89.45	612.29	1,286.78	1,686.86	1,646.55	40.31	41.847		
7,600.00	7,547.96	7,719.90	7,547.96	29.09	35.02	89.45	612.29	1,286.78	1,686.86	1,646.09	40.77	41.377		
7,700.00	7,647.96	7,819.90	7,647.96	29.42	35.29	89.45	612.29	1,286.78	1,686.86	1,645.63	41.23	40.917		
7,800.00	7,747.96	7,919.90	7,747.96	29.75	35.57	89.45	612.29	1,286.78	1,686.86	1,645.17	41.69	40.466		
7,900.00	7,847.96	8,019.90	7,847.96	30.08	35.84	89.45	612.29	1,286.78	1,686.86	1,644.71	42.15	40.024		
8,000.00	7,947.96	8,119.90	7,947.96	30.41	36.12	89.45	612.29	1,286.78	1,686.86	1,644.25	42.61	39.590		
8,100.00	8,047.96	8,219.90	8,047.96	30.74	36.40	89.45	612.29	1,286.78	1,686.86	1,643.79	43.07	39.165		
8,200.00	8,147.96	8,319.90	8,147.96	31.07	36.67	89.45	612.29	1,286.78	1,686.86	1,643.32	43.53	38.747		
8,300.00	8,247.96	8,419.90	8,247.96	31.40	36.95	89.45	612.29	1,286.78	1,686.86	1,642.86	44.00	38.338		
8,400.00	8,347.96	8,519.90	8,347.96	31.74	37.24	89.45	612.29	1,286.78	1,686.86	1,642.39	44.47	37.937		
8,500.00	8,447.96	8,619.90	8,447.96	32.07	37.52	89.45	612.29	1,286.78	1,686.86	1,641.93	44.93	37.543		
8,600.00	8,547.96	8,719.90	8,547.96	32.40	37.80	89.45	612.29	1,286.78	1,686.86	1,641.46	45.40	37.156		
8,700.00	8,647.96	8,819.90	8,647.96	32.74	38.09	89.45	612.29	1,286.78	1,686.86	1,640.99	45.87	36.777		
8,800.00	8,747.96	8,919.90	8,747.96	33.07	38.37	89.45	612.29	1,286.78	1,686.86	1,640.52	46.34	36.405		
8,900.00	8,847.96	9,019.90	8,847.96	33.41	38.66	89.45	612.29	1,286.78	1,686.86	1,640.05	46.81	36.039		
9,000.00	8,947.96	9,119.90	8,947.96	33.74	38.95	89.45	612.29	1,286.78	1,686.86	1,639.58	47.28	35.680		
9,100.00	9,047.96	9,219.90	9,047.96	34.08	39.24	89.45	612.29	1,286.78	1,686.86	1,639.11	47.75	35.328		
9,200.00	9,147.96	9,319.90	9,147.96	34.42	39.53	89.45	612.29	1,286.78	1,686.86	1,638.64	48.22	34.982		
9,300.00	9,247.96	9,419.90	9,247.96	34.75	39.83	89.45	612.29	1,286.78	1,686.86	1,638.16	48.69	34.643		
9,400.00	9,347.96	9,519.90	9,347.96	35.09	40.12	89.45	612.29	1,286.78	1,686.86	1,637.69	49.17	34.309		
9,500.00	9,447.96	9,619.90	9,447.96	35.43	40.41	89.45	612.29	1,286.78	1,686.86	1,637.22	49.64	33.981		
9,600.00	9,547.96	9,719.90	9,547.96	35.77	40.71	89.45	612.29	1,286.78	1,686.86	1,636.74	50.12	33.659		
9,700.00	9,647.96	9,819.90	9,647.96	36.11	41.01	89.45	612.29	1,286.78	1,686.86	1,636.27	50.59	33.343		
9,800.00	9,747.96	9,919.90	9,747.96	36.44	41.30	89.45	612.29	1,286.78	1,686.86	1,635.79	51.07	33.032		
9,900.00	9,847.96	10,019.90	9,847.96	36.78	41.60	89.45	612.29	1,286.78	1,686.86	1,635.31	51.54	32.727		
10,000.00	9,947.96	10,119.90	9,947.96	37.12	41.90	89.45	612.29	1,286.78	1,686.86	1,634.84	52.02	32.427		

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 501H
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 501H	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		
10,098.09	10,046.04	10,217.99	10,046.04	37.46	42.19	89.45	612.29	1,286.78	1,686.86	1,634.37	52.49	32.137		
10,100.00	10,047.96	10,219.90	10,047.96	37.46	42.20	-89.99	612.29	1,286.78	1,686.86	1,634.36	52.50	32.132		
10,111.65	10,059.60	10,231.55	10,059.60	37.50	42.24	-90.00	612.29	1,286.78	1,686.86	1,634.31	52.55	32.100		
10,150.00	10,097.88	10,269.83	10,097.88	37.61	42.35	-90.07	612.29	1,286.78	1,686.86	1,634.14	52.72	31.998		
10,200.00	10,147.42	10,319.37	10,147.42	37.74	42.50	-90.30	612.29	1,286.78	1,686.88	1,633.96	52.92	31.875		
10,250.00	10,196.18	10,368.13	10,196.18	37.86	42.65	-90.65	612.29	1,286.78	1,686.97	1,633.87	53.11	31.765		
10,300.00	10,243.80	10,415.75	10,243.80	37.96	42.79	-91.12	612.29	1,286.78	1,687.22	1,633.95	53.28	31.669		
10,350.00	10,289.92	10,461.87	10,289.92	38.05	42.93	-91.67	612.29	1,286.78	1,687.73	1,634.31	53.43	31.589		
10,400.00	10,334.18	10,506.12	10,334.18	38.12	43.07	-92.28	612.29	1,286.78	1,688.64	1,635.08	53.56	31.527		
10,450.00	10,376.24	10,548.19	10,376.24	38.17	43.19	-92.90	612.29	1,286.78	1,690.10	1,636.42	53.68	31.486		
10,500.00	10,415.80	10,587.74	10,415.80	38.21	43.31	-93.50	612.29	1,286.78	1,692.26	1,638.48	53.78	31.467		
10,550.00	10,452.53	10,624.48	10,452.53	38.24	43.42	-94.04	612.29	1,286.78	1,695.30	1,641.44	53.87	31.473		
10,600.00	10,486.18	10,658.13	10,486.18	38.26	43.53	-94.47	612.29	1,286.78	1,699.39	1,645.45	53.94	31.505		
10,650.00	10,516.48	10,688.42	10,516.48	38.26	43.62	-94.75	612.29	1,286.78	1,704.66	1,650.66	54.00	31.567		
10,700.00	10,543.19	10,715.14	10,543.19	38.26	43.70	-94.85	612.29	1,286.78	1,711.26	1,657.21	54.05	31.660		
10,750.00	10,566.12	10,738.07	10,566.12	38.25	43.77	-94.73	612.29	1,286.78	1,719.29	1,665.20	54.09	31.784		
10,800.00	10,585.10	10,757.05	10,585.10	38.23	43.83	-94.35	612.29	1,286.78	1,728.83	1,674.70	54.13	31.941		
10,850.00	10,599.97	10,771.92	10,599.97	38.21	43.87	-93.70	612.29	1,286.78	1,739.90	1,685.75	54.15	32.131		
10,900.00	10,610.62	10,782.57	10,610.62	38.19	43.91	-92.75	612.29	1,286.78	1,752.51	1,698.34	54.17	32.354		
10,950.00	10,616.98	10,788.93	10,616.98	38.17	43.93	-91.49	612.29	1,286.78	1,766.60	1,712.42	54.18	32.608		
10,998.09	10,619.00	10,790.95	10,619.00	38.16	43.93	-90.00	612.29	1,286.78	1,781.46	1,727.28	54.18	32.881		
11,000.00	10,619.00	10,790.95	10,619.00	38.16	43.93	-90.00	612.29	1,286.78	1,782.07	1,727.89	54.18	32.892		
11,100.00	10,619.00	10,790.95	10,619.00	38.19	43.93	-90.00	612.29	1,286.78	1,816.79	1,762.59	54.20	33.518		
11,200.00	10,619.00	10,790.95	10,619.00	38.36	43.93	-90.00	612.29	1,286.78	1,856.25	1,801.98	54.27	34.202		
11,300.00	10,619.00	10,790.95	10,619.00	38.64	43.93	-90.00	612.29	1,286.78	1,900.16	1,845.78	54.38	34.941		
11,400.00	10,619.00	10,790.95	10,619.00	38.99	43.93	-90.00	612.29	1,286.78	1,948.22	1,893.70	54.52	35.733		
11,500.00	10,619.00	10,790.95	10,619.00	39.41	43.93	-90.00	612.29	1,286.78	2,000.12	1,945.44	54.69	36.574		
11,600.00	10,619.00	10,790.95	10,619.00	39.89	43.93	-90.00	612.29	1,286.78	2,055.59	2,000.71	54.87	37.461		
11,700.00	10,619.00	10,790.95	10,619.00	40.43	43.93	-90.00	612.29	1,286.78	2,114.33	2,059.26	55.07	38.393		
11,800.00	10,619.00	10,790.95	10,619.00	41.03	43.93	-90.00	612.29	1,286.78	2,176.08	2,120.80	55.28	39.366		
11,900.00	10,619.00	10,790.95	10,619.00	41.68	43.93	-90.00	612.29	1,286.78	2,240.59	2,185.10	55.49	40.379		
12,000.00	10,619.00	10,790.95	10,619.00	42.38	43.93	-90.00	612.29	1,286.78	2,307.64	2,251.94	55.70	41.427		
12,100.00	10,619.00	10,790.95	10,619.00	43.14	43.93	-90.00	612.29	1,286.78	2,377.00	2,321.09	55.92	42.509		
12,200.00	10,619.00	10,790.95	10,619.00	43.94	43.93	-90.00	612.29	1,286.78	2,448.49	2,392.36	56.13	43.623		
12,300.00	10,619.00	10,790.95	10,619.00	44.79	43.93	-90.00	612.29	1,286.78	2,521.91	2,465.58	56.34	44.766		
12,400.00	10,619.00	10,790.95	10,619.00	45.68	43.93	-90.00	612.29	1,286.78	2,597.11	2,540.57	56.54	45.936		
12,500.00	10,619.00	14,523.46	12,517.00	46.62	55.42	-136.75	-1,461.21	1,405.43	2,605.69	2,550.62	55.08	47.311		
12,600.00	10,619.00	14,623.46	12,517.00	47.59	56.24	-136.75	-1,561.20	1,406.42	2,605.70	2,549.64	56.06	46.484		
12,700.00	10,619.00	14,723.46	12,517.00	48.59	57.09	-136.75	-1,661.20	1,407.40	2,605.71	2,548.63	57.07	45.655		
12,800.00	10,619.00	14,823.46	12,517.00	49.64	57.99	-136.75	-1,761.19	1,408.39	2,605.71	2,547.58	58.13	44.828		
12,900.00	10,619.00	14,923.46	12,517.00	50.71	58.91	-136.75	-1,861.19	1,409.37	2,605.72	2,546.50	59.22	44.004		
13,000.00	10,619.00	15,023.46	12,517.00	51.81	59.87	-136.75	-1,961.18	1,410.35	2,605.72	2,545.39	60.34	43.187		
13,100.00	10,619.00	15,123.46	12,517.00	52.95	60.87	-136.75	-2,061.18	1,411.34	2,605.73	2,544.24	61.49	42.378		
13,200.00	10,619.00	15,223.46	12,517.00	54.11	61.89	-136.75	-2,161.17	1,412.32	2,605.73	2,543.07	62.67	41.579		
13,300.00	10,619.00	15,323.46	12,517.00	55.29	62.93	-136.75	-2,261.17	1,413.31	2,605.74	2,541.86	63.88	40.792		
13,400.00	10,619.00	15,423.46	12,517.00	56.50	64.01	-136.75	-2,361.16	1,414.29	2,605.75	2,540.63	65.11	40.019		
13,500.00	10,619.00	15,523.46	12,517.00	57.72	65.10	-136.75	-2,461.16	1,415.27	2,605.75	2,539.38	66.37	39.259		
13,600.00	10,619.00	15,623.46	12,517.00	58.97	66.23	-136.75	-2,561.15	1,416.26	2,605.76	2,538.10	67.66	38.515		
13,700.00	10,619.00	15,723.46	12,517.00	60.24	67.37	-136.75	-2,661.15	1,417.24	2,605.76	2,536.80	68.96	37.786		
13,800.00	10,619.00	15,823.46	12,517.00	61.53	68.53	-136.75	-2,761.14	1,418.23	2,605.77	2,535.48	70.29	37.073		
13,900.00	10,619.00	15,923.46	12,517.00	62.83	69.72	-136.75	-2,861.14	1,419.21	2,605.78	2,534.14	71.63	36.377		
14,000.00	10,619.00	16,023.46	12,517.00	64.15	70.92	-136.75	-2,961.14	1,420.19	2,605.78	2,532.79	72.99	35.698		

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 501H
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 501H	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	10,619.00	16,123.46	12,517.00	65.49	72.14	-136.75	-3,061.13	1,421.18	2,605.79	2,531.42	74.37	35.037		
14,200.00	10,619.00	16,223.46	12,517.00	66.83	73.38	-136.75	-3,161.13	1,422.16	2,605.79	2,530.03	75.77	34.393		
14,300.00	10,619.00	16,323.46	12,517.00	68.20	74.63	-136.75	-3,261.12	1,423.15	2,605.80	2,528.62	77.18	33.765		
14,400.00	10,619.00	16,423.46	12,517.00	69.57	75.90	-136.75	-3,361.12	1,424.13	2,605.81	2,527.21	78.60	33.153		
14,500.00	10,619.00	16,523.46	12,517.00	70.96	77.19	-136.75	-3,461.11	1,425.11	2,605.81	2,525.77	80.04	32.558		
14,600.00	10,619.00	16,623.46	12,517.00	72.35	78.48	-136.75	-3,561.11	1,426.10	2,605.82	2,524.33	81.49	31.978		
14,700.00	10,619.00	16,723.46	12,517.00	73.76	79.80	-136.75	-3,661.10	1,427.08	2,605.82	2,522.87	82.95	31.414		
14,800.00	10,619.00	16,823.46	12,517.00	75.18	81.12	-136.75	-3,761.10	1,428.07	2,605.83	2,521.40	84.43	30.865		
14,900.00	10,619.00	16,923.46	12,517.00	76.61	82.45	-136.75	-3,861.09	1,429.05	2,605.83	2,519.92	85.91	30.331		
15,000.00	10,619.00	17,023.46	12,517.00	78.04	83.80	-136.75	-3,961.09	1,430.03	2,605.84	2,518.43	87.41	29.811		
15,100.00	10,619.00	17,123.46	12,517.00	79.49	85.16	-136.75	-4,061.08	1,431.02	2,605.85	2,516.93	88.92	29.307		
15,200.00	10,619.00	17,223.46	12,517.00	80.94	86.52	-136.75	-4,161.08	1,432.00	2,605.85	2,515.42	90.43	28.816		
15,300.00	10,619.00	17,323.46	12,517.00	82.40	87.90	-136.75	-4,261.07	1,432.99	2,605.86	2,513.90	91.95	28.339		
15,400.00	10,619.00	17,423.46	12,517.00	83.86	89.29	-136.75	-4,361.07	1,433.97	2,605.86	2,512.38	93.48	27.875		
15,500.00	10,619.00	17,523.46	12,517.00	85.34	90.68	-136.75	-4,461.06	1,434.95	2,605.87	2,510.85	95.02	27.424		
15,600.00	10,619.00	17,623.46	12,517.00	86.82	92.09	-136.75	-4,561.06	1,435.94	2,605.88	2,509.31	96.57	26.985		
15,700.00	10,619.00	17,723.46	12,517.00	88.30	93.50	-136.75	-4,661.05	1,436.92	2,605.88	2,507.76	98.12	26.558		
15,800.00	10,619.00	17,823.46	12,517.00	89.79	94.92	-136.75	-4,761.05	1,437.90	2,605.89	2,506.20	99.68	26.142		
15,900.00	10,619.00	17,923.46	12,517.00	91.29	96.34	-136.75	-4,861.04	1,438.89	2,605.89	2,504.64	101.25	25.737		
16,000.00	10,619.00	18,023.46	12,517.00	92.79	97.78	-136.75	-4,961.04	1,439.87	2,605.90	2,503.07	102.82	25.343		
16,100.00	10,619.00	18,123.46	12,517.00	94.30	99.22	-136.75	-5,061.03	1,440.86	2,605.90	2,501.50	104.41	24.960		
16,200.00	10,619.00	18,223.46	12,517.00	95.81	100.66	-136.75	-5,161.03	1,441.84	2,605.91	2,499.92	105.99	24.587		
16,300.00	10,619.00	18,323.46	12,517.00	97.33	102.12	-136.75	-5,261.02	1,442.82	2,605.92	2,498.34	107.58	24.224		
16,400.00	10,619.00	18,423.46	12,517.00	98.85	103.58	-136.75	-5,361.02	1,443.81	2,605.92	2,496.75	109.17	23.870		
16,500.00	10,619.00	18,523.46	12,517.00	100.38	105.04	-136.75	-5,461.01	1,444.79	2,605.93	2,495.16	110.77	23.526		
16,600.00	10,619.00	18,623.46	12,517.00	101.90	106.51	-136.75	-5,561.01	1,445.78	2,605.93	2,493.56	112.37	23.190		
16,700.00	10,619.00	18,723.46	12,517.00	103.44	107.99	-136.75	-5,661.00	1,446.76	2,605.94	2,491.96	113.98	22.863		
16,800.00	10,619.00	18,823.46	12,517.00	104.97	109.47	-136.75	-5,761.00	1,447.74	2,605.95	2,490.35	115.59	22.544		
16,900.00	10,619.00	18,923.46	12,517.00	106.51	110.95	-136.75	-5,860.99	1,448.73	2,605.95	2,488.75	117.21	22.234		
17,000.00	10,619.00	19,023.46	12,517.00	108.06	112.44	-136.75	-5,960.99	1,449.71	2,605.96	2,487.13	118.83	21.931		
17,100.00	10,619.00	19,123.46	12,517.00	109.60	113.94	-136.75	-6,060.99	1,450.70	2,605.96	2,485.52	120.45	21.636		
17,200.00	10,619.00	19,223.46	12,517.00	111.15	115.44	-136.75	-6,160.98	1,451.68	2,605.97	2,483.89	122.07	21.347		
17,300.00	10,619.00	19,323.46	12,517.00	112.70	116.94	-136.75	-6,260.98	1,452.66	2,605.98	2,482.27	123.70	21.066		
17,400.00	10,619.00	19,423.46	12,517.00	114.26	118.45	-136.75	-6,360.97	1,453.65	2,605.98	2,480.65	125.33	20.792		
17,500.00	10,619.00	19,523.46	12,517.00	115.82	119.96	-136.75	-6,460.97	1,454.63	2,605.99	2,479.02	126.97	20.525		
17,600.00	10,619.00	19,623.46	12,517.00	117.38	121.47	-136.75	-6,560.96	1,455.62	2,605.99	2,477.39	128.61	20.264		
17,700.00	10,619.00	19,723.46	12,517.00	118.94	122.99	-136.75	-6,660.96	1,456.60	2,606.00	2,475.75	130.25	20.008		
17,800.00	10,619.00	19,823.46	12,517.00	120.50	124.51	-136.75	-6,760.95	1,457.58	2,606.00	2,474.12	131.89	19.759		
17,900.00	10,619.00	19,923.46	12,517.00	122.07	126.03	-136.75	-6,860.95	1,458.57	2,606.01	2,472.48	133.53	19.516		
18,000.00	10,619.00	20,023.46	12,517.00	123.64	127.56	-136.75	-6,960.94	1,459.55	2,606.02	2,470.83	135.18	19.278		
18,100.00	10,619.00	20,123.46	12,517.00	125.21	129.09	-136.75	-7,060.94	1,460.54	2,606.02	2,469.19	136.83	19.045		
18,200.00	10,619.00	20,223.46	12,517.00	126.79	130.62	-136.75	-7,160.93	1,461.52	2,606.03	2,467.54	138.49	18.818		
18,300.00	10,619.00	20,323.46	12,517.00	128.36	132.16	-136.74	-7,260.93	1,462.50	2,606.03	2,465.90	140.14	18.596		
18,400.00	10,619.00	20,423.46	12,517.00	129.94	133.70	-136.74	-7,360.92	1,463.49	2,606.04	2,464.25	141.79	18.379		
18,500.00	10,619.00	20,523.46	12,517.00	131.52	135.24	-136.74	-7,460.92	1,464.47	2,606.05	2,462.59	143.45	18.167		
18,600.00	10,619.00	20,623.46	12,517.00	133.10	136.79	-136.74	-7,560.91	1,465.46	2,606.05	2,460.94	145.11	17.959		
18,700.00	10,619.00	20,723.46	12,517.00	134.68	138.33	-136.74	-7,660.91	1,466.44	2,606.06	2,459.28	146.77	17.756		
18,800.00	10,619.00	20,823.46	12,517.00	136.26	139.88	-136.74	-7,760.90	1,467.42	2,606.06	2,457.63	148.43	17.557		
18,900.00	10,619.00	20,923.46	12,517.00	137.85	141.43	-136.74	-7,860.90	1,468.41	2,606.07	2,455.97	150.10	17.363		
19,000.00	10,619.00	21,023.46	12,517.00	139.44	142.99	-136.74	-7,960.89	1,469.39	2,606.07	2,454.31	151.76	17.172		
19,100.00	10,619.00	21,123.46	12,517.00	141.03	144.54	-136.74	-8,060.89	1,470.37	2,606.08	2,452.65	153.43	16.985		
19,200.00	10,619.00	21,223.46	12,517.00	142.62	146.10	-136.74	-8,160.88	1,471.36	2,606.09	2,450.99	155.10	16.803		

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 501H
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 501H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PF Fed Com - PF Fed Com 803H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,300.00	10,619.00	21,323.46	12,517.00	144.21	147.66	-136.74	-8,260.88	1,472.34	2,606.09	2,449.32	156.77	16.624		
19,400.00	10,619.00	21,423.46	12,517.00	145.80	149.22	-136.74	-8,360.87	1,473.33	2,606.10	2,447.66	158.44	16.449		
19,500.00	10,619.00	21,523.46	12,517.00	147.40	150.79	-136.74	-8,460.87	1,474.31	2,606.10	2,446.00	160.11	16.277		
19,600.00	10,619.00	21,623.46	12,517.00	148.99	152.35	-136.74	-8,560.86	1,475.29	2,606.11	2,444.33	161.78	16.109		
19,700.00	10,619.00	21,723.46	12,517.00	150.59	153.92	-136.74	-8,660.86	1,476.28	2,606.12	2,442.66	163.45	15.944		
19,800.00	10,619.00	21,823.46	12,517.00	152.19	155.49	-136.74	-8,760.85	1,477.26	2,606.12	2,440.99	165.13	15.782		
19,900.00	10,619.00	21,923.46	12,517.00	153.78	157.06	-136.74	-8,860.85	1,478.25	2,606.13	2,439.32	166.81	15.624		
20,000.00	10,619.00	22,023.46	12,517.00	155.38	158.63	-136.74	-8,960.84	1,479.23	2,606.13	2,437.65	168.48	15.468		
20,100.00	10,619.00	22,123.46	12,517.00	156.99	160.20	-136.74	-9,060.84	1,480.21	2,606.14	2,435.98	170.16	15.316		
20,200.00	10,619.00	22,223.46	12,517.00	158.59	161.78	-136.74	-9,160.84	1,481.20	2,606.15	2,434.31	171.84	15.166		
20,300.00	10,619.00	22,323.46	12,517.00	160.19	163.36	-136.74	-9,260.83	1,482.18	2,606.15	2,432.63	173.52	15.020		
20,400.00	10,619.00	22,423.46	12,517.00	161.80	164.94	-136.74	-9,360.83	1,483.17	2,606.16	2,430.96	175.20	14.876		
20,500.00	10,619.00	22,523.46	12,517.00	163.40	166.52	-136.74	-9,460.82	1,484.15	2,606.16	2,429.28	176.88	14.734		
20,600.00	10,619.00	22,623.46	12,517.00	165.01	168.10	-136.74	-9,560.82	1,485.13	2,606.17	2,427.61	178.56	14.596		
20,700.00	10,619.00	22,723.46	12,517.00	166.61	169.68	-136.74	-9,660.81	1,486.12	2,606.17	2,425.93	180.24	14.459		
20,792.10	10,619.00	22,815.56	12,517.00	167.92	171.14	-136.74	-9,752.91	1,487.02	2,606.18	2,424.56	181.62	14.349		

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 501H
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 501H	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

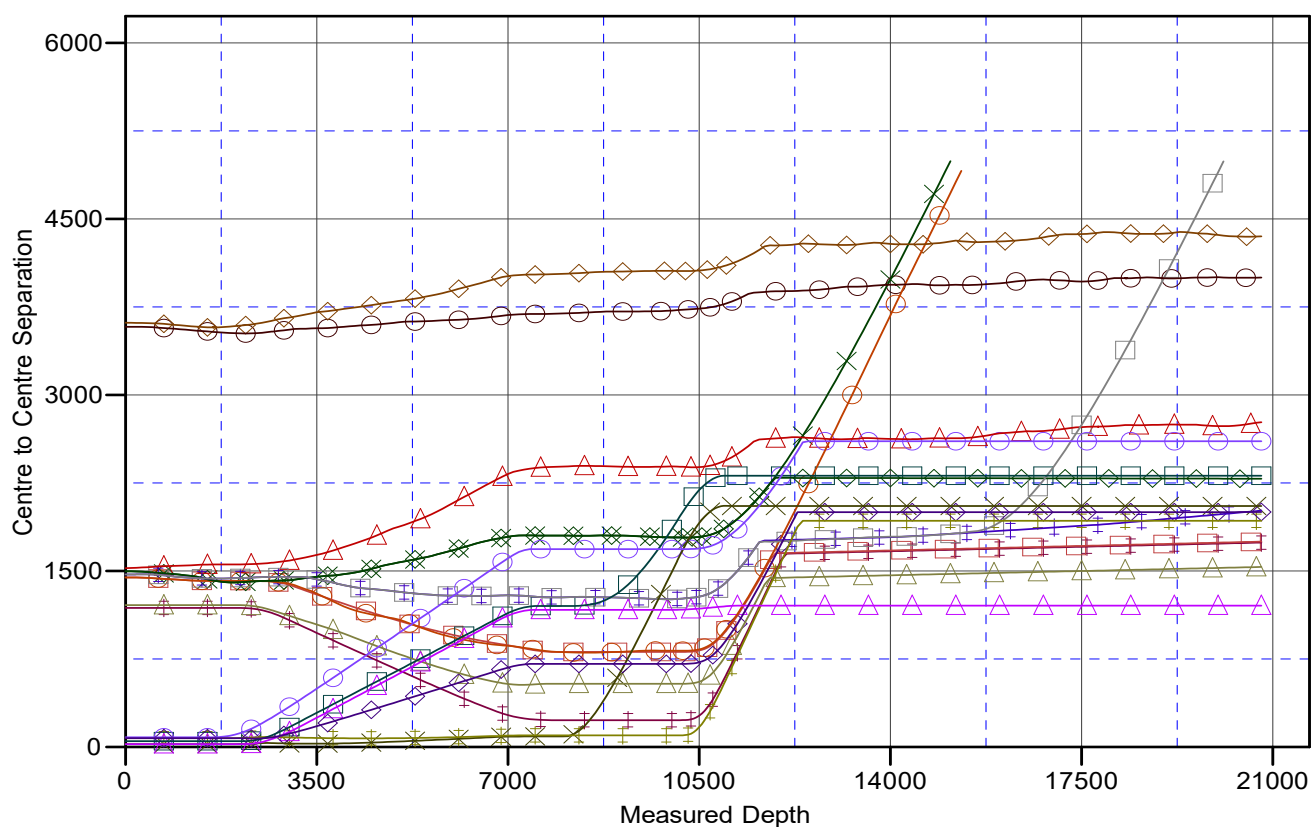
Central Meridian is -104.333334

Coordinates are relative to: PF Fed Com 501H

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 801H, OH, Plan #1 V0
Judge Baylor Fed Com 601H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, Plan #6 V0	PF Fed Com 602H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, OH V0	PF Fed Com 603H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, OH V0	LHS Wildcat Fed Com 604H, OH, OH V0	PF Fed Com 502H, OH, Plan #1 V0
Kaston Fed Com 703H, OH, OH V0	LHS Wildcat Fed Com 705H, OH, OH V0	PF Fed Com 802H, OH, Plan #1 V0
Kaston Fed Com 703H, OH, Plan #9 V0	PF Fed Com 101H, OH, Plan #1 V0	

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



Total Directional Services

Anticollision Report

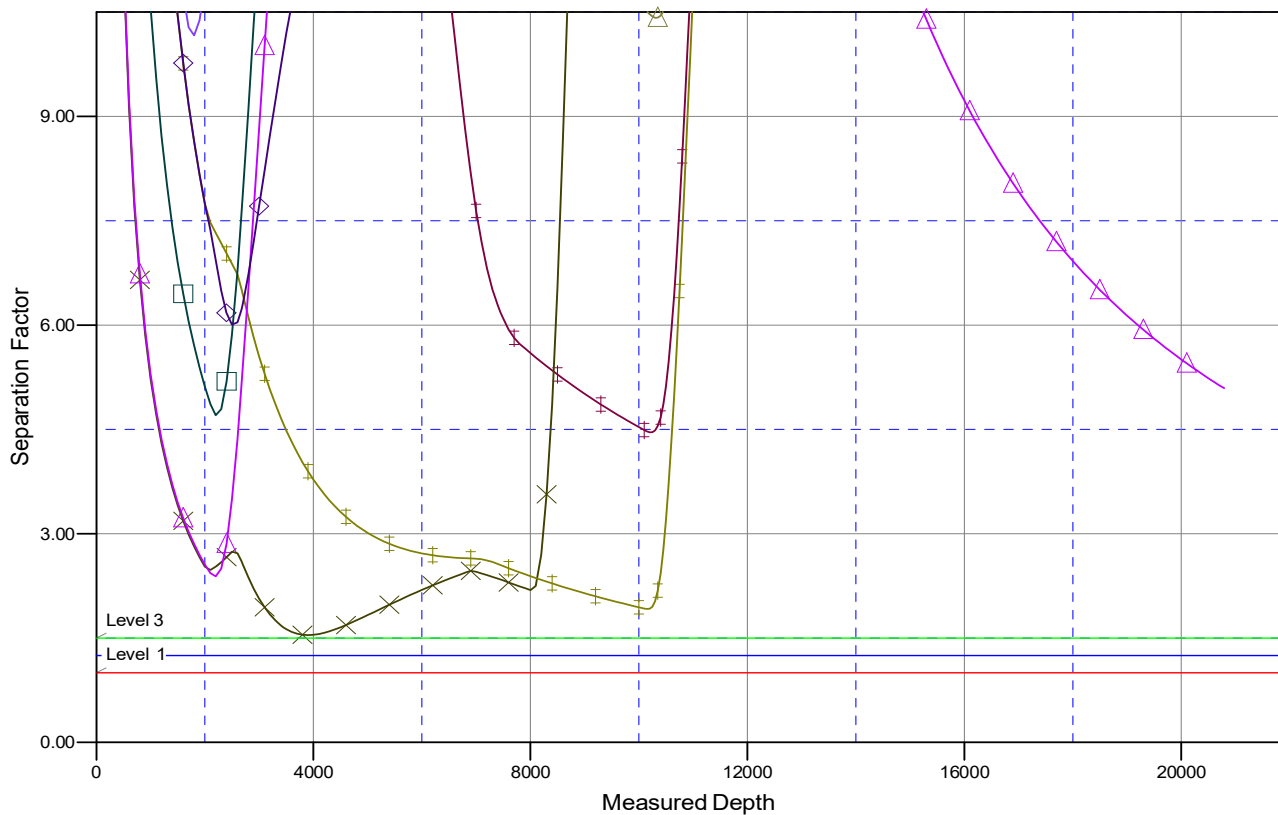


Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well PF Fed Com 501H
Project:	Lea County, NM (NAD83)	TVD Reference:	3053' GE + 30' KB @ 3083.00usft
Reference Site:	PF Fed Com	MD Reference:	3053' GE + 30' KB @ 3083.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PF Fed Com 501H	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 501H
 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 803H, OH, OH V0	PF Fed Com 801H, OH, Plan #1 V0
Judge Baylor Fed Com 601H, OH, Plan #5 V0	Bus Driver Fed Com 602H, OH, Plan #6 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 803H, OH, Plan #1 V0
Bus Driver Fed Com 702H, OH, OH V0	LHS Wildcat Fed Com 604H, OH, OH V0	PF Fed Com 502H, OH, Plan #1 V0
Kastoni Fed Com 703H, OH, OH V0	LHS Wildcat Fed Com 705H, OH, OH V0	PF Fed Com 802H, 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

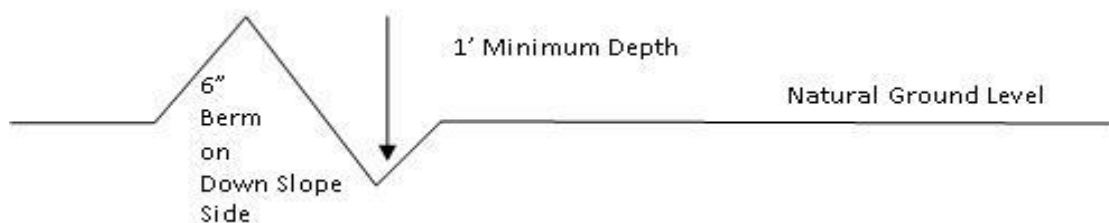
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

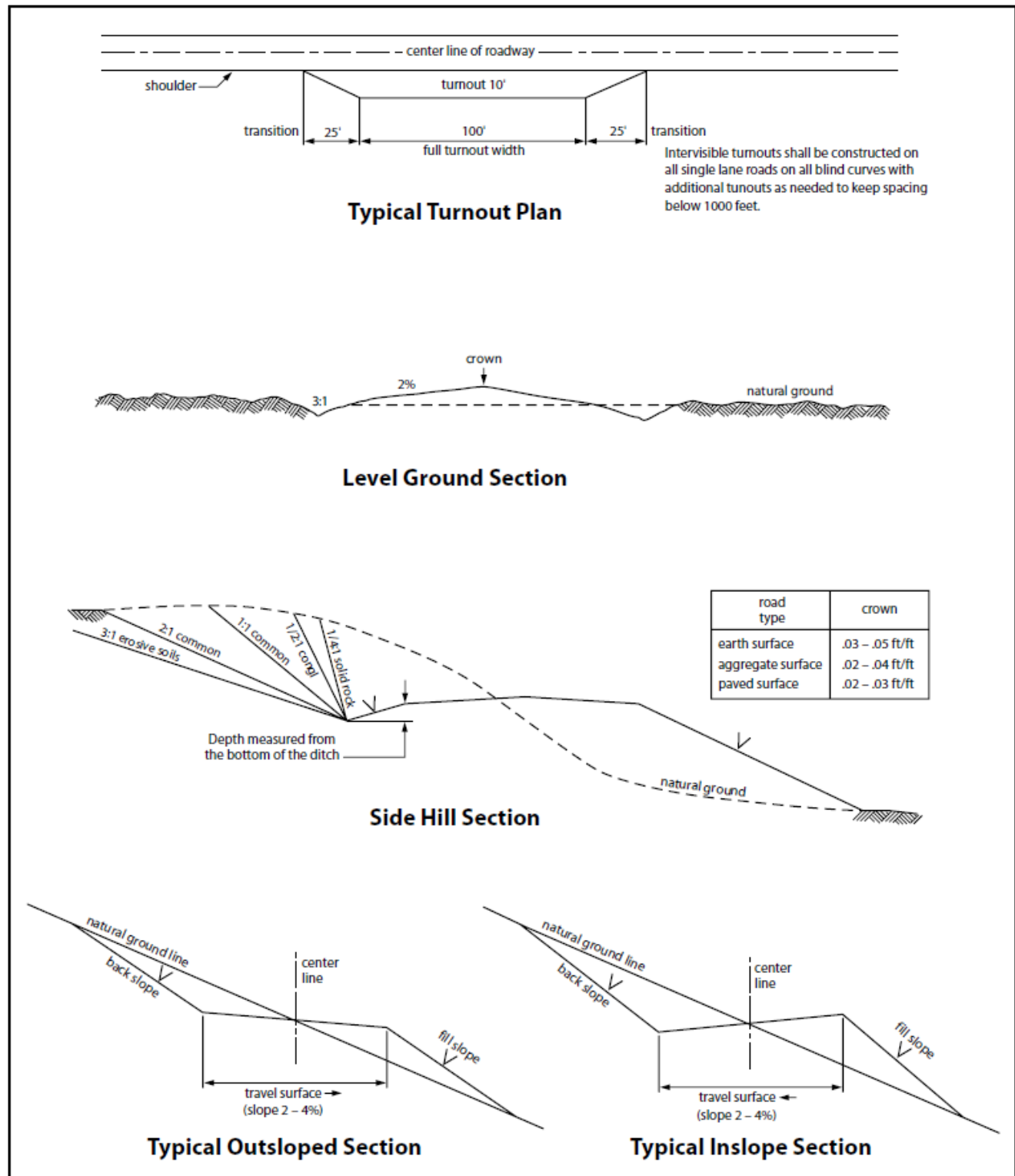


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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
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 88424

CONDITIONS

Operator: Franklin Mountain Energy LLC 44 Cook Street Denver, CO 80206	OGRID: 373910
	Action Number: 88424
	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