

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. [326125]
2. Name of Operator [373910]		9. API Well No. 30-025-49872
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory [97088] XXXXXXXXXXXX
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		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)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
 Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NGMP Rec 03/08/2022

SL

(Continued on page 2)



KZ
03/16/2022

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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

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

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

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

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

Additional Operator Remarks

Location of Well

0. SHL: TR B / 20 FNL / 1900 FEL / TWSP: 26S / RANGE: 35E / SECTION: 2 / LAT: 32.079514 / LONG: -103.335918 (TVD: 0 feet, MD: 0 feet)

PPP: NENE / 0 FNL / 379 FEL / TWSP: 26S / RANGE: 35E / SECTION: 11 / LAT: 32.065048 / LONG: -103.330999 (TVD: 10710 feet, MD: 15700 feet)

PPP: NESE / 2662 FNL / 389 FEL / TWSP: 26S / RANGE: 35E / SECTION: 2 / LAT: 32.072256 / LONG: -103.331003 (TVD: 10710 feet, MD: 13100 feet)

PPP: NENE / 843 FNL / 382 FEL / TWSP: 26S / RANGE: 35E / SECTION: 2 / LAT: 32.077254 / LONG: -103.331005 (TVD: 10710 feet, MD: 11242 feet)

BHL: TR P / 150 FSL / 380 FEL / TWSP: 26S / RANGE: 35E / SECTION: 11 / LAT: 32.050933 / LONG: -103.330993 (TVD: 10710 feet, MD: 20818 feet)

BLM Point of Contact

Name: TENILLE ORTIZ

Title: Legal Instruments Examiner

Phone: (575) 234-2224

Email: tortiz@blm.gov

CONFIDENTIAL

Review and Appeal Rights

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

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-49872	² Pool Code 97088	³ Pool Name WC-025 G-08 S253534O;BONE SPRING
⁴ Property Code 326125	⁵ Property Name TATANKA FED COM	⁶ Well Number 504H
⁷ OGRID No. 373910	⁸ Operator Name FRANKLIN MOUNTAIN ENERGY LLC	⁹ Elevation 3118.0'

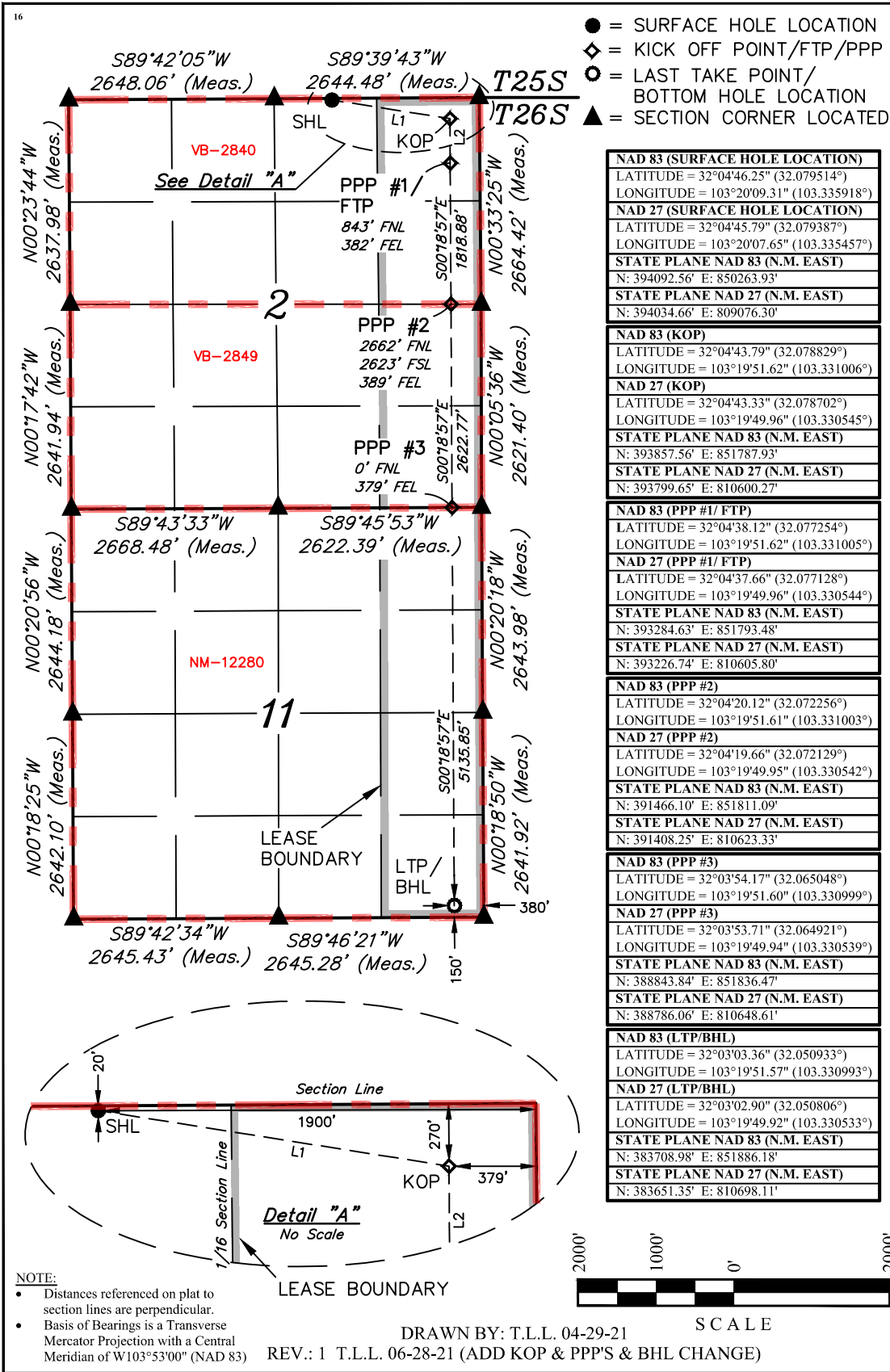
¹⁰ Surface Location

UL or lot no. B	Section 2	Township 26S	Range 35E	Lot Idn	Feet from the 20	North/South line NORTH	Feet from the 1900	East/West line EAST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. P	Section 11	Township 26S	Range 35E	Lot Idn	Feet from the 150	North/South line SOUTH	Feet from the 380	East/West line EAST	County LEA
¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

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



¹⁷ OPERATOR
CERTIFICATION

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

Signature: Shelly Albrecht
Date: 7/6/2021

Printed Name: Shelly Albrecht

E-mail Address: salbrecht@fmellc.com

LINE TABLE

LINE	DIRECTION	LENGTH
L1	S80°59'42"E	1542.24'
L2	S00°18'58"E	573.04'

¹⁸ SURVEYOR
CERTIFICATION

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

APRIL 19, 2021

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number:

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

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

Section 1 – Plan Description

Effective May 25, 2021

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

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

If Other, please describe: _____

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

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

IV. Central Delivery Point Name: Tatanka North CTB: (f#) TBD [See 19.15.27.9(D)(1) NMAC]

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

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

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

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

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

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

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

Section 4 - Notices

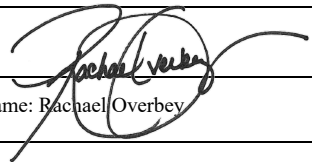
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

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

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

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

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

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

NATURAL GAS MANAGEMENT PLAN

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

Well Name	API 14 Digit	ULSTR	Surface Location FTG	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Tatanka Fed Com 101H	TBD	C-2-26S-35E	20 FNL 1347 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 102H	TBD	C-2-26S-35E	20 FNL 1372 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 103H	TBD	B-2-26S-35E	20 FNL 1875 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 104H	TBD	B-2-26S-35E	20 FNL 1850 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 501H	TBD	C-2-26S-35E	20 FNL 1397 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 502H	TBD	C-2-26S-35E	20 FNL 1422 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 503H	TBD	B-2-26S-35E	20 FNL 1925 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 504H	TBD 30-025-49872	B-2-26S-35E	20 FNL 1900 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 601H	TBD	D-2-26S-35E	10 FNL 545 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 602H	TBD	N-35-25S-35E	998 FSL 1807 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 603H	TBD	N-35-25S-35E	998 FSL 1907 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 604H	TBD	A-2-26S-35E	20 FNL 885 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 701H	TBD	D-2-26S-35E	10 FNL 620 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 702H	TBD	N-35-25S-35E	998 FSL 1782 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 703H	TBD	N-35-25S-35E	998 FSL 1857 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 704H	TBD	A-2-26S-35E	20 FNL 935 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 705H	TBD	A-2-26S-35E	20 FNL 860 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 801H	TBD	D-2-26S-35E	10 FNL 570 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 802H	TBD	D-2-26S-35E	10 FNL 595 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 803H	TBD	N-35-25S-35E	998 FSL 1832 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 804H	TBD	N-35-25S-35E	998 FSL 1882 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 805H	TBD	A-2-26S-35E	20 FNL 910 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 806H	TBD	A-2-26S-35E	20 FNL 835 FEL	800 +/-	700 +/-	600 +/-

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

Well Name	API 14 Digit	Spud Date (Batch Drilling)	TD Reached Date	Completion Commencement Date	Initial Flowback Date	First Production Date
Tatanka Fed Com 101H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 102H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 103H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 104H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 501H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 502H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 503H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 504H	TBD 30-025-49872	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 601H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 602H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 603H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 604H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 701H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 702H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 703H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 704H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 705H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 801H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 802H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 803H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 804H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 805H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 806H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023



Natural Gas Management Plan

Items VI-VIII

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

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

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

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



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

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

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



Tatanka Fed Com 504H

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)	3,117'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,363'	784'			Carbonates
Salado	1,928'	1,219'			Salt, Carbonate & Clastics
Base Salt	-432'	3,579'			Shaley Carbonate & Shale
Lamar	-1,961'	5,108'			Carbonate & Clastics
Bell Canyon	-2,048'	5,195'			Sandstone - oil/gas/water
Cherry Canyon	-2,914'	6,061'			Sandstone - oil/gas/water
Brushy Canyon	-4,341'	7,488'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,615'	8,762'			Shale/Carbonates - oil/gas
Avalon	-5,657'	8,804'			Shale/Carbonates - oil/gas
Chert Zone	-5,836'	8,983'			Chert/Carbonate
First Bone Spring Sand	-6,895'	10,042'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-7,049'	10,196'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,499'	10,646'			Sandstone - oil/gas/water
HZ Target at Landing	-7,563'	10,710'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-8,004'	11,151'			Shale/Carbonates - oil/gas

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

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,195'	Oil
Bone Spring Sand	10,042'	Oil
Bone Spring Carbonate	11,151'	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	5150	1.78	1.76	2.99	3.41
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	11242	1.18	1.36	1.91	1.30
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606 TVD	20818 10710	1.32	1.49	1.26	1.05 1.75

7 5/8" casing will be set at 11,242' MD/10,710' TVD at 90° Inc. Stress calculations on 5 1/2" casing performed assuming 20,818' depth. Actual max vertical depth is 10,710'.



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%
Int1	12.25	9.625	5150	1505	0.125pps Poly-E-Flake Lead, 12.8 ppg, Class C 5% Salt,	1.79	9.74	0	154	1% CaCl ₂ , 0.125pps Celo-Flake Tail, 14.8 ppg, Class C,	1.33	6.37	4850	100%
Int2	8.75	7.625	11242	327	0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal Lite Fill, 9.5 ppg, Class C 3lb/sk Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake	2.13	5.97	4200	94	NeoCem 14.8 ppg, Class C 0.25 pps Cello-Flake, 2% CaCl ₂	1.33	6.29	10242	50%
Prod	6.75	5.5	20818	789	Tail, 14.5 ppg, Gas Migration Control	1.34	6.22	10242						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' – 11,242'	Brine	8.8-10.2	28-34	N/c
11,242' – 20,818' 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 10,710' TVD (deepest point of the well) is 170F with an estimated maximum bottom-hole pressure (BHP) at the same point of 6,683 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.

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Tatanka Fed Com
Well: Tatanka Fed Com 504H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.53°
Magnetic North: 5.89°

Magnetic Field
Strength: 47431.4nT
Dip Angle: 59.80°
Date: 6/24/2021
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

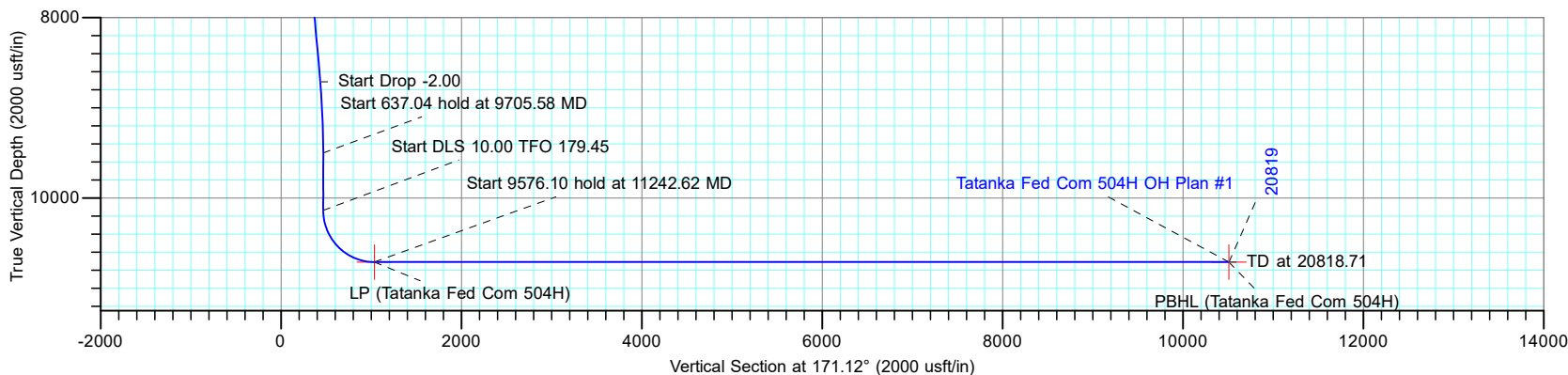
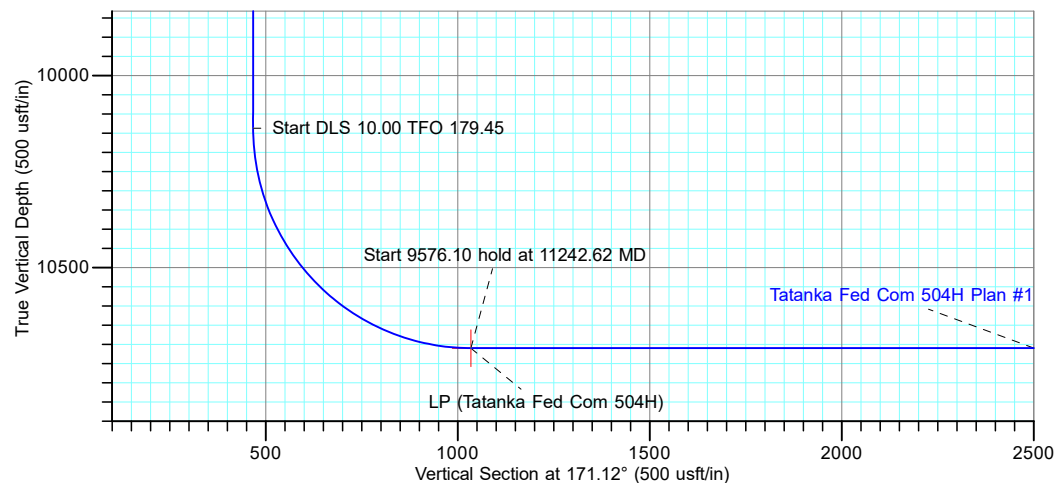
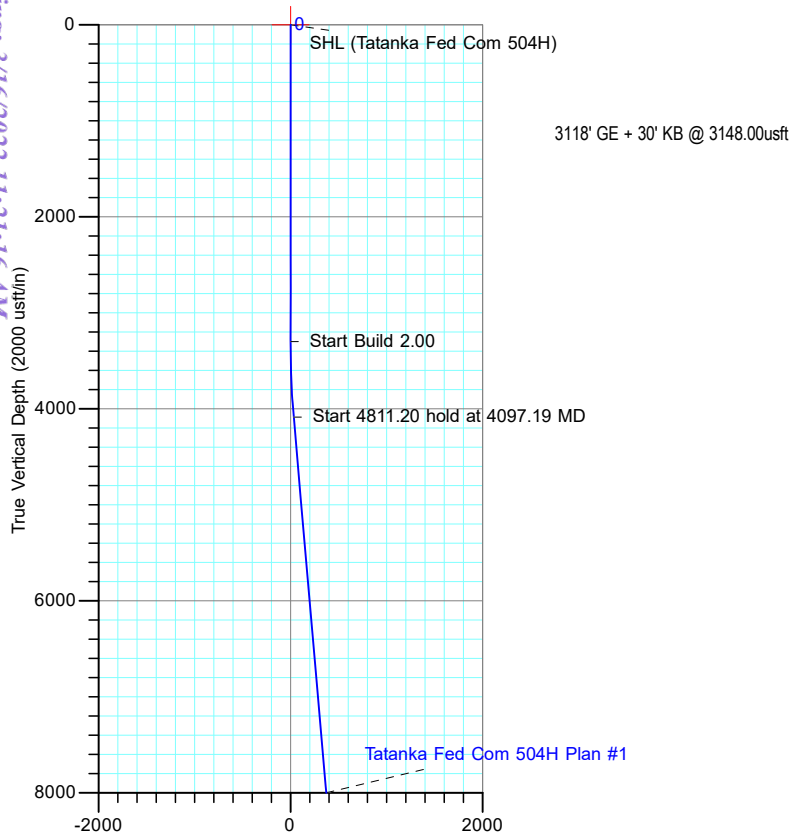


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3300.00	0.00	0.00	3300.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
4097.19	15.94	98.77	4086.94	-16.79	108.92	2.00	98.77	33.40	Start 4811.20 hold at 4097.19 MD
8908.39	15.94	98.77	8713.06	-218.21	1415.08	0.00	0.00	434.01	Start Drop -2.00
9705.58	0.00	0.00	9500.00	-235.00	1524.00	2.00	180.00	467.41	Start 637.04 hold at 9705.58 MD
10342.62	0.00	0.00	10137.04	-235.00	1524.00	0.00	0.00	467.41	Start DLS 10.00 TFO 179.45
11242.62	90.00	179.45	10710.00	-807.93	1529.55	10.00	179.45	1034.33	Start 9576.10 hold at 11242.62 MD
20818.71	90.00	179.45	10710.00	-10383.58	1622.25	0.00	0.00	10509.54	TD at 20818.71

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (Tatanka Fed Com 504H)	10710.00	-807.93	1529.55	32.077254	-103.331005
PBHL (Tatanka Fed Com 504H)	10710.00	-10383.58	1622.25	32.050933	-103.330993
SHL (Tatanka Fed Com 504H)	0.00	0.00	0.00	32.079514	-103.335918



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

Plan: Plan #1 (Tatanka Fed Com 504H/OH)
Tatanka Fed Com
Created By: Dustin Ault Date: 1:45, June 25 2021
Date: _____
Approved: _____ Date: _____

Released to Imaging: 3/16/2022 11:21:16 AM

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Tatanka Fed Com
Well: Tatanka Fed Com 504H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.53°
Magnetic North: 5.89°

Magnetic Field
Strength: 47431.4nT
Dip Angle: 59.80°
Date: 6/24/2021
Model: IGRF2020



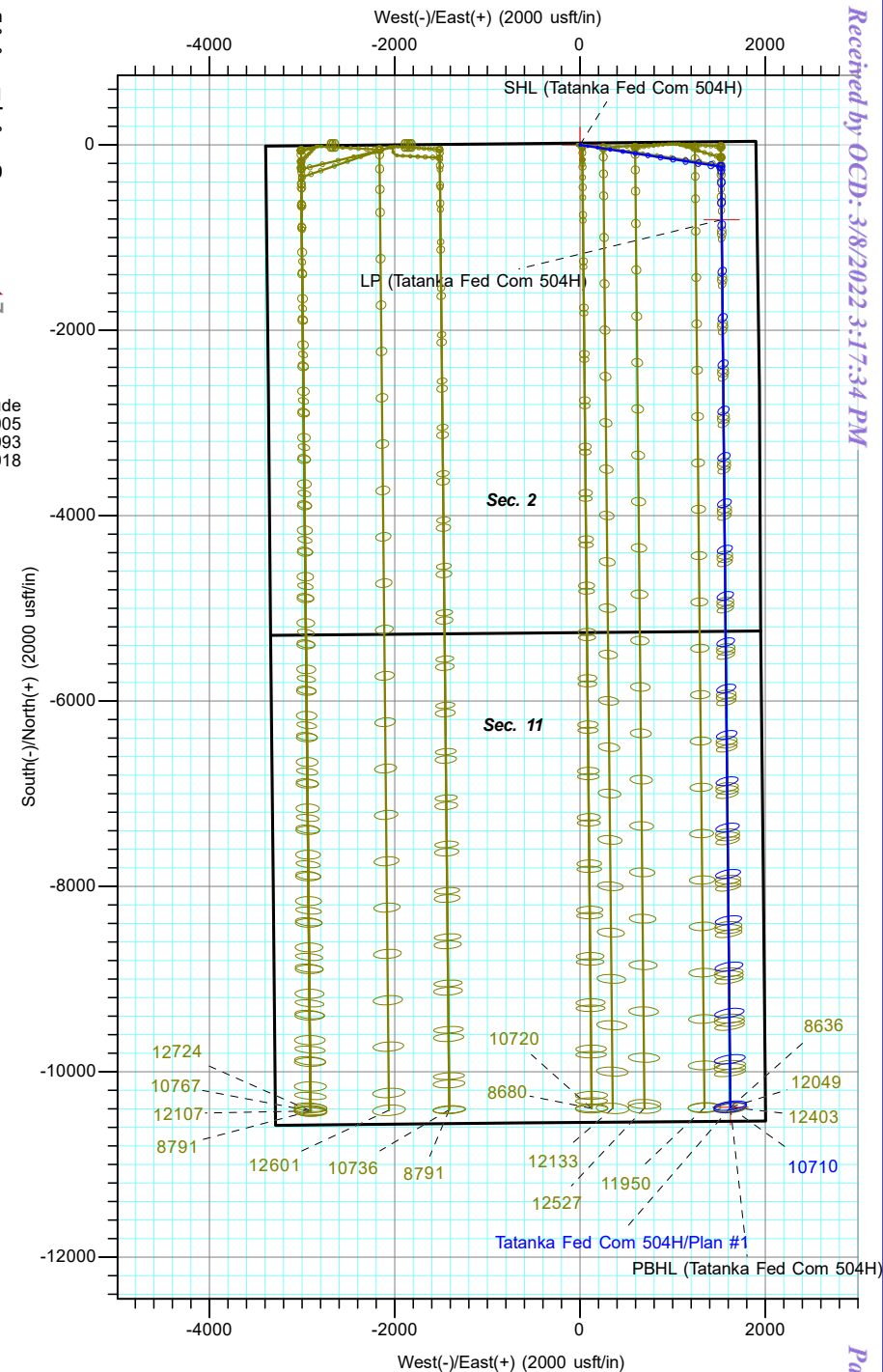
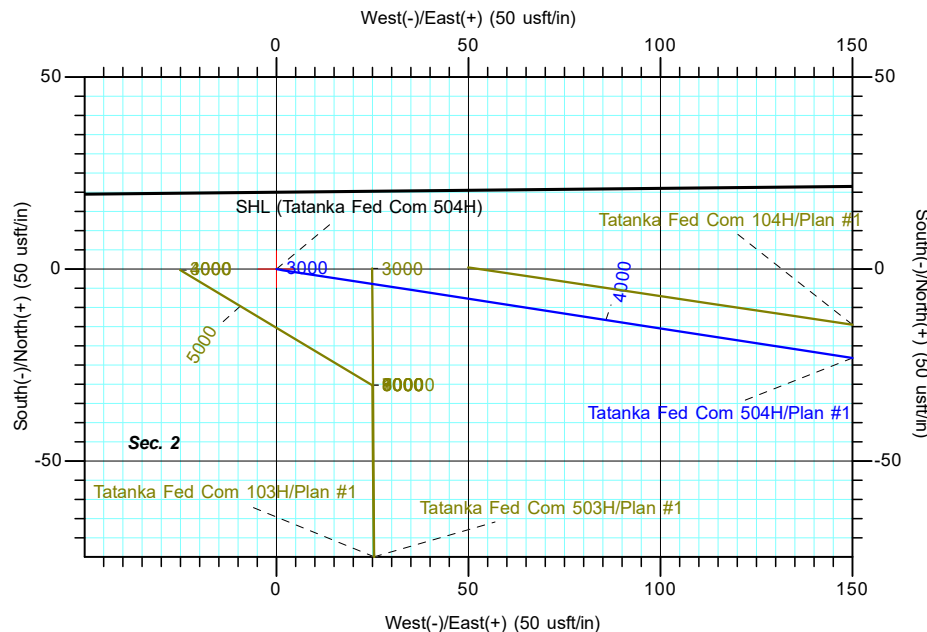
PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (Tatanka Fed Com 504H)	10710.00	-807.93	1529.55	393284.63	851793.48	32.077254	-103.331005
PBHL (Tatanka Fed Com 504H)	10710.00	-10383.58	1622.25	383708.98	851886.18	32.050933	-103.330993
SHL (Tatanka Fed Com 504H)	0.00	0.00	0.00	394092.56	850263.93	32.079514	-103.335918

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	
3300.00	0.00	0.00	3300.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
4097.19	15.94	98.77	4086.94	-16.79	108.92	2.00	98.77	33.40	Start 4811.20 hold at 4097.19 MD
8908.39	15.94	98.77	8713.06	-218.21	1415.08	0.00	0.00	434.01	Start Drop -2.00
9705.58	0.00	0.00	9500.00	-235.00	1524.00	2.00	180.00	467.41	Start 637.04 hold at 9705.58 MD
10342.62	0.00	0.00	10137.04	-235.00	1524.00	0.00	0.00	467.41	Start DLS 10.00 TFO 179.45
11242.62	90.00	179.45	10710.00	-807.93	1529.55	10.00	179.45	1034.33	Start 9576.10 hold at 11242.62 MD
20818.71	90.00	179.45	10710.00	-10383.58	1622.25	0.00	0.00	10509.54	TD at 20818.71



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

Plan: Plan #1 (Tatanka Fed Com 504H/OH)
Tatanka Fed Com
Created By: Dustin Ault
Date: 1:46, June 25 2021
Approved: _____
Date: _____

Received by OCD: 3/8/2022 3:17:34 PM

Page 19 of 137



Franklin Mountain Energy

Lea County, NM (NAD83)

Tatanka Fed Com

Tatanka Fed Com 504H

OH

Plan: Plan #1

Standard Planning Report

25 June, 2021





Total Directional Services Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Company:	Franklin Mountain Energy	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 504H	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		Tatanka Fed Com			
Site Position:		Northing:	394,075.36 usft	Latitude:	32.079539
From:	Map	Easting:	847,416.74 usft	Longitude:	-103.345111
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.52

Well	Tatanka Fed Com 504H					
Well Position	+N/-S	17.20 usft	Northing:	394,092.56 usft	Latitude:	32.079514
	+E/-W	2,847.19 usft	Easting:	850,263.93 usft	Longitude:	-103.335919
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,118.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	6/24/2021	6.42	59.80	47,431.42946123

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	171.12

Plan Survey Tool Program	Date	6/25/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	20,818.71 Plan #1 (OH)	OWSG (Rev2) MWD		
			OWSG MWD - Standard		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,097.19	15.94	98.77	4,086.94	-16.79	108.92	2.00	2.00	0.00	98.77	
8,908.39	15.94	98.77	8,713.06	-218.21	1,415.08	0.00	0.00	0.00	0.00	
9,705.58	0.00	0.00	9,500.00	-235.00	1,524.00	2.00	-2.00	0.00	180.00	
10,342.62	0.00	0.00	10,137.04	-235.00	1,524.00	0.00	0.00	0.00	0.00	
11,242.62	90.00	179.45	10,710.00	-807.93	1,529.55	10.00	10.00	19.94	179.45	
20,818.71	90.00	179.45	10,710.00	-10,383.58	1,622.25	0.00	0.00	0.00	0.00	PBHL (Tatanka Fed C



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Company:	Franklin Mountain Energy	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 504H	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 (Tatanka Fed Com 504H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
3,400.00	2.00	98.77	3,399.98	-0.27	1.72	0.53	2.00	2.00	0.00
3,500.00	4.00	98.77	3,499.84	-1.06	6.90	2.12	2.00	2.00	0.00
3,600.00	6.00	98.77	3,599.45	-2.39	15.51	4.76	2.00	2.00	0.00
3,700.00	8.00	98.77	3,698.70	-4.25	27.55	8.45	2.00	2.00	0.00
3,800.00	10.00	98.77	3,797.47	-6.63	43.01	13.19	2.00	2.00	0.00
3,900.00	12.00	98.77	3,895.62	-9.54	61.87	18.98	2.00	2.00	0.00
4,000.00	14.00	98.77	3,993.06	-12.97	84.10	25.79	2.00	2.00	0.00
4,097.19	15.94	98.77	4,086.94	-16.79	108.92	33.40	2.00	2.00	0.00
Start 4811.20 hold at 4097.19 MD									
4,100.00	15.94	98.77	4,089.64	-16.91	109.68	33.64	0.00	0.00	0.00
4,200.00	15.94	98.77	4,185.80	-21.10	136.83	41.97	0.00	0.00	0.00
4,300.00	15.94	98.77	4,281.95	-25.29	163.98	50.29	0.00	0.00	0.00
4,400.00	15.94	98.77	4,378.10	-29.47	191.12	58.62	0.00	0.00	0.00
4,500.00	15.94	98.77	4,474.26	-33.66	218.27	66.94	0.00	0.00	0.00
4,600.00	15.94	98.77	4,570.41	-37.84	245.42	75.27	0.00	0.00	0.00
4,700.00	15.94	98.77	4,666.56	-42.03	272.57	83.60	0.00	0.00	0.00
4,800.00	15.94	98.77	4,762.72	-46.22	299.72	91.92	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Company:	Franklin Mountain Energy	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 504H	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	15.94	98.77	4,858.87	-50.40	326.87	100.25	0.00	0.00	0.00
5,000.00	15.94	98.77	4,955.02	-54.59	354.02	108.58	0.00	0.00	0.00
5,100.00	15.94	98.77	5,051.18	-58.78	381.16	116.90	0.00	0.00	0.00
5,200.00	15.94	98.77	5,147.33	-62.96	408.31	125.23	0.00	0.00	0.00
5,300.00	15.94	98.77	5,243.48	-67.15	435.46	133.56	0.00	0.00	0.00
5,400.00	15.94	98.77	5,339.63	-71.33	462.61	141.88	0.00	0.00	0.00
5,500.00	15.94	98.77	5,435.79	-75.52	489.76	150.21	0.00	0.00	0.00
5,600.00	15.94	98.77	5,531.94	-79.71	516.91	158.54	0.00	0.00	0.00
5,700.00	15.94	98.77	5,628.09	-83.89	544.06	166.86	0.00	0.00	0.00
5,800.00	15.94	98.77	5,724.25	-88.08	571.20	175.19	0.00	0.00	0.00
5,900.00	15.94	98.77	5,820.40	-92.27	598.35	183.52	0.00	0.00	0.00
6,000.00	15.94	98.77	5,916.55	-96.45	625.50	191.84	0.00	0.00	0.00
6,100.00	15.94	98.77	6,012.71	-100.64	652.65	200.17	0.00	0.00	0.00
6,200.00	15.94	98.77	6,108.86	-104.82	679.80	208.49	0.00	0.00	0.00
6,300.00	15.94	98.77	6,205.01	-109.01	706.95	216.82	0.00	0.00	0.00
6,400.00	15.94	98.77	6,301.17	-113.20	734.09	225.15	0.00	0.00	0.00
6,500.00	15.94	98.77	6,397.32	-117.38	761.24	233.47	0.00	0.00	0.00
6,600.00	15.94	98.77	6,493.47	-121.57	788.39	241.80	0.00	0.00	0.00
6,700.00	15.94	98.77	6,589.63	-125.76	815.54	250.13	0.00	0.00	0.00
6,800.00	15.94	98.77	6,685.78	-129.94	842.69	258.45	0.00	0.00	0.00
6,900.00	15.94	98.77	6,781.93	-134.13	869.84	266.78	0.00	0.00	0.00
7,000.00	15.94	98.77	6,878.09	-138.31	896.99	275.11	0.00	0.00	0.00
7,100.00	15.94	98.77	6,974.24	-142.50	924.13	283.43	0.00	0.00	0.00
7,200.00	15.94	98.77	7,070.39	-146.69	951.28	291.76	0.00	0.00	0.00
7,300.00	15.94	98.77	7,166.55	-150.87	978.43	300.09	0.00	0.00	0.00
7,400.00	15.94	98.77	7,262.70	-155.06	1,005.58	308.41	0.00	0.00	0.00
7,500.00	15.94	98.77	7,358.85	-159.25	1,032.73	316.74	0.00	0.00	0.00
7,600.00	15.94	98.77	7,455.00	-163.43	1,059.88	325.07	0.00	0.00	0.00
7,700.00	15.94	98.77	7,551.16	-167.62	1,087.03	333.39	0.00	0.00	0.00
7,800.00	15.94	98.77	7,647.31	-171.80	1,114.17	341.72	0.00	0.00	0.00
7,900.00	15.94	98.77	7,743.46	-175.99	1,141.32	350.04	0.00	0.00	0.00
8,000.00	15.94	98.77	7,839.62	-180.18	1,168.47	358.37	0.00	0.00	0.00
8,100.00	15.94	98.77	7,935.77	-184.36	1,195.62	366.70	0.00	0.00	0.00
8,200.00	15.94	98.77	8,031.92	-188.55	1,222.77	375.02	0.00	0.00	0.00
8,300.00	15.94	98.77	8,128.08	-192.74	1,249.92	383.35	0.00	0.00	0.00
8,400.00	15.94	98.77	8,224.23	-196.92	1,277.06	391.68	0.00	0.00	0.00
8,500.00	15.94	98.77	8,320.38	-201.11	1,304.21	400.00	0.00	0.00	0.00
8,600.00	15.94	98.77	8,416.54	-205.30	1,331.36	408.33	0.00	0.00	0.00
8,700.00	15.94	98.77	8,512.69	-209.48	1,358.51	416.66	0.00	0.00	0.00
8,800.00	15.94	98.77	8,608.84	-213.67	1,385.66	424.98	0.00	0.00	0.00
8,908.39	15.94	98.77	8,713.06	-218.21	1,415.08	434.01	0.00	0.00	0.00
Start Drop -2.00									
9,000.00	14.11	98.77	8,801.54	-221.83	1,438.56	441.21	2.00	-2.00	0.00
9,100.00	12.11	98.77	8,898.92	-225.28	1,460.98	448.08	2.00	-2.00	0.00
9,200.00	10.11	98.77	8,997.05	-228.22	1,480.02	453.92	2.00	-2.00	0.00
9,300.00	8.11	98.77	9,095.78	-230.63	1,495.67	458.72	2.00	-2.00	0.00
9,400.00	6.11	98.77	9,195.00	-232.52	1,507.91	462.48	2.00	-2.00	0.00
9,500.00	4.11	98.77	9,294.60	-233.88	1,516.71	465.18	2.00	-2.00	0.00
9,600.00	2.11	98.77	9,394.45	-234.70	1,522.08	466.82	2.00	-2.00	0.00
9,705.58	0.00	0.00	9,500.00	-235.00	1,524.00	467.41	2.00	-2.00	0.00
Start 637.04 hold at 9705.58 MD									
9,800.00	0.00	0.00	9,594.42	-235.00	1,524.00	467.41	0.00	0.00	0.00
9,900.00	0.00	0.00	9,694.42	-235.00	1,524.00	467.41	0.00	0.00	0.00
10,000.00	0.00	0.00	9,794.42	-235.00	1,524.00	467.41	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Company:	Franklin Mountain Energy	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 504H	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)
10,100.00	0.00	0.00	9,894.42	-235.00	1,524.00	467.41	0.00	0.00	0.00
10,200.00	0.00	0.00	9,994.42	-235.00	1,524.00	467.41	0.00	0.00	0.00
10,300.00	0.00	0.00	10,094.42	-235.00	1,524.00	467.41	0.00	0.00	0.00
10,342.62	0.00	0.00	10,137.04	-235.00	1,524.00	467.41	0.00	0.00	0.00
Start DLS 10.00 TFO 179.45									
10,350.00	0.74	179.45	10,144.42	-235.05	1,524.00	467.46	10.00	10.00	0.00
10,400.00	5.74	179.45	10,194.33	-237.87	1,524.03	470.25	10.00	10.00	0.00
10,450.00	10.74	179.45	10,243.80	-245.03	1,524.10	477.34	10.00	10.00	0.00
10,500.00	15.74	179.45	10,292.45	-256.48	1,524.21	488.67	10.00	10.00	0.00
10,550.00	20.74	179.45	10,339.93	-272.12	1,524.36	504.14	10.00	10.00	0.00
10,600.00	25.74	179.45	10,385.86	-291.84	1,524.55	523.66	10.00	10.00	0.00
10,650.00	30.74	179.45	10,429.89	-315.49	1,524.78	547.06	10.00	10.00	0.00
10,700.00	35.74	179.45	10,471.70	-342.89	1,525.04	574.17	10.00	10.00	0.00
10,750.00	40.74	179.45	10,510.96	-373.82	1,525.34	604.78	10.00	10.00	0.00
10,800.00	45.74	179.45	10,547.37	-408.06	1,525.68	638.66	10.00	10.00	0.00
10,850.00	50.74	179.45	10,580.66	-445.35	1,526.04	675.55	10.00	10.00	0.00
10,900.00	55.74	179.45	10,610.58	-485.39	1,526.42	715.17	10.00	10.00	0.00
10,950.00	60.74	179.45	10,636.89	-527.88	1,526.84	757.22	10.00	10.00	0.00
11,000.00	65.74	179.45	10,659.39	-572.51	1,527.27	801.38	10.00	10.00	0.00
11,050.00	70.74	179.45	10,677.93	-618.93	1,527.72	847.32	10.00	10.00	0.00
11,100.00	75.74	179.45	10,692.34	-666.79	1,528.18	894.67	10.00	10.00	0.00
11,150.00	80.74	179.45	10,702.53	-715.72	1,528.65	943.09	10.00	10.00	0.00
11,200.00	85.74	179.45	10,708.41	-765.36	1,529.13	992.21	10.00	10.00	0.00
11,242.61	90.00	179.45	10,710.00	-807.93	1,529.55	1,034.33	10.00	10.00	0.00
Start 9576.10 hold at 11242.62 MD - LP (Tatanka Fed Com 504H)									
11,300.00	90.00	179.45	10,710.00	-865.31	1,530.10	1,091.11	0.00	0.00	0.00
11,400.00	90.00	179.45	10,710.00	-965.31	1,531.07	1,190.06	0.00	0.00	0.00
11,500.00	90.00	179.45	10,710.00	-1,065.30	1,532.04	1,289.01	0.00	0.00	0.00
11,600.00	90.00	179.45	10,710.00	-1,165.30	1,533.01	1,387.95	0.00	0.00	0.00
11,700.00	90.00	179.45	10,710.00	-1,265.29	1,533.97	1,486.90	0.00	0.00	0.00
11,800.00	90.00	179.45	10,710.00	-1,365.29	1,534.94	1,585.85	0.00	0.00	0.00
11,900.00	90.00	179.45	10,710.00	-1,465.28	1,535.91	1,684.79	0.00	0.00	0.00
12,000.00	90.00	179.45	10,710.00	-1,565.28	1,536.88	1,783.74	0.00	0.00	0.00
12,100.00	90.00	179.45	10,710.00	-1,665.28	1,537.85	1,882.68	0.00	0.00	0.00
12,200.00	90.00	179.45	10,710.00	-1,765.27	1,538.81	1,981.63	0.00	0.00	0.00
12,300.00	90.00	179.45	10,710.00	-1,865.27	1,539.78	2,080.58	0.00	0.00	0.00
12,400.00	90.00	179.45	10,710.00	-1,965.26	1,540.75	2,179.52	0.00	0.00	0.00
12,500.00	90.00	179.45	10,710.00	-2,065.26	1,541.72	2,278.47	0.00	0.00	0.00
12,600.00	90.00	179.45	10,710.00	-2,165.25	1,542.69	2,377.42	0.00	0.00	0.00
12,700.00	90.00	179.45	10,710.00	-2,265.25	1,543.66	2,476.36	0.00	0.00	0.00
12,800.00	90.00	179.45	10,710.00	-2,365.24	1,544.62	2,575.31	0.00	0.00	0.00
12,900.00	90.00	179.45	10,710.00	-2,465.24	1,545.59	2,674.26	0.00	0.00	0.00
13,000.00	90.00	179.45	10,710.00	-2,565.23	1,546.56	2,773.20	0.00	0.00	0.00
13,100.00	90.00	179.45	10,710.00	-2,665.23	1,547.53	2,872.15	0.00	0.00	0.00
13,200.00	90.00	179.45	10,710.00	-2,765.22	1,548.50	2,971.10	0.00	0.00	0.00
13,300.00	90.00	179.45	10,710.00	-2,865.22	1,549.46	3,070.04	0.00	0.00	0.00
13,400.00	90.00	179.45	10,710.00	-2,965.21	1,550.43	3,168.99	0.00	0.00	0.00
13,500.00	90.00	179.45	10,710.00	-3,065.21	1,551.40	3,267.93	0.00	0.00	0.00
13,600.00	90.00	179.45	10,710.00	-3,165.21	1,552.37	3,366.88	0.00	0.00	0.00
13,700.00	90.00	179.45	10,710.00	-3,265.20	1,553.34	3,465.83	0.00	0.00	0.00
13,800.00	90.00	179.45	10,710.00	-3,365.20	1,554.30	3,564.77	0.00	0.00	0.00
13,900.00	90.00	179.45	10,710.00	-3,465.19	1,555.27	3,663.72	0.00	0.00	0.00
14,000.00	90.00	179.45	10,710.00	-3,565.19	1,556.24	3,762.67	0.00	0.00	0.00
14,100.00	90.00	179.45	10,710.00	-3,665.18	1,557.21	3,861.61	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Company:	Franklin Mountain Energy	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 504H	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)
14,200.00	90.00	179.45	10,710.00	-3,765.18	1,558.18	3,960.56	0.00	0.00	0.00
14,300.00	90.00	179.45	10,710.00	-3,865.17	1,559.14	4,059.51	0.00	0.00	0.00
14,400.00	90.00	179.45	10,710.00	-3,965.17	1,560.11	4,158.45	0.00	0.00	0.00
14,500.00	90.00	179.45	10,710.00	-4,065.16	1,561.08	4,257.40	0.00	0.00	0.00
14,600.00	90.00	179.45	10,710.00	-4,165.16	1,562.05	4,356.35	0.00	0.00	0.00
14,700.00	90.00	179.45	10,710.00	-4,265.15	1,563.02	4,455.29	0.00	0.00	0.00
14,800.00	90.00	179.45	10,710.00	-4,365.15	1,563.98	4,554.24	0.00	0.00	0.00
14,900.00	90.00	179.45	10,710.00	-4,465.14	1,564.95	4,653.18	0.00	0.00	0.00
15,000.00	90.00	179.45	10,710.00	-4,565.14	1,565.92	4,752.13	0.00	0.00	0.00
15,100.00	90.00	179.45	10,710.00	-4,665.13	1,566.89	4,851.08	0.00	0.00	0.00
15,200.00	90.00	179.45	10,710.00	-4,765.13	1,567.86	4,950.02	0.00	0.00	0.00
15,300.00	90.00	179.45	10,710.00	-4,865.13	1,568.83	5,048.97	0.00	0.00	0.00
15,400.00	90.00	179.45	10,710.00	-4,965.12	1,569.79	5,147.92	0.00	0.00	0.00
15,500.00	90.00	179.45	10,710.00	-5,065.12	1,570.76	5,246.86	0.00	0.00	0.00
15,600.00	90.00	179.45	10,710.00	-5,165.11	1,571.73	5,345.81	0.00	0.00	0.00
15,700.00	90.00	179.45	10,710.00	-5,265.11	1,572.70	5,444.76	0.00	0.00	0.00
15,800.00	90.00	179.45	10,710.00	-5,365.10	1,573.67	5,543.70	0.00	0.00	0.00
15,900.00	90.00	179.45	10,710.00	-5,465.10	1,574.63	5,642.65	0.00	0.00	0.00
16,000.00	90.00	179.45	10,710.00	-5,565.09	1,575.60	5,741.60	0.00	0.00	0.00
16,100.00	90.00	179.45	10,710.00	-5,665.09	1,576.57	5,840.54	0.00	0.00	0.00
16,200.00	90.00	179.45	10,710.00	-5,765.08	1,577.54	5,939.49	0.00	0.00	0.00
16,300.00	90.00	179.45	10,710.00	-5,865.08	1,578.51	6,038.43	0.00	0.00	0.00
16,400.00	90.00	179.45	10,710.00	-5,965.07	1,579.47	6,137.38	0.00	0.00	0.00
16,500.00	90.00	179.45	10,710.00	-6,065.07	1,580.44	6,236.33	0.00	0.00	0.00
16,600.00	90.00	179.45	10,710.00	-6,165.06	1,581.41	6,335.27	0.00	0.00	0.00
16,700.00	90.00	179.45	10,710.00	-6,265.06	1,582.38	6,434.22	0.00	0.00	0.00
16,800.00	90.00	179.45	10,710.00	-6,365.06	1,583.35	6,533.17	0.00	0.00	0.00
16,900.00	90.00	179.45	10,710.00	-6,465.05	1,584.31	6,632.11	0.00	0.00	0.00
17,000.00	90.00	179.45	10,710.00	-6,565.05	1,585.28	6,731.06	0.00	0.00	0.00
17,100.00	90.00	179.45	10,710.00	-6,665.04	1,586.25	6,830.01	0.00	0.00	0.00
17,200.00	90.00	179.45	10,710.00	-6,765.04	1,587.22	6,928.95	0.00	0.00	0.00
17,300.00	90.00	179.45	10,710.00	-6,865.03	1,588.19	7,027.90	0.00	0.00	0.00
17,400.00	90.00	179.45	10,710.00	-6,965.03	1,589.15	7,126.85	0.00	0.00	0.00
17,500.00	90.00	179.45	10,710.00	-7,065.02	1,590.12	7,225.79	0.00	0.00	0.00
17,600.00	90.00	179.45	10,710.00	-7,165.02	1,591.09	7,324.74	0.00	0.00	0.00
17,700.00	90.00	179.45	10,710.00	-7,265.01	1,592.06	7,423.68	0.00	0.00	0.00
17,800.00	90.00	179.45	10,710.00	-7,365.01	1,593.03	7,522.63	0.00	0.00	0.00
17,900.00	90.00	179.45	10,710.00	-7,465.00	1,593.99	7,621.58	0.00	0.00	0.00
18,000.00	90.00	179.45	10,710.00	-7,565.00	1,594.96	7,720.52	0.00	0.00	0.00
18,100.00	90.00	179.45	10,710.00	-7,664.99	1,595.93	7,819.47	0.00	0.00	0.00
18,200.00	90.00	179.45	10,710.00	-7,764.99	1,596.90	7,918.42	0.00	0.00	0.00
18,300.00	90.00	179.45	10,710.00	-7,864.99	1,597.87	8,017.36	0.00	0.00	0.00
18,400.00	90.00	179.45	10,710.00	-7,964.98	1,598.84	8,116.31	0.00	0.00	0.00
18,500.00	90.00	179.45	10,710.00	-8,064.98	1,599.80	8,215.26	0.00	0.00	0.00
18,600.00	90.00	179.45	10,710.00	-8,164.97	1,600.77	8,314.20	0.00	0.00	0.00
18,700.00	90.00	179.45	10,710.00	-8,264.97	1,601.74	8,413.15	0.00	0.00	0.00
18,800.00	90.00	179.45	10,710.00	-8,364.96	1,602.71	8,512.10	0.00	0.00	0.00
18,900.00	90.00	179.45	10,710.00	-8,464.96	1,603.68	8,611.04	0.00	0.00	0.00
19,000.00	90.00	179.45	10,710.00	-8,564.95	1,604.64	8,709.99	0.00	0.00	0.00
19,100.00	90.00	179.45	10,710.00	-8,664.95	1,605.61	8,808.93	0.00	0.00	0.00
19,200.00	90.00	179.45	10,710.00	-8,764.94	1,606.58	8,907.88	0.00	0.00	0.00
19,300.00	90.00	179.45	10,710.00	-8,864.94	1,607.55	9,006.83	0.00	0.00	0.00
19,400.00	90.00	179.45	10,710.00	-8,964.93	1,608.52	9,105.77	0.00	0.00	0.00
19,500.00	90.00	179.45	10,710.00	-9,064.93	1,609.48	9,204.72	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Company:	Franklin Mountain Energy	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 504H	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)	
19,600.00	90.00	179.45	10,710.00	-9,164.92	1,610.45	9,303.67	0.00	0.00	0.00	
19,700.00	90.00	179.45	10,710.00	-9,264.92	1,611.42	9,402.61	0.00	0.00	0.00	
19,800.00	90.00	179.45	10,710.00	-9,364.91	1,612.39	9,501.56	0.00	0.00	0.00	
19,900.00	90.00	179.45	10,710.00	-9,464.91	1,613.36	9,600.51	0.00	0.00	0.00	
20,000.00	90.00	179.45	10,710.00	-9,564.91	1,614.32	9,699.45	0.00	0.00	0.00	
20,100.00	90.00	179.45	10,710.00	-9,664.90	1,615.29	9,798.40	0.00	0.00	0.00	
20,200.00	90.00	179.45	10,710.00	-9,764.90	1,616.26	9,897.35	0.00	0.00	0.00	
20,300.00	90.00	179.45	10,710.00	-9,864.89	1,617.23	9,996.29	0.00	0.00	0.00	
20,400.00	90.00	179.45	10,710.00	-9,964.89	1,618.20	10,095.24	0.00	0.00	0.00	
20,500.00	90.00	179.45	10,710.00	-10,064.88	1,619.16	10,194.18	0.00	0.00	0.00	
20,600.00	90.00	179.45	10,710.00	-10,164.88	1,620.13	10,293.13	0.00	0.00	0.00	
20,700.00	90.00	179.45	10,710.00	-10,264.87	1,621.10	10,392.08	0.00	0.00	0.00	
20,800.00	90.00	179.45	10,710.00	-10,364.87	1,622.07	10,491.02	0.00	0.00	0.00	
20,818.71	90.00	179.45	10,710.00	-10,383.58	1,622.25	10,509.54	0.00	0.00	0.00	
TD at 20818.71 - PBHL (Tatanka Fed Com 504H)										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (Tatanka Fed Com : - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	394,092.56	850,263.93	32.079514	-103.335919
PBHL (Tatanka Fed Com - plan hits target center - Point	0.00	0.00	10,710.00	-10,383.58	1,622.25	383,708.98	851,886.18	32.050933	-103.330993
LP (Tatanka Fed Com 50 - plan hits target center - Point	0.00	0.00	10,710.00	-807.93	1,529.55	393,284.63	851,793.48	32.077255	-103.331005

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
3,300.00	3,300.00	0.00	0.00	Start Build 2.00
4,097.19	4,086.94	-16.79	108.92	Start 4811.20 hold at 4097.19 MD
8,908.39	8,713.06	-218.21	1,415.08	Start Drop -2.00
9,705.58	9,500.00	-235.00	1,524.00	Start 637.04 hold at 9705.58 MD
10,342.62	10,137.04	-235.00	1,524.00	Start DLS 10.00 TFO 179.45
11,242.62	10,710.00	-807.93	1,529.55	Start 9576.10 hold at 11242.62 MD
20,818.71	10,710.00	-10,383.58	1,622.25	TD at 20818.71



Franklin Mountain Energy

Lea County, NM (NAD83)

Tatanka Fed Com

Tatanka Fed Com 504H

OH

Plan #1

Anticollision Report

25 June, 2021





Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	6/25/2021
From (usft)	To (usft)	Survey (Wellbore)
0.00	20,818.71	Plan #1 (OH)
		Tool Name
		OWSG (Rev2) MWD
		Description
		OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Tatanka Fed Com						
Tatanka Fed Com 101H - OH - Plan #1	3,115.13	3,119.53	2,045.37	2,029.90	132.182	CC
Tatanka Fed Com 101H - OH - Plan #1	3,200.00	3,200.00	2,045.38	2,029.49	128.697	ES
Tatanka Fed Com 101H - OH - Plan #1	20,819.49	18,762.37	4,919.89	4,689.33	21.339	SF
Tatanka Fed Com 102H - OH - Plan #1	3,115.39	3,119.09	2,020.38	2,004.91	130.571	CC
Tatanka Fed Com 102H - OH - Plan #1	3,300.00	3,303.15	2,020.40	2,004.00	123.240	ES
Tatanka Fed Com 102H - OH - Plan #1	20,818.71	18,862.99	3,589.15	3,375.56	16.804	SF
Tatanka Fed Com 103H - OH - Plan #1	3,024.31	3,025.31	24.99	9.99	1.666	CC
Tatanka Fed Com 103H - OH - Plan #1	3,100.00	3,100.98	25.02	9.65	1.627	ES
Tatanka Fed Com 103H - OH - Plan #1	3,200.00	3,200.82	25.53	9.67	1.610	SF
Tatanka Fed Com 104H - OH - Plan #1	1,916.53	1,916.93	49.99	40.60	5.325	CC
Tatanka Fed Com 104H - OH - Plan #1	2,000.00	2,000.00	49.99	40.18	5.097	ES
Tatanka Fed Com 104H - OH - Plan #1	8,600.00	8,593.87	222.32	177.65	4.976	SF
Tatanka Fed Com 501H - OH - Plan #1	3,300.00	3,303.30	1,995.38	1,978.97	121.608	CC, ES
Tatanka Fed Com 501H - OH - Plan #1	20,819.49	20,841.66	4,530.39	4,282.73	18.293	SF
Tatanka Fed Com 502H - OH - Plan #1	3,637.75	3,868.83	1,951.41	1,932.92	105.531	CC, ES
Tatanka Fed Com 502H - OH - Plan #1	20,819.49	20,879.44	3,033.36	2,785.34	12.230	SF
Tatanka Fed Com 503H - OH - Plan #1	3,300.00	3,300.30	25.00	8.60	1.524	CC, ES, SF
Tatanka Fed Com 601H - OH - Plan #2	3,110.08	3,126.58	2,847.24	2,831.76	183.941	CC
Tatanka Fed Com 601H - OH - Plan #2	3,200.00	3,200.00	2,847.29	2,831.40	179.156	ES
Tatanka Fed Com 601H - OH - Plan #2	20,819.49	22,129.15	4,740.40	4,499.25	19.658	SF
Tatanka Fed Com 604H - OH - Plan #2	8,170.04	7,985.56	171.57	126.48	3.805	CC, ES
Tatanka Fed Com 604H - OH - Plan #2	8,200.00	8,014.37	171.77	126.50	3.795	SF
Tatanka Fed Com 704H - OH - Plan #2	5,715.37	5,659.17	72.87	42.60	2.408	CC, ES, SF
Tatanka Fed Com 705H - OH - Plan #2	9,389.93	9,191.70	98.02	44.85	1.844	CC
Tatanka Fed Com 705H - OH - Plan #2	10,342.62	10,143.74	99.54	42.38	1.741	ES
Tatanka Fed Com 705H - OH - Plan #2	10,350.00	10,151.13	99.59	42.39	1.741	SF
Tatanka Fed Com 801H - OH - Plan #2	3,210.18	3,226.48	2,822.24	2,806.26	176.545	CC
Tatanka Fed Com 801H - OH - Plan #2	3,300.00	3,300.00	2,822.29	2,805.89	172.093	ES
Tatanka Fed Com 801H - OH - Plan #2	20,819.49	22,865.07	4,957.44	4,723.69	21.208	SF
Tatanka Fed Com 802H - OH - Plan #2	3,799.32	4,293.78	2,749.67	2,729.84	138.659	CC
Tatanka Fed Com 802H - OH - Plan #2	3,800.00	4,294.46	2,749.67	2,729.84	138.636	ES
Tatanka Fed Com 802H - OH - Plan #2	20,819.49	22,787.51	4,140.98	3,910.78	17.989	SF
Tatanka Fed Com 805H - OH - Plan #2	6,288.47	6,184.78	94.70	61.41	2.845	CC, ES
Tatanka Fed Com 805H - OH - Plan #2	6,300.00	6,195.49	94.79	61.45	2.843	SF
Tatanka Fed Com 806H - OH - Plan #2	9,246.62	9,041.16	216.71	164.37	4.140	CC
Tatanka Fed Com 806H - OH - Plan #2	10,342.62	10,135.20	219.79	162.59	3.842	ES
Tatanka Fed Com 806H - OH - Plan #2	10,350.00	10,142.58	219.84	162.61	3.841	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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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						

Offset Design													Offset Site Error: 0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error: 0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	4.40	4.40	0.00	0.01	-90.55	-19.67	-2,045.28	2,045.37				
100.00	100.00	104.40	104.40	0.13	0.14	-90.55	-19.67	-2,045.28	2,045.37	2,045.19	0.19	N/A	
200.00	200.00	204.40	204.40	0.48	0.50	-90.55	-19.67	-2,045.28	2,045.37	2,044.68	0.70	2,940.310	
300.00	300.00	304.40	304.40	0.84	0.86	-90.55	-19.67	-2,045.28	2,045.37	2,044.17	1.20	1,700.865	
400.00	400.00	404.40	404.40	1.20	1.22	-90.55	-19.67	-2,045.28	2,045.37	2,043.67	1.71	1,196.482	
500.00	500.00	504.40	504.40	1.56	1.58	-90.55	-19.67	-2,045.28	2,045.37	2,043.16	2.22	922.821	
600.00	600.00	604.40	604.40	1.92	1.93	-90.55	-19.67	-2,045.28	2,045.37	2,042.65	2.72	751.041	
700.00	700.00	704.40	704.40	2.28	2.29	-90.55	-19.67	-2,045.28	2,045.37	2,042.14	3.23	633.177	
800.00	800.00	804.40	804.40	2.63	2.65	-90.55	-19.67	-2,045.28	2,045.37	2,041.64	3.74	547.288	
900.00	900.00	904.40	904.40	2.99	3.01	-90.55	-19.67	-2,045.28	2,045.37	2,041.13	4.24	481.917	
1,000.00	1,000.00	1,004.40	1,004.40	3.35	3.37	-90.55	-19.67	-2,045.28	2,045.37	2,040.62	4.75	430.497	
1,100.00	1,100.00	1,104.40	1,104.40	3.71	3.73	-90.55	-19.67	-2,045.28	2,045.37	2,040.12	5.26	388.991	
1,200.00	1,200.00	1,204.40	1,204.40	4.07	4.08	-90.55	-19.67	-2,045.28	2,045.37	2,039.61	5.77	354.785	
1,300.00	1,300.00	1,304.40	1,304.40	4.43	4.44	-90.55	-19.67	-2,045.28	2,045.37	2,039.10	6.27	326.109	
1,400.00	1,400.00	1,404.40	1,404.40	4.79	4.80	-90.55	-19.67	-2,045.28	2,045.37	2,038.60	6.78	301.721	
1,500.00	1,500.00	1,504.40	1,504.40	5.14	5.16	-90.55	-19.67	-2,045.28	2,045.37	2,038.09	7.29	280.728	
1,600.00	1,600.00	1,604.40	1,604.40	5.50	5.52	-90.55	-19.67	-2,045.28	2,045.37	2,037.58	7.79	262.466	
1,700.00	1,700.00	1,704.40	1,704.40	5.86	5.88	-90.55	-19.67	-2,045.28	2,045.37	2,037.07	8.30	246.434	
1,800.00	1,800.00	1,804.40	1,804.40	6.22	6.24	-90.55	-19.67	-2,045.28	2,045.37	2,036.57	8.81	232.249	
1,900.00	1,900.00	1,904.40	1,904.40	6.58	6.59	-90.55	-19.67	-2,045.28	2,045.37	2,036.06	9.31	219.607	
2,000.00	2,000.00	2,004.40	2,004.40	6.94	6.95	-90.55	-19.67	-2,045.28	2,045.37	2,035.55	9.82	208.271	
2,100.00	2,100.00	2,104.40	2,104.40	7.29	7.31	-90.55	-19.67	-2,045.28	2,045.37	2,035.05	10.33	198.047	
2,200.00	2,200.00	2,204.40	2,204.40	7.65	7.67	-90.55	-19.67	-2,045.28	2,045.37	2,034.54	10.83	188.781	
2,300.00	2,300.00	2,304.40	2,304.40	8.01	8.03	-90.55	-19.67	-2,045.28	2,045.37	2,034.03	11.34	180.343	
2,400.00	2,400.00	2,404.40	2,404.40	8.37	8.39	-90.55	-19.67	-2,045.28	2,045.37	2,033.53	11.85	172.626	
2,500.00	2,500.00	2,504.40	2,504.40	8.73	8.74	-90.55	-19.67	-2,045.28	2,045.37	2,033.02	12.36	165.543	
2,600.00	2,600.00	2,604.40	2,604.40	9.09	9.10	-90.55	-19.67	-2,045.28	2,045.37	2,032.51	12.86	159.019	
2,700.00	2,700.00	2,704.40	2,704.40	9.45	9.46	-90.55	-19.67	-2,045.28	2,045.37	2,032.01	13.37	152.989	
2,800.00	2,800.00	2,804.40	2,804.40	9.80	9.82	-90.55	-19.67	-2,045.28	2,045.37	2,031.50	13.88	147.400	
2,900.00	2,900.00	2,904.40	2,904.40	10.16	10.18	-90.55	-19.67	-2,045.28	2,045.37	2,030.99	14.38	142.204	
3,000.00	3,000.00	3,004.40	3,004.40	10.52	10.54	-90.55	-19.67	-2,045.28	2,045.37	2,030.48	14.89	137.363	
3,100.00	3,100.00	3,104.40	3,104.40	10.88	10.90	-90.55	-19.67	-2,045.28	2,045.37	2,029.98	15.40	132.840	
3,115.13	3,115.13	3,119.53	3,119.53	10.93	10.95	-90.55	-19.67	-2,045.28	2,045.37	2,029.90	15.47	132.182 CC	
3,200.00	3,200.00	3,200.00	3,200.00	11.24	11.24	-90.55	-19.67	-2,045.28	2,045.38	2,029.49	15.89	128.697 ES	
3,300.00	3,300.00	3,269.21	3,269.21	11.60	11.48	-90.56	-19.87	-2,045.87	2,046.27	2,029.96	16.31	125.429	
3,400.00	3,399.98	3,335.42	3,335.39	11.94	11.70	170.65	-20.45	-2,047.55	2,050.54	2,033.82	16.71	122.682	
3,500.00	3,499.84	3,400.00	3,399.91	12.28	11.92	170.61	-21.37	-2,050.23	2,059.87	2,042.78	17.10	120.482	
3,600.00	3,599.45	3,466.69	3,466.47	12.63	12.15	170.56	-22.69	-2,054.08	2,074.25	2,056.77	17.48	118.652	
3,700.00	3,698.70	3,531.32	3,530.90	12.97	12.37	170.48	-24.33	-2,058.86	2,093.61	2,075.75	17.86	117.243	
3,800.00	3,797.47	3,600.00	3,599.27	13.33	12.60	170.39	-26.45	-2,065.07	2,117.89	2,099.65	18.24	116.113	
3,900.00	3,895.62	3,657.52	3,656.43	13.69	12.80	170.29	-28.54	-2,071.17	2,146.99	2,128.41	18.58	115.527	
4,000.00	3,993.06	3,718.70	3,717.11	14.06	13.01	170.16	-31.07	-2,078.55	2,180.82	2,161.88	18.94	115.174	
4,097.19	4,086.94	3,776.73	3,774.54	14.43	13.22	170.02	-33.76	-2,086.39	2,218.11	2,198.84	19.27	115.125	
4,100.00	4,089.64	3,778.38	3,776.17	14.45	13.22	170.02	-33.84	-2,086.63	2,219.25	2,199.97	19.28	115.118	

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka 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			
4,200.00	4,185.80	3,836.89	3,833.94	14.85	13.43	170.02	-36.84	-2,095.39	2,260.53	2,240.92	19.61	115.280				
4,300.00	4,281.95	3,900.00	3,896.09	15.26	13.66	170.01	-40.40	-2,105.79	2,303.12	2,283.16	19.96	115.414				
4,400.00	4,378.10	3,951.56	3,946.72	15.68	13.84	169.99	-43.56	-2,115.00	2,346.98	2,326.72	20.26	115.856				
4,500.00	4,474.26	4,000.00	3,994.16	16.12	14.02	169.97	-46.73	-2,124.24	2,392.13	2,371.58	20.55	116.433				
4,600.00	4,570.41	4,063.04	4,055.72	16.56	14.26	169.93	-51.14	-2,137.12	2,438.47	2,417.58	20.89	116.739				
4,700.00	4,666.56	4,100.00	4,091.70	17.01	14.40	169.91	-53.88	-2,145.12	2,486.14	2,465.02	21.12	117.694				
4,800.00	4,762.72	4,171.29	4,160.86	17.47	14.68	169.86	-59.49	-2,161.47	2,534.80	2,513.30	21.50	117.896				
4,900.00	4,858.87	4,224.19	4,211.96	17.94	14.89	169.81	-63.92	-2,174.40	2,584.71	2,562.91	21.80	118.568				
5,000.00	4,955.02	4,276.27	4,262.08	18.41	15.10	169.77	-68.50	-2,187.77	2,635.75	2,613.65	22.09	119.297				
5,100.00	5,051.18	4,327.53	4,311.23	18.89	15.31	169.71	-73.23	-2,201.57	2,687.89	2,665.51	22.38	120.083				
5,200.00	5,147.33	4,379.57	4,360.91	19.37	15.53	169.66	-78.24	-2,216.21	2,741.12	2,718.45	22.68	120.882				
5,300.00	5,243.48	4,461.10	4,438.58	19.86	15.88	169.57	-86.28	-2,239.65	2,794.92	2,771.81	23.11	120.959				
5,400.00	5,339.63	4,545.31	4,518.81	20.36	16.26	169.48	-94.57	-2,263.86	2,848.72	2,825.17	23.55	120.953				
5,500.00	5,435.79	4,629.52	4,599.04	20.86	16.64	169.39	-102.87	-2,288.08	2,902.52	2,878.52	24.00	120.930				
5,600.00	5,531.94	4,713.73	4,679.27	21.36	17.03	169.31	-111.17	-2,312.29	2,956.33	2,931.88	24.45	120.894				
5,700.00	5,628.09	4,797.94	4,759.49	21.87	17.43	169.23	-119.46	-2,336.50	3,010.15	2,985.24	24.91	120.845				
5,800.00	5,724.25	4,882.15	4,839.72	22.38	17.83	169.15	-127.76	-2,360.71	3,063.97	3,038.60	25.37	120.784				
5,900.00	5,820.40	4,966.37	4,919.95	22.89	18.24	169.08	-136.06	-2,384.92	3,117.79	3,091.96	25.83	120.712				
6,000.00	5,916.55	5,050.58	5,000.18	23.41	18.66	169.00	-144.36	-2,409.14	3,171.61	3,145.32	26.29	120.632				
6,100.00	6,012.71	5,134.79	5,080.41	23.93	19.08	168.93	-152.65	-2,433.35	3,225.44	3,198.69	26.76	120.545				
6,200.00	6,108.86	5,219.00	5,160.63	24.45	19.51	168.87	-160.95	-2,457.56	3,279.28	3,252.05	27.23	120.450				
6,300.00	6,205.01	5,303.21	5,240.86	24.98	19.94	168.80	-169.25	-2,481.77	3,333.11	3,305.42	27.70	120.349				
6,400.00	6,301.17	5,387.42	5,321.09	25.51	20.37	168.74	-177.54	-2,505.98	3,386.95	3,358.78	28.17	120.242				
6,500.00	6,397.32	5,471.64	5,401.32	26.04	20.81	168.68	-185.84	-2,530.20	3,440.79	3,412.15	28.64	120.130				
6,600.00	6,493.47	5,555.85	5,481.55	26.57	21.26	168.62	-194.14	-2,554.41	3,494.64	3,465.52	29.12	120.014				
6,700.00	6,589.63	5,640.06	5,561.77	27.11	21.71	168.56	-202.43	-2,578.62	3,548.48	3,518.89	29.60	119.895				
6,800.00	6,685.78	5,724.27	5,642.00	27.65	22.16	168.50	-210.73	-2,602.83	3,602.33	3,572.26	30.08	119.772				
6,900.00	6,781.93	5,808.48	5,722.23	28.19	22.61	168.45	-219.03	-2,627.04	3,656.19	3,625.63	30.56	119.647				
7,000.00	6,878.09	5,892.69	5,802.46	28.73	23.07	168.40	-227.33	-2,651.26	3,710.04	3,679.00	31.04	119.519				
7,100.00	6,974.24	5,976.91	5,882.69	29.27	23.53	168.35	-235.62	-2,675.47	3,763.90	3,732.37	31.53	119.389				
7,200.00	7,070.39	6,061.12	5,962.91	29.81	23.99	168.30	-243.92	-2,699.68	3,817.75	3,785.74	32.01	119.258				
7,300.00	7,166.55	6,145.33	6,043.14	30.36	24.46	168.25	-252.22	-2,723.89	3,871.62	3,839.11	32.50	119.125				
7,400.00	7,262.70	6,229.54	6,123.37	30.90	24.92	168.20	-260.51	-2,748.10	3,925.48	3,892.49	32.99	118.990				
7,500.00	7,358.85	6,313.75	6,203.60	31.45	25.39	168.16	-268.81	-2,772.32	3,979.34	3,945.86	33.48	118.856				
7,600.00	7,455.00	6,397.96	6,283.83	32.00	25.87	168.11	-277.11	-2,796.53	4,033.21	3,999.23	33.97	118.720				
7,700.00	7,551.16	6,482.18	6,364.05	32.55	26.34	168.07	-285.40	-2,820.74	4,087.07	4,052.61	34.47	118.583				
7,800.00	7,647.31	7,791.22	7,651.71	33.10	31.97	168.33	-349.67	-3,008.28	4,126.29	4,086.78	39.51	104.433				
7,900.00	7,743.46	7,887.38	7,747.86	33.66	32.25	168.40	-349.67	-3,008.28	4,153.24	4,113.22	40.01	103.799				
8,000.00	7,839.62	7,983.53	7,844.02	34.21	32.54	168.48	-349.67	-3,008.28	4,180.19	4,139.67	40.51	103.179				
8,100.00	7,935.77	8,079.68	7,940.17	34.76	32.83	168.55	-349.67	-3,008.28	4,207.15	4,166.13	41.02	102.572				
8,200.00	8,031.92	8,175.84	8,036.32	35.32	33.12	168.63	-349.67	-3,008.28	4,234.11	4,192.59	41.52	101.979				
8,300.00	8,128.08	8,271.99	8,132.48	35.88	33.40	168.70	-349.67	-3,008.28	4,261.09	4,219.06	42.02	101.399				
8,400.00	8,224.23	8,367.08	8,227.57	36.43	33.69	168.77	-349.70	-3,008.28	4,288.07	4,245.54	42.52	100.837				
8,500.00	8,320.38	8,450.00	8,310.14	36.99	33.95	168.74	-356.48	-3,008.21	4,315.25	4,272.25	43.00	100.351				
8,600.00	8,416.54	8,525.98	8,384.21	37.55	34.20	168.56	-373.10	-3,008.05	4,342.81	4,299.33	43.47	99.894				
8,700.00	8,512.69	8,600.00	8,453.66	38.11	34.45	168.27	-398.57	-3,007.79	4,370.85	4,326.90	43.95	99.450				
8,800.00	8,608.84	8,666.21	8,512.54	38.67	34.69	167.90	-428.77	-3,007.49	4,399.56	4,355.15	44.41	99.062				
8,908.39	8,713.06	8,730.40	8,565.93	39.28	34.93	167.46	-464.34	-3,007.13	4,431.65	4,386.76	44.89	98.716				
9,000.00	8,801.54	8,778.12	8,602.86	39.78	35.10	167.21	-494.54	-3,006.83	4,458.38	4,413.10	45.28	98.470				
9,100.00	8,898.92	8,823.84	8,635.78	40.28	35.28	166.94	-526.26	-3,006.52	4,485.61	4,439.94	45.67	98.225				
9,200.00	8,997.05	8,863.48	8,662.19	40.76	35.43	166.68	-555.80	-3,006.22	4,510.96	4,464.94	46.02	98.013				
9,300.00	9,095.78	8,900.00	8,684.66	41.19	35.58	166.43	-584.58	-3,005.93	4,534.58	4,488.22	46.36	97.818				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,400.00	9,195.00	8,927.34	8,700.26	41.59	35.69	166.26	-607.04	-3,005.71	4,556.55	4,509.91	46.64	97.696		
9,500.00	9,294.60	8,950.00	8,712.36	41.96	35.78	166.11	-626.19	-3,005.52	4,576.97	4,530.08	46.88	97.624		
9,600.00	9,394.45	8,975.17	8,724.90	42.29	35.89	165.93	-648.00	-3,005.30	4,595.88	4,548.76	47.12	97.532		
9,705.58	9,500.00	9,000.00	8,736.33	42.60	35.99	-95.49	-670.05	-3,005.08	4,614.30	4,566.96	47.34	97.469		
9,800.00	9,594.42	9,000.00	8,736.33	42.86	35.99	-95.49	-670.05	-3,005.08	4,630.95	4,583.53	47.42	97.660		
9,900.00	9,694.42	9,026.49	8,747.45	43.14	36.11	-95.79	-694.08	-3,004.84	4,650.40	4,602.79	47.61	97.669		
10,000.00	9,794.42	9,050.00	8,756.38	43.42	36.22	-96.06	-715.83	-3,004.62	4,671.86	4,624.08	47.78	97.774		
10,100.00	9,894.42	9,050.00	8,756.38	43.71	36.22	-96.06	-715.83	-3,004.62	4,695.19	4,647.36	47.83	98.164		
10,200.00	9,994.42	9,050.00	8,756.38	43.99	36.22	-96.06	-715.83	-3,004.62	4,720.52	4,672.65	47.86	98.623		
10,300.00	10,094.42	9,072.62	8,764.13	44.27	36.32	-96.33	-737.08	-3,004.41	4,747.63	4,699.63	48.00	98.913		
10,342.62	10,137.04	9,076.52	8,765.38	44.39	36.34	-96.37	-740.78	-3,004.37	4,759.78	4,711.76	48.02	99.114		
10,350.00	10,144.42	9,077.20	8,765.59	44.41	36.34	83.95	-741.42	-3,004.37	4,761.91	4,713.89	48.03	99.150		
10,400.00	10,194.33	9,100.00	8,772.37	44.55	36.45	82.19	-763.19	-3,004.15	4,776.49	4,728.35	48.14	99.219		
10,450.00	10,243.80	9,100.00	8,772.37	44.69	36.45	80.72	-763.19	-3,004.15	4,790.78	4,742.63	48.15	99.500		
10,500.00	10,292.45	9,100.00	8,772.37	44.84	36.45	79.27	-763.19	-3,004.15	4,804.87	4,756.71	48.16	99.771		
10,550.00	10,339.93	9,100.00	8,772.37	44.99	36.45	77.86	-763.19	-3,004.15	4,818.67	4,770.50	48.17	100.030		
10,600.00	10,385.86	9,100.00	8,772.37	45.14	36.45	76.51	-763.19	-3,004.15	4,832.06	4,783.87	48.19	100.274		
10,650.00	10,429.89	9,119.05	8,777.37	45.29	36.55	75.06	-781.57	-3,003.96	4,844.80	4,796.50	48.30	100.301		
10,700.00	10,471.70	9,128.17	8,779.54	45.44	36.59	73.78	-790.42	-3,003.88	4,856.92	4,808.55	48.37	100.408		
10,750.00	10,510.96	9,150.00	8,784.17	45.58	36.70	72.51	-811.75	-3,003.66	4,868.33	4,819.83	48.51	100.361		
10,800.00	10,547.37	9,150.00	8,784.17	45.73	36.70	71.50	-811.75	-3,003.66	4,878.76	4,830.21	48.55	100.499		
10,850.00	10,580.66	9,150.00	8,784.17	45.88	36.70	70.58	-811.75	-3,003.66	4,888.32	4,839.73	48.59	100.605		
10,900.00	10,610.58	9,150.00	8,784.17	46.03	36.70	69.75	-811.75	-3,003.66	4,896.94	4,848.30	48.64	100.677		
10,950.00	10,636.89	9,179.36	8,789.11	46.18	36.86	68.92	-840.70	-3,003.37	4,904.20	4,855.35	48.85	100.398		
11,000.00	10,659.39	9,200.00	8,791.69	46.34	36.97	68.26	-861.17	-3,003.17	4,910.49	4,861.47	49.02	100.173		
11,050.00	10,677.93	9,200.00	8,791.69	46.50	36.97	67.80	-861.17	-3,003.17	4,915.49	4,866.39	49.10	100.108		
11,100.00	10,692.34	9,200.00	8,791.69	46.67	36.97	67.44	-861.17	-3,003.17	4,919.36	4,870.17	49.19	99.998		
11,150.00	10,702.53	9,224.35	8,793.79	46.85	37.10	67.17	-885.42	-3,002.93	4,921.80	4,872.38	49.42	99.590		
11,200.00	10,708.41	9,250.00	8,794.88	47.04	37.24	67.04	-911.05	-3,002.67	4,923.10	4,873.44	49.66	99.129		
11,242.62	10,710.00	9,250.00	8,794.88	47.21	37.24	67.05	-911.05	-3,002.67	4,923.02	4,873.25	49.77	98.911		
11,300.00	10,710.00	9,261.55	8,795.00	47.45	37.31	67.05	-922.60	-3,002.55	4,922.64	4,872.65	49.99	98.481		
11,346.19	10,710.00	9,295.76	8,795.00	47.66	37.51	67.05	-956.80	-3,002.21	4,922.61	4,872.31	50.30	97.869		
11,400.00	10,710.00	9,349.57	8,795.00	47.92	37.84	67.05	-1,010.61	-3,001.67	4,922.59	4,871.85	50.75	97.004		
11,500.00	10,710.00	9,449.57	8,795.00	48.43	38.50	67.05	-1,110.60	-3,000.68	4,922.56	4,870.92	51.64	95.321		
11,600.00	10,710.00	9,549.57	8,795.00	49.00	39.22	67.05	-1,210.60	-2,999.68	4,922.54	4,869.92	52.61	93.560		
11,700.00	10,710.00	9,649.57	8,795.00	49.61	40.00	67.05	-1,310.59	-2,998.68	4,922.51	4,868.85	53.66	91.740		
11,800.00	10,710.00	9,749.57	8,795.00	50.27	40.83	67.05	-1,410.59	-2,997.68	4,922.48	4,867.71	54.77	89.877		
11,900.00	10,710.00	9,849.57	8,795.00	50.98	41.72	67.05	-1,510.58	-2,996.68	4,922.45	4,866.51	55.94	87.989		
12,000.00	10,710.00	9,949.57	8,795.00	51.74	42.65	67.05	-1,610.58	-2,995.68	4,922.42	4,865.24	57.18	86.087		
12,100.00	10,710.00	10,049.57	8,795.00	52.54	43.63	67.05	-1,710.57	-2,994.68	4,922.39	4,863.92	58.47	84.186		
12,200.00	10,710.00	10,149.57	8,795.00	53.38	44.65	67.05	-1,810.57	-2,993.68	4,922.36	4,862.55	59.81	82.294		
12,300.00	10,710.00	10,249.57	8,795.00	54.26	45.71	67.05	-1,910.56	-2,992.68	4,922.33	4,861.13	61.21	80.422		
12,400.00	10,710.00	10,349.57	8,795.00	55.18	46.80	67.05	-2,010.56	-2,991.68	4,922.31	4,859.66	62.64	78.575		
12,500.00	10,710.00	10,449.57	8,795.00	56.13	47.93	67.05	-2,110.55	-2,990.68	4,922.28	4,858.15	64.13	76.760		
12,600.00	10,710.00	10,549.57	8,795.00	57.11	49.09	67.05	-2,210.55	-2,989.68	4,922.25	4,856.60	65.65	74.982		
12,700.00	10,710.00	10,649.57	8,795.00	58.13	50.27	67.05	-2,310.54	-2,988.68	4,922.22	4,855.02	67.20	73.243		
12,800.00	10,710.00	10,749.57	8,795.00	59.18	51.49	67.05	-2,410.54	-2,987.68	4,922.19	4,853.39	68.80	71.548		
12,900.00	10,710.00	10,849.57	8,795.00	60.26	52.72	67.05	-2,510.53	-2,986.68	4,922.16	4,851.74	70.42	69.897		
13,000.00	10,710.00	10,949.57	8,795.00	61.36	53.98	67.05	-2,610.53	-2,985.69	4,922.13	4,850.06	72.07	68.293		
13,100.00	10,710.00	11,049.57	8,795.00	62.49	55.26	67.05	-2,710.52	-2,984.69	4,922.10	4,848.35	73.76	66.735		
13,200.00	10,710.00	11,149.57	8,795.00	63.64	56.56	67.05	-2,810.52	-2,983.69	4,922.08	4,846.61	75.46	65.224		
13,300.00	10,710.00	11,249.57	8,795.00	64.81	57.88	67.05	-2,910.51	-2,982.69	4,922.05	4,844.85	77.20	63.760		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka 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				
13,400.00	10,710.00	11,349.57	8,795.00	66.01	59.22	67.05	-3,010.51	-2,981.69	4,922.02	4,843.07	78.95	62.342				
13,500.00	10,710.00	11,449.57	8,795.00	67.22	60.57	67.05	-3,110.50	-2,980.69	4,921.99	4,841.26	80.73	60.969				
13,600.00	10,710.00	11,549.57	8,795.00	68.46	61.93	67.05	-3,210.50	-2,979.69	4,921.96	4,839.43	82.53	59.642				
13,700.00	10,710.00	11,649.57	8,795.00	69.71	63.31	67.05	-3,310.49	-2,978.69	4,921.93	4,837.59	84.34	58.358				
13,800.00	10,710.00	11,749.57	8,795.00	70.98	64.71	67.05	-3,410.49	-2,977.69	4,921.90	4,835.73	86.17	57.116				
13,900.00	10,710.00	11,849.57	8,795.00	72.26	66.11	67.05	-3,510.48	-2,976.69	4,921.87	4,833.85	88.02	55.916				
14,000.00	10,710.00	11,949.57	8,795.00	73.56	67.53	67.05	-3,610.48	-2,975.69	4,921.85	4,831.96	89.88	54.758				
14,100.00	10,710.00	12,049.57	8,795.00	74.87	68.95	67.05	-3,710.47	-2,974.69	4,921.82	4,830.06	91.76	53.637				
14,200.00	10,710.00	12,149.57	8,795.00	76.20	70.39	67.05	-3,810.47	-2,973.69	4,921.79	4,828.14	93.65	52.555				
14,300.00	10,710.00	12,249.57	8,795.00	77.54	71.84	67.05	-3,910.46	-2,972.69	4,921.76	4,826.20	95.55	51.508				
14,400.00	10,710.00	12,349.57	8,795.00	78.89	73.29	67.05	-4,010.46	-2,971.69	4,921.73	4,824.26	97.47	50.495				
14,500.00	10,710.00	12,449.57	8,795.00	80.26	74.75	67.05	-4,110.45	-2,970.70	4,921.70	4,822.31	99.40	49.517				
14,600.00	10,710.00	12,549.57	8,795.00	81.63	76.22	67.05	-4,210.45	-2,969.70	4,921.67	4,820.34	101.33	48.570				
14,700.00	10,710.00	12,649.57	8,795.00	83.01	77.70	67.05	-4,310.44	-2,968.70	4,921.64	4,818.36	103.28	47.654				
14,800.00	10,710.00	12,749.57	8,795.00	84.41	79.19	67.05	-4,410.44	-2,967.70	4,921.61	4,816.38	105.24	46.767				
14,900.00	10,710.00	12,849.57	8,795.00	85.81	80.68	67.05	-4,510.43	-2,966.70	4,921.59	4,814.38	107.20	45.909				
15,000.00	10,710.00	12,949.57	8,795.00	87.22	82.18	67.05	-4,610.43	-2,965.70	4,921.56	4,812.38	109.18	45.079				
15,100.00	10,710.00	13,049.57	8,795.00	88.64	83.68	67.05	-4,710.42	-2,964.70	4,921.53	4,810.37	111.16	44.274				
15,200.00	10,710.00	13,149.57	8,795.00	90.07	85.19	67.05	-4,810.42	-2,963.70	4,921.50	4,808.35	113.15	43.495				
15,300.00	10,710.00	13,249.57	8,795.00	91.51	86.70	67.05	-4,910.41	-2,962.70	4,921.47	4,806.32	115.15	42.741				
15,400.00	10,710.00	13,349.57	8,795.00	92.95	88.22	67.05	-5,010.41	-2,961.70	4,921.44	4,804.29	117.15	42.009				
15,500.00	10,710.00	13,449.57	8,795.00	94.40	89.75	67.04	-5,110.40	-2,960.70	4,921.41	4,802.25	119.16	41.300				
15,600.00	10,710.00	13,549.57	8,795.00	95.86	91.28	67.04	-5,210.40	-2,959.70	4,921.38	4,800.21	121.18	40.613				
15,700.00	10,710.00	13,649.57	8,795.00	97.32	92.81	67.04	-5,310.39	-2,958.70	4,921.36	4,798.16	123.20	39.947				
15,800.00	10,710.00	13,749.57	8,795.00	98.79	94.34	67.04	-5,410.39	-2,957.70	4,921.33	4,796.10	125.22	39.300				
15,900.00	10,710.00	13,849.57	8,795.00	100.27	95.88	67.04	-5,510.38	-2,956.71	4,921.30	4,794.04	127.26	38.673				
16,000.00	10,710.00	13,949.57	8,795.00	101.75	97.43	67.04	-5,610.38	-2,955.71	4,921.27	4,791.98	129.29	38.063				
16,100.00	10,710.00	14,049.57	8,795.00	103.23	98.98	67.04	-5,710.37	-2,954.71	4,921.24	4,789.91	131.33	37.471				
16,200.00	10,710.00	14,149.57	8,795.00	104.73	100.53	67.04	-5,810.37	-2,953.71	4,921.21	4,787.83	133.38	36.896				
16,300.00	10,710.00	14,249.57	8,795.00	106.22	102.08	67.04	-5,910.36	-2,952.71	4,921.18	4,785.75	135.43	36.336				
16,400.00	10,710.00	14,349.57	8,795.00	107.72	103.64	67.04	-6,010.36	-2,951.71	4,921.15	4,783.66	137.49	35.793				
16,500.00	10,710.00	14,449.57	8,795.00	109.23	105.20	67.04	-6,110.35	-2,950.71	4,921.13	4,781.58	139.55	35.264				
16,600.00	10,710.00	14,549.57	8,795.00	110.73	106.76	67.04	-6,210.35	-2,949.71	4,921.10	4,779.49	141.61	34.751				
16,700.00	10,710.00	14,649.57	8,795.00	112.25	108.33	67.04	-6,310.34	-2,948.71	4,921.07	4,777.39	143.68	34.251				
16,800.00	10,710.00	14,749.57	8,795.00	113.76	109.90	67.04	-6,410.34	-2,947.71	4,921.04	4,775.29	145.75	33.765				
16,900.00	10,710.00	14,849.57	8,795.00	115.28	111.47	67.04	-6,510.33	-2,946.71	4,921.01	4,773.19	147.82	33.291				
17,000.00	10,710.00	14,949.57	8,795.00	116.81	113.04	67.04	-6,610.33	-2,945.71	4,920.98	4,771.09	149.89	32.830				
17,100.00	10,710.00	15,049.57	8,795.00	118.34	114.61	67.04	-6,710.32	-2,944.71	4,920.95	4,768.98	151.97	32.381				
17,200.00	10,710.00	15,149.57	8,795.00	119.87	116.19	67.04	-6,810.32	-2,943.71	4,920.92	4,766.87	154.05	31.943				
17,300.00	10,710.00	15,249.57	8,795.00	121.40	117.77	67.04	-6,910.31	-2,942.71	4,920.90	4,764.76	156.14	31.516				
17,400.00	10,710.00	15,349.57	8,795.00	122.94	119.35	67.04	-7,010.31	-2,941.72	4,920.87	4,762.64	158.22	31.101				
17,500.00	10,710.00	15,449.57	8,795.00	124.48	120.93	67.04	-7,110.30	-2,940.72	4,920.84	4,760.52	160.31	30.695				
17,600.00	10,710.00	15,549.57	8,795.00	126.02	122.52	67.04	-7,210.30	-2,939.72	4,920.81	4,758.40	162.41	30.299				
17,700.00	10,710.00	15,649.57	8,795.00	127.57	124.11	67.04	-7,310.29	-2,938.72	4,920.78	4,756.28	164.50	29.913				
17,800.00	10,710.00	15,749.57	8,795.00	129.11	125.69	67.04	-7,410.29	-2,937.72	4,920.75	4,754.15	166.60	29.536				
17,900.00	10,710.00	15,849.57	8,795.00	130.67	127.28	67.04	-7,510.28	-2,936.72	4,920.72	4,752.02	168.70	29.168				
18,000.00	10,710.00	15,949.57	8,795.00	132.22	128.87	67.04	-7,610.28	-2,935.72	4,920.69	4,749.89	170.80	28.809				
18,100.00	10,710.00	16,049.57	8,795.00	133.77	130.47	67.04	-7,710.27	-2,934.72	4,920.66	4,747.76	172.90	28.459				
18,200.00	10,710.00	16,149.57	8,795.00	135.33	132.06	67.04	-7,810.27	-2,933.72	4,920.64	4,745.63	175.01	28.116				
18,300.00	10,710.00	16,249.57	8,795.00	136.89	133.66	67.04	-7,910.26	-2,932.72	4,920.61	4,743.49	177.11	27.782				
18,400.00	10,710.00	16,349.57	8,795.00	138.45	135.26	67.04	-8,010.26	-2,931.72	4,920.58	4,741.36	179.22	27.455				
18,500.00	10,710.00	16,449.57	8,795.00	140.02	136.85	67.04	-8,110.25	-2,930.72	4,920.55	4,739.22	181.33	27.136				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
18,600.00	10,710.00	16,549.57	8,795.00	141.58	138.45	67.04	-8,210.25	-2,929.72	4,920.52	4,737.08	183.44	26.823		
18,700.00	10,710.00	16,649.57	8,795.00	143.15	140.05	67.04	-8,310.24	-2,928.72	4,920.49	4,734.94	185.56	26.517		
18,800.00	10,710.00	16,749.57	8,795.00	144.72	141.66	67.04	-8,410.24	-2,927.72	4,920.46	4,732.79	187.67	26.219		
18,900.00	10,710.00	16,849.57	8,795.00	146.30	143.26	67.04	-8,510.23	-2,926.73	4,920.43	4,730.65	189.79	25.926		
19,000.00	10,710.00	16,949.57	8,795.00	147.87	144.86	67.04	-8,610.23	-2,925.73	4,920.41	4,728.50	191.90	25.640		
19,100.00	10,710.00	17,049.57	8,795.00	149.44	146.47	67.04	-8,710.22	-2,924.73	4,920.38	4,726.35	194.02	25.360		
19,200.00	10,710.00	17,149.57	8,795.00	151.02	148.08	67.04	-8,810.22	-2,923.73	4,920.35	4,724.20	196.14	25.085		
19,300.00	10,710.00	17,249.57	8,795.00	152.60	149.68	67.04	-8,910.21	-2,922.73	4,920.32	4,722.05	198.27	24.817		
19,400.00	10,710.00	17,349.57	8,795.00	154.18	151.29	67.04	-9,010.21	-2,921.73	4,920.29	4,719.90	200.39	24.554		
19,500.00	10,710.00	17,449.57	8,795.00	155.76	152.90	67.04	-9,110.20	-2,920.73	4,920.26	4,717.75	202.51	24.296		
19,600.00	10,710.00	17,549.57	8,795.00	157.34	154.51	67.04	-9,210.20	-2,919.73	4,920.23	4,715.59	204.64	24.043		
19,700.00	10,710.00	17,649.57	8,795.00	158.93	156.12	67.04	-9,310.19	-2,918.73	4,920.20	4,713.44	206.77	23.796		
19,800.00	10,710.00	17,749.57	8,795.00	160.51	157.73	67.04	-9,410.19	-2,917.73	4,920.18	4,711.28	208.90	23.553		
19,900.00	10,710.00	17,849.57	8,795.00	162.10	159.35	67.04	-9,510.18	-2,916.73	4,920.15	4,709.12	211.03	23.315		
20,000.00	10,710.00	17,949.57	8,795.00	163.69	160.96	67.04	-9,610.18	-2,915.73	4,920.12	4,706.96	213.16	23.082		
20,100.00	10,710.00	18,049.57	8,795.00	165.28	162.57	67.04	-9,710.17	-2,914.73	4,920.09	4,704.80	215.29	22.854		
20,200.00	10,710.00	18,149.57	8,795.00	166.87	164.19	67.04	-9,810.17	-2,913.73	4,920.06	4,702.64	217.42	22.630		
20,300.00	10,710.00	18,249.57	8,795.00	168.46	165.80	67.04	-9,910.16	-2,912.73	4,920.03	4,700.48	219.55	22.410		
20,400.00	10,710.00	18,349.57	8,795.00	170.05	167.42	67.04	-10,010.16	-2,911.74	4,920.00	4,698.32	221.68	22.194		
20,500.00	10,710.00	18,449.57	8,795.00	171.65	169.04	67.04	-10,110.15	-2,910.74	4,919.97	4,696.16	223.81	21.982		
20,600.00	10,710.00	18,549.57	8,795.00	173.24	170.65	67.04	-10,210.15	-2,909.74	4,919.95	4,694.00	225.95	21.775		
20,700.00	10,710.00	18,649.57	8,795.00	174.84	172.27	67.04	-10,310.14	-2,908.74	4,919.92	4,691.83	228.08	21.571		
20,800.00	10,710.00	18,749.57	8,795.00	176.44	173.89	67.04	-10,410.14	-2,907.74	4,919.89	4,689.67	230.22	21.370		
20,814.21	10,710.00	18,762.37	8,795.00	176.66	174.10	67.04	-10,422.94	-2,907.61	4,919.88	4,689.38	230.51	21.344		
20,818.71	10,710.00	18,762.37	8,795.00	176.74	174.10	67.04	-10,422.94	-2,907.61	4,919.89	4,689.34	230.55	21.340		
20,819.49	10,710.00	18,762.37	8,795.00	176.80	174.10	67.04	-10,422.94	-2,907.61	4,919.89	4,689.33	230.55	21.339 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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka 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	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				
0.00	0.00	3.70	3.70	0.00	0.00	-90.55	-19.44	-2,020.29	2,020.38							
100.00	100.00	103.70	103.70	0.13	0.14	-90.55	-19.44	-2,020.29	2,020.38	2,020.20	0.19	N/A				
200.00	200.00	203.70	203.70	0.48	0.50	-90.55	-19.44	-2,020.29	2,020.38	2,019.69	0.69	2,911.920				
300.00	300.00	303.70	303.70	0.84	0.86	-90.55	-19.44	-2,020.29	2,020.38	2,019.18	1.20	1,682.587				
400.00	400.00	403.70	403.70	1.20	1.21	-90.55	-19.44	-2,020.29	2,020.38	2,018.68	1.71	1,183.099				
500.00	500.00	503.70	503.70	1.56	1.57	-90.55	-19.44	-2,020.29	2,020.38	2,018.17	2.21	912.279				
600.00	600.00	603.70	603.70	1.92	1.93	-90.55	-19.44	-2,020.29	2,020.38	2,017.66	2.72	742.350				
700.00	700.00	703.70	703.70	2.28	2.29	-90.55	-19.44	-2,020.29	2,020.38	2,017.16	3.23	625.785				
800.00	800.00	803.70	803.70	2.63	2.65	-90.55	-19.44	-2,020.29	2,020.38	2,016.65	3.74	540.859				
900.00	900.00	903.70	903.70	2.99	3.01	-90.55	-19.44	-2,020.29	2,020.38	2,016.14	4.24	476.229				
1,000.00	1,000.00	1,003.70	1,003.70	3.35	3.36	-90.55	-19.44	-2,020.29	2,020.38	2,015.63	4.75	425.396				
1,100.00	1,100.00	1,103.70	1,103.70	3.71	3.72	-90.55	-19.44	-2,020.29	2,020.38	2,015.13	5.26	384.368				
1,200.00	1,200.00	1,203.70	1,203.70	4.07	4.08	-90.55	-19.44	-2,020.29	2,020.38	2,014.62	5.76	350.558				
1,300.00	1,300.00	1,303.70	1,303.70	4.43	4.44	-90.55	-19.44	-2,020.29	2,020.38	2,014.11	6.27	322.216				
1,400.00	1,400.00	1,403.70	1,403.70	4.79	4.80	-90.55	-19.44	-2,020.29	2,020.38	2,013.61	6.78	298.113				
1,500.00	1,500.00	1,503.70	1,503.70	5.14	5.16	-90.55	-19.44	-2,020.29	2,020.38	2,013.10	7.28	277.365				
1,600.00	1,600.00	1,603.70	1,603.70	5.50	5.52	-90.55	-19.44	-2,020.29	2,020.38	2,012.59	7.79	259.318				
1,700.00	1,700.00	1,703.70	1,703.70	5.86	5.87	-90.55	-19.44	-2,020.29	2,020.38	2,012.09	8.30	243.475				
1,800.00	1,800.00	1,803.70	1,803.70	6.22	6.23	-90.55	-19.44	-2,020.29	2,020.38	2,011.58	8.81	229.457				
1,900.00	1,900.00	1,903.70	1,903.70	6.58	6.59	-90.55	-19.44	-2,020.29	2,020.38	2,011.07	9.31	216.965				
2,000.00	2,000.00	2,003.70	2,003.70	6.94	6.95	-90.55	-19.44	-2,020.29	2,020.38	2,010.56	9.82	205.763				
2,100.00	2,100.00	2,103.70	2,103.70	7.29	7.31	-90.55	-19.44	-2,020.29	2,020.38	2,010.06	10.33	195.661				
2,200.00	2,200.00	2,203.70	2,203.70	7.65	7.67	-90.55	-19.44	-2,020.29	2,020.38	2,009.55	10.83	186.505				
2,300.00	2,300.00	2,303.70	2,303.70	8.01	8.03	-90.55	-19.44	-2,020.29	2,020.38	2,009.04	11.34	178.167				
2,400.00	2,400.00	2,403.70	2,403.70	8.37	8.38	-90.55	-19.44	-2,020.29	2,020.38	2,008.54	11.85	170.543				
2,500.00	2,500.00	2,503.70	2,503.70	8.73	8.74	-90.55	-19.44	-2,020.29	2,020.38	2,008.03	12.35	163.544				
2,600.00	2,600.00	2,603.70	2,603.70	9.09	9.10	-90.55	-19.44	-2,020.29	2,020.38	2,007.52	12.86	157.097				
2,700.00	2,700.00	2,703.70	2,703.70	9.45	9.46	-90.55	-19.44	-2,020.29	2,020.38	2,007.02	13.37	151.140				
2,800.00	2,800.00	2,803.70	2,803.70	9.80	9.82	-90.55	-19.44	-2,020.29	2,020.38	2,006.51	13.87	145.617				
2,900.00	2,900.00	2,903.70	2,903.70	10.16	10.18	-90.55	-19.44	-2,020.29	2,020.38	2,006.00	14.38	140.484				
3,000.00	3,000.00	3,003.70	3,003.70	10.52	10.53	-90.55	-19.44	-2,020.29	2,020.38	2,005.50	14.89	135.701				
3,100.00	3,100.00	3,103.70	3,103.70	10.88	10.89	-90.55	-19.44	-2,020.29	2,020.38	2,004.99	15.40	131.232				
3,115.39	3,115.39	3,119.09	3,119.09	10.93	10.95	-90.55	-19.44	-2,020.29	2,020.38	2,004.91	15.47	130.571	CC			
3,200.00	3,200.00	3,203.68	3,203.68	11.24	11.25	-90.55	-19.44	-2,020.29	2,020.38	2,004.48	15.90	127.053				
3,300.00	3,300.00	3,303.15	3,303.14	11.60	11.59	-90.59	-20.83	-2,020.29	2,020.40	2,004.00	16.39	123.240	ES			
3,400.00	3,399.98	3,402.47	3,402.38	11.94	11.91	170.53	-24.80	-2,020.29	2,022.16	2,005.30	16.87	119.893				
3,500.00	3,499.84	3,501.46	3,501.14	12.28	12.23	170.35	-31.33	-2,020.29	2,027.41	2,010.08	17.33	116.972				
3,600.00	3,599.45	3,600.00	3,599.27	12.63	12.55	170.11	-40.36	-2,020.29	2,036.16	2,018.36	17.80	114.394				
3,700.00	3,698.70	3,697.58	3,696.17	12.97	12.87	169.80	-51.80	-2,020.29	2,048.41	2,030.14	18.27	112.137				
3,800.00	3,797.47	3,842.23	3,839.56	13.33	13.36	169.33	-70.81	-2,019.08	2,063.45	2,044.60	18.85	109.477				
3,900.00	3,895.62	4,016.22	4,012.39	13.69	13.96	168.92	-89.47	-2,012.11	2,078.60	2,059.11	19.49	106.646				
4,000.00	3,993.06	4,191.85	4,186.95	14.06	14.57	168.67	-103.27	-1,998.83	2,093.54	2,073.42	20.12	104.031				
4,097.19	4,086.94	4,363.76	4,357.57	14.43	15.18	168.60	-111.84	-1,979.76	2,107.81	2,087.08	20.73	101.699				
4,100.00	4,089.64	4,368.75	4,362.52	14.45	15.19	168.60	-112.02	-1,979.12	2,108.22	2,087.47	20.74	101.632				
4,200.00	4,185.80	4,538.60	4,530.50	14.85	15.80	168.73	-115.54	-1,954.27	2,120.82	2,099.49	21.33	99.412				
4,300.00	4,281.95	4,637.91	4,628.50	15.26	16.16	168.83	-116.37	-1,938.25	2,131.95	2,110.12	21.82	97.687				
4,400.00	4,378.10	4,737.21	4,726.50	15.68	16.53	168.93	-117.20	-1,922.23	2,143.08	2,120.76	22.32	96.024				
4,500.00	4,474.26	4,836.52	4,824.50	16.12	16.90	169.04	-118.03	-1,906.21	2,154.22	2,131.40	22.81	94.422				
4,600.00	4,570.41	4,935.82	4,922.50	16.56	17.27	169.14	-118.86	-1,890.19	2,165.36	2,142.05	23.31	92.877				
4,700.00	4,666.56	5,035.13	5,020.50	17.01	17.65	169.24	-119.69	-1,874.17	2,176.51	2,152.70	23.82	91.388				
4,800.00	4,762.72	5,134.43	5,118.50	17.47	18.03	169.34	-120.52	-1,858.16	2,187.67	2,163.35	24.32	89.952				
4,900.00	4,858.87	5,233.74	5,216.50	17.94	18.41	169.43	-121.35	-1,842.14	2,198.84	2,174.01	24.83	88.567				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,955.02	5,333.04	5,314.50	18.41	18.79	169.53	-122.18	-1,826.12	2,210.01	2,184.67	25.34	87.231		
5,100.00	5,051.18	5,432.35	5,412.50	18.89	19.18	169.63	-123.01	-1,810.10	2,221.18	2,195.34	25.85	85.941		
5,200.00	5,147.33	5,531.65	5,510.51	19.37	19.57	169.72	-123.84	-1,794.08	2,232.37	2,206.01	26.36	84.695		
5,300.00	5,243.48	5,630.96	5,608.51	19.86	19.96	169.82	-124.67	-1,778.06	2,243.56	2,216.69	26.87	83.492		
5,400.00	5,339.63	5,730.26	5,706.51	20.36	20.35	169.91	-125.50	-1,762.04	2,254.75	2,227.37	27.39	82.330		
5,500.00	5,435.79	5,829.57	5,804.51	20.86	20.75	170.00	-126.33	-1,746.02	2,265.95	2,238.05	27.90	81.206		
5,600.00	5,531.94	5,928.87	5,902.51	21.36	21.15	170.09	-127.16	-1,730.01	2,277.16	2,248.74	28.42	80.120		
5,700.00	5,628.09	6,028.18	6,000.51	21.87	21.55	170.18	-127.99	-1,713.99	2,288.37	2,259.43	28.94	79.069		
5,800.00	5,724.25	6,127.48	6,098.51	22.38	21.95	170.27	-128.82	-1,697.97	2,299.59	2,270.13	29.46	78.052		
5,900.00	5,820.40	6,226.79	6,196.51	22.89	22.35	170.36	-129.65	-1,681.95	2,310.81	2,280.83	29.98	77.067		
6,000.00	5,916.55	6,326.09	6,294.51	23.41	22.75	170.45	-130.48	-1,665.93	2,322.04	2,291.54	30.51	76.114		
6,100.00	6,012.71	6,425.40	6,392.51	23.93	23.16	170.54	-131.31	-1,649.91	2,333.28	2,302.25	31.03	75.191		
6,200.00	6,108.86	6,524.70	6,490.51	24.45	23.56	170.62	-132.14	-1,633.89	2,344.52	2,312.96	31.56	74.296		
6,300.00	6,205.01	6,624.01	6,588.51	24.98	23.97	170.71	-132.97	-1,617.87	2,355.76	2,323.68	32.08	73.428		
6,400.00	6,301.17	6,723.31	6,686.51	25.51	24.38	170.79	-133.80	-1,601.86	2,367.01	2,334.40	32.61	72.587		
6,500.00	6,397.32	6,822.61	6,784.52	26.04	24.79	170.88	-134.63	-1,585.84	2,378.27	2,345.13	33.14	71.771		
6,600.00	6,493.47	6,921.92	6,882.52	26.57	25.20	170.96	-135.46	-1,569.82	2,389.53	2,355.86	33.67	70.979		
6,700.00	6,589.63	7,000.00	6,959.59	27.11	25.52	171.02	-136.11	-1,557.36	2,401.02	2,366.87	34.15	70.299		
6,800.00	6,685.78	7,061.54	7,020.48	27.65	25.77	171.08	-136.57	-1,548.43	2,413.93	2,379.32	34.61	69.755		
6,900.00	6,781.93	7,122.09	7,080.52	28.19	26.01	171.13	-136.97	-1,540.60	2,428.41	2,393.36	35.05	69.290		
7,000.00	6,878.09	7,200.00	7,157.94	28.73	26.32	171.20	-137.42	-1,531.92	2,444.56	2,409.04	35.52	68.815		
7,100.00	6,974.24	7,242.28	7,200.02	29.27	26.48	171.23	-137.63	-1,527.88	2,462.06	2,426.15	35.90	68.574		
7,200.00	7,070.39	7,300.00	7,257.55	29.81	26.70	171.28	-137.88	-1,523.11	2,481.20	2,444.88	36.31	68.327		
7,300.00	7,166.55	7,361.05	7,318.46	30.36	26.92	171.34	-138.09	-1,519.00	2,501.86	2,465.14	36.72	68.126		
7,400.00	7,262.70	7,400.00	7,357.35	30.90	27.06	171.38	-138.20	-1,516.90	2,524.17	2,487.12	37.06	68.118		
7,500.00	7,358.85	7,478.22	7,435.51	31.45	27.34	171.45	-138.36	-1,513.86	2,547.72	2,510.21	37.51	67.926		
7,600.00	7,455.00	7,536.14	7,493.42	32.00	27.54	171.50	-138.42	-1,512.64	2,572.87	2,534.99	37.88	67.913		
7,700.00	7,551.16	7,597.58	7,554.86	32.55	27.75	171.56	-138.44	-1,512.29	2,599.48	2,561.21	38.27	67.930		
7,800.00	7,647.31	7,693.73	7,651.01	33.10	28.07	171.64	-138.44	-1,512.29	2,626.68	2,587.90	38.77	67.744		
7,900.00	7,743.46	7,789.89	7,747.16	33.66	28.40	171.73	-138.44	-1,512.29	2,653.88	2,614.60	39.28	67.562		
8,000.00	7,839.62	7,886.04	7,843.32	34.21	28.72	171.82	-138.44	-1,512.29	2,681.09	2,641.30	39.79	67.384		
8,100.00	7,935.77	7,982.19	7,939.47	34.76	29.05	171.90	-138.44	-1,512.29	2,708.30	2,668.00	40.30	67.210		
8,200.00	8,031.92	8,078.35	8,035.62	35.32	29.37	171.98	-138.44	-1,512.29	2,735.52	2,694.71	40.80	67.039		
8,300.00	8,128.08	8,174.50	8,131.78	35.88	29.70	172.06	-138.44	-1,512.29	2,762.74	2,721.43	41.31	66.872		
8,400.00	8,224.23	8,271.69	8,228.97	36.43	30.03	172.14	-138.48	-1,512.29	2,789.97	2,748.14	41.83	66.702		
8,500.00	8,320.38	8,368.18	8,340.60	36.99	30.40	171.96	-150.84	-1,512.17	2,816.88	2,774.48	42.40	66.432		
8,600.00	8,416.54	8,469.96	8,441.48	37.55	30.76	171.39	-182.13	-1,511.86	2,843.39	2,800.42	42.97	66.173		
8,700.00	8,512.69	8,563.39	8,524.50	38.11	31.06	170.58	-224.77	-1,511.44	2,870.00	2,826.50	43.50	65.971		
8,800.00	8,608.84	8,662.51	8,588.60	38.67	31.32	169.69	-271.03	-1,510.98	2,897.31	2,853.31	43.99	65.860		
8,908.39	8,713.06	8,732.93	8,639.83	39.28	31.56	168.75	-319.30	-1,510.50	2,928.35	2,883.89	44.46	65.864		
9,000.00	8,801.54	8,781.85	8,671.73	39.78	31.73	168.14	-356.34	-1,510.14	2,954.78	2,909.98	44.80	65.956		
9,100.00	8,898.92	8,826.09	8,697.79	40.28	31.89	167.57	-392.09	-1,509.79	2,982.49	2,937.38	45.11	66.119		
9,200.00	8,997.05	8,862.53	8,717.12	40.76	32.03	167.10	-422.97	-1,509.48	3,009.24	2,963.88	45.36	66.348		
9,300.00	9,095.78	8,900.00	8,734.91	41.19	32.18	166.59	-455.94	-1,509.16	3,035.24	2,989.66	45.58	66.588		
9,400.00	9,195.00	8,917.84	8,742.61	41.59	32.25	166.40	-472.03	-1,509.00	3,060.57	3,014.90	45.67	67.017		
9,500.00	9,294.60	8,950.00	8,755.22	41.96	32.39	165.96	-501.61	-1,508.70	3,085.41	3,039.61	45.80	67.362		
9,600.00	9,394.45	8,950.00	8,755.22	42.29	32.39	166.08	-501.61	-1,508.70	3,109.70	3,063.99	45.71	68.026		
9,705.58	9,500.00	8,972.72	8,763.11	42.60	32.50	-95.42	-522.91	-1,508.49	3,134.87	3,089.15	45.72	68.570		
9,800.00	9,594.42	9,000.00	8,771.47	42.86	32.63	-95.91	-548.88	-1,508.24	3,158.53	3,112.80	45.73	69.062		
9,900.00	9,694.42	9,000.00	8,771.47	43.14	32.63	-95.91	-548.88	-1,508.24	3,186.17	3,140.61	45.56	69.938		
10,000.00	9,794.42	9,000.00	8,771.47	43.42	32.63	-95.91	-548.88	-1,508.24	3,216.68	3,171.32	45.36	70.915		
10,100.00	9,894.42	9,000.00	8,771.47	43.71	32.63	-95.91	-548.88	-1,508.24	3,249.97	3,204.83	45.15	71.988		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
10,200.00	9,994.42	9,023.67	8,777.71	43.99	32.74	-96.34	-571.71	-1,508.01	3,285.71	3,240.64	45.06	72.911		
10,300.00	10,094.42	9,030.91	8,779.43	44.27	32.78	-96.47	-578.74	-1,507.94	3,324.12	3,279.25	44.87	74.084		
10,342.62	10,137.04	9,050.00	8,783.54	44.39	32.87	-96.82	-597.38	-1,507.76	3,341.39	3,296.51	44.88	74.453		
10,350.00	10,144.42	9,050.00	8,783.54	44.41	32.87	83.41	-597.38	-1,507.76	3,344.39	3,299.53	44.86	74.551		
10,400.00	10,194.33	9,050.00	8,783.54	44.55	32.87	81.20	-597.38	-1,507.76	3,364.78	3,320.05	44.73	75.222		
10,450.00	10,243.80	9,050.00	8,783.54	44.69	32.87	79.00	-597.38	-1,507.76	3,385.18	3,340.58	44.60	75.901		
10,500.00	10,292.45	9,050.00	8,783.54	44.84	32.87	76.83	-597.38	-1,507.76	3,405.44	3,360.97	44.47	76.583		
10,550.00	10,339.93	9,050.00	8,783.54	44.99	32.87	74.72	-597.38	-1,507.76	3,425.40	3,381.07	44.34	77.262		
10,600.00	10,385.86	9,050.00	8,783.54	45.14	32.87	72.69	-597.38	-1,507.76	3,444.93	3,400.72	44.20	77.933		
10,650.00	10,429.89	9,070.81	8,787.31	45.29	32.98	70.48	-617.84	-1,507.56	3,463.63	3,419.43	44.19	78.373		
10,700.00	10,471.70	9,079.32	8,788.64	45.44	33.02	68.57	-626.25	-1,507.47	3,481.61	3,437.49	44.12	78.919		
10,750.00	10,510.96	9,100.00	8,791.34	45.58	33.13	66.67	-646.75	-1,507.27	3,498.72	3,454.61	44.11	79.318		
10,800.00	10,547.37	9,100.00	8,791.34	45.73	33.13	65.14	-646.75	-1,507.27	3,514.60	3,470.60	44.00	79.882		
10,850.00	10,580.66	9,100.00	8,791.34	45.88	33.13	63.74	-646.75	-1,507.27	3,529.37	3,485.47	43.89	80.407		
10,900.00	10,610.58	9,100.00	8,791.34	46.03	33.13	62.49	-646.75	-1,507.27	3,542.94	3,499.14	43.80	80.885		
10,950.00	10,636.89	9,128.44	8,793.85	46.18	33.28	61.20	-675.07	-1,506.99	3,554.75	3,510.87	43.87	81.025		
11,000.00	10,659.39	9,150.00	8,794.81	46.34	33.40	60.14	-696.61	-1,506.78	3,565.30	3,521.38	43.92	81.185		
11,050.00	10,677.93	9,150.00	8,794.81	46.50	33.40	59.37	-696.61	-1,506.78	3,574.11	3,530.25	43.87	81.479		
11,100.00	10,692.34	9,164.76	8,795.00	46.67	33.48	58.69	-711.37	-1,506.63	3,581.35	3,537.44	43.91	81.569		
11,150.00	10,702.53	9,199.08	8,795.00	46.85	33.68	58.14	-745.69	-1,506.29	3,586.73	3,542.67	44.06	81.406		
11,200.00	10,708.41	9,248.72	8,795.00	47.04	33.98	57.79	-795.32	-1,505.80	3,589.86	3,545.53	44.33	80.987		
11,242.62	10,710.00	9,291.29	8,795.00	47.21	34.25	57.70	-837.89	-1,505.38	3,590.70	3,546.12	44.58	80.554		
11,300.00	10,710.00	9,348.68	8,795.00	47.45	34.64	57.70	-895.28	-1,504.82	3,590.69	3,545.74	44.95	79.881		
11,400.00	10,710.00	9,448.68	8,795.00	47.92	35.36	57.70	-995.27	-1,503.83	3,590.67	3,545.01	45.66	78.632		
11,500.00	10,710.00	9,548.68	8,795.00	48.43	36.13	57.70	-1,095.27	-1,502.84	3,590.66	3,544.20	46.46	77.287		
11,600.00	10,710.00	9,648.68	8,795.00	49.00	36.97	57.70	-1,195.26	-1,501.86	3,590.64	3,543.31	47.33	75.866		
11,700.00	10,710.00	9,748.68	8,795.00	49.61	37.86	57.70	-1,295.26	-1,500.87	3,590.62	3,542.35	48.27	74.384		
11,800.00	10,710.00	9,848.68	8,795.00	50.27	38.80	57.70	-1,395.25	-1,499.88	3,590.61	3,541.33	49.28	72.859		
11,900.00	10,710.00	9,948.68	8,795.00	50.98	39.78	57.70	-1,495.25	-1,498.89	3,590.59	3,540.24	50.36	71.305		
12,000.00	10,710.00	10,048.68	8,795.00	51.74	40.81	57.70	-1,595.24	-1,497.91	3,590.58	3,539.09	51.49	69.735		
12,100.00	10,710.00	10,148.68	8,795.00	52.54	41.88	57.70	-1,695.24	-1,496.92	3,590.56	3,537.88	52.68	68.160		
12,200.00	10,710.00	10,248.68	8,795.00	53.38	42.99	57.70	-1,795.23	-1,495.93	3,590.54	3,536.62	53.92	66.590		
12,300.00	10,710.00	10,348.68	8,795.00	54.26	44.12	57.70	-1,895.23	-1,494.95	3,590.53	3,535.32	55.21	65.033		
12,400.00	10,710.00	10,448.68	8,795.00	55.18	45.29	57.70	-1,995.22	-1,493.96	3,590.51	3,533.96	56.55	63.497		
12,500.00	10,710.00	10,548.68	8,795.00	56.13	46.49	57.70	-2,095.22	-1,492.97	3,590.49	3,532.57	57.92	61.986		
12,600.00	10,710.00	10,648.68	8,795.00	57.11	47.72	57.70	-2,195.21	-1,491.98	3,590.48	3,531.14	59.34	60.508		
12,700.00	10,710.00	10,748.68	8,795.00	58.13	48.97	57.70	-2,295.21	-1,491.00	3,590.46	3,529.67	60.79	59.063		
12,800.00	10,710.00	10,848.68	8,795.00	59.18	50.25	57.70	-2,395.20	-1,490.01	3,590.45	3,528.17	62.27	57.655		
12,900.00	10,710.00	10,948.68	8,795.00	60.26	51.54	57.70	-2,495.20	-1,489.02	3,590.43	3,526.64	63.79	56.285		
13,000.00	10,710.00	11,048.68	8,795.00	61.36	52.86	57.70	-2,595.19	-1,488.04	3,590.41	3,525.08	65.34	54.954		
13,100.00	10,710.00	11,148.68	8,795.00	62.49	54.19	57.70	-2,695.19	-1,487.05	3,590.40	3,523.49	66.91	53.662		
13,200.00	10,710.00	11,248.68	8,795.00	63.64	55.54	57.70	-2,795.18	-1,486.06	3,590.38	3,521.88	68.51	52.410		
13,300.00	10,710.00	11,348.68	8,795.00	64.81	56.91	57.70	-2,895.18	-1,485.07	3,590.37	3,520.24	70.13	51.198		
13,400.00	10,710.00	11,448.68	8,795.00	66.01	58.29	57.70	-2,995.17	-1,484.09	3,590.35	3,518.58	71.77	50.026		
13,500.00	10,710.00	11,548.68	8,795.00	67.22	59.68	57.70	-3,095.17	-1,483.10	3,590.33	3,516.90	73.43	48.892		
13,600.00	10,710.00	11,648.68	8,795.00	68.46	61.09	57.70	-3,195.16	-1,482.11	3,590.32	3,515.20	75.12	47.797		
13,700.00	10,710.00	11,748.68	8,795.00	69.71	62.51	57.70	-3,295.16	-1,481.12	3,590.30	3,513.48	76.82	46.738		
13,800.00	10,710.00	11,848.68	8,795.00	70.98	63.94	57.70	-3,395.15	-1,480.14	3,590.28	3,511.75	78.54	45.716		
13,900.00	10,710.00	11,948.68	8,795.00	72.26	65.38	57.70	-3,495.15	-1,479.15	3,590.27	3,510.00	80.27	44.728		
14,000.00	10,710.00	12,048.68	8,795.00	73.56	66.83	57.70	-3,595.14	-1,478.16	3,590.25	3,508.24	82.02	43.775		
14,100.00	10,710.00	12,148.68	8,795.00	74.87	68.29	57.70	-3,695.14	-1,477.18	3,590.24	3,506.46	83.78	42.854		
14,200.00	10,710.00	12,248.68	8,795.00	76.20	69.76	57.70	-3,795.14	-1,476.19	3,590.22	3,504.67	85.55	41.965		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka 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						
14,300.00	10,710.00	12,348.68	8,795.00	77.54	71.24	57.69	-3,895.13	-1,475.20	3,590.20	3,502.87	87.34	41.107						
14,400.00	10,710.00	12,448.68	8,795.00	78.89	72.72	57.69	-3,995.13	-1,474.21	3,590.19	3,501.05	89.13	40.279						
14,500.00	10,710.00	12,548.68	8,795.00	80.26	74.22	57.69	-4,095.12	-1,473.23	3,590.17	3,499.23	90.94	39.479						
14,600.00	10,710.00	12,648.68	8,795.00	81.63	75.71	57.69	-4,195.12	-1,472.24	3,590.15	3,497.40	92.76	38.705						
14,700.00	10,710.00	12,748.68	8,795.00	83.01	77.22	57.69	-4,295.11	-1,471.25	3,590.14	3,495.55	94.58	37.957						
14,800.00	10,710.00	12,848.68	8,795.00	84.41	78.73	57.69	-4,395.11	-1,470.26	3,590.12	3,493.70	96.42	37.234						
14,900.00	10,710.00	12,948.68	8,795.00	85.81	80.24	57.69	-4,495.10	-1,469.28	3,590.11	3,491.84	98.26	36.536						
15,000.00	10,710.00	13,048.68	8,795.00	87.22	81.76	57.69	-4,595.10	-1,468.29	3,590.09	3,489.98	100.11	35.860						
15,100.00	10,710.00	13,148.68	8,795.00	88.64	83.29	57.69	-4,695.09	-1,467.30	3,590.07	3,488.10	101.97	35.207						
15,200.00	10,710.00	13,248.68	8,795.00	90.07	84.82	57.69	-4,795.09	-1,466.32	3,590.06	3,486.22	103.83	34.575						
15,300.00	10,710.00	13,348.68	8,795.00	91.51	86.35	57.69	-4,895.08	-1,465.33	3,590.04	3,484.34	105.71	33.962						
15,400.00	10,710.00	13,448.68	8,795.00	92.95	87.89	57.69	-4,995.08	-1,464.34	3,590.03	3,482.44	107.58	33.369						
15,500.00	10,710.00	13,548.68	8,795.00	94.40	89.44	57.69	-5,095.07	-1,463.35	3,590.01	3,480.54	109.47	32.795						
15,600.00	10,710.00	13,648.68	8,795.00	95.86	90.98	57.69	-5,195.07	-1,462.37	3,589.99	3,478.64	111.36	32.238						
15,700.00	10,710.00	13,748.68	8,795.00	97.32	92.53	57.69	-5,295.06	-1,461.38	3,589.98	3,476.72	113.25	31.699						
15,800.00	10,710.00	13,848.68	8,795.00	98.79	94.09	57.69	-5,395.06	-1,460.39	3,589.96	3,474.81	115.15	31.176						
15,900.00	10,710.00	13,948.68	8,795.00	100.27	95.65	57.69	-5,495.05	-1,459.41	3,589.94	3,472.89	117.06	30.668						
16,000.00	10,710.00	14,048.68	8,795.00	101.75	97.21	57.69	-5,595.05	-1,458.42	3,589.93	3,470.96	118.97	30.176						
16,100.00	10,710.00	14,148.68	8,795.00	103.23	98.77	57.69	-5,695.04	-1,457.43	3,589.91	3,469.03	120.88	29.699						
16,200.00	10,710.00	14,248.68	8,795.00	104.73	100.34	57.69	-5,795.04	-1,456.44	3,589.90	3,467.10	122.79	29.235						
16,300.00	10,710.00	14,348.68	8,795.00	106.22	101.90	57.69	-5,895.03	-1,455.46	3,589.88	3,465.17	124.71	28.785						
16,400.00	10,710.00	14,448.68	8,795.00	107.72	103.48	57.69	-5,995.03	-1,454.47	3,589.86	3,463.22	126.64	28.347						
16,500.00	10,710.00	14,548.68	8,795.00	109.23	105.05	57.69	-6,095.02	-1,453.48	3,589.85	3,461.28	128.57	27.922						
16,600.00	10,710.00	14,648.68	8,795.00	110.73	106.63	57.69	-6,195.02	-1,452.49	3,589.83	3,459.33	130.50	27.508						
16,700.00	10,710.00	14,748.68	8,795.00	112.25	108.20	57.69	-6,295.01	-1,451.51	3,589.81	3,457.38	132.43	27.106						
16,800.00	10,710.00	14,848.68	8,795.00	113.76	109.79	57.69	-6,395.01	-1,450.52	3,589.80	3,455.43	134.37	26.716						
16,900.00	10,710.00	14,948.68	8,795.00	115.28	111.37	57.69	-6,495.00	-1,449.53	3,589.78	3,453.47	136.31	26.335						
17,000.00	10,710.00	15,048.68	8,795.00	116.81	112.95	57.69	-6,595.00	-1,448.55	3,589.77	3,451.51	138.25	25.965						
17,100.00	10,710.00	15,148.68	8,795.00	118.34	114.54	57.69	-6,694.99	-1,447.56	3,589.75	3,449.55	140.20	25.605						
17,200.00	10,710.00	15,248.68	8,795.00	119.87	116.13	57.69	-6,794.99	-1,446.57	3,589.73	3,447.59	142.15	25.254						
17,300.00	10,710.00	15,348.68	8,795.00	121.40	117.72	57.69	-6,894.98	-1,445.58	3,589.72	3,445.62	144.10	24.912						
17,400.00	10,710.00	15,448.68	8,795.00	122.94	119.31	57.69	-6,994.98	-1,444.60	3,589.70	3,443.65	146.05	24.579						
17,500.00	10,710.00	15,548.68	8,795.00	124.48	120.90	57.69	-7,094.97	-1,443.61	3,589.69	3,441.68	148.01	24.254						
17,600.00	10,710.00	15,648.68	8,795.00	126.02	122.50	57.69	-7,194.97	-1,442.62	3,589.67	3,439.71	149.96	23.937						
17,700.00	10,710.00	15,748.68	8,795.00	127.57	124.09	57.69	-7,294.96	-1,441.64	3,589.65	3,437.73	151.92	23.629						
17,800.00	10,710.00	15,848.68	8,795.00	129.11	125.69	57.69	-7,394.96	-1,440.65	3,589.64	3,435.76	153.88	23.328						
17,900.00	10,710.00	15,948.68	8,795.00	130.67	127.29	57.69	-7,494.95	-1,439.66	3,589.62	3,433.78	155.84	23.034						
18,000.00	10,710.00	16,048.68	8,795.00	132.22	128.89	57.69	-7,594.95	-1,438.67	3,589.60	3,431.80	157.80	22.747						
18,100.00	10,710.00	16,148.68	8,795.00	133.77	130.49	57.69	-7,694.95	-1,437.69	3,589.59	3,429.82	159.77	22.467						
18,200.00	10,710.00	16,248.68	8,795.00	135.33	132.10	57.69	-7,794.94	-1,436.70	3,589.57	3,427.83	161.74	22.193						
18,300.00	10,710.00	16,348.68	8,795.00	136.89	133.70	57.69	-7,894.94	-1,435.71	3,589.56	3,425.84	163.71	21.926						
18,400.00	10,710.00	16,448.68	8,795.00	138.45	135.31	57.69	-7,994.93	-1,434.72	3,589.54	3,423.86	165.68	21.665						
18,500.00	10,710.00	16,548.68	8,795.00	140.02	136.91	57.69	-8,094.93	-1,433.74	3,589.52	3,421.87	167.65	21.410						
18,600.00	10,710.00	16,648.68	8,795.00	141.58	138.52	57.69	-8,194.92	-1,432.75	3,589.51	3,419.88	169.63	21.161						
18,700.00	10,710.00	16,748.68	8,795.00	143.15	140.13	57.69	-8,294.92	-1,431.76	3,589.49	3,417.89	171.60	20.918						
18,800.00	10,710.00	16,848.68	8,795.00	144.72	141.74	57.69	-8,394.91	-1,430.78	3,589.47	3,415.90	173.58	20.680						
18,900.00	10,710.00	16,948.68	8,795.00	146.30	143.35	57.69	-8,494.91	-1,429.79	3,589.46	3,413.91	175.55	20.447						
19,000.00	10,710.00	17,048.68	8,795.00	147.87	144.96	57.69	-8,594.90	-1,428.80	3,589.44	3,411.91	177.53	20.219						
19,100.00	10,710.00	17,148.68	8,795.00	149.44	146.57	57.69	-8,694.90	-1,427.81	3,589.43	3,409.92	179.51	19.996						
19,200.00	10,710.00	17,248.68	8,795.00	151.02	148.18	57.69	-8,794.89	-1,426.83	3,589.41	3,407.92	181.49	19.777						
19,300.00	10,710.00	17,348.68	8,795.00	152.60	149.80	57.69	-8,894.89	-1,425.84	3,589.39	3,405.92	183.47	19.564						
19,400.00	10,710.00	17,448.68	8,795.00	154.18	151.41	57.69	-8,994.88	-1,424.85	3,589.38	3,403.92	185.45	19.355						

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka 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				
19,500.00	10,710.00	17,548.68	8,795.00	155.76	153.03	57.69	-9,094.88	-1,423.87	3,589.36	3,401.93	187.44	19.150				
19,600.00	10,710.00	17,648.68	8,795.00	157.34	154.64	57.69	-9,194.87	-1,422.88	3,589.35	3,399.93	189.42	18.949				
19,700.00	10,710.00	17,748.68	8,795.00	158.93	156.26	57.69	-9,294.87	-1,421.89	3,589.33	3,397.92	191.40	18.753				
19,800.00	10,710.00	17,848.68	8,795.00	160.51	157.88	57.69	-9,394.86	-1,420.90	3,589.31	3,395.92	193.39	18.560				
19,900.00	10,710.00	17,948.68	8,795.00	162.10	159.50	57.69	-9,494.86	-1,419.92	3,589.30	3,393.92	195.38	18.371				
20,000.00	10,710.00	18,048.68	8,795.00	163.69	161.12	57.69	-9,594.85	-1,418.93	3,589.28	3,391.92	197.36	18.186				
20,100.00	10,710.00	18,148.68	8,795.00	165.28	162.74	57.69	-9,694.85	-1,417.94	3,589.26	3,389.91	199.35	18.005				
20,200.00	10,710.00	18,248.68	8,795.00	166.87	164.36	57.69	-9,794.84	-1,416.95	3,589.25	3,387.91	201.34	17.827				
20,300.00	10,710.00	18,348.68	8,795.00	168.46	165.98	57.69	-9,894.84	-1,415.97	3,589.23	3,385.90	203.33	17.652				
20,400.00	10,710.00	18,448.68	8,795.00	170.05	167.60	57.68	-9,994.83	-1,414.98	3,589.22	3,383.90	205.32	17.481				
20,500.00	10,710.00	18,548.68	8,795.00	171.65	169.22	57.68	-10,094.83	-1,413.99	3,589.20	3,381.89	207.31	17.313				
20,600.00	10,710.00	18,648.68	8,795.00	173.24	170.84	57.68	-10,194.82	-1,413.01	3,589.18	3,379.88	209.30	17.149				
20,700.00	10,710.00	18,748.68	8,795.00	174.84	172.47	57.68	-10,294.82	-1,412.02	3,589.17	3,377.88	211.29	16.987				
20,800.00	10,710.00	18,848.68	8,795.00	176.44	174.09	57.68	-10,394.81	-1,411.03	3,589.15	3,375.87	213.28	16.828				
20,814.88	10,710.00	18,862.99	8,795.00	176.68	174.32	57.68	-10,409.12	-1,410.89	3,589.15	3,375.58	213.57	16.805				
20,818.71	10,710.00	18,862.99	8,795.00	176.74	174.32	57.68	-10,409.12	-1,410.89	3,589.15	3,375.56	213.59	16.804 SF				
20,819.49	10,710.00	18,862.99	8,795.00	176.80	174.32	57.68	-10,409.12	-1,410.89	3,589.15	3,375.57	213.58	16.804				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		Tatanka Fed Com - Tatanka Fed Com 103H - OH - Plan #1											Offset Site Error:	0.00 usft
Survey Program:		0-OWSG (Rev2) MWD											Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)			
0.00	0.00	1.00	1.00	0.00	0.00	89.45	0.24	24.99	24.99					
100.00	100.00	101.00	101.00	0.13	0.13	89.45	0.24	24.99	24.99	24.81	0.18	138.850		
200.00	200.00	201.00	201.00	0.48	0.49	89.45	0.24	24.99	24.99	24.30	0.69	36.381		
300.00	300.00	301.00	301.00	0.84	0.85	89.45	0.24	24.99	24.99	23.80	1.19	20.933		
400.00	400.00	401.00	401.00	1.20	1.20	89.45	0.24	24.99	24.99	23.29	1.70	14.693		
500.00	500.00	501.00	501.00	1.56	1.56	89.45	0.24	24.99	24.99	22.78	2.21	11.320		
600.00	600.00	601.00	601.00	1.92	1.92	89.45	0.24	24.99	24.99	22.28	2.71	9.206		
700.00	700.00	701.00	701.00	2.28	2.28	89.45	0.24	24.99	24.99	21.77	3.22	7.757		
800.00	800.00	801.00	801.00	2.63	2.64	89.45	0.24	24.99	24.99	21.26	3.73	6.702		
900.00	900.00	901.00	901.00	2.99	3.00	89.45	0.24	24.99	24.99	20.76	4.24	5.900		
1,000.00	1,000.00	1,001.00	1,001.00	3.35	3.36	89.45	0.24	24.99	24.99	20.25	4.74	5.270		
1,100.00	1,100.00	1,101.00	1,101.00	3.71	3.71	89.45	0.24	24.99	24.99	19.74	5.25	4.761		
1,200.00	1,200.00	1,201.00	1,201.00	4.07	4.07	89.45	0.24	24.99	24.99	19.23	5.76	4.341		
1,300.00	1,300.00	1,301.00	1,301.00	4.43	4.43	89.45	0.24	24.99	24.99	18.73	6.26	3.990		
1,400.00	1,400.00	1,401.00	1,401.00	4.79	4.79	89.45	0.24	24.99	24.99	18.22	6.77	3.691		
1,500.00	1,500.00	1,501.00	1,501.00	5.14	5.15	89.45	0.24	24.99	24.99	17.71	7.28	3.434		
1,600.00	1,600.00	1,601.00	1,601.00	5.50	5.51	89.45	0.24	24.99	24.99	17.21	7.78	3.210		
1,700.00	1,700.00	1,701.00	1,701.00	5.86	5.86	89.45	0.24	24.99	24.99	16.70	8.29	3.014		
1,800.00	1,800.00	1,801.00	1,801.00	6.22	6.22	89.45	0.24	24.99	24.99	16.19	8.80	2.840		
1,900.00	1,900.00	1,901.00	1,901.00	6.58	6.58	89.45	0.24	24.99	24.99	15.69	9.31	2.686		
2,000.00	2,000.00	2,001.00	2,001.00	6.94	6.94	89.45	0.24	24.99	24.99	15.18	9.81	2.547		
2,100.00	2,100.00	2,101.00	2,101.00	7.29	7.30	89.45	0.24	24.99	24.99	14.67	10.32	2.422		
2,200.00	2,200.00	2,201.00	2,201.00	7.65	7.66	89.45	0.24	24.99	24.99	14.17	10.83	2.308		
2,300.00	2,300.00	2,301.00	2,301.00	8.01	8.02	89.45	0.24	24.99	24.99	13.66	11.33	2.205		
2,400.00	2,400.00	2,401.00	2,401.00	8.37	8.37	89.45	0.24	24.99	24.99	13.15	11.84	2.111		
2,500.00	2,500.00	2,501.00	2,501.00	8.73	8.73	89.45	0.24	24.99	24.99	12.64	12.35	2.024		
2,600.00	2,600.00	2,601.00	2,601.00	9.09	9.09	89.45	0.24	24.99	24.99	12.14	12.85	1.944		
2,700.00	2,700.00	2,701.00	2,701.00	9.45	9.45	89.45	0.24	24.99	24.99	11.63	13.36	1.870		
2,800.00	2,800.00	2,801.00	2,801.00	9.80	9.81	89.45	0.24	24.99	24.99	11.12	13.87	1.802		
2,900.00	2,900.00	2,901.00	2,901.00	10.16	10.17	89.45	0.24	24.99	24.99	10.62	14.37	1.739		
3,000.00	3,000.00	3,001.00	3,001.00	10.52	10.52	89.45	0.24	24.99	24.99	10.11	14.88	1.679		
3,024.31	3,024.31	3,025.31	3,025.31	10.61	10.61	89.64	0.16	24.99	24.99	9.99	15.00	1.666 CC		
3,100.00	3,100.00	3,100.98	3,100.97	10.88	10.86	92.51	-1.09	25.00	25.02	9.65	15.38	1.627 ES		
3,200.00	3,200.00	3,200.82	3,200.73	11.24	11.19	101.38	-5.04	25.02	25.53	9.67	15.85	1.610 SF		
3,300.00	3,300.00	3,300.39	3,300.08	11.60	11.51	114.77	-11.56	25.06	27.62	11.30	16.32	1.692		
3,400.00	3,399.98	3,399.55	3,398.83	11.94	11.84	32.22	-20.64	25.12	31.10	14.34	16.75	1.856		
3,500.00	3,499.84	3,498.15	3,496.74	12.28	12.16	50.51	-32.20	25.19	36.34	19.21	17.13	2.121		
3,600.00	3,599.45	3,596.70	3,594.35	12.63	12.49	67.88	-45.75	25.28	44.86	27.30	17.56	2.555		
3,700.00	3,698.70	3,695.25	3,691.95	12.97	12.83	82.46	-59.46	25.36	55.79	37.75	18.04	3.092		
3,800.00	3,797.47	3,793.40	3,789.14	13.33	13.17	94.60	-73.11	25.45	69.39	50.84	18.54	3.742		
3,900.00	3,895.62	3,891.03	3,885.82	13.69	13.51	104.65	-86.69	25.53	85.96	66.90	19.06	4.511		
4,000.00	3,993.06	3,988.01	3,981.86	14.06	13.86	112.93	-100.18	25.62	105.71	86.14	19.57	5.401		
4,097.19	4,086.94	4,081.53	4,074.47	14.43	14.19	119.57	-113.19	25.70	128.05	107.98	20.07	6.379		
4,100.00	4,089.64	4,084.23	4,077.14	14.45	14.20	119.76	-113.56	25.70	128.75	108.66	20.09	6.409		
4,200.00	4,185.80	4,180.93	4,172.92	14.85	14.55	125.36	-126.88	25.78	153.99	133.38	20.62	7.470		
4,300.00	4,281.95	4,279.76	4,271.06	15.26	14.91	129.95	-138.55	25.86	179.02	157.86	21.16	8.461		
4,400.00	4,378.10	4,378.90	4,369.77	15.68	15.26	133.99	-147.71	25.91	203.37	181.69	21.69	9.378		
4,500.00	4,474.26	4,478.22	4,468.86	16.12	15.61	137.71	-154.30	25.96	227.12	204.91	22.21	10.227		
4,600.00	4,570.41	4,577.57	4,568.14	16.56	15.96	141.24	-158.32	25.98	250.36	227.64	22.72	11.022		
4,700.00	4,666.56	4,676.84	4,667.39	17.01	16.30	144.65	-159.76	25.99	273.24	250.03	23.22	11.769		
4,800.00	4,762.72	4,773.16	4,763.72	17.47	16.64	147.70	-159.76	25.99	296.34	272.64	23.71	12.501		
4,900.00	4,858.87	4,869.32	4,859.87	17.94	16.97	150.30	-159.76	25.99	320.13	295.94	24.19	13.233		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 103H - 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					
10,200.00	9,994.42	8,873.90	8,663.10	43.99	31.65	-103.39	-590.61	30.18	2,032.99	1,994.20	38.79	52.407					
10,300.00	10,094.42	8,880.85	8,664.78	44.27	31.69	-103.64	-597.35	30.24	2,099.84	2,061.60	38.24	54.911					
10,342.62	10,137.04	8,900.00	8,668.99	44.39	31.80	-104.31	-616.03	30.43	2,129.33	2,091.17	38.16	55.805					
10,350.00	10,144.42	8,900.00	8,668.99	44.41	31.80	75.56	-616.03	30.43	2,134.42	2,096.31	38.11	56.002					
10,400.00	10,194.33	8,900.00	8,668.99	44.55	31.80	71.04	-616.03	30.43	2,168.77	2,130.95	37.82	57.343					
10,450.00	10,243.80	8,900.00	8,668.99	44.69	31.80	66.73	-616.03	30.43	2,202.69	2,165.16	37.53	58.693					
10,500.00	10,292.45	8,900.00	8,668.99	44.84	31.80	62.70	-616.03	30.43	2,235.96	2,198.72	37.24	60.040					
10,550.00	10,339.93	8,900.00	8,668.99	44.99	31.80	58.99	-616.03	30.43	2,268.36	2,231.40	36.96	61.377					
10,600.00	10,385.86	8,900.00	8,668.99	45.14	31.80	55.60	-616.03	30.43	2,299.68	2,263.00	36.68	62.694					
10,650.00	10,429.89	8,919.15	8,672.58	45.29	31.91	52.21	-634.83	30.61	2,329.42	2,292.86	36.56	63.719					
10,700.00	10,471.70	8,927.31	8,673.92	45.44	31.96	49.42	-642.89	30.69	2,357.69	2,321.34	36.36	64.850					
10,750.00	10,510.96	8,950.00	8,677.03	45.58	32.09	46.77	-665.36	30.91	2,384.39	2,348.12	36.26	65.750					
10,800.00	10,547.37	8,950.00	8,677.03	45.73	32.09	44.76	-665.36	30.91	2,408.83	2,372.81	36.02	66.868					
10,850.00	10,580.66	8,950.00	8,677.03	45.88	32.09	43.01	-665.36	30.91	2,431.35	2,395.55	35.80	67.914					
10,900.00	10,610.58	8,950.00	8,677.03	46.03	32.09	41.50	-665.36	30.91	2,451.82	2,416.23	35.60	68.878					
10,950.00	10,636.89	8,974.48	8,679.38	46.18	32.23	40.06	-689.72	31.14	2,469.62	2,434.06	35.56	69.449					
11,000.00	10,659.39	9,000.00	8,680.73	46.34	32.38	38.87	-715.21	31.39	2,485.37	2,449.83	35.54	69.932					
11,050.00	10,677.93	9,000.00	8,680.73	46.50	32.38	38.04	-715.21	31.39	2,498.21	2,462.81	35.40	70.580					
11,100.00	10,692.34	9,000.00	8,680.73	46.67	32.38	37.39	-715.21	31.39	2,508.65	2,473.37	35.28	71.109					
11,150.00	10,702.53	9,017.49	8,681.00	46.85	32.49	36.87	-732.69	31.56	2,516.39	2,481.11	35.28	71.331					
11,200.00	10,708.41	9,064.71	8,681.00	47.04	32.78	36.51	-779.91	32.02	2,521.12	2,485.67	35.45	71.123					
11,242.62	10,710.00	9,107.29	8,681.00	47.21	33.06	36.41	-822.49	32.43	2,522.39	2,486.77	35.63	70.801					
11,300.00	10,710.00	9,164.67	8,681.00	47.45	33.45	36.41	-879.87	32.99	2,522.39	2,486.49	35.90	70.260					
11,400.00	10,710.00	9,264.67	8,681.00	47.92	34.19	36.41	-979.86	33.96	2,522.39	2,485.96	36.43	69.242					
11,500.00	10,710.00	9,364.67	8,681.00	48.43	34.99	36.41	-1,079.86	34.94	2,522.39	2,485.36	37.02	68.134					
11,600.00	10,710.00	9,464.67	8,681.00	49.00	35.84	36.41	-1,179.85	35.91	2,522.38	2,484.71	37.68	66.950					
11,700.00	10,710.00	9,564.67	8,681.00	49.61	36.75	36.41	-1,279.85	36.88	2,522.38	2,483.99	38.39	65.706					
11,800.00	10,710.00	9,664.67	8,681.00	50.27	37.71	36.41	-1,379.85	37.85	2,522.38	2,483.22	39.16	64.415					
11,900.00	10,710.00	9,764.67	8,681.00	50.98	38.72	36.41	-1,479.84	38.82	2,522.38	2,482.40	39.98	63.092					
12,000.00	10,710.00	9,864.67	8,681.00	51.74	39.77	36.41	-1,579.84	39.80	2,522.37	2,481.52	40.85	61.748					
12,100.00	10,710.00	9,964.67	8,681.00	52.54	40.86	36.41	-1,679.83	40.77	2,522.37	2,480.60	41.77	60.393					
12,200.00	10,710.00	10,064.67	8,681.00	53.38	41.99	36.41	-1,779.83	41.74	2,522.37	2,479.64	42.73	59.036					
12,300.00	10,710.00	10,164.67	8,681.00	54.26	43.15	36.41	-1,879.82	42.71	2,522.37	2,478.64	43.73	57.686					
12,400.00	10,710.00	10,264.67	8,681.00	55.18	44.34	36.41	-1,979.82	43.69	2,522.36	2,477.60	44.76	56.353					
12,500.00	10,710.00	10,364.67	8,681.00	56.13	45.56	36.41	-2,079.81	44.66	2,522.36	2,476.53	45.83	55.039					
12,600.00	10,710.00	10,464.67	8,681.00	57.11	46.81	36.41	-2,179.81	45.63	2,522.36	2,475.43	46.93	53.748					
12,700.00	10,710.00	10,564.67	8,681.00	58.13	48.08	36.41	-2,279.80	46.60	2,522.36	2,474.30	48.06	52.483					
12,800.00	10,710.00	10,664.67	8,681.00	59.18	49.38	36.41	-2,379.80	47.57	2,522.35	2,473.13	49.22	51.247					
12,900.00	10,710.00	10,764.67	8,681.00	60.26	50.69	36.41	-2,479.79	48.55	2,522.35	2,471.95	50.41	50.041					
13,000.00	10,710.00	10,864.67	8,681.00	61.36	52.02	36.41	-2,579.79	49.52	2,522.35	2,470.73	51.62	48.868					
13,100.00	10,710.00	10,964.67	8,681.00	62.49	53.38	36.41	-2,679.78	50.49	2,522.35	2,469.50	52.85	47.729					
13,200.00	10,710.00	11,064.67	8,681.00	63.64	54.74	36.41	-2,779.78	51.46	2,522.34	2,468.24	54.10	46.623					
13,300.00	10,710.00	11,164.67	8,681.00	64.81	56.13	36.41	-2,879.77	52.44	2,522.34	2,466.97	55.37	45.551					
13,400.00	10,710.00	11,264.67	8,681.00	66.01	57.52	36.41	-2,979.77	53.41	2,522.34	2,465.67	56.66	44.514					
13,500.00	10,710.00	11,364.67	8,681.00	67.22	58.94	36.41	-3,079.77	54.38	2,522.34	2,464.37	57.97	43.511					
13,600.00	10,710.00	11,464.67	8,681.00	68.46	60.36	36.41	-3,179.76	55.35	2,522.33	2,463.04	59.29	42.540					
13,700.00	10,710.00	11,564.67	8,681.00	69.71	61.79	36.41	-3,279.76	56.32	2,522.33	2,461.70	60.63	41.603					
13,800.00	10,710.00	11,664.67	8,681.00	70.98	63.24	36.41	-3,379.75	57.30	2,522.33	2,460.35	61.98	40.698					
13,900.00	10,710.00	11,764.67	8,681.00	72.26	64.69	36.41	-3,479.75	58.27	2,522.33	2,458.99	63.34	39.823					
14,000.00	10,710.00	11,864.67	8,681.00	73.56	66.16	36.41	-3,579.74	59.24	2,522.32	2,457.61	64.71	38.977					
14,100.00	10,710.00	11,964.67	8,681.00	74.87	67.63	36.41	-3,679.74	60.21	2,522.32	2,456.22	66.10	38.160					
14,200.00	10,710.00	12,064.67	8,681.00	76.20	69.11	36.41	-3,779.73	61.19	2,522.32	2,454.82	67.50	37.370					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 103H - 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			
14,300.00	10,710.00	12,164.67	8,681.00	77.54	70.60	36.41	-3,879.73	62.16	2,522.32	2,453.42	68.90	36.608				
14,400.00	10,710.00	12,264.67	8,681.00	78.89	72.09	36.41	-3,979.72	63.13	2,522.31	2,452.00	70.31	35.872				
14,500.00	10,710.00	12,364.67	8,681.00	80.26	73.60	36.41	-4,079.72	64.10	2,522.31	2,450.58	71.74	35.161				
14,600.00	10,710.00	12,464.67	8,681.00	81.63	75.10	36.41	-4,179.71	65.07	2,522.31	2,449.14	73.17	34.473				
14,700.00	10,710.00	12,564.67	8,681.00	83.01	76.62	36.41	-4,279.71	66.05	2,522.31	2,447.70	74.60	33.809				
14,800.00	10,710.00	12,664.67	8,681.00	84.41	78.14	36.41	-4,379.70	67.02	2,522.30	2,446.26	76.05	33.167				
14,900.00	10,710.00	12,764.67	8,681.00	85.81	79.66	36.41	-4,479.70	67.99	2,522.30	2,444.80	77.50	32.547				
15,000.00	10,710.00	12,864.67	8,681.00	87.22	81.19	36.41	-4,579.69	68.96	2,522.30	2,443.34	78.96	31.946				
15,100.00	10,710.00	12,964.67	8,681.00	88.64	82.73	36.41	-4,679.69	69.94	2,522.30	2,441.88	80.42	31.364				
15,200.00	10,710.00	13,064.67	8,681.00	90.07	84.27	36.41	-4,779.68	70.91	2,522.29	2,440.41	81.89	30.802				
15,300.00	10,710.00	13,164.67	8,681.00	91.51	85.81	36.41	-4,879.68	71.88	2,522.29	2,438.93	83.36	30.257				
15,400.00	10,710.00	13,264.67	8,681.00	92.95	87.36	36.41	-4,979.68	72.85	2,522.29	2,437.45	84.84	29.731				
15,500.00	10,710.00	13,364.67	8,681.00	94.40	88.91	36.41	-5,079.67	73.82	2,522.29	2,435.97	86.32	29.220				
15,600.00	10,710.00	13,464.67	8,681.00	95.86	90.46	36.41	-5,179.67	74.80	2,522.28	2,434.48	87.81	28.725				
15,700.00	10,710.00	13,564.67	8,681.00	97.32	92.02	36.41	-5,279.66	75.77	2,522.28	2,432.98	89.30	28.245				
15,800.00	10,710.00	13,664.67	8,681.00	98.79	93.58	36.41	-5,379.66	76.74	2,522.28	2,431.49	90.79	27.781				
15,900.00	10,710.00	13,764.67	8,681.00	100.27	95.15	36.41	-5,479.65	77.71	2,522.28	2,429.99	92.29	27.330				
16,000.00	10,710.00	13,864.67	8,681.00	101.75	96.71	36.41	-5,579.65	78.69	2,522.27	2,428.48	93.79	26.892				
16,100.00	10,710.00	13,964.67	8,681.00	103.23	98.28	36.41	-5,679.64	79.66	2,522.27	2,426.98	95.30	26.467				
16,200.00	10,710.00	14,064.67	8,681.00	104.73	99.86	36.41	-5,779.64	80.63	2,522.27	2,425.46	96.81	26.055				
16,300.00	10,710.00	14,164.67	8,681.00	106.22	101.43	36.41	-5,879.63	81.60	2,522.27	2,423.95	98.32	25.655				
16,400.00	10,710.00	14,264.67	8,681.00	107.72	103.01	36.41	-5,979.63	82.57	2,522.27	2,422.44	99.83	25.266				
16,500.00	10,710.00	14,364.67	8,681.00	109.23	104.59	36.41	-6,079.62	83.55	2,522.26	2,420.92	101.34	24.888				
16,600.00	10,710.00	14,464.67	8,681.00	110.73	106.17	36.41	-6,179.62	84.52	2,522.26	2,419.40	102.86	24.521				
16,700.00	10,710.00	14,564.67	8,681.00	112.25	107.75	36.41	-6,279.61	85.49	2,522.26	2,417.88	104.38	24.164				
16,800.00	10,710.00	14,664.67	8,681.00	113.76	109.34	36.41	-6,379.61	86.46	2,522.26	2,416.35	105.90	23.817				
16,900.00	10,710.00	14,764.67	8,681.00	115.28	110.93	36.41	-6,479.60	87.43	2,522.25	2,414.83	107.43	23.479				
17,000.00	10,710.00	14,864.67	8,681.00	116.81	112.52	36.41	-6,579.60	88.41	2,522.25	2,413.30	108.95	23.150				
17,100.00	10,710.00	14,964.67	8,681.00	118.34	114.11	36.41	-6,679.60	89.38	2,522.25	2,411.76	110.48	22.829				
17,200.00	10,710.00	15,064.67	8,681.00	119.87	115.70	36.41	-6,779.59	90.35	2,522.25	2,410.23	112.01	22.518				
17,300.00	10,710.00	15,164.67	8,681.00	121.40	117.30	36.41	-6,879.59	91.32	2,522.24	2,408.70	113.54	22.214				
17,400.00	10,710.00	15,264.67	8,681.00	122.94	118.89	36.41	-6,979.58	92.30	2,522.24	2,407.16	115.08	21.918				
17,500.00	10,710.00	15,364.67	8,681.00	124.48	120.49	36.41	-7,079.58	93.27	2,522.24	2,405.63	116.61	21.630				
17,600.00	10,710.00	15,464.67	8,681.00	126.02	122.09	36.41	-7,179.57	94.24	2,522.24	2,404.09	118.14	21.349				
17,700.00	10,710.00	15,564.67	8,681.00	127.57	123.69	36.40	-7,279.57	95.21	2,522.23	2,402.55	119.68	21.075				
17,800.00	10,710.00	15,664.67	8,681.00	129.11	125.29	36.40	-7,379.56	96.18	2,522.23	2,401.01	121.22	20.807				
17,900.00	10,710.00	15,764.67	8,681.00	130.67	126.90	36.40	-7,479.56	97.16	2,522.23	2,399.47	122.76	20.546				
18,000.00	10,710.00	15,864.67	8,681.00	132.22	128.50	36.40	-7,579.55	98.13	2,522.23	2,397.93	124.30	20.292				
18,100.00	10,710.00	15,964.67	8,681.00	133.77	130.11	36.40	-7,679.55	99.10	2,522.22	2,396.38	125.84	20.043				
18,200.00	10,710.00	16,064.67	8,681.00	135.33	131.71	36.40	-7,779.54	100.07	2,522.22	2,394.84	127.38	19.801				
18,300.00	10,710.00	16,164.67	8,681.00	136.89	133.32	36.40	-7,879.54	101.05	2,522.22	2,393.29	128.92	19.563				
18,400.00	10,710.00	16,264.67	8,681.00	138.45	134.93	36.40	-7,979.53	102.02	2,522.22	2,391.75	130.47	19.332				
18,500.00	10,710.00	16,364.67	8,681.00	140.02	136.54	36.40	-8,079.53	102.99	2,522.21	2,390.20	132.01	19.106				
18,600.00	10,710.00	16,464.67	8,681.00	141.58	138.15	36.40	-8,179.52	103.96	2,522.21	2,388.65	133.56	18.885				
18,700.00	10,710.00	16,564.67	8,681.00	143.15	139.76	36.40	-8,279.52	104.93	2,522.21	2,387.11	135.10	18.669				
18,800.00	10,710.00	16,664.67	8,681.00	144.72	141.38	36.40	-8,379.51	105.91	2,522.21	2,385.56	136.65	18.457				
18,900.00	10,710.00	16,764.67	8,681.00	146.30	142.99	36.40	-8,479.51	106.88	2,522.20	2,384.01	138.20	18.251				
19,000.00	10,710.00	16,864.67	8,681.00	147.87	144.60	36.40	-8,579.51	107.85	2,522.20	2,382.45	139.75	18.048				
19,100.00	10,710.00	16,964.67	8,681.00	149.44	146.22	36.40	-8,679.50	108.82	2,522.20	2,380.91	141.29	17.851				
19,200.00	10,710.00	17,064.67	8,681.00	151.02	147.83	36.40	-8,779.50	109.80	2,522.20	2,379.35	142.84	17.657				
19,300.00	10,710.00	17,164.67	8,681.00	152.60	149.45	36.40	-8,879.49	110.77	2,522.19	2,377.80	144.39	17.468				
19,400.00	10,710.00	17,264.67	8,681.00	154.18	151.07	36.40	-8,979.49	111.74	2,522.19	2,376.25	145.94	17.282				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		Tatanka Fed Com - Tatanka Fed Com 103H - OH - Plan #1											Offset Site Error:	0.00 usft
Survey Program:		0-OWSG (Rev2) MWD											Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	10,710.00	17,364.67	8,681.00	155.76	152.69	36.40	-9,079.48	112.71	2,522.19	2,374.70	147.49	17.101		
19,600.00	10,710.00	17,464.67	8,681.00	157.34	154.31	36.40	-9,179.48	113.68	2,522.19	2,373.15	149.04	16.923		
19,700.00	10,710.00	17,564.67	8,681.00	158.93	155.93	36.40	-9,279.47	114.66	2,522.18	2,371.59	150.59	16.748		
19,800.00	10,710.00	17,664.67	8,681.00	160.51	157.55	36.40	-9,379.47	115.63	2,522.18	2,370.04	152.14	16.578		
19,900.00	10,710.00	17,764.67	8,681.00	162.10	159.17	36.40	-9,479.46	116.60	2,522.18	2,368.48	153.70	16.410		
20,000.00	10,710.00	17,864.67	8,681.00	163.69	160.79	36.40	-9,579.46	117.57	2,522.18	2,366.93	155.25	16.246		
20,100.00	10,710.00	17,964.67	8,681.00	165.28	162.41	36.40	-9,679.45	118.55	2,522.17	2,365.38	156.80	16.086		
20,200.00	10,710.00	18,064.67	8,681.00	166.87	164.03	36.40	-9,779.45	119.52	2,522.17	2,363.82	158.35	15.928		
20,300.00	10,710.00	18,164.67	8,681.00	168.46	165.66	36.40	-9,879.44	120.49	2,522.17	2,362.27	159.90	15.773		
20,400.00	10,710.00	18,264.67	8,681.00	170.05	167.28	36.40	-9,979.44	121.46	2,522.17	2,360.71	161.45	15.622		
20,500.00	10,710.00	18,364.67	8,681.00	171.65	168.91	36.40	-10,079.43	122.43	2,522.16	2,359.16	163.01	15.473		
20,600.00	10,710.00	18,464.67	8,681.00	173.24	170.53	36.40	-10,179.43	123.41	2,522.16	2,357.60	164.56	15.327		
20,700.00	10,710.00	18,564.67	8,681.00	174.84	172.16	36.40	-10,279.43	124.38	2,522.16	2,356.05	166.11	15.184		
20,800.00	10,710.00	18,664.67	8,681.00	176.44	173.78	36.40	-10,379.42	125.35	2,522.16	2,354.49	167.66	15.043		
20,816.42	10,710.00	18,681.03	8,681.00	176.70	174.05	36.40	-10,395.77	125.51	2,522.16	2,354.24	167.92	15.020		
20,818.71	10,710.00	18,681.03	8,681.00	176.74	174.05	36.40	-10,395.77	125.51	2,522.16	2,354.23	167.92	15.020		
20,819.49	10,710.00	18,681.03	8,681.00	176.80	174.05	36.40	-10,395.77	125.51	2,522.16	2,354.24	167.91	15.021		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		Tatanka Fed Com - Tatanka Fed Com 104H - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)			
0.00	0.00	0.40	0.40	0.00	0.00	89.45	0.48	49.99	49.99					
100.00	100.00	100.40	100.40	0.13	0.13	89.45	0.48	49.99	49.99	49.81	0.18	280.145		
200.00	200.00	200.40	200.40	0.48	0.49	89.45	0.48	49.99	49.99	49.31	0.69	72.938		
300.00	300.00	300.40	300.40	0.84	0.84	89.45	0.48	49.99	49.99	48.80	1.19	41.927		
400.00	400.00	400.40	400.40	1.20	1.20	89.45	0.48	49.99	49.99	48.29	1.70	29.419		
500.00	500.00	500.40	500.40	1.56	1.56	89.45	0.48	49.99	49.99	47.79	2.21	22.659		
600.00	600.00	600.40	600.40	1.92	1.92	89.45	0.48	49.99	49.99	47.28	2.71	18.425		
700.00	700.00	700.40	700.40	2.28	2.28	89.45	0.48	49.99	49.99	46.77	3.22	15.525		
800.00	800.00	800.40	800.40	2.63	2.64	89.45	0.48	49.99	49.99	46.27	3.73	13.413		
900.00	900.00	900.40	900.40	2.99	2.99	89.45	0.48	49.99	49.99	45.76	4.23	11.807		
1,000.00	1,000.00	1,000.40	1,000.40	3.35	3.35	89.45	0.48	49.99	49.99	45.25	4.74	10.545		
1,100.00	1,100.00	1,100.40	1,100.40	3.71	3.71	89.45	0.48	49.99	49.99	44.74	5.25	9.526		
1,200.00	1,200.00	1,200.40	1,200.40	4.07	4.07	89.45	0.48	49.99	49.99	44.24	5.75	8.687		
1,300.00	1,300.00	1,300.40	1,300.40	4.43	4.43	89.45	0.48	49.99	49.99	43.73	6.26	7.984		
1,400.00	1,400.00	1,400.40	1,400.40	4.79	4.79	89.45	0.48	49.99	49.99	43.22	6.77	7.386		
1,500.00	1,500.00	1,500.40	1,500.40	5.14	5.15	89.45	0.48	49.99	49.99	42.72	7.28	6.871		
1,600.00	1,600.00	1,600.40	1,600.40	5.50	5.50	89.45	0.48	49.99	49.99	42.21	7.78	6.423		
1,700.00	1,700.00	1,700.40	1,700.40	5.86	5.86	89.45	0.48	49.99	49.99	41.70	8.29	6.031		
1,800.00	1,800.00	1,800.40	1,800.40	6.22	6.22	89.45	0.48	49.99	49.99	41.20	8.80	5.683		
1,900.00	1,900.00	1,900.40	1,900.40	6.58	6.58	89.45	0.48	49.99	49.99	40.69	9.30	5.373		
1,916.53	1,916.53	1,916.93	1,916.93	6.64	6.64	89.45	0.48	49.99	49.99	40.60	9.39	5.325 CC		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	89.45	0.48	49.99	49.99	40.18	9.81	5.097 ES		
2,100.00	2,100.00	2,098.66	2,098.64	7.29	7.28	89.75	0.23	51.67	51.70	41.40	10.30	5.019		
2,200.00	2,200.00	2,196.70	2,196.54	7.65	7.61	90.52	-0.52	56.67	56.80	46.03	10.77	5.274		
2,300.00	2,300.00	2,294.27	2,293.75	8.01	7.95	91.55	-1.75	64.92	65.29	54.06	11.23	5.815		
2,400.00	2,400.00	2,391.17	2,389.95	8.37	8.29	92.59	-3.46	76.36	77.15	65.48	11.67	6.610		
2,500.00	2,500.00	2,487.17	2,484.83	8.73	8.64	93.54	-5.63	90.86	92.36	80.25	12.10	7.632		
2,600.00	2,600.00	2,582.08	2,578.09	9.09	8.99	94.35	-8.23	108.28	110.86	98.34	12.52	8.857		
2,700.00	2,700.00	2,675.72	2,669.47	9.45	9.35	95.00	-11.24	128.44	132.59	119.67	12.92	10.265		
2,800.00	2,800.00	2,767.90	2,758.74	9.80	9.72	95.53	-14.64	151.17	157.49	144.18	13.30	11.839		
2,900.00	2,900.00	2,858.49	2,845.70	10.16	10.11	95.96	-18.39	176.26	185.47	171.79	13.67	13.565		
3,000.00	3,000.00	2,950.90	2,933.67	10.52	10.52	96.31	-22.57	204.22	216.03	201.93	14.10	15.323		
3,100.00	3,100.00	3,046.00	3,024.12	10.88	10.97	96.58	-26.91	233.29	246.92	232.33	14.59	16.929		
3,200.00	3,200.00	3,141.10	3,114.57	11.24	11.43	96.79	-31.26	262.37	277.81	262.74	15.08	18.429		
3,300.00	3,300.00	3,236.21	3,205.01	11.60	11.90	96.96	-35.60	291.44	308.71	293.14	15.57	19.831		
3,400.00	3,399.98	3,331.83	3,295.95	11.94	12.39	-1.65	-39.97	320.67	337.94	321.89	16.05	21.050		
3,500.00	3,499.84	3,428.42	3,387.81	12.28	12.89	-1.54	-44.38	350.20	363.83	347.29	16.54	21.996		
3,600.00	3,599.45	3,525.85	3,480.47	12.63	13.40	-1.46	-48.83	379.98	386.32	369.29	17.03	22.680		
3,700.00	3,698.70	3,624.00	3,573.82	12.97	13.93	-1.41	-53.31	409.98	405.41	387.88	17.53	23.124		
3,800.00	3,797.47	3,722.77	3,667.75	13.33	14.47	-1.36	-57.83	440.18	421.06	403.02	18.04	23.346		
3,900.00	3,895.62	3,822.01	3,762.14	13.69	15.02	-1.34	-62.36	470.51	433.25	414.71	18.54	23.363		
4,000.00	3,993.06	3,921.63	3,856.87	14.06	15.58	-1.33	-66.91	500.97	441.97	422.92	19.06	23.192		
4,097.19	4,086.94	4,018.68	3,949.17	14.43	16.12	-1.33	-71.34	530.63	447.11	427.56	19.56	22.860		
4,100.00	4,089.64	4,021.49	3,951.84	14.45	16.14	-1.33	-71.47	531.49	447.22	427.64	19.57	22.849		
4,200.00	4,185.80	4,121.42	4,046.88	14.85	16.71	-1.34	-76.04	562.04	450.81	430.72	20.09	22.436		
4,300.00	4,281.95	4,221.36	4,141.92	15.26	17.28	-1.34	-80.60	592.59	454.41	433.79	20.62	22.041		
4,400.00	4,378.10	4,321.29	4,236.97	15.68	17.86	-1.35	-85.17	623.14	458.01	436.86	21.14	21.661		
4,500.00	4,474.26	4,421.23	4,332.01	16.12	18.44	-1.36	-89.73	653.69	461.60	439.93	21.67	21.297		
4,600.00	4,570.41	4,521.16	4,427.05	16.56	19.03	-1.37	-94.30	684.24	465.20	442.99	22.21	20.948		
4,700.00	4,666.56	4,621.10	4,522.09	17.01	19.62	-1.37	-98.86	714.79	468.80	446.06	22.74	20.613		
4,800.00	4,762.72	4,721.03	4,617.13	17.47	20.21	-1.38	-103.43	745.34	472.40	449.12	23.28	20.291		
4,900.00	4,858.87	4,820.97	4,712.17	17.94	20.80	-1.39	-107.99	775.89	475.99	452.17	23.82	19.982		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 104H - 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 (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
5,000.00	4,955.02	4,920.90	4,807.22	18.41	21.40	-1.39	-112.56	806.43	479.59	455.23	24.36	19.685				
5,100.00	5,051.18	5,020.84	4,902.26	18.89	21.99	-1.40	-117.12	836.98	483.19	458.28	24.91	19.399				
5,200.00	5,147.33	5,120.77	4,997.30	19.37	22.59	-1.41	-121.69	867.53	486.79	461.33	25.45	19.124				
5,300.00	5,243.48	5,220.71	5,092.34	19.86	23.20	-1.41	-126.25	898.08	490.38	464.38	26.00	18.860				
5,400.00	5,339.63	5,320.64	5,187.38	20.36	23.80	-1.42	-130.82	928.63	493.98	467.43	26.55	18.605				
5,500.00	5,435.79	5,420.58	5,282.43	20.86	24.40	-1.43	-135.38	959.18	497.58	470.48	27.10	18.359				
5,600.00	5,531.94	5,520.51	5,377.47	21.36	25.01	-1.43	-139.95	989.73	501.18	473.52	27.66	18.122				
5,700.00	5,628.09	5,620.45	5,472.51	21.87	25.62	-1.44	-144.51	1,020.28	504.77	476.56	28.21	17.894				
5,800.00	5,724.25	5,720.39	5,567.55	22.38	26.23	-1.44	-149.08	1,050.83	508.37	479.61	28.76	17.674				
5,900.00	5,820.40	5,820.32	5,662.59	22.89	26.84	-1.45	-153.64	1,081.38	511.97	482.65	29.32	17.461				
6,000.00	5,916.55	5,920.26	5,757.64	23.41	27.45	-1.46	-158.21	1,111.93	515.56	485.69	29.88	17.256				
6,100.00	6,012.71	6,020.19	5,852.68	23.93	28.06	-1.46	-162.77	1,142.48	519.16	488.73	30.44	17.057				
6,200.00	6,108.86	6,120.13	5,947.72	24.45	28.68	-1.47	-167.34	1,173.03	522.76	491.76	31.00	16.865				
6,300.00	6,205.01	6,220.06	6,042.76	24.98	29.29	-1.47	-171.90	1,203.58	526.36	494.80	31.56	16.680				
6,400.00	6,301.17	6,320.00	6,137.80	25.51	29.91	-1.48	-176.47	1,234.12	529.95	497.84	32.12	16.500				
6,500.00	6,397.32	6,419.93	6,232.84	26.04	30.52	-1.48	-181.03	1,264.67	533.55	500.87	32.68	16.326				
6,600.00	6,493.47	6,519.87	6,327.89	26.57	31.14	-1.49	-185.60	1,295.22	537.15	503.91	33.24	16.158				
6,700.00	6,589.63	6,619.80	6,422.93	27.11	31.76	-1.50	-190.16	1,325.77	540.75	506.94	33.81	15.995				
6,800.00	6,685.78	6,719.74	6,517.97	27.65	32.37	-1.50	-194.73	1,356.32	544.34	509.97	34.37	15.837				
6,900.00	6,781.93	6,822.28	6,615.50	28.19	33.01	-1.51	-199.41	1,387.64	547.92	512.95	34.96	15.671				
7,000.00	6,878.09	6,945.95	6,734.07	28.73	33.73	-1.52	-204.60	1,422.36	548.88	513.14	35.74	15.358				
7,100.00	6,974.24	7,069.49	6,853.92	29.27	34.39	-1.55	-209.02	1,451.97	545.53	509.08	36.45	14.967				
7,200.00	7,070.39	7,192.45	6,974.38	29.81	34.99	-1.59	-212.66	1,476.33	537.89	500.80	37.09	14.503				
7,300.00	7,166.55	7,314.38	7,094.77	30.36	35.51	-1.64	-215.51	1,495.42	525.99	488.34	37.65	13.970				
7,400.00	7,262.70	7,434.86	7,214.42	30.90	35.97	-1.71	-217.58	1,509.29	509.91	471.76	38.14	13.368				
7,500.00	7,358.85	7,553.50	7,332.72	31.45	36.37	-1.80	-218.90	1,518.07	489.72	451.16	38.56	12.700				
7,600.00	7,455.00	7,669.94	7,449.08	32.00	36.70	-1.92	-219.48	1,521.98	465.53	426.63	38.90	11.967				
7,700.00	7,551.16	7,772.42	7,551.56	32.55	36.97	-2.04	-219.52	1,522.24	438.30	398.98	39.32	11.146				
7,800.00	7,647.31	7,868.57	7,647.71	33.10	37.22	-2.18	-219.52	1,522.24	410.85	371.04	39.80	10.322				
7,900.00	7,743.46	7,964.73	7,743.86	33.66	37.46	-2.34	-219.52	1,522.24	383.40	343.11	40.29	9.516				
8,000.00	7,839.62	8,060.88	7,840.02	34.21	37.71	-2.52	-219.52	1,522.24	355.95	315.18	40.77	8.730				
8,100.00	7,935.77	8,157.03	7,936.17	34.76	37.96	-2.73	-219.52	1,522.24	328.51	287.25	41.26	7.962				
8,200.00	8,031.92	8,253.19	8,032.32	35.32	38.21	-2.98	-219.52	1,522.24	301.07	259.32	41.75	7.212				
8,300.00	8,128.08	8,345.90	8,124.91	35.88	38.45	-2.54	-222.87	1,522.27	274.04	231.75	42.29	6.479				
8,400.00	8,224.23	8,435.12	8,212.51	36.43	38.69	1.07	-239.36	1,522.44	249.31	206.38	42.93	5.808				
8,500.00	8,320.38	8,518.64	8,291.27	36.99	38.93	8.02	-266.93	1,522.71	230.09	186.30	43.80	5.254				
8,598.73	8,415.32	8,592.97	8,357.34	37.54	39.15	17.07	-300.87	1,523.04	222.32	177.65	44.67	4.977				
8,600.00	8,416.54	8,593.87	8,358.11	37.55	39.15	17.19	-301.34	1,523.05	222.32	177.65	44.68	4.976 SF				
8,700.00	8,512.69	8,659.81	8,412.55	38.11	39.34	26.73	-338.46	1,523.41	232.24	187.61	44.64	5.203				
8,800.00	8,608.84	8,716.64	8,455.79	38.67	39.51	35.14	-375.31	1,523.77	262.20	218.99	43.21	6.068				
8,908.39	8,713.06	8,768.96	8,492.20	39.28	39.67	42.33	-412.86	1,524.14	314.23	273.36	40.87	7.688				
9,000.00	8,801.54	8,800.00	8,512.12	39.78	39.77	47.17	-436.65	1,524.38	370.82	332.45	38.37	9.664				
9,100.00	8,898.92	8,850.00	8,541.43	40.28	39.93	53.92	-477.14	1,524.77	442.26	404.65	37.62	11.757				
9,200.00	8,997.05	8,872.45	8,553.41	40.76	40.00	57.89	-496.13	1,524.96	520.54	484.99	35.54	14.645				
9,300.00	9,095.78	8,900.00	8,567.09	41.19	40.09	62.40	-520.04	1,525.20	603.79	569.39	34.40	17.551				
9,400.00	9,195.00	8,920.72	8,576.61	41.59	40.16	66.65	-538.44	1,525.38	690.51	657.18	33.33	20.720				
9,500.00	9,294.60	8,950.00	8,588.91	41.96	40.26	71.39	-565.00	1,525.64	779.93	746.97	32.95	23.670				
9,600.00	9,394.45	8,950.00	8,588.91	42.29	40.26	75.63	-565.00	1,525.64	871.00	839.34	31.66	27.511				
9,705.58	9,500.00	8,971.92	8,597.23	42.60	40.34	179.70	-585.28	1,525.84	968.72	937.33	31.39	30.864				
9,800.00	9,594.42	9,000.00	8,606.74	42.86	40.44	179.68	-611.70	1,526.10	1,057.46	1,025.96	31.50	33.573				
9,900.00	9,694.42	9,000.00	8,606.74	43.14	40.44	179.68	-611.70	1,526.10	1,151.45	1,120.61	30.85	37.330				
10,000.00	9,794.42	9,000.00	8,606.74	43.42	40.44	179.68	-611.70	1,526.10	1,246.38	1,216.02	30.36	41.059				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 104H - OH - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
10,100.00	9,894.42	9,000.00	8,606.74	43.71	40.44	179.68	-611.70	1,526.10	1,342.04	1,312.05	30.00	44.740				
10,200.00	9,994.42	9,022.94	8,613.54	43.99	40.52	179.67	-633.60	1,526.31	1,437.65	1,407.48	30.18	47.639				
10,300.00	10,094.42	9,030.48	8,615.58	44.27	40.55	179.66	-640.86	1,526.39	1,533.92	1,503.82	30.09	50.970				
10,342.62	10,137.04	9,050.00	8,620.42	44.39	40.63	179.65	-659.77	1,526.57	1,575.37	1,545.01	30.36	51.890				
10,350.00	10,144.42	9,050.00	8,620.42	44.41	40.63	0.20	-659.77	1,526.57	1,582.47	1,552.12	30.34	52.150				
10,400.00	10,194.33	9,050.00	8,620.42	44.55	40.63	0.15	-659.77	1,526.57	1,629.86	1,599.64	30.22	53.937				
10,450.00	10,243.80	9,050.00	8,620.42	44.69	40.63	0.12	-659.77	1,526.57	1,675.91	1,645.85	30.06	55.761				
10,500.00	10,292.45	9,050.00	8,620.42	44.84	40.63	0.10	-659.77	1,526.57	1,720.37	1,690.51	29.86	57.608				
10,550.00	10,339.93	9,050.00	8,620.42	44.99	40.63	0.09	-659.77	1,526.57	1,763.05	1,733.40	29.65	59.459				
10,600.00	10,385.86	9,050.00	8,620.42	45.14	40.63	0.08	-659.77	1,526.57	1,803.76	1,774.33	29.43	61.298				
10,650.00	10,429.89	9,069.99	8,624.71	45.29	40.71	0.07	-679.29	1,526.76	1,841.87	1,812.42	29.45	62.546				
10,700.00	10,471.70	9,078.20	8,626.27	45.44	40.74	0.06	-687.35	1,526.84	1,877.69	1,848.39	29.30	64.083				
10,750.00	10,510.96	9,100.00	8,629.87	45.58	40.83	0.06	-708.85	1,527.05	1,911.09	1,881.78	29.30	65.218				
10,800.00	10,547.37	9,100.00	8,629.87	45.73	40.83	0.06	-708.85	1,527.05	1,941.35	1,912.30	29.05	66.828				
10,850.00	10,580.66	9,100.00	8,629.87	45.88	40.83	0.05	-708.85	1,527.05	1,968.91	1,940.09	28.81	68.330				
10,900.00	10,610.58	9,100.00	8,629.87	46.03	40.83	0.05	-708.85	1,527.05	1,993.67	1,965.07	28.61	69.690				
10,950.00	10,636.89	9,125.22	8,633.00	46.18	40.93	0.05	-733.88	1,527.30	2,014.85	1,986.22	28.63	70.373				
11,000.00	10,659.39	9,150.00	8,635.00	46.34	41.04	0.05	-758.57	1,527.54	2,033.33	2,004.68	28.65	70.970				
11,050.00	10,677.93	9,150.00	8,635.00	46.50	41.04	0.04	-758.57	1,527.54	2,048.10	2,019.60	28.50	71.864				
11,100.00	10,692.34	9,150.00	8,635.00	46.67	41.04	0.04	-758.57	1,527.54	2,059.79	2,031.40	28.39	72.545				
11,150.00	10,702.53	9,167.26	8,635.76	46.85	41.12	0.04	-775.81	1,527.71	2,068.05	2,039.63	28.42	72.773				
11,200.00	10,708.41	9,183.90	8,636.00	47.04	41.19	0.04	-792.45	1,527.88	2,072.99	2,044.54	28.46	72.847				
11,242.62	10,710.00	9,199.40	8,636.00	47.21	41.26	0.04	-807.95	1,528.03	2,074.40	2,045.89	28.51	72.754				
11,300.00	10,710.00	9,256.78	8,636.00	47.45	41.54	0.04	-865.33	1,528.59	2,074.40	2,045.66	28.74	72.188				
11,400.00	10,710.00	9,356.78	8,636.00	47.92	42.07	0.04	-965.32	1,529.58	2,074.40	2,045.25	29.15	71.161				
11,500.00	10,710.00	9,456.78	8,636.00	48.43	42.65	0.04	-1,065.32	1,530.56	2,074.40	2,044.80	29.60	70.077				
11,600.00	10,710.00	9,556.78	8,636.00	49.00	43.29	0.04	-1,165.31	1,531.55	2,074.40	2,044.31	30.09	68.947				
11,700.00	10,710.00	9,656.78	8,636.00	49.61	43.99	0.04	-1,265.31	1,532.53	2,074.40	2,043.80	30.60	67.780				
11,800.00	10,710.00	9,756.78	8,636.00	50.27	44.74	0.04	-1,365.30	1,533.51	2,074.40	2,043.25	31.15	66.586				
11,900.00	10,710.00	9,856.78	8,636.00	50.98	45.54	0.04	-1,465.30	1,534.50	2,074.40	2,042.67	31.73	65.373				
12,000.00	10,710.00	9,956.78	8,636.00	51.74	46.39	0.04	-1,565.29	1,535.48	2,074.40	2,042.06	32.34	64.148				
12,100.00	10,710.00	10,056.78	8,636.00	52.54	47.28	0.04	-1,665.29	1,536.47	2,074.40	2,041.43	32.97	62.919				
12,200.00	10,710.00	10,156.78	8,636.00	53.38	48.22	0.04	-1,765.28	1,537.45	2,074.40	2,040.77	33.63	61.691				
12,300.00	10,710.00	10,256.78	8,636.00	54.26	49.20	0.04	-1,865.28	1,538.43	2,074.40	2,040.10	34.31	60.469				
12,400.00	10,710.00	10,356.78	8,636.00	55.18	50.21	0.04	-1,965.28	1,539.42	2,074.40	2,039.39	35.01	59.256				
12,500.00	10,710.00	10,456.78	8,636.00	56.13	51.26	0.04	-2,065.27	1,540.40	2,074.40	2,038.67	35.73	58.058				
12,600.00	10,710.00	10,556.78	8,636.00	57.11	52.34	0.04	-2,165.27	1,541.39	2,074.40	2,037.93	36.47	56.877				
12,700.00	10,710.00	10,656.78	8,636.00	58.13	53.46	0.04	-2,265.26	1,542.37	2,074.40	2,037.17	37.23	55.715				
12,800.00	10,710.00	10,756.78	8,636.00	59.18	54.60	0.04	-2,365.26	1,543.35	2,074.40	2,036.39	38.01	54.575				
12,900.00	10,710.00	10,856.78	8,636.00	60.26	55.77	0.03	-2,465.25	1,544.34	2,074.40	2,035.60	38.80	53.458				
13,000.00	10,710.00	10,956.78	8,636.00	61.36	56.96	0.03	-2,565.25	1,545.32	2,074.40	2,034.79	39.61	52.366				
13,100.00	10,710.00	11,056.78	8,636.00	62.49	58.18	0.03	-2,665.24	1,546.30	2,074.40	2,033.96	40.44	51.300				
13,200.00	10,710.00	11,156.78	8,636.00	63.64	59.42	0.03	-2,765.24	1,547.29	2,074.40	2,033.13	41.27	50.259				
13,300.00	10,710.00	11,256.78	8,636.00	64.81	60.68	0.03	-2,865.23	1,548.27	2,074.40	2,032.28	42.12	49.246				
13,400.00	10,710.00	11,356.78	8,636.00	66.01	61.96	0.03	-2,965.23	1,549.26	2,074.40	2,031.42	42.99	48.259				
13,500.00	10,710.00	11,456.78	8,636.00	67.22	63.25	0.03	-3,065.22	1,550.24	2,074.40	2,030.54	43.86	47.298				
13,600.00	10,710.00	11,556.78	8,636.00	68.46	64.57	0.03	-3,165.22	1,551.22	2,074.40	2,029.66	44.74	46.364				
13,700.00	10,710.00	11,656.78	8,636.00	69.71	65.90	0.03	-3,265.21	1,552.21	2,074.40	2,028.77	45.63	45.457				
13,800.00	10,710.00	11,756.78	8,636.00	70.98	67.24	0.03	-3,365.21	1,553.19	2,074.40	2,027.86	46.54	44.575				
13,900.00	10,710.00	11,856.78	8,636.00	72.26	68.60	0.03	-3,465.20	1,554.18	2,074.40	2,026.95	47.45	43.719				
14,000.00	10,710.00	11,956.78	8,636.00	73.56	69.97	0.03	-3,565.20	1,555.16	2,074.40	2,026.03	48.37	42.888				
14,100.00	10,710.00	12,056.78	8,636.00	74.87	71.35	0.03	-3,665.19	1,556.14	2,074.40	2,025.10	49.30	42.081				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 104H - 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			
14,200.00	10,710.00	12,156.78	8,636.00	76.20	72.75	0.03	-3,765.19	1,557.13	2,074.40	2,024.17	50.23	41.297				
14,300.00	10,710.00	12,256.78	8,636.00	77.54	74.15	0.03	-3,865.18	1,558.11	2,074.40	2,023.23	51.17	40.537				
14,400.00	10,710.00	12,356.78	8,636.00	78.89	75.57	0.03	-3,965.18	1,559.10	2,074.40	2,022.28	52.12	39.799				
14,500.00	10,710.00	12,456.78	8,636.00	80.26	76.99	0.03	-4,065.17	1,560.08	2,074.40	2,021.32	53.08	39.083				
14,600.00	10,710.00	12,556.78	8,636.00	81.63	78.43	0.03	-4,165.17	1,561.06	2,074.40	2,020.36	54.04	38.388				
14,700.00	10,710.00	12,656.78	8,636.00	83.01	79.87	0.03	-4,265.16	1,562.05	2,074.40	2,019.40	55.00	37.714				
14,800.00	10,710.00	12,756.78	8,636.00	84.41	81.32	0.03	-4,365.16	1,563.03	2,074.40	2,018.42	55.98	37.059				
14,900.00	10,710.00	12,856.78	8,636.00	85.81	82.78	0.03	-4,465.15	1,564.02	2,074.40	2,017.45	56.95	36.423				
15,000.00	10,710.00	12,956.78	8,636.00	87.22	84.25	0.03	-4,565.15	1,565.00	2,074.40	2,016.47	57.93	35.806				
15,100.00	10,710.00	13,056.78	8,636.00	88.64	85.72	0.03	-4,665.14	1,565.98	2,074.40	2,015.48	58.92	35.207				
15,200.00	10,710.00	13,156.78	8,636.00	90.07	87.20	0.02	-4,765.14	1,566.97	2,074.40	2,014.49	59.91	34.624				
15,300.00	10,710.00	13,256.78	8,636.00	91.51	88.69	0.02	-4,865.13	1,567.95	2,074.40	2,013.49	60.91	34.059				
15,400.00	10,710.00	13,356.78	8,636.00	92.95	90.18	0.02	-4,965.13	1,568.93	2,074.40	2,012.50	61.91	33.509				
15,500.00	10,710.00	13,456.78	8,636.00	94.40	91.67	0.02	-5,065.13	1,569.92	2,074.40	2,011.49	62.91	32.975				
15,600.00	10,710.00	13,556.78	8,636.00	95.86	93.18	0.02	-5,165.12	1,570.90	2,074.40	2,010.49	63.91	32.456				
15,700.00	10,710.00	13,656.78	8,636.00	97.32	94.68	0.02	-5,265.12	1,571.89	2,074.40	2,009.48	64.92	31.952				
15,800.00	10,710.00	13,756.78	8,636.00	98.79	96.20	0.02	-5,365.11	1,572.87	2,074.40	2,008.46	65.94	31.461				
15,900.00	10,710.00	13,856.78	8,636.00	100.27	97.71	0.02	-5,465.11	1,573.85	2,074.40	2,007.45	66.95	30.984				
16,000.00	10,710.00	13,956.78	8,636.00	101.75	99.23	0.02	-5,565.10	1,574.84	2,074.40	2,006.43	67.97	30.519				
16,100.00	10,710.00	14,056.78	8,636.00	103.23	100.76	0.02	-5,665.10	1,575.82	2,074.40	2,005.41	68.99	30.067				
16,200.00	10,710.00	14,156.78	8,636.00	104.73	102.29	0.02	-5,765.09	1,576.81	2,074.40	2,004.38	70.02	29.628				
16,300.00	10,710.00	14,256.78	8,636.00	106.22	103.82	0.02	-5,865.09	1,577.79	2,074.40	2,003.36	71.04	29.201				
16,400.00	10,710.00	14,356.78	8,636.00	107.72	105.36	0.02	-5,965.08	1,578.77	2,074.40	2,002.33	72.07	28.784				
16,500.00	10,710.00	14,456.78	8,636.00	109.23	106.90	0.02	-6,065.08	1,579.76	2,074.40	2,001.30	73.10	28.377				
16,600.00	10,710.00	14,556.78	8,636.00	110.73	108.44	0.02	-6,165.07	1,580.74	2,074.40	2,000.27	74.13	27.982				
16,700.00	10,710.00	14,656.78	8,636.00	112.25	109.99	0.02	-6,265.07	1,581.73	2,074.40	1,999.23	75.17	27.596				
16,800.00	10,710.00	14,756.78	8,636.00	113.76	111.54	0.02	-6,365.06	1,582.71	2,074.40	1,998.19	76.21	27.220				
16,900.00	10,710.00	14,856.78	8,636.00	115.28	113.09	0.02	-6,465.06	1,583.69	2,074.40	1,997.15	77.25	26.854				
17,000.00	10,710.00	14,956.78	8,636.00	116.81	114.65	0.02	-6,565.05	1,584.68	2,074.40	1,996.11	78.29	26.496				
17,100.00	10,710.00	15,056.78	8,636.00	118.34	116.20	0.02	-6,665.05	1,585.66	2,074.40	1,995.07	79.33	26.148				
17,200.00	10,710.00	15,156.78	8,636.00	119.87	117.77	0.02	-6,765.04	1,586.65	2,074.40	1,994.02	80.38	25.807				
17,300.00	10,710.00	15,256.78	8,636.00	121.40	119.33	0.02	-6,865.04	1,587.63	2,074.40	1,992.97	81.43	25.475				
17,400.00	10,710.00	15,356.78	8,636.00	122.94	120.89	0.01	-6,965.03	1,588.61	2,074.40	1,991.92	82.48	25.151				
17,500.00	10,710.00	15,456.78	8,636.00	124.48	122.46	0.01	-7,065.03	1,589.60	2,074.40	1,990.87	83.53	24.835				
17,600.00	10,710.00	15,556.78	8,636.00	126.02	124.03	0.01	-7,165.02	1,590.58	2,074.40	1,989.82	84.58	24.526				
17,700.00	10,710.00	15,656.78	8,636.00	127.57	125.60	0.01	-7,265.02	1,591.56	2,074.40	1,988.77	85.63	24.224				
17,800.00	10,710.00	15,756.78	8,636.00	129.11	127.18	0.01	-7,365.01	1,592.55	2,074.40	1,987.71	86.69	23.929				
17,900.00	10,710.00	15,856.78	8,636.00	130.67	128.75	0.01	-7,465.01	1,593.53	2,074.40	1,986.65	87.75	23.641				
18,000.00	10,710.00	15,956.78	8,636.00	132.22	130.33	0.01	-7,565.00	1,594.52	2,074.40	1,985.60	88.80	23.360				
18,100.00	10,710.00	16,056.78	8,636.00	133.77	131.91	0.01	-7,665.00	1,595.50	2,074.40	1,984.54	89.86	23.084				
18,200.00	10,710.00	16,156.78	8,636.00	135.33	133.49	0.01	-7,764.99	1,596.48	2,074.40	1,983.48	90.92	22.815				
18,300.00	10,710.00	16,256.78	8,636.00	136.89	135.08	0.01	-7,864.99	1,597.47	2,074.40	1,982.42	91.98	22.552				
18,400.00	10,710.00	16,356.78	8,636.00	138.45	136.66	0.01	-7,964.98	1,598.45	2,074.40	1,981.35	93.05	22.294				
18,500.00	10,710.00	16,456.78	8,636.00	140.02	138.25	0.01	-8,064.98	1,599.44	2,074.40	1,980.29	94.11	22.043				
18,600.00	10,710.00	16,556.78	8,636.00	141.58	139.83	0.01	-8,164.97	1,600.42	2,074.40	1,979.23	95.17	21.796				
18,700.00	10,710.00	16,656.78	8,636.00	143.15	141.42	0.01	-8,264.97	1,601.40	2,074.40	1,978.16	96.24	21.555				
18,800.00	10,710.00	16,756.78	8,636.00	144.72	143.01	0.01	-8,364.97	1,602.39	2,074.40	1,977.09	97.31	21.318				
18,900.00	10,710.00	16,856.78	8,636.00	146.30	144.61	0.01	-8,464.96	1,603.37	2,074.40	1,976.03	98.37	21.087				
19,000.00	10,710.00	16,956.78	8,636.00	147.87	146.20	0.01	-8,564.96	1,604.36	2,074.40	1,974.96	99.44	20.860				
19,100.00	10,710.00	17,056.78	8,636.00	149.44	147.80	0.01	-8,664.95	1,605.34	2,074.40	1,973.89	100.51	20.639				
19,200.00	10,710.00	17,156.78	8,636.00	151.02	149.39	0.01	-8,764.95	1,606.32	2,074.40	1,972.82	101.58	20.421				
19,300.00	10,710.00	17,256.78	8,636.00	152.60	150.99	0.01	-8,864.94	1,607.31	2,074.40	1,971.75	102.65	20.208				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 104H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program:													0-OWSG (Rev2) MWD		Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
19,400.00	10,710.00	17,356.78	8,636.00	154.18	152.59	0.01	-8,964.94	1,608.29	2,074.40	1,970.68	103.72	19.999				
19,500.00	10,710.00	17,456.78	8,636.00	155.76	154.19	0.01	-9,064.93	1,609.28	2,074.40	1,969.60	104.80	19.795				
19,600.00	10,710.00	17,556.78	8,636.00	157.34	155.79	0.01	-9,164.93	1,610.26	2,074.40	1,968.53	105.87	19.594				
19,700.00	10,710.00	17,656.78	8,636.00	158.93	157.39	0.00	-9,264.92	1,611.24	2,074.40	1,967.46	106.94	19.397				
19,800.00	10,710.00	17,756.78	8,636.00	160.51	158.99	0.00	-9,364.92	1,612.23	2,074.40	1,966.38	108.02	19.204				
19,900.00	10,710.00	17,856.78	8,636.00	162.10	160.59	0.00	-9,464.91	1,613.21	2,074.40	1,965.31	109.09	19.015				
20,000.00	10,710.00	17,956.78	8,636.00	163.69	162.20	0.00	-9,564.91	1,614.19	2,074.40	1,964.23	110.17	18.829				
20,100.00	10,710.00	18,056.78	8,636.00	165.28	163.80	0.00	-9,664.90	1,615.18	2,074.40	1,963.15	111.25	18.647				
20,200.00	10,710.00	18,156.78	8,636.00	166.87	165.41	0.00	-9,764.90	1,616.16	2,074.40	1,962.07	112.33	18.468				
20,300.00	10,710.00	18,256.78	8,636.00	168.46	167.02	0.00	-9,864.89	1,617.15	2,074.40	1,961.00	113.40	18.292				
20,400.00	10,710.00	18,356.78	8,636.00	170.05	168.63	0.00	-9,964.89	1,618.13	2,074.40	1,959.92	114.48	18.120				
20,500.00	10,710.00	18,456.78	8,636.00	171.65	170.24	0.00	-10,064.88	1,619.11	2,074.40	1,958.84	115.56	17.951				
20,600.00	10,710.00	18,556.78	8,636.00	173.24	171.85	0.00	-10,164.88	1,620.10	2,074.40	1,957.76	116.64	17.784				
20,700.00	10,710.00	18,656.78	8,636.00	174.84	173.46	0.00	-10,264.87	1,621.08	2,074.40	1,956.68	117.72	17.621				
20,800.00	10,710.00	18,756.78	8,636.00	176.44	175.07	0.00	-10,364.87	1,622.07	2,074.40	1,955.60	118.80	17.461				
20,802.18	10,710.00	18,758.96	8,636.00	176.47	175.10	0.00	-10,367.05	1,622.09	2,074.40	1,955.57	118.83	17.457				
20,818.71	10,710.00	18,775.50	8,636.00	176.74	175.37	0.00	-10,383.58	1,622.25	2,074.40	1,955.39	119.01	17.431				
20,819.49	10,710.00	18,775.50	8,636.00	176.80	175.37	0.00	-10,383.58	1,622.25	2,074.40	1,955.39	119.01	17.431				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 501H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	3.30	3.30	0.00	0.00	-90.55	-19.20	-1,995.29	1,995.38							
100.00	100.00	103.30	103.30	0.13	0.14	-90.55	-19.20	-1,995.29	1,995.38	1,995.20	0.19	N/A				
200.00	200.00	203.30	203.30	0.48	0.50	-90.55	-19.20	-1,995.29	1,995.38	1,994.69	0.69	2,880.149				
300.00	300.00	303.30	303.30	0.84	0.85	-90.55	-19.20	-1,995.29	1,995.38	1,994.18	1.20	1,663.180				
400.00	400.00	403.30	403.30	1.20	1.21	-90.55	-19.20	-1,995.29	1,995.38	1,993.68	1.71	1,169.156				
500.00	500.00	503.30	503.30	1.56	1.57	-90.55	-19.20	-1,995.29	1,995.38	1,993.17	2.21	901.405				
600.00	600.00	603.30	603.30	1.92	1.93	-90.55	-19.20	-1,995.29	1,995.38	1,992.66	2.72	733.438				
700.00	700.00	703.30	703.30	2.28	2.29	-90.55	-19.20	-1,995.29	1,995.38	1,992.15	3.23	618.236				
800.00	800.00	803.30	803.30	2.63	2.65	-90.55	-19.20	-1,995.29	1,995.38	1,991.65	3.73	534.311				
900.00	900.00	903.30	903.30	2.99	3.01	-90.55	-19.20	-1,995.29	1,995.38	1,991.14	4.24	470.448				
1,000.00	1,000.00	1,003.30	1,003.30	3.35	3.36	-90.55	-19.20	-1,995.29	1,995.38	1,990.63	4.75	420.222				
1,100.00	1,100.00	1,103.30	1,103.30	3.71	3.72	-90.55	-19.20	-1,995.29	1,995.38	1,990.13	5.26	379.685				
1,200.00	1,200.00	1,203.30	1,203.30	4.07	4.08	-90.55	-19.20	-1,995.29	1,995.38	1,989.62	5.76	346.281				
1,300.00	1,300.00	1,303.30	1,303.30	4.43	4.44	-90.55	-19.20	-1,995.29	1,995.38	1,989.11	6.27	318.280				
1,400.00	1,400.00	1,403.30	1,403.30	4.79	4.80	-90.55	-19.20	-1,995.29	1,995.38	1,988.61	6.78	294.468				
1,500.00	1,500.00	1,503.30	1,503.30	5.14	5.16	-90.55	-19.20	-1,995.29	1,995.38	1,988.10	7.28	273.971				
1,600.00	1,600.00	1,603.30	1,603.30	5.50	5.51	-90.55	-19.20	-1,995.29	1,995.38	1,987.59	7.79	256.142				
1,700.00	1,700.00	1,703.30	1,703.30	5.86	5.87	-90.55	-19.20	-1,995.29	1,995.38	1,987.09	8.30	240.492				
1,800.00	1,800.00	1,803.30	1,803.30	6.22	6.23	-90.55	-19.20	-1,995.29	1,995.38	1,986.58	8.80	226.644				
1,900.00	1,900.00	1,903.30	1,903.30	6.58	6.59	-90.55	-19.20	-1,995.29	1,995.38	1,986.07	9.31	214.304				
2,000.00	2,000.00	2,003.30	2,003.30	6.94	6.95	-90.55	-19.20	-1,995.29	1,995.38	1,985.56	9.82	203.238				
2,100.00	2,100.00	2,103.30	2,103.30	7.29	7.31	-90.55	-19.20	-1,995.29	1,995.38	1,985.06	10.32	193.259				
2,200.00	2,200.00	2,203.30	2,203.30	7.65	7.67	-90.55	-19.20	-1,995.29	1,995.38	1,984.55	10.83	184.214				
2,300.00	2,300.00	2,303.30	2,303.30	8.01	8.02	-90.55	-19.20	-1,995.29	1,995.38	1,984.04	11.34	175.978				
2,400.00	2,400.00	2,403.30	2,403.30	8.37	8.38	-90.55	-19.20	-1,995.29	1,995.38	1,983.54	11.85	168.447				
2,500.00	2,500.00	2,503.30	2,503.30	8.73	8.74	-90.55	-19.20	-1,995.29	1,995.38	1,983.03	12.35	161.534				
2,600.00	2,600.00	2,603.30	2,603.30	9.09	9.10	-90.55	-19.20	-1,995.29	1,995.38	1,982.52	12.86	155.166				
2,700.00	2,700.00	2,703.30	2,703.30	9.45	9.46	-90.55	-19.20	-1,995.29	1,995.38	1,982.02	13.37	149.281				
2,800.00	2,800.00	2,803.30	2,803.30	9.80	9.82	-90.55	-19.20	-1,995.29	1,995.38	1,981.51	13.87	143.826				
2,900.00	2,900.00	2,903.30	2,903.30	10.16	10.17	-90.55	-19.20	-1,995.29	1,995.38	1,981.00	14.38	138.756				
3,000.00	3,000.00	3,003.30	3,003.30	10.52	10.53	-90.55	-19.20	-1,995.29	1,995.38	1,980.49	14.89	134.031				
3,100.00	3,100.00	3,103.30	3,103.30	10.88	10.89	-90.55	-19.20	-1,995.29	1,995.38	1,979.99	15.39	129.617				
3,200.00	3,200.00	3,203.30	3,203.30	11.24	11.25	-90.55	-19.20	-1,995.29	1,995.38	1,979.48	15.90	125.485				
3,300.00	3,300.00	3,303.30	3,303.30	11.60	11.61	-90.55	-19.20	-1,995.29	1,995.38	1,978.97	16.41	121.608 CC, ES				
3,400.00	3,399.98	3,400.00	3,400.00	11.94	11.96	170.68	-19.20	-1,995.29	1,997.11	1,980.21	16.90	118.176				
3,500.00	3,499.84	3,468.26	3,468.26	12.28	12.19	170.68	-19.34	-1,995.88	2,003.17	1,985.86	17.30	115.763				
3,600.00	3,599.45	3,533.97	3,533.94	12.63	12.42	170.66	-19.75	-1,997.57	2,014.33	1,996.64	17.70	113.831				
3,700.00	3,698.70	3,600.00	3,599.91	12.97	12.64	170.62	-20.43	-2,000.38	2,030.57	2,012.48	18.08	112.299				
3,800.00	3,797.47	3,663.32	3,663.11	13.33	12.86	170.57	-21.32	-2,004.11	2,051.80	2,033.34	18.46	111.176				
3,900.00	3,895.62	3,726.54	3,726.14	13.69	13.07	170.51	-22.47	-2,008.85	2,077.96	2,059.14	18.82	110.391				
4,000.00	3,993.06	3,800.00	3,799.27	14.06	13.32	170.43	-24.10	-2,015.63	2,108.99	2,089.78	19.22	109.737				
4,097.19	4,086.94	3,847.40	3,846.38	14.43	13.49	170.34	-25.33	-2,020.73	2,143.58	2,124.06	19.52	109.799				
4,100.00	4,089.64	3,849.08	3,848.05	14.45	13.49	170.34	-25.37	-2,020.93	2,144.65	2,125.12	19.53	109.790				
4,200.00	4,185.80	3,900.00	3,898.57	14.85	13.67	170.36	-26.85	-2,027.06	2,183.31	2,163.47	19.84	110.022				
4,300.00	4,281.95	3,967.22	3,965.13	15.26	13.91	170.39	-29.04	-2,036.16	2,223.30	2,203.10	20.21	110.022				
4,400.00	4,378.10	4,025.14	4,022.35	15.68	14.11	170.41	-31.15	-2,044.91	2,264.68	2,244.14	20.54	110.271				
4,500.00	4,474.26	4,100.00	4,096.09	16.12	14.38	170.42	-34.18	-2,057.47	2,307.50	2,286.57	20.93	110.257				
4,600.00	4,570.41	4,138.64	4,134.04	16.56	14.52	170.42	-35.87	-2,064.51	2,351.40	2,330.22	21.18	111.013				
4,700.00	4,666.56	4,200.00	4,194.16	17.01	14.75	170.42	-38.75	-2,076.44	2,396.69	2,375.18	21.52	111.377				
4,800.00	4,762.72	4,248.96	4,241.98	17.47	14.93	170.42	-41.20	-2,086.63	2,443.22	2,421.41	21.80	112.051				
4,900.00	4,858.87	4,300.00	4,291.70	17.94	15.12	170.41	-43.91	-2,097.89	2,490.97	2,468.88	22.10	112.733				
5,000.00	4,955.02	4,356.05	4,346.10	18.41	15.34	170.39	-47.07	-2,111.00	2,539.92	2,517.51	22.41	113.351				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
10,300.00	10,094.42	10,255.07	10,097.72	44.27	39.84	-90.36	-263.20	-3,008.29	4,532.38	4,480.65	51.73	87.615		
10,342.62	10,137.04	10,297.68	10,140.34	44.39	39.97	-90.36	-263.20	-3,008.29	4,532.38	4,480.44	51.93	87.274		
10,350.00	10,144.42	10,305.07	10,147.72	44.41	40.00	90.20	-263.20	-3,008.29	4,532.38	4,480.41	51.97	87.215		
10,400.00	10,194.33	10,354.99	10,197.65	44.55	40.15	90.23	-263.20	-3,008.29	4,532.39	4,480.19	52.20	86.822		
10,450.00	10,243.80	10,406.74	10,249.33	44.69	40.32	90.29	-265.59	-3,008.27	4,532.41	4,479.96	52.45	86.420		
10,500.00	10,292.45	10,458.97	10,301.05	44.84	40.48	90.35	-272.72	-3,008.20	4,532.44	4,479.74	52.69	86.014		
10,550.00	10,339.93	10,511.66	10,352.35	44.99	40.65	90.41	-284.65	-3,008.08	4,532.46	4,479.51	52.95	85.600		
10,600.00	10,385.86	10,564.80	10,402.76	45.14	40.82	90.47	-301.40	-3,007.91	4,532.49	4,479.28	53.21	85.179		
10,650.00	10,429.89	10,618.37	10,451.79	45.29	40.99	90.52	-322.94	-3,007.70	4,532.52	4,479.04	53.48	84.750		
10,700.00	10,471.70	10,672.35	10,498.94	45.44	41.16	90.56	-349.18	-3,007.44	4,532.55	4,478.79	53.76	84.313		
10,750.00	10,510.96	10,726.71	10,543.71	45.58	41.33	90.60	-379.97	-3,007.13	4,532.58	4,478.53	54.04	83.868		
10,800.00	10,547.37	10,781.42	10,585.63	45.73	41.50	90.64	-415.10	-3,006.78	4,532.60	4,478.26	54.34	83.413		
10,850.00	10,580.66	10,836.43	10,624.20	45.88	41.66	90.67	-454.29	-3,006.40	4,532.62	4,477.98	54.64	82.948		
10,900.00	10,610.58	10,891.70	10,658.99	46.03	41.83	90.70	-497.20	-3,005.97	4,532.64	4,477.67	54.96	82.470		
10,950.00	10,636.89	10,947.17	10,689.59	46.18	42.00	90.72	-543.44	-3,005.51	4,532.64	4,477.36	55.29	81.981		
11,000.00	10,659.39	11,002.79	10,715.64	46.34	42.18	90.73	-592.56	-3,005.03	4,532.65	4,477.02	55.63	81.479		
11,050.00	10,677.93	11,058.50	10,736.84	46.50	42.36	90.74	-644.05	-3,004.52	4,532.64	4,476.66	55.98	80.966		
11,100.00	10,692.34	11,114.25	10,752.95	46.67	42.55	90.74	-697.40	-3,003.99	4,532.63	4,476.29	56.35	80.443		
11,150.00	10,702.53	11,169.98	10,763.79	46.85	42.76	90.74	-752.03	-3,003.45	4,532.62	4,475.90	56.72	79.915		
11,200.00	10,708.41	11,225.61	10,769.28	47.04	42.97	90.73	-807.38	-3,002.90	4,532.59	4,475.50	57.10	79.384		
11,242.62	10,710.00	11,271.09	10,770.00	47.21	43.16	90.72	-852.84	-3,002.45	4,532.57	4,475.15	57.42	78.940		
11,300.00	10,710.00	11,328.48	10,770.00	47.45	43.42	90.72	-910.22	-3,001.88	4,532.56	4,474.70	57.86	78.343		
11,400.00	10,710.00	11,428.48	10,770.00	47.92	43.91	90.72	-1,010.22	-3,000.89	4,532.53	4,473.85	58.68	77.242		
11,500.00	10,710.00	11,528.48	10,770.00	48.43	44.46	90.72	-1,110.21	-2,999.90	4,532.51	4,472.93	59.58	76.068		
11,600.00	10,710.00	11,628.48	10,770.00	49.00	45.07	90.72	-1,210.21	-2,998.91	4,532.49	4,471.92	60.57	74.836		
11,700.00	10,710.00	11,728.48	10,770.00	49.61	45.73	90.72	-1,310.20	-2,997.91	4,532.47	4,470.85	61.62	73.555		
11,800.00	10,710.00	11,828.48	10,770.00	50.27	46.45	90.72	-1,410.20	-2,996.92	4,532.44	4,469.70	62.74	72.238		
11,900.00	10,710.00	11,928.48	10,770.00	50.98	47.21	90.72	-1,510.19	-2,995.93	4,532.42	4,468.49	63.93	70.894		
12,000.00	10,710.00	12,028.48	10,770.00	51.74	48.03	90.72	-1,610.19	-2,994.94	4,532.40	4,467.21	65.18	69.533		
12,100.00	10,710.00	12,128.48	10,770.00	52.54	48.89	90.72	-1,710.18	-2,993.95	4,532.37	4,465.88	66.49	68.163		
12,200.00	10,710.00	12,228.48	10,770.00	53.38	49.79	90.72	-1,810.18	-2,992.96	4,532.35	4,464.49	67.86	66.792		
12,300.00	10,710.00	12,328.48	10,770.00	54.26	50.74	90.72	-1,910.17	-2,991.97	4,532.33	4,463.05	69.27	65.426		
12,400.00	10,710.00	12,428.48	10,770.00	55.18	51.72	90.72	-2,010.17	-2,990.98	4,532.31	4,461.57	70.74	64.070		
12,500.00	10,710.00	12,528.48	10,770.00	56.13	52.73	90.72	-2,110.16	-2,989.99	4,532.28	4,460.03	72.25	62.730		
12,600.00	10,710.00	12,628.48	10,770.00	57.11	53.78	90.72	-2,210.16	-2,989.00	4,532.26	4,458.46	73.81	61.408		
12,700.00	10,710.00	12,728.48	10,770.00	58.13	54.86	90.72	-2,310.15	-2,988.01	4,532.24	4,456.84	75.40	60.110		
12,800.00	10,710.00	12,828.48	10,770.00	59.18	55.97	90.72	-2,410.15	-2,987.01	4,532.21	4,455.18	77.03	58.836		
12,900.00	10,710.00	12,928.48	10,770.00	60.26	57.11	90.72	-2,510.14	-2,986.02	4,532.19	4,453.49	78.70	57.589		
13,000.00	10,710.00	13,028.48	10,770.00	61.36	58.27	90.72	-2,610.14	-2,985.03	4,532.17	4,451.77	80.40	56.370		
13,100.00	10,710.00	13,128.48	10,770.00	62.49	59.45	90.72	-2,710.14	-2,984.04	4,532.15	4,450.01	82.13	55.181		
13,200.00	10,710.00	13,228.48	10,770.00	63.64	60.66	90.72	-2,810.13	-2,983.05	4,532.12	4,448.23	83.89	54.022		
13,300.00	10,710.00	13,328.48	10,770.00	64.81	61.89	90.72	-2,910.13	-2,982.06	4,532.10	4,446.42	85.68	52.894		
13,400.00	10,710.00	13,428.48	10,770.00	66.01	63.14	90.72	-3,010.12	-2,981.07	4,532.08	4,444.58	87.50	51.797		
13,500.00	10,710.00	13,528.48	10,770.00	67.22	64.40	90.72	-3,110.12	-2,980.08	4,532.05	4,442.72	89.34	50.730		
13,600.00	10,710.00	13,628.48	10,770.00	68.46	65.69	90.72	-3,210.11	-2,979.09	4,532.03	4,440.83	91.20	49.694		
13,700.00	10,710.00	13,728.48	10,770.00	69.71	66.99	90.72	-3,310.11	-2,978.10	4,532.01	4,438.93	93.08	48.689		
13,800.00	10,710.00	13,828.48	10,770.00	70.98	68.30	90.72	-3,410.10	-2,977.11	4,531.99	4,437.00	94.98	47.713		
13,900.00	10,710.00	13,928.48	10,770.00	72.26	69.64	90.72	-3,510.10	-2,976.11	4,531.96	4,435.06	96.91	46.767		
14,000.00	10,710.00	14,028.48	10,770.00	73.56	70.98	90.72	-3,610.09	-2,975.12	4,531.94	4,433.10	98.85	45.849		
14,100.00	10,710.00	14,128.48	10,770.00	74.87	72.34	90.72	-3,710.09	-2,974.13	4,531.92	4,431.12	100.80	44.959		
14,200.00	10,710.00	14,228.48	10,770.00	76.20	73.71	90.72	-3,810.08	-2,973.14	4,531.89	4,429.12	102.77	44.096		
14,300.00	10,710.00	14,328.48	10,770.00	77.54	75.09	90.72	-3,910.08	-2,972.15	4,531.87	4,427.11	104.76	43.259		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,600.00	10,710.00	19,628.48	10,770.00	157.34	156.03	90.72	-9,209.82	-2,919.63	4,530.66	4,310.56	220.10	20.585		
19,700.00	10,710.00	19,728.48	10,770.00	158.93	157.62	90.72	-9,309.81	-2,918.64	4,530.64	4,308.27	222.36	20.375		
19,800.00	10,710.00	19,828.48	10,770.00	160.51	159.22	90.72	-9,409.81	-2,917.65	4,530.62	4,305.99	224.63	20.169		
19,900.00	10,710.00	19,928.48	10,770.00	162.10	160.82	90.72	-9,509.80	-2,916.66	4,530.59	4,303.70	226.90	19.968		
20,000.00	10,710.00	20,028.48	10,770.00	163.69	162.42	90.72	-9,609.80	-2,915.67	4,530.57	4,301.41	229.16	19.770		
20,100.00	10,710.00	20,128.48	10,770.00	165.28	164.02	90.72	-9,709.79	-2,914.68	4,530.55	4,299.11	231.43	19.576		
20,200.00	10,710.00	20,228.48	10,770.00	166.87	165.62	90.72	-9,809.79	-2,913.69	4,530.52	4,296.82	233.70	19.386		
20,300.00	10,710.00	20,328.48	10,770.00	168.46	167.22	90.72	-9,909.78	-2,912.70	4,530.50	4,294.53	235.97	19.199		
20,400.00	10,710.00	20,428.48	10,770.00	170.05	168.82	90.72	-10,009.78	-2,911.70	4,530.48	4,292.23	238.25	19.016		
20,500.00	10,710.00	20,528.48	10,770.00	171.65	170.42	90.72	-10,109.77	-2,910.71	4,530.46	4,289.93	240.52	18.836		
20,600.00	10,710.00	20,628.48	10,770.00	173.24	172.03	90.72	-10,209.77	-2,909.72	4,530.43	4,287.64	242.80	18.659		
20,700.00	10,710.00	20,728.48	10,770.00	174.84	173.63	90.72	-10,309.76	-2,908.73	4,530.41	4,285.34	245.07	18.486		
20,800.00	10,710.00	20,828.48	10,770.00	176.44	175.20	90.72	-10,409.76	-2,907.74	4,530.39	4,283.07	247.31	18.318		
20,814.22	10,710.00	20,841.66	10,770.00	176.67	175.40	90.72	-10,422.94	-2,907.61	4,530.38	4,282.77	247.61	18.297		
20,818.71	10,710.00	20,841.66	10,770.00	176.74	175.40	90.72	-10,422.94	-2,907.61	4,530.39	4,282.73	247.65	18.293		
20,819.49	10,710.00	20,841.66	10,770.00	176.80	175.40	90.72	-10,422.94	-2,907.61	4,530.39	4,282.73	247.66	18.293 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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		Tatanka Fed Com - Tatanka 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)				
0.00	0.00	2.80	2.80	0.00	0.00	-90.55	-18.96	-1,970.30	1,970.39						
100.00	100.00	102.80	102.80	0.13	0.14	-90.55	-18.96	-1,970.30	1,970.39	1,970.21	0.18	N/A			
200.00	200.00	202.80	202.80	0.48	0.49	-90.55	-18.96	-1,970.30	1,970.39	1,969.70	0.69	2,849.347			
300.00	300.00	302.80	302.80	0.84	0.85	-90.55	-18.96	-1,970.30	1,970.39	1,969.19	1.20	1,644.098			
400.00	400.00	402.80	402.80	1.20	1.21	-90.55	-18.96	-1,970.30	1,970.39	1,968.69	1.71	1,155.375			
500.00	500.00	502.80	502.80	1.56	1.57	-90.55	-18.96	-1,970.30	1,970.39	1,968.18	2.21	890.627			
600.00	600.00	602.80	602.80	1.92	1.93	-90.55	-18.96	-1,970.30	1,970.39	1,967.67	2.72	724.590			
700.00	700.00	702.80	702.80	2.28	2.29	-90.55	-18.96	-1,970.30	1,970.39	1,967.16	3.23	610.733			
800.00	800.00	802.80	802.80	2.63	2.64	-90.55	-18.96	-1,970.30	1,970.39	1,966.66	3.73	527.799			
900.00	900.00	902.80	902.80	2.99	3.00	-90.55	-18.96	-1,970.30	1,970.39	1,966.15	4.24	464.695			
1,000.00	1,000.00	1,002.80	1,002.80	3.35	3.36	-90.55	-18.96	-1,970.30	1,970.39	1,965.64	4.75	415.070			
1,100.00	1,100.00	1,102.80	1,102.80	3.71	3.72	-90.55	-18.96	-1,970.30	1,970.39	1,965.14	5.25	375.020			
1,200.00	1,200.00	1,202.80	1,202.80	4.07	4.08	-90.55	-18.96	-1,970.30	1,970.39	1,964.63	5.76	342.020			
1,300.00	1,300.00	1,302.80	1,302.80	4.43	4.44	-90.55	-18.96	-1,970.30	1,970.39	1,964.12	6.27	314.357			
1,400.00	1,400.00	1,402.80	1,402.80	4.79	4.80	-90.55	-18.96	-1,970.30	1,970.39	1,963.62	6.77	290.835			
1,500.00	1,500.00	1,502.80	1,502.80	5.14	5.15	-90.55	-18.96	-1,970.30	1,970.39	1,963.11	7.28	270.587			
1,600.00	1,600.00	1,602.80	1,602.80	5.50	5.51	-90.55	-18.96	-1,970.30	1,970.39	1,962.60	7.79	252.975			
1,700.00	1,700.00	1,702.80	1,702.80	5.86	5.87	-90.55	-18.96	-1,970.30	1,970.39	1,962.10	8.30	237.516			
1,800.00	1,800.00	1,802.80	1,802.80	6.22	6.23	-90.55	-18.96	-1,970.30	1,970.39	1,961.59	8.80	223.838			
1,900.00	1,900.00	1,902.80	1,902.80	6.58	6.59	-90.55	-18.96	-1,970.30	1,970.39	1,961.08	9.31	211.649			
2,000.00	2,000.00	2,002.80	2,002.80	6.94	6.95	-90.55	-18.96	-1,970.30	1,970.39	1,960.57	9.82	200.719			
2,100.00	2,100.00	2,102.80	2,102.80	7.29	7.30	-90.55	-18.96	-1,970.30	1,970.39	1,960.07	10.32	190.862			
2,200.00	2,200.00	2,202.80	2,202.80	7.65	7.66	-90.55	-18.96	-1,970.30	1,970.39	1,959.56	10.83	181.928			
2,300.00	2,300.00	2,302.80	2,302.80	8.01	8.02	-90.55	-18.96	-1,970.30	1,970.39	1,959.05	11.34	173.793			
2,400.00	2,400.00	2,402.80	2,402.80	8.37	8.38	-90.55	-18.96	-1,970.30	1,970.39	1,958.55	11.84	166.355			
2,500.00	2,500.00	2,502.80	2,502.80	8.73	8.74	-90.55	-18.96	-1,970.30	1,970.39	1,958.04	12.35	159.527			
2,600.00	2,600.00	2,602.80	2,602.80	9.09	9.10	-90.55	-18.96	-1,970.30	1,970.39	1,957.53	12.86	153.237			
2,700.00	2,700.00	2,702.80	2,702.80	9.45	9.46	-90.55	-18.96	-1,970.30	1,970.39	1,957.03	13.37	147.425			
2,800.00	2,800.00	2,802.80	2,802.80	9.80	9.81	-90.55	-18.96	-1,970.30	1,970.39	1,956.52	13.87	142.038			
2,900.00	2,900.00	2,902.80	2,902.80	10.16	10.17	-90.55	-18.96	-1,970.30	1,970.39	1,956.01	14.38	137.030			
3,000.00	3,000.00	3,002.80	3,002.80	10.52	10.53	-90.55	-18.96	-1,970.30	1,970.39	1,955.51	14.89	132.363			
3,100.00	3,100.00	3,102.80	3,102.80	10.88	10.89	-90.55	-18.96	-1,970.30	1,970.39	1,955.00	15.39	128.004			
3,200.00	3,200.00	3,205.77	3,205.77	11.24	11.26	-90.55	-18.96	-1,970.30	1,970.39	1,954.48	15.91	123.867			
3,300.00	3,300.00	3,411.47	3,411.37	11.60	11.97	-90.56	-19.34	-1,964.46	1,967.55	1,950.91	16.64	118.231			
3,400.00	3,399.98	3,616.31	3,615.48	11.94	12.67	170.67	-20.45	-1,947.68	1,961.08	1,943.76	17.32	113.205			
3,500.00	3,499.84	3,731.13	3,729.54	12.28	13.08	170.69	-21.32	-1,934.46	1,954.68	1,936.85	17.83	109.644			
3,600.00	3,599.45	3,831.08	3,828.81	12.63	13.43	170.72	-22.08	-1,922.85	1,951.65	1,933.34	18.31	106.595			
3,637.75	3,636.97	3,868.83	3,866.30	12.76	13.57	170.73	-22.37	-1,918.46	1,951.41	1,932.92	18.49	105.531	CC, ES		
3,700.00	3,698.70	3,931.07	3,928.12	12.97	13.79	170.75	-22.85	-1,911.23	1,952.08	1,933.28	18.79	103.875			
3,800.00	3,797.47	4,030.97	4,027.34	13.33	14.15	170.78	-23.61	-1,899.63	1,955.94	1,936.67	19.28	101.464			
3,900.00	3,895.62	4,130.68	4,126.37	13.69	14.51	170.82	-24.37	-1,888.05	1,963.25	1,943.49	19.76	99.342			
4,000.00	3,993.06	4,230.06	4,225.07	14.06	14.87	170.87	-25.13	-1,876.50	1,974.00	1,953.75	20.25	97.490			
4,097.19	4,086.94	4,326.21	4,320.57	14.43	15.22	170.92	-25.87	-1,865.33	1,987.72	1,967.00	20.72	95.932			
4,100.00	4,089.64	4,328.99	4,323.33	14.45	15.23	170.92	-25.89	-1,865.01	1,988.16	1,967.43	20.73	95.887			
4,200.00	4,185.80	4,427.67	4,421.35	14.85	15.59	171.02	-26.64	-1,853.55	2,003.94	1,982.72	21.22	94.437			
4,300.00	4,281.95	4,526.36	4,519.36	15.26	15.96	171.12	-27.40	-1,842.08	2,019.73	1,998.02	21.71	93.039			
4,400.00	4,378.10	4,625.04	4,617.37	15.68	16.32	171.22	-28.15	-1,830.62	2,035.53	2,013.33	22.20	91.692			
4,500.00	4,474.26	4,723.73	4,715.39	16.12	16.69	171.32	-28.90	-1,819.16	2,051.33	2,028.63	22.69	90.393			
4,600.00	4,570.41	4,822.41	4,813.40	16.56	17.06	171.41	-29.66	-1,807.69	2,067.13	2,043.94	23.19	89.141			
4,700.00	4,666.56	4,921.10	4,911.42	17.01	17.43	171.51	-30.41	-1,796.23	2,082.94	2,059.26	23.69	87.933			
4,800.00	4,762.72	5,019.78	5,009.43	17.47	17.80	171.60	-31.17	-1,784.76	2,098.76	2,074.57	24.19	86.768			
4,900.00	4,858.87	5,118.47	5,107.44	17.94	18.17	171.69	-31.92	-1,773.30	2,114.58	2,089.89	24.69	85.644			

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka 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				
14,300.00	10,710.00	14,365.46	10,739.00	77.54	74.33	90.49	-3,895.47	-1,475.91	3,035.31	2,930.34	104.97	28.916				
14,400.00	10,710.00	14,465.46	10,739.00	78.89	75.75	90.49	-3,995.46	-1,474.91	3,035.28	2,928.31	106.98	28.373				
14,500.00	10,710.00	14,565.46	10,739.00	80.26	77.18	90.49	-4,095.46	-1,473.91	3,035.25	2,926.26	109.00	27.848				
14,600.00	10,710.00	14,665.46	10,739.00	81.63	78.62	90.49	-4,195.45	-1,472.91	3,035.22	2,924.20	111.03	27.338				
14,700.00	10,710.00	14,765.46	10,739.00	83.01	80.07	90.49	-4,295.45	-1,471.91	3,035.19	2,922.13	113.07	26.844				
14,800.00	10,710.00	14,865.46	10,739.00	84.41	81.52	90.49	-4,395.44	-1,470.92	3,035.16	2,920.04	115.12	26.364				
14,900.00	10,710.00	14,965.46	10,739.00	85.81	82.99	90.49	-4,495.44	-1,469.92	3,035.13	2,917.95	117.19	25.900				
15,000.00	10,710.00	15,065.46	10,739.00	87.22	84.45	90.49	-4,595.43	-1,468.92	3,035.10	2,915.84	119.26	25.449				
15,100.00	10,710.00	15,165.46	10,739.00	88.64	85.93	90.49	-4,695.43	-1,467.92	3,035.07	2,913.73	121.35	25.011				
15,200.00	10,710.00	15,265.46	10,739.00	90.07	87.41	90.49	-4,795.42	-1,466.92	3,035.04	2,911.60	123.44	24.587				
15,300.00	10,710.00	15,365.46	10,739.00	91.51	88.90	90.49	-4,895.42	-1,465.93	3,035.01	2,909.47	125.54	24.175				
15,400.00	10,710.00	15,465.46	10,739.00	92.95	90.39	90.49	-4,995.41	-1,464.93	3,034.98	2,907.33	127.65	23.775				
15,500.00	10,710.00	15,565.46	10,739.00	94.40	91.89	90.49	-5,095.41	-1,463.93	3,034.95	2,905.18	129.77	23.387				
15,600.00	10,710.00	15,665.46	10,739.00	95.86	93.40	90.49	-5,195.40	-1,462.93	3,034.92	2,903.03	131.90	23.010				
15,700.00	10,710.00	15,765.46	10,739.00	97.32	94.91	90.49	-5,295.40	-1,461.93	3,034.89	2,900.87	134.03	22.644				
15,800.00	10,710.00	15,865.46	10,739.00	98.79	96.42	90.49	-5,395.39	-1,460.93	3,034.86	2,898.70	136.17	22.288				
15,900.00	10,710.00	15,965.46	10,739.00	100.27	97.94	90.49	-5,495.39	-1,459.94	3,034.83	2,896.52	138.31	21.942				
16,000.00	10,710.00	16,065.46	10,739.00	101.75	99.46	90.49	-5,595.38	-1,458.94	3,034.80	2,894.34	140.46	21.606				
16,100.00	10,710.00	16,165.46	10,739.00	103.23	100.99	90.49	-5,695.38	-1,457.94	3,034.77	2,892.15	142.62	21.279				
16,200.00	10,710.00	16,265.46	10,739.00	104.73	102.52	90.49	-5,795.37	-1,456.94	3,034.74	2,889.96	144.78	20.961				
16,300.00	10,710.00	16,365.46	10,739.00	106.22	104.05	90.49	-5,895.37	-1,455.94	3,034.71	2,887.76	146.95	20.651				
16,400.00	10,710.00	16,465.46	10,739.00	107.72	105.59	90.49	-5,995.36	-1,454.95	3,034.68	2,885.56	149.12	20.350				
16,500.00	10,710.00	16,565.46	10,739.00	109.23	107.13	90.49	-6,095.36	-1,453.95	3,034.65	2,883.35	151.30	20.057				
16,600.00	10,710.00	16,665.46	10,739.00	110.73	108.67	90.49	-6,195.35	-1,452.95	3,034.62	2,881.14	153.48	19.772				
16,700.00	10,710.00	16,765.46	10,739.00	112.25	110.22	90.49	-6,295.35	-1,451.95	3,034.59	2,878.92	155.67	19.494				
16,800.00	10,710.00	16,865.46	10,739.00	113.76	111.77	90.49	-6,395.34	-1,450.95	3,034.56	2,876.70	157.86	19.223				
16,900.00	10,710.00	16,965.46	10,739.00	115.28	113.32	90.49	-6,495.34	-1,449.96	3,034.53	2,874.48	160.06	18.959				
17,000.00	10,710.00	17,065.46	10,739.00	116.81	114.88	90.49	-6,595.33	-1,448.96	3,034.50	2,872.25	162.26	18.702				
17,100.00	10,710.00	17,165.46	10,739.00	118.34	116.44	90.49	-6,695.33	-1,447.96	3,034.47	2,870.02	164.46	18.451				
17,200.00	10,710.00	17,265.46	10,739.00	119.87	118.00	90.49	-6,795.32	-1,446.96	3,034.44	2,867.78	166.67	18.207				
17,300.00	10,710.00	17,365.46	10,739.00	121.40	119.56	90.49	-6,895.32	-1,445.96	3,034.41	2,865.54	168.88	17.968				
17,400.00	10,710.00	17,465.46	10,739.00	122.94	121.13	90.49	-6,995.31	-1,444.96	3,034.38	2,863.30	171.09	17.736				
17,500.00	10,710.00	17,565.46	10,739.00	124.48	122.70	90.49	-7,095.31	-1,443.97	3,034.35	2,861.05	173.31	17.509				
17,600.00	10,710.00	17,665.46	10,739.00	126.02	124.27	90.49	-7,195.30	-1,442.97	3,034.32	2,858.80	175.52	17.287				
17,700.00	10,710.00	17,765.46	10,739.00	127.57	125.84	90.49	-7,295.30	-1,441.97	3,034.29	2,856.55	177.75	17.071				
17,800.00	10,710.00	17,865.46	10,739.00	129.11	127.41	90.49	-7,395.29	-1,440.97	3,034.26	2,854.29	179.97	16.860				
17,900.00	10,710.00	17,965.46	10,739.00	130.67	128.99	90.49	-7,495.29	-1,439.97	3,034.23	2,852.03	182.20	16.653				
18,000.00	10,710.00	18,065.46	10,739.00	132.22	130.57	90.49	-7,595.28	-1,438.98	3,034.20	2,849.77	184.43	16.452				
18,100.00	10,710.00	18,165.46	10,739.00	133.77	132.15	90.49	-7,695.28	-1,437.98	3,034.17	2,847.51	186.67	16.255				
18,200.00	10,710.00	18,265.46	10,739.00	135.33	133.73	90.49	-7,795.27	-1,436.98	3,034.14	2,845.24	188.90	16.062				
18,300.00	10,710.00	18,365.46	10,739.00	136.89	135.31	90.49	-7,895.27	-1,435.98	3,034.11	2,842.97	191.14	15.874				
18,400.00	10,710.00	18,465.46	10,739.00	138.45	136.90	90.49	-7,995.26	-1,434.98	3,034.08	2,840.70	193.38	15.690				
18,500.00	10,710.00	18,565.46	10,739.00	140.02	138.48	90.49	-8,095.26	-1,433.99	3,034.05	2,838.43	195.62	15.510				
18,600.00	10,710.00	18,665.46	10,739.00	141.58	140.07	90.49	-8,195.25	-1,432.99	3,034.02	2,836.16	197.87	15.334				
18,700.00	10,710.00	18,765.46	10,739.00	143.15	141.66	90.49	-8,295.25	-1,431.99	3,033.99	2,833.88	200.11	15.161				
18,800.00	10,710.00	18,865.46	10,739.00	144.72	143.25	90.49	-8,395.24	-1,430.99	3,033.96	2,831.60	202.36	14.993				
18,900.00	10,710.00	18,965.46	10,739.00	146.30	144.84	90.49	-8,495.24	-1,429.99	3,033.93	2,829.32	204.61	14.828				
19,000.00	10,710.00	19,065.46	10,739.00	147.87	146.44	90.49	-8,595.23	-1,429.00	3,033.90	2,827.04	206.87	14.666				
19,100.00	10,710.00	19,165.46	10,739.00	149.44	148.03	90.49	-8,695.23	-1,428.00	3,033.87	2,824.75	209.12	14.508				
19,200.00	10,710.00	19,265.46	10,739.00	151.02	149.63	90.49	-8,795.22	-1,427.00	3,033.84	2,822.47	211.38	14.353				
19,300.00	10,710.00	19,365.46	10,739.00	152.60	151.23	90.49	-8,895.22	-1,426.00	3,033.81	2,820.18	213.64	14.201				
19,400.00	10,710.00	19,465.46	10,739.00	154.18	152.82	90.49	-8,995.21	-1,425.00	3,033.78	2,817.89	215.90	14.052				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	10,710.00	19,565.46	10,739.00	155.76	154.42	90.49	-9,095.21	-1,424.00	3,033.75	2,815.60	218.16	13.906		
19,600.00	10,710.00	19,665.46	10,739.00	157.34	156.02	90.49	-9,195.20	-1,423.01	3,033.72	2,813.30	220.42	13.763		
19,700.00	10,710.00	19,765.46	10,739.00	158.93	157.63	90.49	-9,295.20	-1,422.01	3,033.69	2,811.01	222.68	13.623		
19,800.00	10,710.00	19,865.46	10,739.00	160.51	159.23	90.49	-9,395.19	-1,421.01	3,033.66	2,808.71	224.95	13.486		
19,900.00	10,710.00	19,965.46	10,739.00	162.10	160.83	90.49	-9,495.19	-1,420.01	3,033.63	2,806.42	227.22	13.351		
20,000.00	10,710.00	20,065.46	10,739.00	163.69	162.44	90.49	-9,595.18	-1,419.01	3,033.60	2,804.12	229.49	13.219		
20,100.00	10,710.00	20,165.46	10,739.00	165.28	164.04	90.49	-9,695.18	-1,418.02	3,033.57	2,801.82	231.75	13.090		
20,200.00	10,710.00	20,265.46	10,739.00	166.87	165.65	90.49	-9,795.17	-1,417.02	3,033.54	2,799.52	234.03	12.962		
20,300.00	10,710.00	20,365.46	10,739.00	168.46	167.26	90.49	-9,895.17	-1,416.02	3,033.51	2,797.21	236.30	12.838		
20,400.00	10,710.00	20,465.46	10,739.00	170.05	168.86	90.49	-9,995.16	-1,415.02	3,033.48	2,794.91	238.57	12.715		
20,500.00	10,710.00	20,565.46	10,739.00	171.65	170.47	90.49	-10,095.16	-1,414.02	3,033.45	2,792.61	240.85	12.595		
20,600.00	10,710.00	20,665.46	10,739.00	173.24	172.08	90.49	-10,195.15	-1,413.03	3,033.42	2,790.30	243.12	12.477		
20,700.00	10,710.00	20,765.46	10,739.00	174.84	173.69	90.49	-10,295.15	-1,412.03	3,033.39	2,787.99	245.40	12.361		
20,800.00	10,710.00	20,865.46	10,739.00	176.44	175.30	90.49	-10,395.14	-1,411.03	3,033.36	2,785.68	247.68	12.247		
20,814.90	10,710.00	20,879.44	10,739.00	176.68	175.53	90.49	-10,409.12	-1,410.89	3,033.36	2,785.36	248.00	12.231		
20,818.71	10,710.00	20,879.44	10,739.00	176.74	175.53	90.49	-10,409.12	-1,410.89	3,033.36	2,785.34	248.02	12.230		
20,819.49	10,710.00	20,879.44	10,739.00	176.80	175.53	90.49	-10,409.12	-1,410.89	3,033.36	2,785.34	248.02	12.230 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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	0.30	0.30	0.00	0.00	-90.55	-0.24	-25.00	25.00					
100.00	100.00	100.30	100.30	0.13	0.13	-90.55	-0.24	-25.00	25.00	24.82	0.18	140.201		
200.00	200.00	200.30	200.30	0.48	0.49	-90.55	-0.24	-25.00	25.00	24.32	0.69	36.483		
300.00	300.00	300.30	300.30	0.84	0.84	-90.55	-0.24	-25.00	25.00	23.81	1.19	20.970		
400.00	400.00	400.30	400.30	1.20	1.20	-90.55	-0.24	-25.00	25.00	23.30	1.70	14.714		
500.00	500.00	500.30	500.30	1.56	1.56	-90.55	-0.24	-25.00	25.00	22.80	2.21	11.333		
600.00	600.00	600.30	600.30	1.92	1.92	-90.55	-0.24	-25.00	25.00	22.29	2.71	9.215		
700.00	700.00	700.30	700.30	2.28	2.28	-90.55	-0.24	-25.00	25.00	21.78	3.22	7.764		
800.00	800.00	800.30	800.30	2.63	2.64	-90.55	-0.24	-25.00	25.00	21.27	3.73	6.708		
900.00	900.00	900.30	900.30	2.99	2.99	-90.55	-0.24	-25.00	25.00	20.77	4.23	5.905		
1,000.00	1,000.00	1,000.30	1,000.30	3.35	3.35	-90.55	-0.24	-25.00	25.00	20.26	4.74	5.273		
1,100.00	1,100.00	1,100.30	1,100.30	3.71	3.71	-90.55	-0.24	-25.00	25.00	19.75	5.25	4.764		
1,200.00	1,200.00	1,200.30	1,200.30	4.07	4.07	-90.55	-0.24	-25.00	25.00	19.25	5.75	4.344		
1,300.00	1,300.00	1,300.30	1,300.30	4.43	4.43	-90.55	-0.24	-25.00	25.00	18.74	6.26	3.993		
1,400.00	1,400.00	1,400.30	1,400.30	4.79	4.79	-90.55	-0.24	-25.00	25.00	18.23	6.77	3.694		
1,500.00	1,500.00	1,500.30	1,500.30	5.14	5.15	-90.55	-0.24	-25.00	25.00	17.73	7.28	3.436		
1,600.00	1,600.00	1,600.30	1,600.30	5.50	5.50	-90.55	-0.24	-25.00	25.00	17.22	7.78	3.212		
1,700.00	1,700.00	1,700.30	1,700.30	5.86	5.86	-90.55	-0.24	-25.00	25.00	16.71	8.29	3.016		
1,800.00	1,800.00	1,800.30	1,800.30	6.22	6.22	-90.55	-0.24	-25.00	25.00	16.20	8.80	2.842		
1,900.00	1,900.00	1,900.30	1,900.30	6.58	6.58	-90.55	-0.24	-25.00	25.00	15.70	9.30	2.687		
2,000.00	2,000.00	2,000.30	2,000.30	6.94	6.94	-90.55	-0.24	-25.00	25.00	15.19	9.81	2.548		
2,100.00	2,100.00	2,100.30	2,100.30	7.29	7.30	-90.55	-0.24	-25.00	25.00	14.68	10.32	2.423		
2,200.00	2,200.00	2,200.30	2,200.30	7.65	7.65	-90.55	-0.24	-25.00	25.00	14.18	10.82	2.310		
2,300.00	2,300.00	2,300.30	2,300.30	8.01	8.01	-90.55	-0.24	-25.00	25.00	13.67	11.33	2.206		
2,400.00	2,400.00	2,400.30	2,400.30	8.37	8.37	-90.55	-0.24	-25.00	25.00	13.16	11.84	2.112		
2,500.00	2,500.00	2,500.30	2,500.30	8.73	8.73	-90.55	-0.24	-25.00	25.00	12.66	12.35	2.025		
2,600.00	2,600.00	2,600.30	2,600.30	9.09	9.09	-90.55	-0.24	-25.00	25.00	12.15	12.85	1.945		
2,700.00	2,700.00	2,700.30	2,700.30	9.45	9.45	-90.55	-0.24	-25.00	25.00	11.64	13.36	1.871		
2,800.00	2,800.00	2,800.30	2,800.30	9.80	9.81	-90.55	-0.24	-25.00	25.00	11.14	13.87	1.803		
2,900.00	2,900.00	2,900.30	2,900.30	10.16	10.16	-90.55	-0.24	-25.00	25.00	10.63	14.37	1.739		
3,000.00	3,000.00	3,000.30	3,000.30	10.52	10.52	-90.55	-0.24	-25.00	25.00	10.12	14.88	1.680		
3,100.00	3,100.00	3,100.30	3,100.30	10.88	10.88	-90.55	-0.24	-25.00	25.00	9.61	15.39	1.625		
3,200.00	3,200.00	3,200.30	3,200.30	11.24	11.24	-90.55	-0.24	-25.00	25.00	9.11	15.89	1.573		
3,300.00	3,300.00	3,300.30	3,300.30	11.60	11.60	-90.55	-0.24	-25.00	25.00	8.60	16.40	1.524 CC, ES, SF		
3,400.00	3,399.98	3,400.28	3,400.28	11.94	11.96	171.28	-0.24	-25.00	26.72	9.82	16.90	1.581		
3,500.00	3,499.84	3,500.14	3,500.14	12.28	12.31	172.70	-0.24	-25.00	31.91	14.52	17.39	1.835		
3,600.00	3,599.45	3,599.75	3,599.75	12.63	12.67	174.24	-0.24	-25.00	40.57	22.68	17.88	2.268		
3,700.00	3,698.70	3,699.00	3,699.00	12.97	13.03	175.55	-0.24	-25.00	52.71	34.33	18.38	2.868		
3,800.00	3,797.47	3,797.77	3,797.77	13.33	13.38	176.55	-0.24	-25.00	68.31	49.45	18.86	3.621		
3,900.00	3,895.62	3,895.92	3,895.92	13.69	13.73	177.29	-0.24	-25.00	87.37	68.02	19.35	4.515		
4,000.00	3,993.06	3,993.36	3,993.36	14.06	14.08	177.82	-0.24	-25.00	109.84	90.01	19.84	5.538		
4,097.19	4,086.94	4,087.24	4,087.24	14.43	14.42	178.21	-0.24	-25.00	134.94	114.63	20.30	6.646		
4,100.00	4,089.64	4,089.94	4,089.94	14.45	14.43	178.22	-0.24	-25.00	135.71	115.39	20.32	6.679		
4,200.00	4,185.80	4,186.10	4,186.10	14.85	14.77	178.52	-0.24	-25.00	163.17	142.37	20.80	7.846		
4,300.00	4,281.95	4,282.25	4,282.25	15.26	15.12	178.73	-0.24	-25.00	190.63	169.35	21.28	8.959		
4,400.00	4,378.10	4,378.40	4,378.40	15.68	15.46	178.89	-0.24	-25.00	218.09	196.33	21.76	10.023		
4,500.00	4,474.26	4,474.56	4,474.56	16.12	15.81	179.02	-0.24	-25.00	245.56	223.31	22.24	11.039		
4,600.00	4,570.41	4,575.68	4,575.67	16.56	16.16	179.06	-0.63	-24.36	272.38	249.64	22.74	11.977		
4,700.00	4,666.56	4,678.85	4,678.78	17.01	16.51	178.88	-2.38	-21.43	296.90	273.67	23.23	12.781		
4,800.00	4,762.72	4,776.02	4,775.86	17.47	16.83	178.67	-4.57	-17.78	320.48	296.78	23.71	13.519		
4,900.00	4,858.87	4,873.19	4,872.94	17.94	17.15	178.49	-6.75	-14.14	344.07	319.88	24.18	14.227		
5,000.00	4,955.02	4,970.37	4,970.02	18.41	17.48	178.33	-8.94	-10.50	367.66	342.99	24.67	14.906		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 503H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
5,100.00	5,051.18	5,067.54	5,067.10	18.89	17.81	178.19	-11.12	-6.86	391.25	366.10	25.15	15.558				
5,200.00	5,147.33	5,164.71	5,164.18	19.37	18.14	178.06	-13.31	-3.22	414.85	389.21	25.63	16.184				
5,300.00	5,243.48	5,261.88	5,261.26	19.86	18.47	177.95	-15.49	0.42	438.44	412.32	26.12	16.785				
5,400.00	5,339.63	5,359.06	5,358.34	20.36	18.80	177.85	-17.68	4.06	462.04	435.43	26.61	17.364				
5,500.00	5,435.79	5,456.23	5,455.42	20.86	19.13	177.76	-19.86	7.71	485.64	458.54	27.10	17.921				
5,600.00	5,531.94	5,553.40	5,552.50	21.36	19.46	177.68	-22.05	11.35	509.24	481.65	27.59	18.456				
5,700.00	5,628.09	5,650.57	5,649.58	21.87	19.79	177.60	-24.23	14.99	532.84	504.76	28.09	18.972				
5,800.00	5,724.25	5,747.75	5,746.66	22.38	20.13	177.53	-26.42	18.63	556.44	527.86	28.58	19.470				
5,900.00	5,820.40	5,843.63	5,842.45	22.89	20.46	177.47	-28.57	22.21	580.06	550.99	29.07	19.952				
6,000.00	5,916.55	5,928.53	5,927.32	23.41	20.75	177.47	-29.88	24.41	604.86	575.33	29.53	20.486				
6,100.00	6,012.71	6,014.23	6,013.01	23.93	21.05	177.54	-30.24	25.00	631.58	601.61	29.98	21.069				
6,200.00	6,108.86	6,110.38	6,109.16	24.45	21.39	177.64	-30.24	25.00	659.03	628.55	30.48	21.622				
6,300.00	6,205.01	6,206.53	6,205.31	24.98	21.74	177.74	-30.24	25.00	686.48	655.50	30.98	22.156				
6,400.00	6,301.17	6,302.69	6,301.47	25.51	22.08	177.82	-30.24	25.00	713.93	682.44	31.49	22.672				
6,500.00	6,397.32	6,398.84	6,397.62	26.04	22.42	177.90	-30.24	25.00	741.38	709.39	32.00	23.172				
6,600.00	6,493.47	6,494.99	6,493.77	26.57	22.77	177.98	-30.24	25.00	768.84	736.33	32.50	23.655				
6,700.00	6,589.63	6,591.15	6,589.93	27.11	23.11	178.05	-30.24	25.00	796.29	763.28	33.01	24.124				
6,800.00	6,685.78	6,687.30	6,686.08	27.65	23.45	178.11	-30.24	25.00	823.74	790.23	33.52	24.578				
6,900.00	6,781.93	6,783.45	6,782.23	28.19	23.80	178.17	-30.24	25.00	851.20	817.18	34.02	25.018				
7,000.00	6,878.09	6,879.61	6,878.39	28.73	24.14	178.23	-30.24	25.00	878.66	844.12	34.53	25.444				
7,100.00	6,974.24	6,975.76	6,974.54	29.27	24.48	178.28	-30.24	25.00	906.12	871.07	35.04	25.858				
7,200.00	7,070.39	7,071.91	7,070.69	29.81	24.83	178.34	-30.24	25.00	933.57	898.02	35.55	26.259				
7,300.00	7,166.55	7,168.07	7,166.85	30.36	25.17	178.38	-30.24	25.00	961.03	924.97	36.06	26.649				
7,400.00	7,262.70	7,264.22	7,263.00	30.90	25.51	178.43	-30.24	25.00	988.49	951.92	36.57	27.028				
7,500.00	7,358.85	7,360.37	7,359.15	31.45	25.86	178.47	-30.24	25.00	1,015.95	978.87	37.08	27.396				
7,600.00	7,455.00	7,456.53	7,455.30	32.00	26.20	178.51	-30.24	25.00	1,043.41	1,005.82	37.60	27.753				
7,700.00	7,551.16	7,552.68	7,551.46	32.55	26.54	178.55	-30.24	25.00	1,070.87	1,032.77	38.11	28.101				
7,800.00	7,647.31	7,648.83	7,647.61	33.10	26.89	178.59	-30.24	25.00	1,098.33	1,059.71	38.62	28.439				
7,900.00	7,743.46	7,744.99	7,743.76	33.66	27.23	178.62	-30.24	25.00	1,125.80	1,086.66	39.13	28.768				
8,000.00	7,839.62	7,841.14	7,839.92	34.21	27.57	178.65	-30.24	25.00	1,153.26	1,113.61	39.65	29.088				
8,100.00	7,935.77	7,937.29	7,936.07	34.76	27.92	178.68	-30.24	25.00	1,180.72	1,140.56	40.16	29.399				
8,200.00	8,031.92	8,033.45	8,032.22	35.32	28.26	178.71	-30.24	25.00	1,208.18	1,167.51	40.68	29.703				
8,300.00	8,128.08	8,129.60	8,128.38	35.88	28.60	178.74	-30.24	25.00	1,235.65	1,194.46	41.19	29.998				
8,400.00	8,224.23	8,225.75	8,224.53	36.43	28.95	178.77	-30.24	25.00	1,263.11	1,221.41	41.71	30.286				
8,500.00	8,320.38	8,321.91	8,320.68	36.99	29.29	178.80	-30.24	25.00	1,290.57	1,248.35	42.22	30.567				
8,600.00	8,416.54	8,418.06	8,416.84	37.55	29.64	178.82	-30.24	25.00	1,318.04	1,275.30	42.74	30.841				
8,700.00	8,512.69	8,514.21	8,512.99	38.11	29.98	178.85	-30.24	25.00	1,345.50	1,302.25	43.25	31.108				
8,800.00	8,608.84	8,610.36	8,609.14	38.67	30.32	178.87	-30.24	25.00	1,372.97	1,329.20	43.77	31.368				
8,908.39	8,713.06	8,714.58	8,713.36	39.28	30.70	178.89	-30.24	25.00	1,402.73	1,358.41	44.33	31.644				
9,000.00	8,801.54	8,803.06	8,801.84	39.78	31.01	178.92	-30.24	25.00	1,426.48	1,381.68	44.80	31.840				
9,100.00	8,898.92	8,900.45	8,899.22	40.28	31.36	178.95	-30.24	25.00	1,449.16	1,403.85	45.32	31.978				
9,200.00	8,997.05	8,998.57	8,997.35	40.76	31.71	178.97	-30.24	25.00	1,468.43	1,422.60	45.83	32.039				
9,300.00	9,095.78	9,097.30	9,096.08	41.19	32.07	178.98	-30.24	25.00	1,484.26	1,437.92	46.34	32.027				
9,400.00	9,195.05	9,196.53	9,195.30	41.59	32.42	179.00	-30.24	25.00	1,496.64	1,449.79	46.85	31.944				
9,500.00	9,294.60	9,296.12	9,294.90	41.96	32.78	179.01	-30.24	25.00	1,505.55	1,458.19	47.35	31.793				
9,600.00	9,394.45	9,395.97	9,394.75	42.29	33.13	179.01	-30.24	25.00	1,510.98	1,463.12	47.85	31.576				
9,705.58	9,500.00	9,501.52	9,500.30	42.60	33.51	-82.22	-30.24	25.00	1,512.92	1,464.55	48.37	31.279				
9,800.00	9,594.42	9,595.95	9,594.72	42.86	33.85	-82.22	-30.24	25.00	1,512.92	1,464.09	48.83	30.986				
9,900.00	9,694.42	9,695.95	9,694.72	43.14	34.21	-82.22	-30.24	25.00	1,512.92	1,463.61	49.31	30.681				
10,000.00	9,794.42	9,795.95	9,794.72	43.42	34.56	-82.22	-30.24	25.00	1,512.92	1,463.12	49.80	30.383				
10,100.00	9,894.42	9,895.95	9,894.72	43.71	34.92	-82.22	-30.24	25.00	1,512.92	1,462.64	50.28	30.089				
10,200.00	9,994.42	9,995.95	9,994.72	43.99	35.28	-82.22	-30.24	25.00	1,512.92	1,462.15	50.77	29.801				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 503H - 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				
10,300.00	10,094.42	10,095.95	10,094.72	44.27	35.64	-82.22	-30.24	25.00	1,512.92	1,461.67	51.25	29.519				
10,342.62	10,137.04	10,138.56	10,137.34	44.39	35.79	-82.22	-30.24	25.00	1,512.92	1,461.46	51.46	29.400				
10,350.00	10,144.42	10,145.95	10,144.72	44.41	35.82	98.33	-30.24	25.00	1,512.93	1,461.43	51.50	29.380				
10,400.00	10,194.33	10,225.52	10,224.06	44.55	36.08	98.32	-35.44	25.05	1,512.87	1,461.02	51.85	29.179				
10,450.00	10,243.80	10,305.98	10,302.77	44.69	36.34	98.17	-51.81	25.21	1,512.43	1,460.24	52.19	28.981				
10,500.00	10,292.45	10,385.10	10,377.19	44.84	36.58	97.92	-78.50	25.47	1,511.63	1,459.12	52.51	28.789				
10,550.00	10,339.93	10,462.21	10,445.52	44.99	36.82	97.56	-114.12	25.81	1,510.53	1,457.71	52.82	28.600				
10,600.00	10,385.86	10,536.80	10,506.48	45.14	37.05	97.11	-157.00	26.23	1,509.18	1,456.06	53.12	28.411				
10,650.00	10,429.89	10,608.53	10,559.38	45.29	37.27	96.60	-205.37	26.70	1,507.67	1,454.25	53.42	28.221				
10,700.00	10,471.70	10,677.24	10,604.01	45.44	37.50	96.03	-257.56	27.20	1,506.07	1,452.33	53.73	28.028				
10,750.00	10,510.96	10,742.91	10,640.54	45.58	37.72	95.42	-312.08	27.73	1,504.45	1,450.40	54.05	27.834				
10,800.00	10,547.37	10,805.61	10,669.38	45.73	37.94	94.79	-367.71	28.27	1,502.88	1,448.51	54.38	27.638				
10,850.00	10,580.66	10,865.49	10,691.09	45.88	38.15	94.14	-423.49	28.81	1,501.43	1,446.72	54.70	27.446				
10,900.00	10,610.58	10,922.74	10,706.30	46.03	38.37	93.47	-478.66	29.35	1,500.13	1,445.10	55.03	27.260				
10,950.00	10,636.89	10,977.58	10,715.64	46.18	38.58	92.80	-532.67	29.87	1,499.03	1,443.67	55.35	27.082				
11,000.00	10,659.39	11,030.22	10,719.71	46.34	38.79	92.12	-585.14	30.38	1,498.14	1,442.48	55.66	26.915				
11,050.00	10,677.93	11,078.54	10,720.00	46.50	38.98	91.51	-633.45	30.85	1,497.52	1,441.57	55.95	26.765				
11,100.00	10,692.34	11,126.40	10,720.00	46.67	39.20	91.01	-681.30	31.31	1,497.19	1,440.94	56.25	26.617				
11,150.00	10,702.53	11,175.33	10,720.00	46.85	39.43	90.65	-730.24	31.79	1,497.04	1,440.47	56.57	26.464				
11,200.00	10,708.41	11,224.97	10,720.00	47.04	39.68	90.43	-779.87	32.27	1,496.98	1,440.07	56.91	26.304				
11,242.62	10,710.00	11,267.55	10,720.00	47.21	39.90	90.37	-822.45	32.68	1,496.97	1,439.75	57.22	26.161				
11,300.00	10,710.00	11,324.93	10,720.00	47.45	40.22	90.37	-879.83	33.24	1,496.97	1,439.30	57.66	25.961				
11,400.00	10,710.00	11,424.93	10,720.00	47.92	40.83	90.37	-979.82	34.21	1,496.96	1,438.46	58.50	25.589				
11,500.00	10,710.00	11,524.93	10,720.00	48.43	41.49	90.37	-1,079.82	35.18	1,496.96	1,437.54	59.42	25.194				
11,600.00	10,710.00	11,624.93	10,720.00	49.00	42.21	90.37	-1,179.81	36.15	1,496.96	1,436.55	60.41	24.779				
11,700.00	10,710.00	11,724.93	10,720.00	49.61	42.97	90.37	-1,279.81	37.12	1,496.96	1,435.48	61.48	24.349				
11,800.00	10,710.00	11,824.93	10,720.00	50.27	43.79	90.37	-1,379.80	38.09	1,496.96	1,434.34	62.62	23.907				
11,900.00	10,710.00	11,924.93	10,720.00	50.98	44.65	90.37	-1,479.80	39.06	1,496.96	1,433.14	63.82	23.457				
12,000.00	10,710.00	12,024.93	10,720.00	51.74	45.56	90.37	-1,579.79	40.03	1,496.96	1,431.88	65.08	23.002				
12,100.00	10,710.00	12,124.93	10,720.00	52.54	46.51	90.37	-1,679.79	40.99	1,496.95	1,430.56	66.40	22.545				
12,200.00	10,710.00	12,224.93	10,720.00	53.38	47.49	90.37	-1,779.79	41.96	1,496.95	1,429.18	67.77	22.088				
12,300.00	10,710.00	12,324.93	10,720.00	54.26	48.52	90.37	-1,879.78	42.93	1,496.95	1,427.75	69.20	21.633				
12,400.00	10,710.00	12,424.93	10,720.00	55.18	49.57	90.37	-1,979.78	43.90	1,496.95	1,426.28	70.67	21.181				
12,500.00	10,710.00	12,524.93	10,720.00	56.13	50.66	90.37	-2,079.77	44.87	1,496.95	1,424.75	72.19	20.735				
12,600.00	10,710.00	12,624.93	10,720.00	57.11	51.78	90.37	-2,179.77	45.84	1,496.95	1,423.19	73.76	20.296				
12,700.00	10,710.00	12,724.93	10,720.00	58.13	52.92	90.37	-2,279.76	46.81	1,496.94	1,421.58	75.36	19.864				
12,800.00	10,710.00	12,824.93	10,720.00	59.18	54.10	90.37	-2,379.76	47.78	1,496.94	1,419.94	77.00	19.441				
12,900.00	10,710.00	12,924.93	10,720.00	60.26	55.29	90.37	-2,479.75	48.75	1,496.94	1,418.27	78.67	19.027				
13,000.00	10,710.00	13,024.93	10,720.00	61.36	56.51	90.37	-2,579.75	49.72	1,496.94	1,416.56	80.38	18.623				
13,100.00	10,710.00	13,124.93	10,720.00	62.49	57.75	90.37	-2,679.74	50.69	1,496.94	1,414.82	82.12	18.228				
13,200.00	10,710.00	13,224.93	10,720.00	63.64	59.01	90.37	-2,779.74	51.66	1,496.94	1,413.05	83.89	17.844				
13,300.00	10,710.00	13,324.93	10,720.00	64.81	60.29	90.37	-2,879.73	52.63	1,496.94	1,411.25	85.68	17.470				
13,400.00	10,710.00	13,424.93	10,720.00	66.01	61.59	90.37	-2,979.73	53.60	1,496.93	1,409.43	87.51	17.107				
13,500.00	10,710.00	13,524.93	10,720.00	67.22	62.91	90.37	-3,079.72	54.57	1,496.93	1,407.58	89.35	16.754				
13,600.00	10,710.00	13,624.93	10,720.00	68.46	64.24	90.37	-3,179.72	55.54	1,496.93	1,405.71	91.22	16.411				
13,700.00	10,710.00	13,724.93	10,720.00	69.71	65.58	90.37	-3,279.71	56.51	1,496.93	1,403.82	93.11	16.078				
13,800.00	10,710.00	13,824.93	10,720.00	70.98	66.94	90.37	-3,379.71	57.48	1,496.93	1,401.91	95.01	15.755				
13,900.00	10,710.00	13,924.93	10,720.00	72.26	68.31	90.37	-3,479.71	58.45	1,496.93	1,399.98	96.94	15.442				
14,000.00	10,710.00	14,024.93	10,720.00	73.56	69.69	90.37	-3,579.70	59.42	1,496.92	1,398.04	98.89	15.138				
14,100.00	10,710.00	14,124.93	10,720.00	74.87	71.09	90.37	-3,679.70	60.39	1,496.92	1,396.08	100.85	14.843				
14,200.00	10,710.00	14,224.93	10,720.00	76.20	72.49	90.37	-3,779.69	61.36	1,496.92	1,394.10	102.82	14.558				
14,300.00	10,710.00	14,324.93	10,720.00	77.54	73.91	90.37	-3,879.69	62.33	1,496.92	1,392.10	104.82	14.281				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 503H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,400.00	10,710.00	14,424.93	10,720.00	78.89	75.33	90.37	-3,979.68	63.30	1,496.92	1,390.10	106.82	14.013				
14,500.00	10,710.00	14,524.93	10,720.00	80.26	76.77	90.37	-4,079.68	64.27	1,496.92	1,388.08	108.84	13.753				
14,600.00	10,710.00	14,624.93	10,720.00	81.63	78.21	90.37	-4,179.67	65.24	1,496.92	1,386.05	110.87	13.502				
14,700.00	10,710.00	14,724.93	10,720.00	83.01	79.66	90.37	-4,279.67	66.20	1,496.91	1,384.00	112.91	13.257				
14,800.00	10,710.00	14,824.93	10,720.00	84.41	81.12	90.37	-4,379.66	67.17	1,496.91	1,381.95	114.97	13.020				
14,900.00	10,710.00	14,924.93	10,720.00	85.81	82.59	90.37	-4,479.66	68.14	1,496.91	1,379.88	117.03	12.791				
15,000.00	10,710.00	15,024.93	10,720.00	87.22	84.06	90.37	-4,579.65	69.11	1,496.91	1,377.80	119.10	12.568				
15,100.00	10,710.00	15,124.93	10,720.00	88.64	85.54	90.37	-4,679.65	70.08	1,496.91	1,375.72	121.19	12.352				
15,200.00	10,710.00	15,224.93	10,720.00	90.07	87.03	90.37	-4,779.64	71.05	1,496.91	1,373.62	123.28	12.142				
15,300.00	10,710.00	15,324.93	10,720.00	91.51	88.52	90.37	-4,879.64	72.02	1,496.90	1,371.52	125.38	11.939				
15,400.00	10,710.00	15,424.93	10,720.00	92.95	90.01	90.37	-4,979.63	72.99	1,496.90	1,369.41	127.49	11.741				
15,500.00	10,710.00	15,524.93	10,720.00	94.40	91.52	90.37	-5,079.63	73.96	1,496.90	1,367.29	129.61	11.549				
15,600.00	10,710.00	15,624.93	10,720.00	95.86	93.02	90.37	-5,179.63	74.93	1,496.90	1,365.16	131.73	11.363				
15,700.00	10,710.00	15,724.93	10,720.00	97.32	94.54	90.37	-5,279.62	75.90	1,496.90	1,363.03	133.87	11.182				
15,800.00	10,710.00	15,824.93	10,720.00	98.79	96.05	90.37	-5,379.62	76.87	1,496.90	1,360.89	136.01	11.006				
15,900.00	10,710.00	15,924.93	10,720.00	100.27	97.57	90.37	-5,479.61	77.84	1,496.90	1,358.75	138.15	10.835				
16,000.00	10,710.00	16,024.93	10,720.00	101.75	99.10	90.37	-5,579.61	78.81	1,496.89	1,356.59	140.30	10.669				
16,100.00	10,710.00	16,124.93	10,720.00	103.23	100.63	90.37	-5,679.60	79.78	1,496.89	1,354.43	142.46	10.508				
16,200.00	10,710.00	16,224.93	10,720.00	104.73	102.16	90.37	-5,779.60	80.75	1,496.89	1,352.27	144.62	10.351				
16,300.00	10,710.00	16,324.93	10,720.00	106.22	103.70	90.37	-5,879.59	81.72	1,496.89	1,350.10	146.79	10.198				
16,400.00	10,710.00	16,424.93	10,720.00	107.72	105.24	90.37	-5,979.59	82.69	1,496.89	1,347.93	148.96	10.049				
16,500.00	10,710.00	16,524.93	10,720.00	109.23	106.78	90.37	-6,079.58	83.66	1,496.89	1,345.75	151.14	9.904				
16,600.00	10,710.00	16,624.93	10,720.00	110.73	108.33	90.37	-6,179.58	84.63	1,496.88	1,343.56	153.32	9.763				
16,700.00	10,710.00	16,724.93	10,720.00	112.25	109.88	90.37	-6,279.57	85.60	1,496.88	1,341.38	155.51	9.626				
16,800.00	10,710.00	16,824.93	10,720.00	113.76	111.43	90.37	-6,379.57	86.57	1,496.88	1,339.18	157.70	9.492				
16,900.00	10,710.00	16,924.93	10,720.00	115.28	112.99	90.37	-6,479.56	87.54	1,496.88	1,336.99	159.89	9.362				
17,000.00	10,710.00	17,024.93	10,720.00	116.81	114.54	90.37	-6,579.56	88.51	1,496.88	1,334.79	162.09	9.235				
17,100.00	10,710.00	17,124.93	10,720.00	118.34	116.11	90.37	-6,679.55	89.48	1,496.88	1,332.58	164.29	9.111				
17,200.00	10,710.00	17,224.93	10,720.00	119.87	117.67	90.37	-6,779.55	90.45	1,496.88	1,330.37	166.50	8.990				
17,300.00	10,710.00	17,324.93	10,720.00	121.40	119.23	90.37	-6,879.55	91.41	1,496.87	1,328.16	168.71	8.872				
17,400.00	10,710.00	17,424.93	10,720.00	122.94	120.80	90.37	-6,979.54	92.38	1,496.87	1,325.95	170.92	8.758				
17,500.00	10,710.00	17,524.93	10,720.00	124.48	122.37	90.37	-7,079.54	93.35	1,496.87	1,323.73	173.14	8.645				
17,600.00	10,710.00	17,624.93	10,720.00	126.02	123.94	90.37	-7,179.53	94.32	1,496.87	1,321.51	175.36	8.536				
17,700.00	10,710.00	17,724.93	10,720.00	127.57	125.52	90.37	-7,279.53	95.29	1,496.87	1,319.29	177.58	8.429				
17,800.00	10,710.00	17,824.93	10,720.00	129.11	127.09	90.37	-7,379.52	96.26	1,496.87	1,317.06	179.81	8.325				
17,900.00	10,710.00	17,924.93	10,720.00	130.67	128.67	90.37	-7,479.52	97.23	1,496.86	1,314.83	182.03	8.223				
18,000.00	10,710.00	18,024.93	10,720.00	132.22	130.25	90.37	-7,579.51	98.20	1,496.86	1,312.60	184.27	8.123				
18,100.00	10,710.00	18,124.93	10,720.00	133.77	131.83	90.37	-7,679.51	99.17	1,496.86	1,310.36	186.50	8.026				
18,200.00	10,710.00	18,224.93	10,720.00	135.33	133.42	90.37	-7,779.50	100.14	1,496.86	1,308.13	188.73	7.931				
18,300.00	10,710.00	18,324.93	10,720.00	136.89	135.00	90.37	-7,879.50	101.11	1,496.86	1,305.89	190.97	7.838				
18,400.00	10,710.00	18,424.93	10,720.00	138.45	136.59	90.37	-7,979.49	102.08	1,496.86	1,303.64	193.21	7.747				
18,500.00	10,710.00	18,524.93	10,720.00	140.02	138.18	90.37	-8,079.49	103.05	1,496.86	1,301.40	195.46	7.658				
18,600.00	10,710.00	18,624.93	10,720.00	141.58	139.77	90.37	-8,179.48	104.02	1,496.85	1,299.15	197.70	7.571				
18,700.00	10,710.00	18,724.93	10,720.00	143.15	141.36	90.37	-8,279.48	104.99	1,496.85	1,296.91	199.95	7.486				
18,800.00	10,710.00	18,824.93	10,720.00	144.72	142.95	90.37	-8,379.47	105.96	1,496.85	1,294.65	202.20	7.403				
18,900.00	10,710.00	18,924.93	10,720.00	146.30	144.54	90.37	-8,479.47	106.93	1,496.85	1,292.40	204.45	7.321				
19,000.00	10,710.00	19,024.93	10,720.00	147.87	146.14	90.37	-8,579.47	107.90	1,496.85	1,290.15	206.70	7.242				
19,100.00	10,710.00	19,124.93	10,720.00	149.44	147.74	90.37	-8,679.46	108.87	1,496.85	1,287.89	208.95	7.164				
19,200.00	10,710.00	19,224.93	10,720.00	151.02	149.33	90.37	-8,779.46	109.84	1,496.84	1,285.63	211.21	7.087				
19,300.00	10,710.00	19,324.93	10,720.00	152.60	150.93	90.37	-8,879.45	110.81	1,496.84	1,283.37	213.47	7.012				
19,400.00	10,710.00	19,424.93	10,720.00	154.18	152.53	90.37	-8,979.45	111.78	1,496.84	1,281.11	215.73	6.939				
19,500.00	10,710.00	19,524.93	10,720.00	155.76	154.13	90.37	-9,079.44	112.75	1,496.84	1,278.85	217.99	6.867				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
19,600.00	10,710.00	19,624.93	10,720.00	157.34	155.73	90.37	-9,179.44	113.72	1,496.84	1,276.59	220.25	6.796		
19,700.00	10,710.00	19,724.93	10,720.00	158.93	157.34	90.37	-9,279.43	114.69	1,496.84	1,274.32	222.52	6.727		
19,800.00	10,710.00	19,824.93	10,720.00	160.51	158.94	90.37	-9,379.43	115.65	1,496.83	1,272.05	224.78	6.659		
19,900.00	10,710.00	19,924.93	10,720.00	162.10	160.55	90.37	-9,479.42	116.62	1,496.83	1,269.79	227.05	6.593		
20,000.00	10,710.00	20,024.93	10,720.00	163.69	162.15	90.37	-9,579.42	117.59	1,496.83	1,267.52	229.32	6.527		
20,100.00	10,710.00	20,124.93	10,720.00	165.28	163.76	90.37	-9,679.41	118.56	1,496.83	1,265.24	231.59	6.463		
20,200.00	10,710.00	20,224.93	10,720.00	166.87	165.37	90.37	-9,779.41	119.53	1,496.83	1,262.97	233.86	6.401		
20,300.00	10,710.00	20,324.93	10,720.00	168.46	166.97	90.37	-9,879.40	120.50	1,496.83	1,260.70	236.13	6.339		
20,400.00	10,710.00	20,424.93	10,720.00	170.05	168.58	90.37	-9,979.40	121.47	1,496.83	1,258.42	238.40	6.279		
20,500.00	10,710.00	20,524.93	10,720.00	171.65	170.19	90.37	-10,079.40	122.44	1,496.82	1,256.15	240.68	6.219		
20,600.00	10,710.00	20,624.93	10,720.00	173.24	171.80	90.37	-10,179.39	123.41	1,496.82	1,253.87	242.95	6.161		
20,700.00	10,710.00	20,724.93	10,720.00	174.84	173.42	90.37	-10,279.39	124.38	1,496.82	1,251.59	245.23	6.104		
20,800.00	10,710.00	20,824.93	10,720.00	176.44	174.98	90.37	-10,379.38	125.35	1,496.82	1,249.34	247.48	6.048		
20,816.38	10,710.00	20,841.31	10,720.00	176.70	175.22	90.37	-10,395.76	125.51	1,496.82	1,248.99	247.83	6.040		
20,818.71	10,710.00	20,841.32	10,720.00	176.74	175.22	90.37	-10,395.77	125.51	1,496.82	1,248.99	247.83	6.040		
20,819.49	10,710.00	20,841.32	10,720.00	176.80	175.22	90.37	-10,395.77	125.51	1,496.82	1,249.00	247.83	6.040		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	16.50	16.50	0.00	0.02	-90.35	-17.20	-2,847.19	2,847.24	2,847.02	0.22	N/A		
100.00	100.00	116.50	116.50	0.13	0.18	-90.35	-17.20	-2,847.19	2,847.24	2,846.51	0.73	3,914.181		
200.00	200.00	216.50	216.50	0.48	0.54	-90.35	-17.20	-2,847.19	2,847.24	2,846.01	1.23	2,307.555		
300.00	300.00	316.50	316.50	0.84	0.90	-90.35	-17.20	-2,847.19	2,847.24	2,845.50	1.74	1,635.757		
400.00	400.00	416.50	416.50	1.20	1.26	-90.35	-17.20	-2,847.19	2,847.24	2,844.99	2.25	1,266.866		
500.00	500.00	516.50	516.50	1.56	1.62	-90.35	-17.20	-2,847.19	2,847.24					
600.00	600.00	616.50	616.50	1.92	1.98	-90.35	-17.20	-2,847.19	2,847.24	2,844.49	2.75	1,033.725		
700.00	700.00	716.50	716.50	2.28	2.34	-90.35	-17.20	-2,847.19	2,847.24	2,843.98	3.26	873.050		
800.00	800.00	816.50	816.50	2.63	2.69	-90.35	-17.20	-2,847.19	2,847.24	2,843.47	3.77	755.602		
900.00	900.00	916.50	916.50	2.99	3.05	-90.35	-17.20	-2,847.19	2,847.24	2,842.97	4.28	666.005		
1,000.00	1,000.00	1,016.50	1,016.50	3.35	3.41	-90.35	-17.20	-2,847.19	2,847.24	2,842.46	4.78	595.403		
1,100.00	1,100.00	1,116.50	1,116.50	3.71	3.77	-90.35	-17.20	-2,847.19	2,847.24	2,841.95	5.29	538.335		
1,200.00	1,200.00	1,216.50	1,216.50	4.07	4.13	-90.35	-17.20	-2,847.19	2,847.24	2,841.45	5.80	491.250		
1,300.00	1,300.00	1,316.50	1,316.50	4.43	4.49	-90.35	-17.20	-2,847.19	2,847.24	2,840.94	6.30	451.738		
1,400.00	1,400.00	1,416.50	1,416.50	4.79	4.84	-90.35	-17.20	-2,847.19	2,847.24	2,840.43	6.81	418.109		
1,500.00	1,500.00	1,516.50	1,516.50	5.14	5.20	-90.35	-17.20	-2,847.19	2,847.24	2,839.93	7.32	389.140		
1,600.00	1,600.00	1,616.50	1,616.50	5.50	5.56	-90.35	-17.20	-2,847.19	2,847.24	2,839.42	7.82	363.925		
1,700.00	1,700.00	1,716.50	1,716.50	5.86	5.92	-90.35	-17.20	-2,847.19	2,847.24	2,838.91	8.33	341.779		
1,800.00	1,800.00	1,816.50	1,816.50	6.22	6.28	-90.35	-17.20	-2,847.19	2,847.24	2,838.40	8.84	322.174		
1,900.00	1,900.00	1,916.50	1,916.50	6.58	6.64	-90.35	-17.20	-2,847.19	2,847.24	2,837.90	9.34	304.696		
2,000.00	2,000.00	2,016.50	2,016.50	6.94	7.00	-90.35	-17.20	-2,847.19	2,847.24	2,837.39	9.85	289.016		
2,100.00	2,100.00	2,116.50	2,116.50	7.29	7.35	-90.35	-17.20	-2,847.19	2,847.24	2,836.88	10.36	274.871		
2,200.00	2,200.00	2,216.50	2,216.50	7.65	7.71	-90.35	-17.20	-2,847.19	2,847.24	2,836.38	10.87	262.047		
2,300.00	2,300.00	2,316.50	2,316.50	8.01	8.07	-90.35	-17.20	-2,847.19	2,847.24	2,835.87	11.37	250.365		
2,400.00	2,400.00	2,416.50	2,416.50	8.37	8.43	-90.35	-17.20	-2,847.19	2,847.24	2,835.36	11.88	239.681		
2,500.00	2,500.00	2,516.50	2,516.50	8.73	8.79	-90.35	-17.20	-2,847.19	2,847.24	2,834.86	12.39	229.871		
2,600.00	2,600.00	2,616.50	2,616.50	9.09	9.15	-90.35	-17.20	-2,847.19	2,847.24	2,834.35	12.89	220.833		
2,700.00	2,700.00	2,716.50	2,716.50	9.45	9.50	-90.35	-17.20	-2,847.19	2,847.24	2,833.84	13.40	212.478		
2,800.00	2,800.00	2,816.50	2,816.50	9.80	9.86	-90.35	-17.20	-2,847.19	2,847.24	2,833.33	13.91	204.733		
2,900.00	2,900.00	2,916.50	2,916.50	10.16	10.22	-90.35	-17.20	-2,847.19	2,847.24	2,832.83	14.41	197.532		
3,000.00	3,000.00	3,016.50	3,016.50	10.52	10.58	-90.35	-17.20	-2,847.19	2,847.24	2,832.32	14.92	190.821		
3,100.00	3,100.00	3,116.50	3,116.50	10.88	10.94	-90.35	-17.20	-2,847.19	2,847.24	2,831.81	15.43	184.551		
3,110.08	3,110.08	3,126.58	3,126.58	10.92	10.97	-90.35	-17.20	-2,847.19	2,847.24	2,831.76	15.48	183.941 CC		
3,200.00	3,200.00	3,200.00	3,200.00	11.24	11.24	-90.35	-17.20	-2,847.19	2,847.29	2,831.40	15.89	179.156 ES		
3,300.00	3,300.00	3,276.04	3,276.04	11.60	11.50	-90.36	-17.73	-2,847.73	2,848.07	2,831.74	16.33	174.412		
3,400.00	3,399.98	3,341.23	3,341.20	11.94	11.72	170.84	-19.04	-2,849.04	2,851.82	2,835.10	16.73	170.499		
3,500.00	3,499.84	3,400.00	3,399.91	12.28	11.91	170.79	-20.89	-2,850.90	2,860.24	2,843.14	17.10	167.305		
3,600.00	3,599.45	3,472.64	3,472.41	12.63	12.15	170.70	-24.05	-2,854.09	2,873.27	2,855.77	17.50	164.197		
3,700.00	3,698.70	3,571.14	3,570.67	12.97	12.48	170.59	-28.90	-2,858.96	2,890.24	2,872.27	17.97	160.857		
3,800.00	3,797.47	3,669.01	3,668.30	13.33	12.81	170.48	-33.72	-2,863.81	2,910.60	2,892.16	18.44	157.877		
3,900.00	3,895.62	3,766.14	3,765.19	13.69	13.13	170.36	-38.50	-2,868.62	2,934.32	2,915.42	18.90	155.234		
4,000.00	3,993.06	3,862.40	3,861.22	14.06	13.46	170.25	-43.24	-2,873.39	2,961.36	2,942.00	19.37	152.903		
4,097.19	4,086.94	3,955.02	3,953.61	14.43	13.78	170.13	-47.80	-2,877.98	2,990.81	2,970.99	19.82	150.918		
4,100.00	4,089.64	3,957.68	3,956.27	14.45	13.79	170.13	-47.93	-2,878.11	2,991.71	2,971.87	19.83	150.854		
4,200.00	4,185.80	4,052.46	4,050.82	14.85	14.11	170.13	-52.60	-2,882.80	3,023.59	3,003.30	20.29	149.000		
4,300.00	4,281.95	4,147.24	4,145.36	15.26	14.44	170.13	-57.26	-2,887.50	3,055.48	3,034.72	20.76	147.205		
4,400.00	4,378.10	4,242.02	4,239.91	15.68	14.76	170.12	-61.93	-2,892.19	3,087.37	3,066.14	21.22	145.467		
4,500.00	4,474.26	4,336.80	4,334.46	16.12	15.09	170.12	-66.59	-2,896.89	3,119.25	3,097.56	21.69	143.784		
4,600.00	4,570.41	4,431.58	4,429.01	16.56	15.42	170.12	-71.26	-2,901.58	3,151.14	3,128.97	22.17	142.155		
4,700.00	4,666.56	4,526.36	4,523.56	17.01	15.76	170.11	-75.92	-2,906.28	3,183.03	3,160.38	22.64	140.579		
4,800.00	4,762.72	4,621.14	4,618.11	17.47	16.09	170.11	-80.59	-2,910.97	3,214.91	3,191.79	23.12	139.052		
4,900.00	4,858.87	4,715.92	4,712.66	17.94	16.42	170.11	-85.25	-2,915.66	3,246.80	3,223.20	23.60	137.574		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	10,710.00	20,816.44	12,123.00	155.76	155.56	107.13	-9,110.29	-2,920.75	4,740.82	4,528.29	212.53	22.307		
19,600.00	10,710.00	20,916.44	12,123.00	157.34	157.15	107.13	-9,210.29	-2,919.75	4,740.78	4,526.09	214.70	22.081		
19,700.00	10,710.00	21,016.44	12,123.00	158.93	158.74	107.13	-9,310.28	-2,918.75	4,740.75	4,523.88	216.87	21.860		
19,800.00	10,710.00	21,116.44	12,123.00	160.51	160.34	107.13	-9,410.28	-2,917.75	4,740.72	4,521.68	219.04	21.643		
19,900.00	10,710.00	21,216.44	12,123.00	162.10	161.93	107.13	-9,510.27	-2,916.75	4,740.69	4,519.47	221.22	21.430		
20,000.00	10,710.00	21,316.44	12,123.00	163.69	163.52	107.13	-9,610.27	-2,915.75	4,740.66	4,517.26	223.39	21.221		
20,100.00	10,710.00	21,416.44	12,123.00	165.28	165.12	107.13	-9,710.26	-2,914.75	4,740.62	4,515.05	225.57	21.016		
20,200.00	10,710.00	21,516.44	12,123.00	166.87	166.72	107.13	-9,810.26	-2,913.75	4,740.59	4,512.84	227.75	20.815		
20,300.00	10,710.00	21,616.44	12,123.00	168.46	168.31	107.13	-9,910.25	-2,912.74	4,740.56	4,510.63	229.93	20.617		
20,400.00	10,710.00	21,716.44	12,123.00	170.05	169.91	107.13	-10,010.25	-2,911.74	4,740.53	4,508.42	232.11	20.423		
20,500.00	10,710.00	21,816.44	12,123.00	171.65	171.51	107.13	-10,110.24	-2,910.74	4,740.50	4,506.20	234.30	20.233		
20,600.00	10,710.00	21,916.44	12,123.00	173.24	173.11	107.13	-10,210.24	-2,909.74	4,740.47	4,503.99	236.48	20.046		
20,700.00	10,710.00	22,016.44	12,123.00	174.84	174.71	107.13	-10,310.23	-2,908.74	4,740.43	4,501.77	238.67	19.862		
20,800.00	10,710.00	22,116.44	12,123.00	176.44	176.29	107.13	-10,410.23	-2,907.74	4,740.40	4,499.57	240.83	19.683		
20,814.23	10,710.00	22,129.15	12,123.00	176.67	176.47	107.13	-10,422.94	-2,907.61	4,740.40	4,499.29	241.11	19.661		
20,818.71	10,710.00	22,129.15	12,123.00	176.74	176.47	107.13	-10,422.94	-2,907.61	4,740.40	4,499.26	241.14	19.658		
20,819.49	10,710.00	22,129.15	12,123.00	176.80	176.47	107.13	-10,422.94	-2,907.61	4,740.40	4,499.25	241.15	19.658 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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
10,200.00	9,994.42	9,976.87	9,969.12	43.99	35.28	-52.51	-17.73	1,240.78	356.96	305.08	51.88	6.881		
10,300.00	10,094.42	10,076.87	10,069.12	44.27	35.63	-52.51	-17.73	1,240.78	356.96	304.61	52.35	6.818		
10,342.62	10,137.04	10,119.48	10,111.74	44.39	35.78	-52.51	-17.73	1,240.78	356.96	304.40	52.56	6.792		
10,350.00	10,144.42	10,126.87	10,119.12	44.41	35.81	128.05	-17.73	1,240.78	356.99	304.40	52.59	6.788		
10,400.00	10,194.33	10,176.77	10,169.03	44.55	35.98	128.27	-17.73	1,240.78	358.74	305.89	52.85	6.788		
10,450.00	10,243.80	10,226.24	10,218.50	44.69	36.16	128.80	-17.73	1,240.78	363.23	310.09	53.14	6.835		
10,500.00	10,292.45	10,274.90	10,267.15	44.84	36.33	129.59	-17.73	1,240.78	370.58	317.11	53.47	6.931		
10,550.00	10,339.93	10,322.37	10,314.63	44.99	36.50	130.54	-17.73	1,240.78	380.96	327.14	53.82	7.078		
10,600.00	10,385.86	10,368.30	10,360.56	45.14	36.66	131.58	-17.73	1,240.78	394.54	340.35	54.19	7.280		
10,650.00	10,429.89	10,412.33	10,404.59	45.29	36.82	132.58	-17.73	1,240.78	411.48	356.91	54.57	7.540		
10,700.00	10,471.70	10,454.14	10,446.40	45.44	36.97	133.43	-17.73	1,240.78	431.90	376.95	54.95	7.860		
10,750.00	10,510.96	10,493.40	10,485.66	45.58	37.11	134.04	-17.73	1,240.78	455.83	400.51	55.32	8.241		
10,800.00	10,547.37	10,529.81	10,522.07	45.73	37.23	134.30	-17.73	1,240.78	483.24	427.58	55.66	8.682		
10,850.00	10,580.66	10,563.11	10,555.36	45.88	37.35	134.09	-17.73	1,240.78	514.03	458.05	55.98	9.182		
10,900.00	10,610.58	10,593.02	10,585.28	46.03	37.46	133.29	-17.73	1,240.78	547.99	491.73	56.27	9.739		
10,950.00	10,636.89	10,619.33	10,611.59	46.18	37.55	131.73	-17.73	1,240.78	584.88	528.36	56.52	10.349		
11,000.00	10,659.39	10,641.84	10,634.09	46.34	37.63	129.18	-17.73	1,240.78	624.39	567.65	56.73	11.006		
11,050.00	10,677.93	10,660.37	10,652.63	46.50	37.70	125.33	-17.73	1,240.78	666.17	609.25	56.91	11.705		
11,100.00	10,692.34	10,674.78	10,667.04	46.67	37.75	119.74	-17.73	1,240.78	709.84	652.78	57.06	12.440		
11,150.00	10,702.53	10,684.97	10,677.23	46.85	37.79	111.86	-17.73	1,240.78	755.03	697.85	57.17	13.206		
11,200.00	10,708.41	10,690.86	10,683.11	47.04	37.81	101.22	-17.73	1,240.78	801.31	744.05	57.26	13.994		
11,242.62	10,710.00	10,692.44	10,684.70	47.21	37.81	90.00	-17.73	1,240.78	841.31	784.00	57.31	14.680		
11,300.00	10,710.00	10,692.44	10,684.70	47.45	37.81	90.00	-17.73	1,240.78	895.60	838.24	57.36	15.613		
11,400.00	10,710.00	10,692.44	10,684.70	47.92	37.81	90.00	-17.73	1,240.78	991.05	933.61	57.44	17.255		
11,500.00	10,710.00	10,692.44	10,684.70	48.43	37.81	90.00	-17.73	1,240.78	1,087.31	1,029.81	57.50	18.911		
11,600.00	10,710.00	10,692.44	10,684.70	49.00	37.81	90.00	-17.73	1,240.78	1,184.19	1,126.65	57.54	20.579		
11,700.00	10,710.00	12,937.20	11,925.00	49.61	46.81	167.24	-1,268.04	1,253.02	1,271.73	1,232.42	39.31	32.351		
11,800.00	10,710.00	13,037.20	11,925.00	50.27	47.56	167.24	-1,368.04	1,254.00	1,271.72	1,231.90	39.82	31.936		
11,900.00	10,710.00	13,137.20	11,925.00	50.98	48.36	167.24	-1,468.04	1,254.98	1,271.72	1,231.36	40.36	31.510		
12,000.00	10,710.00	13,237.20	11,925.00	51.74	49.20	167.24	-1,568.03	1,255.96	1,271.72	1,230.79	40.92	31.075		
12,100.00	10,710.00	13,337.20	11,925.00	52.54	50.08	167.24	-1,668.03	1,256.94	1,271.72	1,230.20	41.52	30.632		
12,200.00	10,710.00	13,437.20	11,925.00	53.38	51.00	167.24	-1,768.02	1,257.92	1,271.71	1,229.58	42.13	30.183		
12,300.00	10,710.00	13,537.20	11,925.00	54.26	51.95	167.24	-1,868.02	1,258.90	1,271.71	1,228.94	42.77	29.731		
12,400.00	10,710.00	13,637.20	11,925.00	55.18	52.94	167.24	-1,968.01	1,259.88	1,271.71	1,228.27	43.44	29.277		
12,500.00	10,710.00	13,737.20	11,925.00	56.13	53.96	167.24	-2,068.01	1,260.86	1,271.71	1,227.58	44.12	28.823		
12,600.00	10,710.00	13,837.20	11,925.00	57.11	55.01	167.24	-2,168.00	1,261.83	1,271.70	1,226.88	44.83	28.369		
12,700.00	10,710.00	13,937.20	11,925.00	58.13	56.09	167.24	-2,268.00	1,262.81	1,271.70	1,226.15	45.55	27.917		
12,800.00	10,710.00	14,037.20	11,925.00	59.18	57.20	167.24	-2,367.99	1,263.79	1,271.70	1,225.40	46.30	27.468		
12,900.00	10,710.00	14,137.20	11,925.00	60.26	58.34	167.24	-2,467.99	1,264.77	1,271.70	1,224.64	47.06	27.023		
13,000.00	10,710.00	14,237.20	11,925.00	61.36	59.49	167.24	-2,567.98	1,265.75	1,271.69	1,223.85	47.84	26.583		
13,100.00	10,710.00	14,337.20	11,925.00	62.49	60.67	167.24	-2,667.98	1,266.73	1,271.69	1,223.06	48.63	26.148		
13,200.00	10,710.00	14,437.20	11,925.00	63.64	61.88	167.24	-2,767.97	1,267.71	1,271.69	1,222.24	49.44	25.720		
13,300.00	10,710.00	14,537.20	11,925.00	64.81	63.10	167.24	-2,867.97	1,268.69	1,271.69	1,221.42	50.27	25.298		
13,400.00	10,710.00	14,637.20	11,925.00	66.01	64.34	167.24	-2,967.96	1,269.67	1,271.68	1,220.58	51.11	24.883		
13,500.00	10,710.00	14,737.20	11,925.00	67.22	65.60	167.24	-3,067.96	1,270.65	1,271.68	1,219.72	51.96	24.475		
13,600.00	10,710.00	14,837.20	11,925.00	68.46	66.88	167.25	-3,167.95	1,271.63	1,271.68	1,218.86	52.82	24.075		
13,700.00	10,710.00	14,937.20	11,925.00	69.71	68.17	167.25	-3,267.95	1,272.60	1,271.68	1,217.98	53.70	23.682		
13,800.00	10,710.00	15,037.20	11,925.00	70.98	69.48	167.25	-3,367.94	1,273.58	1,271.67	1,217.09	54.59	23.296		
13,900.00	10,710.00	15,137.20	11,925.00	72.26	70.80	167.25	-3,467.94	1,274.56	1,271.67	1,216.19	55.49	22.919		
14,000.00	10,710.00	15,237.20	11,925.00	73.56	72.14	167.25	-3,567.93	1,275.54	1,271.67	1,215.28	56.39	22.550		
14,100.00	10,710.00	15,337.20	11,925.00	74.87	73.49	167.25	-3,667.93	1,276.52	1,271.67	1,214.36	57.31	22.189		
14,200.00	10,710.00	15,437.20	11,925.00	76.20	74.85	167.25	-3,767.93	1,277.50	1,271.66	1,213.43	58.24	21.835		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 604H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
19,500.00	10,710.00	20,737.20	11,925.00	155.76	155.26	167.27	-9,067.67	1,329.39	1,271.54	1,157.70	113.84	11.170				
19,600.00	10,710.00	20,837.20	11,925.00	157.34	156.85	167.27	-9,167.67	1,330.37	1,271.53	1,156.59	114.95	11.062				
19,700.00	10,710.00	20,937.20	11,925.00	158.93	158.45	167.28	-9,267.66	1,331.35	1,271.53	1,155.48	116.05	10.956				
19,800.00	10,710.00	21,037.20	11,925.00	160.51	160.04	167.28	-9,367.66	1,332.33	1,271.53	1,154.37	117.16	10.853				
19,900.00	10,710.00	21,137.20	11,925.00	162.10	161.63	167.28	-9,467.65	1,333.31	1,271.53	1,153.26	118.27	10.751				
20,000.00	10,710.00	21,237.20	11,925.00	163.69	163.23	167.28	-9,567.65	1,334.29	1,271.52	1,152.15	119.38	10.651				
20,100.00	10,710.00	21,337.20	11,925.00	165.28	164.83	167.28	-9,667.64	1,335.27	1,271.52	1,151.03	120.49	10.553				
20,200.00	10,710.00	21,437.20	11,925.00	166.87	166.42	167.28	-9,767.64	1,336.25	1,271.52	1,149.92	121.60	10.457				
20,300.00	10,710.00	21,537.20	11,925.00	168.46	168.02	167.28	-9,867.63	1,337.23	1,271.52	1,148.81	122.71	10.362				
20,400.00	10,710.00	21,637.20	11,925.00	170.05	169.62	167.28	-9,967.63	1,338.20	1,271.51	1,147.69	123.82	10.269				
20,500.00	10,710.00	21,737.20	11,925.00	171.65	171.22	167.28	-10,067.62	1,339.18	1,271.51	1,146.58	124.94	10.177				
20,600.00	10,710.00	21,837.20	11,925.00	173.24	172.82	167.28	-10,167.62	1,340.16	1,271.51	1,145.46	126.05	10.087				
20,700.00	10,710.00	21,937.20	11,925.00	174.84	174.43	167.28	-10,267.61	1,341.14	1,271.51	1,144.34	127.16	9.999				
20,800.00	10,710.00	22,037.20	11,925.00	176.44	176.03	167.28	-10,367.61	1,342.12	1,271.50	1,143.22	128.28	9.912				
20,818.71	10,710.00	22,055.91	11,925.00	176.74	176.33	167.28	-10,386.32	1,342.30	1,271.50	1,143.00	128.50	9.895				
20,818.76	10,710.00	22,055.96	11,925.00	176.74	176.33	167.28	-10,386.36	1,342.30	1,271.50	1,143.00	128.50	9.895				
20,819.49	10,710.00	22,055.98	11,925.00	176.80	176.33	167.28	-10,386.38	1,342.31	1,271.50	1,142.99	128.51	9.894				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	89.42	9.76	964.79	965.14						
100.00	100.00	75.80	75.80	0.13	0.10	89.42	9.76	964.79	964.84	964.68	0.16	6,128.462			
200.00	200.00	175.80	175.80	0.48	0.40	89.42	9.76	964.79	964.84	964.21	0.63	1,541.127			
300.00	300.00	275.80	275.80	0.84	0.76	89.42	9.76	964.79	964.84	963.71	1.13	852.582			
400.00	400.00	375.80	375.80	1.20	1.11	89.42	9.76	964.79	964.84	963.20	1.64	588.996			
500.00	500.00	475.80	475.80	1.56	1.47	89.42	9.76	964.79	964.84	962.69	2.14	449.852			
600.00	600.00	575.80	575.80	1.92	1.83	89.42	9.76	964.79	964.84	962.19	2.65	363.873			
700.00	700.00	675.80	675.80	2.28	2.19	89.42	9.76	964.79	964.84	961.68	3.16	305.482			
800.00	800.00	775.80	775.80	2.63	2.55	89.42	9.76	964.79	964.84	961.17	3.67	263.237			
900.00	900.00	875.80	875.80	2.99	2.91	89.42	9.76	964.79	964.84	960.67	4.17	231.255			
1,000.00	1,000.00	975.80	975.80	3.35	3.26	89.42	9.76	964.79	964.84	960.16	4.68	206.202			
1,100.00	1,100.00	1,075.80	1,075.80	3.71	3.62	89.42	9.76	964.79	964.84	959.65	5.19	186.047			
1,200.00	1,200.00	1,175.80	1,175.80	4.07	3.98	89.42	9.76	964.79	964.84	959.15	5.69	169.480			
1,300.00	1,300.00	1,275.80	1,275.80	4.43	4.34	89.42	9.76	964.79	964.84	958.64	6.20	155.623			
1,400.00	1,400.00	1,375.80	1,375.80	4.79	4.70	89.42	9.76	964.79	964.84	958.13	6.71	143.860			
1,500.00	1,500.00	1,475.80	1,475.80	5.14	5.06	89.42	9.76	964.79	964.84	957.63	7.21	133.750			
1,600.00	1,600.00	1,575.80	1,575.80	5.50	5.42	89.42	9.76	964.79	964.84	957.12	7.72	124.968			
1,700.00	1,700.00	1,675.80	1,675.80	5.86	5.77	89.42	9.76	964.79	964.84	956.61	8.23	117.269			
1,800.00	1,800.00	1,775.80	1,775.80	6.22	6.13	89.42	9.76	964.79	964.84	956.10	8.73	110.462			
1,900.00	1,900.00	1,875.80	1,875.80	6.58	6.49	89.42	9.76	964.79	964.84	955.60	9.24	104.403			
2,000.00	2,000.00	1,975.80	1,975.80	6.94	6.85	89.42	9.76	964.79	964.84	955.09	9.75	98.974			
2,100.00	2,100.00	2,075.80	2,075.80	7.29	7.21	89.42	9.76	964.79	964.84	954.58	10.26	94.081			
2,200.00	2,200.00	2,175.80	2,175.80	7.65	7.57	89.42	9.76	964.79	964.84	954.08	10.76	89.650			
2,300.00	2,300.00	2,275.80	2,275.80	8.01	7.93	89.42	9.76	964.79	964.84	953.57	11.27	85.617			
2,400.00	2,400.00	2,375.80	2,375.80	8.37	8.28	89.42	9.76	964.79	964.84	953.06	11.78	81.931			
2,500.00	2,500.00	2,475.80	2,475.80	8.73	8.64	89.42	9.76	964.79	964.84	952.56	12.28	78.550			
2,600.00	2,600.00	2,575.80	2,575.80	9.09	9.00	89.42	9.76	964.79	964.84	952.05	12.79	75.436			
2,700.00	2,700.00	2,675.80	2,675.80	9.45	9.36	89.42	9.76	964.79	964.84	951.54	13.30	72.560			
2,800.00	2,800.00	2,775.80	2,775.80	9.80	9.72	89.42	9.76	964.79	964.84	951.04	13.80	69.896			
2,900.00	2,900.00	2,875.80	2,875.80	10.16	10.08	89.42	9.76	964.79	964.84	950.53	14.31	67.420			
3,000.00	3,000.00	2,975.80	2,975.80	10.52	10.43	89.42	9.76	964.79	964.84	950.02	14.82	65.113			
3,100.00	3,100.00	3,075.80	3,075.80	10.88	10.79	89.42	9.76	964.79	964.84	949.51	15.32	62.959			
3,200.00	3,200.00	3,175.80	3,175.80	11.24	11.15	89.42	9.76	964.79	964.84	949.01	15.83	60.943			
3,300.00	3,300.00	3,301.36	3,301.35	11.60	11.59	89.42	9.69	963.45	963.83	947.44	16.39	58.800			
3,400.00	3,399.98	3,434.68	3,434.53	11.94	12.05	-9.37	9.38	957.59	957.72	940.78	16.94	56.548			
3,500.00	3,499.84	3,566.67	3,566.11	12.28	12.50	-9.45	8.84	947.23	944.73	927.27	17.45	54.125			
3,600.00	3,599.45	3,696.42	3,695.02	12.63	12.96	-9.60	8.07	932.62	924.96	907.01	17.95	51.532			
3,700.00	3,698.70	3,823.08	3,820.32	12.97	13.41	-9.82	7.10	914.15	898.58	880.17	18.42	48.793			
3,800.00	3,797.47	3,945.88	3,941.14	13.33	13.86	-10.11	5.95	892.30	865.81	846.95	18.86	45.919			
3,900.00	3,895.62	4,042.09	4,035.46	13.69	14.22	-10.45	4.95	873.29	827.96	808.65	19.30	42.889			
4,000.00	3,993.06	4,133.22	4,124.78	14.06	14.56	-10.87	4.01	855.24	786.93	767.18	19.75	39.837			
4,097.19	4,086.94	4,220.37	4,210.20	14.43	14.90	-11.39	3.10	837.99	744.11	723.92	20.19	36.863			
4,100.00	4,089.64	4,222.87	4,212.65	14.45	14.91	-11.40	3.07	837.50	742.83	722.62	20.20	36.773			
4,200.00	4,185.80	4,311.79	4,299.80	14.85	15.25	-11.81	2.15	819.90	697.30	676.66	20.64	33.782			
4,300.00	4,281.95	4,400.70	4,386.95	15.26	15.60	-12.28	1.23	802.29	651.80	630.72	21.09	30.913			
4,400.00	4,378.10	4,489.61	4,474.10	15.68	15.96	-12.82	0.30	784.69	606.35	584.81	21.53	28.159			
4,500.00	4,474.26	4,578.53	4,561.25	16.12	16.32	-13.45	-0.62	767.09	560.94	538.96	21.98	25.516			
4,600.00	4,570.41	4,667.44	4,648.40	16.56	16.68	-14.19	-1.55	749.49	515.60	493.16	22.44	22.979			
4,700.00	4,666.56	4,756.36	4,735.55	17.01	17.05	-15.07	-2.47	731.89	470.34	447.45	22.90	20.542			
4,800.00	4,762.72	4,845.27	4,822.70	17.47	17.41	-16.14	-3.40	714.29	425.19	401.83	23.36	18.202			
4,900.00	4,858.87	4,934.19	4,909.85	17.94	17.78	-17.46	-4.32	696.69	380.19	356.36	23.83	15.955			
5,000.00	4,955.02	5,023.10	4,997.00	18.41	18.16	-19.12	-5.25	679.08	335.39	311.08	24.30	13.799			

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	5,051.18	5,112.01	5,084.15	18.89	18.53	-21.30	-6.17	661.48	290.89	266.09	24.79	11.732		
5,200.00	5,147.33	5,200.93	5,171.30	19.37	18.91	-24.23	-7.09	643.88	246.85	221.54	25.30	9.755		
5,300.00	5,243.48	5,289.84	5,258.45	19.86	19.29	-28.39	-8.02	626.28	203.57	177.72	25.85	7.874		
5,400.00	5,339.63	5,378.76	5,345.60	20.36	19.67	-34.66	-8.94	608.68	161.67	135.19	26.49	6.104		
5,500.00	5,435.79	5,467.67	5,432.75	20.86	20.06	-44.81	-9.87	591.08	122.57	95.26	27.31	4.487		
5,600.00	5,531.94	5,556.59	5,519.90	21.36	20.44	-62.28	-10.79	573.48	89.98	61.40	28.58	3.148		
5,700.00	5,628.09	5,645.50	5,607.05	21.87	20.83	-90.16	-11.72	555.87	73.21	43.08	30.13	2.430		
5,715.37	5,642.88	5,659.17	5,620.45	21.95	20.89	-95.07	-11.86	553.17	72.87	42.60	30.26	2.408	CC, ES, SF	
5,800.00	5,724.25	5,734.41	5,694.20	22.38	21.22	-120.37	-12.64	538.27	82.52	52.35	30.17	2.735		
5,900.00	5,820.40	5,823.33	5,781.35	22.89	21.61	-140.94	-13.57	520.67	111.57	81.87	29.71	3.756		
6,000.00	5,916.55	5,912.24	5,868.50	23.41	22.00	-152.89	-14.49	503.07	149.25	119.58	29.67	5.031		
6,100.00	6,012.71	6,001.16	5,955.65	23.93	22.40	-160.10	-15.41	485.47	190.50	160.62	29.89	6.374		
6,200.00	6,108.86	6,090.07	6,042.80	24.45	22.79	-164.79	-16.34	467.87	233.45	203.22	30.23	7.723		
6,300.00	6,205.01	6,178.99	6,129.95	24.98	23.19	-168.04	-17.26	450.27	277.29	246.67	30.62	9.055		
6,400.00	6,301.17	6,267.90	6,217.10	25.51	23.59	-170.41	-18.19	432.66	321.67	290.62	31.05	10.359		
6,500.00	6,397.32	6,356.81	6,304.25	26.04	23.98	-172.21	-19.11	415.06	366.39	334.89	31.50	11.632		
6,600.00	6,493.47	6,445.73	6,391.39	26.57	24.38	-173.63	-20.04	397.46	411.34	379.38	31.96	12.872		
6,700.00	6,589.63	6,534.64	6,478.54	27.11	24.79	-174.76	-20.96	379.86	456.45	424.03	32.42	14.079		
6,800.00	6,685.78	6,623.56	6,565.69	27.65	25.19	-175.69	-21.89	362.26	501.68	468.79	32.89	15.252		
6,900.00	6,781.93	6,712.47	6,652.84	28.19	25.59	-176.47	-22.81	344.66	547.00	513.63	33.37	16.393		
7,000.00	6,878.09	6,801.39	6,739.99	28.73	25.99	-177.13	-23.73	327.06	592.38	558.54	33.85	17.502		
7,100.00	6,974.24	6,906.95	6,843.72	29.27	26.46	-177.77	-24.76	307.51	636.70	602.18	34.52	18.442		
7,200.00	7,070.39	7,015.90	6,951.31	29.81	26.93	-178.25	-25.66	290.35	678.59	643.38	35.21	19.275		
7,300.00	7,166.55	7,127.68	7,062.15	30.36	27.38	-178.62	-26.42	275.93	717.93	682.05	35.88	20.010		
7,400.00	7,262.70	7,242.20	7,176.09	30.90	27.83	-178.90	-27.02	264.53	754.62	718.08	36.54	20.653		
7,500.00	7,358.85	7,359.34	7,292.94	31.45	28.26	-179.08	-27.45	256.40	788.54	751.36	37.18	21.207		
7,600.00	7,455.00	7,478.96	7,412.47	32.00	28.68	-179.19	-27.69	251.79	819.61	781.80	37.81	21.679		
7,700.00	7,551.16	7,593.46	7,526.96	32.55	29.05	-179.24	-27.74	250.79	847.85	809.47	38.38	22.089		
7,800.00	7,647.31	7,689.61	7,623.11	33.10	29.36	-179.26	-27.74	250.79	875.32	836.43	38.89	22.510		
7,900.00	7,743.46	7,785.76	7,719.26	33.66	29.68	-179.29	-27.74	250.79	902.79	863.40	39.39	22.920		
8,000.00	7,839.62	7,881.92	7,815.42	34.21	29.99	-179.31	-27.74	250.79	930.26	890.36	39.89	23.319		
8,100.00	7,935.77	7,978.07	7,911.57	34.76	30.30	-179.33	-27.74	250.79	957.72	917.33	40.40	23.708		
8,200.00	8,031.92	8,074.22	8,007.72	35.32	30.61	-179.35	-27.74	250.79	985.19	944.29	40.90	24.087		
8,300.00	8,128.08	8,170.37	8,103.88	35.88	30.93	-179.36	-27.74	250.79	1,012.66	971.25	41.41	24.456		
8,400.00	8,224.23	8,266.53	8,200.03	36.43	31.24	-179.38	-27.74	250.79	1,040.13	998.21	41.91	24.816		
8,500.00	8,320.38	8,362.68	8,296.18	36.99	31.56	-179.40	-27.74	250.79	1,067.59	1,025.17	42.42	25.167		
8,600.00	8,416.54	8,458.83	8,392.34	37.55	31.87	-179.41	-27.74	250.79	1,095.06	1,052.14	42.93	25.510		
8,700.00	8,512.69	8,554.99	8,488.49	38.11	32.19	-179.43	-27.74	250.79	1,122.53	1,079.10	43.43	25.844		
8,800.00	8,608.84	8,651.14	8,584.64	38.67	32.51	-179.44	-27.74	250.79	1,150.00	1,106.06	43.94	26.170		
8,908.39	8,713.06	8,755.36	8,688.86	39.28	32.85	-179.45	-27.74	250.79	1,179.77	1,135.28	44.49	26.515		
9,000.00	8,801.54	8,843.83	8,777.34	39.78	33.14	-179.47	-27.74	250.79	1,203.52	1,158.56	44.96	26.768		
9,100.00	8,898.92	8,941.22	8,874.72	40.28	33.47	-179.48	-27.74	250.79	1,226.20	1,180.74	45.47	26.968		
9,200.00	8,997.05	9,039.34	8,972.85	40.76	33.79	-179.50	-27.74	250.79	1,245.47	1,199.50	45.98	27.090		
9,300.00	9,095.78	9,138.08	9,071.58	41.19	34.12	-179.50	-27.74	250.79	1,261.31	1,214.83	46.48	27.137		
9,400.00	9,195.00	9,237.30	9,170.80	41.59	34.45	-179.51	-27.74	250.79	1,273.69	1,226.71	46.98	27.111		
9,500.00	9,294.60	9,336.90	9,270.40	41.96	34.78	-179.52	-27.74	250.79	1,282.60	1,235.12	47.48	27.015		
9,600.00	9,394.45	9,436.75	9,370.25	42.29	35.12	-179.52	-27.74	250.79	1,288.02	1,240.06	47.97	26.852		
9,705.58	9,500.00	9,542.30	9,475.80	42.60	35.47	-80.75	-27.74	250.79	1,289.97	1,241.49	48.48	26.610		
9,800.00	9,594.42	9,636.72	9,570.22	42.86	35.79	-80.75	-27.74	250.79	1,289.97	1,241.04	48.93	26.364		
9,900.00	9,694.42	9,736.72	9,670.22	43.14	36.12	-80.75	-27.74	250.79	1,289.97	1,240.56	49.41	26.109		
10,000.00	9,794.42	9,836.72	9,770.22	43.42	36.46	-80.75	-27.74	250.79	1,289.97	1,240.08	49.89	25.859		
10,100.00	9,894.42	9,936.72	9,870.22	43.71	36.79	-80.75	-27.74	250.79	1,289.97	1,239.60	50.36	25.613		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
10,200.00	9,994.42	10,036.72	9,970.22	43.99	37.13	-80.75	-27.74	250.79	1,289.97	1,239.12	50.84	25.371		
10,300.00	10,094.42	10,136.72	10,070.22	44.27	37.47	-80.75	-27.74	250.79	1,289.97	1,238.64	51.32	25.134		
10,342.62	10,137.04	10,179.34	10,112.84	44.39	37.61	-80.75	-27.74	250.79	1,289.97	1,238.44	51.53	25.034		
10,350.00	10,144.42	10,186.72	10,120.22	44.41	37.64	-99.80	-27.74	250.79	1,289.98	1,238.41	51.56	25.017		
10,400.00	10,194.33	10,236.63	10,170.13	44.55	37.81	99.88	-27.74	250.79	1,290.46	1,238.66	51.80	24.911		
10,450.00	10,243.80	10,286.09	10,219.60	44.69	37.97	100.06	-27.74	250.79	1,291.71	1,239.67	52.04	24.821		
10,500.00	10,292.45	10,334.75	10,268.25	44.84	38.14	100.34	-27.74	250.79	1,293.80	1,241.52	52.28	24.748		
10,550.00	10,339.93	10,382.22	10,315.73	44.99	38.30	100.69	-27.74	250.79	1,296.80	1,244.29	52.52	24.694		
10,600.00	10,385.86	10,428.15	10,361.66	45.14	38.45	101.08	-27.74	250.79	1,300.85	1,248.10	52.75	24.661		
10,650.00	10,429.89	10,472.19	10,405.69	45.29	38.60	101.47	-27.74	250.79	1,306.08	1,253.10	52.98	24.653		
10,700.00	10,471.70	10,513.99	10,447.50	45.44	38.74	101.81	-27.74	250.79	1,312.65	1,259.44	53.20	24.673		
10,750.00	10,510.96	10,553.25	10,486.76	45.58	38.88	102.06	-27.74	250.79	1,320.70	1,267.28	53.42	24.723		
10,800.00	10,547.37	10,589.67	10,523.17	45.73	39.00	102.17	-27.74	250.79	1,330.41	1,276.77	53.63	24.806		
10,850.00	10,580.66	10,622.96	10,556.46	45.88	39.11	102.08	-27.74	250.79	1,341.88	1,288.05	53.83	24.926		
10,900.00	10,610.58	10,652.87	10,586.38	46.03	39.21	101.76	-27.74	250.79	1,355.24	1,301.22	54.03	25.085		
10,950.00	10,636.89	10,679.18	10,612.69	46.18	39.30	101.15	-27.74	250.79	1,370.56	1,316.36	54.21	25.285		
11,000.00	10,659.39	10,701.69	10,635.19	46.34	39.38	100.21	-27.74	250.79	1,387.87	1,333.50	54.37	25.527		
11,050.00	10,677.93	10,720.22	10,653.73	46.50	39.44	98.90	-27.74	250.79	1,407.14	1,352.63	54.52	25.811		
11,100.00	10,692.34	10,734.64	10,668.14	46.67	39.49	97.19	-27.74	250.79	1,428.32	1,373.68	54.65	26.137		
11,150.00	10,702.53	10,744.83	10,678.33	46.85	39.53	95.07	-27.74	250.79	1,451.29	1,396.54	54.76	26.505		
11,200.00	10,708.41	10,750.71	10,684.21	47.04	39.55	92.51	-27.74	250.79	1,475.89	1,421.04	54.84	26.911		
11,242.62	10,710.00	10,752.30	10,685.80	47.21	39.55	90.00	-27.74	250.79	1,497.97	1,443.07	54.90	27.285		
11,300.00	10,710.00	10,752.30	10,685.80	47.45	39.55	90.00	-27.74	250.79	1,529.11	1,474.14	54.97	27.818		
11,400.00	10,710.00	10,752.30	10,685.80	47.92	39.55	90.00	-27.74	250.79	1,586.87	1,531.79	55.08	28.809		
11,500.00	10,710.00	10,752.30	10,685.80	48.43	39.55	90.00	-27.74	250.79	1,648.68	1,593.48	55.19	29.871		
11,600.00	10,710.00	10,752.30	10,685.80	49.00	39.55	90.00	-27.74	250.79	1,714.09	1,658.80	55.30	30.998		
11,700.00	10,710.00	10,752.30	10,685.80	49.61	39.55	90.00	-27.74	250.79	1,782.72	1,727.33	55.40	32.181		
11,800.00	10,710.00	10,752.30	10,685.80	50.27	39.55	90.00	-27.74	250.79	1,854.21	1,798.72	55.49	33.415		
11,900.00	10,710.00	13,379.66	12,109.00	50.98	49.88	138.23	-1,477.75	265.01	1,908.10	1,854.38	53.71	35.524		
12,000.00	10,710.00	13,479.66	12,109.00	51.74	50.69	138.23	-1,577.75	265.99	1,908.09	1,853.48	54.61	34.943		
12,100.00	10,710.00	13,579.66	12,109.00	52.54	51.54	138.23	-1,677.74	266.97	1,908.08	1,852.54	55.54	34.357		
12,200.00	10,710.00	13,679.66	12,109.00	53.38	52.43	138.24	-1,777.74	267.96	1,908.07	1,851.56	56.51	33.767		
12,300.00	10,710.00	13,779.66	12,109.00	54.26	53.36	138.24	-1,877.73	268.94	1,908.06	1,850.55	57.51	33.176		
12,400.00	10,710.00	13,879.66	12,109.00	55.18	54.32	138.24	-1,977.73	269.92	1,908.05	1,849.50	58.55	32.586		
12,500.00	10,710.00	13,979.66	12,109.00	56.13	55.32	138.24	-2,077.72	270.90	1,908.05	1,848.42	59.63	32.000		
12,600.00	10,710.00	14,079.66	12,109.00	57.11	56.34	138.24	-2,177.72	271.88	1,908.04	1,847.31	60.73	31.418		
12,700.00	10,710.00	14,179.66	12,109.00	58.13	57.40	138.24	-2,277.71	272.86	1,908.03	1,846.16	61.87	30.841		
12,800.00	10,710.00	14,279.66	12,109.00	59.18	58.48	138.24	-2,377.71	273.84	1,908.02	1,845.00	63.03	30.274		
12,900.00	10,710.00	14,379.66	12,109.00	60.26	59.59	138.24	-2,477.70	274.82	1,908.01	1,843.80	64.21	29.715		
13,000.00	10,710.00	14,479.66	12,109.00	61.36	60.72	138.24	-2,577.70	275.80	1,908.00	1,842.58	65.42	29.165		
13,100.00	10,710.00	14,579.66	12,109.00	62.49	61.88	138.24	-2,677.69	276.78	1,908.00	1,841.34	66.66	28.625		
13,200.00	10,710.00	14,679.66	12,109.00	63.64	63.06	138.24	-2,777.69	277.76	1,907.99	1,840.07	67.91	28.095		
13,300.00	10,710.00	14,779.66	12,109.00	64.81	64.26	138.24	-2,877.68	278.74	1,907.98	1,838.79	69.19	27.576		
13,400.00	10,710.00	14,879.66	12,109.00	66.01	65.48	138.24	-2,977.68	279.73	1,907.97	1,837.48	70.49	27.069		
13,500.00	10,710.00	14,979.66	12,109.00	67.22	66.72	138.24	-3,077.67	280.71	1,907.96	1,836.16	71.80	26.573		
13,600.00	10,710.00	15,079.66	12,109.00	68.46	67.97	138.24	-3,177.67	281.69	1,907.95	1,834.82	73.13	26.090		
13,700.00	10,710.00	15,179.66	12,109.00	69.71	69.25	138.24	-3,277.66	282.67	1,907.94	1,833.47	74.48	25.618		
13,800.00	10,710.00	15,279.66	12,109.00	70.98	70.53	138.24	-3,377.66	283.65	1,907.94	1,832.10	75.84	25.158		
13,900.00	10,710.00	15,379.66	12,109.00	72.26	71.84	138.24	-3,477.65	284.63	1,907.93	1,830.71	77.21	24.709		
14,000.00	10,710.00	15,479.66	12,109.00	73.56	73.15	138.24	-3,577.65	285.61	1,907.92	1,829.31	78.61	24.272		
14,100.00	10,710.00	15,579.66	12,109.00	74.87	74.48	138.24	-3,677.64	286.59	1,907.91	1,827.90	80.01	23.846		
14,200.00	10,710.00	15,679.66	12,109.00	76.20	75.83	138.24	-3,777.64	287.57	1,907.90	1,826.47	81.43	23.431		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 704H - OH - Plan #2		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			
14,300.00	10,710.00	15,779.66	12,109.00	77.54	77.18	138.24	-3,877.64	288.55	1,907.89	1,825.04	82.86	23.027				
14,400.00	10,710.00	15,879.66	12,109.00	78.89	78.55	138.24	-3,977.63	289.53	1,907.88	1,823.59	84.29	22.634				
14,500.00	10,710.00	15,979.66	12,109.00	80.26	79.93	138.24	-4,077.63	290.51	1,907.88	1,822.14	85.74	22.252				
14,600.00	10,710.00	16,079.66	12,109.00	81.63	81.31	138.24	-4,177.62	291.50	1,907.87	1,820.67	87.20	21.880				
14,700.00	10,710.00	16,179.66	12,109.00	83.01	82.71	138.24	-4,277.62	292.48	1,907.86	1,819.20	88.66	21.518				
14,800.00	10,710.00	16,279.66	12,109.00	84.41	84.12	138.24	-4,377.61	293.46	1,907.85	1,817.71	90.14	21.165				
14,900.00	10,710.00	16,379.66	12,109.00	85.81	85.53	138.24	-4,477.61	294.44	1,907.84	1,816.22	91.63	20.822				
15,000.00	10,710.00	16,479.66	12,109.00	87.22	86.96	138.24	-4,577.60	295.42	1,907.83	1,814.71	93.12	20.488				
15,100.00	10,710.00	16,579.66	12,109.00	88.64	88.39	138.24	-4,677.60	296.40	1,907.83	1,813.21	94.62	20.163				
15,200.00	10,710.00	16,679.66	12,109.00	90.07	89.83	138.24	-4,777.59	297.38	1,907.82	1,811.69	96.12	19.848				
15,300.00	10,710.00	16,779.66	12,109.00	91.51	91.27	138.24	-4,877.59	298.36	1,907.81	1,810.17	97.63	19.540				
15,400.00	10,710.00	16,879.66	12,109.00	92.95	92.72	138.24	-4,977.58	299.34	1,907.80	1,808.65	99.15	19.241				
15,500.00	10,710.00	16,979.66	12,109.00	94.40	94.18	138.24	-5,077.58	300.32	1,907.79	1,807.11	100.68	18.949				
15,600.00	10,710.00	17,079.66	12,109.00	95.86	95.65	138.24	-5,177.57	301.30	1,907.78	1,805.57	102.21	18.665				
15,700.00	10,710.00	17,179.66	12,109.00	97.32	97.12	138.25	-5,277.57	302.28	1,907.77	1,804.03	103.75	18.388				
15,800.00	10,710.00	17,279.66	12,109.00	98.79	98.60	138.25	-5,377.56	303.27	1,907.77	1,802.47	105.29	18.119				
15,900.00	10,710.00	17,379.66	12,109.00	100.27	100.08	138.25	-5,477.56	304.25	1,907.76	1,800.92	106.83	17.857				
16,000.00	10,710.00	17,479.66	12,109.00	101.75	101.57	138.25	-5,577.55	305.23	1,907.75	1,799.36	108.38	17.602				
16,100.00	10,710.00	17,579.66	12,109.00	103.23	103.06	138.25	-5,677.55	306.21	1,907.74	1,797.80	109.94	17.353				
16,200.00	10,710.00	17,679.66	12,109.00	104.73	104.56	138.25	-5,777.54	307.19	1,907.73	1,796.23	111.50	17.110				
16,300.00	10,710.00	17,779.66	12,109.00	106.22	106.06	138.25	-5,877.54	308.17	1,907.72	1,794.66	113.06	16.873				
16,400.00	10,710.00	17,879.66	12,109.00	107.72	107.57	138.25	-5,977.53	309.15	1,907.71	1,793.08	114.63	16.642				
16,500.00	10,710.00	17,979.66	12,109.00	109.23	109.08	138.25	-6,077.53	310.13	1,907.71	1,791.50	116.20	16.417				
16,600.00	10,710.00	18,079.66	12,109.00	110.73	110.60	138.25	-6,177.52	311.11	1,907.70	1,789.92	117.77	16.198				
16,700.00	10,710.00	18,179.66	12,109.00	112.25	112.12	138.25	-6,277.52	312.09	1,907.69	1,788.34	119.35	15.984				
16,800.00	10,710.00	18,279.66	12,109.00	113.76	113.64	138.25	-6,377.51	313.07	1,907.68	1,786.75	120.93	15.775				
16,900.00	10,710.00	18,379.66	12,109.00	115.28	115.16	138.25	-6,477.51	314.05	1,907.67	1,785.16	122.51	15.571				
17,000.00	10,710.00	18,479.66	12,109.00	116.81	116.69	138.25	-6,577.51	315.04	1,907.66	1,783.56	124.10	15.372				
17,100.00	10,710.00	18,579.66	12,109.00	118.34	118.23	138.25	-6,677.50	316.02	1,907.66	1,781.97	125.69	15.178				
17,200.00	10,710.00	18,679.66	12,109.00	119.87	119.76	138.25	-6,777.50	317.00	1,907.65	1,780.37	127.28	14.988				
17,300.00	10,710.00	18,779.66	12,109.00	121.40	121.30	138.25	-6,877.49	317.98	1,907.64	1,778.77	128.87	14.803				
17,400.00	10,710.00	18,879.66	12,109.00	122.94	122.84	138.25	-6,977.49	318.96	1,907.63	1,777.16	130.47	14.622				
17,500.00	10,710.00	18,979.66	12,109.00	124.48	124.39	138.25	-7,077.48	319.94	1,907.62	1,775.56	132.06	14.445				
17,600.00	10,710.00	19,079.66	12,109.00	126.02	125.93	138.25	-7,177.48	320.92	1,907.61	1,773.95	133.66	14.272				
17,700.00	10,710.00	19,179.66	12,109.00	127.57	127.49	138.25	-7,277.47	321.90	1,907.60	1,772.34	135.27	14.103				
17,800.00	10,710.00	19,279.66	12,109.00	129.11	129.04	138.25	-7,377.47	322.88	1,907.60	1,770.73	136.87	13.937				
17,900.00	10,710.00	19,379.66	12,109.00	130.67	130.59	138.25	-7,477.46	323.86	1,907.59	1,769.11	138.47	13.776				
18,000.00	10,710.00	19,479.66	12,109.00	132.22	132.15	138.25	-7,577.46	324.84	1,907.58	1,767.50	140.08	13.618				
18,100.00	10,710.00	19,579.66	12,109.00	133.77	133.71	138.25	-7,677.45	325.82	1,907.57	1,765.88	141.69	13.463				
18,200.00	10,710.00	19,679.66	12,109.00	135.33	135.27	138.25	-7,777.45	326.81	1,907.56	1,764.26	143.30	13.312				
18,300.00	10,710.00	19,779.66	12,109.00	136.89	136.84	138.25	-7,877.44	327.79	1,907.55	1,762.65	144.91	13.164				
18,400.00	10,710.00	19,879.66	12,109.00	138.45	138.40	138.25	-7,977.44	328.77	1,907.54	1,761.02	146.52	13.019				
18,500.00	10,710.00	19,979.66	12,109.00	140.02	139.97	138.25	-8,077.43	329.75	1,907.54	1,759.40	148.14	12.877				
18,600.00	10,710.00	20,079.66	12,109.00	141.58	141.54	138.25	-8,177.43	330.73	1,907.53	1,757.78	149.75	12.738				
18,700.00	10,710.00	20,179.66	12,109.00	143.15	143.11	138.25	-8,277.42	331.71	1,907.52	1,756.15	151.37	12.602				
18,800.00	10,710.00	20,279.66	12,109.00	144.72	144.68	138.25	-8,377.42	332.69	1,907.51	1,754.53	152.98	12.469				
18,900.00	10,710.00	20,379.66	12,109.00	146.30	146.26	138.25	-8,477.41	333.67	1,907.50	1,752.90	154.60	12.338				
19,000.00	10,710.00	20,479.66	12,109.00	147.87	147.84	138.25	-8,577.41	334.65	1,907.49	1,751.27	156.22	12.210				
19,100.00	10,710.00	20,579.66	12,109.00	149.44	149.41	138.25	-8,677.40	335.63	1,907.49	1,749.65	157.84	12.085				
19,200.00	10,710.00	20,679.66	12,109.00	151.02	150.99	138.26	-8,777.40	336.61	1,907.48	1,748.02	159.46	11.962				
19,300.00	10,710.00	20,779.66	12,109.00	152.60	152.58	138.26	-8,877.39	337.59	1,907.47	1,746.39	161.08	11.842				
19,400.00	10,710.00	20,879.66	12,109.00	154.18	154.16	138.26	-8,977.39	338.58	1,907.46	1,744.76	162.70	11.723				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 704H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
19,500.00	10,710.00	20,979.66	12,109.00	155.76	155.74	138.26	-9,077.39	339.56	1,907.45	1,743.13	164.33	11.608				
19,600.00	10,710.00	21,079.66	12,109.00	157.34	157.33	138.26	-9,177.38	340.54	1,907.44	1,741.49	165.95	11.494				
19,700.00	10,710.00	21,179.66	12,109.00	158.93	158.92	138.26	-9,277.38	341.52	1,907.43	1,739.86	167.57	11.383				
19,800.00	10,710.00	21,279.66	12,109.00	160.51	160.50	138.26	-9,377.37	342.50	1,907.43	1,738.23	169.20	11.273				
19,900.00	10,710.00	21,379.66	12,109.00	162.10	162.09	138.26	-9,477.37	343.48	1,907.42	1,736.59	170.82	11.166				
20,000.00	10,710.00	21,479.66	12,109.00	163.69	163.68	138.26	-9,577.36	344.46	1,907.41	1,734.96	172.45	11.061				
20,100.00	10,710.00	21,579.66	12,109.00	165.28	165.28	138.26	-9,677.36	345.44	1,907.40	1,733.32	174.08	10.957				
20,200.00	10,710.00	21,679.66	12,109.00	166.87	166.87	138.26	-9,777.35	346.42	1,907.39	1,731.69	175.70	10.856				
20,300.00	10,710.00	21,779.66	12,109.00	168.46	168.46	138.26	-9,877.35	347.40	1,907.38	1,730.06	177.33	10.756				
20,400.00	10,710.00	21,879.66	12,109.00	170.05	170.06	138.26	-9,977.34	348.38	1,907.37	1,728.42	178.95	10.658				
20,500.00	10,710.00	21,979.66	12,109.00	171.65	171.66	138.26	-10,077.34	349.36	1,907.37	1,726.78	180.58	10.562				
20,600.00	10,710.00	22,079.66	12,109.00	173.24	173.25	138.26	-10,177.33	350.35	1,907.36	1,725.15	182.21	10.468				
20,700.00	10,710.00	22,179.66	12,109.00	174.84	174.85	138.26	-10,277.33	351.33	1,907.35	1,723.51	183.84	10.375				
20,800.00	10,710.00	22,279.66	12,109.00	176.44	176.45	138.26	-10,377.32	352.31	1,907.34	1,721.87	185.47	10.284				
20,817.66	10,710.00	22,297.16	12,109.00	176.72	176.74	138.26	-10,394.82	352.48	1,907.34	1,721.58	185.76	10.268				
20,818.71	10,710.00	22,297.16	12,109.00	176.74	176.74	138.26	-10,394.82	352.48	1,907.34	1,721.58	185.76	10.268				
20,819.49	10,710.00	22,297.16	12,109.00	176.80	176.74	138.26	-10,394.82	352.48	1,907.34	1,721.57	185.77	10.267				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 705H - OH - Plan #2		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	89.42	10.52	1,039.77	1,040.15							
100.00	100.00	74.00	74.00	0.13	0.09	89.42	10.52	1,039.77	1,039.82	1,039.67	0.16	6,662.033				
200.00	200.00	174.00	174.00	0.48	0.39	89.42	10.52	1,039.77	1,039.82	1,039.20	0.62	1,671.776				
300.00	300.00	274.00	274.00	0.84	0.75	89.42	10.52	1,039.77	1,039.82	1,038.70	1.13	922.345				
400.00	400.00	374.00	374.00	1.20	1.11	89.42	10.52	1,039.77	1,039.82	1,038.19	1.63	636.473				
500.00	500.00	474.00	474.00	1.56	1.47	89.42	10.52	1,039.77	1,039.82	1,037.68	2.14	485.816				
600.00	600.00	574.00	574.00	1.92	1.82	89.42	10.52	1,039.77	1,039.82	1,037.18	2.65	392.812				
700.00	700.00	674.00	674.00	2.28	2.18	89.42	10.52	1,039.77	1,039.82	1,036.67	3.15	329.689				
800.00	800.00	774.00	774.00	2.63	2.54	89.42	10.52	1,039.77	1,039.82	1,036.16	3.66	284.042				
900.00	900.00	874.00	874.00	2.99	2.90	89.42	10.52	1,039.77	1,039.82	1,035.66	4.17	249.496				
1,000.00	1,000.00	974.00	974.00	3.35	3.26	89.42	10.52	1,039.77	1,039.82	1,035.15	4.67	222.441				
1,100.00	1,100.00	1,074.00	1,074.00	3.71	3.62	89.42	10.52	1,039.77	1,039.82	1,034.64	5.18	200.680				
1,200.00	1,200.00	1,174.00	1,174.00	4.07	3.98	89.42	10.52	1,039.77	1,039.82	1,034.13	5.69	182.796				
1,300.00	1,300.00	1,274.00	1,274.00	4.43	4.33	89.42	10.52	1,039.77	1,039.82	1,033.63	6.20	167.839				
1,400.00	1,400.00	1,374.00	1,374.00	4.79	4.69	89.42	10.52	1,039.77	1,039.82	1,033.12	6.70	155.145				
1,500.00	1,500.00	1,474.00	1,474.00	5.14	5.05	89.42	10.52	1,039.77	1,039.82	1,032.61	7.21	144.235				
1,600.00	1,600.00	1,574.00	1,574.00	5.50	5.41	89.42	10.52	1,039.77	1,039.82	1,032.11	7.72	134.759				
1,700.00	1,700.00	1,674.00	1,674.00	5.86	5.77	89.42	10.52	1,039.77	1,039.82	1,031.60	8.22	126.452				
1,800.00	1,800.00	1,774.00	1,774.00	6.22	6.13	89.42	10.52	1,039.77	1,039.82	1,031.09	8.73	119.109				
1,900.00	1,900.00	1,874.00	1,874.00	6.58	6.48	89.42	10.52	1,039.77	1,039.82	1,030.59	9.24	112.572				
2,000.00	2,000.00	1,974.00	1,974.00	6.94	6.84	89.42	10.52	1,039.77	1,039.82	1,030.08	9.74	106.715				
2,100.00	2,100.00	2,074.00	2,074.00	7.29	7.20	89.42	10.52	1,039.77	1,039.82	1,029.57	10.25	101.438				
2,200.00	2,200.00	2,174.00	2,174.00	7.65	7.56	89.42	10.52	1,039.77	1,039.82	1,029.07	10.76	96.658				
2,300.00	2,300.00	2,274.00	2,274.00	8.01	7.92	89.42	10.52	1,039.77	1,039.82	1,028.56	11.26	92.308				
2,400.00	2,400.00	2,374.00	2,374.00	8.37	8.28	89.42	10.52	1,039.77	1,039.82	1,028.05	11.77	88.333				
2,500.00	2,500.00	2,474.00	2,474.00	8.73	8.64	89.42	10.52	1,039.77	1,039.82	1,027.54	12.28	84.686				
2,600.00	2,600.00	2,574.00	2,574.00	9.09	8.99	89.42	10.52	1,039.77	1,039.82	1,027.04	12.79	81.328				
2,700.00	2,700.00	2,674.00	2,674.00	9.45	9.35	89.42	10.52	1,039.77	1,039.82	1,026.53	13.29	78.226				
2,800.00	2,800.00	2,774.00	2,774.00	9.80	9.71	89.42	10.52	1,039.77	1,039.82	1,026.02	13.80	75.352				
2,900.00	2,900.00	2,874.00	2,874.00	10.16	10.07	89.42	10.52	1,039.77	1,039.82	1,025.52	14.31	72.682				
3,000.00	3,000.00	2,974.00	2,974.00	10.52	10.43	89.42	10.52	1,039.77	1,039.82	1,025.01	14.81	70.195				
3,100.00	3,100.00	3,074.00	3,074.00	10.88	10.79	89.42	10.52	1,039.77	1,039.82	1,024.50	15.32	67.872				
3,200.00	3,200.00	3,174.00	3,174.00	11.24	11.14	89.42	10.52	1,039.77	1,039.82	1,024.00	15.83	65.698				
3,300.00	3,300.00	3,274.00	3,274.00	11.60	11.50	89.42	10.52	1,039.77	1,039.82	1,023.49	16.33	63.659				
3,400.00	3,399.98	3,358.74	3,358.74	11.94	11.80	-9.35	10.39	1,040.20	1,038.64	1,021.86	16.79	61.866				
3,500.00	3,499.84	3,438.13	3,438.10	12.28	12.07	-9.37	9.80	1,042.16	1,035.94	1,018.72	17.21	60.185				
3,600.00	3,599.45	3,517.54	3,517.42	12.63	12.34	-9.38	8.72	1,045.70	1,031.77	1,014.14	17.63	58.529				
3,700.00	3,698.70	3,600.00	3,599.69	12.97	12.62	-9.40	7.11	1,051.04	1,026.15	1,008.10	18.05	56.852				
3,800.00	3,797.47	3,676.42	3,675.81	13.33	12.88	-9.42	5.15	1,057.51	1,019.06	1,000.62	18.44	55.249				
3,900.00	3,895.62	3,755.90	3,754.82	13.69	13.16	-9.44	2.64	1,065.78	1,010.52	991.68	18.85	53.621				
4,000.00	3,993.06	3,839.39	3,837.61	14.06	13.45	-9.47	-0.49	1,076.11	1,000.50	981.24	19.26	51.950				
4,097.19	4,086.94	3,935.78	3,933.10	14.43	13.79	-9.52	-4.28	1,088.62	988.09	968.36	19.73	50.091				
4,100.00	4,089.64	3,938.56	3,935.86	14.45	13.80	-9.52	-4.39	1,088.98	987.68	967.94	19.74	50.034				
4,200.00	4,185.80	4,037.51	4,033.90	14.85	14.15	-9.55	-8.28	1,101.82	973.26	953.03	20.22	48.128				
4,300.00	4,281.95	4,136.47	4,131.94	15.26	14.50	-9.58	-12.17	1,114.66	958.83	938.12	20.71	46.303				
4,400.00	4,378.10	4,235.42	4,229.98	15.68	14.86	-9.61	-16.06	1,127.51	944.41	923.21	21.20	44.554				
4,500.00	4,474.26	4,334.37	4,328.02	16.12	15.22	-9.64	-19.95	1,140.35	929.98	908.29	21.69	42.877				
4,600.00	4,570.41	4,433.32	4,426.05	16.56	15.59	-9.67	-23.84	1,153.19	915.56	893.37	22.18	41.270				
4,700.00	4,666.56	4,532.28	4,524.09	17.01	15.95	-9.70	-27.73	1,166.03	901.14	878.45	22.68	39.727				
4,800.00	4,762.72	4,631.23	4,622.13	17.47	16.32	-9.74	-31.62	1,178.88	886.71	863.53	23.18	38.247				
4,900.00	4,858.87	4,730.18	4,720.17	17.94	16.70	-9.77	-35.51	1,191.72	872.29	848.60	23.69	36.825				
5,000.00	4,955.02	4,829.14	4,818.21	18.41	17.07	-9.81	-39.40	1,204.56	857.87	833.67	24.19	35.459				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	5,051.18	4,928.09	4,916.25	18.89	17.44	-9.85	-43.29	1,217.40	843.44	818.74	24.70	34.146		
5,200.00	5,147.33	5,027.04	5,014.29	19.37	17.82	-9.89	-47.18	1,230.25	829.02	803.81	25.21	32.883		
5,300.00	5,243.48	5,126.00	5,112.33	19.86	18.20	-9.93	-51.07	1,243.09	814.60	788.88	25.72	31.667		
5,400.00	5,339.63	5,224.95	5,210.37	20.36	18.58	-9.97	-54.96	1,255.93	800.18	773.94	26.24	30.497		
5,500.00	5,435.79	5,323.90	5,308.41	20.86	18.96	-10.01	-58.85	1,268.77	785.76	759.01	26.75	29.371		
5,600.00	5,531.94	5,422.85	5,406.44	21.36	19.34	-10.06	-62.74	1,281.61	771.34	744.07	27.27	28.284		
5,700.00	5,628.09	5,521.81	5,504.48	21.87	19.73	-10.11	-66.63	1,294.46	756.92	729.13	27.79	27.237		
5,800.00	5,724.25	5,620.76	5,602.52	22.38	20.12	-10.15	-70.52	1,307.30	742.50	714.19	28.31	26.227		
5,900.00	5,820.40	5,719.71	5,700.56	22.89	20.50	-10.21	-74.41	1,320.14	728.08	699.25	28.83	25.252		
6,000.00	5,916.55	5,818.67	5,798.60	23.41	20.89	-10.26	-78.30	1,332.98	713.66	684.31	29.36	24.310		
6,100.00	6,012.71	5,917.62	5,896.64	23.93	21.28	-10.31	-82.19	1,345.83	699.25	669.37	29.88	23.401		
6,200.00	6,108.86	6,016.57	5,994.68	24.45	21.67	-10.37	-86.08	1,358.67	684.83	654.42	30.41	22.522		
6,300.00	6,205.01	6,115.53	6,092.72	24.98	22.06	-10.43	-89.97	1,371.51	670.41	639.48	30.94	21.671		
6,400.00	6,301.17	6,214.48	6,190.76	25.51	22.45	-10.49	-93.86	1,384.35	656.00	624.53	31.46	20.849		
6,500.00	6,397.32	6,313.43	6,288.79	26.04	22.84	-10.56	-97.75	1,397.19	641.58	609.59	31.99	20.053		
6,600.00	6,493.47	6,412.38	6,386.83	26.57	23.24	-10.63	-101.64	1,410.04	627.17	594.65	32.53	19.282		
6,700.00	6,589.63	6,511.34	6,484.87	27.11	23.63	-10.70	-105.53	1,422.88	612.76	579.70	33.06	18.536		
6,800.00	6,685.78	6,610.29	6,582.91	27.65	24.03	-10.77	-109.42	1,435.72	598.35	564.76	33.59	17.813		
6,900.00	6,781.93	6,709.24	6,680.95	28.19	24.42	-10.85	-113.31	1,448.56	583.94	549.81	34.13	17.112		
7,000.00	6,878.09	6,808.20	6,778.99	28.73	24.82	-10.93	-117.20	1,461.41	569.53	534.86	34.66	16.431		
7,100.00	6,974.24	6,907.15	6,877.03	29.27	25.22	-11.02	-121.09	1,474.25	555.12	519.92	35.20	15.772		
7,200.00	7,070.39	7,006.10	6,975.07	29.81	25.61	-11.11	-124.98	1,487.09	540.71	504.98	35.73	15.131		
7,300.00	7,166.55	7,118.79	7,086.90	30.36	26.06	-11.27	-128.99	1,500.33	525.10	488.78	36.32	14.458		
7,400.00	7,262.70	7,231.43	7,199.04	30.90	26.49	-11.58	-132.04	1,510.40	506.75	469.87	36.88	13.741		
7,500.00	7,358.85	7,342.76	7,310.14	31.45	26.90	-12.03	-134.11	1,517.25	485.71	448.29	37.41	12.982		
7,600.00	7,455.00	7,452.62	7,419.92	32.00	27.29	-12.67	-135.24	1,520.97	462.04	424.12	37.92	12.184		
7,700.00	7,551.16	7,557.86	7,525.16	32.55	27.65	-13.50	-135.48	1,521.77	435.93	397.50	38.43	11.344		
7,800.00	7,647.31	7,654.01	7,621.31	33.10	27.97	-14.39	-135.48	1,521.77	409.21	370.24	38.98	10.499		
7,900.00	7,743.46	7,750.16	7,717.46	33.66	28.29	-15.41	-135.48	1,521.77	382.60	343.07	39.53	9.678		
8,000.00	7,839.62	7,846.32	7,813.62	34.21	28.62	-16.58	-135.48	1,521.77	356.12	316.01	40.11	8.880		
8,100.00	7,935.77	7,942.47	7,909.77	34.76	28.94	-17.94	-135.48	1,521.77	329.79	289.10	40.69	8.105		
8,200.00	8,031.92	8,038.62	8,005.92	35.32	29.27	-19.53	-135.48	1,521.77	303.68	262.37	41.30	7.353		
8,300.00	8,128.08	8,134.78	8,102.08	35.88	29.59	-21.41	-135.48	1,521.77	277.82	235.88	41.94	6.624		
8,400.00	8,224.23	8,230.93	8,198.23	36.43	29.92	-23.68	-135.48	1,521.77	252.30	209.69	42.62	5.920		
8,500.00	8,320.38	8,327.08	8,294.38	36.99	30.25	-26.44	-135.48	1,521.77	227.24	183.89	43.35	5.242		
8,600.00	8,416.54	8,423.24	8,390.54	37.55	30.57	-29.86	-135.48	1,521.77	202.80	158.64	44.16	4.592		
8,700.00	8,512.69	8,519.39	8,486.69	38.11	30.90	-34.19	-135.48	1,521.77	179.25	134.16	45.09	3.976		
8,800.00	8,608.84	8,615.54	8,582.84	38.67	31.23	-39.74	-135.48	1,521.77	156.97	110.80	46.17	3.399		
8,908.39	8,713.06	8,719.76	8,687.06	39.28	31.58	-47.68	-135.48	1,521.77	135.00	87.39	47.61	2.836		
9,000.00	8,801.54	8,808.24	8,775.54	39.78	31.88	-55.65	-135.48	1,521.77	119.91	70.92	49.00	2.447		
9,100.00	8,898.92	8,905.63	8,872.92	40.28	32.22	-65.16	-135.48	1,521.77	108.44	57.95	50.50	2.148		
9,200.00	8,997.05	9,003.75	8,971.05	40.76	32.55	-74.76	-135.48	1,521.77	101.70	49.94	51.76	1.965		
9,300.00	9,095.78	9,102.48	9,069.78	41.19	32.89	-83.49	-135.48	1,521.77	98.67	46.01	52.65	1.874		
9,389.93	9,185.00	9,191.70	9,159.00	41.55	33.20	-90.00	-135.48	1,521.77	98.02	44.85	53.17	1.844 CC		
9,400.00	9,195.00	9,201.70	9,169.00	41.59	33.23	-90.63	-135.48	1,521.77	98.02	44.81	53.22	1.842		
9,500.00	9,294.60	9,301.30	9,268.60	41.96	33.57	-95.81	-135.48	1,521.77	98.53	44.92	53.60	1.838		
9,600.00	9,394.45	9,401.15	9,368.45	42.29	33.91	-98.94	-135.48	1,521.77	99.22	45.27	53.96	1.839		
9,705.58	9,500.00	9,506.70	9,474.00	42.60	34.28	-1.28	-135.48	1,521.77	99.54	45.17	54.38	1.831		
9,800.00	9,594.42	9,601.13	9,568.42	42.86	34.60	-1.28	-135.48	1,521.77	99.54	44.76	54.79	1.817		
9,900.00	9,694.42	9,701.13	9,668.42	43.14	34.95	-1.28	-135.48	1,521.77	99.54	44.32	55.22	1.803		
10,000.00	9,794.42	9,801.13	9,768.42	43.42	35.29	-1.28	-135.48	1,521.77	99.54	43.88	55.66	1.788		
10,100.00	9,894.42	9,901.13	9,868.42	43.71	35.64	-1.28	-135.48	1,521.77	99.54	43.45	56.10	1.774		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
10,200.00	9,994.42	10,001.13	9,968.42	43.99	35.98	-1.28	-135.48	1,521.77	99.54	43.01	56.54	1.761		
10,300.00	10,094.42	10,101.13	10,068.42	44.27	36.33	-1.28	-135.48	1,521.77	99.54	42.57	56.98	1.747		
10,342.62	10,137.04	10,143.74	10,111.04	44.39	36.47	-1.28	-135.48	1,521.77	99.54	42.38	57.17	1.741 ES		
10,350.00	10,144.42	10,151.13	10,118.42	44.41	36.50	179.27	-135.48	1,521.77	99.59	42.39	57.20	1.741 SF		
10,400.00	10,194.33	10,201.03	10,168.33	44.55	36.67	179.29	-135.48	1,521.77	102.42	45.00	57.42	1.784		
10,450.00	10,243.80	10,250.50	10,217.80	44.69	36.84	179.33	-135.48	1,521.77	109.58	51.94	57.63	1.901		
10,500.00	10,292.45	10,299.15	10,266.45	44.84	37.01	179.38	-135.48	1,521.77	121.02	63.17	57.85	2.092		
10,550.00	10,339.93	10,346.63	10,313.93	44.99	37.18	179.43	-135.48	1,521.77	136.67	78.61	58.06	2.354		
10,600.00	10,385.86	10,392.56	10,359.86	45.14	37.33	179.48	-135.48	1,521.77	156.39	98.12	58.26	2.684		
10,650.00	10,429.89	10,436.59	10,403.89	45.29	37.49	179.53	-135.48	1,521.77	180.04	121.58	58.46	3.080		
10,700.00	10,471.70	10,478.40	10,445.70	45.44	37.63	179.57	-135.48	1,521.77	207.43	148.79	58.64	3.537		
10,750.00	10,510.96	10,517.66	10,484.96	45.58	37.77	179.60	-135.48	1,521.77	238.37	179.56	58.81	4.053		
10,800.00	10,547.37	10,554.07	10,521.37	45.73	37.89	179.62	-135.48	1,521.77	272.61	213.65	58.96	4.624		
10,850.00	10,580.66	10,587.36	10,554.66	45.88	38.01	179.63	-135.48	1,521.77	309.89	250.79	59.10	5.244		
10,900.00	10,610.58	10,617.28	10,584.58	46.03	38.11	179.63	-135.48	1,521.77	349.94	290.72	59.22	5.909		
10,950.00	10,636.89	10,643.59	10,610.89	46.18	38.20	179.62	-135.48	1,521.77	392.44	333.11	59.33	6.615		
11,000.00	10,659.39	10,666.09	10,633.39	46.34	38.28	179.60	-135.48	1,521.77	437.07	377.65	59.41	7.356		
11,050.00	10,677.93	10,684.63	10,651.93	46.50	38.35	179.55	-135.48	1,521.77	483.49	424.00	59.49	8.128		
11,100.00	10,692.34	10,699.04	10,666.34	46.67	38.40	179.45	-135.48	1,521.77	531.35	471.81	59.54	8.924		
11,150.00	10,702.53	10,709.23	10,676.53	46.85	38.43	179.22	-135.48	1,521.77	580.28	520.71	59.58	9.740		
11,200.00	10,708.41	10,715.11	10,682.41	47.04	38.45	178.45	-135.48	1,521.77	629.92	570.32	59.60	10.569		
11,242.62	10,710.00	10,716.70	10,684.00	47.21	38.46	90.01	-135.48	1,521.77	672.50	612.89	59.61	11.282		
11,300.00	10,710.00	10,716.70	10,684.00	47.45	38.46	90.01	-135.48	1,521.77	729.88	670.27	59.61	12.244		
11,400.00	10,710.00	10,716.70	10,684.00	47.92	38.46	90.01	-135.48	1,521.77	829.88	770.26	59.62	13.920		
11,500.00	10,710.00	10,716.70	10,684.00	48.43	38.46	90.01	-135.48	1,521.77	929.88	870.26	59.62	15.596		
11,600.00	10,710.00	10,716.70	10,684.00	49.00	38.46	90.01	-135.48	1,521.77	1,029.88	970.25	59.63	17.271		
11,700.00	10,710.00	10,716.70	10,684.00	49.61	38.46	90.01	-135.48	1,521.77	1,129.88	1,070.24	59.64	18.945		
11,800.00	10,710.00	10,716.70	10,684.00	50.27	38.46	90.01	-135.48	1,521.77	1,229.88	1,170.23	59.65	20.619		
11,900.00	10,710.00	10,716.70	10,684.00	50.98	38.46	90.01	-135.48	1,521.77	1,329.88	1,270.22	59.66	22.292		
12,000.00	10,710.00	12,239.66	12,023.00	51.74	49.78	179.95	-1,565.29	1,535.79	1,339.00	1,301.45	37.55	35.656		
12,100.00	10,710.00	13,339.66	12,023.00	52.54	50.64	179.95	-1,665.29	1,536.77	1,339.00	1,300.95	38.05	35.187		
12,200.00	10,710.00	13,439.66	12,023.00	53.38	51.54	179.95	-1,765.28	1,537.75	1,339.00	1,300.42	38.58	34.706		
12,300.00	10,710.00	13,539.66	12,023.00	54.26	52.48	179.95	-1,865.28	1,538.73	1,339.00	1,299.87	39.13	34.218		
12,400.00	10,710.00	13,639.66	12,023.00	55.18	53.46	179.96	-1,965.27	1,539.71	1,339.00	1,299.29	39.71	33.723		
12,500.00	10,710.00	13,739.66	12,023.00	56.13	54.46	179.96	-2,065.27	1,540.69	1,339.00	1,298.70	40.30	33.224		
12,600.00	10,710.00	13,839.66	12,023.00	57.11	55.50	179.96	-2,165.26	1,541.67	1,339.00	1,298.08	40.92	32.722		
12,700.00	10,710.00	13,939.66	12,023.00	58.13	56.57	179.96	-2,265.26	1,542.65	1,339.00	1,297.44	41.56	32.219		
12,800.00	10,710.00	14,039.66	12,023.00	59.18	57.66	179.96	-2,365.25	1,543.63	1,339.00	1,296.78	42.22	31.717		
12,900.00	10,710.00	14,139.66	12,023.00	60.26	58.78	179.96	-2,465.25	1,544.61	1,339.00	1,296.11	42.89	31.217		
13,000.00	10,710.00	14,239.66	12,023.00	61.36	59.92	179.96	-2,565.24	1,545.59	1,339.00	1,295.41	43.59	30.720		
13,100.00	10,710.00	14,339.66	12,023.00	62.49	61.09	179.96	-2,665.24	1,546.57	1,339.00	1,294.70	44.30	30.227		
13,200.00	10,710.00	14,439.66	12,023.00	63.64	62.28	179.96	-2,765.23	1,547.55	1,339.00	1,293.97	45.03	29.739		
13,300.00	10,710.00	14,539.66	12,023.00	64.81	63.49	179.96	-2,865.23	1,548.53	1,339.00	1,293.23	45.77	29.256		
13,400.00	10,710.00	14,639.66	12,023.00	66.01	64.72	179.96	-2,965.22	1,549.51	1,339.00	1,292.47	46.53	28.780		
13,500.00	10,710.00	14,739.66	12,023.00	67.22	65.97	179.96	-3,065.22	1,550.50	1,339.00	1,291.70	47.30	28.310		
13,600.00	10,710.00	14,839.66	12,023.00	68.46	67.23	179.96	-3,165.21	1,551.48	1,339.00	1,290.92	48.08	27.848		
13,700.00	10,710.00	14,939.66	12,023.00	69.71	68.51	179.96	-3,265.21	1,552.46	1,339.00	1,290.12	48.88	27.394		
13,800.00	10,710.00	15,039.66	12,023.00	70.98	69.81	179.96	-3,365.20	1,553.44	1,339.00	1,289.31	49.69	26.948		
13,900.00	10,710.00	15,139.66	12,023.00	72.26	71.12	179.96	-3,465.20	1,554.42	1,339.00	1,288.49	50.51	26.510		
14,000.00	10,710.00	15,239.66	12,023.00	73.56	72.45	179.96	-3,565.19	1,555.40	1,339.00	1,287.66	51.34	26.081		
14,100.00	10,710.00	15,339.66	12,023.00	74.87	73.79	179.96	-3,665.19	1,556.38	1,339.00	1,286.82	52.18	25.660		
14,200.00	10,710.00	15,439.66	12,023.00	76.20	75.14	179.97	-3,765.18	1,557.36	1,339.00	1,285.97	53.03	25.248		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.00	10,710.00	15,539.66	12,023.00	77.54	76.50	179.97	-3,865.18	1,558.34	1,339.00	1,285.11	53.89	24.845		
14,400.00	10,710.00	15,639.66	12,023.00	78.89	77.88	179.97	-3,965.18	1,559.32	1,339.00	1,284.24	54.76	24.450		
14,500.00	10,710.00	15,739.66	12,023.00	80.26	79.26	179.97	-4,065.17	1,560.30	1,339.00	1,283.36	55.64	24.064		
14,600.00	10,710.00	15,839.66	12,023.00	81.63	80.66	179.97	-4,165.17	1,561.28	1,339.00	1,282.47	56.53	23.687		
14,700.00	10,710.00	15,939.66	12,023.00	83.01	82.06	179.97	-4,265.16	1,562.26	1,339.00	1,281.58	57.42	23.318		
14,800.00	10,710.00	16,039.66	12,023.00	84.41	83.48	179.97	-4,365.16	1,563.24	1,339.00	1,280.67	58.33	22.957		
14,900.00	10,710.00	16,139.66	12,023.00	85.81	84.90	179.97	-4,465.15	1,564.22	1,339.00	1,279.77	59.23	22.605		
15,000.00	10,710.00	16,239.66	12,023.00	87.22	86.33	179.97	-4,565.15	1,565.20	1,339.00	1,278.85	60.15	22.261		
15,100.00	10,710.00	16,339.66	12,023.00	88.64	87.77	179.97	-4,665.14	1,566.18	1,339.00	1,277.93	61.07	21.925		
15,200.00	10,710.00	16,439.66	12,023.00	90.07	89.21	179.97	-4,765.14	1,567.16	1,339.00	1,277.00	62.00	21.596		
15,300.00	10,710.00	16,539.66	12,023.00	91.51	90.67	179.97	-4,865.13	1,568.14	1,339.00	1,276.06	62.94	21.276		
15,400.00	10,710.00	16,639.66	12,023.00	92.95	92.12	179.97	-4,965.13	1,569.12	1,339.00	1,275.13	63.88	20.963		
15,500.00	10,710.00	16,739.66	12,023.00	94.40	93.59	179.97	-5,065.12	1,570.10	1,339.00	1,274.18	64.82	20.657		
15,600.00	10,710.00	16,839.66	12,023.00	95.86	95.06	179.97	-5,165.12	1,571.08	1,339.00	1,273.23	65.77	20.359		
15,700.00	10,710.00	16,939.66	12,023.00	97.32	96.54	179.97	-5,265.11	1,572.06	1,339.00	1,272.27	66.73	20.067		
15,800.00	10,710.00	17,039.66	12,023.00	98.79	98.02	179.97	-5,365.11	1,573.05	1,339.00	1,271.31	67.69	19.783		
15,900.00	10,710.00	17,139.66	12,023.00	100.27	99.51	179.97	-5,465.10	1,574.03	1,339.00	1,270.35	68.65	19.505		
16,000.00	10,710.00	17,239.66	12,023.00	101.75	101.00	179.97	-5,565.10	1,575.01	1,339.00	1,269.38	69.62	19.233		
16,100.00	10,710.00	17,339.66	12,023.00	103.23	102.50	179.98	-5,665.09	1,575.99	1,339.00	1,268.41	70.59	18.968		
16,200.00	10,710.00	17,439.66	12,023.00	104.73	104.01	179.98	-5,765.09	1,576.97	1,339.00	1,267.43	71.57	18.709		
16,300.00	10,710.00	17,539.66	12,023.00	106.22	105.51	179.98	-5,865.08	1,577.95	1,339.00	1,266.45	72.55	18.456		
16,400.00	10,710.00	17,639.66	12,023.00	107.72	107.02	179.98	-5,965.08	1,578.93	1,339.00	1,265.47	73.53	18.209		
16,500.00	10,710.00	17,739.66	12,023.00	109.23	108.54	179.98	-6,065.07	1,579.91	1,339.00	1,264.48	74.52	17.968		
16,600.00	10,710.00	17,839.66	12,023.00	110.73	110.06	179.98	-6,165.07	1,580.89	1,339.00	1,263.49	75.51	17.732		
16,700.00	10,710.00	17,939.66	12,023.00	112.25	111.58	179.98	-6,265.06	1,581.87	1,339.00	1,262.49	76.51	17.501		
16,800.00	10,710.00	18,039.66	12,023.00	113.76	113.11	179.98	-6,365.06	1,582.85	1,339.00	1,261.49	77.51	17.276		
16,900.00	10,710.00	18,139.66	12,023.00	115.28	114.64	179.98	-6,465.06	1,583.83	1,339.00	1,260.49	78.51	17.056		
17,000.00	10,710.00	18,239.66	12,023.00	116.81	116.17	179.98	-6,565.05	1,584.81	1,339.00	1,259.49	79.51	16.840		
17,100.00	10,710.00	18,339.66	12,023.00	118.34	117.71	179.98	-6,665.05	1,585.79	1,339.00	1,258.48	80.52	16.630		
17,200.00	10,710.00	18,439.66	12,023.00	119.87	119.25	179.98	-6,765.04	1,586.77	1,339.00	1,257.47	81.53	16.424		
17,300.00	10,710.00	18,539.66	12,023.00	121.40	120.79	179.98	-6,865.04	1,587.75	1,339.00	1,256.46	82.54	16.223		
17,400.00	10,710.00	18,639.66	12,023.00	122.94	122.34	179.98	-6,965.03	1,588.73	1,339.00	1,255.45	83.55	16.026		
17,500.00	10,710.00	18,739.66	12,023.00	124.48	123.89	179.98	-7,065.03	1,589.71	1,339.00	1,254.43	84.57	15.833		
17,600.00	10,710.00	18,839.66	12,023.00	126.02	125.44	179.98	-7,165.02	1,590.69	1,339.00	1,253.41	85.59	15.645		
17,700.00	10,710.00	18,939.66	12,023.00	127.57	126.99	179.98	-7,265.02	1,591.67	1,339.00	1,252.39	86.61	15.460		
17,800.00	10,710.00	19,039.66	12,023.00	129.11	128.55	179.98	-7,365.01	1,592.65	1,339.00	1,251.37	87.63	15.280		
17,900.00	10,710.00	19,139.66	12,023.00	130.67	130.11	179.98	-7,465.01	1,593.63	1,339.00	1,250.34	88.66	15.103		
18,000.00	10,710.00	19,239.66	12,023.00	132.22	131.67	179.99	-7,565.00	1,594.61	1,339.00	1,249.31	89.69	14.930		
18,100.00	10,710.00	19,339.66	12,023.00	133.77	133.23	179.99	-7,665.00	1,595.60	1,339.00	1,248.28	90.72	14.760		
18,200.00	10,710.00	19,439.66	12,023.00	135.33	134.80	179.99	-7,764.99	1,596.58	1,339.00	1,247.25	91.75	14.595		
18,300.00	10,710.00	19,539.66	12,023.00	136.89	136.36	179.99	-7,864.99	1,597.56	1,339.00	1,246.22	92.78	14.432		
18,400.00	10,710.00	19,639.66	12,023.00	138.45	137.93	179.99	-7,964.98	1,598.54	1,339.00	1,245.19	93.81	14.273		
18,500.00	10,710.00	19,739.66	12,023.00	140.02	139.50	179.99	-8,064.98	1,599.52	1,339.00	1,244.15	94.85	14.117		
18,600.00	10,710.00	19,839.66	12,023.00	141.58	141.08	179.99	-8,164.97	1,600.50	1,339.00	1,243.11	95.89	13.964		
18,700.00	10,710.00	19,939.66	12,023.00	143.15	142.65	179.99	-8,264.97	1,601.48	1,339.00	1,242.07	96.93	13.814		
18,800.00	10,710.00	20,039.66	12,023.00	144.72	144.23	179.99	-8,364.96	1,602.46	1,339.00	1,241.03	97.97	13.667		
18,900.00	10,710.00	20,139.66	12,023.00	146.30	145.80	179.99	-8,464.96	1,603.44	1,339.00	1,239.99	99.01	13.523		
19,000.00	10,710.00	20,239.66	12,023.00	147.87	147.38	179.99	-8,564.95	1,604.42	1,339.00	1,238.94	100.06	13.382		
19,100.00	10,710.00	20,339.66	12,023.00	149.44	148.97	179.99	-8,664.95	1,605.40	1,339.00	1,237.90	101.10	13.244		
19,200.00	10,710.00	20,439.66	12,023.00	151.02	150.55	179.99	-8,764.94	1,606.38	1,339.00	1,236.85	102.15	13.108		
19,300.00	10,710.00	20,539.66	12,023.00	152.60	152.13	179.99	-8,864.94	1,607.36	1,339.00	1,235.80	103.20	12.975		
19,400.00	10,710.00	20,639.66	12,023.00	154.18	153.72	179.99	-8,964.93	1,608.34	1,339.00	1,234.75	104.25	12.844		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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
Tatanka Fed Com - Tatanka Fed Com 705H - OH - Plan #2													Offset Well Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	10,710.00	20,739.66	12,023.00	155.76	155.30	179.99	-9,064.93	1,609.32	1,339.00	1,233.70	105.30	12.716		
19,600.00	10,710.00	20,839.66	12,023.00	157.34	156.89	179.99	-9,164.93	1,610.30	1,339.00	1,232.65	106.35	12.590		
19,700.00	10,710.00	20,939.66	12,023.00	158.93	158.48	179.99	-9,264.92	1,611.28	1,339.00	1,231.60	107.40	12.467		
19,800.00	10,710.00	21,039.66	12,023.00	160.51	160.07	179.99	-9,364.92	1,612.26	1,339.00	1,230.54	108.46	12.346		
19,900.00	10,710.00	21,139.66	12,023.00	162.10	161.66	180.00	-9,464.91	1,613.24	1,339.00	1,229.49	109.51	12.227		
20,000.00	10,710.00	21,239.66	12,023.00	163.69	163.26	180.00	-9,564.91	1,614.22	1,339.00	1,228.43	110.57	12.110		
20,100.00	10,710.00	21,339.66	12,023.00	165.28	164.85	180.00	-9,664.90	1,615.20	1,339.00	1,227.37	111.63	11.995		
20,200.00	10,710.00	21,439.66	12,023.00	166.87	166.45	180.00	-9,764.90	1,616.18	1,339.00	1,226.31	112.69	11.882		
20,300.00	10,710.00	21,539.66	12,023.00	168.46	168.04	180.00	-9,864.89	1,617.16	1,339.00	1,225.25	113.75	11.772		
20,400.00	10,710.00	21,639.66	12,023.00	170.05	169.64	180.00	-9,964.89	1,618.14	1,339.00	1,224.19	114.81	11.663		
20,500.00	10,710.00	21,739.66	12,023.00	171.65	171.24	180.00	-10,064.88	1,619.13	1,339.00	1,223.13	115.87	11.556		
20,600.00	10,710.00	21,839.66	12,023.00	173.24	172.84	180.00	-10,164.88	1,620.11	1,339.00	1,222.07	116.93	11.451		
20,700.00	10,710.00	21,939.66	12,023.00	174.84	174.44	180.00	-10,264.87	1,621.09	1,339.00	1,221.01	117.99	11.348		
20,800.00	10,710.00	22,039.66	12,023.00	176.44	175.98	180.00	-10,364.87	1,622.07	1,339.00	1,220.04	118.96	11.256		
20,818.71	10,710.00	22,058.38	12,023.00	176.74	176.24	-180.00	-10,383.58	1,622.25	1,339.00	1,219.89	119.11	11.242		
20,819.49	10,710.00	22,058.38	12,023.00	176.80	176.24	180.00	-10,383.58	1,622.25	1,339.00	1,219.89	119.11	11.242		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	16.30	16.30	0.00	0.02	-90.34	-16.97	-2,822.19	2,822.24					
100.00	100.00	116.30	116.30	0.13	0.18	-90.34	-16.97	-2,822.19	2,822.24	2,822.02	0.22	N/A		
200.00	200.00	216.30	216.30	0.48	0.54	-90.34	-16.97	-2,822.19	2,822.24	2,821.51	0.73	3,882.667		
300.00	300.00	316.30	316.30	0.84	0.90	-90.34	-16.97	-2,822.19	2,822.24	2,821.01	1.23	2,288.265		
400.00	400.00	416.30	416.30	1.20	1.26	-90.34	-16.97	-2,822.19	2,822.24	2,820.50	1.74	1,621.877		
500.00	500.00	516.30	516.30	1.56	1.62	-90.34	-16.97	-2,822.19	2,822.24	2,819.99	2.25	1,256.031		
600.00	600.00	616.30	616.30	1.92	1.98	-90.34	-16.97	-2,822.19	2,822.24	2,819.49	2.75	1,024.839		
700.00	700.00	716.30	716.30	2.28	2.33	-90.34	-16.97	-2,822.19	2,822.24	2,818.98	3.26	865.520		
800.00	800.00	816.30	816.30	2.63	2.69	-90.34	-16.97	-2,822.19	2,822.24	2,818.47	3.77	749.069		
900.00	900.00	916.30	916.30	2.99	3.05	-90.34	-16.97	-2,822.19	2,822.24	2,817.97	4.27	660.236		
1,000.00	1,000.00	1,016.30	1,016.30	3.35	3.41	-90.34	-16.97	-2,822.19	2,822.24	2,817.46	4.78	590.238		
1,100.00	1,100.00	1,116.30	1,116.30	3.71	3.77	-90.34	-16.97	-2,822.19	2,822.24	2,816.95	5.29	533.660		
1,200.00	1,200.00	1,216.30	1,216.30	4.07	4.13	-90.34	-16.97	-2,822.19	2,822.24	2,816.45	5.80	486.979		
1,300.00	1,300.00	1,316.30	1,316.30	4.43	4.49	-90.34	-16.97	-2,822.19	2,822.24	2,815.94	6.30	447.808		
1,400.00	1,400.00	1,416.30	1,416.30	4.79	4.84	-90.34	-16.97	-2,822.19	2,822.24	2,815.43	6.81	414.469		
1,500.00	1,500.00	1,516.30	1,516.30	5.14	5.20	-90.34	-16.97	-2,822.19	2,822.24	2,814.92	7.32	385.750		
1,600.00	1,600.00	1,616.30	1,616.30	5.50	5.56	-90.34	-16.97	-2,822.19	2,822.24	2,814.42	7.82	360.753		
1,700.00	1,700.00	1,716.30	1,716.30	5.86	5.92	-90.34	-16.97	-2,822.19	2,822.24	2,813.91	8.33	338.799		
1,800.00	1,800.00	1,816.30	1,816.30	6.22	6.28	-90.34	-16.97	-2,822.19	2,822.24	2,813.40	8.84	319.363		
1,900.00	1,900.00	1,916.30	1,916.30	6.58	6.64	-90.34	-16.97	-2,822.19	2,822.24	2,812.90	9.34	302.037		
2,000.00	2,000.00	2,016.30	2,016.30	6.94	6.99	-90.34	-16.97	-2,822.19	2,822.24	2,812.39	9.85	286.493		
2,100.00	2,100.00	2,116.30	2,116.30	7.29	7.35	-90.34	-16.97	-2,822.19	2,822.24	2,811.88	10.36	272.471		
2,200.00	2,200.00	2,216.30	2,216.30	7.65	7.71	-90.34	-16.97	-2,822.19	2,822.24	2,811.38	10.86	259.758		
2,300.00	2,300.00	2,316.30	2,316.30	8.01	8.07	-90.34	-16.97	-2,822.19	2,822.24	2,810.87	11.37	248.178		
2,400.00	2,400.00	2,416.30	2,416.30	8.37	8.43	-90.34	-16.97	-2,822.19	2,822.24	2,810.36	11.88	237.586		
2,500.00	2,500.00	2,516.30	2,516.30	8.73	8.79	-90.34	-16.97	-2,822.19	2,822.24	2,809.86	12.39	227.862		
2,600.00	2,600.00	2,616.30	2,616.30	9.09	9.15	-90.34	-16.97	-2,822.19	2,822.24	2,809.35	12.89	218.902		
2,700.00	2,700.00	2,716.30	2,716.30	9.45	9.50	-90.34	-16.97	-2,822.19	2,822.24	2,808.84	13.40	210.620		
2,800.00	2,800.00	2,816.30	2,816.30	9.80	9.86	-90.34	-16.97	-2,822.19	2,822.24	2,808.33	13.91	202.942		
2,900.00	2,900.00	2,916.30	2,916.30	10.16	10.22	-90.34	-16.97	-2,822.19	2,822.24	2,807.83	14.41	195.805		
3,000.00	3,000.00	3,016.30	3,016.30	10.52	10.58	-90.34	-16.97	-2,822.19	2,822.24	2,807.32	14.92	189.152		
3,100.00	3,100.00	3,116.30	3,116.30	10.88	10.94	-90.34	-16.97	-2,822.19	2,822.24	2,806.81	15.43	182.936		
3,200.00	3,200.00	3,216.30	3,216.30	11.24	11.30	-90.34	-16.97	-2,822.19	2,822.24	2,806.31	15.93	177.116		
3,210.18	3,210.18	3,226.48	3,226.48	11.27	11.33	-90.34	-16.97	-2,822.19	2,822.24	2,806.26	15.99	176.545 CC		
3,300.00	3,300.00	3,300.00	3,300.00	11.60	11.60	-90.34	-16.97	-2,822.19	2,822.29	2,805.89	16.40	172.093 ES		
3,400.00	3,399.98	3,367.50	3,367.50	11.94	11.83	170.88	-17.10	-2,822.77	2,824.97	2,808.16	16.81	168.054		
3,500.00	3,499.84	3,425.34	3,425.32	12.28	12.03	170.86	-17.42	-2,824.20	2,832.60	2,815.41	17.18	164.834		
3,600.00	3,599.45	3,500.00	3,499.91	12.63	12.28	170.83	-18.11	-2,827.30	2,845.21	2,827.61	17.60	161.684		
3,700.00	3,698.70	3,539.73	3,539.57	12.97	12.42	170.78	-18.61	-2,829.53	2,862.50	2,844.58	17.92	159.766		
3,800.00	3,797.47	3,617.39	3,617.05	13.33	12.68	170.72	-19.77	-2,834.73	2,884.49	2,866.15	18.33	157.334		
3,900.00	3,895.62	3,714.07	3,713.49	13.69	13.01	170.67	-21.24	-2,841.31	2,909.98	2,891.18	18.80	154.776		
4,000.00	3,993.06	3,809.80	3,808.99	14.06	13.34	170.62	-22.70	-2,847.83	2,938.79	2,919.52	19.27	152.534		
4,097.19	4,086.94	3,901.82	3,900.79	14.43	13.66	170.56	-24.10	-2,854.10	2,969.94	2,950.22	19.72	150.637		
4,100.00	4,089.64	3,904.47	3,903.43	14.45	13.67	170.56	-24.14	-2,854.28	2,970.88	2,951.15	19.73	150.575		
4,200.00	4,185.80	3,998.60	3,997.33	14.85	14.00	170.62	-25.57	-2,860.69	3,004.51	2,984.32	20.19	148.814		
4,300.00	4,281.95	4,092.74	4,091.24	15.26	14.33	170.67	-27.00	-2,867.11	3,038.15	3,017.49	20.65	147.109		
4,400.00	4,378.10	4,186.87	4,185.14	15.68	14.66	170.73	-28.44	-2,873.52	3,071.78	3,050.66	21.12	145.461		
4,500.00	4,474.26	4,281.00	4,279.04	16.12	14.99	170.78	-29.87	-2,879.93	3,105.42	3,083.83	21.59	143.866		
4,600.00	4,570.41	4,375.14	4,372.95	16.56	15.32	170.84	-31.30	-2,886.34	3,139.06	3,117.00	22.06	142.323		
4,700.00	4,666.56	4,469.27	4,466.85	17.01	15.65	170.89	-32.73	-2,892.76	3,172.70	3,150.17	22.53	140.831		
4,800.00	4,762.72	4,563.40	4,560.75	17.47	15.98	170.94	-34.17	-2,899.17	3,206.35	3,183.35	23.00	139.387		
4,900.00	4,858.87	4,657.54	4,654.66	17.94	16.32	170.99	-35.60	-2,905.58	3,240.00	3,216.52	23.48	137.990		

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



Total Directional Services

Anticollision Report



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Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,955.02	4,751.67	4,748.56	18.41	16.65	171.04	-37.03	-2,911.99	3,273.65	3,249.69	23.96	136.637		
5,100.00	5,051.18	4,845.80	4,842.46	18.89	16.99	171.08	-38.47	-2,918.41	3,307.30	3,282.86	24.44	135.328		
5,200.00	5,147.33	4,939.93	4,936.37	19.37	17.33	171.13	-39.90	-2,924.82	3,340.95	3,316.03	24.92	134.061		
5,300.00	5,243.48	5,034.07	5,030.27	19.86	17.66	171.17	-41.33	-2,931.23	3,374.61	3,349.20	25.40	132.833		
5,400.00	5,339.63	5,128.20	5,124.17	20.36	18.00	171.22	-42.76	-2,937.64	3,408.26	3,382.37	25.89	131.643		
5,500.00	5,435.79	5,222.33	5,218.08	20.86	18.34	171.26	-44.20	-2,944.06	3,441.92	3,415.55	26.38	130.491		
5,600.00	5,531.94	5,316.47	5,311.98	21.36	18.68	171.31	-45.63	-2,950.47	3,475.58	3,448.72	26.86	129.373		
5,700.00	5,628.09	5,410.60	5,405.89	21.87	19.02	171.35	-47.06	-2,956.88	3,509.25	3,481.89	27.35	128.290		
5,800.00	5,724.25	5,504.73	5,499.79	22.38	19.36	171.39	-48.49	-2,963.29	3,542.91	3,515.06	27.84	127.239		
5,900.00	5,820.40	5,598.87	5,593.69	22.89	19.70	171.43	-49.93	-2,969.71	3,576.58	3,548.24	28.34	126.219		
6,000.00	5,916.55	5,693.00	5,687.60	23.41	20.04	171.47	-51.36	-2,976.12	3,610.24	3,581.41	28.83	125.230		
6,100.00	6,012.71	5,787.13	5,781.50	23.93	20.38	171.51	-52.79	-2,982.53	3,643.91	3,614.59	29.32	124.269		
6,200.00	6,108.86	5,881.26	5,875.40	24.45	20.73	171.55	-54.22	-2,988.94	3,677.58	3,647.76	29.82	123.336		
6,300.00	6,205.01	5,975.40	5,969.31	24.98	21.07	171.58	-55.66	-2,995.36	3,711.25	3,680.94	30.31	122.429		
6,400.00	6,301.17	6,271.95	6,265.43	25.51	22.13	171.72	-58.89	-3,009.81	3,744.66	3,713.23	31.43	119.149		
6,500.00	6,397.32	6,420.13	6,413.62	26.04	22.65	171.81	-58.97	-3,010.19	3,771.89	3,739.80	32.08	117.575		
6,600.00	6,493.47	6,516.29	6,509.77	26.57	22.99	171.87	-58.97	-3,010.19	3,799.10	3,766.51	32.59	116.585		
6,700.00	6,589.63	6,612.44	6,605.93	27.11	23.33	171.93	-58.97	-3,010.19	3,826.31	3,793.22	33.09	115.624		
6,800.00	6,685.78	6,708.59	6,702.08	27.65	23.67	171.98	-58.97	-3,010.19	3,853.53	3,819.93	33.60	114.689		
6,900.00	6,781.93	6,804.75	6,798.23	28.19	24.00	172.04	-58.97	-3,010.19	3,880.76	3,846.65	34.11	113.780		
7,000.00	6,878.09	6,900.90	6,894.39	28.73	24.34	172.10	-58.97	-3,010.19	3,907.98	3,873.37	34.62	112.896		
7,100.00	6,974.24	6,997.05	6,990.54	29.27	24.68	172.15	-58.97	-3,010.19	3,935.21	3,900.09	35.12	112.035		
7,200.00	7,070.39	7,093.21	7,086.69	29.81	25.02	172.21	-58.97	-3,010.19	3,962.44	3,926.81	35.63	111.198		
7,300.00	7,166.55	7,189.36	7,182.85	30.36	25.36	172.26	-58.97	-3,010.19	3,989.68	3,953.54	36.14	110.382		
7,400.00	7,262.70	7,285.51	7,279.00	30.90	25.69	172.31	-58.97	-3,010.19	4,016.92	3,980.26	36.65	109.588		
7,500.00	7,358.85	7,381.67	7,375.15	31.45	26.03	172.36	-58.97	-3,010.19	4,044.16	4,007.00	37.17	108.814		
7,600.00	7,455.00	7,477.82	7,471.30	32.00	26.37	172.42	-58.97	-3,010.19	4,071.41	4,033.73	37.68	108.060		
7,700.00	7,551.16	7,573.97	7,567.46	32.55	26.71	172.47	-58.97	-3,010.19	4,098.66	4,060.47	38.19	107.324		
7,800.00	7,647.31	7,670.13	7,663.61	33.10	27.05	172.52	-58.97	-3,010.19	4,125.91	4,087.20	38.70	106.607		
7,900.00	7,743.46	7,766.28	7,759.76	33.66	27.39	172.57	-58.97	-3,010.19	4,153.16	4,113.95	39.21	105.908		
8,000.00	7,839.62	7,862.43	7,855.92	34.21	27.73	172.61	-58.97	-3,010.19	4,180.42	4,140.69	39.73	105.225		
8,100.00	7,935.77	7,958.58	7,952.07	34.76	28.07	172.66	-58.97	-3,010.19	4,207.68	4,167.44	40.24	104.559		
8,200.00	8,031.92	8,054.74	8,048.22	35.32	28.41	172.71	-58.97	-3,010.19	4,234.94	4,194.18	40.76	103.909		
8,300.00	8,128.08	8,150.89	8,144.38	35.88	28.75	172.76	-58.97	-3,010.19	4,262.21	4,220.93	41.27	103.274		
8,400.00	8,224.23	8,247.04	8,240.53	36.43	29.09	172.80	-58.97	-3,010.19	4,289.47	4,247.69	41.79	102.654		
8,500.00	8,320.38	8,343.20	8,336.68	36.99	29.43	172.85	-58.97	-3,010.19	4,316.74	4,274.44	42.30	102.048		
8,600.00	8,416.54	8,439.35	8,432.84	37.55	29.77	172.89	-58.97	-3,010.19	4,344.02	4,301.20	42.82	101.456		
8,700.00	8,512.69	8,535.50	8,528.99	38.11	30.11	172.94	-58.97	-3,010.19	4,371.29	4,327.96	43.33	100.877		
8,800.00	8,608.84	8,631.66	8,625.14	38.67	30.45	172.98	-58.97	-3,010.19	4,398.57	4,354.72	43.85	100.311		
8,908.39	8,713.06	8,735.88	8,729.36	39.28	30.82	173.03	-58.97	-3,010.19	4,428.14	4,383.73	44.41	99.712		
9,000.00	8,801.54	8,824.35	8,817.84	39.78	31.13	173.12	-58.97	-3,010.19	4,451.73	4,406.85	44.88	99.187		
9,100.00	8,898.92	8,921.74	8,915.22	40.28	31.48	173.21	-58.97	-3,010.19	4,474.26	4,428.86	45.40	98.558		
9,200.00	8,997.05	9,019.86	9,013.35	40.76	31.82	173.29	-58.97	-3,010.19	4,493.40	4,447.49	45.91	97.873		
9,300.00	9,095.78	9,118.59	9,112.08	41.19	32.17	173.35	-58.97	-3,010.19	4,509.13	4,462.71	46.42	97.136		
9,400.00	9,195.00	9,217.82	9,211.30	41.59	32.53	173.40	-58.97	-3,010.19	4,521.43	4,474.50	46.93	96.349		
9,500.00	9,294.60	9,317.42	9,310.90	41.96	32.88	173.43	-58.97	-3,010.19	4,530.28	4,482.85	47.43	95.516		
9,600.00	9,394.45	9,417.26	9,410.75	42.29	33.23	173.45	-58.97	-3,010.19	4,535.67	4,487.75	47.93	94.640		
9,705.58	9,500.00	9,522.81	9,516.30	42.60	33.61	-87.78	-58.97	-3,010.19	4,537.61	4,489.17	48.44	93.675		
9,800.00	9,594.42	9,617.24	9,610.72	42.86	33.94	-87.78	-58.97	-3,010.19	4,537.61	4,488.71	48.89	92.804		
9,900.00	9,694.42	9,717.24	9,710.72	43.14	34.30	-87.78	-58.97	-3,010.19	4,537.61	4,488.23	49.38	91.898		
10,000.00	9,794.42	9,817.24	9,810.72	43.42	34.65	-87.78	-58.97	-3,010.19	4,537.61	4,487.75	49.86	91.009		
10,100.00	9,894.42	9,917.24	9,910.72	43.71	35.01	-87.78	-58.97	-3,010.19	4,537.61	4,487.26	50.34	90.135		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 801H - OH - Plan #2		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						
10,200.00	9,994.42	10,017.24	10,010.72	43.99	35.36	-87.78	-58.97	-3,010.19	4,537.61	4,486.78	50.83	89.278						
10,300.00	10,094.42	10,117.24	10,110.72	44.27	35.72	-87.78	-58.97	-3,010.19	4,537.61	4,486.30	51.31	88.436						
10,342.62	10,137.04	10,159.85	10,153.34	44.39	35.87	-87.78	-58.97	-3,010.19	4,537.61	4,486.09	51.52	88.082						
10,350.00	10,144.42	10,167.24	10,160.72	44.41	35.90	92.78	-58.97	-3,010.19	4,537.61	4,486.06	51.55	88.021						
10,400.00	10,194.33	10,217.14	10,210.63	44.55	36.07	92.80	-58.97	-3,010.19	4,537.75	4,485.96	51.79	87.617						
10,450.00	10,243.80	10,266.61	10,260.10	44.69	36.25	92.85	-58.97	-3,010.19	4,538.10	4,486.07	52.03	87.221						
10,500.00	10,292.45	10,315.27	10,308.75	44.84	36.42	92.93	-58.97	-3,010.19	4,538.70	4,486.43	52.27	86.834						
10,550.00	10,339.93	10,362.74	10,356.23	44.99	36.59	93.04	-58.97	-3,010.19	4,539.56	4,487.05	52.50	86.460						
10,600.00	10,385.86	10,408.67	10,402.16	45.14	36.75	93.15	-58.97	-3,010.19	4,540.72	4,487.98	52.74	86.101						
10,650.00	10,429.89	10,452.70	10,446.19	45.29	36.91	93.26	-58.97	-3,010.19	4,542.22	4,489.25	52.96	85.760						
10,700.00	10,471.70	10,494.51	10,488.00	45.44	37.06	93.36	-58.97	-3,010.19	4,544.11	4,490.93	53.19	85.438						
10,750.00	10,510.96	10,533.77	10,527.26	45.58	37.20	93.43	-58.97	-3,010.19	4,546.45	4,493.05	53.40	85.137						
10,800.00	10,547.37	10,570.18	10,563.67	45.73	37.33	93.46	-58.97	-3,010.19	4,549.28	4,495.67	53.61	84.860						
10,850.00	10,580.66	10,603.48	10,596.96	45.88	37.45	93.44	-58.97	-3,010.19	4,552.65	4,498.84	53.81	84.608						
10,900.00	10,610.58	10,633.39	10,626.88	46.03	37.55	93.34	-58.97	-3,010.19	4,556.61	4,502.61	54.00	84.383						
10,950.00	10,636.89	10,659.70	10,653.19	46.18	37.65	93.17	-58.97	-3,010.19	4,561.19	4,507.01	54.18	84.186						
11,000.00	10,659.39	10,682.21	10,675.69	46.34	37.73	92.89	-58.97	-3,010.19	4,566.43	4,512.08	54.35	84.019						
11,050.00	10,677.93	10,700.74	10,694.23	46.50	37.79	92.52	-58.97	-3,010.19	4,572.33	4,517.82	54.51	83.884						
11,100.00	10,692.34	10,715.15	10,708.64	46.67	37.84	92.03	-58.97	-3,010.19	4,578.89	4,524.24	54.65	83.781						
11,150.00	10,702.53	10,725.34	10,718.83	46.85	37.88	91.43	-58.97	-3,010.19	4,586.11	4,531.33	54.78	83.712						
11,200.00	10,708.41	10,731.23	10,724.71	47.04	37.90	90.70	-58.97	-3,010.19	4,593.96	4,539.06	54.90	83.677						
11,242.62	10,710.00	10,732.81	10,726.30	47.21	37.91	90.00	-58.97	-3,010.19	4,601.10	4,546.12	54.99	83.674						
11,300.00	10,710.00	10,732.81	10,726.30	47.45	37.91	90.00	-58.97	-3,010.19	4,611.34	4,556.24	55.10	83.689						
11,400.00	10,710.00	10,732.81	10,726.30	47.92	37.91	90.00	-58.97	-3,010.19	4,630.82	4,575.51	55.31	83.718						
11,500.00	10,710.00	10,732.81	10,726.30	48.43	37.91	90.00	-58.97	-3,010.19	4,652.37	4,596.82	55.55	83.754						
11,600.00	10,710.00	10,732.81	10,726.30	49.00	37.91	90.00	-58.97	-3,010.19	4,675.96	4,620.16	55.80	83.800						
11,700.00	10,710.00	10,732.81	10,726.30	49.61	37.91	90.00	-58.97	-3,010.19	4,701.56	4,645.49	56.07	83.856						
11,800.00	10,710.00	10,732.81	10,726.30	50.27	37.91	90.00	-58.97	-3,010.19	4,729.13	4,672.78	56.35	83.924						
11,900.00	10,710.00	10,732.81	10,726.30	50.98	37.91	90.00	-58.97	-3,010.19	4,758.65	4,702.00	56.65	84.005						
12,000.00	10,710.00	10,732.81	10,726.30	51.74	37.91	90.00	-58.97	-3,010.19	4,790.07	4,733.12	56.96	84.102						
12,100.00	10,710.00	10,732.81	10,726.30	52.54	37.91	90.00	-58.97	-3,010.19	4,823.37	4,766.09	57.28	84.214						
12,200.00	10,710.00	10,732.81	10,726.30	53.38	37.91	90.00	-58.97	-3,010.19	4,858.49	4,800.88	57.60	84.343						
12,300.00	10,710.00	10,732.81	10,726.30	54.26	37.91	90.00	-58.97	-3,010.19	4,895.40	4,837.46	57.94	84.493						
12,400.00	10,710.00	10,732.81	10,726.30	55.18	37.91	90.00	-58.97	-3,010.19	4,934.07	4,875.79	58.28	84.662						
12,500.00	10,710.00	14,551.84	12,740.00	56.13	56.26	113.96	-2,110.11	-2,989.89	4,959.08	4,885.99	73.09	67.851						
12,600.00	10,710.00	14,651.84	12,740.00	57.11	57.27	113.96	-2,210.10	-2,988.90	4,959.06	4,884.58	74.48	66.585						
12,700.00	10,710.00	14,751.84	12,740.00	58.13	58.31	113.96	-2,310.10	-2,987.91	4,959.04	4,883.14	75.90	65.334						
12,800.00	10,710.00	14,851.84	12,740.00	59.18	59.38	113.96	-2,410.09	-2,986.92	4,959.02	4,881.65	77.36	64.099						
12,900.00	10,710.00	14,951.84	12,740.00	60.26	60.48	113.96	-2,510.09	-2,985.93	4,959.00	4,880.14	78.86	62.884						
13,000.00	10,710.00	15,051.84	12,740.00	61.36	61.60	113.96	-2,610.08	-2,984.94	4,958.98	4,878.60	80.39	61.690						
13,100.00	10,710.00	15,151.84	12,740.00	62.49	62.74	113.96	-2,710.08	-2,983.95	4,958.96	4,877.02	81.94	60.519						
13,200.00	10,710.00	15,251.84	12,740.00	63.64	63.91	113.96	-2,810.07	-2,982.96	4,958.94	4,875.42	83.52	59.372						
13,300.00	10,710.00	15,351.84	12,740.00	64.81	65.09	113.96	-2,910.07	-2,981.97	4,958.92	4,873.79	85.13	58.250						
13,400.00	10,710.00	15,451.84	12,740.00	66.01	66.30	113.96	-3,010.06	-2,980.98	4,958.90	4,872.14	86.77	57.153						
13,500.00	10,710.00	15,551.84	12,740.00	67.22	67.52	113.96	-3,110.06	-2,979.99	4,958.88	4,870.46	88.42	56.082						
13,600.00	10,710.00	15,651.84	12,740.00	68.46	68.77	113.96	-3,210.06	-2,979.00	4,958.86	4,868.76	90.10	55.036						
13,700.00	10,710.00	15,751.84	12,740.00	69.71	70.03	113.96	-3,310.05	-2,978.01	4,958.84	4,867.04	91.80	54.016						
13,800.00	10,710.00	15,851.84	12,740.00	70.98	71.30	113.96	-3,410.05	-2,977.02	4,958.82	4,865.30	93.52	53.022						
13,900.00	10,710.00	15,951.84	12,740.00	72.26	72.59	113.96	-3,510.04	-2,976.03	4,958.80	4,863.54	95.26	52.054						
14,000.00	10,710.00	16,051.84	12,740.00	73.56	73.90	113.96	-3,610.04	-2,975.04	4,958.78	4,861.76	97.02	51.111						
14,100.00	10,710.00	16,151.84	12,740.00	74.87	75.22	113.96	-3,710.03	-2,974.05	4,958.76	4,859.97	98.79	50.194						
14,200.00	10,710.00	16,251.84	12,740.00	76.20	76.55	113.96	-3,810.03	-2,973.06	4,958.74	4,858.16	100.58	49.301						

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	10,710.00	21,551.84	12,740.00	155.76	156.14	113.96	-9,109.77	-2,920.61	4,957.69	4,751.45	206.24	24.038		
19,600.00	10,710.00	21,651.84	12,740.00	157.34	157.72	113.96	-9,209.76	-2,919.62	4,957.67	4,749.34	208.33	23.797		
19,700.00	10,710.00	21,751.84	12,740.00	158.93	159.31	113.97	-9,309.76	-2,918.63	4,957.65	4,747.23	210.42	23.560		
19,800.00	10,710.00	21,851.84	12,740.00	160.51	160.89	113.97	-9,409.75	-2,917.64	4,957.63	4,745.12	212.52	23.328		
19,900.00	10,710.00	21,951.84	12,740.00	162.10	162.48	113.97	-9,509.75	-2,916.65	4,957.61	4,743.00	214.61	23.100		
20,000.00	10,710.00	22,051.84	12,740.00	163.69	164.07	113.97	-9,609.74	-2,915.66	4,957.59	4,740.89	216.70	22.877		
20,100.00	10,710.00	22,151.84	12,740.00	165.28	165.66	113.97	-9,709.74	-2,914.67	4,957.58	4,738.78	218.80	22.658		
20,200.00	10,710.00	22,251.84	12,740.00	166.87	167.25	113.97	-9,809.73	-2,913.68	4,957.56	4,736.66	220.90	22.443		
20,300.00	10,710.00	22,351.84	12,740.00	168.46	168.84	113.97	-9,909.73	-2,912.69	4,957.54	4,734.54	222.99	22.232		
20,400.00	10,710.00	22,451.84	12,740.00	170.05	170.43	113.97	-10,009.72	-2,911.70	4,957.52	4,732.42	225.09	22.024		
20,500.00	10,710.00	22,551.84	12,740.00	171.65	172.03	113.97	-10,109.72	-2,910.71	4,957.50	4,730.30	227.19	21.820		
20,600.00	10,710.00	22,651.84	12,740.00	173.24	173.62	113.97	-10,209.71	-2,909.72	4,957.48	4,728.18	229.30	21.620		
20,700.00	10,710.00	22,751.84	12,740.00	174.84	175.22	113.97	-10,309.71	-2,908.73	4,957.46	4,726.06	231.40	21.424		
20,800.00	10,710.00	22,851.84	12,740.00	176.44	176.72	113.97	-10,409.70	-2,907.74	4,957.44	4,724.00	233.44	21.237		
20,814.23	10,710.00	22,865.07	12,740.00	176.67	176.91	113.97	-10,422.94	-2,907.61	4,957.43	4,723.73	233.71	21.212		
20,818.71	10,710.00	22,865.07	12,740.00	176.74	176.91	113.97	-10,422.94	-2,907.61	4,957.44	4,723.69	233.74	21.209		
20,819.49	10,710.00	22,865.07	12,740.00	176.80	176.91	113.97	-10,422.94	-2,907.61	4,957.44	4,723.69	233.75	21.208 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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	16.30	16.30	0.00	0.02	-90.34	-16.73	-2,797.20	2,797.25					
100.00	100.00	116.30	116.30	0.13	0.18	-90.34	-16.73	-2,797.20	2,797.25	2,797.03	0.22	N/A		
200.00	200.00	216.30	216.30	0.48	0.54	-90.34	-16.73	-2,797.20	2,797.25	2,796.52	0.73	3,848.286		
300.00	300.00	316.30	316.30	0.84	0.90	-90.34	-16.73	-2,797.20	2,797.25	2,796.02	1.23	2,268.002		
400.00	400.00	416.30	416.30	1.20	1.26	-90.34	-16.73	-2,797.20	2,797.25	2,795.51	1.74	1,607.515		
500.00	500.00	516.30	516.30	1.56	1.62	-90.34	-16.73	-2,797.20	2,797.25	2,795.00	2.25	1,244.908		
600.00	600.00	616.30	616.30	1.92	1.98	-90.34	-16.73	-2,797.20	2,797.25	2,794.50	2.75	1,015.764		
700.00	700.00	716.30	716.30	2.28	2.33	-90.34	-16.73	-2,797.20	2,797.25	2,793.99	3.26	857.856		
800.00	800.00	816.30	816.30	2.63	2.69	-90.34	-16.73	-2,797.20	2,797.25	2,793.48	3.77	742.436		
900.00	900.00	916.30	916.30	2.99	3.05	-90.34	-16.73	-2,797.20	2,797.25	2,792.98	4.27	654.390		
1,000.00	1,000.00	1,016.30	1,016.30	3.35	3.41	-90.34	-16.73	-2,797.20	2,797.25	2,792.47	4.78	585.012		
1,100.00	1,100.00	1,116.30	1,116.30	3.71	3.77	-90.34	-16.73	-2,797.20	2,797.25	2,791.96	5.29	528.934		
1,200.00	1,200.00	1,216.30	1,216.30	4.07	4.13	-90.34	-16.73	-2,797.20	2,797.25	2,791.45	5.80	482.667		
1,300.00	1,300.00	1,316.30	1,316.30	4.43	4.49	-90.34	-16.73	-2,797.20	2,797.25	2,790.95	6.30	443.842		
1,400.00	1,400.00	1,416.30	1,416.30	4.79	4.84	-90.34	-16.73	-2,797.20	2,797.25	2,790.44	6.81	410.799		
1,500.00	1,500.00	1,516.30	1,516.30	5.14	5.20	-90.34	-16.73	-2,797.20	2,797.25	2,789.93	7.32	382.334		
1,600.00	1,600.00	1,616.30	1,616.30	5.50	5.56	-90.34	-16.73	-2,797.20	2,797.25	2,789.43	7.82	357.559		
1,700.00	1,700.00	1,716.30	1,716.30	5.86	5.92	-90.34	-16.73	-2,797.20	2,797.25	2,788.92	8.33	335.799		
1,800.00	1,800.00	1,816.30	1,816.30	6.22	6.28	-90.34	-16.73	-2,797.20	2,797.25	2,788.41	8.84	316.535		
1,900.00	1,900.00	1,916.30	1,916.30	6.58	6.64	-90.34	-16.73	-2,797.20	2,797.25	2,787.91	9.34	299.362		
2,000.00	2,000.00	2,016.30	2,016.30	6.94	6.99	-90.34	-16.73	-2,797.20	2,797.25	2,787.40	9.85	283.956		
2,100.00	2,100.00	2,116.30	2,116.30	7.29	7.35	-90.34	-16.73	-2,797.20	2,797.25	2,786.89	10.36	270.059		
2,200.00	2,200.00	2,216.30	2,216.30	7.65	7.71	-90.34	-16.73	-2,797.20	2,797.25	2,786.39	10.86	257.458		
2,300.00	2,300.00	2,316.30	2,316.30	8.01	8.07	-90.34	-16.73	-2,797.20	2,797.25	2,785.88	11.37	245.980		
2,400.00	2,400.00	2,416.30	2,416.30	8.37	8.43	-90.34	-16.73	-2,797.20	2,797.25	2,785.37	11.88	235.483		
2,500.00	2,500.00	2,516.30	2,516.30	8.73	8.79	-90.34	-16.73	-2,797.20	2,797.25	2,784.86	12.39	225.844		
2,600.00	2,600.00	2,616.30	2,616.30	9.09	9.15	-90.34	-16.73	-2,797.20	2,797.25	2,784.36	12.89	216.964		
2,700.00	2,700.00	2,716.30	2,716.30	9.45	9.50	-90.34	-16.73	-2,797.20	2,797.25	2,783.85	13.40	208.755		
2,800.00	2,800.00	2,816.30	2,816.30	9.80	9.86	-90.34	-16.73	-2,797.20	2,797.25	2,783.34	13.91	201.145		
2,900.00	2,900.00	2,916.30	2,916.30	10.16	10.22	-90.34	-16.73	-2,797.20	2,797.25	2,782.84	14.41	194.071		
3,000.00	3,000.00	3,016.30	3,016.30	10.52	10.58	-90.34	-16.73	-2,797.20	2,797.25	2,782.33	14.92	187.477		
3,100.00	3,100.00	3,116.30	3,116.30	10.88	10.94	-90.34	-16.73	-2,797.20	2,797.25	2,781.82	15.43	181.316		
3,200.00	3,200.00	3,260.59	3,260.59	11.24	11.45	-90.34	-16.76	-2,796.72	2,797.12	2,781.08	16.04	174.368		
3,300.00	3,300.00	3,571.80	3,571.19	11.60	12.52	-90.37	-17.71	-2,778.88	2,790.60	2,773.60	17.00	164.143		
3,400.00	3,399.98	3,895.74	3,891.93	11.94	13.67	170.87	-20.11	-2,734.28	2,777.11	2,759.21	17.90	155.119		
3,500.00	3,499.84	3,995.01	3,989.73	12.28	14.03	170.90	-21.02	-2,717.27	2,765.10	2,746.72	18.38	150.433		
3,600.00	3,599.45	4,094.63	4,087.87	12.63	14.40	170.94	-21.94	-2,700.20	2,756.52	2,737.65	18.86	146.138		
3,700.00	3,698.70	4,194.49	4,186.25	12.97	14.78	170.97	-22.86	-2,683.09	2,751.37	2,732.02	19.35	142.212		
3,799.32	3,796.80	4,293.78	4,284.07	13.32	15.16	171.01	-23.77	-2,666.08	2,749.67	2,729.84	19.83	138.659 CC		
3,800.00	3,797.47	4,294.46	4,284.74	13.33	15.16	171.01	-23.78	-2,665.97	2,749.67	2,729.84	19.83	138.636 ES		
3,900.00	3,895.62	4,394.42	4,383.22	13.69	15.55	171.04	-24.70	-2,648.84	2,751.42	2,731.09	20.32	135.388		
4,000.00	3,993.06	4,494.25	4,481.56	14.06	15.93	171.08	-25.62	-2,631.73	2,756.61	2,735.80	20.81	132.449		
4,097.19	4,086.94	4,591.03	4,576.91	14.43	16.31	171.12	-26.51	-2,615.15	2,764.96	2,743.67	21.29	129.873		
4,100.00	4,089.64	4,593.82	4,579.66	14.45	16.32	171.12	-26.53	-2,614.67	2,765.25	2,743.94	21.30	129.800		
4,200.00	4,185.80	4,693.24	4,677.60	14.85	16.72	171.19	-27.45	-2,597.64	2,775.51	2,753.71	21.80	127.339		
4,300.00	4,281.95	4,792.66	4,775.55	15.26	17.11	171.25	-28.36	-2,580.61	2,785.78	2,763.49	22.29	124.970		
4,400.00	4,378.10	4,892.07	4,873.49	15.68	17.51	171.32	-29.28	-2,563.57	2,796.05	2,773.26	22.79	122.689		
4,500.00	4,474.26	4,991.49	4,971.43	16.12	17.91	171.39	-30.19	-2,546.54	2,806.32	2,783.03	23.29	120.491		
4,600.00	4,570.41	5,090.91	5,069.37	16.56	18.31	171.46	-31.11	-2,529.51	2,816.60	2,792.81	23.79	118.374		
4,700.00	4,666.56	5,190.33	5,167.32	17.01	18.72	171.52	-32.02	-2,512.47	2,826.88	2,802.58	24.30	116.334		
4,800.00	4,762.72	5,289.74	5,265.26	17.47	19.12	171.59	-32.94	-2,495.44	2,837.17	2,812.36	24.81	114.366		
4,900.00	4,858.87	5,389.16	5,363.20	17.94	19.53	171.65	-33.85	-2,478.40	2,847.45	2,822.14	25.32	112.469		

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



Total Directional Services

Anticollision Report



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Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,955.02	5,488.58	5,461.15	18.41	19.94	171.72	-34.77	-2,461.37	2,857.75	2,831.92	25.83	110.639		
5,100.00	5,051.18	5,587.99	5,559.09	18.89	20.35	171.78	-35.68	-2,444.34	2,868.04	2,841.70	26.34	108.872		
5,200.00	5,147.33	5,687.41	5,657.03	19.37	20.77	171.85	-36.60	-2,427.30	2,878.34	2,851.48	26.86	107.166		
5,300.00	5,243.48	5,786.83	5,754.97	19.86	21.18	171.91	-37.51	-2,410.27	2,888.65	2,861.27	27.38	105.519		
5,400.00	5,339.63	5,886.25	5,852.92	20.36	21.60	171.97	-38.43	-2,393.24	2,898.95	2,871.06	27.89	103.927		
5,500.00	5,435.79	5,985.66	5,950.86	20.86	22.02	172.03	-39.34	-2,376.20	2,909.26	2,880.85	28.41	102.388		
5,600.00	5,531.94	6,085.08	6,048.80	21.36	22.44	172.10	-40.26	-2,359.17	2,919.58	2,890.64	28.94	100.900		
5,700.00	5,628.09	6,184.50	6,146.75	21.87	22.86	172.16	-41.17	-2,342.13	2,929.89	2,900.43	29.46	99.461		
5,800.00	5,724.25	6,283.91	6,244.69	22.38	23.28	172.22	-42.09	-2,325.10	2,940.21	2,910.23	29.98	98.068		
5,900.00	5,820.40	6,383.33	6,342.63	22.89	23.70	172.28	-43.00	-2,308.07	2,950.54	2,920.03	30.51	96.719		
6,000.00	5,916.55	6,482.75	6,440.57	23.41	24.13	172.34	-43.92	-2,291.03	2,960.86	2,929.83	31.03	95.413		
6,100.00	6,012.71	6,582.17	6,538.52	23.93	24.55	172.40	-44.83	-2,274.00	2,971.19	2,939.63	31.56	94.147		
6,200.00	6,108.86	6,681.58	6,636.46	24.45	24.98	172.46	-45.75	-2,256.97	2,981.53	2,949.44	32.09	92.921		
6,300.00	6,205.01	6,781.00	6,734.40	24.98	25.40	172.52	-46.66	-2,239.93	2,991.86	2,959.25	32.62	91.731		
6,400.00	6,301.17	6,880.42	6,832.35	25.51	25.83	172.58	-47.58	-2,222.90	3,002.20	2,969.06	33.15	90.578		
6,500.00	6,397.32	6,941.49	6,892.57	26.04	26.09	172.61	-48.12	-2,212.74	3,013.10	2,979.50	33.59	89.691		
6,600.00	6,493.47	7,000.00	6,950.40	26.57	26.34	172.65	-48.60	-2,203.89	3,025.43	2,991.40	34.03	88.896		
6,700.00	6,589.63	7,052.10	7,002.01	27.11	26.55	172.68	-48.98	-2,196.76	3,039.19	3,004.74	34.45	88.218		
6,800.00	6,685.78	7,100.00	7,049.53	27.65	26.74	172.71	-49.30	-2,190.82	3,054.40	3,019.55	34.85	87.641		
6,900.00	6,781.93	7,161.77	7,110.93	28.19	26.99	172.75	-49.66	-2,184.04	3,071.00	3,035.72	35.28	87.047		
7,000.00	6,878.09	7,200.00	7,148.98	28.73	27.13	172.77	-49.86	-2,180.34	3,089.11	3,053.47	35.64	86.680		
7,100.00	6,974.24	7,270.35	7,219.08	29.27	27.40	172.81	-50.18	-2,174.53	3,108.45	3,072.37	36.08	86.156		
7,200.00	7,070.39	7,324.17	7,272.79	29.81	27.60	172.85	-50.37	-2,170.95	3,129.26	3,092.79	36.47	85.808		
7,300.00	7,166.55	7,400.00	7,348.52	30.36	27.87	172.89	-50.57	-2,167.20	3,151.59	3,114.67	36.92	85.366		
7,400.00	7,262.70	7,430.80	7,379.30	30.90	27.98	172.91	-50.63	-2,166.10	3,174.99	3,137.77	37.22	85.298		
7,500.00	7,358.85	7,500.00	7,448.48	31.45	28.21	172.95	-50.71	-2,164.55	3,199.96	3,162.31	37.64	85.008		
7,600.00	7,455.00	7,535.96	7,484.44	32.00	28.33	172.98	-50.73	-2,164.23	3,226.10	3,188.16	37.95	85.019		
7,700.00	7,551.16	7,618.97	7,567.46	32.55	28.61	173.03	-50.73	-2,164.20	3,253.33	3,214.92	38.41	84.709		
7,800.00	7,647.31	7,715.13	7,663.61	33.10	28.92	173.09	-50.73	-2,164.20	3,280.61	3,241.70	38.91	84.309		
7,900.00	7,743.46	7,811.28	7,759.76	33.66	29.24	173.14	-50.73	-2,164.20	3,307.89	3,268.48	39.42	83.917		
8,000.00	7,839.62	7,907.43	7,855.92	34.21	29.56	173.20	-50.73	-2,164.20	3,335.18	3,295.26	39.93	83.534		
8,100.00	7,935.77	8,003.59	7,952.07	34.76	29.88	173.25	-50.73	-2,164.20	3,362.48	3,322.04	40.43	83.160		
8,200.00	8,031.92	8,099.74	8,048.22	35.32	30.20	173.31	-50.73	-2,164.20	3,389.77	3,348.83	40.94	82.794		
8,300.00	8,128.08	8,195.89	8,144.38	35.88	30.52	173.36	-50.73	-2,164.20	3,417.07	3,375.62	41.45	82.436		
8,400.00	8,224.23	8,292.05	8,240.53	36.43	30.84	173.42	-50.73	-2,164.20	3,444.37	3,402.41	41.96	82.085		
8,500.00	8,320.38	8,388.20	8,336.68	36.99	31.16	173.47	-50.73	-2,164.20	3,471.67	3,429.20	42.47	81.743		
8,600.00	8,416.54	8,484.35	8,432.84	37.55	31.48	173.52	-50.73	-2,164.20	3,498.98	3,456.00	42.98	81.407		
8,700.00	8,512.69	8,580.51	8,528.99	38.11	31.80	173.57	-50.73	-2,164.20	3,526.29	3,482.79	43.49	81.079		
8,800.00	8,608.84	8,676.66	8,625.14	38.67	32.12	173.62	-50.73	-2,164.20	3,553.60	3,509.59	44.00	80.757		
8,908.39	8,713.06	8,780.88	8,729.36	39.28	32.47	173.67	-50.73	-2,164.20	3,583.20	3,538.64	44.56	80.416		
9,000.00	8,801.54	8,869.35	8,817.84	39.78	32.77	173.77	-50.73	-2,164.20	3,606.82	3,561.79	45.03	80.104		
9,100.00	8,898.92	8,966.74	8,915.22	40.28	33.10	173.85	-50.73	-2,164.20	3,629.38	3,583.84	45.54	79.701		
9,200.00	8,997.05	9,064.86	9,013.35	40.76	33.43	173.93	-50.73	-2,164.20	3,648.54	3,602.50	46.05	79.236		
9,300.00	9,095.78	9,163.60	9,112.08	41.19	33.76	173.99	-50.73	-2,164.20	3,664.29	3,617.74	46.55	78.713		
9,400.00	9,195.00	9,262.82	9,211.30	41.59	34.10	174.03	-50.73	-2,164.20	3,676.61	3,629.55	47.06	78.134		
9,500.00	9,294.60	9,362.42	9,310.90	41.96	34.43	174.07	-50.73	-2,164.20	3,685.47	3,637.91	47.55	77.502		
9,600.00	9,394.45	9,462.27	9,410.75	42.29	34.77	174.09	-50.73	-2,164.20	3,690.87	3,642.82	48.05	76.821		
9,705.58	9,500.00	9,567.82	9,516.30	42.60	35.13	-87.14	-50.73	-2,164.20	3,692.80	3,644.24	48.56	76.053		
9,800.00	9,594.42	9,662.24	9,610.72	42.86	35.45	-87.14	-50.73	-2,164.20	3,692.80	3,643.79	49.01	75.352		
9,900.00	9,694.42	9,762.24	9,710.72	43.14	35.79	-87.14	-50.73	-2,164.20	3,692.80	3,643.31	49.49	74.623		
10,000.00	9,794.42	9,862.24	9,810.72	43.42	36.13	-87.14	-50.73	-2,164.20	3,692.80	3,642.84	49.97	73.907		
10,100.00	9,894.42	9,962.24	9,910.72	43.71	36.47	-87.14	-50.73	-2,164.20	3,692.80	3,642.36	50.45	73.204		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.00	10,710.00	16,273.65	12,617.00	77.54	78.20	117.16	-3,901.59	-2,126.14	4,142.15	4,040.46	101.69	40.735		
14,400.00	10,710.00	16,373.65	12,617.00	78.89	79.55	117.16	-4,001.59	-2,125.15	4,142.13	4,038.66	103.47	40.032		
14,500.00	10,710.00	16,473.65	12,617.00	80.26	80.92	117.16	-4,101.58	-2,124.17	4,142.11	4,036.85	105.27	39.349		
14,600.00	10,710.00	16,573.65	12,617.00	81.63	82.29	117.16	-4,201.58	-2,123.18	4,142.10	4,035.02	107.07	38.684		
14,700.00	10,710.00	16,673.65	12,617.00	83.01	83.67	117.16	-4,301.57	-2,122.19	4,142.08	4,033.18	108.90	38.037		
14,800.00	10,710.00	16,773.65	12,617.00	84.41	85.07	117.16	-4,401.57	-2,121.20	4,142.06	4,031.33	110.73	37.408		
14,900.00	10,710.00	16,873.65	12,617.00	85.81	86.47	117.16	-4,501.56	-2,120.21	4,142.04	4,029.47	112.57	36.795		
15,000.00	10,710.00	16,973.65	12,617.00	87.22	87.88	117.16	-4,601.56	-2,119.22	4,142.03	4,027.61	114.42	36.200		
15,100.00	10,710.00	17,073.65	12,617.00	88.64	89.30	117.16	-4,701.55	-2,118.24	4,142.01	4,025.73	116.28	35.621		
15,200.00	10,710.00	17,173.65	12,617.00	90.07	90.73	117.16	-4,801.55	-2,117.25	4,141.99	4,023.84	118.15	35.057		
15,300.00	10,710.00	17,273.65	12,617.00	91.51	92.16	117.16	-4,901.54	-2,116.26	4,141.97	4,021.94	120.03	34.508		
15,400.00	10,710.00	17,373.65	12,617.00	92.95	93.60	117.16	-5,001.54	-2,115.27	4,141.95	4,020.04	121.92	33.974		
15,500.00	10,710.00	17,473.65	12,617.00	94.40	95.05	117.16	-5,101.53	-2,114.28	4,141.94	4,018.13	123.81	33.454		
15,600.00	10,710.00	17,573.65	12,617.00	95.86	96.51	117.16	-5,201.53	-2,113.30	4,141.92	4,016.21	125.71	32.948		
15,700.00	10,710.00	17,673.65	12,617.00	97.32	97.97	117.16	-5,301.52	-2,112.31	4,141.90	4,014.28	127.62	32.455		
15,800.00	10,710.00	17,773.65	12,617.00	98.79	99.43	117.16	-5,401.52	-2,111.32	4,141.88	4,012.35	129.53	31.975		
15,900.00	10,710.00	17,873.65	12,617.00	100.27	100.91	117.16	-5,501.52	-2,110.33	4,141.86	4,010.41	131.45	31.508		
16,000.00	10,710.00	17,973.65	12,617.00	101.75	102.39	117.16	-5,601.51	-2,109.34	4,141.85	4,008.46	133.38	31.052		
16,100.00	10,710.00	18,073.65	12,617.00	103.23	103.87	117.16	-5,701.51	-2,108.35	4,141.83	4,006.51	135.32	30.608		
16,200.00	10,710.00	18,173.65	12,617.00	104.73	105.36	117.16	-5,801.50	-2,107.37	4,141.81	4,004.55	137.26	30.176		
16,300.00	10,710.00	18,273.65	12,617.00	106.22	106.85	117.16	-5,901.50	-2,106.38	4,141.79	4,002.59	139.20	29.754		
16,400.00	10,710.00	18,373.65	12,617.00	107.72	108.35	117.16	-6,001.49	-2,105.39	4,141.77	4,000.62	141.15	29.342		
16,500.00	10,710.00	18,473.65	12,617.00	109.23	109.85	117.16	-6,101.49	-2,104.40	4,141.76	3,998.65	143.11	28.941		
16,600.00	10,710.00	18,573.65	12,617.00	110.73	111.36	117.16	-6,201.48	-2,103.41	4,141.74	3,996.67	145.07	28.550		
16,700.00	10,710.00	18,673.65	12,617.00	112.25	112.87	117.16	-6,301.48	-2,102.42	4,141.72	3,994.68	147.04	28.168		
16,800.00	10,710.00	18,773.65	12,617.00	113.76	114.38	117.16	-6,401.47	-2,101.44	4,141.70	3,992.70	149.01	27.795		
16,900.00	10,710.00	18,873.65	12,617.00	115.28	115.90	117.16	-6,501.47	-2,100.45	4,141.68	3,990.70	150.98	27.432		
17,000.00	10,710.00	18,973.65	12,617.00	116.81	117.42	117.16	-6,601.46	-2,099.46	4,141.67	3,988.71	152.96	27.077		
17,100.00	10,710.00	19,073.65	12,617.00	118.34	118.95	117.16	-6,701.46	-2,098.47	4,141.65	3,986.71	154.94	26.730		
17,200.00	10,710.00	19,173.65	12,617.00	119.87	120.48	117.16	-6,801.45	-2,097.48	4,141.63	3,984.70	156.93	26.392		
17,300.00	10,710.00	19,273.65	12,617.00	121.40	122.01	117.16	-6,901.45	-2,096.50	4,141.61	3,982.70	158.91	26.062		
17,400.00	10,710.00	19,373.65	12,617.00	122.94	123.55	117.16	-7,001.44	-2,095.51	4,141.59	3,980.69	160.90	25.739		
17,500.00	10,710.00	19,473.65	12,617.00	124.48	125.08	117.16	-7,101.44	-2,094.52	4,141.58	3,978.68	162.90	25.424		
17,600.00	10,710.00	19,573.65	12,617.00	126.02	126.62	117.16	-7,201.43	-2,093.53	4,141.56	3,976.66	164.90	25.116		
17,700.00	10,710.00	19,673.65	12,617.00	127.57	128.17	117.16	-7,301.43	-2,092.54	4,141.54	3,974.64	166.90	24.814		
17,800.00	10,710.00	19,773.65	12,617.00	129.11	129.71	117.16	-7,401.42	-2,091.55	4,141.52	3,972.61	168.91	24.519		
17,900.00	10,710.00	19,873.65	12,617.00	130.67	131.26	117.16	-7,501.42	-2,090.57	4,141.50	3,970.59	170.92	24.231		
18,000.00	10,710.00	19,973.65	12,617.00	132.22	132.81	117.16	-7,601.41	-2,089.58	4,141.49	3,968.56	172.93	23.950		
18,100.00	10,710.00	20,073.65	12,617.00	133.77	134.37	117.16	-7,701.41	-2,088.59	4,141.47	3,966.53	174.94	23.674		
18,200.00	10,710.00	20,173.65	12,617.00	135.33	135.92	117.16	-7,801.40	-2,087.60	4,141.45	3,964.50	176.95	23.404		
18,300.00	10,710.00	20,273.65	12,617.00	136.89	137.48	117.16	-7,901.40	-2,086.61	4,141.43	3,962.46	178.97	23.140		
18,400.00	10,710.00	20,373.65	12,617.00	138.45	139.04	117.16	-8,001.39	-2,085.62	4,141.41	3,960.43	180.99	22.882		
18,500.00	10,710.00	20,473.65	12,617.00	140.02	140.60	117.16	-8,101.39	-2,084.64	4,141.40	3,958.38	183.01	22.629		
18,600.00	10,710.00	20,573.65	12,617.00	141.58	142.17	117.16	-8,201.38	-2,083.65	4,141.38	3,956.34	185.04	22.381		
18,700.00	10,710.00	20,673.65	12,617.00	143.15	143.74	117.16	-8,301.38	-2,082.66	4,141.36	3,954.30	187.06	22.139		
18,800.00	10,710.00	20,773.65	12,617.00	144.72	145.30	117.16	-8,401.37	-2,081.67	4,141.34	3,952.25	189.09	21.901		
18,900.00	10,710.00	20,873.65	12,617.00	146.30	146.87	117.16	-8,501.37	-2,080.68	4,141.33	3,950.20	191.12	21.668		
19,000.00	10,710.00	20,973.65	12,617.00	147.87	148.45	117.16	-8,601.36	-2,079.70	4,141.31	3,948.15	193.16	21.440		
19,100.00	10,710.00	21,073.65	12,617.00	149.44	150.02	117.16	-8,701.36	-2,078.71	4,141.29	3,946.10	195.19	21.216		
19,200.00	10,710.00	21,173.65	12,617.00	151.02	151.59	117.16	-8,801.35	-2,077.72	4,141.27	3,944.04	197.23	20.997		
19,300.00	10,710.00	21,273.65	12,617.00	152.60	153.17	117.16	-8,901.35	-2,076.73	4,141.25	3,941.99	199.27	20.782		
19,400.00	10,710.00	21,373.65	12,617.00	154.18	154.75	117.17	-9,001.34	-2,075.74	4,141.24	3,939.93	201.31	20.572		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 802H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
19,500.00	10,710.00	21,473.65	12,617.00	155.76	156.33	117.17	-9,101.34	-2,074.75	4,141.22	3,937.87	203.35	20.365				
19,600.00	10,710.00	21,573.65	12,617.00	157.34	157.91	117.17	-9,201.33	-2,073.77	4,141.20	3,935.81	205.39	20.163				
19,700.00	10,710.00	21,673.65	12,617.00	158.93	159.49	117.17	-9,301.33	-2,072.78	4,141.18	3,933.75	207.43	19.964				
19,800.00	10,710.00	21,773.65	12,617.00	160.51	161.08	117.17	-9,401.32	-2,071.79	4,141.16	3,931.68	209.48	19.769				
19,900.00	10,710.00	21,873.65	12,617.00	162.10	162.66	117.17	-9,501.32	-2,070.80	4,141.15	3,929.62	211.53	19.577				
20,000.00	10,710.00	21,973.65	12,617.00	163.69	164.25	117.17	-9,601.31	-2,069.81	4,141.13	3,927.55	213.58	19.389				
20,100.00	10,710.00	22,073.65	12,617.00	165.28	165.84	117.17	-9,701.31	-2,068.82	4,141.11	3,925.48	215.63	19.205				
20,200.00	10,710.00	22,173.65	12,617.00	166.87	167.43	117.17	-9,801.31	-2,067.84	4,141.09	3,923.42	217.68	19.024				
20,300.00	10,710.00	22,273.65	12,617.00	168.46	169.02	117.17	-9,901.30	-2,066.85	4,141.07	3,921.35	219.73	18.846				
20,400.00	10,710.00	22,373.65	12,617.00	170.05	170.61	117.17	-10,001.30	-2,065.86	4,141.06	3,919.28	221.78	18.672				
20,500.00	10,710.00	22,473.65	12,617.00	171.65	172.20	117.17	-10,101.29	-2,064.87	4,141.04	3,917.20	223.84	18.500				
20,600.00	10,710.00	22,573.65	12,617.00	173.24	173.80	117.17	-10,201.29	-2,063.88	4,141.02	3,915.13	225.89	18.332				
20,700.00	10,710.00	22,673.65	12,617.00	174.84	175.39	117.17	-10,301.28	-2,062.90	4,141.00	3,913.06	227.95	18.167				
20,800.00	10,710.00	22,773.65	12,617.00	176.44	176.87	117.17	-10,401.28	-2,061.91	4,140.98	3,911.08	229.90	18.012				
20,814.60	10,710.00	22,787.51	12,617.00	176.67	177.07	117.17	-10,415.13	-2,061.77	4,140.98	3,910.81	230.17	17.991				
20,818.71	10,710.00	22,787.51	12,617.00	176.74	177.07	117.17	-10,415.13	-2,061.77	4,140.98	3,910.79	230.20	17.989				
20,819.49	10,710.00	22,787.51	12,617.00	176.80	177.07	117.17	-10,415.13	-2,061.77	4,140.98	3,910.78	230.20	17.989 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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	89.42	10.02	989.78	990.15					
100.00	100.00	75.00	75.00	0.13	0.09	89.42	10.02	989.78	989.83	989.67	0.16	6,311.427		
200.00	200.00	175.00	175.00	0.48	0.39	89.42	10.02	989.78	989.83	989.21	0.62	1,585.644		
300.00	300.00	275.00	275.00	0.84	0.75	89.42	10.02	989.78	989.83	988.70	1.13	876.147		
400.00	400.00	375.00	375.00	1.20	1.11	89.42	10.02	989.78	989.83	988.19	1.64	604.972		
500.00	500.00	475.00	475.00	1.56	1.47	89.42	10.02	989.78	989.83	987.69	2.14	461.928		
600.00	600.00	575.00	575.00	1.92	1.83	89.42	10.02	989.78	989.83	987.18	2.65	373.577		
700.00	700.00	675.00	675.00	2.28	2.19	89.42	10.02	989.78	989.83	986.67	3.16	313.592		
800.00	800.00	775.00	775.00	2.63	2.55	89.42	10.02	989.78	989.83	986.17	3.66	270.202		
900.00	900.00	875.00	875.00	2.99	2.90	89.42	10.02	989.78	989.83	985.66	4.17	237.359		
1,000.00	1,000.00	975.00	975.00	3.35	3.26	89.42	10.02	989.78	989.83	985.15	4.68	211.634		
1,100.00	1,100.00	1,075.00	1,075.00	3.71	3.62	89.42	10.02	989.78	989.83	984.65	5.18	190.939		
1,200.00	1,200.00	1,175.00	1,175.00	4.07	3.98	89.42	10.02	989.78	989.83	984.14	5.69	173.931		
1,300.00	1,300.00	1,275.00	1,275.00	4.43	4.34	89.42	10.02	989.78	989.83	983.63	6.20	159.705		
1,400.00	1,400.00	1,375.00	1,375.00	4.79	4.70	89.42	10.02	989.78	989.83	983.13	6.70	147.631		
1,500.00	1,500.00	1,475.00	1,475.00	5.14	5.05	89.42	10.02	989.78	989.83	982.62	7.21	137.253		
1,600.00	1,600.00	1,575.00	1,575.00	5.50	5.41	89.42	10.02	989.78	989.83	982.11	7.72	128.239		
1,700.00	1,700.00	1,675.00	1,675.00	5.86	5.77	89.42	10.02	989.78	989.83	981.61	8.23	120.335		
1,800.00	1,800.00	1,775.00	1,775.00	6.22	6.13	89.42	10.02	989.78	989.83	981.10	8.73	113.350		
1,900.00	1,900.00	1,875.00	1,875.00	6.58	6.49	89.42	10.02	989.78	989.83	980.59	9.24	107.131		
2,000.00	2,000.00	1,975.00	1,975.00	6.94	6.85	89.42	10.02	989.78	989.83	980.08	9.75	101.558		
2,100.00	2,100.00	2,075.00	2,075.00	7.29	7.21	89.42	10.02	989.78	989.83	979.58	10.25	96.537		
2,200.00	2,200.00	2,175.00	2,175.00	7.65	7.56	89.42	10.02	989.78	989.83	979.07	10.76	91.989		
2,300.00	2,300.00	2,275.00	2,275.00	8.01	7.92	89.42	10.02	989.78	989.83	978.56	11.27	87.850		
2,400.00	2,400.00	2,375.00	2,375.00	8.37	8.28	89.42	10.02	989.78	989.83	978.06	11.77	84.068		
2,500.00	2,500.00	2,475.00	2,475.00	8.73	8.64	89.42	10.02	989.78	989.83	977.55	12.28	80.598		
2,600.00	2,600.00	2,575.00	2,575.00	9.09	9.00	89.42	10.02	989.78	989.83	977.04	12.79	77.402		
2,700.00	2,700.00	2,675.00	2,675.00	9.45	9.36	89.42	10.02	989.78	989.83	976.54	13.30	74.451		
2,800.00	2,800.00	2,775.00	2,775.00	9.80	9.71	89.42	10.02	989.78	989.83	976.03	13.80	71.716		
2,900.00	2,900.00	2,875.00	2,875.00	10.16	10.07	89.42	10.02	989.78	989.83	975.52	14.31	69.176		
3,000.00	3,000.00	2,975.00	2,975.00	10.52	10.43	89.42	10.02	989.78	989.83	975.01	14.82	66.809		
3,100.00	3,100.00	3,075.00	3,075.00	10.88	10.79	89.42	10.02	989.78	989.83	974.51	15.32	64.598		
3,200.00	3,200.00	3,175.00	3,175.00	11.24	11.15	89.42	10.02	989.78	989.83	974.00	15.83	62.530		
3,300.00	3,300.00	3,275.00	3,275.00	11.60	11.51	89.42	10.02	989.78	989.83	973.49	16.34	60.589		
3,400.00	3,399.98	3,401.02	3,401.01	11.94	11.95	-9.37	9.90	988.45	987.12	970.23	16.89	58.444		
3,500.00	3,499.84	3,534.89	3,534.74	12.28	12.41	-9.44	9.39	982.59	977.58	960.16	17.43	56.093		
3,600.00	3,599.45	3,666.95	3,666.39	12.63	12.86	-9.56	8.49	972.23	961.19	943.25	17.94	53.566		
3,700.00	3,698.70	3,771.94	3,770.82	12.97	13.23	-9.72	7.55	961.50	939.06	920.64	18.42	50.974		
3,800.00	3,797.47	3,868.59	3,866.95	13.33	13.56	-9.93	6.68	951.52	913.50	894.61	18.89	48.354		
3,900.00	3,895.62	3,964.30	3,962.14	13.69	13.90	-10.20	5.81	941.63	884.64	865.28	19.36	45.697		
4,000.00	3,993.06	4,058.94	4,056.27	14.06	14.24	-10.55	4.96	931.85	852.52	832.69	19.82	43.008		
4,097.19	4,086.94	4,149.79	4,146.63	14.43	14.56	-10.96	4.14	922.47	818.22	797.95	20.27	40.367		
4,100.00	4,089.64	4,152.40	4,149.23	14.45	14.57	-10.97	4.12	922.20	817.18	796.90	20.28	40.287		
4,200.00	4,185.80	4,245.27	4,241.60	14.85	14.90	-11.31	3.28	912.60	780.35	759.61	20.74	37.625		
4,300.00	4,281.95	4,338.14	4,333.97	15.26	15.24	-11.68	2.44	903.01	743.55	722.35	21.20	35.073		
4,400.00	4,378.10	4,431.00	4,426.33	15.68	15.57	-12.10	1.60	893.42	706.78	685.12	21.66	32.626		
4,500.00	4,474.26	4,523.87	4,518.70	16.12	15.91	-12.55	0.77	883.82	670.05	647.92	22.13	30.279		
4,600.00	4,570.41	4,616.74	4,611.07	16.56	16.25	-13.06	-0.07	874.23	633.35	610.75	22.60	28.027		
4,700.00	4,666.56	4,709.61	4,703.43	17.01	16.59	-13.63	-0.91	864.63	596.70	573.64	23.07	25.865		
4,800.00	4,762.72	4,802.48	4,795.80	17.47	16.93	-14.28	-1.75	855.04	560.12	536.57	23.55	23.789		
4,900.00	4,858.87	4,895.34	4,888.17	17.94	17.27	-15.01	-2.59	845.44	523.60	499.58	24.02	21.795		
5,000.00	4,955.02	4,988.21	4,980.53	18.41	17.62	-15.86	-3.42	835.85	487.17	462.66	24.51	19.878		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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													Tatanka Fed Com - Tatanka Fed Com 805H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
19,500.00	10,710.00	21,325.94	12,502.00	155.76	155.89	152.99	-9,074.01	683.50	2,039.37	1,902.77	136.60	14.930				
19,600.00	10,710.00	21,425.94	12,502.00	157.34	157.47	152.99	-9,174.00	684.48	2,039.36	1,901.44	137.92	14.786				
19,700.00	10,710.00	21,525.94	12,502.00	158.93	159.06	153.00	-9,274.00	685.46	2,039.36	1,900.11	139.25	14.646				
19,800.00	10,710.00	21,625.94	12,502.00	160.51	160.65	153.00	-9,373.99	686.44	2,039.35	1,898.78	140.57	14.507				
19,900.00	10,710.00	21,725.94	12,502.00	162.10	162.23	153.00	-9,473.99	687.42	2,039.35	1,897.45	141.90	14.372				
20,000.00	10,710.00	21,825.94	12,502.00	163.69	163.82	153.00	-9,573.98	688.40	2,039.34	1,896.11	143.23	14.239				
20,100.00	10,710.00	21,925.94	12,502.00	165.28	165.41	153.00	-9,673.98	689.38	2,039.33	1,894.78	144.55	14.108				
20,200.00	10,710.00	22,025.94	12,502.00	166.87	167.01	153.00	-9,773.97	690.36	2,039.33	1,893.45	145.88	13.979				
20,300.00	10,710.00	22,125.94	12,502.00	168.46	168.60	153.00	-9,873.97	691.34	2,039.32	1,892.11	147.21	13.853				
20,400.00	10,710.00	22,225.94	12,502.00	170.05	170.19	153.00	-9,973.96	692.32	2,039.32	1,890.78	148.54	13.729				
20,500.00	10,710.00	22,325.94	12,502.00	171.65	171.79	153.00	-10,073.96	693.30	2,039.31	1,889.44	149.87	13.607				
20,600.00	10,710.00	22,425.94	12,502.00	173.24	173.38	153.00	-10,173.95	694.28	2,039.31	1,888.11	151.20	13.488				
20,700.00	10,710.00	22,525.94	12,502.00	174.84	174.98	153.00	-10,273.95	695.26	2,039.30	1,886.77	152.53	13.370				
20,800.00	10,710.00	22,625.94	12,502.00	176.44	176.54	153.00	-10,373.94	696.24	2,039.30	1,885.48	153.81	13.258				
20,817.34	10,710.00	22,643.12	12,502.00	176.71	176.78	153.00	-10,391.12	696.41	2,039.29	1,885.29	154.01	13.242				
20,818.71	10,710.00	22,643.12	12,502.00	176.74	176.78	153.00	-10,391.12	696.41	2,039.30	1,885.28	154.01	13.241				
20,819.49	10,710.00	22,643.12	12,502.00	176.80	176.78	153.00	-10,391.12	696.41	2,039.30	1,885.28	154.02	13.241				

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	89.42	10.77	1,064.77	1,065.19					
100.00	100.00	72.20	72.20	0.13	0.09	89.42	10.77	1,064.77	1,064.82	1,064.67	0.15	6,880.967		
200.00	200.00	172.20	172.20	0.48	0.38	89.42	10.77	1,064.77	1,064.82	1,064.21	0.62	1,723.145		
300.00	300.00	272.20	272.20	0.84	0.74	89.42	10.77	1,064.77	1,064.82	1,063.70	1.12	948.119		
400.00	400.00	372.20	372.20	1.20	1.10	89.42	10.77	1,064.77	1,064.82	1,063.20	1.63	653.524		
500.00	500.00	472.20	472.20	1.56	1.46	89.42	10.77	1,064.77	1,064.82	1,062.69	2.14	498.525		
600.00	600.00	572.20	572.20	1.92	1.82	89.42	10.77	1,064.77	1,064.82	1,062.18	2.64	402.933		
700.00	700.00	672.20	672.20	2.28	2.18	89.42	10.77	1,064.77	1,064.82	1,061.68	3.15	338.094		
800.00	800.00	772.20	772.20	2.63	2.54	89.42	10.77	1,064.77	1,064.82	1,061.17	3.66	291.227		
900.00	900.00	872.20	872.20	2.99	2.89	89.42	10.77	1,064.77	1,064.82	1,060.66	4.16	255.770		
1,000.00	1,000.00	972.20	972.20	3.35	3.25	89.42	10.77	1,064.77	1,064.82	1,060.15	4.67	228.009		
1,100.00	1,100.00	1,072.20	1,072.20	3.71	3.61	89.42	10.77	1,064.77	1,064.82	1,059.65	5.18	205.684		
1,200.00	1,200.00	1,172.20	1,172.20	4.07	3.97	89.42	10.77	1,064.77	1,064.82	1,059.14	5.68	187.340		
1,300.00	1,300.00	1,272.20	1,272.20	4.43	4.33	89.42	10.77	1,064.77	1,064.82	1,058.63	6.19	172.000		
1,400.00	1,400.00	1,372.20	1,372.20	4.79	4.69	89.42	10.77	1,064.77	1,064.82	1,058.13	6.70	158.982		
1,500.00	1,500.00	1,472.20	1,472.20	5.14	5.04	89.42	10.77	1,064.77	1,064.82	1,057.62	7.20	147.796		
1,600.00	1,600.00	1,572.20	1,572.20	5.50	5.40	89.42	10.77	1,064.77	1,064.82	1,057.11	7.71	138.081		
1,700.00	1,700.00	1,672.20	1,672.20	5.86	5.76	89.42	10.77	1,064.77	1,064.82	1,056.61	8.22	129.563		
1,800.00	1,800.00	1,772.20	1,772.20	6.22	6.12	89.42	10.77	1,064.77	1,064.82	1,056.10	8.73	122.036		
1,900.00	1,900.00	1,872.20	1,872.20	6.58	6.48	89.42	10.77	1,064.77	1,064.82	1,055.59	9.23	115.335		
2,000.00	2,000.00	1,972.20	1,972.20	6.94	6.84	89.42	10.77	1,064.77	1,064.82	1,055.09	9.74	109.332		
2,100.00	2,100.00	2,072.20	2,072.20	7.29	7.20	89.42	10.77	1,064.77	1,064.82	1,054.58	10.25	103.923		
2,200.00	2,200.00	2,172.20	2,172.20	7.65	7.55	89.42	10.77	1,064.77	1,064.82	1,054.07	10.75	99.023		
2,300.00	2,300.00	2,272.20	2,272.20	8.01	7.91	89.42	10.77	1,064.77	1,064.82	1,053.56	11.26	94.565		
2,400.00	2,400.00	2,372.20	2,372.20	8.37	8.27	89.42	10.77	1,064.77	1,064.82	1,053.06	11.77	90.491		
2,500.00	2,500.00	2,472.20	2,472.20	8.73	8.63	89.42	10.77	1,064.77	1,064.82	1,052.55	12.27	86.754		
2,600.00	2,600.00	2,572.20	2,572.20	9.09	8.99	89.42	10.77	1,064.77	1,064.82	1,052.04	12.78	83.313		
2,700.00	2,700.00	2,672.20	2,672.20	9.45	9.35	89.42	10.77	1,064.77	1,064.82	1,051.54	13.29	80.134		
2,800.00	2,800.00	2,772.20	2,772.20	9.80	9.70	89.42	10.77	1,064.77	1,064.82	1,051.03	13.79	77.189		
2,900.00	2,900.00	2,872.20	2,872.20	10.16	10.06	89.42	10.77	1,064.77	1,064.82	1,050.52	14.30	74.453		
3,000.00	3,000.00	2,972.20	2,972.20	10.52	10.42	89.42	10.77	1,064.77	1,064.82	1,050.02	14.81	71.905		
3,100.00	3,100.00	3,072.20	3,072.20	10.88	10.78	89.42	10.77	1,064.77	1,064.82	1,049.51	15.32	69.525		
3,200.00	3,200.00	3,172.20	3,172.20	11.24	11.14	89.42	10.77	1,064.77	1,064.82	1,049.00	15.82	67.297		
3,300.00	3,300.00	3,256.48	3,256.48	11.60	11.44	89.42	10.75	1,065.19	1,065.36	1,049.07	16.28	65.421		
3,400.00	3,399.98	3,334.70	3,334.67	11.94	11.71	-9.35	10.63	1,067.14	1,066.13	1,049.42	16.71	63.785		
3,500.00	3,499.84	3,412.92	3,412.81	12.28	11.97	-9.37	10.43	1,070.69	1,065.51	1,048.38	17.13	62.206		
3,600.00	3,599.45	3,500.00	3,499.69	12.63	12.27	-9.42	10.10	1,076.53	1,063.53	1,045.96	17.57	60.540		
3,700.00	3,698.70	3,569.38	3,568.80	12.97	12.51	-9.49	9.75	1,082.59	1,060.05	1,042.11	17.94	59.085		
3,800.00	3,797.47	3,651.25	3,650.20	13.33	12.80	-9.59	9.25	1,091.35	1,055.24	1,036.89	18.35	57.495		
3,900.00	3,895.62	3,746.34	3,744.63	13.69	13.13	-9.74	8.62	1,102.54	1,048.09	1,029.28	18.82	55.698		
4,000.00	3,993.06	3,845.73	3,843.33	14.06	13.48	-9.94	7.95	1,114.24	1,037.53	1,018.23	19.30	53.758		
4,097.19	4,086.94	3,941.91	3,938.83	14.43	13.83	-10.18	7.30	1,125.55	1,024.01	1,004.24	19.77	51.796		
4,100.00	4,089.64	3,944.69	3,941.59	14.45	13.84	-10.18	7.29	1,125.88	1,023.58	1,003.79	19.78	51.737		
4,200.00	4,185.80	4,043.39	4,039.61	14.85	14.19	-10.41	6.62	1,137.49	1,008.03	987.76	20.27	49.735		
4,300.00	4,281.95	4,142.10	4,137.63	15.26	14.55	-10.64	5.96	1,149.11	992.49	971.74	20.76	47.818		
4,400.00	4,378.10	4,240.80	4,235.64	15.68	14.91	-10.88	5.30	1,160.72	976.97	955.73	21.25	45.984		
4,500.00	4,474.26	4,339.51	4,333.66	16.12	15.27	-11.12	4.64	1,172.34	961.47	939.73	21.74	44.226		
4,600.00	4,570.41	4,438.21	4,431.68	16.56	15.63	-11.38	3.97	1,183.95	945.99	923.75	22.24	42.542		
4,700.00	4,666.56	4,536.92	4,529.70	17.01	16.00	-11.64	3.31	1,195.57	930.52	907.79	22.74	40.927		
4,800.00	4,762.72	4,635.62	4,627.71	17.47	16.37	-11.91	2.65	1,207.18	915.08	891.84	23.24	39.377		
4,900.00	4,858.87	4,734.33	4,725.73	17.94	16.73	-12.19	1.99	1,218.80	899.65	875.91	23.74	37.890		
5,000.00	4,955.02	4,833.04	4,823.75	18.41	17.10	-12.48	1.33	1,230.41	884.25	860.00	24.25	36.461		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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	5,051.18	4,931.74	4,921.77	18.89	17.48	-12.78	0.66	1,242.03	868.87	844.11	24.76	35.089		
5,200.00	5,147.33	5,030.45	5,019.79	19.37	17.85	-13.09	0.00	1,253.64	853.52	828.24	25.28	33.769		
5,300.00	5,243.48	5,129.15	5,117.80	19.86	18.22	-13.42	-0.66	1,265.26	838.19	812.40	25.79	32.500		
5,400.00	5,339.63	5,227.86	5,215.82	20.36	18.60	-13.75	-1.32	1,276.87	822.89	796.58	26.31	31.279		
5,500.00	5,435.79	5,326.56	5,313.84	20.86	18.97	-14.10	-1.99	1,288.49	807.61	780.78	26.83	30.103		
5,600.00	5,531.94	5,425.27	5,411.86	21.36	19.35	-14.46	-2.65	1,300.10	792.37	765.02	27.35	28.970		
5,700.00	5,628.09	5,523.98	5,509.87	21.87	19.72	-14.83	-3.31	1,311.71	777.16	749.28	27.88	27.878		
5,800.00	5,724.25	5,622.68	5,607.89	22.38	20.10	-15.22	-3.97	1,323.33	761.98	733.57	28.40	26.826		
5,900.00	5,820.40	5,721.39	5,705.91	22.89	20.48	-15.63	-4.63	1,334.94	746.83	717.90	28.93	25.811		
6,000.00	5,916.55	5,820.09	5,803.93	23.41	20.86	-16.05	-5.30	1,346.56	731.73	702.26	29.47	24.831		
6,100.00	6,012.71	5,918.80	5,901.94	23.93	21.24	-16.49	-5.96	1,358.17	716.67	686.66	30.00	23.886		
6,200.00	6,108.86	6,017.50	5,999.96	24.45	21.62	-16.95	-6.62	1,369.79	701.65	671.10	30.54	22.973		
6,300.00	6,205.01	6,116.21	6,097.98	24.98	22.01	-17.43	-7.28	1,381.40	686.67	655.59	31.08	22.091		
6,400.00	6,301.17	6,214.92	6,196.00	25.51	22.39	-17.93	-7.95	1,393.02	671.75	640.12	31.63	21.238		
6,500.00	6,397.32	6,313.62	6,294.02	26.04	22.77	-18.45	-8.61	1,404.63	656.87	624.70	32.18	20.414		
6,600.00	6,493.47	6,412.33	6,392.03	26.57	23.15	-18.99	-9.27	1,416.25	642.06	609.33	32.73	19.618		
6,700.00	6,589.63	6,511.03	6,490.05	27.11	23.54	-19.57	-9.93	1,427.86	627.30	594.02	33.28	18.847		
6,800.00	6,685.78	6,609.74	6,588.07	27.65	23.92	-20.17	-10.59	1,439.48	612.61	578.76	33.84	18.101		
6,900.00	6,781.93	6,708.44	6,686.09	28.19	24.31	-20.79	-11.26	1,451.09	597.98	563.58	34.41	17.379		
7,000.00	6,878.09	6,807.15	6,784.10	28.73	24.69	-21.45	-11.92	1,462.71	583.43	548.46	34.98	16.681		
7,100.00	6,974.24	6,905.86	6,882.12	29.27	25.08	-22.15	-12.58	1,474.32	568.96	533.41	35.55	16.004		
7,200.00	7,070.39	7,004.56	6,980.14	29.81	25.47	-22.88	-13.24	1,485.94	554.58	518.45	36.13	15.349		
7,300.00	7,166.55	7,107.71	7,082.58	30.36	25.87	-23.68	-13.93	1,497.56	540.17	503.44	36.73	14.706		
7,400.00	7,262.70	7,220.99	7,195.35	30.90	26.30	-24.71	-14.54	1,508.62	523.80	486.44	37.36	14.022		
7,500.00	7,358.85	7,332.95	7,307.07	31.45	26.72	-25.94	-14.95	1,515.90	504.83	466.87	37.96	13.298		
7,600.00	7,455.00	7,443.41	7,417.46	32.00	27.11	-27.39	-15.18	1,519.88	483.40	444.84	38.56	12.536		
7,700.00	7,551.16	7,549.32	7,523.36	32.55	27.48	-29.07	-15.23	1,520.77	459.74	420.57	39.16	11.739		
7,800.00	7,647.31	7,645.47	7,619.51	33.10	27.80	-30.81	-15.23	1,520.77	435.70	395.88	39.82	10.942		
7,900.00	7,743.46	7,741.62	7,715.66	33.66	28.13	-32.74	-15.23	1,520.77	412.10	371.60	40.50	10.176		
8,000.00	7,839.62	7,837.78	7,811.82	34.21	28.46	-34.90	-15.23	1,520.77	389.00	347.79	41.21	9.439		
8,100.00	7,935.77	7,933.93	7,907.97	34.76	28.79	-37.33	-15.23	1,520.77	366.51	324.55	41.96	8.735		
8,200.00	8,031.92	8,030.08	8,004.12	35.32	29.11	-40.05	-15.23	1,520.77	344.74	301.99	42.75	8.064		
8,300.00	8,128.08	8,126.24	8,100.28	35.88	29.44	-43.12	-15.23	1,520.77	323.84	280.25	43.59	7.430		
8,400.00	8,224.23	8,222.39	8,196.43	36.43	29.77	-46.59	-15.23	1,520.77	303.98	259.50	44.48	6.834		
8,500.00	8,320.38	8,318.54	8,292.58	36.99	30.10	-50.51	-15.23	1,520.77	285.39	239.96	45.43	6.282		
8,600.00	8,416.54	8,414.70	8,388.74	37.55	30.43	-54.93	-15.23	1,520.77	268.33	221.89	46.44	5.778		
8,700.00	8,512.69	8,510.85	8,484.89	38.11	30.76	-59.88	-15.23	1,520.77	253.10	205.61	47.50	5.329		
8,800.00	8,608.84	8,607.00	8,581.04	38.67	31.09	-65.38	-15.23	1,520.77	240.07	191.49	48.58	4.942		
8,908.39	8,713.06	8,711.22	8,685.26	39.28	31.45	-71.93	-15.23	1,520.77	228.84	179.11	49.73	4.602		
9,000.00	8,801.54	8,799.70	8,773.74	39.78	31.76	-77.44	-15.23	1,520.77	222.35	171.74	50.61	4.393		
9,100.00	8,898.92	8,897.08	8,871.12	40.28	32.09	-83.03	-15.23	1,520.77	218.40	166.97	51.42	4.247		
9,200.00	8,997.05	8,995.20	8,969.25	40.76	32.43	-87.97	-15.23	1,520.77	216.85	164.77	52.08	4.164		
9,246.62	9,043.01	9,041.16	9,015.21	40.96	32.59	-90.00	-15.23	1,520.77	216.71	164.37	52.34	4.140 CC		
9,300.00	9,095.78	9,093.94	9,067.98	41.19	32.77	-92.10	-15.23	1,520.77	216.86	164.24	52.62	4.121		
9,400.00	9,195.00	9,193.16	9,167.20	41.59	33.11	-95.35	-15.23	1,520.77	217.67	164.57	53.09	4.100		
9,500.00	9,294.60	9,292.76	9,266.80	41.96	33.46	-97.68	-15.23	1,520.77	218.68	165.15	53.53	4.085		
9,600.00	9,394.45	9,392.61	9,366.65	42.29	33.81	-99.10	-15.23	1,520.77	219.48	165.52	53.95	4.068		
9,705.58	9,500.00	9,498.16	9,472.20	42.60	34.17	-0.84	-15.23	1,520.77	219.79	165.38	54.41	4.040		
9,800.00	9,594.42	9,592.58	9,566.62	42.86	34.50	-0.84	-15.23	1,520.77	219.79	164.97	54.82	4.009		
9,900.00	9,694.42	9,692.58	9,666.62	43.14	34.84	-0.84	-15.23	1,520.77	219.79	164.54	55.26	3.978		
10,000.00	9,794.42	9,792.58	9,766.62	43.42	35.19	-0.84	-15.23	1,520.77	219.79	164.10	55.69	3.946		
10,100.00	9,894.42	9,892.58	9,866.62	43.71	35.54	-0.84	-15.23	1,520.77	219.79	163.66	56.13	3.916		

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 Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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		
10,200.00	9,994.42	9,992.58	9,966.62	43.99	35.89	-0.84	-15.23	1,520.77	219.79	163.22	56.57	3.885		
10,300.00	10,094.42	10,092.58	10,066.62	44.27	36.23	-0.84	-15.23	1,520.77	219.79	162.78	57.02	3.855		
10,342.62	10,137.04	10,135.20	10,109.24	44.39	36.38	-0.84	-15.23	1,520.77	219.79	162.59	57.20	3.842 ES		
10,350.00	10,144.42	10,142.58	10,116.62	44.41	36.41	179.71	-15.23	1,520.77	219.84	162.61	57.24	3.841 SF		
10,400.00	10,194.33	10,192.49	10,166.53	44.55	36.58	179.71	-15.23	1,520.77	222.66	165.21	57.45	3.876		
10,450.00	10,243.80	10,241.96	10,216.00	44.69	36.75	179.72	-15.23	1,520.77	229.83	172.16	57.67	3.985		
10,500.00	10,292.45	10,290.61	10,264.65	44.84	36.92	179.73	-15.23	1,520.77	241.27	183.40	57.88	4.169		
10,550.00	10,339.93	10,338.09	10,312.13	44.99	37.09	179.74	-15.23	1,520.77	256.92	198.83	58.09	4.423		
10,600.00	10,385.86	10,384.01	10,358.06	45.14	37.25	179.75	-15.23	1,520.77	276.64	218.35	58.28	4.746		
10,650.00	10,429.89	10,428.05	10,402.09	45.29	37.40	179.76	-15.23	1,520.77	300.29	241.81	58.48	5.135		
10,700.00	10,471.70	10,469.86	10,443.90	45.44	37.55	179.76	-15.23	1,520.77	327.69	269.03	58.65	5.587		
10,750.00	10,510.96	10,509.12	10,483.16	45.58	37.69	179.77	-15.23	1,520.77	358.62	299.80	58.82	6.097		
10,800.00	10,547.37	10,545.53	10,519.57	45.73	37.81	179.77	-15.23	1,520.77	392.86	333.89	58.97	6.662		
10,850.00	10,580.66	10,578.82	10,552.86	45.88	37.93	179.77	-15.23	1,520.77	430.15	371.04	59.11	7.277		
10,900.00	10,610.58	10,608.74	10,582.78	46.03	38.03	179.76	-15.23	1,520.77	470.19	410.96	59.23	7.938		
10,950.00	10,636.89	10,635.05	10,609.09	46.18	38.12	179.75	-15.23	1,520.77	512.69	453.35	59.34	8.641		
11,000.00	10,659.39	10,657.55	10,631.59	46.34	38.20	179.72	-15.23	1,520.77	557.32	497.90	59.42	9.379		
11,050.00	10,677.93	10,676.08	10,650.13	46.50	38.27	179.68	-15.23	1,520.77	603.74	544.25	59.49	10.148		
11,100.00	10,692.34	10,690.50	10,664.54	46.67	38.32	179.61	-15.23	1,520.77	651.60	592.06	59.55	10.943		
11,150.00	10,702.53	10,700.69	10,674.73	46.85	38.35	179.44	-15.23	1,520.77	700.54	640.95	59.58	11.757		
11,200.00	10,708.41	10,706.57	10,680.61	47.04	38.37	178.87	-15.23	1,520.77	750.17	690.57	59.61	12.586		
11,242.62	10,710.00	10,708.16	10,682.20	47.21	38.38	90.01	-15.23	1,520.77	792.75	733.14	59.61	13.298		
11,300.00	10,710.00	10,708.16	10,682.20	47.45	38.38	90.01	-15.23	1,520.77	850.13	790.52	59.62	14.260		
11,400.00	10,710.00	10,708.16	10,682.20	47.92	38.38	90.01	-15.23	1,520.77	950.13	890.51	59.62	15.936		
11,500.00	10,710.00	10,708.16	10,682.20	48.43	38.38	90.01	-15.23	1,520.77	1,050.13	990.50	59.63	17.611		
11,600.00	10,710.00	10,708.16	10,682.20	49.00	38.38	90.01	-15.23	1,520.77	1,150.13	1,090.50	59.64	19.286		
11,700.00	10,710.00	10,708.16	10,682.20	49.61	38.38	90.01	-15.23	1,520.77	1,250.13	1,190.49	59.64	20.960		
11,800.00	10,710.00	10,708.16	10,682.20	50.27	38.38	90.02	-15.23	1,520.77	1,350.13	1,290.48	59.65	22.633		
11,900.00	10,710.00	10,708.16	10,682.20	50.98	38.38	90.02	-15.23	1,520.77	1,450.13	1,390.47	59.66	24.306		
12,000.00	10,710.00	10,708.16	10,682.20	51.74	38.38	90.02	-15.23	1,520.77	1,550.13	1,490.46	59.67	25.977		
12,100.00	10,710.00	10,708.16	10,682.20	52.54	38.38	90.02	-15.23	1,520.77	1,650.13	1,590.45	59.68	27.648		
12,200.00	10,710.00	13,905.17	12,375.00	53.38	52.64	179.97	-1,765.28	1,537.90	1,692.80	1,653.08	39.72	42.614		
12,300.00	10,710.00	14,005.17	12,375.00	54.26	53.56	179.97	-1,865.27	1,538.88	1,692.80	1,652.52	40.28	42.030		
12,400.00	10,710.00	14,105.17	12,375.00	55.18	54.52	179.97	-1,965.27	1,539.86	1,692.80	1,651.95	40.85	41.439		
12,500.00	10,710.00	14,205.17	12,375.00	56.13	55.52	179.97	-2,065.27	1,540.83	1,692.80	1,651.35	41.45	40.843		
12,600.00	10,710.00	14,305.17	12,375.00	57.11	56.54	179.97	-2,165.26	1,541.81	1,692.80	1,650.74	42.06	40.243		
12,700.00	10,710.00	14,405.17	12,375.00	58.13	57.59	179.97	-2,265.26	1,542.79	1,692.80	1,650.10	42.70	39.643		
12,800.00	10,710.00	14,505.17	12,375.00	59.18	58.67	179.97	-2,365.25	1,543.77	1,692.80	1,649.44	43.36	39.043		
12,900.00	10,710.00	14,605.17	12,375.00	60.26	59.78	179.97	-2,465.25	1,544.75	1,692.80	1,648.77	44.03	38.445		
13,000.00	10,710.00	14,705.17	12,375.00	61.36	60.91	179.97	-2,565.24	1,545.73	1,692.80	1,648.08	44.72	37.850		
13,100.00	10,710.00	14,805.17	12,375.00	62.49	62.06	179.97	-2,665.24	1,546.71	1,692.80	1,647.37	45.43	37.260		
13,200.00	10,710.00	14,905.17	12,375.00	63.64	63.24	179.97	-2,765.23	1,547.69	1,692.80	1,646.64	46.16	36.676		
13,300.00	10,710.00	15,005.17	12,375.00	64.81	64.44	179.97	-2,865.23	1,548.66	1,692.80	1,645.90	46.90	36.097		
13,400.00	10,710.00	15,105.17	12,375.00	66.01	65.65	179.97	-2,965.22	1,549.64	1,692.80	1,645.15	47.65	35.527		
13,500.00	10,710.00	15,205.17	12,375.00	67.22	66.89	179.97	-3,065.22	1,550.62	1,692.80	1,644.38	48.42	34.964		
13,600.00	10,710.00	15,305.17	12,375.00	68.46	68.14	179.97	-3,165.21	1,551.60	1,692.80	1,643.60	49.20	34.410		
13,700.00	10,710.00	15,405.17	12,375.00	69.71	69.41	179.97	-3,265.21	1,552.58	1,692.80	1,642.81	49.99	33.864		
13,800.00	10,710.00	15,505.17	12,375.00	70.98	70.70	179.97	-3,365.20	1,553.56	1,692.80	1,642.01	50.79	33.328		
13,900.00	10,710.00	15,605.17	12,375.00	72.26	72.00	179.98	-3,465.20	1,554.54	1,692.80	1,641.19	51.61	32.801		
14,000.00	10,710.00	15,705.17	12,375.00	73.56	73.31	179.98	-3,565.19	1,555.52	1,692.80	1,640.37	52.44	32.284		
14,100.00	10,710.00	15,805.17	12,375.00	74.87	74.64	179.98	-3,665.19	1,556.49	1,692.80	1,639.53	53.27	31.776		
14,200.00	10,710.00	15,905.17	12,375.00	76.20	75.98	179.98	-3,765.18	1,557.47	1,692.80	1,638.68	54.12	31.279		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,500.00	10,710.00	21,205.17	12,375.00	155.76	155.82	180.00	-9,064.93	1,609.34	1,692.80	1,586.62	106.18	15.943		
19,600.00	10,710.00	21,305.17	12,375.00	157.34	157.41	180.00	-9,164.93	1,610.32	1,692.80	1,585.57	107.23	15.786		
19,700.00	10,710.00	21,405.17	12,375.00	158.93	158.99	180.00	-9,264.92	1,611.30	1,692.80	1,584.52	108.28	15.633		
19,800.00	10,710.00	21,505.17	12,375.00	160.51	160.58	180.00	-9,364.92	1,612.28	1,692.80	1,583.47	109.33	15.483		
19,900.00	10,710.00	21,605.17	12,375.00	162.10	162.17	180.00	-9,464.91	1,613.26	1,692.80	1,582.41	110.39	15.335		
20,000.00	10,710.00	21,705.17	12,375.00	163.69	163.76	180.00	-9,564.91	1,614.24	1,692.80	1,581.36	111.44	15.190		
20,100.00	10,710.00	21,805.17	12,375.00	165.28	165.35	180.00	-9,664.90	1,615.22	1,692.80	1,580.30	112.50	15.048		
20,200.00	10,710.00	21,905.17	12,375.00	166.87	166.94	180.00	-9,764.90	1,616.19	1,692.80	1,579.25	113.55	14.908		
20,300.00	10,710.00	22,005.17	12,375.00	168.46	168.54	180.00	-9,864.89	1,617.17	1,692.80	1,578.19	114.61	14.770		
20,400.00	10,710.00	22,105.17	12,375.00	170.05	170.13	180.00	-9,964.89	1,618.15	1,692.80	1,577.13	115.67	14.635		
20,500.00	10,710.00	22,205.17	12,375.00	171.65	171.73	180.00	-10,064.88	1,619.13	1,692.80	1,576.07	116.73	14.502		
20,600.00	10,710.00	22,305.17	12,375.00	173.24	173.33	180.00	-10,164.88	1,620.11	1,692.80	1,575.01	117.79	14.372		
20,700.00	10,710.00	22,405.17	12,375.00	174.84	174.92	180.00	-10,264.87	1,621.09	1,692.80	1,573.95	118.85	14.243		
20,800.00	10,710.00	22,505.17	12,375.00	176.44	176.51	180.00	-10,364.87	1,622.07	1,692.80	1,572.90	119.90	14.119		
20,818.71	10,710.00	22,523.89	12,375.00	176.74	176.78	-180.00	-10,383.58	1,622.25	1,692.80	1,572.75	120.05	14.101		
20,819.49	10,710.00	22,523.89	12,375.00	176.80	176.78	180.00	-10,383.58	1,622.25	1,692.80	1,572.75	120.05	14.100		

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



Total Directional Services

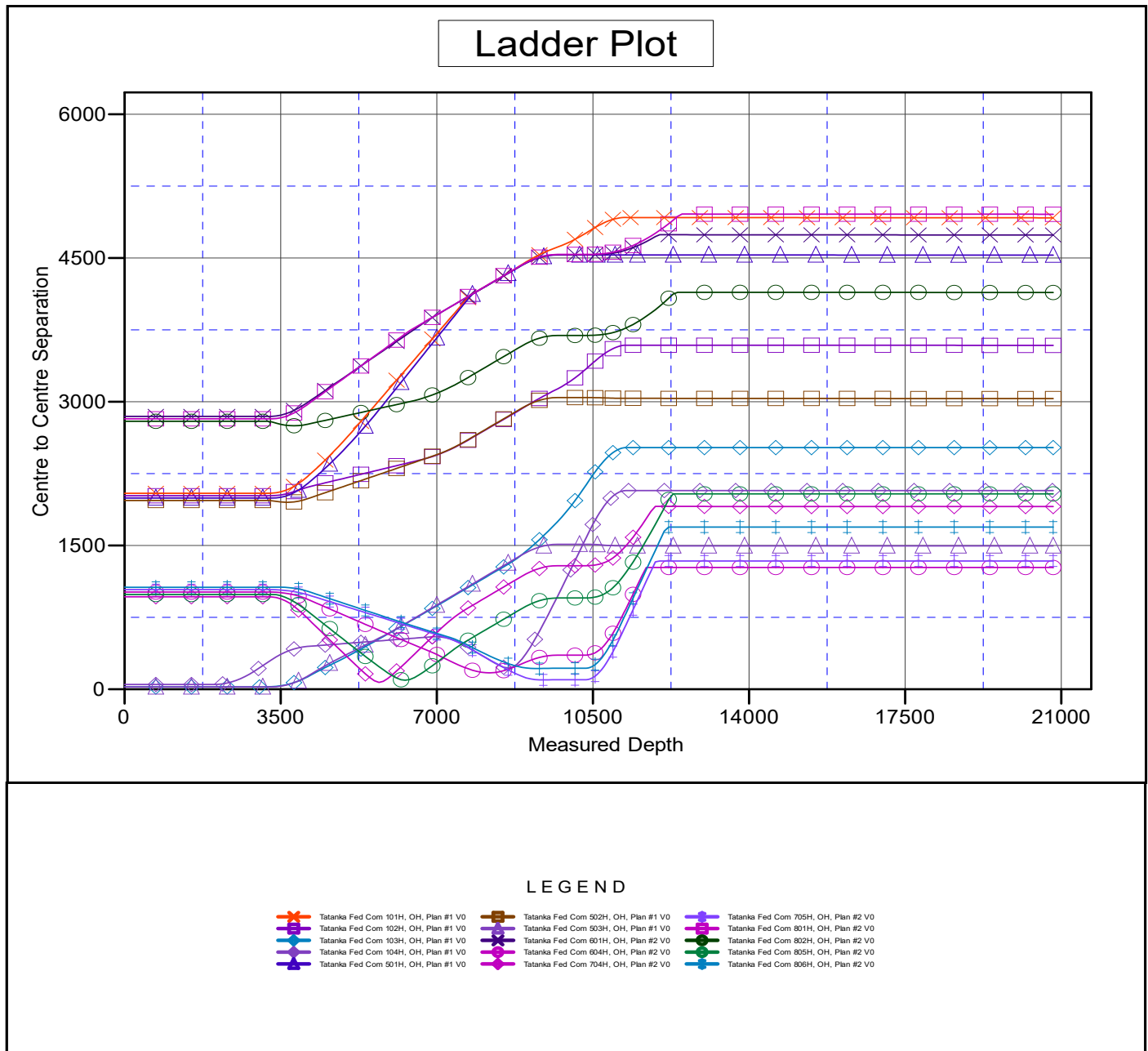
Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3118' GE + 30' KB @ 3148.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 504H	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 3118' GE + 30' KB @ 3148.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Tatanka Fed Com 504H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.53°



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



Total Directional Services

Anticollision Report

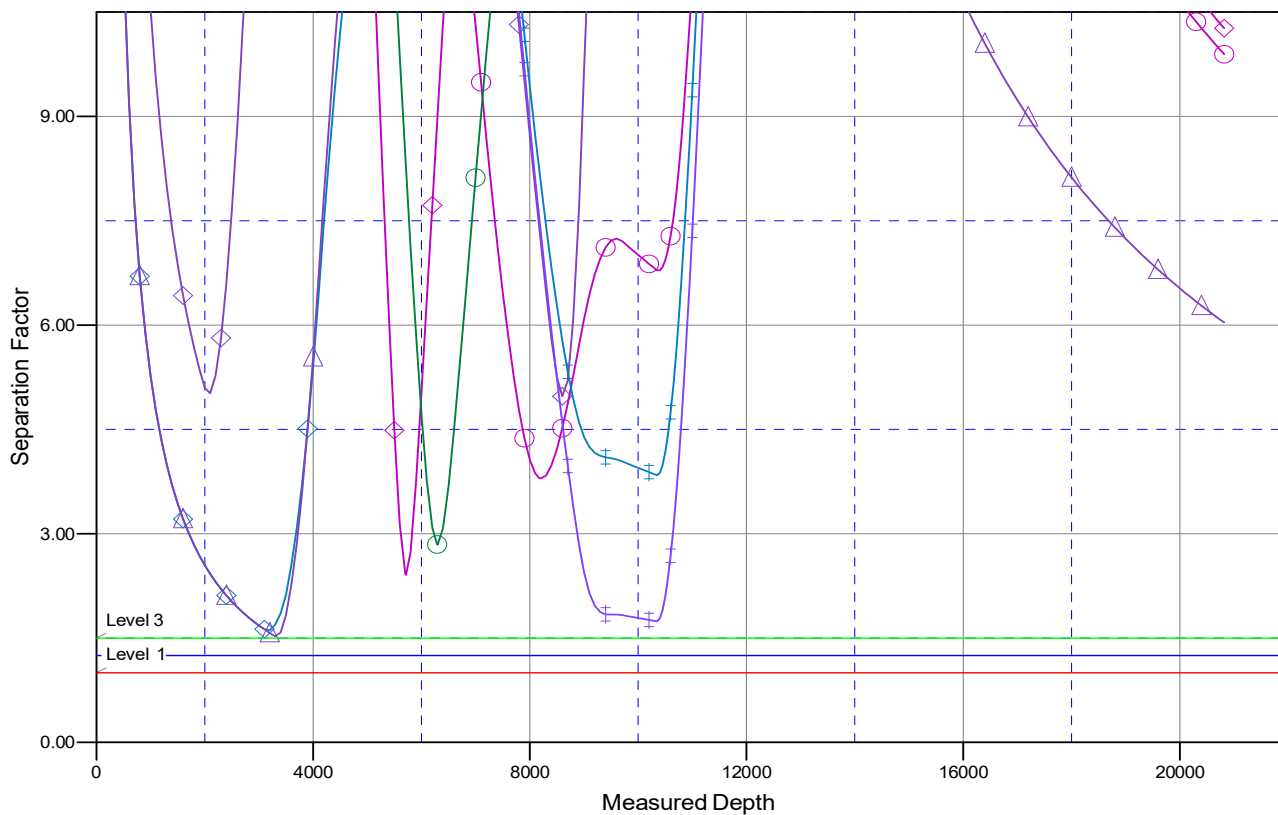


Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 504H
Project:	Lea County, NM (NAD83)	TVD Reference:	3118' GE + 30' KB @ 3148.00usft
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Reference Depths are relative to 3118' GE + 30' KB @ 3148.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Tatanka Fed Com 504H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.53°

Separation Factor Plot



LEGEND

Tatanka Fed Com 101H, OH, Plan #1 V0	Tatanka Fed Com 502H, OH, Plan #1 V0	Tatanka Fed Com 705H, OH, Plan #2 V0
Tatanka Fed Com 102H, OH, Plan #1 V0	Tatanka Fed Com 503H, OH, Plan #1 V0	Tatanka Fed Com 801H, OH, Plan #2 V0
Tatanka Fed Com 103H, OH, Plan #1 V0	Tatanka Fed Com 601H, OH, Plan #2 V0	Tatanka Fed Com 802H, OH, Plan #2 V0
Tatanka Fed Com 104H, OH, Plan #1 V0	Tatanka Fed Com 604H, OH, Plan #2 V0	Tatanka Fed Com 805H, OH, Plan #2 V0
Tatanka Fed Com 501H, OH, Plan #1 V0	Tatanka Fed Com 704H, OH, Plan #2 V0	Tatanka Fed Com 806H, OH, Plan #2 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.:	NMNM12280
COUNTY:	Lea County

Wells:

Tatanka Fed Com 601H
Tatanka Fed Com 801H
Tatanka Fed Com 802H
Tatanka Fed Com 502H
Tatanka Fed Com 501H
Tatanka Fed Com 102H
Tatanka Fed Com 101H
Tatanka Fed Com 603H

Tatanka Fed Com 804H
Tatanka Fed Com 703H
Tatanka Fed Com 803H
Tatanka Fed Com 602H
Tatanka Fed Com 702H
Tatanka Fed Com 104H
Tatanka Fed Com 103H
Tatanka Fed Com 504H

Tatanka Fed Com 503H
Tatanka Fed Com 806H
Tatanka Fed Com 705H
Tatanka Fed Com 604H
Tatanka Fed Com 805H
Tatanka Fed Com 704H

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
 - Range
 - 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.

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.

TANK BATTERY:

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

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.

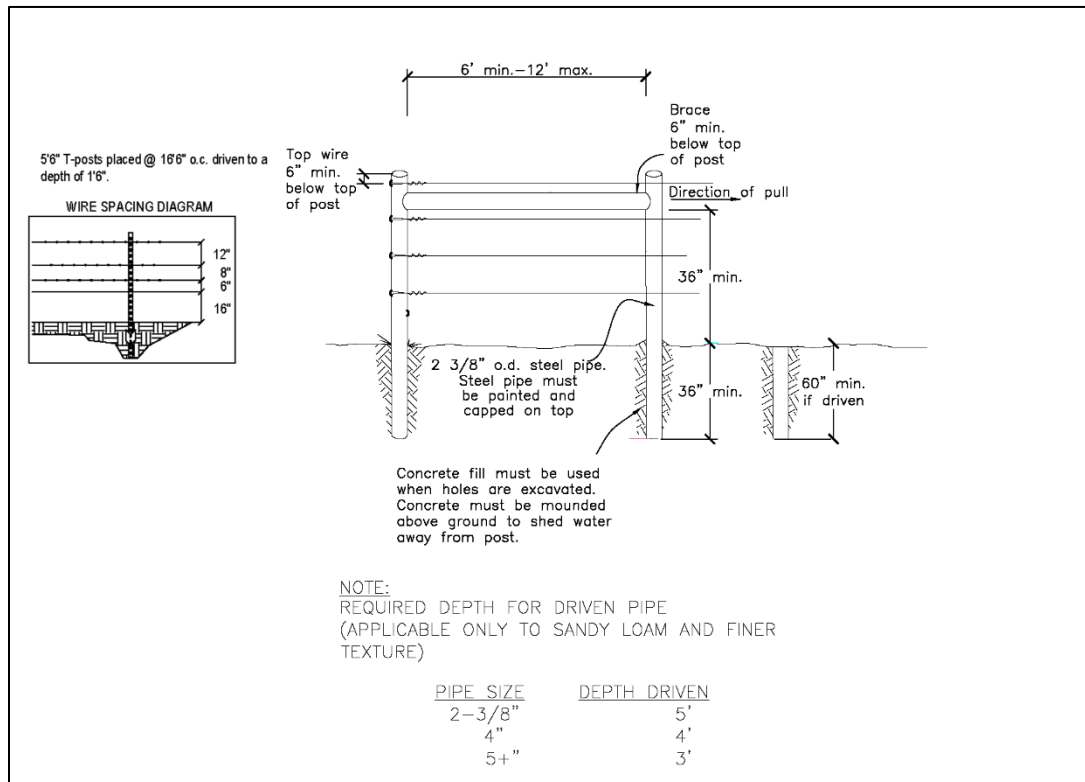
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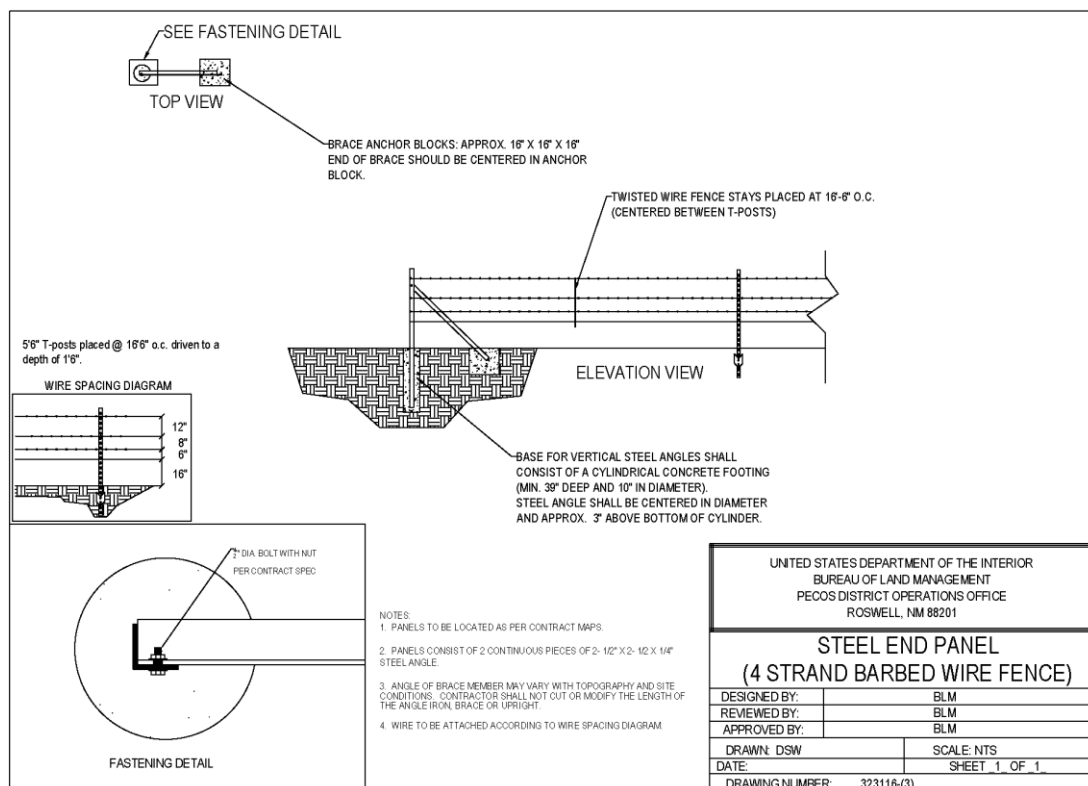
Cattleguards

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

Fence Requirement

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





Livestock Watering Requirement

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

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

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, Carlsbad Canyon 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) Carlsbad Canyon, 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

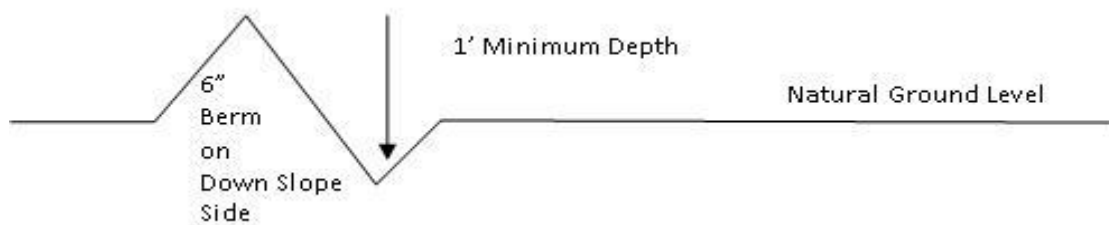
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

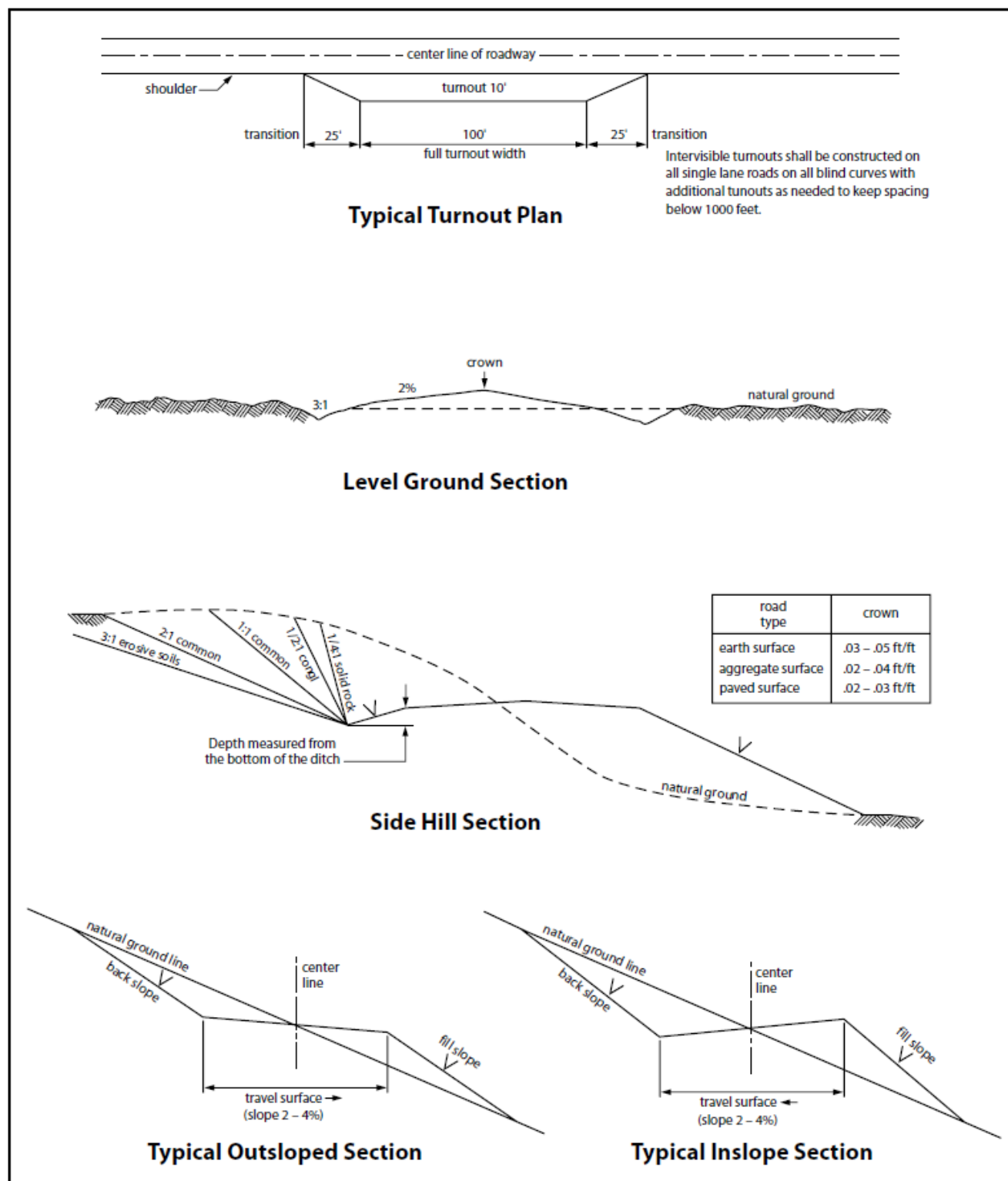


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

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

Chemical and Fuel Secondary Containment and Exclosure Screening

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

Open-Vent Exhaust Stack Exclosures

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

Containment Structures

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

Painting Requirement

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

B. 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. 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.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review 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. 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. Holder shall comply with all applicable Federal laws and regulations existing or hereafter

enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard 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 in particular, 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. 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 activity of 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 provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing
 - (2) Earth-disturbing and earth-moving work
 - (3) Blasting
 - (4) Vandalism and sabotage;

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, 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, salt water, 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/she 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 Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of 30 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the

surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 6 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. 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.

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. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. 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. Signs will be maintained in a legible condition for the life of the pipeline.

14. 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. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. 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 16 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.

16. 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."

17. 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.

18. 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, powerline 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.

19. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

C. ELECTRIC LINES

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
- No further construction will be done until clearance has been issued by the Authorized Officer.
- Special restoration stipulations or realignment may be required.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

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

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

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

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

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

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

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

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

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

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

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

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

10. 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 11 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.

11. 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."

12. 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.

13. Special Stipulations:

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

VIII. INTERIM RECLAMATION

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

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

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

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

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

IX. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

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.:	NMNM12280
LOCATION:	Section 2, T.26 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Tatanka Fed Com 103H
SURFACE HOLE FOOTAGE:	20'/N & 1875'/E
BOTTOM HOLE FOOTAGE:	150'/S & 1877'/E

WELL NAME & NO.:	Tatanka Fed Com 104H
SURFACE HOLE FOOTAGE:	20'/N & 1850'/E
BOTTOM HOLE FOOTAGE:	150'/S & 380'/E

WELL NAME & NO.:	Tatanka Fed Com 503H
SURFACE HOLE FOOTAGE:	20'/N & 1925'/E
BOTTOM HOLE FOOTAGE:	150'/S & 1877'/E

WELL NAME & NO.:	Tatanka Fed Com 504H
SURFACE HOLE FOOTAGE:	20'/N & 1900'/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
Other	☒ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Strawn** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1110 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 **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:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.

- d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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 88351

CONDITIONS

Operator: Franklin Mountain Energy LLC 44 Cook Street Denver, CO 80206	OGRID: 373910
	Action Number: 88351
	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	3/16/2022
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	3/16/2022
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	3/16/2022
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	3/16/2022