

OCD – HOBBS
11/18/2020
RECEIVED

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		5. Lease Serial No.
1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		7. If Unit or CA Agreement, Name and No.
		8. Lease Name and Well No. [329877]
2. Name of Operator [373910]		9. API Well No. 30-025-48104
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory [97088]
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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

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

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

GCP Rec 11/18/2020

SL

(Continued on page 2)

APPROVED WITH CONDITIONS
Approval Date: 10/08/2020

Kz
12/01/2020

*(Instructions on page 2)

INSTRUCTIONS

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

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

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

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

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

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

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

NOTICES

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

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

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

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

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

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

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

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



Kaston Fed Com 603H

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)	3,056'	21'	21'	0	Sand/Gravels/unconsolidated
Rustler	2,486'	591'			Carbonates
Salado	2,101'	976'			Salt, Carbonate & Clastics
Base Salt	-1,416'	4,493'			Shaley Carbonate & Shale
Lamar	-1,851'	4,928'			Carbonate & Clastics
Bell Canyon	-1,885'	4,962'			Sandstone - oil/gas/water
Cherry Canyon	-2,752'	5,829'			Sandstone - oil/gas/water
Brushy Canyon	-4,244'	7,321'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,605'	8,682'			Shale/Carbonates - oil/gas
Avalon	-5,629'	8,706'			Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,731'	9,808'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,870'	9,947'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,255'	10,332'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-7,955'	11,032'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,626'	11,703'			Sandstone - oil/gas/water
HZ Target at SHL	-8,755'	11,832'			Overpressure shale/sand- Oil/Gas
Wolfcamp	-8,868'	11,945'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-8,929'	12,006'			Overpressure Shale - Oil/Gas
Wolfcamp B	-9,149'	12,226'			Overpressure Shale - Oil/Gas

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

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	4,962'	Oil
Bone Spring	9,808'	Oil
Wolfcamp	11,945	Oil

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

4. Casing Program:

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

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5400	1.72	1.67	2.90	3.30
Intermediate 7 5/8"	29.7	HCP- 110	8280	7150	827	Stinger 564	12211	1.09	1.25	1.79	1.22
Long string 5 1/2"	23	P-110	14520	14520	729	Anaconda 656	23888	1.32	1.30	1.12	1.01



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	Lead Type of cmt	Yield ft3/sk	Water gal/sk	TOC ft	Sacks	Tail Type of cmt	Yield ft3/sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1300	804	Extenda Cem, 13.5 ppg Class C, 3lb/sk Kol-Seal	1.728	9.19	0	331	HalCem TM, 14.8 ppg, Class C, 2% CaCl2, 0.25pps Cello-Flake	1.364	6.51	1000	100%
Int1	12.25	9.625	5400	1256	Neocem TM, 11.5 ppg, Class C 50:50 Poz	2.271	13.24	0	152	HalCem TM, 14.8 ppg, Class C, 0.25 pps Cello-Flake, 2% CaCl2	1.349	6.25	5100	100%
Int2	8.75	7.625	12211	355	Gel, 0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal									
					NeoCem, 11 ppg, Class C 2lb/sk Bridgemaker Gel, 5%	2.777	14.21	4400	112	NeoCem 13.2 ppg, Class C	1.44	4.31	11211	50%
					Salt, 5pps LCM, 0.25pps Cello-Flake					0.25 pps Cello-Flake, 2% CaCl2				
Prod	6.75	5.5	23888	585	NeoCem, 14.5 ppg, Gas Migration Control	2.166	9.38	11211						20%

5. Minimum Specifications for Pressure Control:

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

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

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



Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

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

6. Types and characteristics of the proposed mud system:

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

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,300'	Fresh - Gel	8.6-8.8	28-34	N/c
1,300' – 12,211'	Brine	8.8-10.2	28-34	N/c
12,211' – 23,888' Lateral	Oil Base	10.0-11.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 11 ppg. In order to maintain hole stability, mud weights up to 12.0 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 12,063' TVD (deepest point of the well) is 195F with an estimated maximum bottom-hole pressure (BHP) at the same point of 7,527 psig (based on 12 ppg MW). Hydrogen sulfate may be present in the area. All necessary precautions will be taken before drilling operations commence. See Hydrogen Sulfide Plan below:

10. Hydrogen Sulfide Plan:

- A. All personnel shall receive proper awareness H₂S training.
- B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.
- C. Required Emergency Equipment
 - a. Well Control Equipment
 - i. Flare line 150' from wellhead to be ignited by auto ignition sparking system.
 - ii. Choke manifold with a remotely operated hydraulic choke.
 - iii. Mud/gas separator
 - b. Protective equipment for essential personnel
 - i. Breathing Apparatus



1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.
2. Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity
3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation
- ii. Auxiliary Rescue Equipment
 1. Stretcher
 2. Two OSHA full body harnesses
 3. 100 feet of 5/8 inches OSHA approved rope
 4. 1-20# class ABC fire extinguisher
- c. H2S Detection and Monitoring Equipment
 - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
 1. Rig Floor
 2. Below Rig Floor / Near BOPs
 3. End of flow line or where well bore fluid is being discharged (near shakers)
 - ii. If H2S is encountered, measured values and formations will be provided to the BLM.
- d. Visual Warning Systems
 - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - iii. Two windsocks will be placed in strategic locations, visible from all angles.
- e. Mud Program
 - i. The Mud program will be designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- f. Metallurgy
 - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
 - i. Communication will be via cell phones and walkie talkies on location.

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



11. Anticipated starting date and duration of operations:

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

12. Disposal/environmental concerns:

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

13. Wellhead:

A multi-bowl wellhead system will be utilized.

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

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

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

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

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

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

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

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



14. Additional variance requests

A. Casing.

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

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

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Bus Driver/Kasten Fed Com
Well: Kasten Fed Com 603H
Wellbore: OH
Design: Plan #2



Azimuths to Grid North
True North: -0.54°
Magnetic North: 5.99°

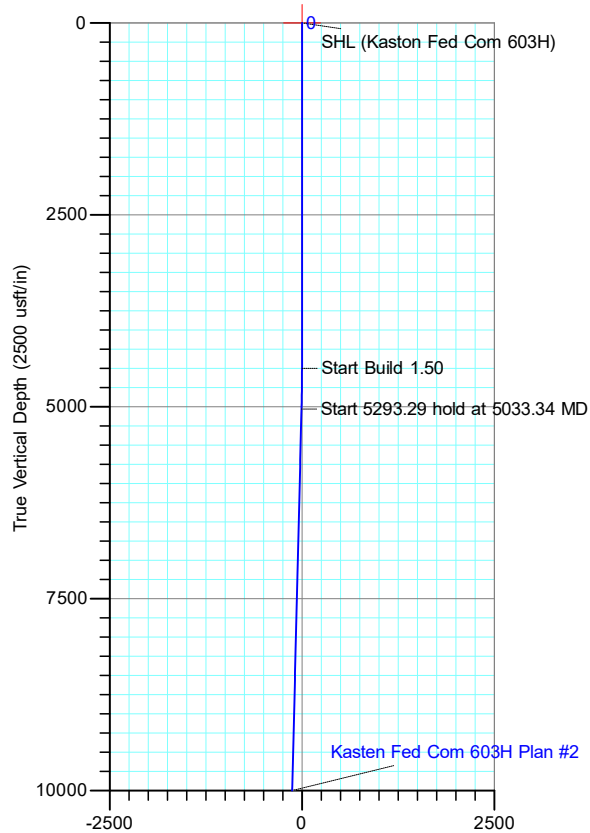
Magnetic Field
Strength: 47604.7nT
Dip Angle: 59.93°
Date: 2/25/2020
Model: IGRF2015

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



3056.1' GE + 21' KB @ 3077.10usft

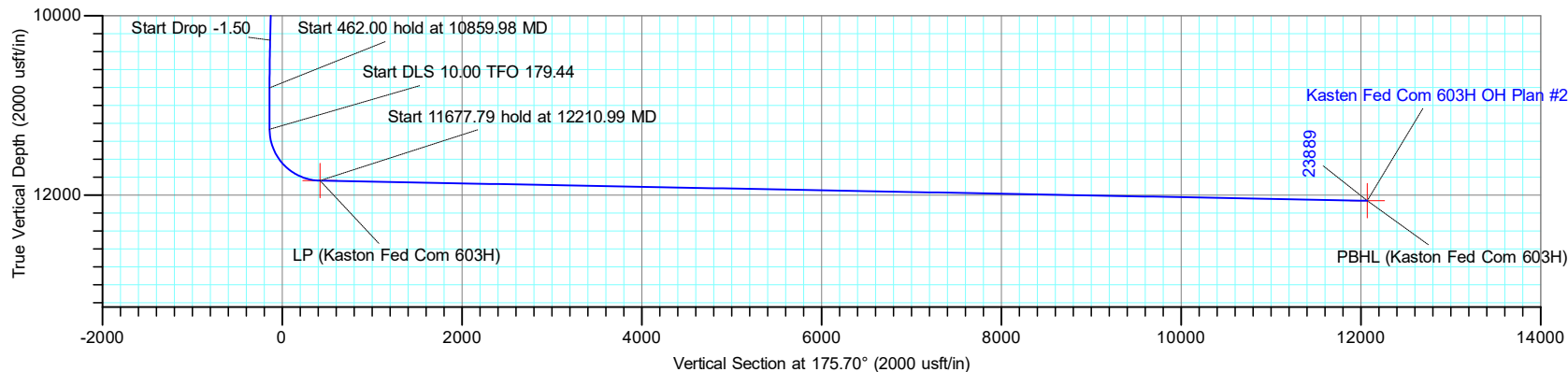
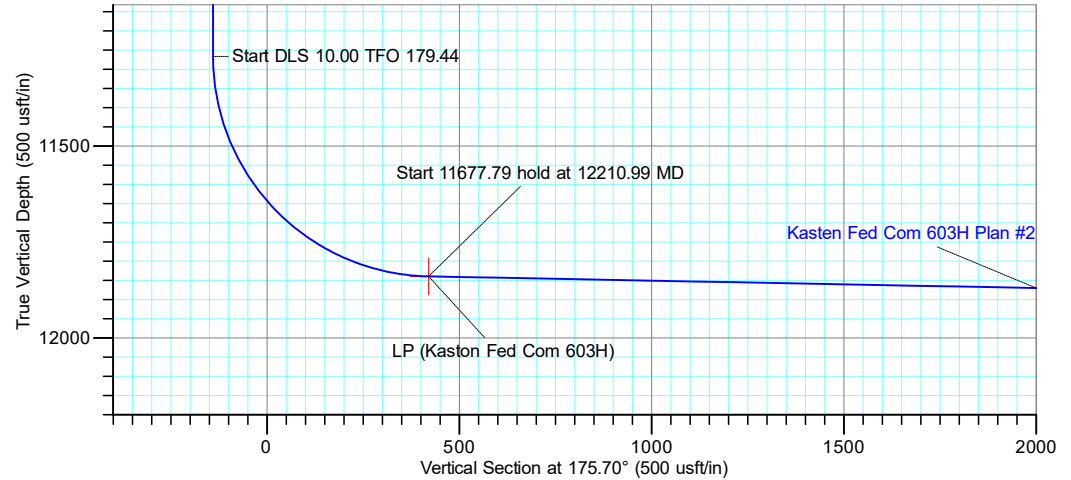


SECTION DETAILS

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	
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
5033.34	8.00	75.72	5031.61	9.17	36.03	1.50	75.72	-6.44	Start 5293.29 hold at 5033.34 MD
10326.64	8.00	75.72	10273.39	190.83	749.97	0.00	0.00	-134.04	Start Drop -1.50
10859.98	0.00	0.00	10805.00	200.00	786.00	1.50	180.00	-140.48	Start 462.00 hold at 10859.98 MD
11321.98	0.00	0.00	11267.00	200.00	786.00	0.00	0.00	-140.48	Start DLS 10.00 TFO 179.44
12210.99	88.90	179.44	11839.85	-361.94	791.49	10.00	179.44	420.29	Start 11677.79 hold at 12210.99 MD
23888.78	88.90	179.44	12063.78	-12037.03	905.46	0.00	0.00	12071.04	TD at 23888.78

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (Kaston Fed Com 603H)	11839.85	-361.94	791.49	32.079415	-103.319238
PBHL (Kaston Fed Com 603H)	12063.78	-12037.03	905.46	32.047323	-103.319224
SHL (Kaston Fed Com 603H)	0.00	0.00	0.00	32.080431	-103.321782



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

Plan: Plan #2 (Kasten Fed Com 603H/OH)
Bus Driver/Kasten Fed Com
Created By: Dustin Ault
Date: 22:55, February 25 2020
Approved: _____
Date: _____

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Bus Driver/Kasten Fed Com
Well: Kasten Fed Com 603H
Wellbore: OH
Design: Plan #2



Azimuths to Grid North
True North: -0.54°
Magnetic North: 5.99°

Magnetic Field
Strength: 47604.7nT
Dip Angle: 59.93°
Date: 2/25/2020
Model: IGRF2015



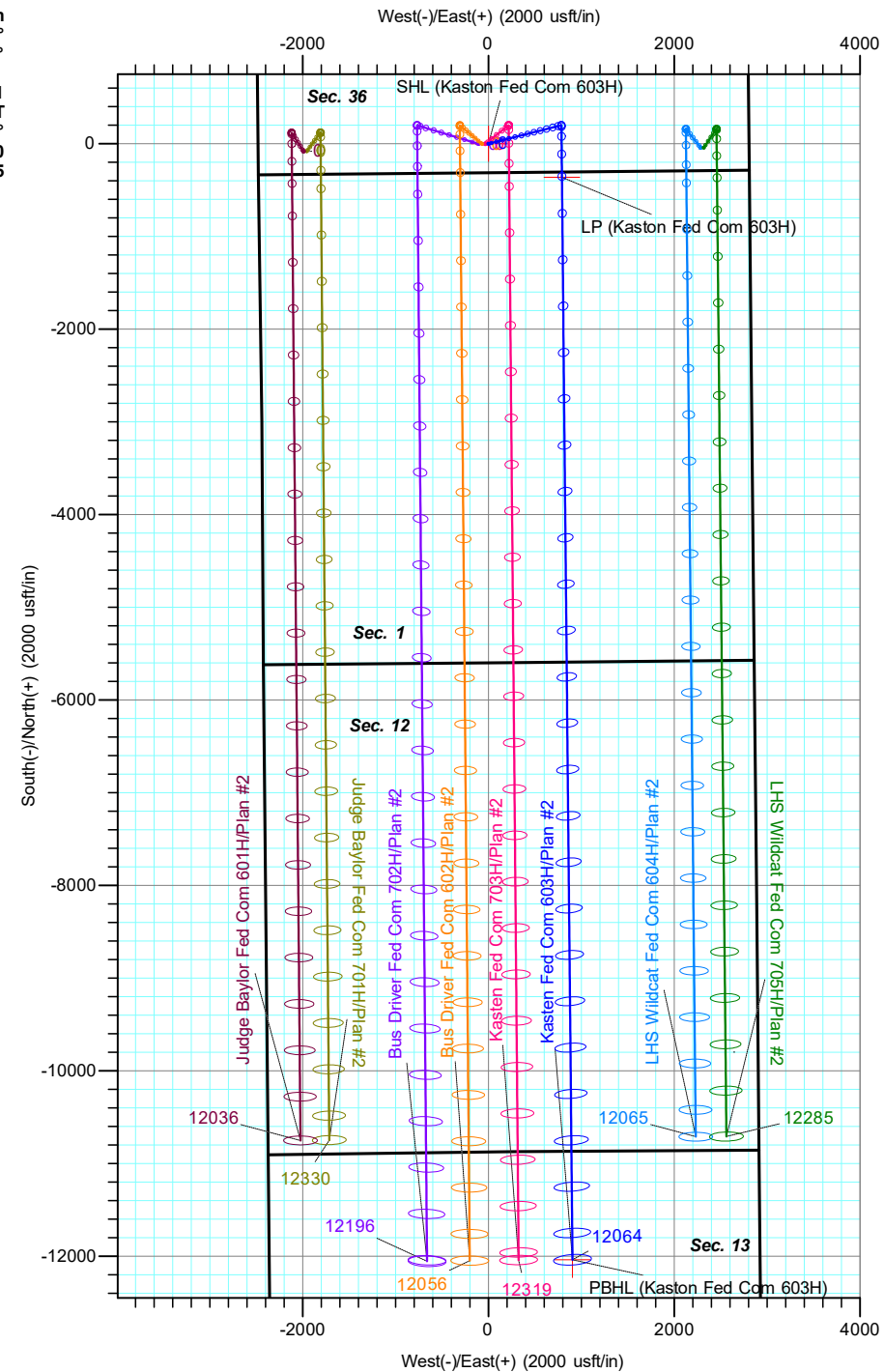
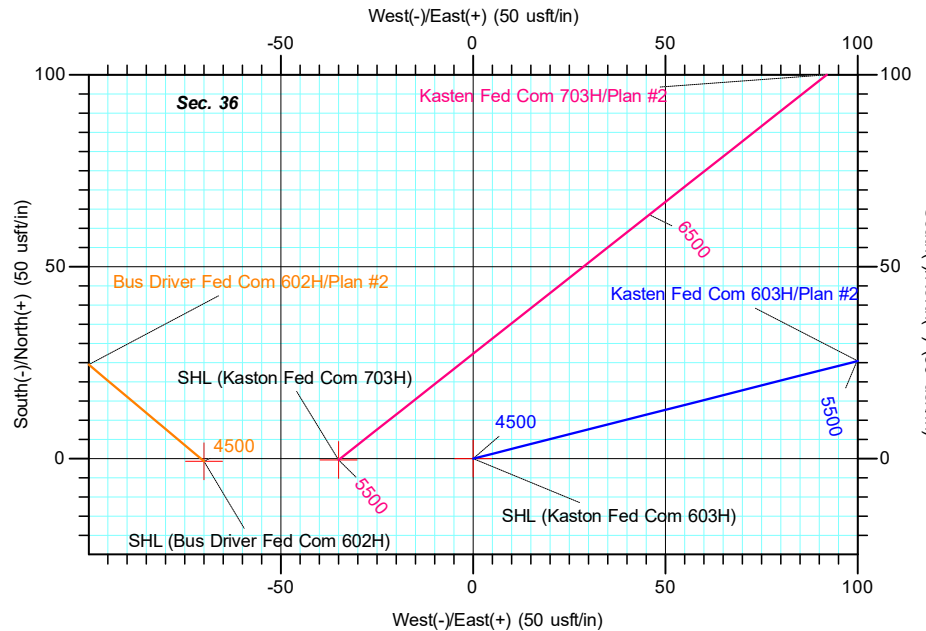
PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (Kasten Fed Com 603H)	11839.85	-361.94	791.49	394104.80	855430.87	32.079415	-103.319238
PBHL (Kasten Fed Com 603H)	12063.78	-12037.03	905.46	382429.71	855544.84	32.047323	-103.319224
SHL (Kasten Fed Com 603H)	0.00	0.00	0.00	394466.74	854639.38	32.080431	-103.321782

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	
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
5033.34	8.00	75.72	5031.61	9.17	36.03	1.50	75.72	-6.44	Start 5293.29 hold at 5033.34 MD
10326.64	8.00	75.72	10273.39	190.83	749.97	0.00	0.00	-134.04	Start Drop -1.50
10859.98	0.00	0.00	10805.00	200.00	786.00	1.50	180.00	-140.48	Start 462.00 hold at 10859.98 MD
11321.98	0.00	0.00	11267.00	200.00	786.00	0.00	0.00	-140.48	Start DLS 10.00 TFO 179.44
12210.99	88.90	179.44	11839.85	-361.94	791.49	10.00	179.44	420.29	Start 11677.79 hold at 12210.99 MD
23888.78	88.90	179.44	12063.78	-12037.03	905.46	0.00	0.00	12071.04	TD at 23888.78



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

Plan: Plan #2 (Kasten Fed Com 603H/OH)
Bus Driver/Kasten Fed Com
Created By: Dustin Ault Date: 22:56, February 25 2020
Approved: _____ Date: _____



Franklin Mountain Energy

**Lea County, NM (NAD83)
Bus Driver/Kasten Fed Com
Kasten Fed Com 603H**

OH

Plan: Plan #2

Standard Planning Report

25 February, 2020



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	Bus Driver/Kasten Fed Com				
Site Position:		Northing:	394,466.08 usft	Latitude:	32.080431
From:	Map	Easting:	854,569.39 usft	Longitude:	-103.322008
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.54 °

Well	Kasten Fed Com 603H					
Well Position	+N/-S	0.66 usft	Northing:	394,466.74 usft	Latitude:	32.080431
	+E/-W	69.99 usft	Easting:	854,639.38 usft	Longitude:	-103.321782
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,056.10 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/25/2020	6.53	59.93	47,604.70080145

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	175.70

Plan Survey Tool Program	Date	2/25/2020		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	23,888.30 Plan #2 (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	
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,033.34	8.00	75.72	5,031.61	9.17	36.03	1.50	1.50	0.00	75.72	
10,326.64	8.00	75.72	10,273.39	190.83	749.97	0.00	0.00	0.00	0.00	
10,859.98	0.00	0.00	10,805.00	200.00	786.00	1.50	-1.50	0.00	180.00	
11,321.98	0.00	0.00	11,267.00	200.00	786.00	0.00	0.00	0.00	0.00	
12,210.99	88.90	179.44	11,839.85	-361.94	791.49	10.00	10.00	20.18	179.44	
23,888.78	88.90	179.44	12,063.78	-12,037.03	905.46	0.00	0.00	0.00	0.00	PBHL (Kasten Fed Co



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 (Kaston Fed Com 603H)									
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
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
4,600.00	1.50	75.72	4,599.99	0.32	1.27	-0.23	1.50	1.50	0.00
4,700.00	3.00	75.72	4,699.91	1.29	5.07	-0.91	1.50	1.50	0.00
4,800.00	4.50	75.72	4,799.69	2.90	11.41	-2.04	1.50	1.50	0.00
4,900.00	6.00	75.72	4,899.27	5.16	20.28	-3.62	1.50	1.50	0.00
5,000.00	7.50	75.72	4,998.57	8.06	31.67	-5.66	1.50	1.50	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
5,033.34	8.00	75.72	5,031.61	9.17	36.03	-6.44	1.50	1.50	0.00
Start 5293.29 hold at 5033.34 MD									
5,100.00	8.00	75.72	5,097.62	11.45	45.02	-8.05	0.00	0.00	0.00
5,200.00	8.00	75.72	5,196.65	14.89	58.50	-10.46	0.00	0.00	0.00
5,300.00	8.00	75.72	5,295.67	18.32	71.99	-12.87	0.00	0.00	0.00
5,400.00	8.00	75.72	5,394.70	21.75	85.48	-15.28	0.00	0.00	0.00
5,500.00	8.00	75.72	5,493.73	25.18	98.97	-17.69	0.00	0.00	0.00
5,600.00	8.00	75.72	5,592.75	28.61	112.46	-20.10	0.00	0.00	0.00
5,700.00	8.00	75.72	5,691.78	32.05	125.94	-22.51	0.00	0.00	0.00
5,800.00	8.00	75.72	5,790.81	35.48	139.43	-24.92	0.00	0.00	0.00
5,900.00	8.00	75.72	5,889.83	38.91	152.92	-27.33	0.00	0.00	0.00
6,000.00	8.00	75.72	5,988.86	42.34	166.41	-29.74	0.00	0.00	0.00
6,100.00	8.00	75.72	6,087.89	45.77	179.89	-32.15	0.00	0.00	0.00
6,200.00	8.00	75.72	6,186.91	49.21	193.38	-34.56	0.00	0.00	0.00
6,300.00	8.00	75.72	6,285.94	52.64	206.87	-36.97	0.00	0.00	0.00
6,400.00	8.00	75.72	6,384.97	56.07	220.36	-39.38	0.00	0.00	0.00
6,500.00	8.00	75.72	6,483.99	59.50	233.85	-41.79	0.00	0.00	0.00
6,600.00	8.00	75.72	6,583.02	62.93	247.33	-44.20	0.00	0.00	0.00
6,700.00	8.00	75.72	6,682.05	66.37	260.82	-46.62	0.00	0.00	0.00
6,800.00	8.00	75.72	6,781.08	69.80	274.31	-49.03	0.00	0.00	0.00
6,900.00	8.00	75.72	6,880.10	73.23	287.80	-51.44	0.00	0.00	0.00
7,000.00	8.00	75.72	6,979.13	76.66	301.28	-53.85	0.00	0.00	0.00
7,100.00	8.00	75.72	7,078.16	80.09	314.77	-56.26	0.00	0.00	0.00
7,200.00	8.00	75.72	7,177.18	83.53	328.26	-58.67	0.00	0.00	0.00
7,300.00	8.00	75.72	7,276.21	86.96	341.75	-61.08	0.00	0.00	0.00
7,400.00	8.00	75.72	7,375.24	90.39	355.24	-63.49	0.00	0.00	0.00
7,500.00	8.00	75.72	7,474.26	93.82	368.72	-65.90	0.00	0.00	0.00
7,600.00	8.00	75.72	7,573.29	97.25	382.21	-68.31	0.00	0.00	0.00
7,700.00	8.00	75.72	7,672.32	100.69	395.70	-70.72	0.00	0.00	0.00
7,800.00	8.00	75.72	7,771.34	104.12	409.19	-73.13	0.00	0.00	0.00
7,900.00	8.00	75.72	7,870.37	107.55	422.67	-75.54	0.00	0.00	0.00
8,000.00	8.00	75.72	7,969.40	110.98	436.16	-77.95	0.00	0.00	0.00
8,100.00	8.00	75.72	8,068.42	114.41	449.65	-80.36	0.00	0.00	0.00
8,200.00	8.00	75.72	8,167.45	117.85	463.14	-82.77	0.00	0.00	0.00
8,300.00	8.00	75.72	8,266.48	121.28	476.63	-85.18	0.00	0.00	0.00
8,400.00	8.00	75.72	8,365.50	124.71	490.11	-87.60	0.00	0.00	0.00
8,500.00	8.00	75.72	8,464.53	128.14	503.60	-90.01	0.00	0.00	0.00
8,600.00	8.00	75.72	8,563.56	131.57	517.09	-92.42	0.00	0.00	0.00
8,700.00	8.00	75.72	8,662.58	135.01	530.58	-94.83	0.00	0.00	0.00
8,800.00	8.00	75.72	8,761.61	138.44	544.06	-97.24	0.00	0.00	0.00
8,900.00	8.00	75.72	8,860.64	141.87	557.55	-99.65	0.00	0.00	0.00
9,000.00	8.00	75.72	8,959.66	145.30	571.04	-102.06	0.00	0.00	0.00
9,100.00	8.00	75.72	9,058.69	148.73	584.53	-104.47	0.00	0.00	0.00
9,200.00	8.00	75.72	9,157.72	152.17	598.02	-106.88	0.00	0.00	0.00
9,300.00	8.00	75.72	9,256.74	155.60	611.50	-109.29	0.00	0.00	0.00
9,400.00	8.00	75.72	9,355.77	159.03	624.99	-111.70	0.00	0.00	0.00
9,500.00	8.00	75.72	9,454.80	162.46	638.48	-114.11	0.00	0.00	0.00
9,600.00	8.00	75.72	9,553.82	165.89	651.97	-116.52	0.00	0.00	0.00
9,700.00	8.00	75.72	9,652.85	169.33	665.45	-118.93	0.00	0.00	0.00
9,800.00	8.00	75.72	9,751.88	172.76	678.94	-121.34	0.00	0.00	0.00
9,900.00	8.00	75.72	9,850.91	176.19	692.43	-123.75	0.00	0.00	0.00
10,000.00	8.00	75.72	9,949.93	179.62	705.92	-126.17	0.00	0.00	0.00
10,100.00	8.00	75.72	10,048.96	183.05	719.41	-128.58	0.00	0.00	0.00
10,200.00	8.00	75.72	10,147.99	186.49	732.89	-130.99	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
10,300.00	8.00	75.72	10,247.01	189.92	746.38	-133.40	0.00	0.00	0.00
10,326.64	8.00	75.72	10,273.39	190.83	749.97	-134.04	0.00	0.00	0.00
Start Drop -1.50									
10,400.00	6.90	75.72	10,346.13	193.18	759.19	-135.69	1.50	-1.50	0.00
10,500.00	5.40	75.72	10,445.55	195.82	769.57	-137.54	1.50	-1.50	0.00
10,600.00	3.90	75.72	10,545.22	197.82	777.43	-138.95	1.50	-1.50	0.00
10,700.00	2.40	75.72	10,645.07	199.17	782.75	-139.90	1.50	-1.50	0.00
10,800.00	0.90	75.72	10,745.02	199.88	785.54	-140.40	1.50	-1.50	0.00
10,859.98	0.00	0.00	10,805.00	200.00	786.00	-140.48	1.50	-1.50	0.00
Start 462.00 hold at 10859.98 MD									
10,900.00	0.00	0.00	10,845.02	200.00	786.00	-140.48	0.00	0.00	0.00
11,000.00	0.00	0.00	10,945.02	200.00	786.00	-140.48	0.00	0.00	0.00
11,100.00	0.00	0.00	11,045.02	200.00	786.00	-140.48	0.00	0.00	0.00
11,200.00	0.00	0.00	11,145.02	200.00	786.00	-140.48	0.00	0.00	0.00
11,300.00	0.00	0.00	11,245.02	200.00	786.00	-140.48	0.00	0.00	0.00
11,321.98	0.00	0.00	11,267.00	200.00	786.00	-140.48	0.00	0.00	0.00
Start DLS 10.00 TFO 179.44									
11,350.00	2.80	179.44	11,295.01	199.31	786.01	-139.79	10.00	10.00	0.00
11,400.00	7.80	179.44	11,344.78	194.70	786.05	-135.19	10.00	10.00	0.00
11,450.00	12.80	179.44	11,393.96	185.76	786.14	-126.27	10.00	10.00	0.00
11,500.00	17.80	179.44	11,442.17	172.57	786.27	-113.10	10.00	10.00	0.00
11,550.00	22.80	179.44	11,489.05	155.22	786.44	-95.80	10.00	10.00	0.00
11,600.00	27.80	179.44	11,534.24	133.86	786.65	-74.48	10.00	10.00	0.00
11,650.00	32.80	179.44	11,577.39	108.64	786.89	-49.31	10.00	10.00	0.00
11,700.00	37.80	179.44	11,618.19	79.76	787.17	-20.49	10.00	10.00	0.00
11,750.00	42.80	179.44	11,656.31	47.43	787.49	11.77	10.00	10.00	0.00
11,800.00	47.80	179.44	11,691.46	11.90	787.84	47.23	10.00	10.00	0.00
11,850.00	52.80	179.44	11,723.39	-26.55	788.21	85.60	10.00	10.00	0.00
11,900.00	57.80	179.44	11,751.84	-67.65	788.61	126.61	10.00	10.00	0.00
11,950.00	62.80	179.44	11,776.61	-111.06	789.04	169.94	10.00	10.00	0.00
12,000.00	67.80	179.44	11,797.49	-156.47	789.48	215.25	10.00	10.00	0.00
12,050.00	72.80	179.44	11,814.34	-203.53	789.94	262.21	10.00	10.00	0.00
12,100.00	77.80	179.44	11,827.02	-251.88	790.41	310.46	10.00	10.00	0.00
12,150.00	82.80	179.44	11,835.44	-301.14	790.89	359.62	10.00	10.00	0.00
12,200.00	87.80	179.44	11,839.54	-350.96	791.38	409.33	10.00	10.00	0.00
12,210.99	88.90	179.44	11,839.85	-361.94	791.49	420.29	10.00	10.00	0.00
Start 11677.79 hold at 12210.99 MD - LP (Kasten Fed Com 603H)									
12,300.00	88.90	179.44	11,841.56	-450.93	792.35	509.10	0.00	0.00	0.00
12,400.00	88.90	179.44	11,843.48	-550.91	793.33	608.87	0.00	0.00	0.00
12,500.00	88.90	179.44	11,845.39	-650.89	794.31	708.63	0.00	0.00	0.00
12,600.00	88.90	179.44	11,847.31	-750.86	795.28	808.40	0.00	0.00	0.00
12,700.00	88.90	179.44	11,849.23	-850.84	796.26	908.17	0.00	0.00	0.00
12,800.00	88.90	179.44	11,851.15	-950.82	797.23	1,007.94	0.00	0.00	0.00
12,900.00	88.90	179.44	11,853.06	-1,050.79	798.21	1,107.71	0.00	0.00	0.00
13,000.00	88.90	179.44	11,854.98	-1,150.77	799.19	1,207.48	0.00	0.00	0.00
13,100.00	88.90	179.44	11,856.90	-1,250.75	800.16	1,307.24	0.00	0.00	0.00
13,200.00	88.90	179.44	11,858.82	-1,350.72	801.14	1,407.01	0.00	0.00	0.00
13,300.00	88.90	179.44	11,860.74	-1,450.70	802.11	1,506.78	0.00	0.00	0.00
13,400.00	88.90	179.44	11,862.65	-1,550.68	803.09	1,606.55	0.00	0.00	0.00
13,500.00	88.90	179.44	11,864.57	-1,650.65	804.07	1,706.32	0.00	0.00	0.00
13,600.00	88.90	179.44	11,866.49	-1,750.63	805.04	1,806.09	0.00	0.00	0.00
13,700.00	88.90	179.44	11,868.41	-1,850.61	806.02	1,905.86	0.00	0.00	0.00
13,800.00	88.90	179.44	11,870.32	-1,950.59	806.99	2,005.62	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,900.00	88.90	179.44	11,872.24	-2,050.56	807.97	2,105.39	0.00	0.00	0.00
14,000.00	88.90	179.44	11,874.16	-2,150.54	808.95	2,205.16	0.00	0.00	0.00
14,100.00	88.90	179.44	11,876.08	-2,250.52	809.92	2,304.93	0.00	0.00	0.00
14,200.00	88.90	179.44	11,877.99	-2,350.49	810.90	2,404.70	0.00	0.00	0.00
14,300.00	88.90	179.44	11,879.91	-2,450.47	811.87	2,504.47	0.00	0.00	0.00
14,400.00	88.90	179.44	11,881.83	-2,550.45	812.85	2,604.23	0.00	0.00	0.00
14,500.00	88.90	179.44	11,883.75	-2,650.42	813.83	2,704.00	0.00	0.00	0.00
14,600.00	88.90	179.44	11,885.66	-2,750.40	814.80	2,803.77	0.00	0.00	0.00
14,700.00	88.90	179.44	11,887.58	-2,850.38	815.78	2,903.54	0.00	0.00	0.00
14,800.00	88.90	179.44	11,889.50	-2,950.35	816.75	3,003.31	0.00	0.00	0.00
14,900.00	88.90	179.44	11,891.42	-3,050.33	817.73	3,103.08	0.00	0.00	0.00
15,000.00	88.90	179.44	11,893.33	-3,150.31	818.71	3,202.84	0.00	0.00	0.00
15,100.00	88.90	179.44	11,895.25	-3,250.28	819.68	3,302.61	0.00	0.00	0.00
15,200.00	88.90	179.44	11,897.17	-3,350.26	820.66	3,402.38	0.00	0.00	0.00
15,300.00	88.90	179.44	11,899.09	-3,450.24	821.63	3,502.15	0.00	0.00	0.00
15,400.00	88.90	179.44	11,901.00	-3,550.21	822.61	3,601.92	0.00	0.00	0.00
15,500.00	88.90	179.44	11,902.92	-3,650.19	823.59	3,701.69	0.00	0.00	0.00
15,600.00	88.90	179.44	11,904.84	-3,750.17	824.56	3,801.45	0.00	0.00	0.00
15,700.00	88.90	179.44	11,906.76	-3,850.15	825.54	3,901.22	0.00	0.00	0.00
15,800.00	88.90	179.44	11,908.67	-3,950.12	826.51	4,000.99	0.00	0.00	0.00
15,900.00	88.90	179.44	11,910.59	-4,050.10	827.49	4,100.76	0.00	0.00	0.00
16,000.00	88.90	179.44	11,912.51	-4,150.08	828.47	4,200.53	0.00	0.00	0.00
16,100.00	88.90	179.44	11,914.43	-4,250.05	829.44	4,300.30	0.00	0.00	0.00
16,200.00	88.90	179.44	11,916.34	-4,350.03	830.42	4,400.06	0.00	0.00	0.00
16,300.00	88.90	179.44	11,918.26	-4,450.01	831.39	4,499.83	0.00	0.00	0.00
16,400.00	88.90	179.44	11,920.18	-4,549.98	832.37	4,599.60	0.00	0.00	0.00
16,500.00	88.90	179.44	11,922.10	-4,649.96	833.35	4,699.37	0.00	0.00	0.00
16,600.00	88.90	179.44	11,924.01	-4,749.94	834.32	4,799.14	0.00	0.00	0.00
16,700.00	88.90	179.44	11,925.93	-4,849.91	835.30	4,898.91	0.00	0.00	0.00
16,800.00	88.90	179.44	11,927.85	-4,949.89	836.27	4,998.68	0.00	0.00	0.00
16,900.00	88.90	179.44	11,929.77	-5,049.87	837.25	5,098.44	0.00	0.00	0.00
17,000.00	88.90	179.44	11,931.68	-5,149.84	838.23	5,198.21	0.00	0.00	0.00
17,100.00	88.90	179.44	11,933.60	-5,249.82	839.20	5,297.98	0.00	0.00	0.00
17,200.00	88.90	179.44	11,935.52	-5,349.80	840.18	5,397.75	0.00	0.00	0.00
17,300.00	88.90	179.44	11,937.44	-5,449.78	841.15	5,497.52	0.00	0.00	0.00
17,400.00	88.90	179.44	11,939.35	-5,549.75	842.13	5,597.29	0.00	0.00	0.00
17,500.00	88.90	179.44	11,941.27	-5,649.73	843.11	5,697.05	0.00	0.00	0.00
17,600.00	88.90	179.44	11,943.19	-5,749.71	844.08	5,796.82	0.00	0.00	0.00
17,700.00	88.90	179.44	11,945.11	-5,849.68	845.06	5,896.59	0.00	0.00	0.00
17,800.00	88.90	179.44	11,947.02	-5,949.66	846.03	5,996.36	0.00	0.00	0.00
17,900.00	88.90	179.44	11,948.94	-6,049.64	847.01	6,096.13	0.00	0.00	0.00
18,000.00	88.90	179.44	11,950.86	-6,149.61	847.99	6,195.90	0.00	0.00	0.00
18,100.00	88.90	179.44	11,952.78	-6,249.59	848.96	6,295.66	0.00	0.00	0.00
18,200.00	88.90	179.44	11,954.70	-6,349.57	849.94	6,395.43	0.00	0.00	0.00
18,300.00	88.90	179.44	11,956.61	-6,449.54	850.91	6,495.20	0.00	0.00	0.00
18,400.00	88.90	179.44	11,958.53	-6,549.52	851.89	6,594.97	0.00	0.00	0.00
18,500.00	88.90	179.44	11,960.45	-6,649.50	852.87	6,694.74	0.00	0.00	0.00
18,600.00	88.90	179.44	11,962.37	-6,749.47	853.84	6,794.51	0.00	0.00	0.00
18,700.00	88.90	179.44	11,964.28	-6,849.45	854.82	6,894.27	0.00	0.00	0.00
18,800.00	88.90	179.44	11,966.20	-6,949.43	855.79	6,994.04	0.00	0.00	0.00
18,900.00	88.90	179.44	11,968.12	-7,049.40	856.77	7,093.81	0.00	0.00	0.00
19,000.00	88.90	179.44	11,970.04	-7,149.38	857.75	7,193.58	0.00	0.00	0.00
19,100.00	88.90	179.44	11,971.95	-7,249.36	858.72	7,293.35	0.00	0.00	0.00
19,200.00	88.90	179.44	11,973.87	-7,349.34	859.70	7,393.12	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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)
19,300.00	88.90	179.44	11,975.79	-7,449.31	860.67	7,492.89	0.00	0.00	0.00
19,400.00	88.90	179.44	11,977.71	-7,549.29	861.65	7,592.65	0.00	0.00	0.00
19,500.00	88.90	179.44	11,979.62	-7,649.27	862.63	7,692.42	0.00	0.00	0.00
19,600.00	88.90	179.44	11,981.54	-7,749.24	863.60	7,792.19	0.00	0.00	0.00
19,700.00	88.90	179.44	11,983.46	-7,849.22	864.58	7,891.96	0.00	0.00	0.00
19,800.00	88.90	179.44	11,985.38	-7,949.20	865.55	7,991.73	0.00	0.00	0.00
19,900.00	88.90	179.44	11,987.29	-8,049.17	866.53	8,091.50	0.00	0.00	0.00
20,000.00	88.90	179.44	11,989.21	-8,149.15	867.51	8,191.26	0.00	0.00	0.00
20,100.00	88.90	179.44	11,991.13	-8,249.13	868.48	8,291.03	0.00	0.00	0.00
20,200.00	88.90	179.44	11,993.05	-8,349.10	869.46	8,390.80	0.00	0.00	0.00
20,300.00	88.90	179.44	11,994.96	-8,449.08	870.43	8,490.57	0.00	0.00	0.00
20,400.00	88.90	179.44	11,996.88	-8,549.06	871.41	8,590.34	0.00	0.00	0.00
20,500.00	88.90	179.44	11,998.80	-8,649.03	872.39	8,690.11	0.00	0.00	0.00
20,600.00	88.90	179.44	12,000.72	-8,749.01	873.36	8,789.87	0.00	0.00	0.00
20,700.00	88.90	179.44	12,002.63	-8,848.99	874.34	8,889.64	0.00	0.00	0.00
20,800.00	88.90	179.44	12,004.55	-8,948.96	875.31	8,989.41	0.00	0.00	0.00
20,900.00	88.90	179.44	12,006.47	-9,048.94	876.29	9,089.18	0.00	0.00	0.00
21,000.00	88.90	179.44	12,008.39	-9,148.92	877.27	9,188.95	0.00	0.00	0.00
21,100.00	88.90	179.44	12,010.30	-9,248.90	878.24	9,288.72	0.00	0.00	0.00
21,200.00	88.90	179.44	12,012.22	-9,348.87	879.22	9,388.48	0.00	0.00	0.00
21,300.00	88.90	179.44	12,014.14	-9,448.85	880.19	9,488.25	0.00	0.00	0.00
21,400.00	88.90	179.44	12,016.06	-9,548.83	881.17	9,588.02	0.00	0.00	0.00
21,500.00	88.90	179.44	12,017.97	-9,648.80	882.15	9,687.79	0.00	0.00	0.00
21,600.00	88.90	179.44	12,019.89	-9,748.78	883.12	9,787.56	0.00	0.00	0.00
21,700.00	88.90	179.44	12,021.81	-9,848.76	884.10	9,887.33	0.00	0.00	0.00
21,800.00	88.90	179.44	12,023.73	-9,948.73	885.07	9,987.10	0.00	0.00	0.00
21,900.00	88.90	179.44	12,025.64	-10,048.71	886.05	10,086.86	0.00	0.00	0.00
22,000.00	88.90	179.44	12,027.56	-10,148.69	887.03	10,186.63	0.00	0.00	0.00
22,100.00	88.90	179.44	12,029.48	-10,248.66	888.00	10,286.40	0.00	0.00	0.00
22,200.00	88.90	179.44	12,031.40	-10,348.64	888.98	10,386.17	0.00	0.00	0.00
22,300.00	88.90	179.44	12,033.31	-10,448.62	889.95	10,485.94	0.00	0.00	0.00
22,400.00	88.90	179.44	12,035.23	-10,548.59	890.93	10,585.71	0.00	0.00	0.00
22,500.00	88.90	179.44	12,037.15	-10,648.57	891.91	10,685.47	0.00	0.00	0.00
22,600.00	88.90	179.44	12,039.07	-10,748.55	892.88	10,785.24	0.00	0.00	0.00
22,700.00	88.90	179.44	12,040.98	-10,848.53	893.86	10,885.01	0.00	0.00	0.00
22,800.00	88.90	179.44	12,042.90	-10,948.50	894.83	10,984.78	0.00	0.00	0.00
22,900.00	88.90	179.44	12,044.82	-11,048.48	895.81	11,084.55	0.00	0.00	0.00
23,000.00	88.90	179.44	12,046.74	-11,148.46	896.79	11,184.32	0.00	0.00	0.00
23,100.00	88.90	179.44	12,048.66	-11,248.43	897.76	11,284.08	0.00	0.00	0.00
23,200.00	88.90	179.44	12,050.57	-11,348.41	898.74	11,383.85	0.00	0.00	0.00
23,300.00	88.90	179.44	12,052.49	-11,448.39	899.71	11,483.62	0.00	0.00	0.00
23,400.00	88.90	179.44	12,054.41	-11,548.36	900.69	11,583.39	0.00	0.00	0.00
23,500.00	88.90	179.44	12,056.33	-11,648.34	901.67	11,683.16	0.00	0.00	0.00
23,600.00	88.90	179.44	12,058.24	-11,748.32	902.64	11,782.93	0.00	0.00	0.00
23,700.00	88.90	179.44	12,060.16	-11,848.29	903.62	11,882.69	0.00	0.00	0.00
23,800.00	88.90	179.44	12,062.08	-11,948.27	904.59	11,982.46	0.00	0.00	0.00
23,888.78	88.90	179.44	12,063.78	-12,037.03	905.46	12,071.04	0.00	0.00	0.00
TD at 23888.78 - PBHL (Kaston Fed Com 603H)									

Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Project:	Lea County, NM (NAD83)	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site:	Bus Driver/Kasten Fed Com	North Reference:	Grid
Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
SHL (Kaston Fed Com 6 - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	394,466.74	854,639.38	32.080431	-103.321782
LP (Kaston Fed Com 60 - plan hits target center - Point	0.00	0.00	11,839.85	-361.94	791.49	394,104.80	855,430.87	32.079415	-103.319238
PBHL (Kaston Fed Com - plan hits target center - Point	0.00	0.00	12,063.78	-12,037.03	905.46	382,429.71	855,544.84	32.047323	-103.319225

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
4,500.00	4,500.00	0.00	0.00	Start Build 1.50
5,033.34	5,031.61	9.17	36.03	Start 5293.29 hold at 5033.34 MD
10,326.64	10,273.39	190.83	749.97	Start Drop -1.50
10,859.98	10,805.00	200.00	786.00	Start 462.00 hold at 10859.98 MD
11,321.98	11,267.00	200.00	786.00	Start DLS 10.00 TFO 179.44
12,210.99	11,839.85	-361.94	791.49	Start 11677.79 hold at 12210.99 MD
23,888.78	12,063.78	-12,037.03	905.46	TD at 23888.78



Franklin Mountain Energy

**Lea County, NM (NAD83)
Bus Driver/Kasten Fed Com
Kasten Fed Com 603H**

**OH
Plan #2**

Anticollision Report

25 February, 2020





Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2
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	2/25/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	23,888.30	Plan #2 (OH)	OWSG (Rev2) MWD	OWSG MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bus Driver/Kasten Fed Com						
Bus Driver Fed Com 602H - OH - Plan #2	4,500.00	4,501.40	69.99	47.48	3.109	CC, ES, SF
Bus Driver Fed Com 702H - OH - Plan #2	4,500.00	4,501.60	104.98	82.47	4.664	CC, ES
Bus Driver Fed Com 702H - OH - Plan #2	4,600.00	4,600.00	106.58	83.58	4.633	SF
Kasten Fed Com 703H - OH - Plan #2	4,500.00	4,500.40	35.00	12.49	1.555	CC, ES, SF
Judge Baylor Fed Com						
Judge Baylor Fed Com 601H - OH - Plan #2	4,500.00	4,513.90	1,992.40	1,969.86	88.388	CC, ES
Judge Baylor Fed Com 601H - OH - Plan #2	22,700.00	22,572.67	2,918.87	2,660.23	11.286	SF
Judge Baylor Fed Com 701H - OH - Plan #2	4,500.00	4,513.60	1,957.42	1,934.88	86.839	CC, ES
Judge Baylor Fed Com 701H - OH - Plan #2	22,700.00	22,863.52	2,625.23	2,367.66	10.193	SF
LHS Wildcat Fed Com						
LHS Wildcat Fed Com 604H - OH - Plan #2	11,908.99	11,813.58	1,339.45	1,280.52	22.729	CC
LHS Wildcat Fed Com 604H - OH - Plan #2	22,600.00	22,490.07	1,340.31	1,082.29	5.195	ES, SF
LHS Wildcat Fed Com 705H - OH - Plan #2	11,578.93	11,503.19	1,669.43	1,611.47	28.807	CC
LHS Wildcat Fed Com 705H - OH - Plan #2	22,600.00	22,695.11	1,687.93	1,432.51	6.608	ES
LHS Wildcat Fed Com 705H - OH - Plan #2	22,700.00	22,695.11	1,692.04	1,435.65	6.599	SF

Offset Design	Bus Driver/Kasten Fed Com - Bus Driver Fed Com 602H - 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	Highside Toolface	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	(°)						
0.00	0.00	1.40	1.40	0.00	0.00	-90.54	-0.66	-69.99	69.99			
100.00	100.00	101.40	101.40	0.14	0.15	-90.54	-0.66	-69.99	69.99	69.79	0.20	343.394
200.00	200.00	201.40	201.40	0.50	0.51	-90.54	-0.66	-69.99	69.99	69.28	0.71	98.476
300.00	300.00	301.40	301.40	0.86	0.86	-90.54	-0.66	-69.99	69.99	68.78	1.22	57.479
400.00	400.00	401.40	401.40	1.22	1.22	-90.54	-0.66	-69.99	69.99	68.27	1.72	40.584
500.00	500.00	501.40	501.40	1.58	1.58	-90.54	-0.66	-69.99	69.99	67.76	2.23	31.364
600.00	600.00	601.40	601.40	1.93	1.94	-90.54	-0.66	-69.99	69.99	67.25	2.74	25.558
700.00	700.00	701.40	701.40	2.29	2.30	-90.54	-0.66	-69.99	69.99	66.75	3.25	21.566
800.00	800.00	801.40	801.40	2.65	2.66	-90.54	-0.66	-69.99	69.99	66.24	3.75	18.652
900.00	900.00	901.40	901.40	3.01	3.01	-90.54	-0.66	-69.99	69.99	65.73	4.26	16.432
1,000.00	1,000.00	1,001.40	1,001.40	3.37	3.37	-90.54	-0.66	-69.99	69.99	65.23	4.77	14.685

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kasten Fed Com - Bus Driver Fed Com 602H - 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					
1,100.00	1,100.00	1,101.40	1,101.40	3.73	3.73	-90.54	-0.66	-69.99	69.99	64.72	5.27	13.273					
1,200.00	1,200.00	1,201.40	1,201.40	4.08	4.09	-90.54	-0.66	-69.99	69.99	64.21	5.78	12.109					
1,300.00	1,300.00	1,301.40	1,301.40	4.44	4.45	-90.54	-0.66	-69.99	69.99	63.71	6.29	11.133					
1,400.00	1,400.00	1,401.40	1,401.40	4.80	4.81	-90.54	-0.66	-69.99	69.99	63.20	6.79	10.302					
1,500.00	1,500.00	1,501.40	1,501.40	5.16	5.17	-90.54	-0.66	-69.99	69.99	62.69	7.30	9.587					
1,600.00	1,600.00	1,601.40	1,601.40	5.52	5.52	-90.54	-0.66	-69.99	69.99	62.18	7.81	8.964					
1,700.00	1,700.00	1,701.40	1,701.40	5.88	5.88	-90.54	-0.66	-69.99	69.99	61.68	8.32	8.418					
1,800.00	1,800.00	1,801.40	1,801.40	6.24	6.24	-90.54	-0.66	-69.99	69.99	61.17	8.82	7.934					
1,900.00	1,900.00	1,901.40	1,901.40	6.59	6.60	-90.54	-0.66	-69.99	69.99	60.66	9.33	7.503					
2,000.00	2,000.00	2,001.40	2,001.40	6.95	6.96	-90.54	-0.66	-69.99	69.99	60.16	9.84	7.116					
2,100.00	2,100.00	2,101.40	2,101.40	7.31	7.32	-90.54	-0.66	-69.99	69.99	59.65	10.34	6.767					
2,200.00	2,200.00	2,201.40	2,201.40	7.67	7.67	-90.54	-0.66	-69.99	69.99	59.14	10.85	6.451					
2,300.00	2,300.00	2,301.40	2,301.40	8.03	8.03	-90.54	-0.66	-69.99	69.99	58.64	11.36	6.163					
2,400.00	2,400.00	2,401.40	2,401.40	8.39	8.39	-90.54	-0.66	-69.99	69.99	58.13	11.86	5.900					
2,500.00	2,500.00	2,501.40	2,501.40	8.74	8.75	-90.54	-0.66	-69.99	69.99	57.62	12.37	5.658					
2,600.00	2,600.00	2,601.40	2,601.40	9.10	9.11	-90.54	-0.66	-69.99	69.99	57.12	12.88	5.435					
2,700.00	2,700.00	2,701.40	2,701.40	9.46	9.47	-90.54	-0.66	-69.99	69.99	56.61	13.38	5.229					
2,800.00	2,800.00	2,801.40	2,801.40	9.82	9.83	-90.54	-0.66	-69.99	69.99	56.10	13.89	5.039					
2,900.00	2,900.00	2,901.40	2,901.40	10.18	10.18	-90.54	-0.66	-69.99	69.99	55.59	14.40	4.861					
3,000.00	3,000.00	3,001.40	3,001.40	10.54	10.54	-90.54	-0.66	-69.99	69.99	55.09	14.91	4.696					
3,100.00	3,100.00	3,101.40	3,101.40	10.90	10.90	-90.54	-0.66	-69.99	69.99	54.58	15.41	4.541					
3,200.00	3,200.00	3,201.40	3,201.40	11.25	11.26	-90.54	-0.66	-69.99	69.99	54.07	15.92	4.397					
3,300.00	3,300.00	3,301.40	3,301.40	11.61	11.62	-90.54	-0.66	-69.99	69.99	53.57	16.43	4.261					
3,400.00	3,400.00	3,401.40	3,401.40	11.97	11.98	-90.54	-0.66	-69.99	69.99	53.06	16.93	4.133					
3,500.00	3,500.00	3,501.40	3,501.40	12.33	12.33	-90.54	-0.66	-69.99	69.99	52.55	17.44	4.013					
3,600.00	3,600.00	3,601.40	3,601.40	12.69	12.69	-90.54	-0.66	-69.99	69.99	52.05	17.95	3.900					
3,700.00	3,700.00	3,701.40	3,701.40	13.05	13.05	-90.54	-0.66	-69.99	69.99	51.54	18.45	3.793					
3,800.00	3,800.00	3,801.40	3,801.40	13.41	13.41	-90.54	-0.66	-69.99	69.99	51.03	18.96	3.691					
3,900.00	3,900.00	3,901.40	3,901.40	13.76	13.77	-90.54	-0.66	-69.99	69.99	50.53	19.47	3.595					
4,000.00	4,000.00	4,001.40	4,001.40	14.12	14.13	-90.54	-0.66	-69.99	69.99	50.02	19.98	3.504					
4,100.00	4,100.00	4,101.40	4,101.40	14.48	14.49	-90.54	-0.66	-69.99	69.99	49.51	20.48	3.417					
4,200.00	4,200.00	4,201.40	4,201.40	14.84	14.84	-90.54	-0.66	-69.99	69.99	49.00	20.99	3.335					
4,300.00	4,300.00	4,301.40	4,301.40	15.20	15.20	-90.54	-0.66	-69.99	69.99	48.50	21.50	3.256					
4,400.00	4,400.00	4,401.40	4,401.40	15.56	15.56	-90.54	-0.66	-69.99	69.99	47.99	22.00	3.181					
4,500.00	4,500.00	4,501.40	4,501.40	15.91	15.92	-90.54	-0.66	-69.99	69.99	47.48	22.51	3.109 CC, ES, SF					
4,600.00	4,599.99	4,600.00	4,600.00	16.27	16.27	-166.33	-0.45	-70.24	71.53	48.52	23.00	3.110					
4,700.00	4,699.91	4,699.04	4,699.00	16.61	16.62	-165.74	1.21	-72.22	77.32	53.84	23.49	3.292					
4,800.00	4,799.69	4,796.86	4,796.69	16.96	16.97	-164.59	4.47	-76.10	87.63	63.68	23.95	3.659					
4,900.00	4,899.27	4,894.07	4,893.60	17.31	17.31	-163.20	9.29	-81.83	102.44	78.03	24.41	4.197					
5,000.00	4,998.57	4,992.40	4,991.56	17.66	17.66	-162.21	14.80	-88.39	120.54	95.65	24.89	4.842					
5,033.34	5,031.61	5,025.08	5,024.12	17.78	17.78	-162.01	16.63	-90.57	127.12	102.07	25.06	5.074					
5,100.00	5,097.62	5,090.37	5,089.16	18.02	18.01	-161.77	20.29	-94.92	140.56	115.18	25.38	5.538					
5,200.00	5,196.65	5,188.31	5,186.73	18.37	18.36	-161.48	25.78	-101.45	160.72	134.86	25.87	6.214					
5,300.00	5,295.67	5,286.26	5,284.30	18.73	18.71	-161.26	31.26	-107.98	180.89	154.53	26.35	6.864					
5,400.00	5,394.70	5,384.20	5,381.88	19.10	19.06	-161.08	36.75	-114.51	201.05	174.21	26.84	7.491					
5,500.00	5,493.73	5,482.14	5,479.45	19.46	19.41	-160.93	42.23	-121.03	221.22	193.89	27.33	8.095					
5,600.00	5,592.75	5,580.09	5,577.02	19.83	19.76	-160.81	47.72	-127.56	241.39	213.57	27.82	8.677					
5,700.00	5,691.78	5,678.03	5,674.59	20.20	20.12	-160.71	53.21	-134.09	261.56	233.25	28.31	9.239					
5,800.00	5,790.81	5,775.98	5,772.16	20.57	20.47	-160.62	58.69	-140.62	281.73	252.93	28.80	9.781					
5,900.00	5,889.83	5,873.92	5,869.73	20.94	20.83	-160.54	64.18	-147.15	301.90	272.60	29.30	10.305					
6,000.00	5,988.86	5,971.86	5,967.31	21.32	21.19	-160.48	69.67	-153.68	322.07	292.28	29.79	10.812					
6,100.00	6,087.89	6,069.81	6,064.88	21.69	21.54	-160.42	75.15	-160.21	342.24	311.96	30.28	11.301					

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 Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,200.00	6,186.91	6,167.75	6,162.45	22.07	21.90	-160.37	80.64	-166.74	362.41	331.63	30.78	11.775	
6,300.00	6,285.94	6,265.69	6,260.02	22.45	22.26	-160.32	86.13	-173.27	382.59	351.31	31.28	12.233	
6,400.00	6,384.97	6,363.64	6,357.59	22.83	22.62	-160.28	91.61	-179.80	402.76	370.99	31.77	12.677	
6,500.00	6,483.99	6,461.58	6,455.17	23.22	22.97	-160.24	97.10	-186.32	422.93	390.66	32.27	13.106	
6,600.00	6,583.02	6,559.53	6,552.74	23.60	23.33	-160.20	102.59	-192.85	443.10	410.34	32.77	13.523	
6,700.00	6,682.05	6,657.47	6,650.31	23.99	23.69	-160.17	108.07	-199.38	463.28	430.01	33.27	13.926	
6,800.00	6,781.08	6,755.41	6,747.88	24.37	24.05	-160.14	113.56	-205.91	483.45	449.68	33.77	14.318	
6,900.00	6,880.10	6,853.36	6,845.45	24.76	24.41	-160.12	119.05	-212.44	503.62	469.36	34.27	14.698	
7,000.00	6,979.13	6,951.30	6,943.02	25.15	24.78	-160.09	124.53	-218.97	523.80	489.03	34.77	15.066	
7,100.00	7,078.16	7,049.25	7,040.60	25.54	25.14	-160.07	130.02	-225.50	543.97	508.70	35.27	15.424	
7,200.00	7,177.18	7,147.19	7,138.17	25.93	25.50	-160.05	135.51	-232.03	564.14	528.37	35.77	15.772	
7,300.00	7,276.21	7,245.13	7,235.74	26.32	25.86	-160.03	140.99	-238.56	584.32	548.05	36.27	16.110	
7,400.00	7,375.24	7,343.08	7,333.31	26.71	26.23	-160.01	146.48	-245.09	604.49	567.72	36.77	16.438	
7,500.00	7,474.26	7,441.02	7,430.88	27.10	26.59	-159.99	151.97	-251.61	624.66	587.39	37.28	16.757	
7,600.00	7,573.29	7,538.96	7,528.46	27.50	26.95	-159.98	157.45	-258.14	644.84	607.06	37.78	17.068	
7,700.00	7,672.32	7,636.91	7,626.03	27.89	27.32	-159.96	162.94	-264.67	665.01	626.73	38.28	17.370	
7,800.00	7,771.34	7,734.85	7,723.60	28.29	27.68	-159.95	168.42	-271.20	685.18	646.40	38.79	17.665	
7,900.00	7,870.37	7,832.80	7,821.17	28.69	28.04	-159.93	173.91	-277.73	705.36	666.06	39.29	17.951	
8,000.00	7,969.40	7,930.74	7,918.74	29.08	28.41	-159.92	179.40	-284.26	725.53	685.73	39.80	18.230	
8,100.00	8,068.42	8,028.68	8,016.31	29.48	28.77	-159.91	184.88	-290.79	745.71	705.40	40.30	18.502	
8,200.00	8,167.45	8,127.91	8,115.17	29.88	29.14	-159.90	190.44	-297.40	765.87	725.06	40.82	18.763	
8,300.00	8,266.48	8,245.86	8,232.83	30.28	29.58	-159.97	195.72	-303.69	784.64	743.20	41.43	18.937	
8,400.00	8,365.50	8,364.82	8,351.69	30.68	30.01	-160.19	198.68	-307.21	800.89	758.86	42.03	19.056	
8,500.00	8,464.53	8,479.07	8,465.93	31.08	30.41	-160.54	199.34	-307.99	814.71	772.12	42.58	19.132	
8,600.00	8,563.56	8,578.10	8,564.96	31.48	30.76	-160.86	199.34	-307.99	827.86	784.77	43.09	19.213	
8,700.00	8,662.58	8,677.12	8,663.98	31.88	31.11	-161.17	199.34	-307.99	841.03	797.44	43.59	19.293	
8,800.00	8,761.61	8,776.15	8,763.01	32.28	31.46	-161.47	199.34	-307.99	854.23	810.13	44.10	19.371	
8,900.00	8,860.64	8,875.18	8,862.04	32.68	31.81	-161.76	199.34	-307.99	867.45	822.84	44.60	19.448	
9,000.00	8,959.66	8,974.20	8,961.06	33.08	32.16	-162.04	199.34	-307.99	880.69	835.58	45.11	19.524	
9,100.00	9,058.69	9,073.23	9,060.09	33.49	32.51	-162.32	199.34	-307.99	893.95	848.34	45.61	19.598	
9,200.00	9,157.72	9,172.26	9,159.12	33.89	32.86	-162.58	199.34	-307.99	907.23	861.11	46.12	19.672	
9,300.00	9,256.74	9,271.28	9,258.14	34.29	33.21	-162.84	199.34	-307.99	920.53	873.91	46.62	19.744	
9,400.00	9,355.77	9,370.31	9,357.17	34.70	33.56	-163.09	199.34	-307.99	933.85	886.72	47.13	19.814	
9,500.00	9,454.80	9,469.34	9,456.20	35.10	33.91	-163.34	199.34	-307.99	947.19	899.55	47.64	19.884	
9,600.00	9,553.82	9,568.36	9,555.22	35.51	34.26	-163.58	199.34	-307.99	960.54	912.40	48.14	19.952	
9,700.00	9,652.85	9,667.39	9,654.25	35.91	34.61	-163.81	199.34	-307.99	973.91	925.26	48.65	20.019	
9,800.00	9,751.88	9,766.42	9,753.28	36.32	34.96	-164.03	199.34	-307.99	987.29	938.14	49.15	20.086	
9,900.00	9,850.91	9,865.44	9,852.31	36.73	35.31	-164.25	199.34	-307.99	1,000.69	951.03	49.66	20.151	
10,000.00	9,949.93	9,964.47	9,951.33	37.13	35.66	-164.47	199.34	-307.99	1,014.10	963.93	50.17	20.215	
10,100.00	10,048.96	10,063.50	10,050.36	37.54	36.01	-164.67	199.34	-307.99	1,027.52	976.85	50.67	20.277	
10,200.00	10,147.99	10,162.52	10,149.39	37.95	36.36	-164.88	199.34	-307.99	1,040.96	989.78	51.18	20.339	
10,300.00	10,247.01	10,261.55	10,248.41	38.35	36.72	-165.07	199.34	-307.99	1,054.41	1,002.73	51.69	20.400	
10,326.64	10,273.39	10,287.93	10,274.79	38.46	36.81	-165.12	199.34	-307.99	1,058.00	1,006.18	51.82	20.416	
10,400.00	10,346.13	10,360.67	10,347.53	38.76	37.07	-165.29	199.34	-307.99	1,067.20	1,015.01	52.19	20.447	
10,500.00	10,445.55	10,460.09	10,446.95	39.15	37.42	-165.47	199.34	-307.99	1,077.57	1,024.87	52.70	20.447	
10,600.00	10,545.22	10,559.76	10,546.62	39.53	37.77	-165.61	199.34	-307.99	1,085.42	1,032.22	53.20	20.401	
10,700.00	10,645.07	10,659.61	10,646.47	39.89	38.13	-165.70	199.34	-307.99	1,090.74	1,037.04	53.71	20.309	
10,800.00	10,745.02	10,759.56	10,746.42	40.24	38.48	-165.75	199.34	-307.99	1,093.53	1,039.32	54.21	20.172	
10,859.98	10,805.00	10,819.54	10,806.40	40.44	38.69	-90.03	199.34	-307.99	1,093.99	1,039.48	54.51	20.070	
10,900.00	10,845.02	10,859.56	10,846.42	40.58	38.84	-90.03	199.34	-307.99	1,093.99	1,039.28	54.71	19.997	
11,000.00	10,945.02	10,959.56	10,946.42	40.91	39.19	-90.03	199.34	-307.99	1,093.99	1,038.78	55.21	19.817	
11,100.00	11,045.02	11,059.56	11,046.42	41.25	39.55	-90.03	199.34	-307.99	1,093.99	1,038.29	55.70	19.640	

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design Bus Driver/Kasten Fed Com - Bus Driver Fed Com 602H - 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		
11,200.00	11,145.02	11,159.56	11,146.42	41.59	39.90	-90.03	199.34	-307.99	1,093.99	1,037.79	56.20	19.466		
11,300.00	11,245.02	11,259.56	11,246.42	41.92	40.26	-90.03	199.34	-307.99	1,093.99	1,037.29	56.70	19.294		
11,321.98	11,267.00	11,281.54	11,268.40	42.00	40.33	-90.03	199.34	-307.99	1,093.99	1,037.18	56.81	19.257		
11,350.00	11,295.01	11,309.55	11,296.41	42.09	40.43	90.56	199.34	-307.99	1,094.00	1,037.05	56.95	19.211		
11,400.00	11,344.78	11,360.39	11,347.20	42.24	40.60	90.70	197.39	-307.97	1,094.03	1,036.85	57.18	19.134		
11,450.00	11,393.96	11,411.53	11,397.91	42.39	40.76	90.84	190.91	-307.92	1,094.07	1,036.67	57.40	19.061		
11,500.00	11,442.17	11,462.93	11,448.09	42.53	40.91	90.97	179.87	-307.82	1,094.12	1,036.51	57.61	18.993		
11,550.00	11,489.05	11,514.55	11,497.29	42.65	41.05	91.09	164.30	-307.68	1,094.18	1,036.37	57.81	18.928		
11,600.00	11,534.24	11,566.40	11,545.10	42.77	41.19	91.21	144.27	-307.51	1,094.24	1,036.25	58.00	18.867		
11,650.00	11,577.39	11,618.46	11,591.08	42.88	41.31	91.31	119.90	-307.29	1,094.31	1,036.13	58.18	18.809		
11,700.00	11,618.19	11,670.72	11,634.82	42.98	41.42	91.41	91.34	-307.04	1,094.39	1,036.03	58.35	18.754		
11,750.00	11,656.31	11,723.16	11,675.91	43.07	41.52	91.49	58.79	-306.76	1,094.46	1,035.94	58.52	18.701		
11,800.00	11,691.46	11,775.75	11,713.96	43.14	41.60	91.57	22.52	-306.44	1,094.53	1,035.85	58.69	18.650		
11,850.00	11,723.39	11,828.48	11,748.62	43.21	41.67	91.63	-17.20	-306.09	1,094.61	1,035.75	58.85	18.600		
11,900.00	11,751.84	11,881.32	11,779.53	43.28	41.73	91.67	-60.03	-305.72	1,094.68	1,035.66	59.01	18.550		
11,950.00	11,776.61	11,934.26	11,806.42	43.34	41.82	91.71	-105.61	-305.32	1,094.74	1,035.56	59.18	18.499		
12,000.00	11,797.49	11,987.25	11,829.00	43.39	41.94	91.73	-153.52	-304.90	1,094.80	1,035.46	59.34	18.448		
12,050.00	11,814.34	12,040.28	11,847.08	43.46	42.07	91.74	-203.36	-304.47	1,094.85	1,035.34	59.52	18.396		
12,100.00	11,827.02	12,093.32	11,860.48	43.53	42.21	91.73	-254.65	-304.02	1,094.90	1,035.21	59.69	18.343		
12,150.00	11,835.44	12,146.34	11,869.07	43.61	42.34	91.71	-306.95	-303.56	1,094.94	1,035.07	59.87	18.288		
12,200.00	11,839.54	12,199.31	11,872.79	43.70	42.48	91.67	-359.77	-303.10	1,094.97	1,034.92	60.06	18.233		
12,210.99	11,839.85	12,210.56	11,872.99	43.73	42.51	91.66	-371.02	-303.00	1,094.98	1,034.89	60.10	18.220		
12,300.00	11,841.56	12,299.57	11,874.39	43.95	42.77	91.65	-460.02	-302.22	1,095.06	1,034.61	60.45	18.114		
12,400.00	11,843.48	12,399.57	11,875.97	44.26	43.12	91.63	-560.00	-301.34	1,095.15	1,034.22	60.94	17.972		
12,500.00	11,845.39	12,499.57	11,877.55	44.64	43.52	91.61	-659.98	-300.47	1,095.25	1,033.74	61.51	17.807		
12,600.00	11,847.31	12,599.57	11,879.13	45.08	43.99	91.59	-759.96	-299.59	1,095.34	1,033.18	62.16	17.621		
12,700.00	11,849.23	12,699.57	11,880.70	45.58	44.51	91.57	-859.95	-298.72	1,095.43	1,032.54	62.89	17.417		
12,800.00	11,851.15	12,799.57	11,882.28	46.14	45.08	91.56	-959.93	-297.84	1,095.52	1,031.82	63.70	17.197		
12,900.00	11,853.06	12,899.57	11,883.86	46.75	45.70	91.54	-1,059.91	-296.97	1,095.61	1,031.03	64.59	16.963		
13,000.00	11,854.98	12,999.57	11,885.44	47.41	46.38	91.52	-1,159.90	-296.09	1,095.70	1,030.16	65.54	16.718		
13,100.00	11,856.90	13,099.57	11,887.02	48.12	47.10	91.50	-1,259.88	-295.22	1,095.80	1,029.23	66.57	16.462		
13,200.00	11,858.82	13,199.57	11,888.59	48.88	47.87	91.49	-1,359.86	-294.34	1,095.89	1,028.23	67.65	16.198		
13,300.00	11,860.74	13,299.57	11,890.17	49.68	48.68	91.47	-1,459.85	-293.47	1,095.98	1,027.18	68.80	15.929		
13,400.00	11,862.65	13,399.57	11,891.75	50.52	49.54	91.45	-1,559.83	-292.59	1,096.07	1,026.06	70.01	15.655		
13,500.00	11,864.57	13,499.57	11,893.33	51.41	50.43	91.43	-1,659.81	-291.72	1,096.17	1,024.89	71.28	15.378		
13,600.00	11,866.49	13,599.56	11,894.91	52.32	51.36	91.41	-1,759.80	-290.84	1,096.26	1,023.66	72.60	15.100		
13,700.00	11,868.41	13,699.56	11,896.48	53.28	52.33	91.40	-1,859.78	-289.97	1,096.35	1,022.38	73.97	14.822		
13,800.00	11,870.32	13,799.56	11,898.06	54.27	53.33	91.38	-1,959.76	-289.09	1,096.44	1,021.06	75.39	14.544		
13,900.00	11,872.24	13,899.56	11,899.64	55.29	54.36	91.36	-2,059.75	-288.22	1,096.54	1,019.69	76.85	14.269		
14,000.00	11,874.16	13,999.56	11,901.22	56.33	55.43	91.34	-2,159.73	-287.34	1,096.63	1,018.28	78.35	13.996		
14,100.00	11,876.08	14,099.56	11,902.80	57.41	56.52	91.32	-2,259.71	-286.47	1,096.72	1,016.83	79.90	13.727		
14,200.00	11,877.99	14,199.56	11,904.37	58.52	57.63	91.31	-2,359.69	-285.59	1,096.82	1,015.34	81.48	13.461		
14,300.00	11,879.91	14,299.56	11,905.95	59.65	58.78	91.29	-2,459.68	-284.72	1,096.91	1,013.81	83.10	13.200		
14,400.00	11,881.83	14,399.56	11,907.53	60.80	59.94	91.27	-2,559.66	-283.84	1,097.00	1,012.25	84.75	12.944		
14,500.00	11,883.75	14,499.56	11,909.11	61.98	61.13	91.25	-2,659.64	-282.97	1,097.10	1,010.67	86.43	12.693		
14,600.00	11,885.66	14,599.56	11,910.68	63.17	62.34	91.23	-2,759.63	-282.09	1,097.19	1,009.05	88.14	12.448		
14,700.00	11,887.58	14,699.56	11,912.26	64.39	63.57	91.22	-2,859.61	-281.22	1,097.28	1,007.40	89.88	12.208		
14,800.00	11,889.50	14,799.56	11,913.84	65.63	64.82	91.20	-2,959.59	-280.34	1,097.38	1,005.73	91.65	11.973		
14,900.00	11,891.42	14,899.56	11,915.42	66.88	66.09	91.18	-3,059.58	-279.47	1,097.47	1,004.03	93.44	11.745		
15,000.00	11,893.33	14,999.56	11,917.00	68.15	67.37	91.16	-3,159.56	-278.59	1,097.57	1,002.31	95.26	11.522		
15,100.00	11,895.25	15,099.56	11,918.57	69.44	68.67	91.15	-3,259.54	-277.72	1,097.66	1,000.56	97.10	11.305		
15,200.00	11,897.17	15,199.55	11,920.15	70.74	69.98	91.13	-3,359.53	-276.84	1,097.75	998.80	98.96	11.093		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kasten Fed Com - Bus Driver Fed Com 602H - 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					
15,300.00	11,899.09	15,299.55	11,921.73	72.06	71.31	91.11	-3,459.51	-275.97	1,097.85	997.01	100.84	10.887					
15,400.00	11,901.00	15,399.55	11,923.31	73.39	72.65	91.09	-3,559.49	-275.09	1,097.94	995.21	102.74	10.687					
15,500.00	11,902.92	15,499.55	11,924.89	74.73	74.00	91.07	-3,659.47	-274.22	1,098.04	993.39	104.65	10.492					
15,600.00	11,904.84	15,599.55	11,926.46	76.09	75.37	91.06	-3,759.46	-273.35	1,098.13	991.55	106.58	10.303					
15,700.00	11,906.76	15,699.55	11,928.04	77.46	76.75	91.04	-3,859.44	-272.47	1,098.23	989.70	108.53	10.119					
15,800.00	11,908.67	15,799.55	11,929.62	78.84	78.13	91.02	-3,959.42	-271.60	1,098.32	987.83	110.50	9.940					
15,900.00	11,910.59	15,899.55	11,931.20	80.22	79.53	91.00	-4,059.41	-270.72	1,098.42	985.94	112.47	9.766					
16,000.00	11,912.51	15,999.55	11,932.78	81.62	80.94	90.99	-4,159.39	-269.85	1,098.51	984.05	114.46	9.597					
16,100.00	11,914.43	16,099.55	11,934.35	83.03	82.36	90.97	-4,259.37	-268.97	1,098.61	982.14	116.47	9.433					
16,200.00	11,916.34	16,199.55	11,935.93	84.45	83.78	90.95	-4,359.36	-268.10	1,098.70	980.22	118.48	9.273					
16,300.00	11,918.26	16,299.55	11,937.51	85.87	85.21	90.93	-4,459.34	-267.22	1,098.80	978.29	120.51	9.118					
16,400.00	11,920.18	16,399.55	11,939.09	87.30	86.65	90.91	-4,559.32	-266.35	1,098.89	976.34	122.55	8.967					
16,500.00	11,922.10	16,499.55	11,940.66	88.74	88.10	90.90	-4,659.31	-265.47	1,098.99	974.39	124.60	8.820					
16,600.00	11,924.01	16,599.55	11,942.24	90.19	89.56	90.88	-4,759.29	-264.60	1,099.09	972.43	126.66	8.677					
16,700.00	11,925.93	16,699.55	11,943.82	91.65	91.02	90.86	-4,859.27	-263.72	1,099.18	970.45	128.73	8.539					
16,800.00	11,927.85	16,799.54	11,945.40	93.11	92.49	90.84	-4,959.25	-262.85	1,099.28	968.47	130.81	8.404					
16,900.00	11,929.77	16,899.54	11,946.98	94.57	93.96	90.83	-5,059.24	-261.97	1,099.37	966.48	132.89	8.273					
17,000.00	11,931.68	16,999.54	11,948.55	96.05	95.44	90.81	-5,159.22	-261.10	1,099.47	964.48	134.99	8.145					
17,100.00	11,933.60	17,099.54	11,950.13	97.53	96.93	90.79	-5,259.20	-260.22	1,099.57	962.48	137.09	8.021					
17,200.00	11,935.52	17,199.54	11,951.71	99.01	98.42	90.77	-5,359.19	-259.35	1,099.66	960.46	139.20	7.900					
17,300.00	11,937.44	17,299.54	11,953.29	100.50	99.92	90.75	-5,459.17	-258.47	1,099.76	958.44	141.32	7.782					
17,400.00	11,939.35	17,399.54	11,954.87	102.00	101.42	90.74	-5,559.15	-257.60	1,099.86	956.41	143.44	7.668					
17,500.00	11,941.27	17,499.54	11,956.44	103.50	102.93	90.72	-5,659.14	-256.72	1,099.95	954.38	145.57	7.556					
17,600.00	11,943.19	17,599.54	11,958.02	105.00	104.44	90.70	-5,759.12	-255.85	1,100.05	952.34	147.71	7.447					
17,700.00	11,945.11	17,699.54	11,959.60	106.51	105.95	90.68	-5,859.10	-254.97	1,100.15	950.29	149.85	7.342					
17,800.00	11,947.02	17,799.54	11,961.18	108.02	107.47	90.67	-5,959.09	-254.10	1,100.24	948.24	152.00	7.238					
17,900.00	11,948.94	17,899.54	11,962.76	109.54	108.99	90.65	-6,059.07	-253.22	1,100.34	946.19	154.15	7.138					
18,000.00	11,950.86	17,999.54	11,964.33	111.06	110.52	90.63	-6,159.05	-252.35	1,100.44	944.12	156.31	7.040					
18,100.00	11,952.78	18,099.54	11,965.91	112.59	112.05	90.61	-6,259.04	-251.47	1,100.54	942.06	158.48	6.944					
18,200.00	11,954.70	18,199.54	11,967.49	114.11	113.58	90.59	-6,359.02	-250.60	1,100.63	939.99	160.65	6.851					
18,300.00	11,956.61	18,299.54	11,969.07	115.64	115.12	90.58	-6,459.00	-249.72	1,100.73	937.91	162.82	6.760					
18,400.00	11,958.53	18,399.53	11,970.64	117.18	116.66	90.56	-6,558.98	-248.85	1,100.83	935.83	165.00	6.672					
18,500.00	11,960.45	18,499.53	11,972.22	118.72	118.20	90.54	-6,658.97	-247.97	1,100.93	933.74	167.18	6.585					
18,600.00	11,962.37	18,599.53	11,973.80	120.26	119.75	90.52	-6,758.95	-247.10	1,101.02	931.66	169.37	6.501					
18,700.00	11,964.28	18,699.53	11,975.38	121.80	121.29	90.51	-6,858.93	-246.22	1,101.12	929.56	171.56	6.418					
18,800.00	11,966.20	18,799.53	11,976.96	123.35	122.85	90.49	-6,958.92	-245.35	1,101.22	927.47	173.75	6.338					
18,900.00	11,968.12	18,899.53	11,978.53	124.90	124.40	90.47	-7,058.90	-244.47	1,101.32	925.37	175.95	6.259					
19,000.00	11,970.04	18,999.53	11,980.11	126.45	125.96	90.45	-7,158.88	-243.60	1,101.42	923.26	178.15	6.182					
19,100.00	11,971.95	19,099.53	11,981.69	128.01	127.52	90.43	-7,258.87	-242.72	1,101.51	921.16	180.36	6.107					
19,200.00	11,973.87	19,199.53	11,983.27	129.56	129.08	90.42	-7,358.85	-241.85	1,101.61	919.05	182.57	6.034					
19,300.00	11,975.79	19,299.53	11,984.85	131.12	130.64	90.40	-7,458.83	-240.97	1,101.71	916.94	184.78	5.962					
19,400.00	11,977.71	19,399.53	11,986.42	132.68	132.21	90.38	-7,558.82	-240.10	1,101.81	914.82	186.99	5.892					
19,500.00	11,979.62	19,499.53	11,988.00	134.25	133.77	90.36	-7,658.80	-239.22	1,101.91	912.70	189.21	5.824					
19,600.00	11,981.54	19,599.53	11,989.58	135.81	135.34	90.35	-7,758.78	-238.35	1,102.01	910.58	191.43	5.757					
19,700.00	11,983.46	19,699.53	11,991.16	137.38	136.91	90.33	-7,858.76	-237.47	1,102.11	908.46	193.65	5.691					
19,800.00	11,985.38	19,799.53	11,992.74	138.95	138.49	90.31	-7,958.75	-236.60	1,102.21	906.33	195.88	5.627					
19,900.00	11,987.29	19,899.53	11,994.31	140.52	140.06	90.29	-8,058.73	-235.72	1,102.31	904.20	198.11	5.564					
20,000.00	11,989.21	19,999.52	11,995.89	142.10	141.64	90.28	-8,158.71	-234.85	1,102.41	902.07	200.34	5.503					
20,100.00	11,991.13	20,099.52	11,997.47	143.67	143.22	90.26	-8,258.70	-233.97	1,102.50	899.94	202.57	5.443					
20,200.00	11,993.05	20,199.52	11,999.05	145.25	144.80	90.24	-8,358.68	-233.10	1,102.60	897.80	204.80	5.384					
20,300.00	11,994.96	20,299.52	12,000.63	146.83	146.38	90.22	-8,458.66	-232.22	1,102.70	895.66	207.04	5.326					
20,400.00	11,996.88	20,399.52	12,002.20	148.41	147.96	90.20	-8,558.65	-231.35	1,102.80	893.52	209.28	5.269					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
20,500.00	11,998.80	20,499.52	12,003.78	149.99	149.55	90.19	-8,658.63	-230.47	1,102.90	891.38	211.52	5.214	
20,600.00	12,000.72	20,599.52	12,005.36	151.57	151.14	90.17	-8,758.61	-229.60	1,103.00	889.24	213.77	5.160	
20,700.00	12,002.63	20,699.52	12,006.94	153.16	152.72	90.15	-8,858.60	-228.72	1,103.10	887.09	216.01	5.107	
20,800.00	12,004.55	20,799.52	12,008.51	154.75	154.31	90.13	-8,958.58	-227.85	1,103.20	884.94	218.26	5.055	
20,900.00	12,006.47	20,899.52	12,010.09	156.33	155.90	90.12	-9,058.56	-226.97	1,103.30	882.80	220.51	5.003	
21,000.00	12,008.39	20,999.52	12,011.67	157.92	157.50	90.10	-9,158.54	-226.10	1,103.40	880.64	222.76	4.953	
21,100.00	12,010.30	21,099.52	12,013.25	159.51	159.09	90.08	-9,258.53	-225.22	1,103.51	878.49	225.01	4.904	
21,200.00	12,012.22	21,199.52	12,014.83	161.10	160.68	90.06	-9,358.51	-224.35	1,103.61	876.34	227.27	4.856	
21,300.00	12,014.14	21,299.52	12,016.40	162.70	162.28	90.05	-9,458.49	-223.47	1,103.71	874.18	229.52	4.809	
21,400.00	12,016.06	21,399.52	12,017.98	164.29	163.87	90.03	-9,558.48	-222.60	1,103.81	872.03	231.78	4.762	
21,500.00	12,017.97	21,499.52	12,019.56	165.89	165.47	90.01	-9,658.46	-221.72	1,103.91	869.87	234.04	4.717	
21,600.00	12,019.89	21,599.51	12,021.14	167.48	167.07	89.99	-9,758.44	-220.85	1,104.01	867.71	236.30	4.672	
21,700.00	12,021.81	21,699.51	12,022.72	169.08	168.67	89.98	-9,858.43	-219.97	1,104.11	865.55	238.56	4.628	
21,800.00	12,023.73	21,799.51	12,024.29	170.68	170.27	89.96	-9,958.41	-219.10	1,104.21	863.38	240.83	4.585	
21,900.00	12,025.64	21,899.51	12,025.87	172.28	171.87	89.94	-10,058.39	-218.22	1,104.31	861.22	243.09	4.543	
22,000.00	12,027.56	21,999.51	12,027.45	173.88	173.48	89.92	-10,158.38	-217.35	1,104.41	859.06	245.36	4.501	
22,100.00	12,029.48	22,099.51	12,029.03	175.48	175.08	89.91	-10,258.36	-216.47	1,104.52	856.89	247.63	4.460	
22,200.00	12,031.40	22,199.51	12,030.61	177.08	176.68	89.89	-10,358.34	-215.60	1,104.62	854.72	249.90	4.420	
22,300.00	12,033.31	22,299.51	12,032.18	178.68	178.29	89.87	-10,458.33	-214.72	1,104.72	852.55	252.17	4.381	
22,400.00	12,035.23	22,399.51	12,033.76	180.29	179.90	89.85	-10,558.31	-213.85	1,104.82	850.39	254.44	4.342	
22,500.00	12,037.15	22,499.51	12,035.34	181.89	181.50	89.83	-10,658.29	-212.97	1,104.92	848.21	256.71	4.304	
22,600.00	12,039.07	22,599.51	12,036.92	183.50	183.11	89.82	-10,758.27	-212.10	1,105.03	846.04	258.98	4.267	
22,700.00	12,040.98	22,699.51	12,038.49	185.11	184.72	89.80	-10,858.26	-211.22	1,105.13	843.87	261.26	4.230	
22,800.00	12,042.90	22,799.51	12,040.07	186.71	186.33	89.78	-10,958.24	-210.35	1,105.23	841.70	263.53	4.194	
22,900.00	12,044.82	22,899.51	12,041.65	188.32	187.94	89.76	-11,058.22	-209.47	1,105.33	839.52	265.81	4.158	
23,000.00	12,046.74	22,999.51	12,043.23	189.93	189.55	89.75	-11,158.21	-208.60	1,105.44	837.35	268.09	4.123	
23,100.00	12,048.66	23,099.51	12,044.81	191.54	191.16	89.73	-11,258.19	-207.72	1,105.54	835.17	270.37	4.089	
23,200.00	12,050.57	23,199.50	12,046.38	193.15	192.77	89.71	-11,358.17	-206.85	1,105.64	833.00	272.64	4.055	
23,300.00	12,052.49	23,299.50	12,047.96	194.76	194.39	89.69	-11,458.16	-205.97	1,105.74	830.82	274.93	4.022	
23,400.00	12,054.41	23,399.50	12,049.54	196.37	196.00	89.68	-11,558.14	-205.10	1,105.85	828.64	277.21	3.989	
23,500.00	12,056.33	23,499.50	12,051.12	197.99	197.61	89.66	-11,658.12	-204.22	1,105.95	826.46	279.49	3.957	
23,600.00	12,058.24	23,599.50	12,052.70	199.60	199.23	89.64	-11,758.11	-203.35	1,106.05	824.28	281.77	3.925	
23,700.00	12,060.16	23,699.50	12,054.27	201.21	200.84	89.62	-11,858.09	-202.47	1,106.16	822.10	284.06	3.894	
23,800.00	12,062.08	23,799.50	12,055.85	202.83	202.46	89.61	-11,958.07	-201.60	1,106.26	819.92	286.34	3.863	
23,888.78	12,063.78	23,888.15	12,057.25	204.11	203.89	89.59	-12,046.71	-200.82	1,106.35	818.10	288.25	3.838	



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	1.60	1.60	0.00	0.00	-90.54	-0.99	-104.98	104.98				
100.00	100.00	101.60	101.60	0.14	0.15	-90.54	-0.99	-104.98	104.98	104.78	0.20	513.766	
200.00	200.00	201.60	201.60	0.50	0.51	-90.54	-0.99	-104.98	104.98	104.27	0.71	147.602	
300.00	300.00	301.60	301.60	0.86	0.86	-90.54	-0.99	-104.98	104.98	103.77	1.22	86.179	
400.00	400.00	401.60	401.60	1.22	1.22	-90.54	-0.99	-104.98	104.98	103.26	1.73	60.855	
500.00	500.00	501.60	501.60	1.58	1.58	-90.54	-0.99	-104.98	104.98	102.75	2.23	47.033	
600.00	600.00	601.60	601.60	1.93	1.94	-90.54	-0.99	-104.98	104.98	102.25	2.74	38.328	
700.00	700.00	701.60	701.60	2.29	2.30	-90.54	-0.99	-104.98	104.98	101.74	3.25	32.342	
800.00	800.00	801.60	801.60	2.65	2.66	-90.54	-0.99	-104.98	104.98	101.23	3.75	27.974	
900.00	900.00	901.60	901.60	3.01	3.02	-90.54	-0.99	-104.98	104.98	100.72	4.26	24.645	
1,000.00	1,000.00	1,001.60	1,001.60	3.37	3.37	-90.54	-0.99	-104.98	104.98	100.22	4.77	22.024	
1,100.00	1,100.00	1,101.60	1,101.60	3.73	3.73	-90.54	-0.99	-104.98	104.98	99.71	5.27	19.907	
1,200.00	1,200.00	1,201.60	1,201.60	4.08	4.09	-90.54	-0.99	-104.98	104.98	99.20	5.78	18.161	
1,300.00	1,300.00	1,301.60	1,301.60	4.44	4.45	-90.54	-0.99	-104.98	104.98	98.70	6.29	16.697	
1,400.00	1,400.00	1,401.60	1,401.60	4.80	4.81	-90.54	-0.99	-104.98	104.98	98.19	6.79	15.451	
1,500.00	1,500.00	1,501.60	1,501.60	5.16	5.17	-90.54	-0.99	-104.98	104.98	97.68	7.30	14.378	
1,600.00	1,600.00	1,601.60	1,601.60	5.52	5.52	-90.54	-0.99	-104.98	104.98	97.18	7.81	13.445	
1,700.00	1,700.00	1,701.60	1,701.60	5.88	5.88	-90.54	-0.99	-104.98	104.98	96.67	8.32	12.625	
1,800.00	1,800.00	1,801.60	1,801.60	6.24	6.24	-90.54	-0.99	-104.98	104.98	96.16	8.82	11.900	
1,900.00	1,900.00	1,901.60	1,901.60	6.59	6.60	-90.54	-0.99	-104.98	104.98	95.66	9.33	11.253	
2,000.00	2,000.00	2,001.60	2,001.60	6.95	6.96	-90.54	-0.99	-104.98	104.98	95.15	9.84	10.673	
2,100.00	2,100.00	2,101.60	2,101.60	7.31	7.32	-90.54	-0.99	-104.98	104.98	94.64	10.34	10.150	
2,200.00	2,200.00	2,201.60	2,201.60	7.67	7.68	-90.54	-0.99	-104.98	104.98	94.13	10.85	9.676	
2,300.00	2,300.00	2,301.60	2,301.60	8.03	8.03	-90.54	-0.99	-104.98	104.98	93.63	11.36	9.244	
2,400.00	2,400.00	2,401.60	2,401.60	8.39	8.39	-90.54	-0.99	-104.98	104.98	93.12	11.86	8.849	
2,500.00	2,500.00	2,501.60	2,501.60	8.74	8.75	-90.54	-0.99	-104.98	104.98	92.61	12.37	8.486	
2,600.00	2,600.00	2,601.60	2,601.60	9.10	9.11	-90.54	-0.99	-104.98	104.98	92.11	12.88	8.152	
2,700.00	2,700.00	2,701.60	2,701.60	9.46	9.47	-90.54	-0.99	-104.98	104.98	91.60	13.39	7.843	
2,800.00	2,800.00	2,801.60	2,801.60	9.82	9.83	-90.54	-0.99	-104.98	104.98	91.09	13.89	7.557	
2,900.00	2,900.00	2,901.60	2,901.60	10.18	10.18	-90.54	-0.99	-104.98	104.98	90.59	14.40	7.291	
3,000.00	3,000.00	3,001.60	3,001.60	10.54	10.54	-90.54	-0.99	-104.98	104.98	90.08	14.91	7.043	
3,100.00	3,100.00	3,101.60	3,101.60	10.90	10.90	-90.54	-0.99	-104.98	104.98	89.57	15.41	6.811	
3,200.00	3,200.00	3,201.60	3,201.60	11.25	11.26	-90.54	-0.99	-104.98	104.98	89.06	15.92	6.595	
3,300.00	3,300.00	3,301.60	3,301.60	11.61	11.62	-90.54	-0.99	-104.98	104.98	88.56	16.43	6.391	
3,400.00	3,400.00	3,401.60	3,401.60	11.97	11.98	-90.54	-0.99	-104.98	104.98	88.05	16.93	6.200	
3,500.00	3,500.00	3,501.60	3,501.60	12.33	12.34	-90.54	-0.99	-104.98	104.98	87.54	17.44	6.019	
3,600.00	3,600.00	3,601.60	3,601.60	12.69	12.69	-90.54	-0.99	-104.98	104.98	87.04	17.95	5.849	
3,700.00	3,700.00	3,701.60	3,701.60	13.05	13.05	-90.54	-0.99	-104.98	104.98	86.53	18.45	5.689	
3,800.00	3,800.00	3,801.60	3,801.60	13.41	13.41	-90.54	-0.99	-104.98	104.98	86.02	18.96	5.537	
3,900.00	3,900.00	3,901.60	3,901.60	13.76	13.77	-90.54	-0.99	-104.98	104.98	85.52	19.47	5.393	
4,000.00	4,000.00	4,001.60	4,001.60	14.12	14.13	-90.54	-0.99	-104.98	104.98	85.01	19.98	5.256	
4,100.00	4,100.00	4,101.60	4,101.60	14.48	14.49	-90.54	-0.99	-104.98	104.98	84.50	20.48	5.126	
4,200.00	4,200.00	4,201.60	4,201.60	14.84	14.84	-90.54	-0.99	-104.98	104.98	84.00	20.99	5.002	
4,300.00	4,300.00	4,301.60	4,301.60	15.20	15.20	-90.54	-0.99	-104.98	104.98	83.49	21.50	4.884	
4,400.00	4,400.00	4,401.60	4,401.60	15.56	15.56	-90.54	-0.99	-104.98	104.98	82.98	22.00	4.771	
4,500.00	4,500.00	4,501.60	4,501.60	15.91	15.92	-90.54	-0.99	-104.98	104.98	82.47	22.51	4.664 CC, ES	
4,600.00	4,599.99	4,600.00	4,600.00	16.27	16.27	-166.37	-0.90	-105.29	106.58	83.58	23.00	4.633 SF	
4,700.00	4,699.91	4,697.39	4,697.36	16.61	16.61	-166.42	-0.17	-107.70	112.86	89.39	23.47	4.808	
4,800.00	4,799.69	4,793.91	4,793.74	16.96	16.94	-166.38	1.26	-112.43	124.09	100.16	23.92	5.187	
4,900.00	4,899.27	4,889.45	4,889.00	17.31	17.28	-166.27	3.36	-119.41	140.20	115.85	24.36	5.756	
5,000.00	4,998.57	4,983.68	4,982.75	17.66	17.61	-166.11	6.11	-128.53	161.15	136.37	24.78	6.504	
5,033.34	5,031.61	5,014.76	5,013.61	17.78	17.72	-166.05	7.17	-132.02	169.19	144.28	24.91	6.792	

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	5,097.62	5,076.44	5,074.78	18.02	17.93	-165.95	9.47	-139.66	186.30	161.12	25.18	7.399		
5,200.00	5,196.65	5,168.00	5,165.31	18.37	18.26	-165.68	13.42	-152.74	213.80	188.24	25.56	8.364		
5,300.00	5,295.67	5,260.84	5,256.79	18.73	18.60	-165.33	17.99	-167.88	243.27	217.29	25.98	9.363		
5,400.00	5,394.70	5,356.29	5,350.79	19.10	18.95	-165.02	22.77	-183.75	273.06	246.60	26.46	10.321		
5,500.00	5,493.73	5,451.74	5,444.79	19.46	19.30	-164.77	27.56	-199.63	302.85	275.92	26.93	11.246		
5,600.00	5,592.75	5,547.19	5,538.79	19.83	19.65	-164.57	32.35	-215.50	332.65	305.24	27.41	12.138		
5,700.00	5,691.78	5,642.64	5,632.79	20.20	20.01	-164.40	37.14	-231.37	362.45	334.57	27.88	12.998		
5,800.00	5,790.81	5,738.09	5,726.79	20.57	20.37	-164.26	41.93	-247.24	392.26	363.89	28.36	13.830		
5,900.00	5,889.83	5,833.54	5,820.79	20.94	20.74	-164.13	46.71	-263.12	422.06	393.22	28.84	14.633		
6,000.00	5,988.86	5,928.99	5,914.79	21.32	21.10	-164.03	51.50	-278.99	451.87	422.55	29.32	15.409		
6,100.00	6,087.89	6,024.45	6,008.79	21.69	21.47	-163.93	56.29	-294.86	481.68	451.87	29.81	16.160		
6,200.00	6,186.91	6,119.90	6,102.79	22.07	21.84	-163.85	61.08	-310.73	511.49	481.20	30.29	16.886		
6,300.00	6,285.94	6,215.35	6,196.79	22.45	22.22	-163.77	65.87	-326.61	541.30	510.53	30.77	17.589		
6,400.00	6,384.97	6,310.80	6,290.79	22.83	22.59	-163.71	70.65	-342.48	571.11	539.85	31.26	18.270		
6,500.00	6,483.99	6,406.25	6,384.79	23.22	22.97	-163.65	75.44	-358.35	600.93	569.18	31.75	18.929		
6,600.00	6,583.02	6,501.70	6,478.79	23.60	23.35	-163.60	80.23	-374.22	630.74	598.50	32.23	19.568		
6,700.00	6,682.05	6,597.15	6,572.79	23.99	23.73	-163.55	85.02	-390.09	660.55	627.83	32.72	20.187		
6,800.00	6,781.08	6,692.60	6,666.79	24.37	24.12	-163.50	89.81	-405.97	690.37	657.15	33.21	20.787		
6,900.00	6,880.10	6,788.05	6,760.79	24.76	24.50	-163.46	94.59	-421.84	720.18	686.48	33.70	21.369		
7,000.00	6,979.13	6,883.50	6,854.79	25.15	24.89	-163.42	99.38	-437.71	749.99	715.80	34.19	21.935		
7,100.00	7,078.16	6,978.95	6,948.79	25.54	25.28	-163.39	104.17	-453.58	779.81	745.13	34.68	22.484		
7,200.00	7,177.18	7,074.41	7,042.79	25.93	25.67	-163.36	108.96	-469.46	809.62	774.45	35.18	23.017		
7,300.00	7,276.21	7,169.86	7,136.79	26.32	26.06	-163.33	113.75	-485.33	839.44	803.77	35.67	23.534		
7,400.00	7,375.24	7,265.31	7,230.79	26.71	26.45	-163.30	118.53	-501.20	869.25	833.09	36.16	24.038		
7,500.00	7,474.26	7,360.76	7,324.79	27.10	26.85	-163.27	123.32	-517.07	899.07	862.41	36.66	24.527		
7,600.00	7,573.29	7,456.21	7,418.79	27.50	27.24	-163.25	128.11	-532.94	928.89	891.73	37.15	25.003		
7,700.00	7,672.32	7,551.66	7,512.79	27.89	27.64	-163.22	132.90	-548.82	958.70	921.05	37.65	25.466		
7,800.00	7,771.34	7,647.11	7,606.79	28.29	28.03	-163.20	137.69	-564.69	988.52	950.37	38.14	25.916		
7,900.00	7,870.37	7,742.56	7,700.79	28.69	28.43	-163.18	142.47	-580.56	1,018.33	979.69	38.64	26.354		
8,000.00	7,969.40	7,838.01	7,794.79	29.08	28.83	-163.16	147.26	-596.43	1,048.15	1,009.01	39.14	26.781		
8,100.00	8,068.42	7,933.46	7,888.79	29.48	29.23	-163.14	152.05	-612.31	1,077.97	1,038.33	39.64	27.197		
8,200.00	8,167.45	8,028.92	7,982.79	29.88	29.63	-163.13	156.84	-628.18	1,107.78	1,067.65	40.13	27.602		
8,300.00	8,266.48	8,124.37	8,076.79	30.28	30.04	-163.11	161.63	-644.05	1,137.60	1,096.97	40.63	27.997		
8,400.00	8,365.50	8,219.82	8,170.79	30.68	30.44	-163.10	166.41	-659.92	1,167.42	1,126.28	41.13	28.381		
8,500.00	8,464.53	8,315.27	8,264.79	31.08	30.84	-163.08	171.20	-675.79	1,197.23	1,155.60	41.63	28.757		
8,600.00	8,563.56	8,410.72	8,358.79	31.48	31.25	-163.07	175.99	-691.67	1,227.05	1,184.92	42.13	29.122		
8,700.00	8,662.58	8,506.17	8,452.79	31.88	31.65	-163.05	180.78	-707.54	1,256.87	1,214.23	42.64	29.479		
8,800.00	8,761.61	8,633.67	8,578.56	32.28	32.19	-163.05	186.81	-723.55	1,285.86	1,242.51	43.35	29.665		
8,900.00	8,860.64	8,777.75	8,721.42	32.68	32.77	-163.11	192.21	-745.43	1,311.53	1,267.41	44.12	29.724		
9,000.00	8,959.66	8,924.44	8,867.48	33.08	33.33	-163.22	196.09	-758.32	1,333.63	1,288.77	44.86	29.729		
9,100.00	9,058.69	9,073.36	9,016.18	33.49	33.87	-163.39	198.38	-765.90	1,352.06	1,306.51	45.55	29.684		
9,200.00	9,157.72	9,216.52	9,159.32	33.89	34.36	-163.61	199.01	-767.98	1,366.80	1,320.62	46.17	29.601		
9,300.00	9,256.74	9,315.55	9,258.34	34.29	34.69	-163.77	199.01	-767.98	1,380.17	1,333.49	46.68	29.569		
9,400.00	9,355.77	9,414.57	9,357.37	34.70	35.03	-163.93	199.01	-767.98	1,393.54	1,346.37	47.18	29.537		
9,500.00	9,454.80	9,513.60	9,456.40	35.10	35.36	-164.09	199.01	-767.98	1,406.93	1,359.25	47.68	29.507		
9,600.00	9,553.82	9,612.63	9,555.42	35.51	35.70	-164.24	199.01	-767.98	1,420.33	1,372.15	48.19	29.477		
9,700.00	9,652.85	9,711.66	9,654.45	35.91	36.03	-164.39	199.01	-767.98	1,433.74	1,385.05	48.69	29.447		
9,800.00	9,751.88	9,810.68	9,753.48	36.32	36.37	-164.54	199.01	-767.98	1,447.16	1,397.97	49.19	29.419		
9,900.00	9,850.91	9,909.71	9,852.51	36.73	36.70	-164.69	199.01	-767.98	1,460.59	1,410.89	49.70	29.391		
10,000.00	9,949.93	10,008.74	9,951.53	37.13	37.04	-164.83	199.01	-767.98	1,474.03	1,423.83	50.20	29.363		
10,100.00	10,048.96	10,107.76	10,050.56	37.54	37.37	-164.97	199.01	-767.98	1,487.47	1,436.77	50.70	29.337		
10,200.00	10,147.99	10,206.79	10,149.59	37.95	37.71	-165.11	199.01	-767.98	1,500.93	1,449.72	51.21	29.310		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	10,247.01	10,305.82	10,248.61	38.35	38.05	-165.24	199.01	-767.98	1,514.39	1,462.68	51.71	29.285		
10,326.64	10,273.39	10,332.19	10,274.99	38.46	38.14	-165.28	199.01	-767.98	1,517.98	1,466.13	51.85	29.278		
10,400.00	10,346.13	10,404.94	10,347.73	38.76	38.38	-165.40	199.01	-767.98	1,527.18	1,474.97	52.22	29.247		
10,500.00	10,445.55	10,504.36	10,447.15	39.15	38.72	-165.54	199.01	-767.98	1,537.56	1,484.84	52.72	29.165		
10,600.00	10,545.22	10,604.03	10,546.82	39.53	39.06	-165.65	199.01	-767.98	1,545.41	1,492.19	53.22	29.037		
10,700.00	10,645.07	10,703.87	10,646.67	39.89	39.40	-165.72	199.01	-767.98	1,550.73	1,497.01	53.72	28.865		
10,800.00	10,745.02	10,803.83	10,746.62	40.24	39.75	-165.75	199.01	-767.98	1,553.52	1,499.30	54.22	28.652		
10,859.98	10,805.00	10,863.80	10,806.60	40.44	39.95	-90.04	199.01	-767.98	1,553.98	1,499.46	54.52	28.504		
10,900.00	10,845.02	10,903.83	10,846.62	40.58	40.09	-90.04	199.01	-767.98	1,553.98	1,499.26	54.72	28.401		
11,000.00	10,945.02	11,003.83	10,946.62	40.91	40.43	-90.04	199.01	-767.98	1,553.98	1,498.77	55.21	28.146		
11,100.00	11,045.02	11,103.83	11,046.62	41.25	40.77	-90.04	199.01	-767.98	1,553.98	1,498.27	55.71	27.896		
11,200.00	11,145.02	11,203.83	11,146.62	41.59	41.12	-90.04	199.01	-767.98	1,553.98	1,497.78	56.20	27.650		
11,300.00	11,245.02	11,303.83	11,246.62	41.92	41.46	-90.04	199.01	-767.98	1,553.98	1,497.28	56.70	27.409		
11,321.98	11,267.00	11,325.80	11,268.60	42.00	41.53	-90.04	199.01	-767.98	1,553.98	1,497.18	56.81	27.356		
11,350.00	11,295.01	11,353.81	11,296.61	42.09	41.63	90.55	199.01	-767.98	1,553.99	1,497.05	56.94	27.291		
11,400.00	11,344.78	11,403.58	11,346.38	42.24	41.80	90.71	199.01	-767.98	1,554.04	1,496.86	57.18	27.180		
11,450.00	11,393.96	11,452.76	11,395.56	42.39	41.97	91.02	199.01	-767.98	1,554.18	1,496.77	57.41	27.074		
11,500.00	11,442.17	11,500.97	11,443.77	42.53	42.14	91.46	199.01	-767.98	1,554.47	1,496.85	57.63	26.975		
11,550.00	11,489.05	11,549.81	11,492.60	42.65	42.30	92.02	198.67	-767.98	1,555.02	1,497.18	57.84	26.883		
11,600.00	11,534.24	11,602.67	11,545.27	42.77	42.46	92.63	194.43	-767.94	1,555.79	1,497.74	58.05	26.800		
11,650.00	11,577.39	11,657.56	11,599.31	42.88	42.62	93.24	184.91	-767.86	1,556.75	1,498.50	58.26	26.723		
11,700.00	11,618.19	11,714.66	11,654.28	42.98	42.78	93.83	169.58	-767.72	1,557.87	1,499.42	58.45	26.653		
11,750.00	11,656.31	11,774.13	11,709.62	43.07	42.93	94.41	147.87	-767.53	1,559.12	1,500.49	58.63	26.591		
11,800.00	11,691.46	11,836.12	11,764.59	43.14	43.07	94.98	119.27	-767.28	1,560.46	1,501.65	58.81	26.535		
11,850.00	11,723.39	11,900.72	11,818.23	43.21	43.20	95.51	83.33	-766.97	1,561.84	1,502.87	58.97	26.485		
11,900.00	11,751.84	11,967.97	11,869.40	43.28	43.31	96.00	39.76	-766.59	1,563.21	1,504.09	59.12	26.440		
11,950.00	11,776.61	12,037.82	11,916.77	43.34	43.40	96.45	-11.52	-766.14	1,564.50	1,505.23	59.27	26.395		
12,000.00	11,797.49	12,110.10	11,958.84	43.39	43.49	96.83	-70.22	-765.62	1,565.66	1,506.24	59.42	26.349		
12,050.00	11,814.34	12,184.51	11,994.08	43.46	43.55	97.14	-135.70	-765.05	1,566.63	1,507.05	59.58	26.296		
12,100.00	11,827.02	12,260.62	12,021.04	43.53	43.62	97.36	-206.81	-764.43	1,567.35	1,507.60	59.75	26.233		
12,150.00	11,835.44	12,337.88	12,038.54	43.61	43.70	97.48	-282.00	-763.77	1,567.78	1,507.84	59.94	26.156		
12,200.00	11,839.54	12,415.64	12,045.77	43.70	43.82	97.50	-359.37	-763.09	1,567.90	1,507.75	60.16	26.064		
12,207.54	11,839.78	12,427.37	12,045.95	43.72	43.84	97.50	-371.09	-762.99	1,567.90	1,507.71	60.19	26.049		
12,210.99	11,839.85	12,429.17	12,045.99	43.73	43.84	97.50	-372.89	-762.97	1,567.90	1,507.70	60.20	26.045		
12,300.00	11,841.56	12,518.18	12,047.15	43.95	44.05	97.48	-461.89	-762.19	1,567.91	1,507.36	60.56	25.892		
12,400.00	11,843.48	12,618.18	12,048.45	44.26	44.35	97.45	-561.88	-761.32	1,567.93	1,506.90	61.04	25.688		
12,500.00	11,845.39	12,718.18	12,049.75	44.64	44.73	97.43	-661.86	-760.44	1,567.95	1,506.35	61.60	25.454		
12,600.00	11,847.31	12,818.17	12,051.05	45.08	45.17	97.41	-761.85	-759.57	1,567.97	1,505.73	62.25	25.190		
12,700.00	11,849.23	12,918.17	12,052.35	45.58	45.67	97.39	-861.83	-758.69	1,567.99	1,505.02	62.97	24.901		
12,800.00	11,851.15	13,018.17	12,053.65	46.14	46.23	97.36	-961.82	-757.82	1,568.01	1,504.24	63.77	24.588		
12,900.00	11,853.06	13,118.17	12,054.95	46.75	46.84	97.34	-1,061.80	-756.94	1,568.03	1,503.39	64.65	24.256		
13,000.00	11,854.98	13,218.17	12,056.26	47.41	47.50	97.32	-1,161.79	-756.07	1,568.06	1,502.47	65.59	23.907		
13,100.00	11,856.90	13,318.16	12,057.56	48.12	48.20	97.29	-1,261.78	-755.19	1,568.08	1,501.47	66.60	23.544		
13,200.00	11,858.82	13,418.16	12,058.86	48.88	48.96	97.27	-1,361.76	-754.31	1,568.10	1,500.42	67.68	23.169		
13,300.00	11,860.74	13,518.16	12,060.16	49.68	49.75	97.25	-1,461.75	-753.44	1,568.12	1,499.30	68.82	22.786		
13,400.00	11,862.65	13,618.16	12,061.46	50.52	50.59	97.23	-1,561.73	-752.56	1,568.14	1,498.13	70.02	22.396		
13,500.00	11,864.57	13,718.16	12,062.76	51.41	51.47	97.20	-1,661.72	-751.69	1,568.17	1,496.89	71.27	22.003		
13,600.00	11,866.49	13,818.15	12,064.06	52.32	52.38	97.18	-1,761.70	-750.81	1,568.19	1,495.61	72.58	21.607		
13,700.00	11,868.41	13,918.15	12,065.36	53.28	53.33	97.16	-1,861.69	-749.94	1,568.21	1,494.28	73.93	21.211		
13,800.00	11,870.32	14,018.15	12,066.66	54.27	54.32	97.13	-1,961.68	-749.06	1,568.23	1,492.90	75.34	20.816		
13,900.00	11,872.24	14,118.15	12,067.96	55.29	55.33	97.11	-2,061.66	-748.19	1,568.26	1,491.47	76.79	20.424		
14,000.00	11,874.16	14,218.15	12,069.26	56.33	56.38	97.09	-2,161.65	-747.31	1,568.28	1,490.00	78.28	20.035		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kasten Fed Com - Bus Driver Fed Com 702H - 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					
14,100.00	11,876.08	14,318.14	12,070.56	57.41	57.45	97.07	-2,261.63	-746.44	1,568.30	1,488.50	79.81	19.651					
14,200.00	11,877.99	14,418.14	12,071.86	58.52	58.55	97.04	-2,361.62	-745.56	1,568.33	1,486.95	81.38	19.273					
14,300.00	11,879.91	14,518.14	12,073.16	59.65	59.68	97.02	-2,461.61	-744.68	1,568.35	1,485.37	82.98	18.900					
14,400.00	11,881.83	14,618.14	12,074.47	60.80	60.83	97.00	-2,561.59	-743.81	1,568.38	1,483.76	84.62	18.535					
14,500.00	11,883.75	14,718.14	12,075.77	61.98	62.00	96.98	-2,661.58	-742.93	1,568.40	1,482.11	86.29	18.176					
14,600.00	11,885.66	14,818.13	12,077.07	63.17	63.19	96.95	-2,761.56	-742.06	1,568.43	1,480.44	87.99	17.826					
14,700.00	11,887.58	14,918.13	12,078.37	64.39	64.41	96.93	-2,861.55	-741.18	1,568.45	1,478.74	89.71	17.483					
14,800.00	11,889.50	15,018.13	12,079.67	65.63	65.64	96.91	-2,961.53	-740.31	1,568.48	1,477.01	91.47	17.148					
14,900.00	11,891.42	15,118.13	12,080.97	66.88	66.89	96.88	-3,061.52	-739.43	1,568.50	1,475.26	93.25	16.821					
15,000.00	11,893.33	15,218.13	12,082.27	68.15	68.16	96.86	-3,161.51	-738.56	1,568.53	1,473.48	95.05	16.502					
15,100.00	11,895.25	15,318.12	12,083.57	69.44	69.44	96.84	-3,261.49	-737.68	1,568.56	1,471.68	96.88	16.191					
15,200.00	11,897.17	15,418.12	12,084.87	70.74	70.74	96.82	-3,361.48	-736.81	1,568.58	1,469.86	98.72	15.889					
15,300.00	11,899.09	15,518.12	12,086.17	72.06	72.06	96.79	-3,461.46	-735.93	1,568.61	1,468.02	100.59	15.594					
15,400.00	11,901.00	15,618.12	12,087.47	73.39	73.38	96.77	-3,561.45	-735.06	1,568.64	1,466.16	102.48	15.307					
15,500.00	11,902.92	15,718.12	12,088.77	74.73	74.72	96.75	-3,661.43	-734.18	1,568.66	1,464.29	104.38	15.029					
15,600.00	11,904.84	15,818.11	12,090.07	76.09	76.08	96.72	-3,761.42	-733.30	1,568.69	1,462.39	106.30	14.757					
15,700.00	11,906.76	15,918.11	12,091.37	77.46	77.44	96.70	-3,861.41	-732.43	1,568.72	1,460.48	108.24	14.494					
15,800.00	11,908.67	16,018.11	12,092.67	78.84	78.82	96.68	-3,961.39	-731.55	1,568.75	1,458.56	110.19	14.237					
15,900.00	11,910.59	16,118.11	12,093.98	80.22	80.20	96.66	-4,061.38	-730.68	1,568.78	1,456.62	112.15	13.988					
16,000.00	11,912.51	16,218.11	12,095.28	81.62	81.60	96.63	-4,161.36	-729.80	1,568.81	1,454.67	114.13	13.745					
16,100.00	11,914.43	16,318.11	12,096.58	83.03	83.00	96.61	-4,261.35	-728.93	1,568.83	1,452.71	116.13	13.510					
16,200.00	11,916.34	16,418.10	12,097.88	84.45	84.42	96.59	-4,361.33	-728.05	1,568.86	1,450.73	118.13	13.281					
16,300.00	11,918.26	16,518.10	12,099.18	85.87	85.84	96.56	-4,461.32	-727.18	1,568.89	1,448.75	120.15	13.058					
16,400.00	11,920.18	16,618.10	12,100.48	87.30	87.27	96.54	-4,561.31	-726.30	1,568.92	1,446.75	122.17	12.842					
16,500.00	11,922.10	16,718.10	12,101.78	88.74	88.71	96.52	-4,661.29	-725.43	1,568.95	1,444.74	124.21	12.631					
16,600.00	11,924.01	16,818.10	12,103.08	90.19	90.15	96.50	-4,761.28	-724.55	1,568.98	1,442.72	126.26	12.426					
16,700.00	11,925.93	16,918.09	12,104.38	91.65	91.61	96.47	-4,861.26	-723.67	1,569.01	1,440.69	128.32	12.227					
16,800.00	11,927.85	17,018.09	12,105.68	93.11	93.07	96.45	-4,961.25	-722.80	1,569.04	1,438.66	130.39	12.034					
16,900.00	11,929.77	17,118.09	12,106.98	94.57	94.53	96.43	-5,061.23	-721.92	1,569.07	1,436.61	132.46	11.845					
17,000.00	11,931.68	17,218.09	12,108.28	96.05	96.00	96.40	-5,161.22	-721.05	1,569.10	1,434.56	134.55	11.662					
17,100.00	11,933.60	17,318.09	12,109.58	97.53	97.48	96.38	-5,261.21	-720.17	1,569.13	1,432.49	136.64	11.484					
17,200.00	11,935.52	17,418.08	12,110.88	99.01	98.96	96.36	-5,361.19	-719.30	1,569.17	1,430.43	138.74	11.310					
17,300.00	11,937.44	17,518.08	12,112.18	100.50	100.45	96.34	-5,461.18	-718.42	1,569.20	1,428.35	140.85	11.141					
17,400.00	11,939.35	17,618.08	12,113.49	102.00	101.94	96.31	-5,561.16	-717.55	1,569.23	1,426.27	142.97	10.976					
17,500.00	11,941.27	17,718.08	12,114.79	103.50	103.44	96.29	-5,661.15	-716.67	1,569.26	1,424.18	145.09	10.816					
17,600.00	11,943.19	17,818.08	12,116.09	105.00	104.94	96.27	-5,761.14	-715.80	1,569.30	1,422.08	147.21	10.660					
17,700.00	11,945.11	17,918.07	12,117.39	106.51	106.45	96.25	-5,861.12	-714.92	1,569.33	1,419.98	149.35	10.508					
17,800.00	11,947.02	18,018.07	12,118.69	108.02	107.96	96.22	-5,961.11	-714.04	1,569.36	1,417.87	151.49	10.360					
17,900.00	11,948.94	18,118.07	12,119.99	109.54	109.48	96.20	-6,061.09	-713.17	1,569.40	1,415.76	153.63	10.215					
18,000.00	11,950.86	18,218.07	12,121.29	111.06	111.00	96.18	-6,161.08	-712.29	1,569.43	1,413.64	155.78	10.074					
18,100.00	11,952.78	18,318.07	12,122.59	112.59	112.52	96.15	-6,261.06	-711.42	1,569.46	1,411.52	157.94	9.937					
18,200.00	11,954.70	18,418.06	12,123.89	114.11	114.05	96.13	-6,361.05	-710.54	1,569.50	1,409.40	160.10	9.803					
18,300.00	11,956.61	18,518.06	12,125.19	115.64	115.58	96.11	-6,461.04	-709.67	1,569.53	1,407.26	162.27	9.673					
18,400.00	11,958.53	18,618.06	12,126.49	117.18	117.11	96.09	-6,561.02	-708.79	1,569.57	1,405.13	164.44	9.545					
18,500.00	11,960.45	18,718.06	12,127.79	118.72	118.65	96.06	-6,661.01	-707.92	1,569.60	1,402.99	166.61	9.421					
18,600.00	11,962.37	18,818.06	12,129.09	120.26	120.19	96.04	-6,760.99	-707.04	1,569.64	1,400.84	168.79	9.299					
18,700.00	11,964.28	18,918.05	12,130.39	121.80	121.73	96.02	-6,860.98	-706.17	1,569.67	1,398.70	170.97	9.181					
18,800.00	11,966.20	19,018.05	12,131.69	123.35	123.28	95.99	-6,960.96	-705.29	1,569.71	1,396.54	173.16	9.065					
18,900.00	11,968.12	19,118.05	12,133.00	124.90	124.82	95.97	-7,060.95	-704.41	1,569.74	1,394.39	175.35	8.952					
19,000.00	11,970.04	19,218.05	12,134.30	126.45	126.38	95.95	-7,160.94	-703.54	1,569.78	1,392.23	177.55	8.841					
19,100.00	11,971.95	19,318.05	12,135.60	128.01	127.93	95.93	-7,260.92	-702.66	1,569.81	1,390.07	179.75	8.733					
19,200.00	11,973.87	19,418.04	12,136.90	129.56	129.48	95.90	-7,360.91	-701.79	1,569.85	1,387.90	181.95	8.628					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kasten Fed Com - Bus Driver Fed Com 702H - 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					
19,300.00	11,975.79	19,518.04	12,138.20	131.12	131.04	95.88	-7,460.89	-700.91	1,569.89	1,385.73	184.15	8.525					
19,400.00	11,977.71	19,618.04	12,139.50	132.68	132.60	95.86	-7,560.88	-700.04	1,569.92	1,383.56	186.36	8.424					
19,500.00	11,979.62	19,718.04	12,140.80	134.25	134.17	95.84	-7,660.86	-699.16	1,569.96	1,381.39	188.57	8.325					
19,600.00	11,981.54	19,818.04	12,142.10	135.81	135.73	95.81	-7,760.85	-698.29	1,570.00	1,379.21	190.79	8.229					
19,700.00	11,983.46	19,918.03	12,143.40	137.38	137.30	95.79	-7,860.84	-697.41	1,570.04	1,377.03	193.00	8.135					
19,800.00	11,985.38	20,018.03	12,144.70	138.95	138.87	95.77	-7,960.82	-696.54	1,570.08	1,374.85	195.22	8.042					
19,900.00	11,987.29	20,118.03	12,146.00	140.52	140.44	95.74	-8,060.81	-695.66	1,570.11	1,372.67	197.45	7.952					
20,000.00	11,989.21	20,218.03	12,147.30	142.10	142.01	95.72	-8,160.79	-694.79	1,570.15	1,370.48	199.67	7.864					
20,100.00	11,991.13	20,318.03	12,148.60	143.67	143.58	95.70	-8,260.78	-693.91	1,570.19	1,368.29	201.90	7.777					
20,200.00	11,993.05	20,418.03	12,149.90	145.25	145.16	95.68	-8,360.76	-693.03	1,570.23	1,366.10	204.13	7.692					
20,300.00	11,994.96	20,518.02	12,151.21	146.83	146.74	95.65	-8,460.75	-692.16	1,570.27	1,363.91	206.36	7.609					
20,400.00	11,996.88	20,618.02	12,152.51	148.41	148.32	95.63	-8,560.74	-691.28	1,570.31	1,361.71	208.60	7.528					
20,500.00	11,998.80	20,718.02	12,153.81	149.99	149.90	95.61	-8,660.72	-690.41	1,570.35	1,359.51	210.84	7.448					
20,600.00	12,000.72	20,818.02	12,155.11	151.57	151.48	95.58	-8,760.71	-689.53	1,570.39	1,357.31	213.07	7.370					
20,700.00	12,002.63	20,918.02	12,156.41	153.16	153.07	95.56	-8,860.69	-688.66	1,570.43	1,355.11	215.32	7.294					
20,800.00	12,004.55	21,018.01	12,157.71	154.75	154.65	95.54	-8,960.68	-687.78	1,570.47	1,352.91	217.56	7.219					
20,900.00	12,006.47	21,118.01	12,159.01	156.33	156.24	95.52	-9,060.66	-686.91	1,570.51	1,350.71	219.81	7.145					
21,000.00	12,008.39	21,218.01	12,160.31	157.92	157.83	95.49	-9,160.65	-686.03	1,570.55	1,348.50	222.05	7.073					
21,100.00	12,010.30	21,318.01	12,161.61	159.51	159.42	95.47	-9,260.64	-685.16	1,570.59	1,346.29	224.30	7.002					
21,200.00	12,012.22	21,418.01	12,162.91	161.10	161.01	95.45	-9,360.62	-684.28	1,570.63	1,344.08	226.55	6.933					
21,300.00	12,014.14	21,518.00	12,164.21	162.70	162.60	95.43	-9,460.61	-683.40	1,570.68	1,341.87	228.81	6.865					
21,400.00	12,016.06	21,618.00	12,165.51	164.29	164.19	95.40	-9,560.59	-682.53	1,570.72	1,339.66	231.06	6.798					
21,500.00	12,017.97	21,718.00	12,166.81	165.89	165.79	95.38	-9,660.58	-681.65	1,570.76	1,337.44	233.32	6.732					
21,600.00	12,019.89	21,818.00	12,168.11	167.48	167.38	95.36	-9,760.57	-680.78	1,570.80	1,335.23	235.58	6.668					
21,700.00	12,021.81	21,918.00	12,169.41	169.08	168.98	95.33	-9,860.55	-679.90	1,570.85	1,333.01	237.84	6.605					
21,800.00	12,023.73	22,017.99	12,170.72	170.68	170.58	95.31	-9,960.54	-679.03	1,570.89	1,330.79	240.10	6.543					
21,900.00	12,025.64	22,117.99	12,172.02	172.28	172.17	95.29	-10,060.52	-678.15	1,570.93	1,328.57	242.36	6.482					
22,000.00	12,027.56	22,217.99	12,173.32	173.88	173.77	95.27	-10,160.51	-677.28	1,570.97	1,326.35	244.62	6.422					
22,100.00	12,029.48	22,317.99	12,174.62	175.48	175.37	95.24	-10,260.49	-676.40	1,571.02	1,324.13	246.89	6.363					
22,200.00	12,031.40	22,417.99	12,175.92	177.08	176.98	95.22	-10,360.48	-675.53	1,571.06	1,321.91	249.15	6.306					
22,300.00	12,033.31	22,517.98	12,177.22	178.68	178.58	95.20	-10,460.47	-674.65	1,571.11	1,319.68	251.42	6.249					
22,400.00	12,035.23	22,617.98	12,178.52	180.29	180.18	95.18	-10,560.45	-673.77	1,571.15	1,317.46	253.69	6.193					
22,500.00	12,037.15	22,717.98	12,179.82	181.89	181.79	95.15	-10,660.44	-672.90	1,571.20	1,315.23	255.96	6.138					
22,600.00	12,039.07	22,817.98	12,181.12	183.50	183.39	95.13	-10,760.42	-672.02	1,571.24	1,313.01	258.23	6.085					
22,700.00	12,040.98	22,917.98	12,182.42	185.11	185.00	95.11	-10,860.41	-671.15	1,571.29	1,310.78	260.51	6.032					
22,800.00	12,042.90	23,017.97	12,183.72	186.71	186.60	95.08	-10,960.39	-670.27	1,571.33	1,308.55	262.78	5.980					
22,900.00	12,044.82	23,117.97	12,185.02	188.32	188.21	95.06	-11,060.38	-669.40	1,571.38	1,306.32	265.06	5.928					
23,000.00	12,046.74	23,217.97	12,186.32	189.93	189.82	95.04	-11,160.37	-668.52	1,571.42	1,304.09	267.33	5.878					
23,100.00	12,048.66	23,317.97	12,187.62	191.54	191.43	95.02	-11,260.35	-667.65	1,571.47	1,301.86	269.61	5.829					
23,200.00	12,050.57	23,417.97	12,188.92	193.15	193.04	94.99	-11,360.34	-666.77	1,571.52	1,299.62	271.89	5.780					
23,300.00	12,052.49	23,517.96	12,190.23	194.76	194.65	94.97	-11,460.32	-665.90	1,571.56	1,297.39	274.17	5.732					
23,400.00	12,054.41	23,617.96	12,191.53	196.37	196.26	94.95	-11,560.31	-665.02	1,571.61	1,295.16	276.45	5.685					
23,500.00	12,056.33	23,717.96	12,192.83	197.99	197.87	94.93	-11,660.29	-664.14	1,571.66	1,292.92	278.73	5.639					
23,600.00	12,058.24	23,817.96	12,194.13	199.60	199.48	94.90	-11,760.28	-663.27	1,571.70	1,290.69	281.02	5.593					
23,700.00	12,060.16	23,917.96	12,195.43	201.21	201.10	94.88	-11,860.27	-662.39	1,571.75	1,288.45	283.30	5.548					
23,800.00	12,062.08	24,017.95	12,196.73	202.83	202.71	94.86	-11,960.25	-661.52	1,571.80	1,286.21	285.59	5.504					
23,888.78	12,063.78	24,106.73	12,197.88	204.11	204.15	94.84	-12,049.02	-660.74	1,571.84	1,284.34	287.50	5.467					



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kasten Fed Com - Kasten Fed Com 703H - 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	0.40	0.40	0.00	0.00	-90.54	-0.33	-35.00	35.00								
100.00	100.00	100.40	100.40	0.14	0.14	-90.54	-0.33	-35.00	35.00	34.80	0.20	173.909					
200.00	200.00	200.40	200.40	0.50	0.50	-90.54	-0.33	-35.00	35.00	34.29	0.71	49.422					
300.00	300.00	300.40	300.40	0.86	0.86	-90.54	-0.33	-35.00	35.00	33.79	1.22	28.804					
400.00	400.00	400.40	400.40	1.22	1.22	-90.54	-0.33	-35.00	35.00	33.28	1.72	20.325					
500.00	500.00	500.40	500.40	1.58	1.58	-90.54	-0.33	-35.00	35.00	32.77	2.23	15.702					
600.00	600.00	600.40	600.40	1.93	1.94	-90.54	-0.33	-35.00	35.00	32.27	2.74	12.793					
700.00	700.00	700.40	700.40	2.29	2.29	-90.54	-0.33	-35.00	35.00	31.76	3.24	10.793					
800.00	800.00	800.40	800.40	2.65	2.65	-90.54	-0.33	-35.00	35.00	31.25	3.75	9.334					
900.00	900.00	900.40	900.40	3.01	3.01	-90.54	-0.33	-35.00	35.00	30.74	4.26	8.222					
1,000.00	1,000.00	1,000.40	1,000.40	3.37	3.37	-90.54	-0.33	-35.00	35.00	30.24	4.76	7.347					
1,100.00	1,100.00	1,100.40	1,100.40	3.73	3.73	-90.54	-0.33	-35.00	35.00	29.73	5.27	6.641					
1,200.00	1,200.00	1,200.40	1,200.40	4.08	4.09	-90.54	-0.33	-35.00	35.00	29.22	5.78	6.058					
1,300.00	1,300.00	1,300.40	1,300.40	4.44	4.44	-90.54	-0.33	-35.00	35.00	28.72	6.28	5.569					
1,400.00	1,400.00	1,400.40	1,400.40	4.80	4.80	-90.54	-0.33	-35.00	35.00	28.21	6.79	5.154					
1,500.00	1,500.00	1,500.40	1,500.40	5.16	5.16	-90.54	-0.33	-35.00	35.00	27.70	7.30	4.796					
1,600.00	1,600.00	1,600.40	1,600.40	5.52	5.52	-90.54	-0.33	-35.00	35.00	27.20	7.81	4.484					
1,700.00	1,700.00	1,700.40	1,700.40	5.88	5.88	-90.54	-0.33	-35.00	35.00	26.69	8.31	4.211					
1,800.00	1,800.00	1,800.40	1,800.40	6.24	6.24	-90.54	-0.33	-35.00	35.00	26.18	8.82	3.969					
1,900.00	1,900.00	1,900.40	1,900.40	6.59	6.60	-90.54	-0.33	-35.00	35.00	25.68	9.33	3.753					
2,000.00	2,000.00	2,000.40	2,000.40	6.95	6.95	-90.54	-0.33	-35.00	35.00	25.17	9.83	3.559					
2,100.00	2,100.00	2,100.40	2,100.40	7.31	7.31	-90.54	-0.33	-35.00	35.00	24.66	10.34	3.385					
2,200.00	2,200.00	2,200.40	2,200.40	7.67	7.67	-90.54	-0.33	-35.00	35.00	24.15	10.85	3.227					
2,300.00	2,300.00	2,300.40	2,300.40	8.03	8.03	-90.54	-0.33	-35.00	35.00	23.65	11.35	3.083					
2,400.00	2,400.00	2,400.40	2,400.40	8.39	8.39	-90.54	-0.33	-35.00	35.00	23.14	11.86	2.951					
2,500.00	2,500.00	2,500.40	2,500.40	8.74	8.75	-90.54	-0.33	-35.00	35.00	22.63	12.37	2.830					
2,600.00	2,600.00	2,600.40	2,600.40	9.10	9.10	-90.54	-0.33	-35.00	35.00	22.13	12.88	2.719					
2,700.00	2,700.00	2,700.40	2,700.40	9.46	9.46	-90.54	-0.33	-35.00	35.00	21.62	13.38	2.616					
2,800.00	2,800.00	2,800.40	2,800.40	9.82	9.82	-90.54	-0.33	-35.00	35.00	21.11	13.89	2.520					
2,900.00	2,900.00	2,900.40	2,900.40	10.18	10.18	-90.54	-0.33	-35.00	35.00	20.61	14.40	2.431					
3,000.00	3,000.00	3,000.40	3,000.40	10.54	10.54	-90.54	-0.33	-35.00	35.00	20.10	14.90	2.349					
3,100.00	3,100.00	3,100.40	3,100.40	10.90	10.90	-90.54	-0.33	-35.00	35.00	19.59	15.41	2.271					
3,200.00	3,200.00	3,200.40	3,200.40	11.25	11.26	-90.54	-0.33	-35.00	35.00	19.08	15.92	2.199					
3,300.00	3,300.00	3,300.40	3,300.40	11.61	11.61	-90.54	-0.33	-35.00	35.00	18.58	16.42	2.131					
3,400.00	3,400.00	3,400.40	3,400.40	11.97	11.97	-90.54	-0.33	-35.00	35.00	18.07	16.93	2.067					
3,500.00	3,500.00	3,500.40	3,500.40	12.33	12.33	-90.54	-0.33	-35.00	35.00	17.56	17.44	2.007					
3,600.00	3,600.00	3,600.40	3,600.40	12.69	12.69	-90.54	-0.33	-35.00	35.00	17.06	17.94	1.951					
3,700.00	3,700.00	3,700.40	3,700.40	13.05	13.05	-90.54	-0.33	-35.00	35.00	16.55	18.45	1.897					
3,800.00	3,800.00	3,800.40	3,800.40	13.41	13.41	-90.54	-0.33	-35.00	35.00	16.04	18.96	1.846					
3,900.00	3,900.00	3,900.40	3,900.40	13.76	13.76	-90.54	-0.33	-35.00	35.00	15.54	19.47	1.798					
4,000.00	4,000.00	4,000.40	4,000.40	14.12	14.12	-90.54	-0.33	-35.00	35.00	15.03	19.97	1.752					
4,100.00	4,100.00	4,100.40	4,100.40	14.48	14.48	-90.54	-0.33	-35.00	35.00	14.52	20.48	1.709					
4,200.00	4,200.00	4,200.40	4,200.40	14.84	14.84	-90.54	-0.33	-35.00	35.00	14.02	20.99	1.668					
4,300.00	4,300.00	4,300.40	4,300.40	15.20	15.20	-90.54	-0.33	-35.00	35.00	13.51	21.49	1.628					
4,400.00	4,400.00	4,400.40	4,400.40	15.56	15.56	-90.54	-0.33	-35.00	35.00	13.00	22.00	1.591					
4,500.00	4,500.00	4,500.40	4,500.40	15.91	15.92	-90.54	-0.33	-35.00	35.00	12.49	22.51	1.555 CC, ES, SF					
4,600.00	4,599.99	4,600.39	4,600.39	16.27	16.27	-166.75	-0.33	-35.00	36.27	13.27	23.01	1.577					
4,700.00	4,699.91	4,700.31	4,700.31	16.61	16.63	-168.02	-0.33	-35.00	40.11	16.60	23.51	1.706					
4,800.00	4,799.69	4,800.09	4,800.09	16.96	16.99	-169.68	-0.33	-35.00	46.52	22.52	24.00	1.938					
4,900.00	4,899.27	4,899.67	4,899.67	17.31	17.35	-171.35	-0.33	-35.00	55.55	31.05	24.50	2.267					
5,000.00	4,998.57	4,998.97	4,998.97	17.66	17.70	-172.83	-0.33	-35.00	67.19	42.20	24.99	2.688					
5,033.34	5,031.61	5,032.01	5,032.01	17.78	17.82	-173.27	-0.33	-35.00	71.66	46.50	25.16	2.848					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	5,097.62	5,098.02	5,098.02	18.02	18.06	-174.04	-0.33	-35.00	80.88	55.39	25.49	3.173		
5,200.00	5,196.65	5,197.05	5,197.05	18.37	18.41	-174.92	-0.33	-35.00	94.73	68.75	25.98	3.646		
5,300.00	5,295.67	5,296.07	5,296.07	18.73	18.77	-175.57	-0.33	-35.00	108.61	82.13	26.48	4.102		
5,400.00	5,394.70	5,395.10	5,395.10	19.10	19.12	-176.07	-0.33	-35.00	122.49	95.52	26.97	4.541		
5,500.00	5,493.73	5,494.13	5,494.13	19.46	19.48	-176.47	-0.33	-35.00	136.38	108.91	27.47	4.965		
5,600.00	5,592.75	5,596.51	5,596.50	19.83	19.84	-176.59	0.43	-34.04	149.22	121.26	27.97	5.336		
5,700.00	5,691.78	5,699.65	5,699.56	20.20	20.21	-176.24	2.91	-30.91	159.71	131.25	28.45	5.613		
5,800.00	5,790.81	5,803.22	5,802.90	20.57	20.57	-175.47	7.13	-25.56	167.82	138.89	28.93	5.801		
5,900.00	5,889.83	5,907.06	5,906.29	20.94	20.94	-174.33	13.11	-18.00	173.60	144.21	29.39	5.907		
6,000.00	5,988.86	6,011.02	6,009.49	21.32	21.31	-172.79	20.84	-8.22	177.11	147.27	29.84	5.935		
6,100.00	6,087.89	6,111.72	6,109.23	21.69	21.66	-171.04	29.48	2.72	179.15	148.82	30.33	5.907		
6,200.00	6,186.91	6,211.55	6,208.09	22.07	22.02	-169.33	38.10	13.61	181.31	150.47	30.84	5.880		
6,300.00	6,285.94	6,311.39	6,306.95	22.45	22.38	-167.66	46.71	24.50	183.63	152.28	31.35	5.858		
6,400.00	6,384.97	6,411.22	6,405.81	22.83	22.75	-166.04	55.32	35.39	186.09	154.24	31.86	5.842		
6,500.00	6,483.99	6,511.05	6,504.68	23.22	23.11	-164.46	63.93	46.29	188.70	156.33	32.37	5.830		
6,600.00	6,583.02	6,610.88	6,603.54	23.60	23.47	-162.92	72.54	57.18	191.45	158.57	32.88	5.822		
6,700.00	6,682.05	6,710.71	6,702.40	23.99	23.84	-161.43	81.15	68.07	194.34	160.94	33.40	5.819		
6,800.00	6,781.08	6,810.55	6,801.26	24.37	24.21	-159.98	89.76	78.97	197.35	163.44	33.92	5.819		
6,900.00	6,880.10	6,910.38	6,900.12	24.76	24.58	-158.58	98.37	89.86	200.49	166.05	34.44	5.822		
7,000.00	6,979.13	7,010.21	6,998.98	25.15	24.95	-157.22	106.99	100.75	203.74	168.78	34.96	5.826		
7,100.00	7,078.16	7,110.04	7,097.84	25.54	25.33	-155.91	115.60	111.65	207.10	171.62	35.49	5.836		
7,200.00	7,177.18	7,209.87	7,196.71	25.93	25.70	-154.63	124.21	122.54	210.57	174.56	36.01	5.847		
7,300.00	7,276.21	7,309.71	7,295.57	26.32	26.08	-153.40	132.82	133.43	214.14	177.60	36.54	5.860		
7,400.00	7,375.24	7,409.54	7,394.43	26.71	26.46	-152.21	141.43	144.33	217.81	180.73	37.08	5.875		
7,500.00	7,474.26	7,509.37	7,493.29	27.10	26.83	-151.06	150.04	155.22	221.57	183.96	37.61	5.891		
7,600.00	7,573.29	7,609.20	7,592.15	27.50	27.21	-149.95	158.65	166.11	225.41	187.26	38.14	5.909		
7,700.00	7,672.32	7,709.03	7,691.01	27.89	27.60	-148.88	167.26	177.01	229.33	190.65	38.68	5.929		
7,800.00	7,771.34	7,808.87	7,789.88	28.29	27.98	-147.84	175.87	187.90	233.34	194.12	39.22	5.949		
7,900.00	7,870.37	7,905.71	7,885.91	28.69	28.35	-147.07	183.61	197.68	237.98	198.22	39.77	5.985		
8,000.00	7,969.40	8,002.20	7,981.88	29.08	28.71	-146.81	189.81	205.53	244.03	203.74	40.30	6.056		
8,100.00	8,068.42	8,100.00	8,079.38	29.48	29.07	-147.05	194.57	211.54	251.46	210.65	40.81	6.161		
8,200.00	8,167.45	8,194.54	8,173.78	29.88	29.41	-147.70	197.69	215.49	260.26	218.96	41.31	6.301		
8,300.00	8,266.48	8,290.14	8,269.33	30.28	29.76	-148.73	199.37	217.62	270.53	228.75	41.78	6.475		
8,400.00	8,365.50	8,386.71	8,365.90	30.68	30.10	-150.08	199.67	218.00	282.25	239.99	42.26	6.680		
8,500.00	8,464.53	8,485.74	8,464.93	31.08	30.45	-151.43	199.67	218.00	294.42	251.68	42.74	6.888		
8,600.00	8,563.56	8,584.76	8,563.96	31.48	30.79	-152.67	199.67	218.00	306.74	263.51	43.23	7.095		
8,700.00	8,662.58	8,683.79	8,662.98	31.88	31.14	-153.81	199.67	218.00	319.20	275.47	43.72	7.300		
8,800.00	8,761.61	8,782.82	8,762.01	32.28	31.49	-154.87	199.67	218.00	331.76	287.55	44.22	7.503		
8,900.00	8,860.64	8,881.84	8,861.04	32.68	31.84	-155.86	199.67	218.00	344.44	299.73	44.71	7.704		
9,000.00	8,959.66	8,980.87	8,960.06	33.08	32.19	-156.77	199.67	218.00	357.20	312.00	45.20	7.902		
9,100.00	9,058.69	9,079.90	9,059.09	33.49	32.54	-157.62	199.67	218.00	370.05	324.35	45.70	8.098		
9,200.00	9,157.72	9,178.92	9,158.12	33.89	32.89	-158.41	199.67	218.00	382.97	336.78	46.19	8.291		
9,300.00	9,256.74	9,277.95	9,257.14	34.29	33.24	-159.15	199.67	218.00	395.96	349.27	46.69	8.480		
9,400.00	9,355.77	9,376.98	9,356.17	34.70	33.59	-159.84	199.67	218.00	409.01	361.83	47.19	8.668		
9,500.00	9,454.80	9,476.00	9,455.20	35.10	33.94	-160.49	199.67	218.00	422.12	374.43	47.69	8.852		
9,600.00	9,553.82	9,575.03	9,554.22	35.51	34.29	-161.10	199.67	218.00	435.28	387.09	48.19	9.033		
9,700.00	9,652.85	9,674.06	9,653.25	35.91	34.65	-161.68	199.67	218.00	448.48	399.80	48.69	9.212		
9,800.00	9,751.88	9,773.08	9,752.28	36.32	35.00	-162.22	199.67	218.00	461.73	412.54	49.19	9.387		
9,900.00	9,850.91	9,872.11	9,851.31	36.73	35.35	-162.73	199.67	218.00	475.01	425.32	49.69	9.560		
10,000.00	9,949.93	9,971.14	9,950.33	37.13	35.70	-163.22	199.67	218.00	488.33	438.14	50.19	9.730		
10,100.00	10,048.96	10,070.16	10,049.36	37.54	36.05	-163.68	199.67	218.00	501.68	450.99	50.69	9.897		
10,200.00	10,147.99	10,169.19	10,148.39	37.95	36.40	-164.11	199.67	218.00	515.06	463.87	51.19	10.061		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	10,247.01	10,268.22	10,247.41	38.35	36.75	-164.52	199.67	218.00	528.47	476.78	51.70	10.223	
10,326.64	10,273.39	10,294.59	10,273.79	38.46	36.84	-164.63	199.67	218.00	532.05	480.22	51.83	10.265	
10,400.00	10,346.13	10,367.34	10,346.53	38.76	37.10	-164.93	199.67	218.00	541.23	489.03	52.20	10.369	
10,500.00	10,445.55	10,466.76	10,445.95	39.15	37.45	-165.26	199.67	218.00	551.59	498.88	52.70	10.466	
10,600.00	10,545.22	10,566.43	10,545.62	39.53	37.81	-165.50	199.67	218.00	559.43	506.23	53.21	10.515	
10,700.00	10,645.07	10,666.27	10,645.47	39.89	38.16	-165.66	199.67	218.00	564.75	511.05	53.71	10.515	
10,800.00	10,745.02	10,766.23	10,745.42	40.24	38.52	-165.74	199.67	218.00	567.54	513.34	54.21	10.470	
10,859.98	10,805.00	10,826.21	10,805.40	40.44	38.73	-90.03	199.67	218.00	568.00	513.49	54.51	10.421	
10,900.00	10,845.02	10,866.23	10,845.42	40.58	38.87	-90.03	199.67	218.00	568.00	513.29	54.71	10.383	
11,000.00	10,945.02	10,966.23	10,945.42	40.91	39.23	-90.03	199.67	218.00	568.00	512.80	55.20	10.289	
11,100.00	11,045.02	11,066.23	11,045.42	41.25	39.58	-90.03	199.67	218.00	568.00	512.30	55.70	10.197	
11,200.00	11,145.02	11,166.23	11,145.42	41.59	39.94	-90.03	199.67	218.00	568.00	511.80	56.20	10.107	
11,300.00	11,245.02	11,266.23	11,245.42	41.92	40.29	-90.03	199.67	218.00	568.00	511.30	56.70	10.018	
11,321.98	11,267.00	11,288.21	11,267.40	42.00	40.37	-90.03	199.67	218.00	568.00	511.19	56.81	9.998	
11,350.00	11,295.01	11,316.22	11,295.41	42.09	40.47	90.59	199.67	218.00	568.01	511.06	56.95	9.974	
11,400.00	11,344.78	11,365.99	11,345.18	42.24	40.65	91.05	199.67	218.00	568.07	510.88	57.19	9.933	
11,450.00	11,393.96	11,415.16	11,394.36	42.39	40.82	91.91	199.67	218.00	568.31	510.88	57.43	9.895	
11,500.00	11,442.17	11,463.38	11,442.57	42.53	40.99	93.13	199.67	218.00	568.91	511.24	57.67	9.865	
11,550.00	11,489.05	11,510.26	11,489.45	42.65	41.16	94.64	199.67	218.00	570.17	512.26	57.91	9.846	
11,600.00	11,534.24	11,555.44	11,534.64	42.77	41.32	96.34	199.67	218.00	572.44	514.30	58.14	9.846	
11,650.00	11,577.39	11,598.60	11,577.79	42.88	41.47	98.13	199.67	218.00	576.13	517.76	58.37	9.870	
11,700.00	11,618.19	11,646.49	11,625.67	42.98	41.64	100.25	198.74	218.01	581.51	522.89	58.62	9.920	
11,750.00	11,656.31	11,700.93	11,679.79	43.07	41.81	102.57	193.06	218.06	588.21	529.36	58.86	9.994	
11,800.00	11,691.46	11,759.57	11,737.20	43.14	41.98	104.89	181.23	218.16	596.03	537.00	59.04	10.096	
11,850.00	11,723.39	11,823.24	11,797.80	43.21	42.15	107.23	161.82	218.33	604.75	545.63	59.12	10.230	
11,900.00	11,751.84	11,892.90	11,861.19	43.28	42.33	109.58	133.03	218.59	614.06	555.01	59.05	10.400	
11,950.00	11,776.61	11,969.60	11,926.36	43.34	42.49	111.91	92.71	218.94	623.57	564.79	58.78	10.608	
12,000.00	11,797.49	12,054.30	11,991.37	43.39	42.65	114.16	38.53	219.42	632.80	574.49	58.31	10.853	
12,050.00	11,814.34	12,147.69	12,052.91	43.46	42.77	116.23	-31.58	220.03	641.16	583.50	57.67	11.119	
12,100.00	11,827.02	12,249.75	12,106.18	43.53	42.90	117.97	-118.47	220.80	648.05	591.06	56.99	11.371	
12,150.00	11,835.44	12,359.28	12,145.25	43.61	43.17	119.21	-220.61	221.69	652.84	596.34	56.50	11.554	
12,200.00	11,839.54	12,473.70	12,164.56	43.70	43.45	119.78	-333.20	222.68	655.06	598.61	56.45	11.604	
12,210.99	11,839.85	12,499.15	12,165.77	43.73	43.52	119.80	-358.61	222.91	655.18	598.66	56.52	11.592	
12,300.00	11,841.56	12,592.20	12,167.04	43.95	43.78	119.76	-451.65	223.72	655.00	598.11	56.89	11.513	
12,400.00	11,843.48	12,692.20	12,168.36	44.26	44.11	119.71	-551.63	224.60	654.78	597.42	57.36	11.414	
12,500.00	11,845.39	12,792.19	12,169.67	44.64	44.51	119.66	-651.62	225.48	654.57	596.66	57.91	11.303	
12,600.00	11,847.31	12,892.19	12,170.99	45.08	44.95	119.61	-751.60	226.36	654.36	595.83	58.52	11.181	
12,700.00	11,849.23	12,992.19	12,172.31	45.58	45.46	119.56	-851.59	227.24	654.15	594.94	59.21	11.049	
12,800.00	11,851.15	13,092.19	12,173.62	46.14	46.01	119.51	-951.58	228.12	653.93	593.98	59.95	10.907	
12,900.00	11,853.06	13,192.19	12,174.94	46.75	46.62	119.46	-1,051.56	228.99	653.72	592.96	60.76	10.758	
13,000.00	11,854.98	13,292.18	12,176.26	47.41	47.28	119.41	-1,151.55	229.87	653.51	591.88	61.64	10.603	
13,100.00	11,856.90	13,392.18	12,177.58	48.12	47.98	119.36	-1,251.53	230.75	653.30	590.74	62.57	10.442	
13,200.00	11,858.82	13,492.18	12,178.89	48.88	48.73	119.31	-1,351.52	231.63	653.09	589.54	63.55	10.277	
13,300.00	11,860.74	13,592.18	12,180.21	49.68	49.52	119.26	-1,451.50	232.51	652.89	588.30	64.59	10.108	
13,400.00	11,862.65	13,692.18	12,181.53	50.52	50.36	119.21	-1,551.49	233.39	652.68	587.00	65.68	9.937	
13,500.00	11,864.57	13,792.17	12,182.84	51.41	51.23	119.16	-1,651.47	234.27	652.47	585.65	66.82	9.765	
13,600.00	11,866.49	13,892.17	12,184.16	52.32	52.15	119.11	-1,751.46	235.14	652.26	584.26	68.00	9.592	
13,700.00	11,868.41	13,992.17	12,185.48	53.28	53.09	119.06	-1,851.45	236.02	652.06	582.83	69.23	9.419	
13,800.00	11,870.32	14,092.17	12,186.79	54.27	54.07	119.01	-1,951.43	236.90	651.85	581.35	70.50	9.247	
13,900.00	11,872.24	14,192.17	12,188.11	55.29	55.09	118.96	-2,051.42	237.78	651.64	579.84	71.80	9.075	
14,000.00	11,874.16	14,292.17	12,189.43	56.33	56.13	118.91	-2,151.40	238.66	651.44	578.29	73.15	8.906	
14,100.00	11,876.08	14,392.16	12,190.75	57.41	57.20	118.86	-2,251.39	239.54	651.23	576.70	74.53	8.738	

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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		
14,200.00	11,877.99	14,492.16	12,192.06	58.52	58.30	118.81	-2,351.37	240.42	651.03	575.08	75.95	8.572		
14,300.00	11,879.91	14,592.16	12,193.38	59.65	59.43	118.76	-2,451.36	241.29	650.83	573.43	77.39	8.410		
14,400.00	11,881.83	14,692.16	12,194.70	60.80	60.58	118.71	-2,551.35	242.17	650.62	571.76	78.87	8.250		
14,500.00	11,883.75	14,792.16	12,196.01	61.98	61.75	118.66	-2,651.33	243.05	650.42	570.05	80.37	8.093		
14,600.00	11,885.66	14,892.15	12,197.33	63.17	62.94	118.60	-2,751.32	243.93	650.22	568.32	81.90	7.939		
14,700.00	11,887.58	14,992.15	12,198.65	64.39	64.16	118.55	-2,851.30	244.81	650.02	566.56	83.46	7.788		
14,800.00	11,889.50	15,092.15	12,199.96	65.63	65.39	118.50	-2,951.29	245.69	649.82	564.78	85.04	7.641		
14,900.00	11,891.42	15,192.15	12,201.28	66.88	66.64	118.45	-3,051.27	246.57	649.61	562.97	86.64	7.498		
15,000.00	11,893.33	15,292.15	12,202.60	68.15	67.91	118.40	-3,151.26	247.44	649.41	561.15	88.27	7.357		
15,100.00	11,895.25	15,392.15	12,203.92	69.44	69.20	118.35	-3,251.24	248.32	649.21	559.30	89.91	7.220		
15,200.00	11,897.17	15,492.14	12,205.23	70.74	70.50	118.30	-3,351.23	249.20	649.02	557.44	91.58	7.087		
15,300.00	11,899.09	15,592.14	12,206.55	72.06	71.81	118.25	-3,451.22	250.08	648.82	555.56	93.26	6.957		
15,400.00	11,901.00	15,692.14	12,207.87	73.39	73.14	118.20	-3,551.20	250.96	648.62	553.66	94.96	6.830		
15,500.00	11,902.92	15,792.14	12,209.18	74.73	74.48	118.15	-3,651.19	251.84	648.42	551.74	96.68	6.707		
15,600.00	11,904.84	15,892.14	12,210.50	76.09	75.83	118.10	-3,751.17	252.72	648.22	549.81	98.41	6.587		
15,700.00	11,906.76	15,992.13	12,211.82	77.46	77.20	118.05	-3,851.16	253.59	648.03	547.87	100.16	6.470		
15,800.00	11,908.67	16,092.13	12,213.13	78.84	78.57	118.00	-3,951.14	254.47	647.83	545.91	101.92	6.356		
15,900.00	11,910.59	16,192.13	12,214.45	80.22	79.96	117.94	-4,051.13	255.35	647.64	543.94	103.69	6.246		
16,000.00	11,912.51	16,292.13	12,215.77	81.62	81.36	117.89	-4,151.12	256.23	647.44	541.96	105.48	6.138		
16,100.00	11,914.43	16,392.13	12,217.08	83.03	82.76	117.84	-4,251.10	257.11	647.25	539.97	107.28	6.033		
16,200.00	11,916.34	16,492.13	12,218.40	84.45	84.18	117.79	-4,351.09	257.99	647.05	537.96	109.09	5.931		
16,300.00	11,918.26	16,592.12	12,219.72	85.87	85.60	117.74	-4,451.07	258.87	646.86	535.95	110.91	5.832		
16,400.00	11,920.18	16,692.12	12,221.04	87.30	87.03	117.69	-4,551.06	259.74	646.67	533.92	112.75	5.736		
16,500.00	11,922.10	16,792.12	12,222.35	88.74	88.47	117.64	-4,651.04	260.62	646.47	531.89	114.59	5.642		
16,600.00	11,924.01	16,892.12	12,223.67	90.19	89.92	117.59	-4,751.03	261.50	646.28	529.84	116.44	5.550		
16,700.00	11,925.93	16,992.12	12,224.99	91.65	91.37	117.54	-4,851.01	262.38	646.09	527.79	118.30	5.461		
16,800.00	11,927.85	17,092.11	12,226.30	93.11	92.83	117.48	-4,951.00	263.26	645.90	525.73	120.17	5.375		
16,900.00	11,929.77	17,192.11	12,227.62	94.57	94.30	117.43	-5,050.99	264.14	645.71	523.66	122.05	5.291		
17,000.00	11,931.68	17,292.11	12,228.94	96.05	95.77	117.38	-5,150.97	265.02	645.52	521.58	123.94	5.209		
17,100.00	11,933.60	17,392.11	12,230.25	97.53	97.25	117.33	-5,250.96	265.89	645.33	519.50	125.83	5.129		
17,200.00	11,935.52	17,492.11	12,231.57	99.01	98.73	117.28	-5,350.94	266.77	645.14	517.41	127.73	5.051		
17,300.00	11,937.44	17,592.10	12,232.89	100.50	100.22	117.23	-5,450.93	267.65	644.95	515.31	129.64	4.975		
17,400.00	11,939.35	17,692.10	12,234.21	102.00	101.72	117.18	-5,550.91	268.53	644.76	513.21	131.55	4.901		
17,500.00	11,941.27	17,792.10	12,235.52	103.50	103.22	117.12	-5,650.90	269.41	644.58	511.10	133.47	4.829		
17,600.00	11,943.19	17,892.10	12,236.84	105.00	104.72	117.07	-5,750.89	270.29	644.39	508.99	135.40	4.759		
17,700.00	11,945.11	17,992.10	12,238.16	106.51	106.23	117.02	-5,850.87	271.16	644.20	506.87	137.33	4.691		
17,800.00	11,947.02	18,092.10	12,239.47	108.02	107.74	116.97	-5,950.86	272.04	644.02	504.74	139.27	4.624		
17,900.00	11,948.94	18,192.09	12,240.79	109.54	109.26	116.92	-6,050.84	272.92	643.83	502.61	141.22	4.559		
18,000.00	11,950.86	18,292.09	12,242.11	111.06	110.78	116.87	-6,150.83	273.80	643.65	500.48	143.17	4.496		
18,100.00	11,952.78	18,392.09	12,243.42	112.59	112.30	116.82	-6,250.81	274.68	643.46	498.34	145.12	4.434		
18,200.00	11,954.70	18,492.09	12,244.74	114.11	113.83	116.76	-6,350.80	275.56	643.28	496.20	147.08	4.374		
18,300.00	11,956.61	18,592.09	12,246.06	115.64	115.36	116.71	-6,450.78	276.44	643.10	494.05	149.05	4.315		
18,400.00	11,958.53	18,692.08	12,247.38	117.18	116.89	116.66	-6,550.77	277.31	642.91	491.90	151.01	4.257		
18,500.00	11,960.45	18,792.08	12,248.69	118.72	118.43	116.61	-6,650.76	278.19	642.73	489.74	152.99	4.201		
18,600.00	11,962.37	18,892.08	12,250.01	120.26	119.97	116.56	-6,750.74	279.07	642.55	487.59	154.97	4.146		
18,700.00	11,964.28	18,992.08	12,251.33	121.80	121.51	116.51	-6,850.73	279.95	642.37	485.42	156.95	4.093		
18,800.00	11,966.20	19,092.08	12,252.64	123.35	123.06	116.45	-6,950.71	280.83	642.19	483.26	158.93	4.041		
18,900.00	11,968.12	19,192.08	12,253.96	124.90	124.61	116.40	-7,050.70	281.71	642.01	481.09	160.92	3.990		
19,000.00	11,970.04	19,292.07	12,255.28	126.45	126.16	116.35	-7,150.68	282.59	641.83	478.92	162.91	3.940		
19,100.00	11,971.95	19,392.07	12,256.59	128.01	127.71	116.30	-7,250.67	283.46	641.65	476.74	164.91	3.891		
19,200.00	11,973.87	19,492.07	12,257.91	129.56	129.27	116.25	-7,350.65	284.34	641.47	474.56	166.91	3.843		
19,300.00	11,975.79	19,592.07	12,259.23	131.12	130.83	116.19	-7,450.64	285.22	641.29	472.38	168.91	3.797		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kasten Fed Com - Kasten Fed Com 703H - 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					
19,400.00	11,977.71	19,692.07	12,260.54	132.68	132.39	116.14	-7,550.63	286.10	641.12	470.20	170.92	3.751					
19,500.00	11,979.62	19,792.06	12,261.86	134.25	133.95	116.09	-7,650.61	286.98	640.94	468.01	172.93	3.706					
19,600.00	11,981.54	19,892.06	12,263.18	135.81	135.52	116.04	-7,750.60	287.86	640.76	465.82	174.94	3.663					
19,700.00	11,983.46	19,992.06	12,264.50	137.38	137.09	115.99	-7,850.58	288.74	640.59	463.63	176.95	3.620					
19,800.00	11,985.38	20,092.06	12,265.81	138.95	138.66	115.93	-7,950.57	289.61	640.41	461.44	178.97	3.578					
19,900.00	11,987.29	20,192.06	12,267.13	140.52	140.23	115.88	-8,050.55	290.49	640.24	459.24	180.99	3.537					
20,000.00	11,989.21	20,292.05	12,268.45	142.10	141.80	115.83	-8,150.54	291.37	640.06	457.05	183.02	3.497					
20,100.00	11,991.13	20,392.05	12,269.76	143.67	143.38	115.78	-8,250.53	292.25	639.89	454.85	185.04	3.458					
20,200.00	11,993.05	20,492.05	12,271.08	145.25	144.95	115.72	-8,350.51	293.13	639.72	452.65	187.07	3.420					
20,300.00	11,994.96	20,592.05	12,272.40	146.83	146.53	115.67	-8,450.50	294.01	639.54	450.44	189.10	3.382					
20,400.00	11,996.88	20,692.05	12,273.71	148.41	148.11	115.62	-8,550.48	294.89	639.37	448.24	191.13	3.345					
20,500.00	11,998.80	20,792.05	12,275.03	149.99	149.69	115.57	-8,650.47	295.76	639.20	446.03	193.17	3.309					
20,600.00	12,000.72	20,892.04	12,276.35	151.57	151.28	115.52	-8,750.45	296.64	639.03	443.82	195.21	3.274					
20,700.00	12,002.63	20,992.04	12,277.67	153.16	152.86	115.46	-8,850.44	297.52	638.86	441.61	197.25	3.239					
20,800.00	12,004.55	21,092.04	12,278.98	154.75	154.45	115.41	-8,950.42	298.40	638.69	439.40	199.29	3.205					
20,900.00	12,006.47	21,192.04	12,280.30	156.33	156.03	115.36	-9,050.41	299.28	638.52	437.19	201.33	3.171					
21,000.00	12,008.39	21,292.04	12,281.62	157.92	157.62	115.31	-9,150.40	300.16	638.35	434.97	203.38	3.139					
21,100.00	12,010.30	21,392.03	12,282.93	159.51	159.21	115.25	-9,250.38	301.04	638.18	432.76	205.42	3.107					
21,200.00	12,012.22	21,492.03	12,284.25	161.10	160.80	115.20	-9,350.37	301.91	638.02	430.54	207.47	3.075					
21,300.00	12,014.14	21,592.03	12,285.57	162.70	162.40	115.15	-9,450.35	302.79	637.85	428.32	209.53	3.044					
21,400.00	12,016.06	21,692.03	12,286.88	164.29	163.99	115.10	-9,550.34	303.67	637.68	426.10	211.58	3.014					
21,500.00	12,017.97	21,792.03	12,288.20	165.89	165.59	115.04	-9,650.32	304.55	637.52	423.88	213.63	2.984					
21,600.00	12,019.89	21,892.03	12,289.52	167.48	167.18	114.99	-9,750.31	305.43	637.35	421.66	215.69	2.955					
21,700.00	12,021.81	21,992.02	12,290.83	169.08	168.78	114.94	-9,850.30	306.31	637.18	419.44	217.75	2.926					
21,800.00	12,023.73	22,092.02	12,292.15	170.68	170.38	114.88	-9,950.28	307.19	637.02	417.21	219.81	2.898					
21,900.00	12,025.64	22,192.02	12,293.47	172.28	171.98	114.83	-10,050.27	308.06	636.86	414.99	221.87	2.870					
22,000.00	12,027.56	22,292.02	12,294.79	173.88	173.58	114.78	-10,150.25	308.94	636.69	412.76	223.93	2.843					
22,100.00	12,029.48	22,392.02	12,296.10	175.48	175.18	114.73	-10,250.24	309.82	636.53	410.53	225.99	2.817					
22,200.00	12,031.40	22,492.01	12,297.42	177.08	176.78	114.67	-10,350.22	310.70	636.37	408.31	228.06	2.790					
22,300.00	12,033.31	22,592.01	12,298.74	178.68	178.38	114.62	-10,450.21	311.58	636.21	406.08	230.13	2.765					
22,400.00	12,035.23	22,692.01	12,300.05	180.29	179.99	114.57	-10,550.19	312.46	636.04	403.85	232.20	2.739					
22,500.00	12,037.15	22,792.01	12,301.37	181.89	181.59	114.52	-10,650.18	313.34	635.88	401.62	234.27	2.714					
22,600.00	12,039.07	22,892.01	12,302.69	183.50	183.20	114.46	-10,750.17	314.21	635.72	399.39	236.34	2.690					
22,700.00	12,040.98	22,992.00	12,304.00	185.11	184.80	114.41	-10,850.15	315.09	635.56	397.15	238.41	2.666					
22,800.00	12,042.90	23,092.00	12,305.32	186.71	186.41	114.36	-10,950.14	315.97	635.40	394.92	240.48	2.642					
22,900.00	12,044.82	23,192.00	12,306.64	188.32	188.02	114.30	-11,050.12	316.85	635.25	392.69	242.56	2.619					
23,000.00	12,046.74	23,292.00	12,307.96	189.93	189.63	114.25	-11,150.11	317.73	635.09	390.45	244.63	2.596					
23,100.00	12,048.66	23,392.00	12,309.27	191.54	191.24	114.20	-11,250.09	318.61	634.93	388.22	246.71	2.574					
23,200.00	12,050.57	23,492.00	12,310.59	193.15	192.85	114.14	-11,350.08	319.49	634.77	385.98	248.79	2.551					
23,300.00	12,052.49	23,591.99	12,311.91	194.76	194.46	114.09	-11,450.07	320.36	634.62	383.75	250.87	2.530					
23,400.00	12,054.41	23,691.99	12,313.22	196.37	196.07	114.04	-11,550.05	321.24	634.46	381.51	252.95	2.508					
23,500.00	12,056.33	23,791.99	12,314.54	197.99	197.68	113.99	-11,650.04	322.12	634.31	379.28	255.03	2.487					
23,600.00	12,058.24	23,891.99	12,315.86	199.60	199.29	113.93	-11,750.02	323.00	634.15	377.04	257.11	2.466					
23,700.00	12,060.16	23,991.99	12,317.17	201.21	200.91	113.88	-11,850.01	323.88	634.00	374.80	259.20	2.446					
23,800.00	12,062.08	24,091.98	12,318.49	202.83	202.52	113.83	-11,949.99	324.76	633.84	372.56	261.28	2.426					
23,888.78	12,063.78	24,180.76	12,319.66	204.11	203.95	113.78	-12,038.76	325.54	633.71	370.69	263.01	2.409					



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	13.90	13.90	0.00	0.02	-92.32	-80.51	-1,990.77	1,992.40					
100.00	100.00	113.90	113.90	0.14	0.19	-92.32	-80.51	-1,990.77	1,992.40	1,992.16	0.24	8,367.821		
200.00	200.00	213.90	213.90	0.50	0.55	-92.32	-80.51	-1,990.77	1,992.40	1,991.65	0.74	2,680.577		
300.00	300.00	313.90	313.90	0.86	0.91	-92.32	-80.51	-1,990.77	1,992.40	1,991.15	1.25	1,594.060		
400.00	400.00	413.90	413.90	1.22	1.27	-92.32	-80.51	-1,990.77	1,992.40	1,990.64	1.76	1,134.170		
500.00	500.00	513.90	513.90	1.58	1.63	-92.32	-80.51	-1,990.77	1,992.40	1,990.13	2.26	880.199		
600.00	600.00	613.90	613.90	1.93	1.98	-92.32	-80.51	-1,990.77	1,992.40	1,989.63	2.77	719.152		
700.00	700.00	713.90	713.90	2.29	2.34	-92.32	-80.51	-1,990.77	1,992.40	1,989.12	3.28	607.920		
800.00	800.00	813.90	813.90	2.65	2.70	-92.32	-80.51	-1,990.77	1,992.40	1,988.61	3.78	526.486		
900.00	900.00	913.90	913.90	3.01	3.06	-92.32	-80.51	-1,990.77	1,992.40	1,988.11	4.29	464.291		
1,000.00	1,000.00	1,013.90	1,013.90	3.37	3.42	-92.32	-80.51	-1,990.77	1,992.40	1,987.60	4.80	415.238		
1,100.00	1,100.00	1,113.90	1,113.90	3.73	3.78	-92.32	-80.51	-1,990.77	1,992.40	1,987.09	5.31	375.559		
1,200.00	1,200.00	1,213.90	1,213.90	4.08	4.13	-92.32	-80.51	-1,990.77	1,992.40	1,986.59	5.81	342.802		
1,300.00	1,300.00	1,313.90	1,313.90	4.44	4.49	-92.32	-80.51	-1,990.77	1,992.40	1,986.08	6.32	315.300		
1,400.00	1,400.00	1,413.90	1,413.90	4.80	4.85	-92.32	-80.51	-1,990.77	1,992.40	1,985.57	6.83	291.884		
1,500.00	1,500.00	1,513.90	1,513.90	5.16	5.21	-92.32	-80.51	-1,990.77	1,992.40	1,985.06	7.33	271.705		
1,600.00	1,600.00	1,613.90	1,613.90	5.52	5.57	-92.32	-80.51	-1,990.77	1,992.40	1,984.56	7.84	254.136		
1,700.00	1,700.00	1,713.90	1,713.90	5.88	5.93	-92.32	-80.51	-1,990.77	1,992.40	1,984.05	8.35	238.701		
1,800.00	1,800.00	1,813.90	1,813.90	6.24	6.29	-92.32	-80.51	-1,990.77	1,992.40	1,983.54	8.85	225.033		
1,900.00	1,900.00	1,913.90	1,913.90	6.59	6.64	-92.32	-80.51	-1,990.77	1,992.40	1,983.04	9.36	212.846		
2,000.00	2,000.00	2,013.90	2,013.90	6.95	7.00	-92.32	-80.51	-1,990.77	1,992.40	1,982.53	9.87	201.911		
2,100.00	2,100.00	2,113.90	2,113.90	7.31	7.36	-92.32	-80.51	-1,990.77	1,992.40	1,982.02	10.37	192.045		
2,200.00	2,200.00	2,213.90	2,213.90	7.67	7.72	-92.32	-80.51	-1,990.77	1,992.40	1,981.52	10.88	183.098		
2,300.00	2,300.00	2,313.90	2,313.90	8.03	8.08	-92.32	-80.51	-1,990.77	1,992.40	1,981.01	11.39	174.947		
2,400.00	2,400.00	2,413.90	2,413.90	8.39	8.44	-92.32	-80.51	-1,990.77	1,992.40	1,980.50	11.90	167.492		
2,500.00	2,500.00	2,513.90	2,513.90	8.74	8.79	-92.32	-80.51	-1,990.77	1,992.40	1,979.99	12.40	160.645		
2,600.00	2,600.00	2,613.90	2,613.90	9.10	9.15	-92.32	-80.51	-1,990.77	1,992.40	1,979.49	12.91	154.337		
2,700.00	2,700.00	2,713.90	2,713.90	9.46	9.51	-92.32	-80.51	-1,990.77	1,992.40	1,978.98	13.42	148.505		
2,800.00	2,800.00	2,813.90	2,813.90	9.82	9.87	-92.32	-80.51	-1,990.77	1,992.40	1,978.47	13.92	143.098		
2,900.00	2,900.00	2,913.90	2,913.90	10.18	10.23	-92.32	-80.51	-1,990.77	1,992.40	1,977.97	14.43	138.071		
3,000.00	3,000.00	3,013.90	3,013.90	10.54	10.59	-92.32	-80.51	-1,990.77	1,992.40	1,977.46	14.94	133.385		
3,100.00	3,100.00	3,113.90	3,113.90	10.90	10.95	-92.32	-80.51	-1,990.77	1,992.40	1,976.95	15.44	129.006		
3,200.00	3,200.00	3,213.90	3,213.90	11.25	11.30	-92.32	-80.51	-1,990.77	1,992.40	1,976.45	15.95	124.906		
3,300.00	3,300.00	3,313.90	3,313.90	11.61	11.66	-92.32	-80.51	-1,990.77	1,992.40	1,975.94	16.46	121.059		
3,400.00	3,400.00	3,413.90	3,413.90	11.97	12.02	-92.32	-80.51	-1,990.77	1,992.40	1,975.43	16.97	117.441		
3,500.00	3,500.00	3,513.90	3,513.90	12.33	12.38	-92.32	-80.51	-1,990.77	1,992.40	1,974.93	17.47	114.034		
3,600.00	3,600.00	3,613.90	3,613.90	12.69	12.74	-92.32	-80.51	-1,990.77	1,992.40	1,974.42	17.98	110.818		
3,700.00	3,700.00	3,713.90	3,713.90	13.05	13.10	-92.32	-80.51	-1,990.77	1,992.40	1,973.91	18.49	107.779		
3,800.00	3,800.00	3,813.90	3,813.90	13.41	13.45	-92.32	-80.51	-1,990.77	1,992.40	1,973.40	18.99	104.902		
3,900.00	3,900.00	3,913.90	3,913.90	13.76	13.81	-92.32	-80.51	-1,990.77	1,992.40	1,972.90	19.50	102.175		
4,000.00	4,000.00	4,013.90	4,013.90	14.12	14.17	-92.32	-80.51	-1,990.77	1,992.40	1,972.39	20.01	99.586		
4,100.00	4,100.00	4,113.90	4,113.90	14.48	14.53	-92.32	-80.51	-1,990.77	1,992.40	1,971.88	20.51	97.125		
4,200.00	4,200.00	4,213.90	4,213.90	14.84	14.89	-92.32	-80.51	-1,990.77	1,992.40	1,971.38	21.02	94.783		
4,300.00	4,300.00	4,313.90	4,313.90	15.20	15.25	-92.32	-80.51	-1,990.77	1,992.40	1,970.87	21.53	92.551		
4,400.00	4,400.00	4,413.90	4,413.90	15.56	15.61	-92.32	-80.51	-1,990.77	1,992.40	1,970.36	22.03	90.421		
4,500.00	4,500.00	4,513.90	4,513.90	15.91	15.96	-92.32	-80.51	-1,990.77	1,992.40	1,969.86	22.54	88.388 CC, ES		
4,600.00	4,599.99	4,613.89	4,613.89	16.27	16.32	-168.04	-80.51	-1,990.77	1,993.68	1,970.63	23.04	86.518		
4,700.00	4,699.91	4,713.81	4,713.81	16.61	16.68	-168.05	-80.51	-1,990.77	1,997.52	1,973.98	23.54	84.854		
4,800.00	4,799.69	4,813.59	4,813.59	16.96	17.04	-168.07	-80.51	-1,990.77	2,003.92	1,979.88	24.04	83.367		
4,900.00	4,899.27	4,913.17	4,913.17	17.31	17.40	-168.10	-80.51	-1,990.77	2,012.87	1,988.34	24.53	82.047		
5,000.00	4,998.57	5,012.47	5,012.47	17.66	17.75	-168.13	-80.51	-1,990.77	2,024.38	1,999.35	25.03	80.885		
5,033.34	5,031.61	5,045.51	5,045.51	17.78	17.87	-168.15	-80.51	-1,990.77	2,028.78	2,003.59	25.19	80.530		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	5,097.62	5,111.52	5,111.52	18.02	18.11	-168.20	-80.51	-1,990.77	2,037.86	2,012.34	25.52	79.848		
5,200.00	5,196.65	5,210.55	5,210.55	18.37	18.46	-168.28	-80.51	-1,990.77	2,051.49	2,025.48	26.02	78.856		
5,300.00	5,295.67	5,309.57	5,309.57	18.73	18.82	-168.36	-80.51	-1,990.77	2,065.13	2,038.62	26.51	77.900		
5,400.00	5,394.70	5,408.60	5,408.60	19.10	19.17	-168.43	-80.51	-1,990.77	2,078.77	2,051.76	27.01	76.976		
5,500.00	5,493.73	5,500.00	5,500.00	19.46	19.50	-168.50	-80.51	-1,990.77	2,092.42	2,064.94	27.48	76.140		
5,600.00	5,592.75	5,583.78	5,583.78	19.83	19.80	-168.55	-79.74	-1,991.27	2,106.63	2,078.70	27.94	75.412		
5,700.00	5,691.78	5,661.36	5,661.31	20.20	20.07	-168.55	-77.64	-1,992.61	2,121.85	2,093.48	28.37	74.793		
5,800.00	5,790.81	5,738.67	5,738.51	20.57	20.35	-168.51	-74.23	-1,994.79	2,138.06	2,109.26	28.80	74.236		
5,900.00	5,889.83	5,815.64	5,815.28	20.94	20.62	-168.44	-69.53	-1,997.80	2,155.26	2,126.03	29.23	73.738		
6,000.00	5,988.86	5,909.03	5,908.32	21.32	20.96	-168.32	-62.72	-2,002.16	2,173.16	2,143.46	29.71	73.156		
6,100.00	6,087.89	6,007.30	6,006.22	21.69	21.31	-168.19	-55.51	-2,006.77	2,191.10	2,160.90	30.20	72.555		
6,200.00	6,186.91	6,105.57	6,104.12	22.07	21.66	-168.07	-48.30	-2,011.38	2,209.04	2,178.34	30.69	71.971		
6,300.00	6,285.94	6,203.84	6,202.01	22.45	22.01	-167.95	-41.10	-2,016.00	2,226.99	2,195.80	31.19	71.404		
6,400.00	6,384.97	6,302.11	6,299.91	22.83	22.36	-167.83	-33.89	-2,020.61	2,244.95	2,213.27	31.69	70.852		
6,500.00	6,483.99	6,400.38	6,397.80	23.22	22.72	-167.72	-26.68	-2,025.22	2,262.92	2,230.74	32.18	70.316		
6,600.00	6,583.02	6,498.65	6,495.70	23.60	23.07	-167.60	-19.48	-2,029.83	2,280.90	2,248.22	32.68	69.795		
6,700.00	6,682.05	6,596.92	6,593.60	23.99	23.42	-167.49	-12.27	-2,034.44	2,298.89	2,265.71	33.18	69.288		
6,800.00	6,781.08	6,695.19	6,691.49	24.37	23.78	-167.38	-5.06	-2,039.06	2,316.89	2,283.21	33.68	68.795		
6,900.00	6,880.10	6,793.46	6,789.39	24.76	24.14	-167.27	2.15	-2,043.67	2,334.89	2,300.72	34.18	68.315		
7,000.00	6,979.13	6,891.73	6,887.29	25.15	24.49	-167.16	9.35	-2,048.28	2,352.91	2,318.23	34.68	67.848		
7,100.00	7,078.16	6,990.00	6,985.18	25.54	24.85	-167.06	16.56	-2,052.89	2,370.93	2,335.75	35.18	67.393		
7,200.00	7,177.18	7,088.27	7,083.08	25.93	25.21	-166.95	23.77	-2,057.51	2,388.96	2,353.27	35.68	66.950		
7,300.00	7,276.21	7,186.54	7,180.97	26.32	25.57	-166.85	30.97	-2,062.12	2,406.99	2,370.81	36.19	66.518		
7,400.00	7,375.24	7,284.81	7,278.87	26.71	25.92	-166.75	38.18	-2,066.73	2,425.04	2,388.35	36.69	66.097		
7,500.00	7,474.26	7,383.07	7,376.77	27.10	26.28	-166.65	45.39	-2,071.34	2,443.09	2,405.90	37.19	65.687		
7,600.00	7,573.29	7,481.34	7,474.66	27.50	26.64	-166.55	52.59	-2,075.96	2,461.15	2,423.45	37.70	65.287		
7,700.00	7,672.32	7,579.61	7,572.56	27.89	27.00	-166.46	59.80	-2,080.57	2,479.21	2,441.01	38.20	64.896		
7,800.00	7,771.34	7,677.88	7,670.45	28.29	27.36	-166.36	67.01	-2,085.18	2,497.28	2,458.57	38.71	64.515		
7,900.00	7,870.37	7,776.15	7,768.35	28.69	27.72	-166.27	74.21	-2,089.79	2,515.36	2,476.15	39.21	64.144		
8,000.00	7,969.40	7,874.42	7,866.25	29.08	28.09	-166.18	81.42	-2,094.40	2,533.45	2,493.72	39.72	63.781		
8,100.00	8,068.42	7,972.69	7,964.14	29.48	28.45	-166.08	88.63	-2,099.02	2,551.54	2,511.31	40.23	63.427		
8,200.00	8,167.45	8,070.96	8,062.04	29.88	28.81	-165.99	95.83	-2,103.63	2,569.63	2,528.90	40.74	63.081		
8,300.00	8,266.48	8,169.23	8,159.93	30.28	29.17	-165.91	103.04	-2,108.24	2,587.74	2,546.49	41.24	62.743		
8,400.00	8,365.50	8,290.87	8,281.15	30.68	29.62	-165.81	111.51	-2,113.66	2,605.66	2,563.83	41.83	62.292		
8,500.00	8,464.53	8,446.69	8,436.78	31.08	30.18	-165.78	118.08	-2,117.87	2,621.82	2,579.30	42.52	61.666		
8,600.00	8,563.56	8,587.39	8,577.46	31.48	30.69	-165.85	119.49	-2,118.77	2,635.89	2,592.74	43.14	61.097		
8,700.00	8,662.58	8,686.42	8,676.48	31.88	31.04	-165.93	119.49	-2,118.77	2,649.39	2,605.74	43.65	60.700		
8,800.00	8,761.61	8,785.45	8,775.51	32.28	31.39	-166.00	119.49	-2,118.77	2,662.90	2,618.75	44.15	60.311		
8,900.00	8,860.64	8,884.47	8,874.54	32.68	31.74	-166.07	119.49	-2,118.77	2,676.42	2,631.76	44.66	59.930		
9,000.00	8,959.66	8,983.50	8,973.56	33.08	32.10	-166.14	119.49	-2,118.77	2,689.93	2,644.77	45.16	59.558		
9,100.00	9,058.69	9,082.53	9,072.59	33.49	32.45	-166.21	119.49	-2,118.77	2,703.46	2,657.79	45.67	59.195		
9,200.00	9,157.72	9,181.55	9,171.62	33.89	32.80	-166.28	119.49	-2,118.77	2,716.98	2,670.81	46.18	58.839		
9,300.00	9,256.74	9,280.58	9,270.64	34.29	33.15	-166.35	119.49	-2,118.77	2,730.51	2,683.83	46.68	58.490		
9,400.00	9,355.77	9,379.61	9,369.67	34.70	33.50	-166.42	119.49	-2,118.77	2,744.05	2,696.86	47.19	58.149		
9,500.00	9,454.80	9,478.63	9,468.70	35.10	33.86	-166.49	119.49	-2,118.77	2,757.58	2,709.89	47.70	57.815		
9,600.00	9,553.82	9,577.66	9,567.72	35.51	34.21	-166.56	119.49	-2,118.77	2,771.13	2,722.92	48.20	57.488		
9,700.00	9,652.85	9,676.69	9,666.75	35.91	34.56	-166.62	119.49	-2,118.77	2,784.67	2,735.96	48.71	57.168		
9,800.00	9,751.88	9,775.71	9,765.78	36.32	34.92	-166.69	119.49	-2,118.77	2,798.22	2,749.00	49.22	56.854		
9,900.00	9,850.91	9,874.74	9,864.81	36.73	35.27	-166.75	119.49	-2,118.77	2,811.77	2,762.05	49.72	56.547		
10,000.00	9,949.93	9,973.77	9,963.83	37.13	35.62	-166.82	119.49	-2,118.77	2,825.33	2,775.10	50.23	56.246		
10,100.00	10,048.96	10,072.79	10,062.86	37.54	35.97	-166.88	119.49	-2,118.77	2,838.89	2,788.15	50.74	55.950		
10,200.00	10,147.99	10,171.82	10,161.89	37.95	36.33	-166.95	119.49	-2,118.77	2,852.45	2,801.20	51.25	55.661		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	10,247.01	10,270.85	10,260.91	38.35	36.68	-167.01	119.49	-2,118.77	2,866.02	2,814.26	51.75	55.377		
10,326.64	10,273.39	10,297.22	10,287.29	38.46	36.77	-167.03	119.49	-2,118.77	2,869.63	2,817.74	51.89	55.302		
10,400.00	10,346.13	10,369.97	10,360.03	38.76	37.03	-167.10	119.49	-2,118.77	2,878.91	2,826.64	52.26	55.086		
10,500.00	10,445.55	10,469.39	10,459.45	39.15	37.39	-167.18	119.49	-2,118.77	2,889.35	2,836.58	52.77	54.754		
10,600.00	10,545.22	10,569.06	10,559.12	39.53	37.74	-167.24	119.49	-2,118.77	2,897.26	2,843.98	53.28	54.383		
10,700.00	10,645.07	10,668.90	10,658.97	39.89	38.10	-167.29	119.49	-2,118.77	2,902.62	2,848.84	53.78	53.972		
10,800.00	10,745.02	10,768.86	10,758.92	40.24	38.45	-167.31	119.49	-2,118.77	2,905.43	2,851.14	54.28	53.525		
10,859.98	10,805.00	10,828.84	10,818.90	40.44	38.67	-91.59	119.49	-2,118.77	2,905.89	2,851.30	54.58	53.239		
10,900.00	10,845.02	10,868.86	10,858.92	40.58	38.81	-91.59	119.49	-2,118.77	2,905.89	2,851.10	54.78	53.045		
11,000.00	10,945.02	10,968.86	10,958.92	40.91	39.17	-91.59	119.49	-2,118.77	2,905.89	2,850.61	55.28	52.567		
11,100.00	11,045.02	11,068.86	11,058.92	41.25	39.52	-91.59	119.49	-2,118.77	2,905.89	2,850.11	55.78	52.097		
11,200.00	11,145.02	11,168.86	11,158.92	41.59	39.88	-91.59	119.49	-2,118.77	2,905.89	2,849.61	56.28	51.636		
11,300.00	11,245.02	11,268.86	11,258.92	41.92	40.24	-91.59	119.49	-2,118.77	2,905.89	2,849.11	56.78	51.182		
11,321.98	11,267.00	11,290.84	11,280.90	42.00	40.32	-91.59	119.49	-2,118.77	2,905.89	2,849.00	56.89	51.083		
11,350.00	11,295.01	11,318.85	11,308.91	42.09	40.42	88.99	119.49	-2,118.77	2,905.87	2,848.85	57.02	50.960		
11,400.00	11,344.78	11,368.62	11,358.68	42.24	40.59	89.08	119.49	-2,118.77	2,905.80	2,848.53	57.26	50.747		
11,450.00	11,393.96	11,414.88	11,404.92	42.39	40.75	89.23	118.10	-2,118.76	2,905.69	2,848.21	57.48	50.555		
11,500.00	11,442.17	11,461.17	11,450.91	42.53	40.89	89.38	113.01	-2,118.71	2,905.60	2,847.92	57.68	50.375		
11,550.00	11,489.05	11,508.02	11,496.89	42.65	41.03	89.54	104.10	-2,118.63	2,905.53	2,847.65	57.88	50.203		
11,600.00	11,534.24	11,555.48	11,542.57	42.77	41.16	89.70	91.28	-2,118.52	2,905.49	2,847.42	58.06	50.039		
11,650.00	11,577.39	11,603.59	11,587.64	42.88	41.29	89.86	74.47	-2,118.37	2,905.47	2,847.22	58.25	49.883		
11,652.27	11,579.30	11,605.79	11,589.66	42.89	41.30	89.87	73.61	-2,118.37	2,905.47	2,847.22	58.25	49.876		
11,700.00	11,618.19	11,652.40	11,631.75	42.98	41.42	90.03	53.61	-2,118.19	2,905.48	2,847.06	58.42	49.733		
11,750.00	11,656.31	11,701.95	11,674.54	43.07	41.53	90.20	28.68	-2,117.97	2,905.53	2,846.93	58.59	49.588		
11,800.00	11,691.46	11,752.26	11,715.64	43.14	41.64	90.36	-0.33	-2,117.72	2,905.60	2,846.84	58.76	49.449		
11,850.00	11,723.39	11,803.39	11,754.62	43.21	41.74	90.53	-33.37	-2,117.43	2,905.70	2,846.78	58.92	49.312		
11,900.00	11,751.84	11,855.35	11,791.07	43.28	41.83	90.69	-70.39	-2,117.10	2,905.83	2,846.74	59.09	49.178		
11,950.00	11,776.61	11,908.17	11,824.53	43.34	41.93	90.85	-111.24	-2,116.74	2,905.98	2,846.73	59.25	49.044		
12,000.00	11,797.49	11,961.88	11,854.54	43.39	42.04	91.00	-155.74	-2,116.35	2,906.15	2,846.73	59.42	48.909		
12,050.00	11,814.34	12,016.46	11,880.64	43.46	42.16	91.15	-203.66	-2,115.93	2,906.34	2,846.75	59.59	48.771		
12,100.00	11,827.02	12,071.92	11,902.36	43.53	42.29	91.29	-254.66	-2,115.49	2,906.55	2,846.78	59.77	48.631		
12,150.00	11,835.44	12,128.23	11,919.28	43.61	42.42	91.42	-308.34	-2,115.01	2,906.76	2,846.81	59.95	48.487		
12,200.00	11,839.54	12,185.37	11,930.97	43.70	42.56	91.54	-364.25	-2,114.52	2,906.97	2,846.83	60.14	48.339		
12,210.99	11,839.85	12,198.04	11,932.81	43.73	42.59	91.56	-376.78	-2,114.41	2,907.01	2,846.83	60.18	48.306		
12,300.00	11,841.56	12,297.04	11,938.23	43.95	42.84	91.63	-475.55	-2,113.55	2,907.18	2,846.65	60.54	48.023		
12,400.00	11,843.48	12,397.03	11,939.31	44.26	43.14	91.62	-575.53	-2,112.67	2,907.26	2,846.27	60.99	47.666		
12,500.00	11,845.39	12,497.03	11,940.40	44.64	43.50	91.60	-675.52	-2,111.79	2,907.33	2,845.80	61.53	47.249		
12,600.00	11,847.31	12,597.03	11,941.48	45.08	43.92	91.58	-775.51	-2,110.91	2,907.41	2,845.25	62.16	46.777		
12,700.00	11,849.23	12,697.02	11,942.56	45.58	44.39	91.57	-875.49	-2,110.04	2,907.48	2,844.62	62.86	46.254		
12,800.00	11,851.15	12,797.02	11,943.64	46.14	44.93	91.55	-975.48	-2,109.16	2,907.56	2,843.92	63.64	45.687		
12,900.00	11,853.06	12,897.02	11,944.73	46.75	45.51	91.53	-1,075.47	-2,108.28	2,907.64	2,843.14	64.50	45.081		
13,000.00	11,854.98	12,997.01	11,945.81	47.41	46.15	91.52	-1,175.45	-2,107.40	2,907.71	2,842.28	65.43	44.442		
13,100.00	11,856.90	13,097.01	11,946.89	48.12	46.84	91.50	-1,275.44	-2,106.52	2,907.79	2,841.36	66.43	43.775		
13,200.00	11,858.82	13,197.01	11,947.97	48.88	47.57	91.48	-1,375.43	-2,105.65	2,907.86	2,840.37	67.49	43.086		
13,300.00	11,860.74	13,297.00	11,949.06	49.68	48.35	91.47	-1,475.41	-2,104.77	2,907.94	2,839.32	68.62	42.379		
13,400.00	11,862.65	13,397.00	11,950.14	50.52	49.17	91.45	-1,575.40	-2,103.89	2,908.02	2,838.21	69.81	41.659		
13,500.00	11,864.57	13,497.00	11,951.22	51.41	50.04	91.43	-1,675.39	-2,103.01	2,908.10	2,837.04	71.05	40.930		
13,600.00	11,866.49	13,596.99	11,952.30	52.32	50.94	91.42	-1,775.37	-2,102.14	2,908.17	2,835.82	72.35	40.196		
13,700.00	11,868.41	13,696.99	11,953.38	53.28	51.88	91.40	-1,875.36	-2,101.26	2,908.25	2,834.55	73.70	39.461		
13,800.00	11,870.32	13,796.99	11,954.47	54.27	52.85	91.39	-1,975.35	-2,100.38	2,908.33	2,833.23	75.10	38.727		
13,900.00	11,872.24	13,896.98	11,955.55	55.29	53.86	91.37	-2,075.33	-2,099.50	2,908.41	2,831.87	76.54	37.998		
14,000.00	11,874.16	13,996.98	11,956.63	56.33	54.90	91.35	-2,175.32	-2,098.62	2,908.49	2,830.46	78.03	37.274		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Judge Baylor Fed Com - Judge Baylor Fed Com 601H - 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						
14,100.00	11,876.08	14,096.97	11,957.71	57.41	55.97	91.34	-2,275.31	-2,097.75	2,908.56	2,829.01	79.56	36.559						
14,200.00	11,877.99	14,196.97	11,958.80	58.52	57.06	91.32	-2,375.29	-2,096.87	2,908.64	2,827.52	81.12	35.854						
14,300.00	11,879.91	14,296.97	11,959.88	59.65	58.18	91.30	-2,475.28	-2,095.99	2,908.72	2,826.00	82.73	35.160						
14,400.00	11,881.83	14,396.96	11,960.96	60.80	59.33	91.29	-2,575.27	-2,095.11	2,908.80	2,824.44	84.36	34.479						
14,500.00	11,883.75	14,496.96	11,962.04	61.98	60.50	91.27	-2,675.25	-2,094.24	2,908.88	2,822.85	86.03	33.811						
14,600.00	11,885.66	14,596.96	11,963.13	63.17	61.69	91.25	-2,775.24	-2,093.36	2,908.96	2,821.23	87.73	33.156						
14,700.00	11,887.58	14,696.95	11,964.21	64.39	62.91	91.24	-2,875.23	-2,092.48	2,909.04	2,819.58	89.46	32.517						
14,800.00	11,889.50	14,796.95	11,965.29	65.63	64.14	91.22	-2,975.22	-2,091.60	2,909.12	2,817.90	91.22	31.892						
14,900.00	11,891.42	14,896.95	11,966.37	66.88	65.39	91.20	-3,075.20	-2,090.73	2,909.20	2,816.20	93.00	31.281						
15,000.00	11,893.33	14,996.94	11,967.46	68.15	66.66	91.19	-3,175.19	-2,089.85	2,909.28	2,814.48	94.81	30.687						
15,100.00	11,895.25	15,096.94	11,968.54	69.44	67.95	91.17	-3,275.18	-2,088.97	2,909.36	2,812.73	96.63	30.107						
15,200.00	11,897.17	15,196.94	11,969.62	70.74	69.25	91.15	-3,375.16	-2,088.09	2,909.45	2,810.96	98.48	29.542						
15,300.00	11,899.09	15,296.93	11,970.70	72.06	70.56	91.14	-3,475.15	-2,087.21	2,909.53	2,809.17	100.35	28.992						
15,400.00	11,901.00	15,396.93	11,971.79	73.39	71.89	91.12	-3,575.14	-2,086.34	2,909.61	2,807.37	102.24	28.457						
15,500.00	11,902.92	15,496.93	11,972.87	74.73	73.24	91.10	-3,675.12	-2,085.46	2,909.69	2,805.54	104.15	27.937						
15,600.00	11,904.84	15,596.92	11,973.95	76.09	74.59	91.09	-3,775.11	-2,084.58	2,909.77	2,803.70	106.08	27.431						
15,700.00	11,906.76	15,696.92	11,975.03	77.46	75.96	91.07	-3,875.10	-2,083.70	2,909.86	2,801.84	108.02	26.939						
15,800.00	11,908.67	15,796.91	11,976.12	78.84	77.33	91.06	-3,975.08	-2,082.83	2,909.94	2,799.97	109.97	26.460						
15,900.00	11,910.59	15,896.91	11,977.20	80.22	78.72	91.04	-4,075.07	-2,081.95	2,910.02	2,798.08	111.95	25.995						
16,000.00	11,912.51	15,996.91	11,978.28	81.62	80.12	91.02	-4,175.06	-2,081.07	2,910.11	2,796.18	113.93	25.543						
16,100.00	11,914.43	16,096.90	11,979.36	83.03	81.53	91.01	-4,275.04	-2,080.19	2,910.19	2,794.26	115.93	25.103						
16,200.00	11,916.34	16,196.90	11,980.45	84.45	82.95	90.99	-4,375.03	-2,079.31	2,910.27	2,792.34	117.94	24.676						
16,300.00	11,918.26	16,296.90	11,981.53	85.87	84.37	90.97	-4,475.02	-2,078.44	2,910.36	2,790.40	119.96	24.261						
16,400.00	11,920.18	16,396.89	11,982.61	87.30	85.81	90.96	-4,575.00	-2,077.56	2,910.44	2,788.45	121.99	23.857						
16,500.00	11,922.10	16,496.89	11,983.69	88.74	87.25	90.94	-4,674.99	-2,076.68	2,910.53	2,786.49	124.04	23.465						
16,600.00	11,924.01	16,596.89	11,984.77	90.19	88.70	90.92	-4,774.98	-2,075.80	2,910.61	2,784.52	126.09	23.083						
16,700.00	11,925.93	16,696.88	11,985.86	91.65	90.15	90.91	-4,874.96	-2,074.93	2,910.70	2,782.54	128.16	22.712						
16,800.00	11,927.85	16,796.88	11,986.94	93.11	91.62	90.89	-4,974.95	-2,074.05	2,910.78	2,780.55	130.23	22.351						
16,900.00	11,929.77	16,896.88	11,988.02	94.57	93.08	90.87	-5,074.94	-2,073.17	2,910.87	2,778.56	132.31	22.000						
17,000.00	11,931.68	16,996.87	11,989.10	96.05	94.56	90.86	-5,174.92	-2,072.29	2,910.95	2,776.55	134.40	21.659						
17,100.00	11,933.60	17,096.87	11,990.19	97.53	96.04	90.84	-5,274.91	-2,071.42	2,911.04	2,774.54	136.50	21.326						
17,200.00	11,935.52	17,196.87	11,991.27	99.01	97.53	90.82	-5,374.90	-2,070.54	2,911.12	2,772.52	138.61	21.003						
17,300.00	11,937.44	17,296.86	11,992.35	100.50	99.02	90.81	-5,474.88	-2,069.66	2,911.21	2,770.49	140.72	20.688						
17,400.00	11,939.35	17,396.86	11,993.43	102.00	100.51	90.79	-5,574.87	-2,068.78	2,911.30	2,768.46	142.84	20.382						
17,500.00	11,941.27	17,496.85	11,994.52	103.50	102.02	90.78	-5,674.86	-2,067.90	2,911.38	2,766.42	144.97	20.083						
17,600.00	11,943.19	17,596.85	11,995.60	105.00	103.52	90.76	-5,774.84	-2,067.03	2,911.47	2,764.37	147.10	19.793						
17,700.00	11,945.11	17,696.85	11,996.68	106.51	105.03	90.74	-5,874.83	-2,066.15	2,911.56	2,762.32	149.24	19.509						
17,800.00	11,947.02	17,796.84	11,997.76	108.02	106.55	90.73	-5,974.82	-2,065.27	2,911.65	2,760.26	151.38	19.234						
17,900.00	11,948.94	17,896.84	11,998.85	109.54	108.06	90.71	-6,074.80	-2,064.39	2,911.73	2,758.20	153.53	18.965						
18,000.00	11,950.86	17,996.84	11,999.93	111.06	109.59	90.69	-6,174.79	-2,063.52	2,911.82	2,756.13	155.69	18.703						
18,100.00	11,952.78	18,096.83	12,001.01	112.59	111.11	90.68	-6,274.78	-2,062.64	2,911.91	2,754.06	157.85	18.447						
18,200.00	11,954.70	18,196.83	12,002.09	114.11	112.64	90.66	-6,374.76	-2,061.76	2,912.00	2,751.98	160.02	18.198						
18,300.00	11,956.61	18,296.83	12,003.18	115.64	114.18	90.64	-6,474.75	-2,060.88	2,912.09	2,749.90	162.19	17.955						
18,400.00	11,958.53	18,396.82	12,004.26	117.18	115.71	90.63	-6,574.74	-2,060.00	2,912.18	2,747.81	164.36	17.718						
18,500.00	11,960.45	18,496.82	12,005.34	118.72	117.25	90.61	-6,674.72	-2,059.13	2,912.27	2,745.72	166.54	17.486						
18,600.00	11,962.37	18,596.82	12,006.42	120.26	118.80	90.59	-6,774.71	-2,058.25	2,912.36	2,743.63	168.73	17.261						
18,700.00	11,964.28	18,696.81	12,007.51	121.80	120.34	90.58	-6,874.70	-2,057.37	2,912.45	2,741.53	170.92	17.040						
18,800.00	11,966.20	18,796.81	12,008.59	123.35	121.89	90.56	-6,974.69	-2,056.49	2,912.54	2,739.43	173.11	16.825						
18,900.00	11,968.12	18,896.80	12,009.67	124.90	123.44	90.55	-7,074.67	-2,055.62	2,912.63	2,737.32	175.30	16.615						
19,000.00	11,970.04	18,996.80	12,010.75	126.45	124.99	90.53	-7,174.66	-2,054.74	2,912.72	2,735.21	177.50	16.409						
19,100.00	11,971.95	19,096.80	12,011.84	128.01	126.55	90.51	-7,274.65	-2,053.86	2,912.81	2,733.10	179.71	16.209						
19,200.00	11,973.87	19,196.79	12,012.92	129.56	128.11	90.50	-7,374.63	-2,052.98	2,912.90	2,730.99	181.91	16.013						

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:		0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
19,300.00	11,975.79	19,296.79	12,014.00	131.12	129.67	90.48	-7,474.62	-2,052.10	2,912.99	2,728.87	184.12	15.821			
19,400.00	11,977.71	19,396.79	12,015.08	132.68	131.23	90.46	-7,574.61	-2,051.23	2,913.08	2,726.75	186.33	15.634			
19,500.00	11,979.62	19,496.78	12,016.17	134.25	132.80	90.45	-7,674.59	-2,050.35	2,913.17	2,724.62	188.55	15.450			
19,600.00	11,981.54	19,596.78	12,017.25	135.81	134.36	90.43	-7,774.58	-2,049.47	2,913.27	2,722.50	190.77	15.271			
19,700.00	11,983.46	19,696.78	12,018.33	137.38	135.93	90.41	-7,874.57	-2,048.59	2,913.36	2,720.37	192.99	15.096			
19,800.00	11,985.38	19,796.77	12,019.41	138.95	137.51	90.40	-7,974.55	-2,047.72	2,913.45	2,718.24	195.21	14.924			
19,900.00	11,987.29	19,896.77	12,020.49	140.52	139.08	90.38	-8,074.54	-2,046.84	2,913.54	2,716.10	197.44	14.757			
20,000.00	11,989.21	19,996.77	12,021.58	142.10	140.65	90.36	-8,174.53	-2,045.96	2,913.64	2,713.97	199.67	14.592			
20,100.00	11,991.13	20,096.76	12,022.66	143.67	142.23	90.35	-8,274.51	-2,045.08	2,913.73	2,711.83	201.90	14.432			
20,200.00	11,993.05	20,196.76	12,023.74	145.25	143.81	90.33	-8,374.50	-2,044.21	2,913.82	2,709.69	204.13	14.274			
20,300.00	11,994.96	20,296.76	12,024.82	146.83	145.39	90.31	-8,474.49	-2,043.33	2,913.92	2,707.55	206.37	14.120			
20,400.00	11,996.88	20,396.75	12,025.91	148.41	146.97	90.30	-8,574.47	-2,042.45	2,914.01	2,705.40	208.61	13.969			
20,500.00	11,998.80	20,496.75	12,026.99	149.99	148.55	90.28	-8,674.46	-2,041.57	2,914.10	2,703.26	210.85	13.821			
20,600.00	12,000.72	20,596.74	12,028.07	151.57	150.14	90.27	-8,774.45	-2,040.69	2,914.20	2,701.11	213.09	13.676			
20,700.00	12,002.63	20,696.74	12,029.15	153.16	151.72	90.25	-8,874.43	-2,039.82	2,914.29	2,698.96	215.34	13.534			
20,800.00	12,004.55	20,796.74	12,030.24	154.75	153.31	90.23	-8,974.42	-2,038.94	2,914.39	2,696.81	217.58	13.394			
20,900.00	12,006.47	20,896.73	12,031.32	156.33	154.90	90.22	-9,074.41	-2,038.06	2,914.48	2,694.65	219.83	13.258			
21,000.00	12,008.39	20,996.73	12,032.40	157.92	156.49	90.20	-9,174.39	-2,037.18	2,914.58	2,692.50	222.08	13.124			
21,100.00	12,010.30	21,096.73	12,033.48	159.51	158.08	90.18	-9,274.38	-2,036.31	2,914.67	2,690.34	224.33	12.993			
21,200.00	12,012.22	21,196.72	12,034.57	161.10	159.68	90.17	-9,374.37	-2,035.43	2,914.77	2,688.18	226.59	12.864			
21,300.00	12,014.14	21,296.72	12,035.65	162.70	161.27	90.15	-9,474.35	-2,034.55	2,914.87	2,686.02	228.84	12.738			
21,400.00	12,016.06	21,396.72	12,036.73	164.29	162.86	90.13	-9,574.34	-2,033.67	2,914.96	2,683.86	231.10	12.614			
21,500.00	12,017.97	21,496.71	12,037.81	165.89	164.46	90.12	-9,674.33	-2,032.79	2,915.06	2,681.70	233.36	12.492			
21,600.00	12,019.89	21,596.71	12,038.90	167.48	166.06	90.10	-9,774.31	-2,031.92	2,915.15	2,679.54	235.62	12.372			
21,700.00	12,021.81	21,696.71	12,039.98	169.08	167.66	90.08	-9,874.30	-2,031.04	2,915.25	2,677.37	237.88	12.255			
21,800.00	12,023.73	21,796.70	12,041.06	170.68	169.26	90.07	-9,974.29	-2,030.16	2,915.35	2,675.21	240.14	12.140			
21,900.00	12,025.64	21,896.70	12,042.14	172.28	170.86	90.05	-10,074.27	-2,029.28	2,915.45	2,673.04	242.40	12.027			
22,000.00	12,027.56	21,996.70	12,043.23	173.88	172.46	90.04	-10,174.26	-2,028.41	2,915.54	2,670.87	244.67	11.916			
22,100.00	12,029.48	22,096.69	12,044.31	175.48	174.06	90.02	-10,274.25	-2,027.53	2,915.64	2,668.71	246.94	11.807			
22,200.00	12,031.40	22,196.69	12,045.39	177.08	175.66	90.00	-10,374.23	-2,026.65	2,915.74	2,666.54	249.20	11.700			
22,300.00	12,033.31	22,296.68	12,046.47	178.68	177.27	89.99	-10,474.22	-2,025.77	2,915.84	2,664.36	251.47	11.595			
22,400.00	12,035.23	22,396.68	12,047.56	180.29	178.87	89.97	-10,574.21	-2,024.89	2,915.94	2,662.19	253.74	11.492			
22,500.00	12,037.15	22,496.68	12,048.64	181.89	180.48	89.95	-10,674.20	-2,024.02	2,916.04	2,660.02	256.02	11.390			
22,500.03	12,037.15	22,496.71	12,048.64	181.89	180.48	89.95	-10,674.23	-2,024.02	2,916.04	2,660.02	256.02	11.390			
22,600.00	12,039.07	22,572.67	12,049.46	183.50	181.70	89.94	-10,750.18	-2,023.35	2,916.23	2,658.28	257.95	11.305			
22,700.00	12,040.98	22,572.67	12,049.46	185.11	181.70	89.94	-10,750.18	-2,023.35	2,918.87	2,660.23	258.64	11.286 SF			
22,800.00	12,042.90	22,572.67	12,049.46	186.71	181.70	89.94	-10,750.18	-2,023.35	2,924.92	2,665.91	259.02	11.292			
22,900.00	12,044.82	22,572.67	12,049.46	188.32	181.70	89.94	-10,750.18	-2,023.35	2,934.38	2,675.28	259.09	11.325			
23,000.00	12,046.74	22,572.67	12,049.46	189.93	181.70	89.94	-10,750.18	-2,023.35	2,947.19	2,688.32	258.87	11.385			
23,100.00	12,048.66	22,572.67	12,049.46	191.54	181.70	89.94	-10,750.18	-2,023.35	2,963.33	2,704.96	258.36	11.470			
23,200.00	12,050.57	22,572.67	12,049.46	193.15	181.70	89.94	-10,750.18	-2,023.35	2,982.73	2,725.15	257.58	11.580			
23,300.00	12,052.49	22,572.67	12,049.46	194.76	181.70	89.94	-10,750.18	-2,023.35	3,005.34	2,748.81	256.53	11.715			
23,400.00	12,054.41	22,572.67	12,049.46	196.37	181.70	89.94	-10,750.18	-2,023.35	3,031.08	2,775.84	255.24	11.875			
23,500.00	12,056.33	22,572.67	12,049.46	197.99	181.70	89.94	-10,750.18	-2,023.35	3,059.88	2,806.15	253.72	12.060			
23,600.00	12,058.24	22,572.67	12,049.46	199.60	181.70	89.94	-10,750.18	-2,023.35	3,091.64	2,839.64	252.00	12.269			
23,700.00	12,060.16	22,572.67	12,049.46	201.21	181.70	89.94	-10,750.18	-2,023.35	3,126.28	2,876.19	250.09	12.501			
23,800.00	12,062.08	22,572.67	12,049.46	202.83	181.70	89.94	-10,750.18	-2,023.35	3,163.70	2,915.69	248.01	12.756			
23,888.78	12,063.78	22,572.67	12,049.46	204.11	181.70	89.94	-10,750.18	-2,023.35	3,199.17	2,953.00	246.18	12.995			

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	13.60	13.60	0.00	0.02	-92.35	-80.19	-1,955.78	1,957.42					
100.00	100.00	113.60	113.60	0.14	0.19	-92.35	-80.19	-1,955.78	1,957.42	1,957.19	0.24	8,250.864		
200.00	200.00	213.60	213.60	0.50	0.55	-92.35	-80.19	-1,955.78	1,957.42	1,956.68	0.74	2,636.343		
300.00	300.00	313.60	313.60	0.86	0.91	-92.35	-80.19	-1,955.78	1,957.42	1,956.17	1.25	1,567.058		
400.00	400.00	413.60	413.60	1.22	1.27	-92.35	-80.19	-1,955.78	1,957.42	1,955.67	1.76	1,114.753		
500.00	500.00	513.60	513.60	1.58	1.62	-92.35	-80.19	-1,955.78	1,957.42	1,955.16	2.26	865.043		
600.00	600.00	613.60	613.60	1.93	1.98	-92.35	-80.19	-1,955.78	1,957.42	1,954.65	2.77	706.725		
700.00	700.00	713.60	713.60	2.29	2.34	-92.35	-80.19	-1,955.78	1,957.42	1,954.15	3.28	597.388		
800.00	800.00	813.60	813.60	2.65	2.70	-92.35	-80.19	-1,955.78	1,957.42	1,953.64	3.78	517.349		
900.00	900.00	913.60	913.60	3.01	3.06	-92.35	-80.19	-1,955.78	1,957.42	1,953.13	4.29	456.222		
1,000.00	1,000.00	1,013.60	1,013.60	3.37	3.42	-92.35	-80.19	-1,955.78	1,957.42	1,952.63	4.80	408.014		
1,100.00	1,100.00	1,113.60	1,113.60	3.73	3.78	-92.35	-80.19	-1,955.78	1,957.42	1,952.12	5.30	369.020		
1,200.00	1,200.00	1,213.60	1,213.60	4.08	4.13	-92.35	-80.19	-1,955.78	1,957.42	1,951.61	5.81	336.829		
1,300.00	1,300.00	1,313.60	1,313.60	4.44	4.49	-92.35	-80.19	-1,955.78	1,957.42	1,951.11	6.32	309.803		
1,400.00	1,400.00	1,413.60	1,413.60	4.80	4.85	-92.35	-80.19	-1,955.78	1,957.42	1,950.60	6.83	286.792		
1,500.00	1,500.00	1,513.60	1,513.60	5.16	5.21	-92.35	-80.19	-1,955.78	1,957.42	1,950.09	7.33	266.963		
1,600.00	1,600.00	1,613.60	1,613.60	5.52	5.57	-92.35	-80.19	-1,955.78	1,957.42	1,949.58	7.84	249.699		
1,700.00	1,700.00	1,713.60	1,713.60	5.88	5.93	-92.35	-80.19	-1,955.78	1,957.42	1,949.08	8.35	234.532		
1,800.00	1,800.00	1,813.60	1,813.60	6.24	6.28	-92.35	-80.19	-1,955.78	1,957.42	1,948.57	8.85	221.102		
1,900.00	1,900.00	1,913.60	1,913.60	6.59	6.64	-92.35	-80.19	-1,955.78	1,957.42	1,948.06	9.36	209.127		
2,000.00	2,000.00	2,013.60	2,013.60	6.95	7.00	-92.35	-80.19	-1,955.78	1,957.42	1,947.56	9.87	198.382		
2,100.00	2,100.00	2,113.60	2,113.60	7.31	7.36	-92.35	-80.19	-1,955.78	1,957.42	1,947.05	10.37	188.688		
2,200.00	2,200.00	2,213.60	2,213.60	7.67	7.72	-92.35	-80.19	-1,955.78	1,957.42	1,946.54	10.88	179.896		
2,300.00	2,300.00	2,313.60	2,313.60	8.03	8.08	-92.35	-80.19	-1,955.78	1,957.42	1,946.04	11.39	171.888		
2,400.00	2,400.00	2,413.60	2,413.60	8.39	8.44	-92.35	-80.19	-1,955.78	1,957.42	1,945.53	11.89	164.562		
2,500.00	2,500.00	2,513.60	2,513.60	8.74	8.79	-92.35	-80.19	-1,955.78	1,957.42	1,945.02	12.40	157.835		
2,600.00	2,600.00	2,613.60	2,613.60	9.10	9.15	-92.35	-80.19	-1,955.78	1,957.42	1,944.51	12.91	151.637		
2,700.00	2,700.00	2,713.60	2,713.60	9.46	9.51	-92.35	-80.19	-1,955.78	1,957.42	1,944.01	13.42	145.906		
2,800.00	2,800.00	2,813.60	2,813.60	9.82	9.87	-92.35	-80.19	-1,955.78	1,957.42	1,943.50	13.92	140.594		
2,900.00	2,900.00	2,913.60	2,913.60	10.18	10.23	-92.35	-80.19	-1,955.78	1,957.42	1,942.99	14.43	135.654		
3,000.00	3,000.00	3,013.60	3,013.60	10.54	10.59	-92.35	-80.19	-1,955.78	1,957.42	1,942.49	14.94	131.050		
3,100.00	3,100.00	3,113.60	3,113.60	10.90	10.94	-92.35	-80.19	-1,955.78	1,957.42	1,941.98	15.44	126.748		
3,200.00	3,200.00	3,213.60	3,213.60	11.25	11.30	-92.35	-80.19	-1,955.78	1,957.42	1,941.47	15.95	122.720		
3,300.00	3,300.00	3,313.60	3,313.60	11.61	11.66	-92.35	-80.19	-1,955.78	1,957.42	1,940.97	16.46	118.939		
3,400.00	3,400.00	3,413.60	3,413.60	11.97	12.02	-92.35	-80.19	-1,955.78	1,957.42	1,940.46	16.96	115.385		
3,500.00	3,500.00	3,513.60	3,513.60	12.33	12.38	-92.35	-80.19	-1,955.78	1,957.42	1,939.95	17.47	112.037		
3,600.00	3,600.00	3,613.60	3,613.60	12.69	12.74	-92.35	-80.19	-1,955.78	1,957.42	1,939.45	17.98	108.878		
3,700.00	3,700.00	3,713.60	3,713.60	13.05	13.10	-92.35	-80.19	-1,955.78	1,957.42	1,938.94	18.49	105.892		
3,800.00	3,800.00	3,813.60	3,813.60	13.41	13.45	-92.35	-80.19	-1,955.78	1,957.42	1,938.43	18.99	103.065		
3,900.00	3,900.00	3,913.60	3,913.60	13.76	13.81	-92.35	-80.19	-1,955.78	1,957.42	1,937.92	19.50	100.386		
4,000.00	4,000.00	4,013.60	4,013.60	14.12	14.17	-92.35	-80.19	-1,955.78	1,957.42	1,937.42	20.01	97.842		
4,100.00	4,100.00	4,113.60	4,113.60	14.48	14.53	-92.35	-80.19	-1,955.78	1,957.42	1,936.91	20.51	95.424		
4,200.00	4,200.00	4,213.60	4,213.60	14.84	14.89	-92.35	-80.19	-1,955.78	1,957.42	1,936.40	21.02	93.122		
4,300.00	4,300.00	4,313.60	4,313.60	15.20	15.25	-92.35	-80.19	-1,955.78	1,957.42	1,935.90	21.53	90.929		
4,400.00	4,400.00	4,413.60	4,413.60	15.56	15.60	-92.35	-80.19	-1,955.78	1,957.42	1,935.39	22.03	88.837		
4,500.00	4,500.00	4,513.60	4,513.60	15.91	15.96	-92.35	-80.19	-1,955.78	1,957.42	1,934.88	22.54	86.839 CC, ES		
4,600.00	4,599.99	4,620.03	4,620.03	16.27	16.34	-168.08	-80.15	-1,955.75	1,958.68	1,935.62	23.06	84.943		
4,700.00	4,699.91	4,767.44	4,767.38	16.61	16.87	-168.02	-77.24	-1,953.60	1,960.98	1,937.32	23.67	82.861		
4,800.00	4,799.69	4,914.73	4,914.37	16.96	17.39	-167.86	-69.77	-1,948.07	1,963.43	1,939.17	24.26	80.932		
4,900.00	4,899.27	5,020.63	5,019.87	17.31	17.77	-167.70	-62.38	-1,942.60	1,966.96	1,942.19	24.77	79.421		
5,000.00	4,998.57	5,120.35	5,119.21	17.66	18.12	-167.55	-55.39	-1,937.43	1,973.03	1,947.77	25.26	78.109		
5,033.34	5,031.61	5,153.57	5,152.30	17.78	18.24	-167.51	-53.06	-1,935.71	1,975.62	1,950.19	25.42	77.704		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	5,097.62	5,219.95	5,218.43	18.02	18.48	-167.43	-48.41	-1,932.26	1,981.09	1,955.33	25.75	76.924		
5,200.00	5,196.65	5,319.54	5,317.64	18.37	18.84	-167.32	-41.42	-1,927.09	1,989.30	1,963.05	26.25	75.786		
5,300.00	5,295.67	5,419.13	5,416.85	18.73	19.19	-167.21	-34.44	-1,921.92	1,997.51	1,970.77	26.74	74.688		
5,400.00	5,394.70	5,518.72	5,516.06	19.10	19.55	-167.11	-27.46	-1,916.76	2,005.74	1,978.50	27.24	73.626		
5,500.00	5,493.73	5,618.31	5,615.27	19.46	19.91	-167.00	-20.47	-1,911.59	2,013.97	1,986.23	27.74	72.600		
5,600.00	5,592.75	5,717.90	5,714.48	19.83	20.27	-166.89	-13.49	-1,906.42	2,022.21	1,993.97	28.24	71.608		
5,700.00	5,691.78	5,817.49	5,813.69	20.20	20.63	-166.79	-6.50	-1,901.25	2,030.45	2,001.71	28.74	70.648		
5,800.00	5,790.81	5,917.08	5,912.90	20.57	20.99	-166.68	0.48	-1,896.08	2,038.71	2,009.46	29.24	69.718		
5,900.00	5,889.83	6,016.67	6,012.12	20.94	21.36	-166.58	7.46	-1,890.92	2,046.96	2,017.22	29.74	68.818		
6,000.00	5,988.86	6,116.26	6,111.33	21.32	21.72	-166.47	14.45	-1,885.75	2,055.23	2,024.98	30.25	67.947		
6,100.00	6,087.89	6,215.85	6,210.54	21.69	22.08	-166.37	21.43	-1,880.58	2,063.50	2,032.75	30.75	67.102		
6,200.00	6,186.91	6,315.44	6,309.75	22.07	22.45	-166.27	28.42	-1,875.41	2,071.78	2,040.52	31.26	66.282		
6,300.00	6,285.94	6,415.03	6,408.96	22.45	22.81	-166.17	35.40	-1,870.24	2,080.07	2,048.30	31.76	65.488		
6,400.00	6,384.97	6,514.62	6,508.17	22.83	23.18	-166.07	42.38	-1,865.08	2,088.36	2,056.09	32.27	64.717		
6,500.00	6,483.99	6,614.21	6,607.38	23.22	23.54	-165.97	49.37	-1,859.91	2,096.65	2,063.88	32.78	63.969		
6,600.00	6,583.02	6,713.80	6,706.59	23.60	23.91	-165.87	56.35	-1,854.74	2,104.96	2,071.67	33.28	63.242		
6,700.00	6,682.05	6,813.39	6,805.80	23.99	24.27	-165.78	63.33	-1,849.57	2,113.27	2,079.48	33.79	62.536		
6,800.00	6,781.08	6,912.98	6,905.01	24.37	24.64	-165.68	70.32	-1,844.40	2,121.58	2,087.28	34.30	61.850		
6,900.00	6,880.10	7,012.57	7,004.22	24.76	25.01	-165.58	77.30	-1,839.24	2,129.91	2,095.09	34.81	61.183		
7,000.00	6,979.13	7,112.16	7,103.43	25.15	25.37	-165.49	84.29	-1,834.07	2,138.23	2,102.91	35.32	60.535		
7,100.00	7,078.16	7,211.75	7,202.64	25.54	25.74	-165.39	91.27	-1,828.90	2,146.57	2,110.73	35.83	59.904		
7,200.00	7,177.18	7,311.34	7,301.85	25.93	26.11	-165.30	98.25	-1,823.73	2,154.91	2,118.56	36.34	59.291		
7,300.00	7,276.21	7,410.93	7,401.06	26.32	26.48	-165.21	105.24	-1,818.56	2,163.25	2,126.39	36.86	58.693		
7,400.00	7,375.24	7,500.00	7,489.82	26.71	26.81	-165.13	112.24	-1,813.42	2,171.81	2,134.46	37.34	58.156		
7,500.00	7,474.26	7,570.35	7,560.01	27.10	27.07	-165.10	119.24	-1,811.38	2,181.40	2,143.62	37.78	57.736		
7,600.00	7,573.29	7,644.74	7,634.33	27.50	27.34	-165.09	117.73	-1,809.32	2,192.14	2,153.92	38.22	57.349		
7,700.00	7,672.32	7,718.93	7,708.49	27.89	27.60	-165.12	119.34	-1,808.12	2,204.02	2,165.36	38.66	57.008		
7,800.00	7,771.34	7,795.39	7,784.94	28.29	27.87	-165.18	119.81	-1,807.78	2,217.02	2,177.92	39.10	56.702		
7,900.00	7,870.37	7,894.42	7,883.97	28.69	28.23	-165.27	119.81	-1,807.78	2,230.49	2,190.89	39.60	56.322		
8,000.00	7,969.40	7,993.45	7,983.00	29.08	28.58	-165.36	119.81	-1,807.78	2,243.96	2,203.85	40.11	55.952		
8,100.00	8,068.42	8,092.47	8,082.02	29.48	28.93	-165.45	119.81	-1,807.78	2,257.44	2,216.83	40.61	55.590		
8,200.00	8,167.45	8,191.50	8,181.05	29.88	29.28	-165.54	119.81	-1,807.78	2,270.92	2,229.81	41.11	55.237		
8,300.00	8,266.48	8,290.53	8,280.08	30.28	29.63	-165.63	119.81	-1,807.78	2,284.41	2,242.79	41.62	54.892		
8,400.00	8,365.50	8,389.55	8,379.10	30.68	29.98	-165.71	119.81	-1,807.78	2,297.90	2,255.78	42.12	54.556		
8,500.00	8,464.53	8,488.58	8,478.13	31.08	30.33	-165.80	119.81	-1,807.78	2,311.40	2,268.77	42.62	54.227		
8,600.00	8,563.56	8,587.61	8,577.16	31.48	30.69	-165.88	119.81	-1,807.78	2,324.90	2,281.77	43.13	53.906		
8,700.00	8,662.58	8,686.63	8,676.18	31.88	31.04	-165.96	119.81	-1,807.78	2,338.41	2,294.77	43.63	53.592		
8,800.00	8,761.61	8,785.66	8,775.21	32.28	31.39	-166.05	119.81	-1,807.78	2,351.92	2,307.78	44.14	53.285		
8,900.00	8,860.64	8,884.69	8,874.24	32.68	31.74	-166.13	119.81	-1,807.78	2,365.44	2,320.79	44.64	52.985		
9,000.00	8,959.66	8,983.71	8,973.26	33.08	32.09	-166.21	119.81	-1,807.78	2,378.96	2,333.81	45.15	52.691		
9,100.00	9,058.69	9,082.74	9,072.29	33.49	32.44	-166.29	119.81	-1,807.78	2,392.48	2,346.83	45.65	52.404		
9,200.00	9,157.72	9,181.77	9,171.32	33.89	32.80	-166.37	119.81	-1,807.78	2,406.01	2,359.85	46.16	52.123		
9,300.00	9,256.74	9,280.79	9,270.34	34.29	33.15	-166.44	119.81	-1,807.78	2,419.55	2,372.88	46.67	51.848		
9,400.00	9,355.77	9,379.82	9,369.37	34.70	33.50	-166.52	119.81	-1,807.78	2,433.09	2,385.91	47.17	51.579		
9,500.00	9,454.80	9,478.85	9,468.40	35.10	33.85	-166.60	119.81	-1,807.78	2,446.63	2,398.95	47.68	51.315		
9,600.00	9,553.82	9,577.87	9,567.42	35.51	34.21	-166.67	119.81	-1,807.78	2,460.18	2,411.99	48.18	51.057		
9,700.00	9,652.85	9,676.90	9,666.45	35.91	34.56	-166.75	119.81	-1,807.78	2,473.73	2,425.04	48.69	50.804		
9,800.00	9,751.88	9,775.93	9,765.48	36.32	34.91	-166.82	119.81	-1,807.78	2,487.29	2,438.09	49.20	50.557		
9,900.00	9,850.91	9,874.95	9,864.51	36.73	35.26	-166.89	119.81	-1,807.78	2,500.85	2,451.14	49.70	50.314		
10,000.00	9,949.93	9,973.98	9,963.53	37.13	35.61	-166.96	119.81	-1,807.78	2,514.41	2,464.20	50.21	50.076		
10,100.00	10,048.96	10,073.01	10,062.56	37.54	35.97	-167.04	119.81	-1,807.78	2,527.98	2,477.26	50.72	49.843		
10,200.00	10,147.99	10,172.03	10,161.59	37.95	36.32	-167.11	119.81	-1,807.78	2,541.55	2,490.32	51.23	49.614		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	10,247.01	10,271.06	10,260.61	38.35	36.67	-167.18	119.81	-1,807.78	2,555.12	2,503.39	51.73	49.390		
10,326.64	10,273.39	10,297.44	10,286.99	38.46	36.77	-167.19	119.81	-1,807.78	2,558.74	2,506.87	51.87	49.331		
10,400.00	10,346.13	10,370.18	10,359.73	38.76	37.03	-167.27	119.81	-1,807.78	2,568.02	2,515.78	52.24	49.157		
10,500.00	10,445.55	10,469.60	10,459.15	39.15	37.38	-167.36	119.81	-1,807.78	2,578.47	2,525.73	52.75	48.883		
10,600.00	10,545.22	10,569.27	10,558.82	39.53	37.73	-167.42	119.81	-1,807.78	2,586.39	2,533.13	53.25	48.568		
10,700.00	10,645.07	10,669.12	10,658.67	39.89	38.09	-167.47	119.81	-1,807.78	2,591.75	2,537.99	53.76	48.212		
10,800.00	10,745.02	10,769.07	10,758.62	40.24	38.45	-167.49	119.81	-1,807.78	2,594.56	2,540.30	54.26	47.818		
10,859.98	10,805.00	10,829.05	10,818.60	40.44	38.66	-91.77	119.81	-1,807.78	2,595.02	2,540.46	54.56	47.563		
10,900.00	10,845.02	10,869.07	10,858.62	40.58	38.80	-91.77	119.81	-1,807.78	2,595.02	2,540.26	54.76	47.390		
11,000.00	10,945.02	10,969.07	10,958.62	40.91	39.16	-91.77	119.81	-1,807.78	2,595.02	2,539.76	55.26	46.963		
11,100.00	11,045.02	11,069.07	11,058.62	41.25	39.52	-91.77	119.81	-1,807.78	2,595.02	2,539.26	55.76	46.543		
11,200.00	11,145.02	11,169.07	11,158.62	41.59	39.87	-91.77	119.81	-1,807.78	2,595.02	2,538.77	56.25	46.130		
11,300.00	11,245.02	11,269.07	11,258.62	41.92	40.23	-91.77	119.81	-1,807.78	2,595.02	2,538.27	56.75	45.725		
11,321.98	11,267.00	11,291.05	11,280.60	42.00	40.31	-91.77	119.81	-1,807.78	2,595.02	2,538.16	56.86	45.637		
11,350.00	11,295.01	11,319.06	11,308.61	42.09	40.41	88.81	119.81	-1,807.78	2,595.00	2,538.00	57.00	45.526		
11,400.00	11,344.78	11,368.83	11,358.38	42.24	40.58	88.92	119.81	-1,807.78	2,594.91	2,537.67	57.24	45.335		
11,450.00	11,393.96	11,418.01	11,407.56	42.39	40.76	89.13	119.81	-1,807.78	2,594.76	2,537.29	57.47	45.149		
11,500.00	11,442.17	11,466.22	11,455.77	42.53	40.93	89.42	119.81	-1,807.78	2,594.58	2,536.89	57.70	44.968		
11,550.00	11,489.05	11,513.10	11,502.65	42.65	41.10	89.79	119.81	-1,807.78	2,594.46	2,536.54	57.92	44.795		
11,574.77	11,511.67	11,535.72	11,525.27	42.71	41.18	90.00	119.81	-1,807.78	2,594.44	2,536.42	58.02	44.714		
11,600.00	11,534.24	11,558.29	11,547.84	42.77	41.26	90.22	119.81	-1,807.78	2,594.46	2,536.33	58.13	44.633		
11,650.00	11,577.39	11,601.44	11,590.99	42.88	41.41	90.68	119.81	-1,807.78	2,594.70	2,536.36	58.33	44.482		
11,700.00	11,618.19	11,642.24	11,631.79	42.98	41.56	91.14	119.81	-1,807.78	2,595.26	2,536.74	58.52	44.345		
11,750.00	11,656.31	11,682.52	11,672.07	43.07	41.70	91.61	119.66	-1,807.78	2,596.27	2,537.56	58.71	44.222		
11,800.00	11,691.46	11,728.88	11,718.32	43.14	41.85	92.15	116.73	-1,807.75	2,597.74	2,538.84	58.90	44.102		
11,850.00	11,723.39	11,778.70	11,767.59	43.21	42.00	92.69	109.43	-1,807.69	2,599.64	2,540.54	59.10	43.990		
11,900.00	11,751.84	11,832.90	11,820.24	43.28	42.16	93.25	96.66	-1,807.58	2,601.96	2,542.67	59.29	43.885		
11,950.00	11,776.61	11,892.69	11,876.63	43.34	42.32	93.84	76.87	-1,807.41	2,604.67	2,545.18	59.49	43.787		
12,000.00	11,797.49	11,959.67	11,936.97	43.39	42.49	94.48	47.87	-1,807.16	2,607.70	2,548.02	59.68	43.694		
12,050.00	11,814.34	12,035.94	12,001.01	43.46	42.65	95.17	6.54	-1,806.80	2,610.96	2,551.09	59.87	43.609		
12,100.00	11,827.02	12,124.06	12,067.39	43.53	42.82	95.93	-51.27	-1,806.29	2,614.30	2,554.23	60.06	43.526		
12,150.00	11,835.44	12,226.83	12,132.53	43.61	43.01	96.72	-130.58	-1,805.61	2,617.49	2,557.23	60.26	43.435		
12,200.00	11,839.54	12,346.41	12,189.09	43.70	43.28	97.49	-235.68	-1,804.69	2,620.26	2,559.76	60.49	43.316		
12,210.99	11,839.85	12,375.00	12,199.28	43.73	43.34	97.64	-262.39	-1,804.46	2,620.77	2,560.22	60.55	43.283		
12,300.00	11,841.56	12,585.71	12,232.17	43.95	43.85	98.27	-469.38	-1,802.66	2,622.33	2,561.23	61.09	42.923		
12,400.00	11,843.48	12,685.71	12,233.25	44.26	44.15	98.25	-569.37	-1,801.80	2,622.31	2,560.76	61.55	42.605		
12,500.00	11,845.39	12,785.70	12,234.33	44.64	44.50	98.23	-669.36	-1,800.93	2,622.30	2,560.21	62.09	42.236		
12,600.00	11,847.31	12,885.70	12,235.42	45.08	44.90	98.21	-769.35	-1,800.06	2,622.29	2,559.58	62.71	41.819		
12,700.00	11,849.23	12,985.70	12,236.50	45.58	45.37	98.19	-869.33	-1,799.19	2,622.27	2,558.87	63.40	41.359		
12,800.00	11,851.15	13,085.69	12,237.58	46.14	45.88	98.18	-969.32	-1,798.32	2,622.26	2,558.09	64.18	40.860		
12,900.00	11,853.06	13,185.69	12,238.66	46.75	46.45	98.16	-1,069.31	-1,797.45	2,622.25	2,557.23	65.02	40.328		
13,000.00	11,854.98	13,285.68	12,239.75	47.41	47.08	98.14	-1,169.29	-1,796.59	2,622.24	2,556.30	65.94	39.767		
13,100.00	11,856.90	13,385.68	12,240.83	48.12	47.75	98.12	-1,269.28	-1,795.72	2,622.23	2,555.30	66.93	39.181		
13,200.00	11,858.82	13,485.68	12,241.91	48.88	48.46	98.10	-1,369.27	-1,794.85	2,622.22	2,554.24	67.98	38.576		
13,300.00	11,860.74	13,585.67	12,243.00	49.68	49.22	98.08	-1,469.25	-1,793.98	2,622.21	2,553.12	69.09	37.955		
13,400.00	11,862.65	13,685.67	12,244.08	50.52	50.03	98.07	-1,569.24	-1,793.11	2,622.20	2,551.94	70.26	37.322		
13,500.00	11,864.57	13,785.67	12,245.16	51.41	50.88	98.05	-1,669.23	-1,792.24	2,622.19	2,550.70	71.49	36.680		
13,600.00	11,866.49	13,885.66	12,246.24	52.32	51.76	98.03	-1,769.21	-1,791.38	2,622.18	2,549.41	72.77	36.035		
13,700.00	11,868.41	13,985.66	12,247.33	53.28	52.68	98.01	-1,869.20	-1,790.51	2,622.17	2,548.07	74.10	35.387		
13,800.00	11,870.32	14,085.66	12,248.41	54.27	53.64	97.99	-1,969.19	-1,789.64	2,622.16	2,546.68	75.48	34.741		
13,900.00	11,872.24	14,185.65	12,249.49	55.29	54.63	97.97	-2,069.17	-1,788.77	2,622.15	2,545.25	76.90	34.097		
14,000.00	11,874.16	14,285.65	12,250.58	56.33	55.65	97.95	-2,169.16	-1,787.90	2,622.14	2,543.77	78.37	33.459		

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 Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Judge Baylor Fed Com - Judge Baylor Fed Com 701H - 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)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
14,100.00	11,876.08	14,385.65	12,251.66	57.41	56.70	97.94	-2,269.15	-1,787.03	2,622.13	2,542.25	79.88	32.827						
14,200.00	11,877.99	14,485.64	12,252.74	58.52	57.78	97.92	-2,369.13	-1,786.17	2,622.12	2,540.70	81.42	32.204						
14,300.00	11,879.91	14,585.64	12,253.82	59.65	58.89	97.90	-2,469.12	-1,785.30	2,622.11	2,539.11	83.00	31.590						
14,400.00	11,881.83	14,685.64	12,254.91	60.80	60.02	97.88	-2,569.11	-1,784.43	2,622.11	2,537.48	84.62	30.986						
14,500.00	11,883.75	14,785.63	12,255.99	61.98	61.17	97.86	-2,669.10	-1,783.56	2,622.10	2,535.83	86.27	30.394						
14,600.00	11,885.66	14,885.63	12,257.07	63.17	62.35	97.84	-2,769.08	-1,782.69	2,622.09	2,534.14	87.95	29.814						
14,700.00	11,887.58	14,985.62	12,258.16	64.39	63.55	97.83	-2,869.07	-1,781.82	2,622.08	2,532.43	89.66	29.246						
14,800.00	11,889.50	15,085.62	12,259.24	65.63	64.77	97.81	-2,969.06	-1,780.96	2,622.08	2,530.69	91.39	28.691						
14,900.00	11,891.42	15,185.62	12,260.32	66.88	66.00	97.79	-3,069.04	-1,780.09	2,622.07	2,528.92	93.15	28.148						
15,000.00	11,893.33	15,285.61	12,261.40	68.15	67.26	97.77	-3,169.03	-1,779.22	2,622.06	2,527.13	94.94	27.619						
15,100.00	11,895.25	15,385.61	12,262.49	69.44	68.53	97.75	-3,269.02	-1,778.35	2,622.06	2,525.31	96.75	27.103						
15,200.00	11,897.17	15,485.61	12,263.57	70.74	69.82	97.73	-3,369.00	-1,777.48	2,622.05	2,523.48	98.57	26.600						
15,300.00	11,899.09	15,585.60	12,264.65	72.06	71.12	97.72	-3,468.99	-1,776.62	2,622.05	2,521.62	100.42	26.110						
15,400.00	11,901.00	15,685.60	12,265.73	73.39	72.44	97.70	-3,568.98	-1,775.75	2,622.04	2,519.75	102.29	25.632						
15,500.00	11,902.92	15,785.60	12,266.82	74.73	73.77	97.68	-3,668.96	-1,774.88	2,622.04	2,517.86	104.18	25.168						
15,600.00	11,904.84	15,885.59	12,267.90	76.09	75.11	97.66	-3,768.95	-1,774.01	2,622.03	2,515.95	106.09	24.716						
15,700.00	11,906.76	15,985.59	12,268.98	77.46	76.47	97.64	-3,868.94	-1,773.14	2,622.03	2,514.02	108.01	24.276						
15,800.00	11,908.67	16,085.59	12,270.07	78.84	77.84	97.62	-3,968.92	-1,772.27	2,622.02	2,512.08	109.95	23.848						
15,900.00	11,910.59	16,185.58	12,271.15	80.22	79.21	97.61	-4,068.91	-1,771.41	2,622.02	2,510.12	111.90	23.432						
16,000.00	11,912.51	16,285.58	12,272.23	81.62	80.60	97.59	-4,168.90	-1,770.54	2,622.02	2,508.15	113.86	23.028						
16,100.00	11,914.43	16,385.58	12,273.31	83.03	82.00	97.57	-4,268.88	-1,769.67	2,622.01	2,506.17	115.84	22.634						
16,200.00	11,916.34	16,485.57	12,274.40	84.45	83.41	97.55	-4,368.87	-1,768.80	2,622.01	2,504.18	117.83	22.252						
16,300.00	11,918.26	16,585.57	12,275.48	85.87	84.82	97.53	-4,468.86	-1,767.93	2,622.01	2,502.17	119.84	21.879						
16,400.00	11,920.18	16,685.56	12,276.56	87.30	86.25	97.51	-4,568.84	-1,767.06	2,622.01	2,500.15	121.85	21.518						
16,500.00	11,922.10	16,785.56	12,277.65	88.74	87.68	97.49	-4,668.83	-1,766.20	2,622.00	2,498.12	123.88	21.165						
16,600.00	11,924.01	16,885.56	12,278.73	90.19	89.12	97.48	-4,768.82	-1,765.33	2,622.00	2,496.08	125.92	20.823						
16,700.00	11,925.93	16,985.55	12,279.81	91.65	90.57	97.46	-4,868.81	-1,764.46	2,622.00	2,494.04	127.96	20.490						
16,800.00	11,927.85	17,085.55	12,280.89	93.11	92.02	97.44	-4,968.79	-1,763.59	2,622.00	2,491.98	130.02	20.166						
16,900.00	11,929.77	17,185.55	12,281.98	94.57	93.48	97.42	-5,068.78	-1,762.72	2,622.00	2,489.91	132.09	19.851						
17,000.00	11,931.68	17,285.54	12,283.06	96.05	94.95	97.40	-5,168.77	-1,761.85	2,622.00	2,487.84	134.16	19.544						
17,100.00	11,933.60	17,385.54	12,284.14	97.53	96.42	97.38	-5,268.75	-1,760.99	2,622.00	2,485.75	136.24	19.245						
17,200.00	11,935.52	17,485.54	12,285.23	99.01	97.90	97.37	-5,368.74	-1,760.12	2,622.00	2,483.66	138.33	18.954						
17,241.91	11,936.32	17,527.45	12,285.68	99.64	98.52	97.36	-5,410.64	-1,759.75	2,622.00	2,482.79	139.21	18.835						
17,300.00	11,937.44	17,585.53	12,286.31	100.50	99.39	97.35	-5,468.73	-1,759.25	2,622.00	2,481.57	140.43	18.671						
17,400.00	11,939.35	17,685.53	12,287.39	102.00	100.88	97.33	-5,568.71	-1,758.38	2,622.00	2,479.46	142.53	18.396						
17,500.00	11,941.27	17,785.53	12,288.47	103.50	102.37	97.31	-5,668.70	-1,757.51	2,622.00	2,477.35	144.64	18.127						
17,600.00	11,943.19	17,885.52	12,289.56	105.00	103.87	97.29	-5,768.69	-1,756.64	2,622.00	2,475.24	146.76	17.866						
17,700.00	11,945.11	17,985.52	12,290.64	106.51	105.37	97.27	-5,868.67	-1,755.78	2,622.00	2,473.11	148.89	17.611						
17,800.00	11,947.02	18,085.51	12,291.72	108.02	106.88	97.26	-5,968.66	-1,754.91	2,622.00	2,470.98	151.02	17.362						
17,900.00	11,948.94	18,185.51	12,292.80	109.54	108.39	97.24	-6,068.65	-1,754.04	2,622.00	2,468.85	153.15	17.120						
18,000.00	11,950.86	18,285.51	12,293.89	111.06	109.91	97.22	-6,168.63	-1,753.17	2,622.00	2,466.71	155.29	16.884						
18,100.00	11,952.78	18,385.50	12,294.97	112.59	111.43	97.20	-6,268.62	-1,752.30	2,622.01	2,464.57	157.44	16.654						
18,200.00	11,954.70	18,485.50	12,296.05	114.11	112.95	97.18	-6,368.61	-1,751.43	2,622.01	2,462.42	159.59	16.429						
18,300.00	11,956.61	18,585.50	12,297.14	115.64	114.48	97.16	-6,468.59	-1,750.57	2,622.01	2,460.26	161.75	16.210						
18,400.00	11,958.53	18,685.49	12,298.22	117.18	116.01	97.15	-6,568.58	-1,749.70	2,622.01	2,458.10	163.91	15.997						
18,500.00	11,960.45	18,785.49	12,299.30	118.72	117.55	97.13	-6,668.57	-1,748.83	2,622.02	2,455.94	166.08	15.788						
18,600.00	11,962.37	18,885.49	12,300.38	120.26	119.09	97.11	-6,768.55	-1,747.96	2,622.02	2,453.78	168.25	15.584						
18,700.00	11,964.28	18,985.48	12,301.47	121.80	120.63	97.09	-6,868.54	-1,747.09	2,622.02	2,451.60	170.42	15.386						
18,800.00	11,966.20	19,085.48	12,302.55	123.35	122.17	97.07	-6,968.53	-1,746.23	2,622.03	2,449.43	172.60	15.191						
18,900.00	11,968.12	19,185.48	12,303.63	124.90	123.72	97.05	-7,068.52	-1,745.36	2,622.03	2,447.25	174.78	15.002						
19,000.00	11,970.04	19,285.47	12,304.72	126.45	125.26	97.04	-7,168.50	-1,744.49	2,622.04	2,445.07	176.97	14.816						
19,100.00	11,971.95	19,385.47	12,305.80	128.01	126.82	97.02	-7,268.49	-1,743.62	2,622.04	2,442.88	179.16	14.635						

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Judge Baylor Fed Com - Judge Baylor Fed Com 701H - 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		
19,200.00	11,973.87	19,485.47	12,306.88	129.56	128.37	97.00	-7,368.48	-1,742.75	2,622.05	2,440.70	181.35	14.458					
19,300.00	11,975.79	19,585.46	12,307.96	131.12	129.93	96.98	-7,468.46	-1,741.88	2,622.05	2,438.51	183.55	14.285					
19,400.00	11,977.71	19,685.46	12,309.05	132.68	131.49	96.96	-7,568.45	-1,741.02	2,622.06	2,436.31	185.75	14.116					
19,500.00	11,979.62	19,785.45	12,310.13	134.25	133.05	96.94	-7,668.44	-1,740.15	2,622.07	2,434.11	187.95	13.951					
19,600.00	11,981.54	19,885.45	12,311.21	135.81	134.61	96.92	-7,768.42	-1,739.28	2,622.07	2,431.91	190.16	13.789					
19,700.00	11,983.46	19,985.45	12,312.30	137.38	136.18	96.91	-7,868.41	-1,738.41	2,622.08	2,429.71	192.37	13.631					
19,800.00	11,985.38	20,085.44	12,313.38	138.95	137.74	96.89	-7,968.40	-1,737.54	2,622.08	2,427.50	194.58	13.476					
19,900.00	11,987.29	20,185.44	12,314.46	140.52	139.31	96.87	-8,068.38	-1,736.67	2,622.09	2,425.30	196.79	13.324					
20,000.00	11,989.21	20,285.44	12,315.54	142.10	140.88	96.85	-8,168.37	-1,735.81	2,622.10	2,423.09	199.01	13.176					
20,100.00	11,991.13	20,385.43	12,316.63	143.67	142.46	96.83	-8,268.36	-1,734.94	2,622.11	2,420.87	201.23	13.030					
20,200.00	11,993.05	20,485.43	12,317.71	145.25	144.03	96.81	-8,368.34	-1,734.07	2,622.11	2,418.66	203.46	12.888					
20,300.00	11,994.96	20,585.43	12,318.79	146.83	145.61	96.80	-8,468.33	-1,733.20	2,622.12	2,416.44	205.68	12.748					
20,400.00	11,996.88	20,685.42	12,319.87	148.41	147.19	96.78	-8,568.32	-1,732.33	2,622.13	2,414.22	207.91	12.612					
20,500.00	11,998.80	20,785.42	12,320.96	149.99	148.77	96.76	-8,668.30	-1,731.46	2,622.14	2,412.00	210.14	12.478					
20,600.00	12,000.72	20,885.42	12,322.04	151.57	150.35	96.74	-8,768.29	-1,730.60	2,622.15	2,409.78	212.37	12.347					
20,700.00	12,002.63	20,985.41	12,323.12	153.16	151.93	96.72	-8,868.28	-1,729.73	2,622.16	2,407.55	214.61	12.218					
20,800.00	12,004.55	21,085.41	12,324.21	154.75	153.51	96.70	-8,968.27	-1,728.86	2,622.17	2,405.32	216.84	12.092					
20,900.00	12,006.47	21,185.41	12,325.29	156.33	155.10	96.69	-9,068.25	-1,727.99	2,622.18	2,403.10	219.08	11.969					
21,000.00	12,008.39	21,285.40	12,326.37	157.92	156.69	96.67	-9,168.24	-1,727.12	2,622.19	2,400.87	221.32	11.848					
21,100.00	12,010.30	21,385.40	12,327.45	159.51	158.28	96.65	-9,268.23	-1,726.25	2,622.20	2,398.63	223.56	11.729					
21,200.00	12,012.22	21,485.39	12,328.54	161.10	159.87	96.63	-9,368.21	-1,725.39	2,622.21	2,396.40	225.81	11.613					
21,300.00	12,014.14	21,585.39	12,329.62	162.70	161.46	96.61	-9,468.20	-1,724.52	2,622.22	2,394.16	228.05	11.498					
21,400.00	12,016.06	21,685.39	12,330.70	164.29	163.05	96.59	-9,568.19	-1,723.65	2,622.23	2,391.93	230.30	11.386					
21,500.00	12,017.97	21,785.38	12,331.79	165.89	164.64	96.58	-9,668.17	-1,722.78	2,622.24	2,389.69	232.55	11.276					
21,600.00	12,019.89	21,885.38	12,332.87	167.48	166.24	96.56	-9,768.16	-1,721.91	2,622.25	2,387.45	234.80	11.168					
21,700.00	12,021.81	21,985.38	12,333.95	169.08	167.83	96.54	-9,868.15	-1,721.05	2,622.26	2,385.21	237.06	11.062					
21,800.00	12,023.73	22,085.37	12,335.03	170.68	169.43	96.52	-9,968.13	-1,720.18	2,622.28	2,382.97	239.31	10.958					
21,900.00	12,025.64	22,185.37	12,336.12	172.28	171.03	96.50	-10,068.12	-1,719.31	2,622.29	2,380.72	241.57	10.855					
22,000.00	12,027.56	22,285.37	12,337.20	173.88	172.63	96.48	-10,168.11	-1,718.44	2,622.30	2,378.48	243.83	10.755					
22,100.00	12,029.48	22,385.36	12,338.28	175.48	174.23	96.47	-10,268.09	-1,717.57	2,622.32	2,376.23	246.08	10.656					
22,200.00	12,031.40	22,485.36	12,339.37	177.08	175.83	96.45	-10,368.08	-1,716.70	2,622.33	2,373.98	248.35	10.559					
22,300.00	12,033.31	22,585.36	12,340.45	178.68	177.43	96.43	-10,468.07	-1,715.84	2,622.34	2,371.73	250.61	10.464					
22,400.00	12,035.23	22,685.35	12,341.53	180.29	179.03	96.41	-10,568.05	-1,714.97	2,622.36	2,369.49	252.87	10.370					
22,500.00	12,037.15	22,785.35	12,342.61	181.89	180.64	96.39	-10,668.04	-1,714.10	2,622.37	2,367.23	255.13	10.278					
22,500.50	12,037.16	22,785.84	12,342.62	181.90	180.64	96.39	-10,668.54	-1,714.09	2,622.37	2,367.22	255.15	10.278					
22,600.00	12,039.07	22,863.52	12,343.46	183.50	181.89	96.38	-10,746.20	-1,713.42	2,622.47	2,365.41	257.07	10.202					
22,700.00	12,040.98	22,863.52	12,343.46	185.11	181.89	96.38	-10,746.20	-1,713.42	2,625.23	2,367.66	257.56	10.193 SF					
22,800.00	12,042.90	22,863.52	12,343.46	186.71	181.89	96.38	-10,746.20	-1,713.42	2,631.78	2,374.10	257.68	10.213					
22,900.00	12,044.82	22,863.52	12,343.46	188.32	181.89	96.38	-10,746.20	-1,713.42	2,642.10	2,384.67	257.43	10.263					
23,000.00	12,046.74	22,863.52	12,343.46	189.93	181.89	96.38	-10,746.20	-1,713.42	2,656.15	2,399.34	256.81	10.343					
23,100.00	12,048.66	22,863.52	12,343.46	191.54	181.89	96.38	-10,746.20	-1,713.42	2,673.87	2,418.02	255.85	10.451					
23,200.00	12,050.57	22,863.52	12,343.46	193.15	181.89	96.38	-10,746.20	-1,713.42	2,695.19	2,440.63	254.56	10.588					
23,300.00	12,052.49	22,863.52	12,343.46	194.76	181.89	96.38	-10,746.20	-1,713.42	2,720.01	2,467.04	252.97	10.752					
23,400.00	12,054.41	22,863.52	12,343.46	196.37	181.89	96.38	-10,746.20	-1,713.42	2,748.26	2,497.16	251.09	10.945					
23,500.00	12,056.33	22,863.52	12,343.46	197.99	181.89	96.38	-10,746.20	-1,713.42	2,779.81	2,530.83	248.98	11.165					
23,600.00	12,058.24	22,863.52	12,343.46	199.60	181.89	96.38	-10,746.20	-1,713.42	2,814.57	2,567.94	246.63	11.412					
23,700.00	12,060.16	22,863.52	12,343.46	201.21	181.89	96.38	-10,746.20	-1,713.42	2,852.41	2,608.31	244.09	11.686					
23,800.00	12,062.08	22,863.52	12,343.46	202.83	181.89	96.38	-10,746.20	-1,713.42	2,893.21	2,651.81	241.40	11.985					
23,888.78	12,063.78	22,863.52	12,343.46	204.11	181.89	96.38	-10,746.20	-1,713.42	2,931.82	2,692.66	239.16	12.259					

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 Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													LHS Wildcat Fed Com - LHS Wildcat 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					
0.00	0.00	0.00	0.00	0.00	0.00	91.02	-40.64	2,283.90	2,284.39								
100.00	100.00	75.40	75.40	0.14	0.11	91.02	-40.64	2,283.90	2,284.26	2,284.08	0.18	N/A					
200.00	200.00	175.40	175.40	0.50	0.41	91.02	-40.64	2,283.90	2,284.26	2,283.61	0.65	3,525.883					
300.00	300.00	275.40	275.40	0.86	0.77	91.02	-40.64	2,283.90	2,284.26	2,283.11	1.15	1,980.306					
400.00	400.00	375.40	375.40	1.22	1.13	91.02	-40.64	2,283.90	2,284.26	2,282.60	1.66	1,376.120					
500.00	500.00	475.40	475.40	1.58	1.49	91.02	-40.64	2,283.90	2,284.26	2,282.09	2.17	1,054.302					
600.00	600.00	575.40	575.40	1.93	1.85	91.02	-40.64	2,283.90	2,284.26	2,281.59	2.67	854.442					
700.00	700.00	675.40	675.40	2.29	2.20	91.02	-40.64	2,283.90	2,284.26	2,281.08	3.18	718.268					
800.00	800.00	775.40	775.40	2.65	2.56	91.02	-40.64	2,283.90	2,284.26	2,280.57	3.69	619.527					
900.00	900.00	875.40	875.40	3.01	2.92	91.02	-40.64	2,283.90	2,284.26	2,280.07	4.19	544.650					
1,000.00	1,000.00	975.40	975.40	3.37	3.28	91.02	-40.64	2,283.90	2,284.26	2,279.56	4.70	485.920					
1,100.00	1,100.00	1,075.40	1,075.40	3.73	3.64	91.02	-40.64	2,283.90	2,284.26	2,279.05	5.21	438.622					
1,200.00	1,200.00	1,175.40	1,175.40	4.08	4.00	91.02	-40.64	2,283.90	2,284.26	2,278.55	5.71	399.714					
1,300.00	1,300.00	1,275.40	1,275.40	4.44	4.36	91.02	-40.64	2,283.90	2,284.26	2,278.04	6.22	367.146					
1,400.00	1,400.00	1,375.40	1,375.40	4.80	4.71	91.02	-40.64	2,283.90	2,284.26	2,277.53	6.73	339.485					
1,500.00	1,500.00	1,475.40	1,475.40	5.16	5.07	91.02	-40.64	2,283.90	2,284.26	2,277.03	7.24	315.700					
1,600.00	1,600.00	1,575.40	1,575.40	5.52	5.43	91.02	-40.64	2,283.90	2,284.26	2,276.52	7.74	295.030					
1,700.00	1,700.00	1,675.40	1,675.40	5.88	5.79	91.02	-40.64	2,283.90	2,284.26	2,276.01	8.25	276.900					
1,800.00	1,800.00	1,775.40	1,775.40	6.24	6.15	91.02	-40.64	2,283.90	2,284.26	2,275.51	8.76	260.869					
1,900.00	1,900.00	1,875.40	1,875.40	6.59	6.51	91.02	-40.64	2,283.90	2,284.26	2,275.00	9.26	246.593					
2,000.00	2,000.00	1,975.40	1,975.40	6.95	6.86	91.02	-40.64	2,283.90	2,284.26	2,274.49	9.77	233.798					
2,100.00	2,100.00	2,075.40	2,075.40	7.31	7.22	91.02	-40.64	2,283.90	2,284.26	2,273.98	10.28	222.265					
2,200.00	2,200.00	2,175.40	2,175.40	7.67	7.58	91.02	-40.64	2,283.90	2,284.26	2,273.48	10.78	211.817					
2,300.00	2,300.00	2,275.40	2,275.40	8.03	7.94	91.02	-40.64	2,283.90	2,284.26	2,272.97	11.29	202.307					
2,400.00	2,400.00	2,375.40	2,375.40	8.39	8.30	91.02	-40.64	2,283.90	2,284.26	2,272.46	11.80	193.614					
2,500.00	2,500.00	2,475.40	2,475.40	8.74	8.66	91.02	-40.64	2,283.90	2,284.26	2,271.96	12.30	185.637					
2,600.00	2,600.00	2,575.40	2,575.40	9.10	9.02	91.02	-40.64	2,283.90	2,284.26	2,271.45	12.81	178.292					
2,700.00	2,700.00	2,675.40	2,675.40	9.46	9.37	91.02	-40.64	2,283.90	2,284.26	2,270.94	13.32	171.506					
2,800.00	2,800.00	2,775.40	2,775.40	9.82	9.73	91.02	-40.64	2,283.90	2,284.26	2,270.44	13.83	165.217					
2,900.00	2,900.00	2,875.40	2,875.40	10.18	10.09	91.02	-40.64	2,283.90	2,284.26	2,269.93	14.33	159.373					
3,000.00	3,000.00	2,975.40	2,975.40	10.54	10.45	91.02	-40.64	2,283.90	2,284.26	2,269.42	14.84	153.929					
3,100.00	3,100.00	3,075.40	3,075.40	10.90	10.81	91.02	-40.64	2,283.90	2,284.26	2,268.91	15.35	148.844					
3,200.00	3,200.00	3,175.40	3,175.40	11.25	11.17	91.02	-40.64	2,283.90	2,284.26	2,268.41	15.85	144.084					
3,300.00	3,300.00	3,275.40	3,275.40	11.61	11.52	91.02	-40.64	2,283.90	2,284.26	2,267.90	16.36	139.620					
3,400.00	3,400.00	3,375.40	3,375.40	11.97	11.88	91.02	-40.64	2,283.90	2,284.26	2,267.39	16.87	135.424					
3,500.00	3,500.00	3,475.40	3,475.40	12.33	12.24	91.02	-40.64	2,283.90	2,284.26	2,266.89	17.37	131.472					
3,600.00	3,600.00	3,575.40	3,575.40	12.69	12.60	91.02	-40.64	2,283.90	2,284.26	2,266.38	17.88	127.745					
3,700.00	3,700.00	3,675.40	3,675.40	13.05	12.96	91.02	-40.64	2,283.90	2,284.26	2,265.87	18.39	124.223					
3,800.00	3,800.00	3,775.40	3,775.40	13.41	13.32	91.02	-40.64	2,283.90	2,284.26	2,265.37	18.90	120.890					
3,900.00	3,900.00	3,875.40	3,875.40	13.76	13.68	91.02	-40.64	2,283.90	2,284.26	2,264.86	19.40	117.732					
4,000.00	4,000.00	3,975.40	3,975.40	14.12	14.03	91.02	-40.64	2,283.90	2,284.26	2,264.35	19.91	114.734					
4,100.00	4,100.00	4,075.40	4,075.40	14.48	14.39	91.02	-40.64	2,283.90	2,284.26	2,263.85	20.42	111.885					
4,200.00	4,200.00	4,175.40	4,175.40	14.84	14.75	91.02	-40.64	2,283.90	2,284.26	2,263.34	20.92	109.174					
4,300.00	4,300.00	4,275.40	4,275.40	15.20	15.11	91.02	-40.64	2,283.90	2,284.26	2,262.83	21.43	106.591					
4,400.00	4,400.00	4,375.40	4,375.40	15.56	15.47	91.02	-40.64	2,283.90	2,284.26	2,262.32	21.94	104.128					
4,500.00	4,500.00	4,475.40	4,475.40	15.91	15.83	91.02	-40.64	2,283.90	2,284.26	2,261.82	22.44	101.776					
4,600.00	4,599.99	4,575.39	4,575.39	16.27	16.18	15.31	-40.64	2,283.90	2,283.00	2,260.05	22.95	99.495					
4,700.00	4,699.91	4,675.31	4,675.31	16.61	16.54	15.35	-40.64	2,283.90	2,279.21	2,255.77	23.44	97.224					
4,800.00	4,799.69	4,775.09	4,775.09	16.96	16.90	15.42	-40.64	2,283.90	2,272.91	2,248.97	23.94	94.943					
4,900.00	4,899.27	4,874.67	4,874.67	17.31	17.26	15.52	-40.64	2,283.90	2,264.08	2,239.65	24.44	92.655					
5,000.00	4,998.57	4,973.97	4,973.97	17.66	17.61	15.64	-40.64	2,283.90	2,252.76	2,227.83	24.93	90.362					
5,033.34	5,031.61	5,007.01	5,007.01	17.78	17.73	15.69	-40.64	2,283.90	2,248.43	2,223.33	25.10	89.595					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													LHS Wildcat Fed Com - LHS Wildcat 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					
5,100.00	5,097.62	5,073.02	5,073.02	18.02	17.97	15.75	-40.64	2,283.90	2,239.49	2,214.06	25.42	88.085					
5,200.00	5,196.65	5,172.05	5,172.05	18.37	18.32	15.85	-40.64	2,283.90	2,226.09	2,200.17	25.92	85.889					
5,300.00	5,295.67	5,271.07	5,271.07	18.73	18.68	15.95	-40.64	2,283.90	2,212.69	2,186.28	26.41	83.773					
5,400.00	5,394.70	5,370.10	5,370.10	19.10	19.03	16.05	-40.64	2,283.90	2,199.30	2,172.40	26.91	81.732					
5,500.00	5,493.73	5,469.13	5,469.13	19.46	19.39	16.15	-40.64	2,283.90	2,185.92	2,158.52	27.40	79.764					
5,600.00	5,592.75	5,607.58	5,607.56	19.83	19.88	16.26	-39.45	2,282.96	2,171.93	2,143.94	27.99	77.589					
5,700.00	5,691.78	5,762.92	5,762.71	20.20	20.43	16.27	-33.54	2,278.29	2,155.47	2,126.86	28.60	75.357					
5,800.00	5,790.81	5,916.68	5,915.86	20.57	20.98	16.15	-22.82	2,269.83	2,136.44	2,107.25	29.19	73.183					
5,900.00	5,889.83	6,008.60	6,007.27	20.94	21.31	16.04	-15.31	2,263.89	2,116.44	2,086.77	29.67	71.324					
6,000.00	5,988.86	6,106.49	6,104.63	21.32	21.66	15.93	-7.28	2,257.55	2,096.43	2,066.27	30.16	69.499					
6,100.00	6,087.89	6,204.38	6,201.98	21.69	22.01	15.81	0.75	2,251.20	2,076.43	2,045.78	30.66	67.730					
6,200.00	6,186.91	6,302.27	6,299.34	22.07	22.36	15.69	8.78	2,244.86	2,056.44	2,025.29	31.15	66.015					
6,300.00	6,285.94	6,400.16	6,396.69	22.45	22.71	15.57	16.81	2,238.51	2,036.46	2,004.82	31.65	64.352					
6,400.00	6,384.97	6,498.06	6,494.05	22.83	23.07	15.45	24.84	2,232.17	2,016.49	1,984.35	32.14	62.738					
6,500.00	6,483.99	6,595.95	6,591.40	23.22	23.42	15.32	32.87	2,225.82	1,996.53	1,963.89	32.64	61.171					
6,600.00	6,583.02	6,693.84	6,688.76	23.60	23.78	15.20	40.90	2,219.48	1,976.57	1,943.44	33.14	59.651					
6,700.00	6,682.05	6,791.73	6,786.11	23.99	24.14	15.06	48.93	2,213.14	1,956.63	1,922.99	33.63	58.174					
6,800.00	6,781.08	6,889.62	6,883.47	24.37	24.49	14.93	56.97	2,206.79	1,936.69	1,902.56	34.13	56.739					
6,900.00	6,880.10	6,987.51	6,980.82	24.76	24.85	14.79	65.00	2,200.45	1,916.77	1,882.14	34.63	55.345					
7,000.00	6,979.13	7,085.40	7,078.18	25.15	25.21	14.65	73.03	2,194.10	1,896.86	1,861.72	35.13	53.989					
7,100.00	7,078.16	7,183.30	7,175.53	25.54	25.57	14.51	81.06	2,187.76	1,876.95	1,841.32	35.64	52.670					
7,200.00	7,177.18	7,281.19	7,272.89	25.93	25.93	14.37	89.09	2,181.41	1,857.06	1,820.93	36.14	51.388					
7,300.00	7,276.21	7,379.08	7,370.24	26.32	26.29	14.22	97.12	2,175.07	1,837.19	1,800.54	36.64	50.140					
7,400.00	7,375.24	7,476.97	7,467.60	26.71	26.66	14.07	105.15	2,168.73	1,817.32	1,780.17	37.14	48.925					
7,500.00	7,474.26	7,574.86	7,564.95	27.10	27.02	13.91	113.18	2,162.38	1,797.46	1,759.82	37.65	47.743					
7,600.00	7,573.29	7,672.75	7,662.31	27.50	27.38	13.75	121.21	2,156.04	1,777.62	1,739.47	38.15	46.591					
7,700.00	7,672.32	7,770.64	7,759.66	27.89	27.75	13.59	129.24	2,149.69	1,757.80	1,719.14	38.66	45.469					
7,800.00	7,771.34	7,868.54	7,857.02	28.29	28.11	13.42	137.27	2,143.35	1,737.98	1,698.82	39.17	44.375					
7,900.00	7,870.37	7,960.25	7,948.24	28.69	28.45	13.27	144.74	2,137.45	1,718.23	1,678.57	39.66	43.319					
8,000.00	7,969.40	8,037.52	8,025.20	29.08	28.74	13.16	150.11	2,133.20	1,699.40	1,659.25	40.14	42.333					
8,100.00	8,068.42	8,115.22	8,102.72	29.48	29.02	13.10	154.28	2,129.91	1,681.77	1,641.15	40.62	41.404					
8,200.00	8,167.45	8,200.00	8,187.40	29.88	29.33	13.09	157.41	2,127.44	1,665.37	1,624.26	41.10	40.518					
8,300.00	8,266.48	8,271.66	8,259.03	30.28	29.59	13.11	158.91	2,126.25	1,650.15	1,608.59	41.56	39.709					
8,400.00	8,365.50	8,353.53	8,340.90	30.68	29.88	13.19	159.36	2,125.90	1,636.15	1,594.13	42.03	38.932					
8,500.00	8,464.53	8,452.56	8,439.93	31.08	30.23	13.30	159.36	2,125.90	1,622.60	1,580.07	42.53	38.151					
8,600.00	8,563.56	8,551.59	8,538.96	31.48	30.58	13.41	159.36	2,125.90	1,609.05	1,566.02	43.04	37.389					
8,700.00	8,662.58	8,650.61	8,637.98	31.88	30.93	13.53	159.36	2,125.90	1,595.51	1,551.97	43.54	36.643					
8,800.00	8,761.61	8,749.64	8,737.01	32.28	31.28	13.65	159.36	2,125.90	1,581.97	1,537.93	44.05	35.915					
8,900.00	8,860.64	8,848.67	8,836.04	32.68	31.64	13.77	159.36	2,125.90	1,568.45	1,523.89	44.55	35.204					
9,000.00	8,959.66	8,947.69	8,935.06	33.08	31.99	13.89	159.36	2,125.90	1,554.92	1,509.86	45.06	34.508					
9,100.00	9,058.69	9,046.72	9,034.09	33.49	32.34	14.01	159.36	2,125.90	1,541.41	1,495.84	45.57	33.828					
9,200.00	9,157.72	9,145.75	9,133.12	33.89	32.69	14.14	159.36	2,125.90	1,527.90	1,481.83	46.07	33.163					
9,300.00	9,256.74	9,244.77	9,232.14	34.29	33.04	14.27	159.36	2,125.90	1,514.40	1,467.82	46.58	32.512					
9,400.00	9,355.77	9,343.80	9,331.17	34.70	33.40	14.40	159.36	2,125.90	1,500.91	1,453.82	47.09	31.875					
9,500.00	9,454.80	9,442.83	9,430.20	35.10	33.75	14.53	159.36	2,125.90	1,487.42	1,439.83	47.59	31.252					
9,600.00	9,553.82	9,541.85	9,529.22	35.51	34.10	14.67	159.36	2,125.90	1,473.95	1,425.85	48.10	30.642					
9,700.00	9,652.85	9,640.88	9,628.25	35.91	34.45	14.80	159.36	2,125.90	1,460.48	1,411.87	48.61	30.044					
9,800.00	9,751.88	9,739.91	9,727.28	36.32	34.80	14.95	159.36	2,125.90	1,447.02	1,397.90	49.12	29.459					
9,900.00	9,850.91	9,838.93	9,826.31	36.73	35.16	15.09	159.36	2,125.90	1,433.57	1,383.94	49.63	28.886					
10,000.00	9,949.93	9,937.96	9,925.33	37.13	35.51	15.24	159.36	2,125.90	1,420.13	1,369.99	50.14	28.325					
10,100.00	10,048.96	10,036.99	10,024.36	37.54	35.86	15.38	159.36	2,125.90	1,406.69	1,356.05	50.65	27.775					
10,200.00	10,147.99	10,136.01	10,123.39	37.95	36.21	15.54	159.36	2,125.90	1,393.27	1,342.12	51.16	27.236					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design LHS Wildcat Fed Com - LHS Wildcat 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		
10,300.00	10,247.01	10,235.04	10,222.41	38.35	36.57	15.69	159.36	2,125.90	1,379.86	1,328.19	51.67	26.707		
10,326.64	10,273.39	10,261.42	10,248.79	38.46	36.66	15.73	159.36	2,125.90	1,376.29	1,324.49	51.80	26.569		
10,400.00	10,346.13	10,334.16	10,321.53	38.76	36.92	15.80	159.36	2,125.90	1,367.13	1,314.95	52.18	26.203		
10,500.00	10,445.55	10,433.58	10,420.95	39.15	37.27	15.88	159.36	2,125.90	1,356.82	1,304.13	52.68	25.754		
10,600.00	10,545.22	10,533.25	10,520.62	39.53	37.63	15.94	159.36	2,125.90	1,349.02	1,295.83	53.19	25.362		
10,700.00	10,645.07	10,633.10	10,620.47	39.89	37.98	15.99	159.36	2,125.90	1,343.74	1,290.04	53.70	25.025		
10,800.00	10,745.02	10,733.05	10,720.42	40.24	38.34	16.01	159.36	2,125.90	1,340.97	1,286.77	54.20	24.742		
10,859.98	10,805.00	10,793.03	10,780.40	40.44	38.55	91.74	159.36	2,125.90	1,340.52	1,286.02	54.50	24.597		
10,900.00	10,845.02	10,833.05	10,820.42	40.58	38.70	91.74	159.36	2,125.90	1,340.52	1,285.82	54.70	24.508		
11,000.00	10,945.02	10,933.05	10,920.42	40.91	39.05	91.74	159.36	2,125.90	1,340.52	1,285.32	55.20	24.287		
11,100.00	11,045.02	11,033.05	11,020.42	41.25	39.41	91.74	159.36	2,125.90	1,340.52	1,284.82	55.69	24.069		
11,200.00	11,145.02	11,133.05	11,120.42	41.59	39.77	91.74	159.36	2,125.90	1,340.52	1,284.32	56.19	23.856		
11,300.00	11,245.02	11,233.05	11,220.42	41.92	40.12	91.74	159.36	2,125.90	1,340.52	1,283.83	56.69	23.646		
11,321.98	11,267.00	11,255.03	11,242.40	42.00	40.20	91.74	159.36	2,125.90	1,340.52	1,283.72	56.80	23.600		
11,350.00	11,295.01	11,283.04	11,270.41	42.09	40.30	-87.74	159.36	2,125.90	1,340.49	1,283.55	56.94	23.543		
11,400.00	11,344.78	11,329.54	11,316.89	42.24	40.45	-87.88	158.11	2,125.91	1,340.36	1,283.21	57.16	23.451		
11,450.00	11,393.96	11,375.55	11,362.62	42.39	40.59	-88.03	153.23	2,125.96	1,340.23	1,282.87	57.36	23.364		
11,500.00	11,442.17	11,421.82	11,408.08	42.53	40.73	-88.21	144.63	2,126.04	1,340.10	1,282.54	57.56	23.281		
11,550.00	11,489.05	11,468.39	11,452.97	42.65	40.86	-88.39	132.31	2,126.17	1,339.97	1,282.22	57.75	23.202		
11,600.00	11,534.24	11,515.26	11,497.00	42.77	40.99	-88.59	116.27	2,126.32	1,339.85	1,281.92	57.93	23.128		
11,650.00	11,577.39	11,562.49	11,539.88	42.88	41.11	-88.80	96.52	2,126.52	1,339.74	1,281.63	58.11	23.057		
11,700.00	11,618.19	11,610.08	11,581.31	42.98	41.22	-89.01	73.12	2,126.74	1,339.64	1,281.37	58.27	22.989		
11,750.00	11,656.31	11,658.08	11,620.97	43.07	41.32	-89.24	46.12	2,127.01	1,339.56	1,281.13	58.43	22.924		
11,800.00	11,691.46	11,706.49	11,658.55	43.14	41.42	-89.47	15.62	2,127.31	1,339.50	1,280.91	58.59	22.861		
11,850.00	11,723.39	11,755.35	11,693.73	43.21	41.50	-89.70	-18.26	2,127.64	1,339.46	1,280.71	58.75	22.800		
11,900.00	11,751.84	11,804.67	11,726.18	43.28	41.58	-89.94	-55.38	2,128.00	1,339.45	1,280.54	58.90	22.740		
11,908.99	11,756.57	11,813.58	11,731.70	43.29	41.60	-89.99	-62.38	2,128.07	1,339.45	1,280.52	58.93	22.729 CC		
11,950.00	11,776.61	11,854.47	11,755.59	43.34	41.67	-90.18	-95.55	2,128.40	1,339.46	1,280.40	59.06	22.680		
12,000.00	11,797.49	11,904.78	11,781.64	43.39	41.78	-90.42	-138.57	2,128.82	1,339.49	1,280.27	59.22	22.620		
12,050.00	11,814.34	11,955.60	11,804.02	43.46	41.89	-90.66	-184.17	2,129.27	1,339.54	1,280.17	59.38	22.561		
12,100.00	11,827.02	12,006.94	11,822.45	43.53	42.01	-90.90	-232.07	2,129.73	1,339.62	1,280.08	59.54	22.500		
12,150.00	11,835.44	12,058.80	11,836.63	43.61	42.13	-91.13	-281.94	2,130.22	1,339.72	1,280.01	59.70	22.439		
12,200.00	11,839.54	12,111.19	11,846.32	43.70	42.26	-91.35	-333.40	2,130.73	1,339.83	1,279.96	59.87	22.378		
12,210.99	11,839.85	12,122.78	11,847.83	43.73	42.29	-91.40	-344.89	2,130.84	1,339.86	1,279.95	59.91	22.364		
12,300.00	11,841.56	12,215.23	11,852.49	43.95	42.53	-91.52	-437.16	2,131.74	1,339.93	1,279.68	60.25	22.240		
12,400.00	11,843.48	12,315.22	11,854.32	44.26	42.84	-91.52	-537.14	2,132.72	1,339.93	1,279.23	60.70	22.073		
12,500.00	11,845.39	12,415.22	11,856.15	44.64	43.21	-91.51	-637.12	2,133.70	1,339.93	1,278.69	61.25	21.878		
12,600.00	11,847.31	12,515.22	11,857.98	45.08	43.63	-91.51	-737.10	2,134.68	1,339.93	1,278.06	61.87	21.657		
12,700.00	11,849.23	12,615.22	11,859.81	45.58	44.12	-91.50	-837.07	2,135.66	1,339.94	1,277.36	62.58	21.412		
12,800.00	11,851.15	12,715.22	11,861.64	46.14	44.66	-91.50	-937.05	2,136.64	1,339.94	1,276.57	63.36	21.147		
12,900.00	11,853.06	12,815.22	11,863.47	46.75	45.25	-91.50	-1,037.03	2,137.62	1,339.94	1,275.71	64.22	20.864		
13,000.00	11,854.98	12,915.22	11,865.30	47.41	45.89	-91.49	-1,137.01	2,138.60	1,339.94	1,274.78	65.16	20.565		
13,100.00	11,856.90	13,015.22	11,867.13	48.12	46.59	-91.49	-1,236.99	2,139.58	1,339.94	1,273.78	66.16	20.254		
13,200.00	11,858.82	13,115.22	11,868.96	48.88	47.33	-91.49	-1,336.97	2,140.56	1,339.94	1,272.72	67.23	19.932		
13,300.00	11,860.74	13,215.22	11,870.79	49.68	48.12	-91.48	-1,436.94	2,141.54	1,339.94	1,271.59	68.36	19.602		
13,400.00	11,862.65	13,315.22	11,872.62	50.52	48.95	-91.48	-1,536.92	2,142.52	1,339.94	1,270.39	69.55	19.266		
13,500.00	11,864.57	13,415.22	11,874.45	51.41	49.82	-91.47	-1,636.90	2,143.50	1,339.95	1,269.15	70.80	18.926		
13,600.00	11,866.49	13,515.22	11,876.28	52.32	50.73	-91.47	-1,736.88	2,144.48	1,339.95	1,267.85	72.10	18.585		
13,700.00	11,868.41	13,615.22	11,878.11	53.28	51.67	-91.47	-1,836.86	2,145.46	1,339.95	1,266.49	73.45	18.242		
13,800.00	11,870.32	13,715.22	11,879.94	54.27	52.65	-91.46	-1,936.84	2,146.44	1,339.95	1,265.09	74.86	17.900		
13,900.00	11,872.24	13,815.22	11,881.77	55.29	53.67	-91.46	-2,036.82	2,147.41	1,339.95	1,263.65	76.30	17.561		
14,000.00	11,874.16	13,915.22	11,883.60	56.33	54.71	-91.46	-2,136.79	2,148.39	1,339.95	1,262.15	77.80	17.224		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design LHS Wildcat Fed Com - LHS Wildcat 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		
14,100.00	11,876.08	14,015.22	11,885.43	57.41	55.79	-91.45	-2,236.77	2,149.37	1,339.95	1,260.62	79.33	16.891		
14,200.00	11,877.99	14,115.22	11,887.26	58.52	56.89	-91.45	-2,336.75	2,150.35	1,339.95	1,259.05	80.90	16.563		
14,300.00	11,879.91	14,215.22	11,889.09	59.65	58.02	-91.44	-2,436.73	2,151.33	1,339.95	1,257.45	82.51	16.241		
14,400.00	11,881.83	14,315.22	11,890.92	60.80	59.17	-91.44	-2,536.71	2,152.31	1,339.96	1,255.81	84.15	15.924		
14,500.00	11,883.75	14,415.22	11,892.75	61.98	60.35	-91.44	-2,636.69	2,153.29	1,339.96	1,254.14	85.82	15.613		
14,600.00	11,885.66	14,515.22	11,894.58	63.17	61.55	-91.43	-2,736.66	2,154.27	1,339.96	1,252.43	87.53	15.309		
14,700.00	11,887.58	14,615.22	11,896.41	64.39	62.77	-91.43	-2,836.64	2,155.25	1,339.96	1,250.70	89.26	15.012		
14,800.00	11,889.50	14,715.22	11,898.24	65.63	64.00	-91.43	-2,936.62	2,156.23	1,339.96	1,248.94	91.02	14.722		
14,900.00	11,891.42	14,815.22	11,900.07	66.88	65.26	-91.42	-3,036.60	2,157.21	1,339.96	1,247.16	92.80	14.439		
15,000.00	11,893.33	14,915.22	11,901.91	68.15	66.54	-91.42	-3,136.58	2,158.19	1,339.96	1,245.35	94.61	14.163		
15,100.00	11,895.25	15,015.22	11,903.74	69.44	67.83	-91.42	-3,236.56	2,159.17	1,339.96	1,243.52	96.44	13.894		
15,200.00	11,897.17	15,115.22	11,905.57	70.74	69.13	-91.41	-3,336.53	2,160.15	1,339.97	1,241.67	98.30	13.632		
15,300.00	11,899.09	15,215.22	11,907.40	72.06	70.45	-91.41	-3,436.51	2,161.13	1,339.97	1,239.80	100.17	13.377		
15,400.00	11,901.00	15,315.22	11,909.23	73.39	71.79	-91.40	-3,536.49	2,162.11	1,339.97	1,237.91	102.06	13.129		
15,500.00	11,902.92	15,415.22	11,911.06	74.73	73.13	-91.40	-3,636.47	2,163.09	1,339.97	1,236.00	103.97	12.888		
15,600.00	11,904.84	15,515.22	11,912.89	76.09	74.49	-91.40	-3,736.45	2,164.07	1,339.97	1,234.07	105.90	12.653		
15,700.00	11,906.76	15,615.22	11,914.72	77.46	75.86	-91.39	-3,836.43	2,165.04	1,339.97	1,232.13	107.85	12.425		
15,800.00	11,908.67	15,715.22	11,916.55	78.84	77.25	-91.39	-3,936.41	2,166.02	1,339.97	1,230.17	109.80	12.203		
15,900.00	11,910.59	15,815.22	11,918.38	80.22	78.64	-91.39	-4,036.38	2,167.00	1,339.98	1,228.20	111.78	11.988		
16,000.00	11,912.51	15,915.22	11,920.21	81.62	80.04	-91.38	-4,136.36	2,167.98	1,339.98	1,226.21	113.77	11.778		
16,100.00	11,914.43	16,015.22	11,922.04	83.03	81.45	-91.38	-4,236.34	2,168.96	1,339.98	1,224.21	115.77	11.575		
16,200.00	11,916.34	16,115.22	11,923.87	84.45	82.87	-91.37	-4,336.32	2,169.94	1,339.98	1,222.20	117.78	11.377		
16,300.00	11,918.26	16,215.22	11,925.70	85.87	84.30	-91.37	-4,436.30	2,170.92	1,339.98	1,220.18	119.80	11.185		
16,400.00	11,920.18	16,315.22	11,927.53	87.30	85.74	-91.37	-4,536.28	2,171.90	1,339.98	1,218.14	121.84	10.998		
16,500.00	11,922.10	16,415.22	11,929.36	88.74	87.18	-91.36	-4,636.25	2,172.88	1,339.98	1,216.10	123.89	10.816		
16,600.00	11,924.01	16,515.22	11,931.19	90.19	88.64	-91.36	-4,736.23	2,173.86	1,339.98	1,214.04	125.94	10.640		
16,700.00	11,925.93	16,615.22	11,933.02	91.65	90.10	-91.36	-4,836.21	2,174.84	1,339.99	1,211.98	128.01	10.468		
16,800.00	11,927.85	16,715.22	11,934.85	93.11	91.56	-91.35	-4,936.19	2,175.82	1,339.99	1,209.90	130.09	10.301		
16,900.00	11,929.77	16,815.22	11,936.68	94.57	93.03	-91.35	-5,036.17	2,176.80	1,339.99	1,207.82	132.17	10.138		
17,000.00	11,931.68	16,915.22	11,938.51	96.05	94.51	-91.34	-5,136.15	2,177.78	1,339.99	1,205.73	134.26	9.980		
17,100.00	11,933.60	17,015.22	11,940.34	97.53	95.99	-91.34	-5,236.12	2,178.76	1,339.99	1,203.63	136.36	9.827		
17,200.00	11,935.52	17,115.22	11,942.17	99.01	97.48	-91.34	-5,336.10	2,179.74	1,339.99	1,201.52	138.47	9.677		
17,300.00	11,937.44	17,215.22	11,944.00	100.50	98.98	-91.33	-5,436.08	2,180.72	1,339.99	1,199.41	140.59	9.531		
17,400.00	11,939.35	17,315.22	11,945.83	102.00	100.48	-91.33	-5,536.06	2,181.70	1,340.00	1,197.29	142.71	9.390		
17,500.00	11,941.27	17,415.22	11,947.66	103.50	101.98	-91.33	-5,636.04	2,182.67	1,340.00	1,195.16	144.84	9.252		
17,600.00	11,943.19	17,515.22	11,949.49	105.00	103.49	-91.32	-5,736.02	2,183.65	1,340.00	1,193.03	146.97	9.117		
17,700.00	11,945.11	17,615.22	11,951.32	106.51	105.00	-91.32	-5,836.00	2,184.63	1,340.00	1,190.89	149.11	8.986		
17,800.00	11,947.02	17,715.22	11,953.15	108.02	106.52	-91.31	-5,935.97	2,185.61	1,340.00	1,188.74	151.26	8.859		
17,900.00	11,948.94	17,815.22	11,954.98	109.54	108.04	-91.31	-6,035.95	2,186.59	1,340.00	1,186.59	153.41	8.735		
18,000.00	11,950.86	17,915.22	11,956.82	111.06	109.56	-91.31	-6,135.93	2,187.57	1,340.00	1,184.43	155.57	8.613		
18,100.00	11,952.78	18,015.22	11,958.65	112.59	111.09	-91.30	-6,235.91	2,188.55	1,340.01	1,182.27	157.73	8.495		
18,200.00	11,954.70	18,115.22	11,960.48	114.11	112.63	-91.30	-6,335.89	2,189.53	1,340.01	1,180.10	159.90	8.380		
18,300.00	11,956.61	18,215.22	11,962.31	115.64	114.16	-91.30	-6,435.87	2,190.51	1,340.01	1,177.93	162.08	8.268		
18,400.00	11,958.53	18,315.22	11,964.14	117.18	115.70	-91.29	-6,535.84	2,191.49	1,340.01	1,175.76	164.25	8.158		
18,500.00	11,960.45	18,415.22	11,965.97	118.72	117.24	-91.29	-6,635.82	2,192.47	1,340.01	1,173.58	166.43	8.051		
18,600.00	11,962.37	18,515.22	11,967.80	120.26	118.79	-91.28	-6,735.80	2,193.45	1,340.01	1,171.39	168.62	7.947		
18,700.00	11,964.28	18,615.22	11,969.63	121.80	120.33	-91.28	-6,835.78	2,194.43	1,340.01	1,169.21	170.81	7.845		
18,800.00	11,966.20	18,715.22	11,971.46	123.35	121.88	-91.28	-6,935.76	2,195.41	1,340.02	1,167.01	173.00	7.746		
18,900.00	11,968.12	18,815.22	11,973.29	124.90	123.44	-91.27	-7,035.74	2,196.39	1,340.02	1,164.82	175.20	7.649		
19,000.00	11,970.04	18,915.22	11,975.12	126.45	124.99	-91.27	-7,135.71	2,197.37	1,340.02	1,162.62	177.40	7.554		
19,100.00	11,971.95	19,015.22	11,976.95	128.01	126.55	-91.27	-7,235.69	2,198.35	1,340.02	1,160.42	179.60	7.461		
19,200.00	11,973.87	19,115.22	11,978.78	129.56	128.11	-91.26	-7,335.67	2,199.33	1,340.02	1,158.21	181.81	7.370		

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 Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
19,300.00	11,975.79	19,215.22	11,980.61	131.12	129.67	-91.26	-7,435.65	2,200.30	1,340.02	1,156.00	184.02	7.282		
19,400.00	11,977.71	19,315.22	11,982.44	132.68	131.24	-91.25	-7,535.63	2,201.28	1,340.03	1,153.79	186.24	7.195		
19,500.00	11,979.62	19,415.22	11,984.27	134.25	132.80	-91.25	-7,635.61	2,202.26	1,340.03	1,151.57	188.45	7.111		
19,600.00	11,981.54	19,515.22	11,986.10	135.81	134.37	-91.25	-7,735.59	2,203.24	1,340.03	1,149.36	190.67	7.028		
19,700.00	11,983.46	19,615.22	11,987.93	137.38	135.94	-91.24	-7,835.56	2,204.22	1,340.03	1,147.13	192.90	6.947		
19,800.00	11,985.38	19,715.22	11,989.76	138.95	137.52	-91.24	-7,935.54	2,205.20	1,340.03	1,144.91	195.12	6.868		
19,900.00	11,987.29	19,815.22	11,991.59	140.52	139.09	-91.24	-8,035.52	2,206.18	1,340.03	1,142.68	197.35	6.790		
20,000.00	11,989.21	19,915.22	11,993.42	142.10	140.67	-91.23	-8,135.50	2,207.16	1,340.03	1,140.46	199.58	6.714		
20,100.00	11,991.13	20,015.22	11,995.25	143.67	142.25	-91.23	-8,235.48	2,208.14	1,340.04	1,138.23	201.81	6.640		
20,200.00	11,993.05	20,115.22	11,997.08	145.25	143.83	-91.22	-8,335.46	2,209.12	1,340.04	1,135.99	204.05	6.567		
20,300.00	11,994.96	20,215.22	11,998.91	146.83	145.41	-91.22	-8,435.43	2,210.10	1,340.04	1,133.76	206.28	6.496		
20,400.00	11,996.88	20,315.22	12,000.74	148.41	146.99	-91.22	-8,535.41	2,211.08	1,340.04	1,131.52	208.52	6.426		
20,500.00	11,998.80	20,415.22	12,002.57	149.99	148.58	-91.21	-8,635.39	2,212.06	1,340.04	1,129.28	210.76	6.358		
20,600.00	12,000.72	20,515.22	12,004.40	151.57	150.16	-91.21	-8,735.37	2,213.04	1,340.04	1,127.04	213.01	6.291		
20,700.00	12,002.63	20,615.22	12,006.23	153.16	151.75	-91.21	-8,835.35	2,214.02	1,340.05	1,124.79	215.25	6.225		
20,800.00	12,004.55	20,715.22	12,008.06	154.75	153.34	-91.20	-8,935.33	2,215.00	1,340.05	1,122.55	217.50	6.161		
20,900.00	12,006.47	20,815.22	12,009.89	156.33	154.93	-91.20	-9,035.30	2,215.98	1,340.05	1,120.30	219.75	6.098		
21,000.00	12,008.39	20,915.22	12,011.73	157.92	156.52	-91.19	-9,135.28	2,216.96	1,340.05	1,118.05	222.00	6.036		
21,100.00	12,010.30	21,015.22	12,013.56	159.51	158.11	-91.19	-9,235.26	2,217.93	1,340.05	1,115.80	224.25	5.976		
21,200.00	12,012.22	21,115.22	12,015.39	161.10	159.71	-91.19	-9,335.24	2,218.91	1,340.05	1,113.54	226.51	5.916		
21,300.00	12,014.14	21,215.22	12,017.22	162.70	161.30	-91.18	-9,435.22	2,219.89	1,340.06	1,111.29	228.77	5.858		
21,400.00	12,016.06	21,315.22	12,019.05	164.29	162.90	-91.18	-9,535.20	2,220.87	1,340.06	1,109.03	231.02	5.801		
21,500.00	12,017.97	21,415.22	12,020.88	165.89	164.50	-91.18	-9,635.17	2,221.85	1,340.06	1,106.78	233.28	5.744		
21,600.00	12,019.89	21,515.22	12,022.71	167.48	166.09	-91.17	-9,735.15	2,222.83	1,340.06	1,104.52	235.54	5.689		
21,700.00	12,021.81	21,615.22	12,024.54	169.08	167.69	-91.17	-9,835.13	2,223.81	1,340.06	1,102.25	237.81	5.635		
21,800.00	12,023.73	21,715.22	12,026.37	170.68	169.29	-91.17	-9,935.11	2,224.79	1,340.06	1,099.99	240.07	5.582		
21,900.00	12,025.64	21,815.22	12,028.20	172.28	170.90	-91.16	-10,035.09	2,225.77	1,340.07	1,097.73	242.34	5.530		
22,000.00	12,027.56	21,915.22	12,030.03	173.88	172.50	-91.16	-10,135.07	2,226.75	1,340.07	1,095.46	244.60	5.479		
22,100.00	12,029.48	22,015.22	12,031.86	175.48	174.10	-91.15	-10,235.05	2,227.73	1,340.07	1,093.20	246.87	5.428		
22,200.00	12,031.40	22,115.22	12,033.69	177.08	175.71	-91.15	-10,335.02	2,228.71	1,340.07	1,090.93	249.14	5.379		
22,300.00	12,033.31	22,215.22	12,035.52	178.68	177.31	-91.15	-10,435.00	2,229.69	1,340.07	1,088.66	251.41	5.330		
22,400.00	12,035.23	22,315.22	12,037.35	180.29	178.92	-91.14	-10,534.98	2,230.67	1,340.07	1,086.39	253.68	5.282		
22,500.00	12,037.15	22,415.22	12,039.18	181.89	180.52	-91.14	-10,634.96	2,231.65	1,340.08	1,084.12	255.96	5.236		
22,500.04	12,037.15	22,415.26	12,039.18	181.89	180.53	-91.14	-10,635.00	2,231.65	1,340.08	1,084.12	255.96	5.236		
22,600.00	12,039.07	22,490.07	12,040.55	183.50	181.73	-91.14	-10,709.79	2,232.38	1,340.31	1,082.29	258.02	5.195 ES, SF		
22,700.00	12,040.98	22,490.07	12,040.55	185.11	181.73	-91.14	-10,709.79	2,232.38	1,345.91	1,087.44	258.47	5.207		
22,800.00	12,042.90	22,490.07	12,040.55	186.71	181.73	-91.14	-10,709.79	2,232.38	1,358.86	1,101.52	257.34	5.280		
22,900.00	12,044.82	22,490.07	12,040.55	188.32	181.73	-91.14	-10,709.79	2,232.38	1,378.96	1,124.20	254.76	5.413		
23,000.00	12,046.74	22,490.07	12,040.55	189.93	181.73	-91.14	-10,709.79	2,232.38	1,405.91	1,154.97	250.94	5.603		
23,100.00	12,048.66	22,490.07	12,040.55	191.54	181.73	-91.14	-10,709.79	2,232.38	1,439.31	1,193.21	246.10	5.848		
23,200.00	12,050.57	22,490.07	12,040.55	193.15	181.73	-91.14	-10,709.79	2,232.38	1,478.73	1,238.22	240.51	6.148		
23,300.00	12,052.49	22,490.07	12,040.55	194.76	181.73	-91.14	-10,709.79	2,232.38	1,523.71	1,289.31	234.40	6.501		
23,400.00	12,054.41	22,490.07	12,040.55	196.37	181.73	-91.14	-10,709.79	2,232.38	1,573.76	1,345.78	227.98	6.903		
23,500.00	12,056.33	22,490.07	12,040.55	197.99	181.73	-91.14	-10,709.79	2,232.38	1,628.42	1,406.99	221.43	7.354		
23,600.00	12,058.24	22,490.07	12,040.55	199.60	181.73	-91.14	-10,709.79	2,232.38	1,687.24	1,472.35	214.89	7.851		
23,700.00	12,060.16	22,490.07	12,040.55	201.21	181.73	-91.14	-10,709.79	2,232.38	1,749.81	1,541.33	208.48	8.393		
23,800.00	12,062.08	22,490.07	12,040.55	202.83	181.73	-91.14	-10,709.79	2,232.38	1,815.73	1,613.48	202.25	8.978		
23,888.78	12,063.78	22,490.07	12,040.55	204.11	181.73	-91.14	-10,709.79	2,232.38	1,876.78	1,678.75	198.02	9.478		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													LHS Wildcat Fed Com - LHS Wildcat 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	91.00	-40.33	2,318.90	2,319.38								
100.00	100.00	75.80	75.80	0.14	0.11	91.00	-40.33	2,318.90	2,319.25	2,319.07	0.18	N/A					
200.00	200.00	175.80	175.80	0.50	0.41	91.00	-40.33	2,318.90	2,319.25	2,318.60	0.65	3,574.855					
300.00	300.00	275.80	275.80	0.86	0.77	91.00	-40.33	2,318.90	2,319.25	2,318.10	1.15	2,008.970					
400.00	400.00	375.80	375.80	1.22	1.13	91.00	-40.33	2,318.90	2,319.25	2,317.59	1.66	1,396.378					
500.00	500.00	475.80	475.80	1.58	1.49	91.00	-40.33	2,318.90	2,319.25	2,317.08	2.17	1,069.965					
600.00	600.00	575.80	575.80	1.93	1.85	91.00	-40.33	2,318.90	2,319.25	2,316.58	2.67	867.209					
700.00	700.00	675.80	675.80	2.29	2.21	91.00	-40.33	2,318.90	2,319.25	2,316.07	3.18	729.042					
800.00	800.00	775.80	775.80	2.65	2.56	91.00	-40.33	2,318.90	2,319.25	2,315.56	3.69	628.846					
900.00	900.00	875.80	875.80	3.01	2.92	91.00	-40.33	2,318.90	2,319.25	2,315.06	4.19	552.861					
1,000.00	1,000.00	975.80	975.80	3.37	3.28	91.00	-40.33	2,318.90	2,319.25	2,314.55	4.70	493.258					
1,100.00	1,100.00	1,075.80	1,075.80	3.73	3.64	91.00	-40.33	2,318.90	2,319.25	2,314.04	5.21	445.255					
1,200.00	1,200.00	1,175.80	1,175.80	4.08	4.00	91.00	-40.33	2,318.90	2,319.25	2,313.53	5.72	405.765					
1,300.00	1,300.00	1,275.80	1,275.80	4.44	4.36	91.00	-40.33	2,318.90	2,319.25	2,313.03	6.22	372.710					
1,400.00	1,400.00	1,375.80	1,375.80	4.80	4.71	91.00	-40.33	2,318.90	2,319.25	2,312.52	6.73	344.634					
1,500.00	1,500.00	1,475.80	1,475.80	5.16	5.07	91.00	-40.33	2,318.90	2,319.25	2,312.01	7.24	320.492					
1,600.00	1,600.00	1,575.80	1,575.80	5.52	5.43	91.00	-40.33	2,318.90	2,319.25	2,311.51	7.74	299.510					
1,700.00	1,700.00	1,675.80	1,675.80	5.88	5.79	91.00	-40.33	2,318.90	2,319.25	2,311.00	8.25	281.107					
1,800.00	1,800.00	1,775.80	1,775.80	6.24	6.15	91.00	-40.33	2,318.90	2,319.25	2,310.49	8.76	264.834					
1,900.00	1,900.00	1,875.80	1,875.80	6.59	6.51	91.00	-40.33	2,318.90	2,319.25	2,309.99	9.26	250.343					
2,000.00	2,000.00	1,975.80	1,975.80	6.95	6.87	91.00	-40.33	2,318.90	2,319.25	2,309.48	9.77	237.355					
2,100.00	2,100.00	2,075.80	2,075.80	7.31	7.22	91.00	-40.33	2,318.90	2,319.25	2,308.97	10.28	225.648					
2,200.00	2,200.00	2,175.80	2,175.80	7.67	7.58	91.00	-40.33	2,318.90	2,319.25	2,308.47	10.79	215.041					
2,300.00	2,300.00	2,275.80	2,275.80	8.03	7.94	91.00	-40.33	2,318.90	2,319.25	2,307.96	11.29	205.387					
2,400.00	2,400.00	2,375.80	2,375.80	8.39	8.30	91.00	-40.33	2,318.90	2,319.25	2,307.45	11.80	196.563					
2,500.00	2,500.00	2,475.80	2,475.80	8.74	8.66	91.00	-40.33	2,318.90	2,319.25	2,306.94	12.31	188.465					
2,600.00	2,600.00	2,575.80	2,575.80	9.10	9.02	91.00	-40.33	2,318.90	2,319.25	2,306.44	12.81	181.009					
2,700.00	2,700.00	2,675.80	2,675.80	9.46	9.38	91.00	-40.33	2,318.90	2,319.25	2,305.93	13.32	174.119					
2,800.00	2,800.00	2,775.80	2,775.80	9.82	9.73	91.00	-40.33	2,318.90	2,319.25	2,305.42	13.83	167.735					
2,900.00	2,900.00	2,875.80	2,875.80	10.18	10.09	91.00	-40.33	2,318.90	2,319.25	2,304.92	14.33	161.803					
3,000.00	3,000.00	2,975.80	2,975.80	10.54	10.45	91.00	-40.33	2,318.90	2,319.25	2,304.41	14.84	156.276					
3,100.00	3,100.00	3,075.80	3,075.80	10.90	10.81	91.00	-40.33	2,318.90	2,319.25	2,303.90	15.35	151.114					
3,200.00	3,200.00	3,175.80	3,175.80	11.25	11.17	91.00	-40.33	2,318.90	2,319.25	2,303.40	15.85	146.282					
3,300.00	3,300.00	3,275.80	3,275.80	11.61	11.53	91.00	-40.33	2,318.90	2,319.25	2,302.89	16.36	141.750					
3,400.00	3,400.00	3,375.80	3,375.80	11.97	11.88	91.00	-40.33	2,318.90	2,319.25	2,302.38	16.87	137.490					
3,500.00	3,500.00	3,475.80	3,475.80	12.33	12.24	91.00	-40.33	2,318.90	2,319.25	2,301.88	17.38	133.478					
3,600.00	3,600.00	3,575.80	3,575.80	12.69	12.60	91.00	-40.33	2,318.90	2,319.25	2,301.37	17.88	129.694					
3,700.00	3,700.00	3,675.80	3,675.80	13.05	12.96	91.00	-40.33	2,318.90	2,319.25	2,300.86	18.39	126.119					
3,800.00	3,800.00	3,775.80	3,775.80	13.41	13.32	91.00	-40.33	2,318.90	2,319.25	2,300.35	18.90	122.735					
3,900.00	3,900.00	3,875.80	3,875.80	13.76	13.68	91.00	-40.33	2,318.90	2,319.25	2,299.85	19.40	119.529					
4,000.00	4,000.00	3,975.80	3,975.80	14.12	14.04	91.00	-40.33	2,318.90	2,319.25	2,299.34	19.91	116.485					
4,100.00	4,100.00	4,075.80	4,075.80	14.48	14.39	91.00	-40.33	2,318.90	2,319.25	2,298.83	20.42	113.593					
4,200.00	4,200.00	4,175.80	4,175.80	14.84	14.75	91.00	-40.33	2,318.90	2,319.25	2,298.33	20.92	110.841					
4,300.00	4,300.00	4,275.80	4,275.80	15.20	15.11	91.00	-40.33	2,318.90	2,319.25	2,297.82	21.43	108.219					
4,400.00	4,400.00	4,375.80	4,375.80	15.56	15.47	91.00	-40.33	2,318.90	2,319.25	2,297.31	21.94	105.718					
4,500.00	4,500.00	4,475.80	4,475.80	15.91	15.83	91.00	-40.33	2,318.90	2,319.25	2,296.81	22.45	103.330					
4,600.00	4,599.99	4,556.80	4,556.80	16.27	16.12	15.27	-39.98	2,319.14	2,318.30	2,295.40	22.90	101.246					
4,700.00	4,699.91	4,631.73	4,631.70	16.61	16.38	15.26	-38.46	2,320.18	2,315.87	2,292.54	23.33	99.278					
4,800.00	4,799.69	4,700.00	4,699.91	16.96	16.63	15.25	-36.01	2,321.86	2,312.01	2,288.27	23.74	97.406					
4,900.00	4,899.27	4,781.44	4,781.19	17.31	16.92	15.21	-31.78	2,324.76	2,306.69	2,282.51	24.18	95.405					
5,000.00	4,998.57	4,856.19	4,855.67	17.66	17.18	15.16	-26.64	2,328.28	2,299.94	2,275.34	24.60	93.496					
5,033.34	5,031.61	4,881.09	4,880.46	17.78	17.27	15.15	-24.66	2,329.63	2,297.37	2,272.63	24.74	92.863					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													LHS Wildcat Fed Com - LHS Wildcat 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					
5,100.00	5,097.62	4,941.23	4,940.27	18.02	17.48	15.07	-19.51	2,333.16	2,292.22	2,267.17	25.05	91.509					
5,200.00	5,196.65	5,040.81	5,039.31	18.37	17.84	14.94	-10.93	2,339.04	2,284.56	2,259.02	25.54	89.440					
5,300.00	5,295.67	5,140.39	5,138.34	18.73	18.20	14.82	-2.35	2,344.92	2,276.91	2,250.88	26.04	87.445					
5,400.00	5,394.70	5,239.96	5,237.37	19.10	18.55	14.69	6.23	2,350.80	2,269.28	2,242.74	26.53	85.521					
5,500.00	5,493.73	5,339.54	5,336.40	19.46	18.91	14.56	14.82	2,356.67	2,261.65	2,234.62	27.03	83.663					
5,600.00	5,592.75	5,439.12	5,435.44	19.83	19.27	14.43	23.40	2,362.55	2,254.04	2,226.51	27.53	81.869					
5,700.00	5,691.78	5,538.69	5,534.47	20.20	19.64	14.29	31.98	2,368.43	2,246.44	2,218.40	28.03	80.136					
5,800.00	5,790.81	5,638.27	5,633.50	20.57	20.00	14.16	40.56	2,374.31	2,238.85	2,210.31	28.53	78.461					
5,900.00	5,889.83	5,737.85	5,732.53	20.94	20.36	14.03	49.14	2,380.19	2,231.27	2,202.23	29.04	76.841					
6,000.00	5,988.86	5,837.42	5,831.56	21.32	20.73	13.89	57.73	2,386.07	2,223.70	2,194.16	29.54	75.275					
6,100.00	6,087.89	5,937.00	5,930.60	21.69	21.09	13.76	66.31	2,391.95	2,216.15	2,186.10	30.05	73.758					
6,200.00	6,186.91	6,036.58	6,029.63	22.07	21.46	13.62	74.89	2,397.83	2,208.61	2,178.05	30.55	72.291					
6,300.00	6,285.94	6,136.16	6,128.66	22.45	21.83	13.49	83.47	2,403.70	2,201.08	2,170.02	31.06	70.869					
6,400.00	6,384.97	6,235.73	6,227.69	22.83	22.20	13.35	92.05	2,409.58	2,193.56	2,162.00	31.57	69.492					
6,500.00	6,483.99	6,335.31	6,326.72	23.22	22.56	13.21	100.64	2,415.46	2,186.06	2,153.98	32.07	68.157					
6,600.00	6,583.02	6,434.89	6,425.76	23.60	22.93	13.07	109.22	2,421.34	2,178.57	2,145.98	32.58	66.863					
6,700.00	6,682.05	6,534.46	6,524.79	23.99	23.30	12.93	117.80	2,427.22	2,171.09	2,138.00	33.09	65.608					
6,800.00	6,781.08	6,634.04	6,623.82	24.37	23.68	12.79	126.38	2,433.10	2,163.63	2,130.02	33.60	64.389					
6,900.00	6,880.10	6,733.62	6,722.85	24.76	24.05	12.64	134.96	2,438.98	2,156.17	2,122.06	34.11	63.207					
7,000.00	6,979.13	6,839.69	6,828.35	25.15	24.44	12.49	144.07	2,445.21	2,148.72	2,114.07	34.64	62.024					
7,100.00	7,078.16	6,988.96	6,977.14	25.54	25.00	12.35	153.91	2,451.95	2,139.83	2,104.54	35.29	60.631					
7,200.00	7,177.18	7,137.71	7,125.75	25.93	25.53	12.34	158.94	2,455.40	2,128.65	2,092.73	35.92	59.260					
7,300.00	7,276.21	7,263.98	7,252.01	26.32	25.98	12.42	159.67	2,455.90	2,115.40	2,078.92	36.48	57.983					
7,400.00	7,375.24	7,363.00	7,351.04	26.71	26.33	12.51	159.67	2,455.90	2,101.81	2,064.82	36.98	56.829					
7,500.00	7,474.26	7,462.03	7,450.06	27.10	26.68	12.59	159.67	2,455.90	2,088.22	2,050.73	37.49	55.704					
7,600.00	7,573.29	7,561.06	7,549.09	27.50	27.03	12.67	159.67	2,455.90	2,074.63	2,036.64	37.99	54.610					
7,700.00	7,672.32	7,660.08	7,648.12	27.89	27.38	12.76	159.67	2,455.90	2,061.05	2,022.55	38.49	53.543					
7,800.00	7,771.34	7,759.11	7,747.14	28.29	27.74	12.84	159.67	2,455.90	2,047.47	2,008.47	39.00	52.504					
7,900.00	7,870.37	7,858.14	7,846.17	28.69	28.09	12.93	159.67	2,455.90	2,033.89	1,994.39	39.50	51.490					
8,000.00	7,969.40	7,957.16	7,945.20	29.08	28.44	13.02	159.67	2,455.90	2,020.32	1,980.32	40.00	50.502					
8,100.00	8,068.42	8,056.19	8,044.22	29.48	28.79	13.11	159.67	2,455.90	2,006.76	1,966.25	40.51	49.539					
8,200.00	8,167.45	8,155.22	8,143.25	29.88	29.14	13.20	159.67	2,455.90	1,993.20	1,952.19	41.01	48.598					
8,300.00	8,266.48	8,254.24	8,242.28	30.28	29.49	13.29	159.67	2,455.90	1,979.65	1,938.13	41.52	47.681					
8,400.00	8,365.50	8,353.27	8,341.30	30.68	29.85	13.38	159.67	2,455.90	1,966.10	1,924.07	42.02	46.785					
8,500.00	8,464.53	8,452.30	8,440.33	31.08	30.20	13.48	159.67	2,455.90	1,952.55	1,910.02	42.53	45.910					
8,600.00	8,563.56	8,551.32	8,539.36	31.48	30.55	13.57	159.67	2,455.90	1,939.01	1,895.98	43.04	45.056					
8,700.00	8,662.58	8,650.35	8,638.38	31.88	30.90	13.67	159.67	2,455.90	1,925.48	1,881.94	43.54	44.222					
8,800.00	8,761.61	8,749.38	8,737.41	32.28	31.25	13.77	159.67	2,455.90	1,911.95	1,867.91	44.05	43.406					
8,900.00	8,860.64	8,848.40	8,836.44	32.68	31.60	13.87	159.67	2,455.90	1,898.43	1,853.88	44.55	42.609					
9,000.00	8,959.66	8,947.43	8,935.46	33.08	31.96	13.97	159.67	2,455.90	1,884.91	1,839.85	45.06	41.830					
9,100.00	9,058.69	9,046.46	9,034.49	33.49	32.31	14.07	159.67	2,455.90	1,871.40	1,825.84	45.57	41.068					
9,200.00	9,157.72	9,145.48	9,133.52	33.89	32.66	14.18	159.67	2,455.90	1,857.90	1,811.82	46.08	40.322					
9,300.00	9,256.74	9,244.51	9,232.54	34.29	33.01	14.28	159.67	2,455.90	1,844.40	1,797.82	46.58	39.593					
9,400.00	9,355.77	9,343.54	9,331.57	34.70	33.37	14.39	159.67	2,455.90	1,830.91	1,783.82	47.09	38.880					
9,500.00	9,454.80	9,442.56	9,430.60	35.10	33.72	14.50	159.67	2,455.90	1,817.42	1,769.82	47.60	38.181					
9,600.00	9,553.82	9,541.59	9,529.62	35.51	34.07	14.61	159.67	2,455.90	1,803.94	1,755.84	48.11	37.498					
9,700.00	9,652.85	9,640.62	9,628.65	35.91	34.42	14.72	159.67	2,455.90	1,790.47	1,741.85	48.62	36.828					
9,800.00	9,751.88	9,739.65	9,727.68	36.32	34.78	14.84	159.67	2,455.90	1,777.01	1,727.88	49.13	36.173					
9,900.00	9,850.91	9,838.67	9,826.71	36.73	35.13	14.95	159.67	2,455.90	1,763.55	1,713.91	49.63	35.530					
10,000.00	9,949.93	9,937.70	9,925.73	37.13	35.48	15.07	159.67	2,455.90	1,750.10	1,699.95	50.14	34.901					
10,100.00	10,048.96	10,036.73	10,024.76	37.54	35.83	15.19	159.67	2,455.90	1,736.65	1,686.00	50.65	34.285					
10,200.00	10,147.99	10,135.75	10,123.79	37.95	36.19	15.31	159.67	2,455.90	1,723.22	1,672.05	51.16	33.681					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	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	10,247.01	10,234.78	10,222.81	38.35	36.54	15.43	159.67	2,455.90	1,709.79	1,658.11	51.67	33.088		
10,326.64	10,273.39	10,261.16	10,249.19	38.46	36.63	15.47	159.67	2,455.90	1,706.21	1,654.40	51.81	32.932		
10,400.00	10,346.13	10,333.90	10,321.93	38.76	36.89	15.51	159.67	2,455.90	1,697.04	1,644.86	52.18	32.521		
10,500.00	10,445.55	10,433.32	10,421.35	39.15	37.25	15.57	159.67	2,455.90	1,686.71	1,634.02	52.69	32.011		
10,600.00	10,545.22	10,532.99	10,521.02	39.53	37.60	15.61	159.67	2,455.90	1,678.90	1,625.70	53.20	31.559		
10,700.00	10,645.07	10,632.84	10,620.87	39.89	37.96	15.64	159.67	2,455.90	1,673.61	1,619.91	53.70	31.163		
10,800.00	10,745.02	10,732.79	10,720.82	40.24	38.31	15.66	159.67	2,455.90	1,670.84	1,616.63	54.21	30.823		
10,859.98	10,805.00	10,792.77	10,780.80	40.44	38.53	91.38	159.67	2,455.90	1,670.39	1,615.88	54.51	30.645		
10,900.00	10,845.02	10,832.79	10,820.82	40.58	38.67	91.38	159.67	2,455.90	1,670.39	1,615.68	54.71	30.534		
11,000.00	10,945.02	10,932.79	10,920.82	40.91	39.03	91.38	159.67	2,455.90	1,670.39	1,615.18	55.20	30.258		
11,100.00	11,045.02	11,032.79	11,020.82	41.25	39.38	91.38	159.67	2,455.90	1,670.39	1,614.68	55.70	29.987		
11,200.00	11,145.02	11,132.79	11,120.82	41.59	39.74	91.38	159.67	2,455.90	1,670.39	1,614.19	56.20	29.721		
11,300.00	11,245.02	11,232.79	11,220.82	41.92	40.10	91.38	159.67	2,455.90	1,670.39	1,613.69	56.70	29.460		
11,321.98	11,267.00	11,254.77	11,242.80	42.00	40.18	91.38	159.67	2,455.90	1,670.39	1,613.58	56.81	29.403		
11,350.00	11,295.01	11,282.78	11,270.81	42.09	40.28	-88.08	159.67	2,455.90	1,670.36	1,613.42	56.95	29.332		
11,400.00	11,344.78	11,332.55	11,320.58	42.24	40.45	-88.26	159.67	2,455.90	1,670.22	1,613.03	57.18	29.209		
11,450.00	11,393.96	11,381.73	11,369.76	42.39	40.63	-88.58	159.67	2,455.90	1,669.96	1,612.56	57.41	29.089		
11,500.00	11,442.17	11,429.94	11,417.97	42.53	40.80	-89.05	159.67	2,455.90	1,669.68	1,612.06	57.63	28.974		
11,550.00	11,489.05	11,476.82	11,464.85	42.65	40.97	-89.63	159.67	2,455.90	1,669.47	1,611.63	57.84	28.865		
11,578.93	11,515.43	11,503.19	11,491.23	42.72	41.06	-90.00	159.65	2,455.90	1,669.43	1,611.47	57.95	28.807 CC		
11,600.00	11,534.24	11,522.39	11,510.42	42.77	41.12	-90.28	159.15	2,455.91	1,669.45	1,611.42	58.03	28.768		
11,650.00	11,577.39	11,569.12	11,556.97	42.88	41.27	-90.94	155.26	2,455.94	1,669.71	1,611.49	58.22	28.681		
11,700.00	11,618.19	11,617.66	11,604.82	42.98	41.41	-91.61	147.21	2,456.02	1,670.25	1,611.85	58.40	28.602		
11,750.00	11,656.31	11,668.25	11,653.78	43.07	41.56	-92.29	134.55	2,456.15	1,671.07	1,612.50	58.57	28.531		
11,800.00	11,691.46	11,721.17	11,703.60	43.14	41.70	-92.96	116.75	2,456.32	1,672.17	1,613.43	58.74	28.468		
11,850.00	11,723.39	11,776.72	11,753.88	43.21	41.84	-93.64	93.19	2,456.55	1,673.53	1,614.63	58.90	28.414		
11,900.00	11,751.84	11,835.22	11,804.12	43.28	41.97	-94.31	63.25	2,456.84	1,675.11	1,616.06	59.05	28.369		
11,950.00	11,776.61	11,897.02	11,853.56	43.34	42.10	-94.97	26.24	2,457.21	1,676.86	1,617.68	59.18	28.334		
12,000.00	11,797.49	11,962.42	11,901.24	43.39	42.22	-95.63	-18.49	2,457.64	1,678.74	1,619.44	59.31	28.307		
12,050.00	11,814.34	12,031.71	11,945.83	43.46	42.35	-96.25	-71.46	2,458.16	1,680.67	1,621.25	59.42	28.285		
12,100.00	11,827.02	12,105.04	11,985.69	43.53	42.51	-96.85	-132.94	2,458.77	1,682.56	1,623.03	59.53	28.266		
12,150.00	11,835.44	12,182.43	12,018.89	43.61	42.68	-97.38	-202.78	2,459.45	1,684.30	1,624.67	59.64	28.242		
12,200.00	11,839.54	12,263.65	12,043.29	43.70	42.87	-97.84	-280.17	2,460.21	1,685.81	1,626.05	59.76	28.209		
12,210.99	11,839.85	12,281.97	12,047.26	43.73	42.92	-97.93	-298.06	2,460.38	1,686.10	1,626.31	59.79	28.199		
12,300.00	11,841.56	12,414.56	12,059.39	43.95	43.25	-98.25	-429.85	2,461.67	1,686.91	1,626.78	60.12	28.058		
12,400.00	11,843.48	12,514.56	12,061.35	44.26	43.55	-98.25	-529.82	2,462.65	1,686.91	1,626.36	60.56	27.856		
12,500.00	11,845.39	12,614.56	12,063.31	44.64	43.90	-98.25	-629.80	2,463.63	1,686.92	1,625.84	61.08	27.619		
12,600.00	11,847.31	12,714.56	12,065.26	45.08	44.32	-98.25	-729.77	2,464.61	1,686.93	1,625.25	61.68	27.348		
12,700.00	11,849.23	12,814.56	12,067.22	45.58	44.79	-98.26	-829.75	2,465.59	1,686.94	1,624.57	62.37	27.049		
12,800.00	11,851.15	12,914.56	12,069.18	46.14	45.32	-98.26	-929.73	2,466.57	1,686.95	1,623.82	63.13	26.722		
12,900.00	11,853.06	13,014.56	12,071.14	46.75	45.90	-98.26	-1,029.70	2,467.55	1,686.96	1,622.99	63.97	26.373		
13,000.00	11,854.98	13,114.56	12,073.09	47.41	46.53	-98.26	-1,129.68	2,468.53	1,686.97	1,622.09	64.87	26.003		
13,100.00	11,856.90	13,214.56	12,075.05	48.12	47.21	-98.26	-1,229.65	2,469.51	1,686.98	1,621.12	65.85	25.617		
13,200.00	11,858.82	13,314.56	12,077.01	48.88	47.94	-98.26	-1,329.63	2,470.49	1,686.98	1,620.09	66.90	25.218		
13,300.00	11,860.74	13,414.56	12,078.97	49.68	48.72	-98.26	-1,429.61	2,471.46	1,686.99	1,618.99	68.00	24.808		
13,400.00	11,862.65	13,514.56	12,080.92	50.52	49.53	-98.27	-1,529.58	2,472.44	1,687.00	1,617.83	69.17	24.390		
13,500.00	11,864.57	13,614.56	12,082.88	51.41	50.39	-98.27	-1,629.56	2,473.42	1,687.01	1,616.62	70.39	23.967		
13,600.00	11,866.49	13,714.56	12,084.84	52.32	51.29	-98.27	-1,729.53	2,474.40	1,687.02	1,615.35	71.67	23.540		
13,700.00	11,868.41	13,814.56	12,086.79	53.28	52.22	-98.27	-1,829.51	2,475.38	1,687.03	1,614.03	72.99	23.112		
13,800.00	11,870.32	13,914.56	12,088.75	54.27	53.19	-98.27	-1,929.49	2,476.36	1,687.04	1,612.67	74.37	22.684		
13,900.00	11,872.24	14,014.56	12,090.71	55.29	54.19	-98.27	-2,029.46	2,477.34	1,687.05	1,611.25	75.79	22.259		
14,000.00	11,874.16	14,114.56	12,092.67	56.33	55.22	-98.27	-2,129.44	2,478.32	1,687.05	1,609.80	77.26	21.836		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,100.00	11,876.08	14,214.56	12,094.62	57.41	56.28	-98.27	-2,229.41	2,479.30	1,687.06	1,608.30	78.77	21.419		
14,200.00	11,877.99	14,314.56	12,096.58	58.52	57.37	-98.28	-2,329.39	2,480.28	1,687.07	1,606.76	80.31	21.007		
14,300.00	11,879.91	14,414.56	12,098.54	59.65	58.49	-98.28	-2,429.37	2,481.26	1,687.08	1,605.19	81.89	20.601		
14,400.00	11,881.83	14,514.56	12,100.50	60.80	59.63	-98.28	-2,529.34	2,482.23	1,687.09	1,603.58	83.51	20.203		
14,500.00	11,883.75	14,614.56	12,102.45	61.98	60.80	-98.28	-2,629.32	2,483.21	1,687.10	1,601.94	85.16	19.812		
14,600.00	11,885.66	14,714.56	12,104.41	63.17	61.98	-98.28	-2,729.30	2,484.19	1,687.11	1,600.27	86.83	19.429		
14,700.00	11,887.58	14,814.56	12,106.37	64.39	63.19	-98.28	-2,829.27	2,485.17	1,687.12	1,598.58	88.54	19.055		
14,800.00	11,889.50	14,914.56	12,108.32	65.63	64.42	-98.28	-2,929.25	2,486.15	1,687.13	1,596.85	90.28	18.689		
14,900.00	11,891.42	15,014.56	12,110.28	66.88	65.67	-98.29	-3,029.22	2,487.13	1,687.13	1,595.10	92.04	18.331		
15,000.00	11,893.33	15,114.56	12,112.24	68.15	66.93	-98.29	-3,129.20	2,488.11	1,687.14	1,593.32	93.82	17.983		
15,100.00	11,895.25	15,214.56	12,114.20	69.44	68.21	-98.29	-3,229.18	2,489.09	1,687.15	1,591.52	95.63	17.643		
15,200.00	11,897.17	15,314.56	12,116.15	70.74	69.51	-98.29	-3,329.15	2,490.07	1,687.16	1,589.70	97.46	17.312		
15,300.00	11,899.09	15,414.56	12,118.11	72.06	70.82	-98.29	-3,429.13	2,491.05	1,687.17	1,587.86	99.31	16.990		
15,400.00	11,901.00	15,514.56	12,120.07	73.39	72.14	-98.29	-3,529.10	2,492.03	1,687.18	1,586.00	101.17	16.676		
15,500.00	11,902.92	15,614.56	12,122.03	74.73	73.48	-98.29	-3,629.08	2,493.00	1,687.19	1,584.13	103.06	16.371		
15,600.00	11,904.84	15,714.56	12,123.98	76.09	74.83	-98.29	-3,729.06	2,493.98	1,687.20	1,582.23	104.96	16.074		
15,700.00	11,906.76	15,814.56	12,125.94	77.46	76.20	-98.30	-3,829.03	2,494.96	1,687.20	1,580.32	106.88	15.786		
15,800.00	11,908.67	15,914.56	12,127.90	78.84	77.57	-98.30	-3,929.01	2,495.94	1,687.21	1,578.40	108.82	15.505		
15,900.00	11,910.59	16,014.56	12,129.85	80.22	78.96	-98.30	-4,028.98	2,496.92	1,687.22	1,576.46	110.77	15.232		
16,000.00	11,912.51	16,114.56	12,131.81	81.62	80.35	-98.30	-4,128.96	2,497.90	1,687.23	1,574.50	112.73	14.967		
16,100.00	11,914.43	16,214.56	12,133.77	83.03	81.76	-98.30	-4,228.94	2,498.88	1,687.24	1,572.53	114.71	14.709		
16,200.00	11,916.34	16,314.56	12,135.73	84.45	83.17	-98.30	-4,328.91	2,499.86	1,687.25	1,570.55	116.69	14.459		
16,300.00	11,918.26	16,414.56	12,137.68	85.87	84.59	-98.30	-4,428.89	2,500.84	1,687.26	1,568.56	118.69	14.215		
16,400.00	11,920.18	16,514.56	12,139.64	87.30	86.02	-98.30	-4,528.86	2,501.82	1,687.27	1,566.56	120.71	13.978		
16,500.00	11,922.10	16,614.56	12,141.60	88.74	87.46	-98.31	-4,628.84	2,502.80	1,687.28	1,564.55	122.73	13.748		
16,600.00	11,924.01	16,714.56	12,143.55	90.19	88.91	-98.31	-4,728.82	2,503.77	1,687.28	1,562.52	124.76	13.524		
16,700.00	11,925.93	16,814.56	12,145.51	91.65	90.36	-98.31	-4,828.79	2,504.75	1,687.29	1,560.49	126.80	13.307		
16,800.00	11,927.85	16,914.56	12,147.47	93.11	91.82	-98.31	-4,928.77	2,505.73	1,687.30	1,558.45	128.85	13.095		
16,900.00	11,929.77	17,014.56	12,149.43	94.57	93.29	-98.31	-5,028.74	2,506.71	1,687.31	1,556.40	130.91	12.889		
17,000.00	11,931.68	17,114.56	12,151.38	96.05	94.76	-98.31	-5,128.72	2,507.69	1,687.32	1,554.34	132.98	12.688		
17,100.00	11,933.60	17,214.56	12,153.34	97.53	96.24	-98.31	-5,228.70	2,508.67	1,687.33	1,552.27	135.06	12.493		
17,200.00	11,935.52	17,314.56	12,155.30	99.01	97.72	-98.32	-5,328.67	2,509.65	1,687.34	1,550.19	137.14	12.304		
17,300.00	11,937.44	17,414.56	12,157.26	100.50	99.21	-98.32	-5,428.65	2,510.63	1,687.35	1,548.11	139.23	12.119		
17,400.00	11,939.35	17,514.56	12,159.21	102.00	100.70	-98.32	-5,528.62	2,511.61	1,687.35	1,546.02	141.33	11.939		
17,500.00	11,941.27	17,614.56	12,161.17	103.50	102.20	-98.32	-5,628.60	2,512.59	1,687.36	1,543.93	143.44	11.764		
17,600.00	11,943.19	17,714.56	12,163.13	105.00	103.71	-98.32	-5,728.58	2,513.57	1,687.37	1,541.82	145.55	11.593		
17,700.00	11,945.11	17,814.56	12,165.08	106.51	105.21	-98.32	-5,828.55	2,514.54	1,687.38	1,539.72	147.67	11.427		
17,800.00	11,947.02	17,914.56	12,167.04	108.02	106.73	-98.32	-5,928.53	2,515.52	1,687.39	1,537.60	149.79	11.265		
17,900.00	11,948.94	18,014.56	12,169.00	109.54	108.24	-98.32	-6,028.50	2,516.50	1,687.40	1,535.48	151.92	11.107		
18,000.00	11,950.86	18,114.56	12,170.96	111.06	109.76	-98.33	-6,128.48	2,517.48	1,687.41	1,533.36	154.05	10.954		
18,100.00	11,952.78	18,214.56	12,172.91	112.59	111.29	-98.33	-6,228.46	2,518.46	1,687.42	1,531.23	156.19	10.804		
18,200.00	11,954.70	18,314.56	12,174.87	114.11	112.82	-98.33	-6,328.43	2,519.44	1,687.43	1,529.09	158.33	10.657		
18,300.00	11,956.61	18,414.56	12,176.83	115.64	114.35	-98.33	-6,428.41	2,520.42	1,687.43	1,526.95	160.48	10.515		
18,400.00	11,958.53	18,514.56	12,178.79	117.18	115.88	-98.33	-6,528.38	2,521.40	1,687.44	1,524.81	162.63	10.376		
18,500.00	11,960.45	18,614.56	12,180.74	118.72	117.42	-98.33	-6,628.36	2,522.38	1,687.45	1,522.66	164.79	10.240		
18,600.00	11,962.37	18,714.56	12,182.70	120.26	118.96	-98.33	-6,728.34	2,523.36	1,687.46	1,520.51	166.95	10.107		
18,700.00	11,964.28	18,814.56	12,184.66	121.80	120.50	-98.34	-6,828.31	2,524.34	1,687.47	1,518.35	169.12	9.978		
18,800.00	11,966.20	18,914.56	12,186.61	123.35	122.05	-98.34	-6,928.29	2,525.31	1,687.48	1,516.19	171.29	9.852		
18,900.00	11,968.12	19,014.56	12,188.57	124.90	123.60	-98.34	-7,028.26	2,526.29	1,687.49	1,514.03	173.46	9.728		
19,000.00	11,970.04	19,114.56	12,190.53	126.45	125.15	-98.34	-7,128.24	2,527.27	1,687.50	1,511.86	175.64	9.608		
19,100.00	11,971.95	19,214.56	12,192.49	128.01	126.71	-98.34	-7,228.22	2,528.25	1,687.50	1,509.69	177.82	9.490		
19,200.00	11,973.87	19,314.56	12,194.44	129.56	128.27	-98.34	-7,328.19	2,529.23	1,687.51	1,507.52	180.00	9.375		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

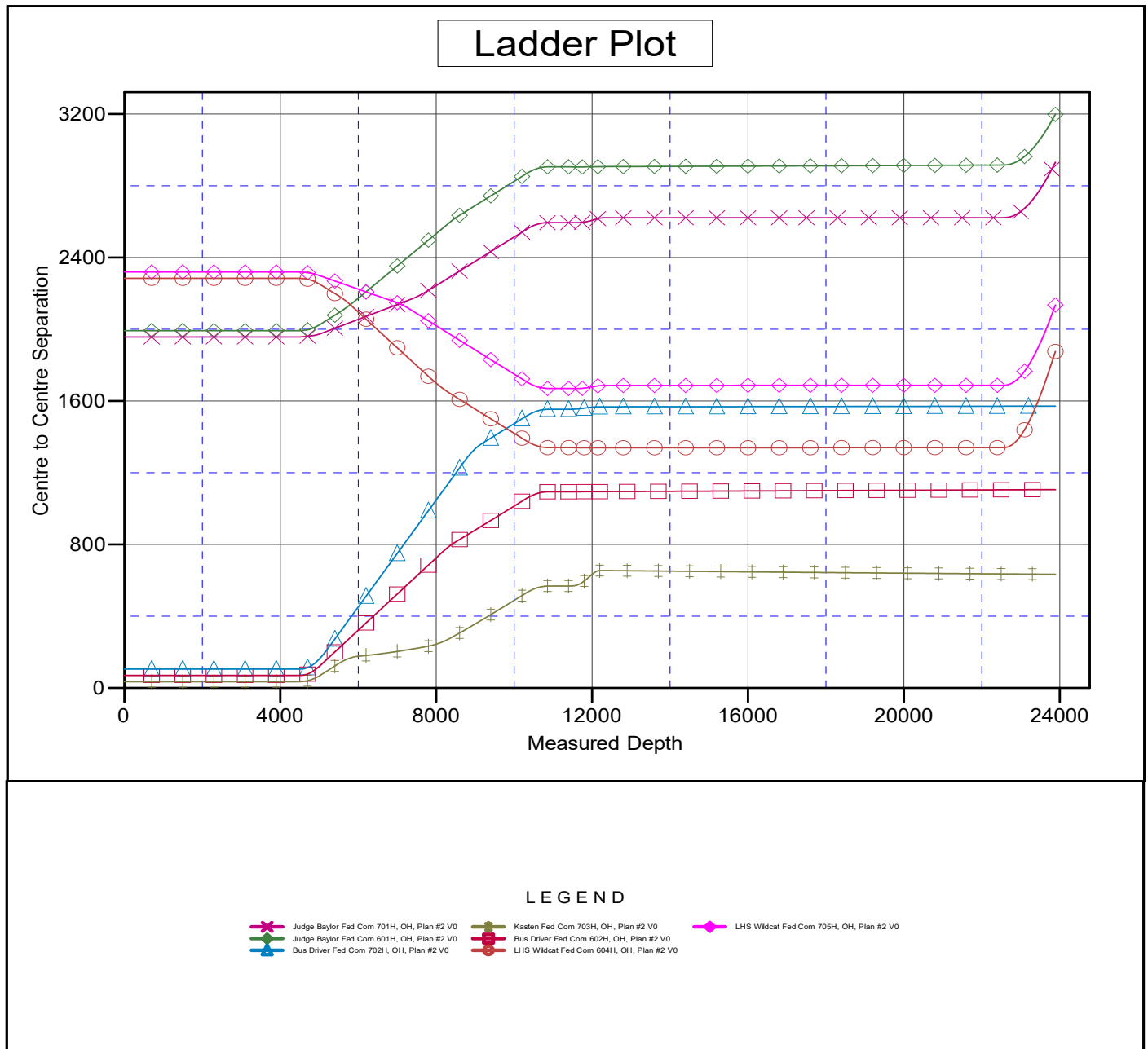
Offset Design LHS Wildcat Fed Com - LHS Wildcat Fed Com 705H - OH - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured 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		
19,300.00	11,975.79	19,414.56	12,196.40	131.12	129.82	-98.34	-7,428.17	2,530.21	1,687.52	1,505.34	182.18	9.263		
19,400.00	11,977.71	19,514.56	12,198.36	132.68	131.39	-98.34	-7,528.15	2,531.19	1,687.53	1,503.16	184.37	9.153		
19,500.00	11,979.62	19,614.56	12,200.32	134.25	132.95	-98.35	-7,628.12	2,532.17	1,687.54	1,500.97	186.57	9.045		
19,600.00	11,981.54	19,714.56	12,202.27	135.81	134.52	-98.35	-7,728.10	2,533.15	1,687.55	1,498.79	188.76	8.940		
19,700.00	11,983.46	19,814.56	12,204.23	137.38	136.09	-98.35	-7,828.07	2,534.13	1,687.56	1,496.60	190.96	8.837		
19,800.00	11,985.38	19,914.56	12,206.19	138.95	137.66	-98.35	-7,928.05	2,535.11	1,687.57	1,494.41	193.16	8.737		
19,900.00	11,987.29	20,014.56	12,208.14	140.52	139.23	-98.35	-8,028.03	2,536.08	1,687.58	1,492.21	195.36	8.638		
20,000.00	11,989.21	20,114.56	12,210.10	142.10	140.80	-98.35	-8,128.00	2,537.06	1,687.58	1,490.02	197.57	8.542		
20,100.00	11,991.13	20,214.56	12,212.06	143.67	142.38	-98.35	-8,227.98	2,538.04	1,687.59	1,487.82	199.78	8.447		
20,200.00	11,993.05	20,314.56	12,214.02	145.25	143.95	-98.35	-8,327.95	2,539.02	1,687.60	1,485.62	201.99	8.355		
20,300.00	11,994.96	20,414.56	12,215.97	146.83	145.53	-98.36	-8,427.93	2,540.00	1,687.61	1,483.41	204.20	8.265		
20,400.00	11,996.88	20,514.56	12,217.93	148.41	147.11	-98.36	-8,527.91	2,540.98	1,687.62	1,481.21	206.41	8.176		
20,500.00	11,998.80	20,614.56	12,219.89	149.99	148.70	-98.36	-8,627.88	2,541.96	1,687.63	1,479.00	208.63	8.089		
20,600.00	12,000.72	20,714.56	12,221.85	151.57	150.28	-98.36	-8,727.86	2,542.94	1,687.64	1,476.79	210.85	8.004		
20,700.00	12,002.63	20,814.56	12,223.80	153.16	151.87	-98.36	-8,827.83	2,543.92	1,687.65	1,474.58	213.07	7.921		
20,800.00	12,004.55	20,914.56	12,225.76	154.75	153.45	-98.36	-8,927.81	2,544.90	1,687.66	1,472.37	215.29	7.839		
20,900.00	12,006.47	21,014.56	12,227.72	156.33	155.04	-98.36	-9,027.79	2,545.88	1,687.66	1,470.15	217.51	7.759		
21,000.00	12,008.39	21,114.56	12,229.67	157.92	156.63	-98.37	-9,127.76	2,546.85	1,687.67	1,467.93	219.74	7.680		
21,100.00	12,010.30	21,214.56	12,231.63	159.51	158.22	-98.37	-9,227.74	2,547.83	1,687.68	1,465.71	221.97	7.603		
21,200.00	12,012.22	21,314.56	12,233.59	161.10	159.81	-98.37	-9,327.71	2,548.81	1,687.69	1,463.49	224.20	7.528		
21,300.00	12,014.14	21,414.56	12,235.55	162.70	161.41	-98.37	-9,427.69	2,549.79	1,687.70	1,461.27	226.43	7.454		
21,400.00	12,016.06	21,514.56	12,237.50	164.29	163.00	-98.37	-9,527.67	2,550.77	1,687.71	1,459.05	228.66	7.381		
21,500.00	12,017.97	21,614.56	12,239.46	165.89	164.60	-98.37	-9,627.64	2,551.75	1,687.72	1,456.82	230.89	7.310		
21,600.00	12,019.89	21,714.56	12,241.42	167.48	166.19	-98.37	-9,727.62	2,552.73	1,687.73	1,454.60	233.13	7.239		
21,700.00	12,021.81	21,814.56	12,243.38	169.08	167.79	-98.37	-9,827.59	2,553.71	1,687.73	1,452.37	235.36	7.171		
21,800.00	12,023.73	21,914.56	12,245.33	170.68	169.39	-98.38	-9,927.57	2,554.69	1,687.74	1,450.14	237.60	7.103		
21,900.00	12,025.64	22,014.56	12,247.29	172.28	170.99	-98.38	-10,027.55	2,555.67	1,687.75	1,447.91	239.84	7.037		
22,000.00	12,027.56	22,114.56	12,249.25	173.88	172.59	-98.38	-10,127.52	2,556.65	1,687.76	1,445.68	242.08	6.972		
22,100.00	12,029.48	22,214.56	12,251.20	175.48	174.19	-98.38	-10,227.50	2,557.62	1,687.77	1,443.45	244.32	6.908		
22,200.00	12,031.40	22,314.56	12,253.16	177.08	175.79	-98.38	-10,327.47	2,558.60	1,687.78	1,441.21	246.57	6.845		
22,300.00	12,033.31	22,414.56	12,255.12	178.68	177.40	-98.38	-10,427.45	2,559.58	1,687.79	1,438.98	248.81	6.783		
22,400.00	12,035.23	22,514.56	12,257.08	180.29	179.00	-98.38	-10,527.43	2,560.56	1,687.80	1,436.74	251.06	6.723		
22,500.00	12,037.15	22,614.56	12,259.03	181.89	180.61	-98.39	-10,627.40	2,561.54	1,687.81	1,434.50	253.31	6.663		
22,502.52	12,037.20	22,617.08	12,259.08	181.93	180.65	-98.39	-10,629.92	2,561.57	1,687.81	1,434.44	253.36	6.662		
22,600.00	12,039.07	22,695.11	12,260.61	183.50	181.90	-98.39	-10,707.94	2,562.33	1,687.93	1,432.51	255.42	6.608 ES		
22,700.00	12,040.98	22,695.11	12,260.61	185.11	181.90	-98.39	-10,707.94	2,562.33	1,692.04	1,435.65	256.40	6.599 SF		
22,800.00	12,042.90	22,695.11	12,260.61	186.71	181.90	-98.39	-10,707.94	2,562.33	1,702.04	1,445.61	256.43	6.638		
22,900.00	12,044.82	22,695.11	12,260.61	188.32	181.90	-98.39	-10,707.94	2,562.33	1,717.80	1,462.27	255.53	6.722		
23,000.00	12,046.74	22,695.11	12,260.61	189.93	181.90	-98.39	-10,707.94	2,562.33	1,739.19	1,485.40	253.79	6.853		
23,100.00	12,048.66	22,695.11	12,260.61	191.54	181.90	-98.39	-10,707.94	2,562.33	1,765.98	1,514.69	251.29	7.028		
23,200.00	12,050.57	22,695.11	12,260.61	193.15	181.90	-98.39	-10,707.94	2,562.33	1,797.95	1,549.81	248.13	7.246		
23,300.00	12,052.49	22,695.11	12,260.61	194.76	181.90	-98.39	-10,707.94	2,562.33	1,834.81	1,590.38	244.43	7.506		
23,400.00	12,054.41	22,695.11	12,260.61	196.37	181.90	-98.39	-10,707.94	2,562.33	1,876.28	1,635.97	240.31	7.808		
23,500.00	12,056.33	22,695.11	12,260.61	197.99	181.90	-98.39	-10,707.94	2,562.33	1,922.07	1,686.20	235.88	8.149		
23,600.00	12,058.24	22,695.11	12,260.61	199.60	181.90	-98.39	-10,707.94	2,562.33	1,971.87	1,740.65	231.22	8.528		
23,700.00	12,060.16	22,695.11	12,260.61	201.21	181.90	-98.39	-10,707.94	2,562.33	2,025.39	1,798.96	226.43	8.945		
23,800.00	12,062.08	22,695.11	12,260.61	202.83	181.90	-98.39	-10,707.94	2,562.33	2,082.34	1,860.75	221.59	9.397		
23,888.78	12,063.78	22,695.11	12,260.61	204.11	181.90	-98.39	-10,707.94	2,562.33	2,135.55	1,917.41	218.14	9.790		

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

Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kasten Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Reference Site:	Bus Driver/Kasten Fed Com	MD Reference:	3056.1' GE + 21' KB @ 3077.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kasten Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3056.1' GE + 21' KB @ 3077.10usft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Kasten Fed Com 603H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.54°

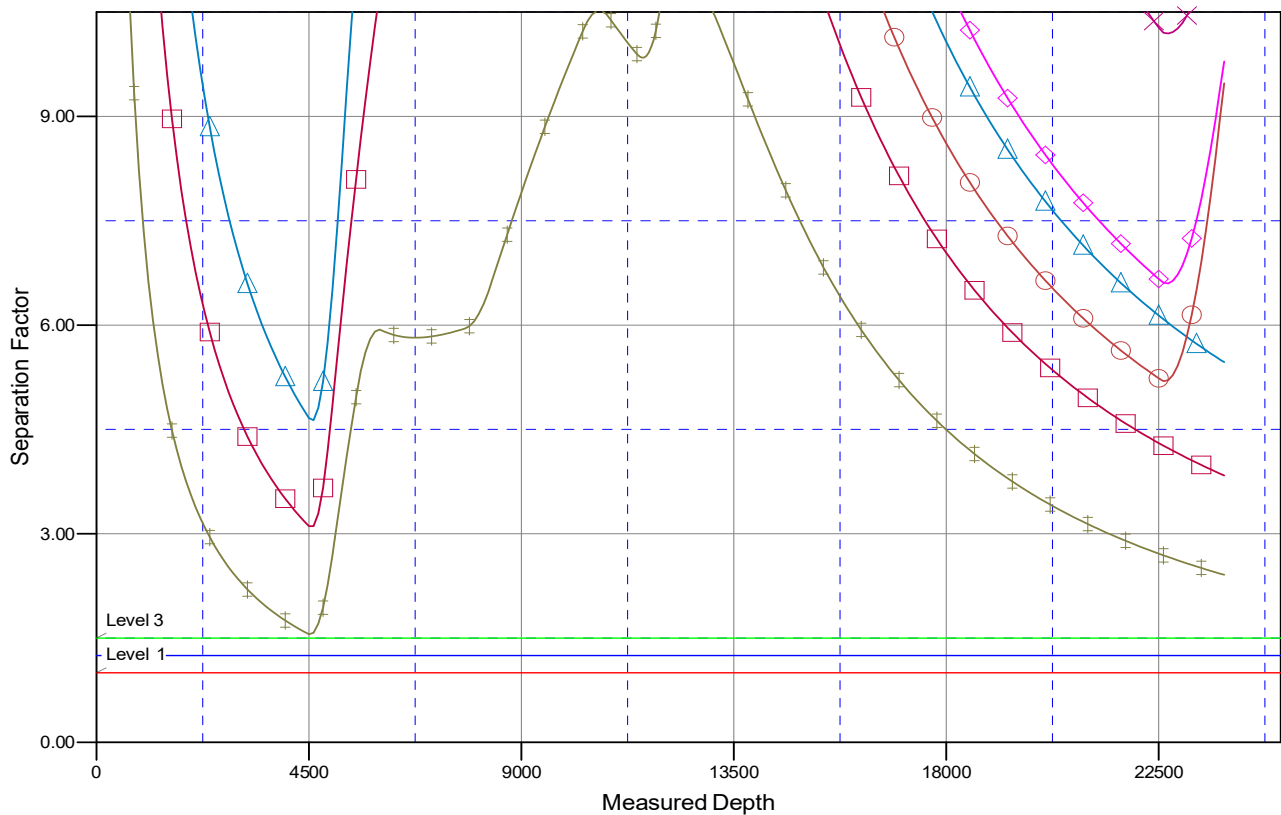


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Reference Depths are relative to 3056.1' GE + 21' KB @ 3077.10usft
Offset Depths are relative to Offset Datum
Central Meridian is -104.333334

Coordinates are relative to: Kasten Fed Com 603H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.54°

Separation Factor Plot



LEGEND

- Judge Baylor Fed Com 701H, OH, Plan #2 V0
- Judge Baylor Fed Com 601H, OH, Plan #2 V0
- Bus Driver Fed Com 702H, OH, Plan #2 V0
- Kasten Fed Com 703H, OH, Plan #2 V0
- Bus Driver Fed Com 602H, OH, Plan #2 V0
- LHS Wildcat Fed Com 705H, OH, Plan #2 V0
- LHS Wildcat Fed Com 604H, OH, Plan #2 V0

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Franklin Mountain Energy LLC
LEASE NO.:	NMNM117126
LOCATION:	Section 36, T.25 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Kaston Fed Com 603H
SURFACE HOLE FOOTAGE:	312'/S & 2480'/W
BOTTOM HOLE FOOTAGE:	1170'/N & 2020'/E

WELL NAME & NO.:	Kaston Fed Com 703H
SURFACE HOLE FOOTAGE:	312'/S & 2445'/W
BOTTOM HOLE FOOTAGE:	1170'/N & 2600'/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

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **1150 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature

survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing shall be set at approximately **5400 feet** is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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.



Hydrogen Sulfide Plan

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



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

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



Emergency Contact List:

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

EMERGENCY NUMBERS:

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