

Well Name: KASTON FED COM	Well Location: T25S / R35E / SEC 36 / SESW / 32.080431 / -103.321782	County or Parish/State: LEA / NM
Well Number: 603H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM117126	Unit or CA Name:	Unit or CA Number:
US Well Number: 300254810400X1	Well Status: Drilling Well	Operator: FRANKLIN MOUNTAIN ENERGY LLC

Notice of Intent

Type of Submission: Notice of Intent	Type of Action Drilling Operations
Date Sundry Submitted: 05/15/2021	Time Sundry Submitted: 02:48
Date proposed operation will begin: 05/18/2021	

Procedure Description: Franklin Mountain Energy, LLC (FME), Operator, respectfully requests approval to make the following changes to the proposed drilling plan for the above referenced well: - Change 1st Intermediate set depth to 5095'. - Change cement volumes based on updated Geoprog, casing and Directional plan. - Production Casing: FME would like approval to utilize 5.5 inch Eagle 606 23lb. P-110 in the drilling of this bore. Please see attached revised 14-point plan, Plan #5, geo prog and data sheet.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

- FME_Federal_14_Point_Plan_Kaston_603_updated_dir_23_lbs_Eagle_14_5_ppg_slurry_20210515144812.pdf
- Franklin_Mountain___Kaston_Fed_Com_603H___Plan_5_20210511162928.pdf
- Kaston_Fed_Com_603H_GEOPROG_prelim_20210511162901.pdf
- Data_Sheet_5.500_inch_23.00___P110_USS_EAGLE_SFH___USS_20210212151937_20210225100727_20210511162832.pdf

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Lease Number: NMNM117126	Unit or CA Name:	Unit or CA Number:
US Well Number: 300254810400X1	Well Status: Drilling Well	Operator: FRANKLIN MOUNTAIN ENERGY LLC

Operator Certification

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: RACHAEL OVERBEY	Signed on: MAY 15, 2021 02:48 PM
Name: FRANKLIN MOUNTAIN ENERGY LLC	
Title: Director – Operations Planning and Regulatory	
Street Address: 2401 E 2nd Avenue, Suite 300	
City: Denver	State: CO
Phone: (720) 414-7868	
Email address: roverbey@fme LLC.com	

Field Representative

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: LONG VO	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5752345972	BLM POC Email Address: lvo@blm.gov
Disposition: Approved	Disposition Date: 05/17/2021
Signature: Long Vo	



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'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,262'	824'			Carbonates
Salado	1,741'	1,345'			Salt, Carbonate & Clastics
Base Salt	497'	2,589'			Shaley Carbonate & Shale
Lamar	-1,994'	5,080'			Carbonate & Clastics
Bell Canyon	-2,032'	5,118'			Sandstone - oil/gas/water
Cherry Canyon	-2,881'	5,967'			Sandstone - oil/gas/water
Brushy Canyon	-4,262'	7,348'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,605'	8,691'			Shale/Carbonates - oil/gas
Avalon	-5,629'	8,715'			Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,731'	9,817'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,870'	9,956'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,255'	10,341'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-7,955'	11,041'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,626'	11,712'			Sandstone - oil/gas/water
HZ Target at SHL	-8,755'	11,841'			Overpressure shale/sand- Oil/Gas
Wolfcamp	-8,868'	11,954'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-8,929'	12,015'			Overpressure Shale - Oil/Gas
Wolfcamp B	-9,149'	12,235'			Overpressure Shale - Oil/Gas

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

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,118'	Oil
Bone Spring	9,817'	Oil
Wolfcamp	11,954	Oil

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

4. Casing Program:

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

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5095	1.79	1.77	3.02	3.43
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	12238	1.08	1.25	1.78	1.22
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606 TVD	23411 12063	1.32	1.33	1.14	0.95 1.61

Stress calculations on 5 1/2" casing performed assuming 23,411' depth. Stress calculations on 5 1/2" connections performed at 12,063' – maximum vertical depth of this well.



Cementing Program:

Cementing Stage tool can be placed in the 1st Intermediate string as a contingency to ensure required TOC to surface.

String Type	Hole Size	Casing Size	Setting Depth	Sacks	Type of cmt	Lead Yield ft ³ /sk	Water gal/sk	TOC ft	Sacks	Type of cmt	Tail Yield ft ³ /sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1300	795	Extenda Cem, 12.8 ppg Class C, 3lb/sk Kol-Seal	1.747	9.06	0	334	HalCem TM, 14.8 ppg, Class C, 1% CaCl ₂ , 0.125pps Celo-Flake	1.349	6.51	1000	100%
Int1	12.25	9.625	5095	1486	Lead, 12.8 ppg, Class C 5% Salt, 0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal	1.79	9.72	0	154	HalCem TM, 14.8 ppg, Class C, 0.1% HR 800 .125 pps Poly-E-Flake	1.33	6.37	4795	100%
Int2	8.75	7.625	12238	249	Lite Fill, 9.5 ppg, Class C 3lb/sk Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake	3.28	14.74	4095	94	NeoCem 14.8 ppg, Class C 0.25 pps Cello-Flake, 2% CaCl ₂	1.33	6.26	11238	50%
Prod	6.75	5.5	23411	908	Tail slurry, 14.5 ppg, Gas Migration Control	1.34	6.24	11238						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' – 12,238'	Brine	8.8-10.2	28-34	N/c
12,238' – 23,411' Lateral	Oil Base	10.0-11.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 10-11 ppg. In order to maintain hole stability, mud weights up to 12 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. Auxiliary well control and monitoring equipment:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

(D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

8. Logging, testing and coring program:

GR–CCL–CNL Will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

9. Abnormal conditions, pressures, temperatures and potential hazards:

The estimated bottom-hole temperature at 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 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.

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Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Bus Driver/Kaston Fed Com
Well: Kaston Fed Com 603H
Wellbore: OH
Design: Plan #5



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

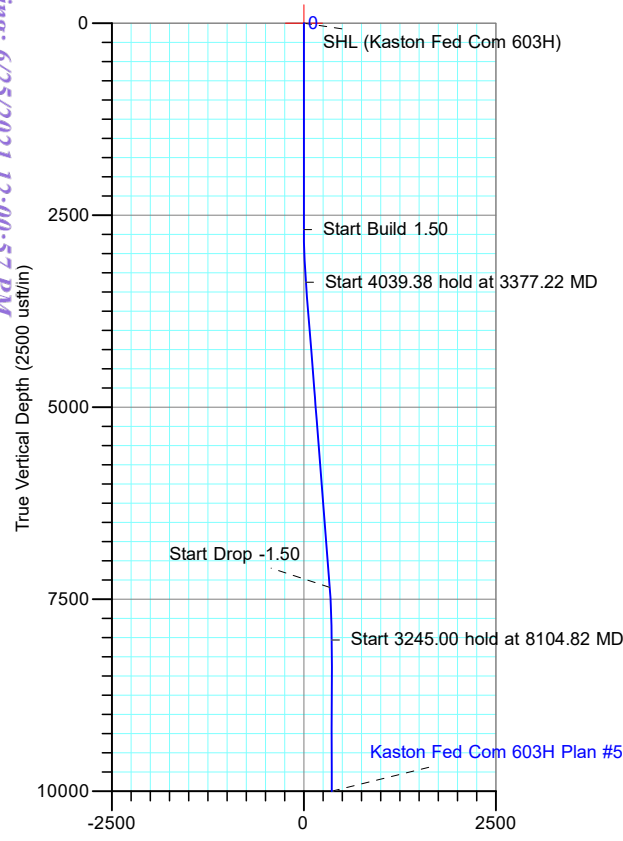
PROJECT DETAILS: Lea County, NM (NAD83)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone



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3057.5' GE + 30' KB @ 3087.50usft

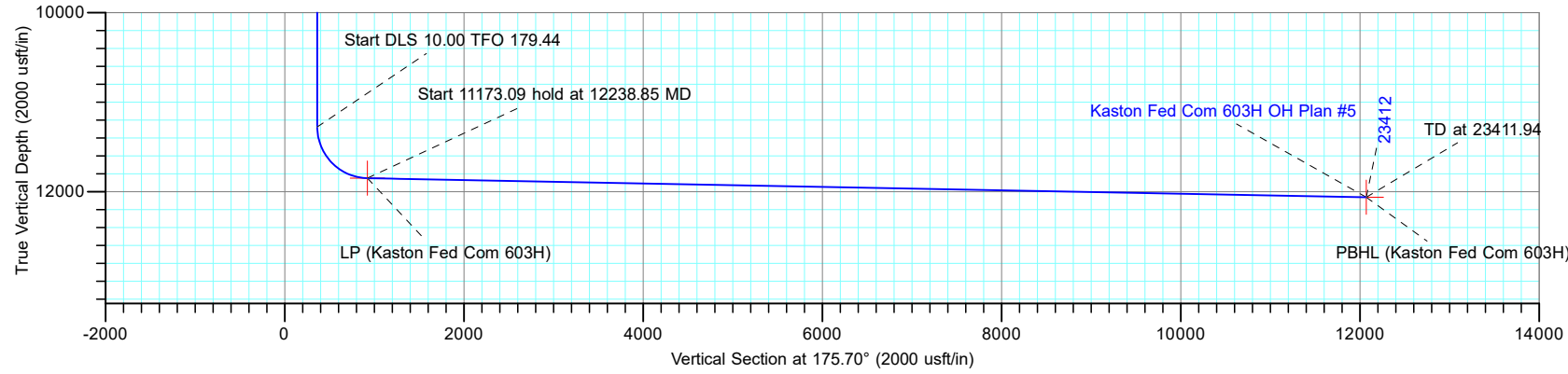
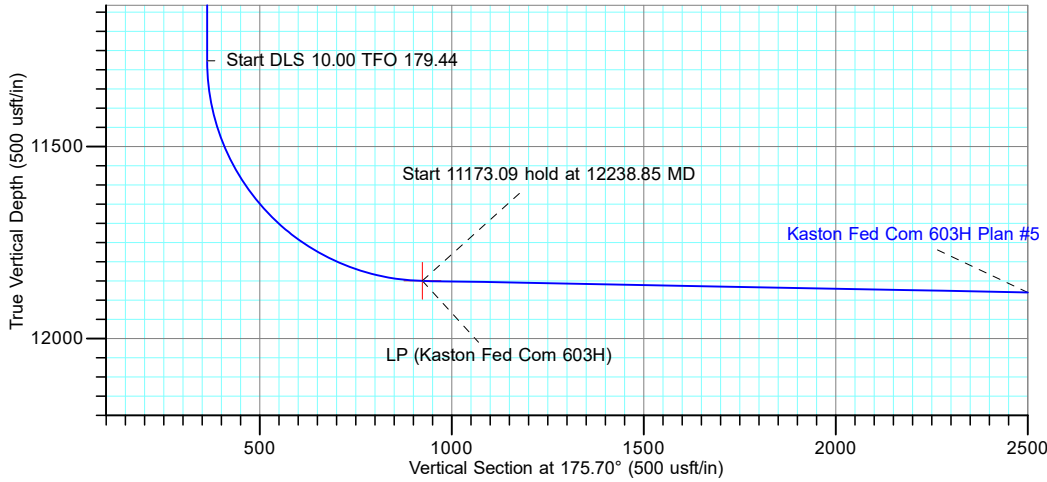


SECTION DETAILS

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	
2689.00	0.00	0.00	2689.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3377.22	10.32	111.06	3373.50	-22.22	57.70	1.50	111.06	26.49	Start 4039.38 hold at 3377.22 MD
7416.60	10.32	111.06	7347.50	-282.34	733.22	0.00	0.00	336.54	Start Drop -1.50
8104.82	0.00	0.00	8032.00	-304.56	790.92	1.50	180.00	363.03	Start 3245.00 hold at 8104.82 MD
11349.82	0.00	0.00	11277.00	-304.56	790.92	0.00	0.00	363.03	Start DLS 10.00 TFO 179.44
12238.85	88.90	179.44	11849.85	-866.52	796.41	10.00	179.44	923.82	Start 11173.09 hold at 12238.85 MD
23411.94	88.90	179.44	12063.78	-12037.03	905.46	0.00	0.00	12071.04	TD at 23411.94

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (Kaston Fed Com 603H)	11849.85	-866.52	796.41	32.078028	-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

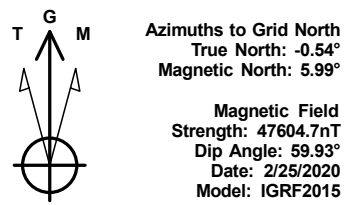
Plan: Plan #5 (Kaston Fed Com 603H/OH)
Bus Driver/Kaston Fed Com
Created By: Dustin Ault
Date: 11:27, April 20 2021
Approved: _____
Date: _____

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Franklin Mountain Energy

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Site: Bus Driver/Kaston Fed Com
Well: Kaston Fed Com 603H
Wellbore: OH
Design: Plan #5



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

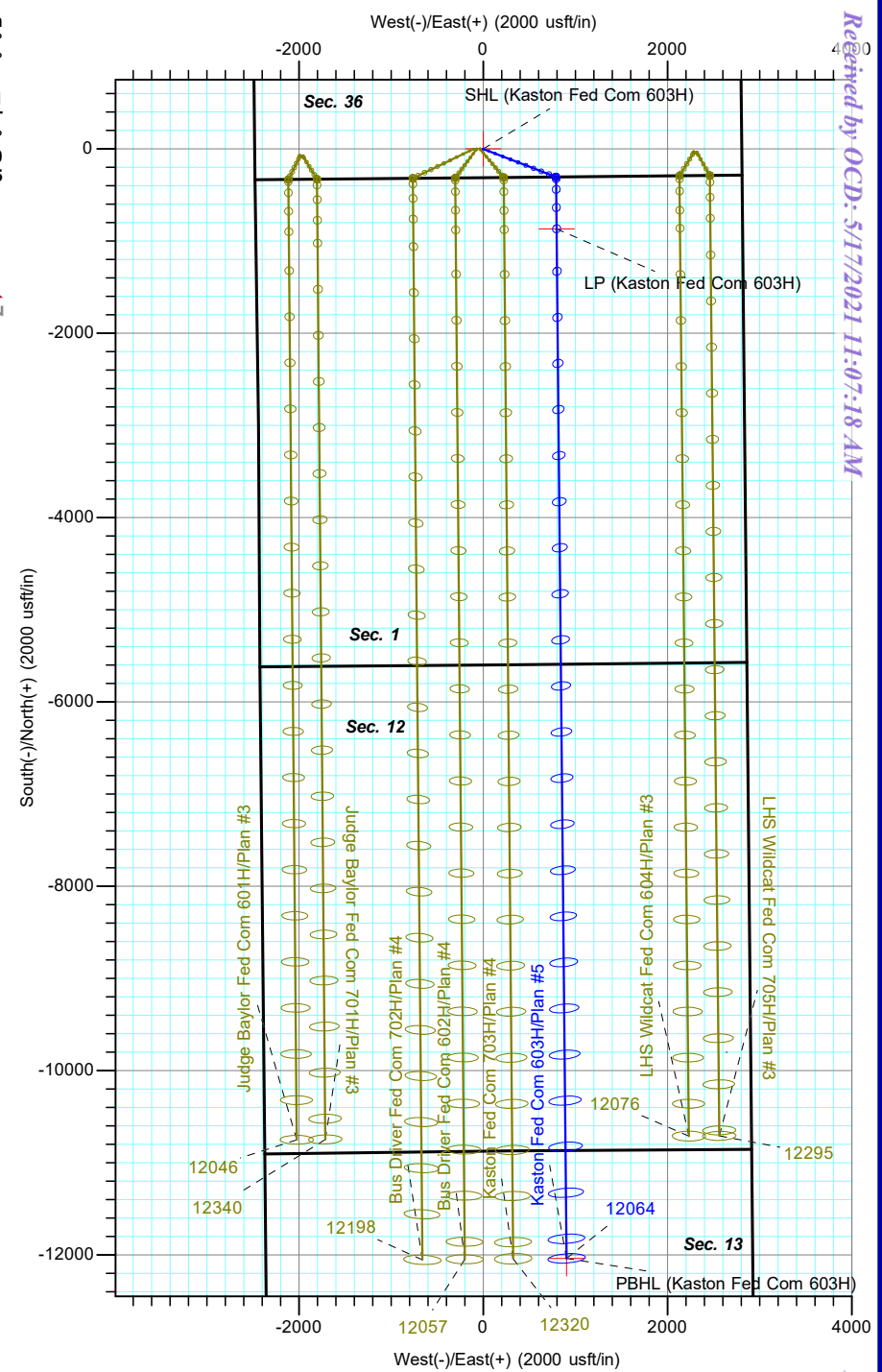
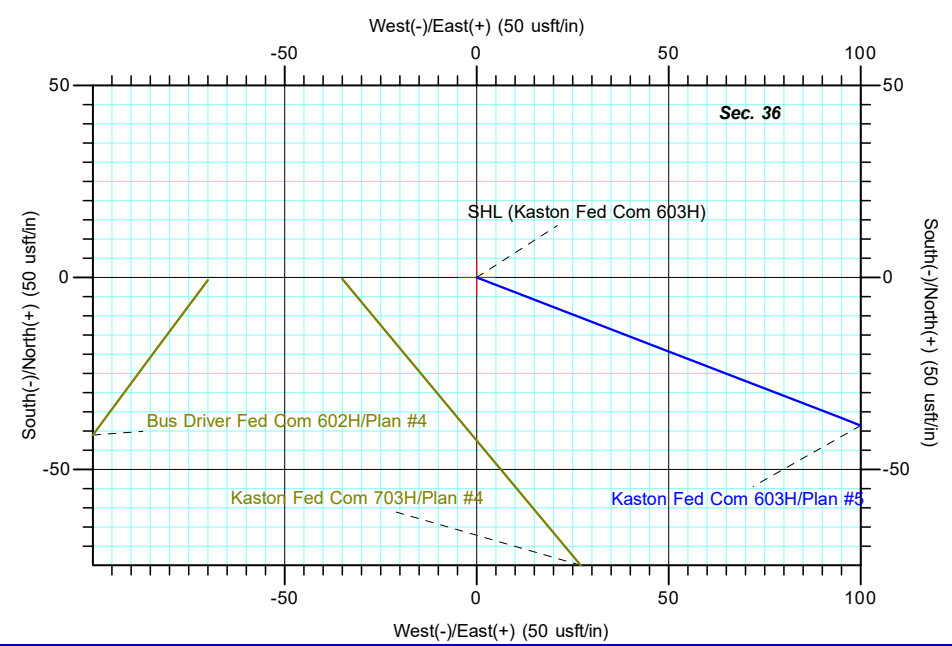


DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (Kaston Fed Com 603H)	11849.85	-866.52	796.41	393600.22	855435.79	32.078028	-103.319238
PBHL (Kaston Fed Com 603H)	12063.78	-12037.03	905.46	382429.71	855544.84	32.047323	-103.319224
SHL (Kaston 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	
2689.00	0.00	0.00	2689.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3377.22	10.32	111.06	3373.50	-22.22	57.70	1.50	111.06	26.49	Start 4039.38 hold at 3377.22 MD
7416.60	10.32	111.06	7347.50	-282.34	733.22	0.00	0.00	336.54	Start Drop -1.50
8104.82	0.00	0.00	8032.00	-304.56	790.92	1.50	180.00	363.03	Start 3245.00 hold at 8104.82 MD
11349.82	0.00	0.00	11277.00	-304.56	790.92	0.00	0.00	363.03	Start DLS 10.00 TFO 179.44
12238.85	88.90	179.44	11849.85	-866.52	796.41	10.00	179.44	923.82	Start 11173.09 hold at 12238.85 MD
23411.94	88.90	179.44	12063.78	-12037.03	905.46	0.00	0.00	12071.04	TD at 23411.94



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

Plan: Plan #5 (Kaston Fed Com 603H/OH)
Bus Driver/Kaston Fed Com
Created By: Dustin Ault
Date: 11:28, April 20 2021
Approved: _____
Date: _____

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Franklin Mountain Energy

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

OH

Plan: Plan #5

Standard Planning Report

20 April, 2021





Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

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/Kaston 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	Kaston 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:	3,057.50 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 #5			
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	4/20/2021		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	23,411.94 Plan #5 (OH)	OWSG (Rev2) MWD	
			OWSG MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,689.00	0.00	0.00	2,689.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,377.22	10.32	111.06	3,373.50	-22.22	57.70	1.50	1.50	0.00	111.06	
7,416.60	10.32	111.06	7,347.50	-282.34	733.22	0.00	0.00	0.00	0.00	
8,104.82	0.00	0.00	8,032.00	-304.56	790.92	1.50	-1.50	0.00	180.00	
11,349.82	0.00	0.00	11,277.00	-304.56	790.92	0.00	0.00	0.00	0.00	
12,238.85	88.90	179.44	11,849.85	-866.52	796.41	10.00	10.00	20.18	179.44	
23,411.94	88.90	179.44	12,063.78	-12,037.03	905.46	0.00	0.00	0.00	0.00	PBHL (Kaston Fed Cc



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

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
2,689.00	0.00	0.00	2,689.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
2,700.00	0.17	111.06	2,700.00	-0.01	0.01	0.01	1.50	1.50	0.00
2,800.00	1.67	111.06	2,799.98	-0.58	1.50	0.69	1.50	1.50	0.00
2,900.00	3.17	111.06	2,899.89	-2.09	5.44	2.50	1.50	1.50	0.00
3,000.00	4.67	111.06	2,999.66	-4.55	11.81	5.42	1.50	1.50	0.00
3,100.00	6.17	111.06	3,099.21	-7.94	20.61	9.46	1.50	1.50	0.00
3,200.00	7.67	111.06	3,198.48	-12.26	31.85	14.62	1.50	1.50	0.00
3,300.00	9.17	111.06	3,297.40	-17.52	45.51	20.89	1.50	1.50	0.00
3,377.22	10.32	111.06	3,373.50	-22.22	57.70	26.49	1.50	1.50	0.00
Start 4039.38 hold at 3377.22 MD									
3,400.00	10.32	111.06	3,395.91	-23.69	61.51	28.23	0.00	0.00	0.00
3,500.00	10.32	111.06	3,494.29	-30.13	78.24	35.91	0.00	0.00	0.00
3,600.00	10.32	111.06	3,592.68	-36.57	94.96	43.59	0.00	0.00	0.00
3,700.00	10.32	111.06	3,691.06	-43.01	111.68	51.26	0.00	0.00	0.00
3,800.00	10.32	111.06	3,789.44	-49.44	128.40	58.94	0.00	0.00	0.00
3,900.00	10.32	111.06	3,887.82	-55.88	145.13	66.61	0.00	0.00	0.00
4,000.00	10.32	111.06	3,986.20	-62.32	161.85	74.29	0.00	0.00	0.00
4,100.00	10.32	111.06	4,084.58	-68.76	178.57	81.97	0.00	0.00	0.00
4,200.00	10.32	111.06	4,182.96	-75.20	195.30	89.64	0.00	0.00	0.00
4,300.00	10.32	111.06	4,281.34	-81.64	212.02	97.32	0.00	0.00	0.00
4,400.00	10.32	111.06	4,379.73	-88.08	228.74	104.99	0.00	0.00	0.00
4,500.00	10.32	111.06	4,478.11	-94.52	245.47	112.67	0.00	0.00	0.00
4,600.00	10.32	111.06	4,576.49	-100.96	262.19	120.34	0.00	0.00	0.00
4,700.00	10.32	111.06	4,674.87	-107.40	278.91	128.02	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	10.32	111.06	4,773.25	-113.84	295.64	135.70	0.00	0.00	0.00
4,900.00	10.32	111.06	4,871.63	-120.28	312.36	143.37	0.00	0.00	0.00
5,000.00	10.32	111.06	4,970.01	-126.72	329.08	151.05	0.00	0.00	0.00
5,100.00	10.32	111.06	5,068.39	-133.16	345.81	158.72	0.00	0.00	0.00
5,200.00	10.32	111.06	5,166.78	-139.60	362.53	166.40	0.00	0.00	0.00
5,300.00	10.32	111.06	5,265.16	-146.04	379.25	174.08	0.00	0.00	0.00
5,400.00	10.32	111.06	5,363.54	-152.48	395.98	181.75	0.00	0.00	0.00
5,500.00	10.32	111.06	5,461.92	-158.92	412.70	189.43	0.00	0.00	0.00
5,600.00	10.32	111.06	5,560.30	-165.36	429.42	197.10	0.00	0.00	0.00
5,700.00	10.32	111.06	5,658.68	-171.80	446.15	204.78	0.00	0.00	0.00
5,800.00	10.32	111.06	5,757.06	-178.24	462.87	212.46	0.00	0.00	0.00
5,900.00	10.32	111.06	5,855.44	-184.68	479.59	220.13	0.00	0.00	0.00
6,000.00	10.32	111.06	5,953.83	-191.12	496.32	227.81	0.00	0.00	0.00
6,100.00	10.32	111.06	6,052.21	-197.56	513.04	235.48	0.00	0.00	0.00
6,200.00	10.32	111.06	6,150.59	-204.00	529.76	243.16	0.00	0.00	0.00
6,300.00	10.32	111.06	6,248.97	-210.44	546.49	250.83	0.00	0.00	0.00
6,400.00	10.32	111.06	6,347.35	-216.88	563.21	258.51	0.00	0.00	0.00
6,500.00	10.32	111.06	6,445.73	-223.31	579.93	266.19	0.00	0.00	0.00
6,600.00	10.32	111.06	6,544.11	-229.75	596.66	273.86	0.00	0.00	0.00
6,700.00	10.32	111.06	6,642.49	-236.19	613.38	281.54	0.00	0.00	0.00
6,800.00	10.32	111.06	6,740.88	-242.63	630.10	289.21	0.00	0.00	0.00
6,900.00	10.32	111.06	6,839.26	-249.07	646.82	296.89	0.00	0.00	0.00
7,000.00	10.32	111.06	6,937.64	-255.51	663.55	304.57	0.00	0.00	0.00
7,100.00	10.32	111.06	7,036.02	-261.95	680.27	312.24	0.00	0.00	0.00
7,200.00	10.32	111.06	7,134.40	-268.39	696.99	319.92	0.00	0.00	0.00
7,300.00	10.32	111.06	7,232.78	-274.83	713.72	327.59	0.00	0.00	0.00
7,400.00	10.32	111.06	7,331.16	-281.27	730.44	335.27	0.00	0.00	0.00
7,416.60	10.32	111.06	7,347.50	-282.34	733.22	336.54	0.00	0.00	0.00
Start Drop -1.50									
7,500.00	9.07	111.06	7,429.70	-287.39	746.33	342.56	1.50	-1.50	0.00
7,600.00	7.57	111.06	7,528.64	-292.59	759.83	348.76	1.50	-1.50	0.00
7,700.00	6.07	111.06	7,627.93	-296.86	770.92	353.85	1.50	-1.50	0.00
7,800.00	4.57	111.06	7,727.50	-300.19	779.58	357.82	1.50	-1.50	0.00
7,900.00	3.07	111.06	7,827.27	-302.59	785.80	360.68	1.50	-1.50	0.00
8,000.00	1.57	111.06	7,927.19	-304.04	789.58	362.41	1.50	-1.50	0.00
8,104.82	0.00	0.00	8,032.00	-304.56	790.92	363.03	1.50	-1.50	-105.95
Start 3245.00 hold at 8104.82 MD									
8,200.00	0.00	0.00	8,127.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,300.00	0.00	0.00	8,227.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,400.00	0.00	0.00	8,327.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,500.00	0.00	0.00	8,427.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,600.00	0.00	0.00	8,527.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,700.00	0.00	0.00	8,627.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,800.00	0.00	0.00	8,727.18	-304.56	790.92	363.03	0.00	0.00	0.00
8,900.00	0.00	0.00	8,827.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,000.00	0.00	0.00	8,927.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,100.00	0.00	0.00	9,027.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,200.00	0.00	0.00	9,127.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,300.00	0.00	0.00	9,227.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,400.00	0.00	0.00	9,327.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,500.00	0.00	0.00	9,427.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,600.00	0.00	0.00	9,527.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,700.00	0.00	0.00	9,627.18	-304.56	790.92	363.03	0.00	0.00	0.00
9,800.00	0.00	0.00	9,727.18	-304.56	790.92	363.03	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,900.00	0.00	0.00	9,827.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,000.00	0.00	0.00	9,927.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,100.00	0.00	0.00	10,027.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,200.00	0.00	0.00	10,127.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,300.00	0.00	0.00	10,227.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,400.00	0.00	0.00	10,327.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,500.00	0.00	0.00	10,427.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,600.00	0.00	0.00	10,527.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,700.00	0.00	0.00	10,627.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,800.00	0.00	0.00	10,727.18	-304.56	790.92	363.03	0.00	0.00	0.00
10,900.00	0.00	0.00	10,827.18	-304.56	790.92	363.03	0.00	0.00	0.00
11,000.00	0.00	0.00	10,927.18	-304.56	790.92	363.03	0.00	0.00	0.00
11,100.00	0.00	0.00	11,027.18	-304.56	790.92	363.03	0.00	0.00	0.00
11,200.00	0.00	0.00	11,127.18	-304.56	790.92	363.03	0.00	0.00	0.00
11,300.00	0.00	0.00	11,227.18	-304.56	790.92	363.03	0.00	0.00	0.00
11,349.82	0.00	0.00	11,277.00	-304.56	790.92	363.03	0.00	0.00	0.00
Start DLS 10.00 TFO 179.44									
11,400.00	5.02	179.44	11,327.11	-306.76	790.94	365.22	10.00	10.00	0.00
11,450.00	10.02	179.44	11,376.67	-313.29	791.01	371.75	10.00	10.00	0.00
11,500.00	15.02	179.44	11,425.46	-324.13	791.11	382.56	10.00	10.00	0.00
11,550.00	20.02	179.44	11,473.13	-339.17	791.26	397.57	10.00	10.00	0.00
11,600.00	25.02	179.44	11,519.30	-358.31	791.44	416.67	10.00	10.00	0.00
11,650.00	30.02	179.44	11,563.63	-381.41	791.67	439.72	10.00	10.00	0.00
11,700.00	35.02	179.44	11,605.78	-408.27	791.93	466.53	10.00	10.00	0.00
11,750.00	40.02	179.44	11,645.43	-438.71	792.23	496.90	10.00	10.00	0.00
11,800.00	45.02	179.44	11,682.27	-472.49	792.56	530.61	10.00	10.00	0.00
11,850.00	50.02	179.44	11,716.02	-509.35	792.92	567.40	10.00	10.00	0.00
11,900.00	55.02	179.44	11,746.44	-549.02	793.31	606.98	10.00	10.00	0.00
11,950.00	60.02	179.44	11,773.28	-591.18	793.72	649.05	10.00	10.00	0.00
12,000.00	65.02	179.44	11,796.35	-635.52	794.15	693.30	10.00	10.00	0.00
12,050.00	70.02	179.44	11,815.46	-681.70	794.60	739.39	10.00	10.00	0.00
12,100.00	75.02	179.44	11,830.48	-729.38	795.07	786.96	10.00	10.00	0.00
12,150.00	80.02	179.44	11,841.28	-778.18	795.54	835.66	10.00	10.00	0.00
12,200.00	85.02	179.44	11,847.79	-827.73	796.03	885.11	10.00	10.00	0.00
12,238.85	88.90	179.44	11,849.85	-866.52	796.41	923.82	10.00	10.00	0.00
Start 11173.09 hold at 12238.85 MD - LP (Kaston Fed Com 603H)									
12,300.00	88.90	179.44	11,851.02	-927.65	797.00	984.82	0.00	0.00	0.00
12,400.00	88.90	179.44	11,852.94	-1,027.63	797.98	1,084.59	0.00	0.00	0.00
12,500.00	88.90	179.44	11,854.85	-1,127.61	798.96	1,184.36	0.00	0.00	0.00
12,600.00	88.90	179.44	11,856.77	-1,227.58	799.93	1,284.13	0.00	0.00	0.00
12,700.00	88.90	179.44	11,858.68	-1,327.56	800.91	1,383.90	0.00	0.00	0.00
12,800.00	88.90	179.44	11,860.60	-1,427.54	801.88	1,483.67	0.00	0.00	0.00
12,900.00	88.90	179.44	11,862.51	-1,527.52	802.86	1,583.43	0.00	0.00	0.00
13,000.00	88.90	179.44	11,864.43	-1,627.49	803.84	1,683.20	0.00	0.00	0.00
13,100.00	88.90	179.44	11,866.34	-1,727.47	804.81	1,782.97	0.00	0.00	0.00
13,200.00	88.90	179.44	11,868.26	-1,827.45	805.79	1,882.74	0.00	0.00	0.00
13,300.00	88.90	179.44	11,870.17	-1,927.42	806.76	1,982.51	0.00	0.00	0.00
13,400.00	88.90	179.44	11,872.09	-2,027.40	807.74	2,082.28	0.00	0.00	0.00
13,500.00	88.90	179.44	11,874.00	-2,127.38	808.72	2,182.05	0.00	0.00	0.00
13,600.00	88.90	179.44	11,875.91	-2,227.35	809.69	2,281.81	0.00	0.00	0.00
13,700.00	88.90	179.44	11,877.83	-2,327.33	810.67	2,381.58	0.00	0.00	0.00
13,800.00	88.90	179.44	11,879.74	-2,427.31	811.64	2,481.35	0.00	0.00	0.00
13,900.00	88.90	179.44	11,881.66	-2,527.28	812.62	2,581.12	0.00	0.00	0.00
14,000.00	88.90	179.44	11,883.57	-2,627.26	813.60	2,680.89	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,100.00	88.90	179.44	11,885.49	-2,727.24	814.57	2,780.66	0.00	0.00	0.00
14,200.00	88.90	179.44	11,887.40	-2,827.21	815.55	2,880.42	0.00	0.00	0.00
14,300.00	88.90	179.44	11,889.32	-2,927.19	816.52	2,980.19	0.00	0.00	0.00
14,400.00	88.90	179.44	11,891.23	-3,027.17	817.50	3,079.96	0.00	0.00	0.00
14,500.00	88.90	179.44	11,893.15	-3,127.15	818.48	3,179.73	0.00	0.00	0.00
14,600.00	88.90	179.44	11,895.06	-3,227.12	819.45	3,279.50	0.00	0.00	0.00
14,700.00	88.90	179.44	11,896.98	-3,327.10	820.43	3,379.27	0.00	0.00	0.00
14,800.00	88.90	179.44	11,898.89	-3,427.08	821.40	3,479.04	0.00	0.00	0.00
14,900.00	88.90	179.44	11,900.81	-3,527.05	822.38	3,578.80	0.00	0.00	0.00
15,000.00	88.90	179.44	11,902.72	-3,627.03	823.36	3,678.57	0.00	0.00	0.00
15,100.00	88.90	179.44	11,904.63	-3,727.01	824.33	3,778.34	0.00	0.00	0.00
15,200.00	88.90	179.44	11,906.55	-3,826.98	825.31	3,878.11	0.00	0.00	0.00
15,300.00	88.90	179.44	11,908.46	-3,926.96	826.28	3,977.88	0.00	0.00	0.00
15,400.00	88.90	179.44	11,910.38	-4,026.94	827.26	4,077.65	0.00	0.00	0.00
15,500.00	88.90	179.44	11,912.29	-4,126.91	828.24	4,177.41	0.00	0.00	0.00
15,600.00	88.90	179.44	11,914.21	-4,226.89	829.21	4,277.18	0.00	0.00	0.00
15,700.00	88.90	179.44	11,916.12	-4,326.87	830.19	4,376.95	0.00	0.00	0.00
15,800.00	88.90	179.44	11,918.04	-4,426.85	831.16	4,476.72	0.00	0.00	0.00
15,900.00	88.90	179.44	11,919.95	-4,526.82	832.14	4,576.49	0.00	0.00	0.00
16,000.00	88.90	179.44	11,921.87	-4,626.80	833.12	4,676.26	0.00	0.00	0.00
16,100.00	88.90	179.44	11,923.78	-4,726.78	834.09	4,776.03	0.00	0.00	0.00
16,200.00	88.90	179.44	11,925.70	-4,826.75	835.07	4,875.79	0.00	0.00	0.00
16,300.00	88.90	179.44	11,927.61	-4,926.73	836.04	4,975.56	0.00	0.00	0.00
16,400.00	88.90	179.44	11,929.53	-5,026.71	837.02	5,075.33	0.00	0.00	0.00
16,500.00	88.90	179.44	11,931.44	-5,126.68	838.00	5,175.10	0.00	0.00	0.00
16,600.00	88.90	179.44	11,933.35	-5,226.66	838.97	5,274.87	0.00	0.00	0.00
16,700.00	88.90	179.44	11,935.27	-5,326.64	839.95	5,374.64	0.00	0.00	0.00
16,800.00	88.90	179.44	11,937.18	-5,426.61	840.92	5,474.40	0.00	0.00	0.00
16,900.00	88.90	179.44	11,939.10	-5,526.59	841.90	5,574.17	0.00	0.00	0.00
17,000.00	88.90	179.44	11,941.01	-5,626.57	842.88	5,673.94	0.00	0.00	0.00
17,100.00	88.90	179.44	11,942.93	-5,726.55	843.85	5,773.71	0.00	0.00	0.00
17,200.00	88.90	179.44	11,944.84	-5,826.52	844.83	5,873.48	0.00	0.00	0.00
17,300.00	88.90	179.44	11,946.76	-5,926.50	845.81	5,973.25	0.00	0.00	0.00
17,400.00	88.90	179.44	11,948.67	-6,026.48	846.78	6,073.02	0.00	0.00	0.00
17,500.00	88.90	179.44	11,950.59	-6,126.45	847.76	6,172.78	0.00	0.00	0.00
17,600.00	88.90	179.44	11,952.50	-6,226.43	848.73	6,272.55	0.00	0.00	0.00
17,700.00	88.90	179.44	11,954.42	-6,326.41	849.71	6,372.32	0.00	0.00	0.00
17,800.00	88.90	179.44	11,956.33	-6,426.38	850.69	6,472.09	0.00	0.00	0.00
17,900.00	88.90	179.44	11,958.25	-6,526.36	851.66	6,571.86	0.00	0.00	0.00
18,000.00	88.90	179.44	11,960.16	-6,626.34	852.64	6,671.63	0.00	0.00	0.00
18,100.00	88.90	179.44	11,962.07	-6,726.31	853.61	6,771.39	0.00	0.00	0.00
18,200.00	88.90	179.44	11,963.99	-6,826.29	854.59	6,871.16	0.00	0.00	0.00
18,300.00	88.90	179.44	11,965.90	-6,926.27	855.57	6,970.93	0.00	0.00	0.00
18,400.00	88.90	179.44	11,967.82	-7,026.25	856.54	7,070.70	0.00	0.00	0.00
18,500.00	88.90	179.44	11,969.73	-7,126.22	857.52	7,170.47	0.00	0.00	0.00
18,600.00	88.90	179.44	11,971.65	-7,226.20	858.49	7,270.24	0.00	0.00	0.00
18,700.00	88.90	179.44	11,973.56	-7,326.18	859.47	7,370.01	0.00	0.00	0.00
18,800.00	88.90	179.44	11,975.48	-7,426.15	860.45	7,469.77	0.00	0.00	0.00
18,900.00	88.90	179.44	11,977.39	-7,526.13	861.42	7,569.54	0.00	0.00	0.00
19,000.00	88.90	179.44	11,979.31	-7,626.11	862.40	7,669.31	0.00	0.00	0.00
19,100.00	88.90	179.44	11,981.22	-7,726.08	863.37	7,769.08	0.00	0.00	0.00
19,200.00	88.90	179.44	11,983.14	-7,826.06	864.35	7,868.85	0.00	0.00	0.00
19,300.00	88.90	179.44	11,985.05	-7,926.04	865.33	7,968.62	0.00	0.00	0.00
19,400.00	88.90	179.44	11,986.97	-8,026.01	866.30	8,068.38	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

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)	
19,500.00	88.90	179.44	11,988.88	-8,125.99	867.28	8,168.15	0.00	0.00	0.00	
19,600.00	88.90	179.44	11,990.79	-8,225.97	868.25	8,267.92	0.00	0.00	0.00	
19,700.00	88.90	179.44	11,992.71	-8,325.94	869.23	8,367.69	0.00	0.00	0.00	
19,800.00	88.90	179.44	11,994.62	-8,425.92	870.21	8,467.46	0.00	0.00	0.00	
19,900.00	88.90	179.44	11,996.54	-8,525.90	871.18	8,567.23	0.00	0.00	0.00	
20,000.00	88.90	179.44	11,998.45	-8,625.88	872.16	8,667.00	0.00	0.00	0.00	
20,100.00	88.90	179.44	12,000.37	-8,725.85	873.13	8,766.76	0.00	0.00	0.00	
20,200.00	88.90	179.44	12,002.28	-8,825.83	874.11	8,866.53	0.00	0.00	0.00	
20,300.00	88.90	179.44	12,004.20	-8,925.81	875.09	8,966.30	0.00	0.00	0.00	
20,400.00	88.90	179.44	12,006.11	-9,025.78	876.06	9,066.07	0.00	0.00	0.00	
20,500.00	88.90	179.44	12,008.03	-9,125.76	877.04	9,165.84	0.00	0.00	0.00	
20,600.00	88.90	179.44	12,009.94	-9,225.74	878.01	9,265.61	0.00	0.00	0.00	
20,700.00	88.90	179.44	12,011.86	-9,325.71	878.99	9,365.37	0.00	0.00	0.00	
20,800.00	88.90	179.44	12,013.77	-9,425.69	879.97	9,465.14	0.00	0.00	0.00	
20,900.00	88.90	179.44	12,015.68	-9,525.67	880.94	9,564.91	0.00	0.00	0.00	
21,000.00	88.90	179.44	12,017.60	-9,625.64	881.92	9,664.68	0.00	0.00	0.00	
21,100.00	88.90	179.44	12,019.51	-9,725.62	882.89	9,764.45	0.00	0.00	0.00	
21,200.00	88.90	179.44	12,021.43	-9,825.60	883.87	9,864.22	0.00	0.00	0.00	
21,300.00	88.90	179.44	12,023.34	-9,925.58	884.85	9,963.99	0.00	0.00	0.00	
21,400.00	88.90	179.44	12,025.26	-10,025.55	885.82	10,063.75	0.00	0.00	0.00	
21,500.00	88.90	179.44	12,027.17	-10,125.53	886.80	10,163.52	0.00	0.00	0.00	
21,600.00	88.90	179.44	12,029.09	-10,225.51	887.77	10,263.29	0.00	0.00	0.00	
21,700.00	88.90	179.44	12,031.00	-10,325.48	888.75	10,363.06	0.00	0.00	0.00	
21,800.00	88.90	179.44	12,032.92	-10,425.46	889.73	10,462.83	0.00	0.00	0.00	
21,900.00	88.90	179.44	12,034.83	-10,525.44	890.70	10,562.60	0.00	0.00	0.00	
22,000.00	88.90	179.44	12,036.75	-10,625.41	891.68	10,662.36	0.00	0.00	0.00	
22,100.00	88.90	179.44	12,038.66	-10,725.39	892.65	10,762.13	0.00	0.00	0.00	
22,200.00	88.90	179.44	12,040.58	-10,825.37	893.63	10,861.90	0.00	0.00	0.00	
22,300.00	88.90	179.44	12,042.49	-10,925.34	894.61	10,961.67	0.00	0.00	0.00	
22,400.00	88.90	179.44	12,044.40	-11,025.32	895.58	11,061.44	0.00	0.00	0.00	
22,500.00	88.90	179.44	12,046.32	-11,125.30	896.56	11,161.21	0.00	0.00	0.00	
22,600.00	88.90	179.44	12,048.23	-11,225.28	897.54	11,260.98	0.00	0.00	0.00	
22,700.00	88.90	179.44	12,050.15	-11,325.25	898.51	11,360.74	0.00	0.00	0.00	
22,800.00	88.90	179.44	12,052.06	-11,425.23	899.49	11,460.51	0.00	0.00	0.00	
22,900.00	88.90	179.44	12,053.98	-11,525.21	900.46	11,560.28	0.00	0.00	0.00	
23,000.00	88.90	179.44	12,055.89	-11,625.18	901.44	11,660.05	0.00	0.00	0.00	
23,100.00	88.90	179.44	12,057.81	-11,725.16	902.42	11,759.82	0.00	0.00	0.00	
23,200.00	88.90	179.44	12,059.72	-11,825.14	903.39	11,859.59	0.00	0.00	0.00	
23,300.00	88.90	179.44	12,061.64	-11,925.11	904.37	11,959.35	0.00	0.00	0.00	
23,400.00	88.90	179.44	12,063.55	-12,025.09	905.34	12,059.12	0.00	0.00	0.00	
23,411.94	88.90	179.44	12,063.78	-12,037.03	905.46	12,071.04	0.00	0.00	0.00	
TD at 23411.94 - PBHL (Kaston Fed Com 603H)										



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Company:	Franklin Mountain Energy	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Project:	Lea County, NM (NAD83)	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site:	Bus Driver/Kaston Fed Com	North Reference:	Grid
Well:	Kaston Fed Com 603H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #5		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (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	11,849.85	-866.52	796.41	393,600.22	855,435.79	32.078028	-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 (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,689.00	2,689.00	0.00	0.00	Start Build 1.50
3,377.22	3,373.50	-22.22	57.70	Start 4039.38 hold at 3377.22 MD
7,416.60	7,347.50	-282.34	733.22	Start Drop -1.50
8,104.82	8,032.00	-304.56	790.92	Start 3245.00 hold at 8104.82 MD
11,349.82	11,277.00	-304.56	790.92	Start DLS 10.00 TFO 179.44
12,238.85	11,849.85	-866.52	796.41	Start 11173.09 hold at 12238.85 MD
23,411.94	12,063.78	-12,037.03	905.46	TD at 23411.94



Franklin Mountain Energy

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

OH
Plan #5

Anticollision Report

20 April, 2021





Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Reference	Plan #5
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	4/20/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	23,411.94	Plan #5 (OH)	OWSG (Rev2) MWD	OWSG MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Bus Driver/Kaston Fed Com						
Bus Driver Fed Com 602H - OH - Plan #4	2,689.00	2,689.00	69.99	56.69	5.262	CC
Bus Driver Fed Com 602H - OH - Plan #4	2,700.00	2,700.00	70.01	56.65	5.241	ES
Bus Driver Fed Com 602H - OH - Plan #4	23,411.94	23,389.58	1,106.34	819.49	3.857	SF
Bus Driver Fed Com 702H - OH - Plan #4	2,614.50	2,614.50	104.98	92.06	8.123	CC
Bus Driver Fed Com 702H - OH - Plan #4	2,700.00	2,699.71	105.02	91.66	7.863	ES
Bus Driver Fed Com 702H - OH - Plan #4	23,411.94	23,590.93	1,571.98	1,286.15	5.500	SF
Kaston Fed Com 703H - OH - Plan #4	2,689.00	2,689.00	35.00	21.70	2.631	CC
Kaston Fed Com 703H - OH - Plan #4	2,700.00	2,700.00	35.02	21.66	2.622	ES
Kaston Fed Com 703H - OH - Plan #4	23,411.94	23,677.74	633.87	372.89	2.429	SF
Judge Baylor Fed Com						
Judge Baylor Fed Com 601H - OH - Plan #3	2,689.00	2,692.50	1,992.40	1,979.07	149.548	CC
Judge Baylor Fed Com 601H - OH - Plan #3	2,700.00	2,703.50	1,992.41	1,979.03	148.937	ES
Judge Baylor Fed Com 601H - OH - Plan #3	22,200.00	22,130.50	2,917.95	2,660.97	11.355	SF
Judge Baylor Fed Com 701H - OH - Plan #3	2,689.00	2,692.20	1,957.42	1,944.10	146.931	CC
Judge Baylor Fed Com 701H - OH - Plan #3	2,700.00	2,703.20	1,957.44	1,944.06	146.331	ES
Judge Baylor Fed Com 701H - OH - Plan #3	22,200.00	22,424.01	2,625.41	2,369.60	10.263	SF
LHS Wildcat Fed Com						
LHS Wildcat Fed Com 604H - OH - Plan #3	11,375.75	11,284.77	1,339.46	1,282.98	23.718	CC
LHS Wildcat Fed Com 604H - OH - Plan #3	22,100.00	22,051.09	1,340.32	1,084.25	5.234	ES
LHS Wildcat Fed Com 604H - OH - Plan #3	22,200.00	22,051.09	1,344.16	1,087.20	5.231	SF
LHS Wildcat Fed Com 705H - OH - Plan #3	11,378.88	11,287.78	1,669.44	1,612.95	29.551	CC
LHS Wildcat Fed Com 705H - OH - Plan #3	22,100.00	22,255.78	1,689.36	1,436.10	6.671	ES
LHS Wildcat Fed Com 705H - OH - Plan #3	22,200.00	22,259.70	1,692.09	1,437.50	6.646	SF

Offset Design												
Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #4												
Survey Program: 0-OWSG (Rev2) MWD												
Offset Site Error: 0.00 usft												
Offset Well Error: 0.00 usft												
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
0.00	0.00	0.00	0.00	0.00	0.00	-90.54	-0.66	-69.99	69.99			
100.00	100.00	100.00	100.00	0.13	0.13	-90.54	-0.66	-69.99	69.99	69.82	0.18	394.473
200.00	200.00	200.00	200.00	0.48	0.48	-90.54	-0.66	-69.99	69.99	69.31	0.68	102.271
300.00	300.00	300.00	300.00	0.84	0.84	-90.54	-0.66	-69.99	69.99	68.80	1.19	58.751

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
400.00	400.00	400.00	400.00	1.20	1.20	-90.54	-0.66	-69.99	69.99	68.29	1.70	41.214		
500.00	500.00	500.00	500.00	1.56	1.56	-90.54	-0.66	-69.99	69.99	67.79	2.21	31.739		
600.00	600.00	600.00	600.00	1.92	1.92	-90.54	-0.66	-69.99	69.99	67.28	2.71	25.807		
700.00	700.00	700.00	700.00	2.28	2.28	-90.54	-0.66	-69.99	69.99	66.77	3.22	21.743		
800.00	800.00	800.00	800.00	2.63	2.63	-90.54	-0.66	-69.99	69.99	66.27	3.73	18.784		
900.00	900.00	900.00	900.00	2.99	2.99	-90.54	-0.66	-69.99	69.99	65.76	4.23	16.535		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-90.54	-0.66	-69.99	69.99	65.25	4.74	14.766		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-90.54	-0.66	-69.99	69.99	64.75	5.25	13.340		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.54	-0.66	-69.99	69.99	64.24	5.75	12.164		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-90.54	-0.66	-69.99	69.99	63.73	6.26	11.179		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-90.54	-0.66	-69.99	69.99	63.23	6.77	10.342		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.54	-0.66	-69.99	69.99	62.72	7.27	9.621		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.54	-0.66	-69.99	69.99	62.21	7.78	8.995		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.54	-0.66	-69.99	69.99	61.70	8.29	8.444		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.54	-0.66	-69.99	69.99	61.20	8.80	7.958		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.54	-0.66	-69.99	69.99	60.69	9.30	7.524		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.54	-0.66	-69.99	69.99	60.18	9.81	7.135		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	-90.54	-0.66	-69.99	69.99	59.68	10.32	6.785		
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	-90.54	-0.66	-69.99	69.99	59.17	10.82	6.467		
2,300.00	2,300.00	2,300.00	2,300.00	8.01	8.01	-90.54	-0.66	-69.99	69.99	58.66	11.33	6.177		
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	-90.54	-0.66	-69.99	69.99	58.16	11.84	5.913		
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	-90.54	-0.66	-69.99	69.99	57.65	12.34	5.670		
2,600.00	2,600.00	2,600.00	2,600.00	9.09	9.09	-90.54	-0.66	-69.99	69.99	57.14	12.85	5.446		
2,689.00	2,689.00	2,689.00	2,689.00	9.41	9.41	-90.54	-0.66	-69.99	69.99	56.69	13.30	5.262 CC		
2,700.00	2,700.00	2,700.00	2,700.00	9.44	9.45	158.40	-0.66	-69.99	70.01	56.65	13.36	5.241 ES		
2,800.00	2,799.98	2,799.98	2,799.98	9.78	9.80	158.87	-0.66	-69.99	71.50	57.65	13.85	5.163		
2,900.00	2,899.89	2,899.89	2,899.89	10.12	10.16	160.00	-0.66	-69.99	75.44	61.10	14.34	5.262		
3,000.00	2,999.66	2,999.66	2,999.66	10.46	10.52	161.60	-0.66	-69.99	81.89	67.06	14.83	5.522		
3,100.00	3,099.21	3,099.21	3,099.21	10.80	10.88	163.44	-0.66	-69.99	90.90	75.58	15.32	5.933		
3,200.00	3,198.48	3,198.48	3,198.48	11.15	11.23	165.31	-0.66	-69.99	102.50	86.69	15.81	6.483		
3,300.00	3,297.40	3,295.99	3,295.98	11.50	11.57	166.54	-1.63	-70.71	117.31	101.02	16.29	7.203		
3,377.22	3,373.50	3,370.76	3,370.70	11.78	11.81	166.78	-3.72	-72.27	131.31	114.67	16.64	7.891		
3,400.00	3,395.91	3,392.72	3,392.64	11.86	11.88	166.78	-4.56	-72.89	135.80	119.05	16.74	8.110		
3,500.00	3,494.29	3,488.84	3,488.56	12.23	12.20	166.26	-9.42	-76.50	156.22	139.02	17.20	9.083		
3,600.00	3,592.68	3,584.35	3,583.70	12.61	12.52	165.17	-16.17	-81.52	177.88	160.23	17.65	10.077		
3,700.00	3,691.06	3,681.32	3,680.15	12.99	12.84	163.91	-24.27	-87.54	200.40	182.28	18.12	11.061		
3,800.00	3,789.44	3,778.66	3,776.95	13.38	13.17	162.89	-32.44	-93.61	223.02	204.43	18.59	11.996		
3,900.00	3,887.82	3,876.00	3,873.76	13.77	13.50	162.06	-40.60	-99.68	245.69	226.62	19.07	12.884		
4,000.00	3,986.20	3,973.34	3,970.57	14.17	13.84	161.37	-48.77	-105.75	268.40	248.85	19.55	13.729		
4,100.00	4,084.58	4,070.68	4,067.38	14.57	14.17	160.78	-56.93	-111.82	291.14	271.11	20.03	14.532		
4,200.00	4,182.96	4,168.02	4,164.18	14.97	14.51	160.29	-65.09	-117.89	313.91	293.39	20.52	15.297		
4,300.00	4,281.34	4,265.36	4,260.99	15.38	14.86	159.85	-73.26	-123.96	336.70	315.69	21.01	16.024		
4,400.00	4,379.73	4,362.70	4,357.80	15.79	15.20	159.48	-81.42	-130.02	359.50	338.00	21.50	16.718		
4,500.00	4,478.11	4,460.04	4,454.60	16.20	15.55	159.15	-89.58	-136.09	382.32	360.32	22.00	17.379		
4,600.00	4,576.49	4,557.38	4,551.41	16.61	15.89	158.85	-97.75	-142.16	405.14	382.65	22.50	18.009		
4,700.00	4,674.87	4,654.72	4,648.22	17.03	16.24	158.59	-105.91	-148.23	427.98	404.98	23.00	18.612		
4,800.00	4,773.25	4,752.06	4,745.02	17.45	16.60	158.35	-114.08	-154.30	450.82	427.33	23.50	19.187		
4,900.00	4,871.63	4,849.40	4,841.83	17.87	16.95	158.14	-122.24	-160.37	473.67	449.67	24.00	19.737		
5,000.00	4,970.01	4,946.74	4,938.64	18.30	17.30	157.95	-130.40	-166.44	496.53	472.02	24.50	20.263		
5,100.00	5,068.39	5,044.08	5,035.45	18.72	17.66	157.77	-138.57	-172.51	519.39	494.38	25.01	20.767		
5,200.00	5,166.78	5,141.42	5,132.25	19.15	18.02	157.61	-146.73	-178.57	542.25	516.73	25.52	21.250		
5,300.00	5,265.16	5,238.76	5,229.06	19.58	18.37	157.46	-154.89	-184.64	565.12	539.09	26.03	21.713		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #4		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				
5,400.00	5,363.54	5,336.10	5,325.87	20.01	18.73	157.32	-163.06	-190.71	587.99	561.45	26.54	22.157				
5,500.00	5,461.92	5,433.44	5,422.67	20.44	19.09	157.19	-171.22	-196.78	610.87	583.82	27.05	22.583				
5,600.00	5,560.30	5,530.78	5,519.48	20.87	19.46	157.08	-179.39	-202.85	633.74	606.18	27.56	22.993				
5,700.00	5,658.68	5,628.12	5,616.29	21.31	19.82	156.97	-187.55	-208.92	656.62	628.55	28.08	23.387				
5,800.00	5,757.06	5,725.46	5,713.10	21.74	20.18	156.86	-195.71	-214.99	679.51	650.91	28.59	23.766				
5,900.00	5,855.44	5,822.80	5,809.90	22.18	20.55	156.77	-203.88	-221.06	702.39	673.28	29.11	24.131				
6,000.00	5,953.83	5,920.14	5,906.71	22.62	20.91	156.68	-212.04	-227.12	725.28	695.65	29.62	24.482				
6,100.00	6,052.21	6,017.48	6,003.52	23.06	21.28	156.60	-220.21	-233.19	748.16	718.02	30.14	24.821				
6,200.00	6,150.59	6,114.82	6,100.32	23.50	21.64	156.52	-228.37	-239.26	771.05	740.39	30.66	25.147				
6,300.00	6,248.97	6,212.16	6,197.13	23.94	22.01	156.44	-236.53	-245.33	793.94	762.76	31.18	25.462				
6,400.00	6,347.35	6,309.50	6,293.94	24.38	22.38	156.37	-244.70	-251.40	816.83	785.13	31.70	25.766				
6,500.00	6,445.73	6,406.84	6,390.74	24.82	22.75	156.31	-252.86	-257.47	839.72	807.50	32.22	26.059				
6,600.00	6,544.11	6,504.18	6,487.55	25.26	23.12	156.24	-261.02	-263.54	862.62	829.87	32.75	26.343				
6,700.00	6,642.49	6,601.52	6,584.36	25.71	23.49	156.18	-269.19	-269.61	885.51	852.24	33.27	26.617				
6,800.00	6,740.88	6,698.86	6,681.17	26.15	23.86	156.13	-277.35	-275.67	908.41	874.61	33.79	26.883				
6,900.00	6,839.26	6,796.20	6,777.97	26.59	24.23	156.07	-285.52	-281.74	931.30	896.99	34.32	27.139				
7,000.00	6,937.64	6,893.54	6,874.78	27.04	24.60	156.02	-293.68	-287.81	954.20	919.36	34.84	27.388				
7,100.00	7,036.02	6,999.74	6,980.43	27.49	25.01	155.99	-302.27	-294.20	976.89	941.47	35.41	27.585				
7,200.00	7,134.40	7,116.51	7,096.87	27.93	25.44	156.09	-309.30	-299.42	997.96	961.93	36.03	27.700				
7,300.00	7,232.78	7,234.06	7,214.30	28.38	25.86	156.34	-313.48	-302.53	1,017.15	980.53	36.63	27.771				
7,400.00	7,331.16	7,350.94	7,331.16	28.83	26.27	156.75	-314.77	-303.49	1,034.47	997.27	37.20	27.807				
7,416.60	7,347.50	7,367.27	7,347.50	28.90	26.32	156.81	-314.77	-303.49	1,037.21	999.93	37.29	27.818				
7,500.00	7,429.70	7,449.48	7,429.70	29.27	26.60	157.19	-314.77	-303.49	1,050.17	1,012.47	37.70	27.855				
7,600.00	7,528.64	7,548.42	7,528.64	29.69	26.93	157.57	-314.77	-303.49	1,063.56	1,025.36	38.20	27.842				
7,700.00	7,627.93	7,647.71	7,627.93	30.09	27.27	157.87	-314.77	-303.49	1,074.56	1,035.86	38.70	27.769				
7,800.00	7,727.50	7,747.28	7,727.50	30.48	27.60	158.11	-314.77	-303.49	1,083.16	1,043.97	39.19	27.638				
7,900.00	7,827.27	7,847.05	7,827.27	30.84	27.94	158.27	-314.77	-303.49	1,089.35	1,049.67	39.68	27.452				
8,000.00	7,927.19	7,946.97	7,927.19	31.19	28.28	158.37	-314.77	-303.49	1,093.12	1,052.95	40.17	27.212				
8,104.82	8,032.00	8,051.78	8,032.00	31.53	28.64	-90.53	-314.77	-303.49	1,094.46	1,053.78	40.68	26.907				
8,200.00	8,127.18	8,146.95	8,127.18	31.83	28.96	-90.53	-314.77	-303.49	1,094.46	1,053.33	41.13	26.610				
8,300.00	8,227.18	8,246.95	8,227.18	32.14	29.30	-90.53	-314.77	-303.49	1,094.46	1,052.85	41.61	26.304				
8,400.00	8,327.18	8,346.95	8,327.18	32.45	29.64	-90.53	-314.77	-303.49	1,094.46	1,052.37	42.09	26.005				
8,500.00	8,427.18	8,446.95	8,427.18	32.77	29.98	-90.53	-314.77	-303.49	1,094.46	1,051.89	42.57	25.712				
8,600.00	8,527.18	8,546.95	8,527.18	33.09	30.33	-90.53	-314.77	-303.49	1,094.46	1,051.41	43.04	25.426				
8,700.00	8,627.18	8,646.95	8,627.18	33.40	30.67	-90.53	-314.77	-303.49	1,094.46	1,050.93	43.53	25.145				
8,800.00	8,727.18	8,746.95	8,727.18	33.72	31.01	-90.53	-314.77	-303.49	1,094.46	1,050.45	44.01	24.871				
8,900.00	8,827.18	8,846.95	8,827.18	34.04	31.35	-90.53	-314.77	-303.49	1,094.46	1,049.97	44.49	24.602				
9,000.00	8,927.18	8,946.95	8,927.18	34.36	31.70	-90.53	-314.77	-303.49	1,094.46	1,049.49	44.97	24.338				
9,100.00	9,027.18	9,046.95	9,027.18	34.68	32.04	-90.53	-314.77	-303.49	1,094.46	1,049.01	45.45	24.079				
9,200.00	9,127.18	9,146.95	9,127.18	35.00	32.38	-90.53	-314.77	-303.49	1,094.46	1,048.52	45.94	23.826				
9,300.00	9,227.18	9,246.95	9,227.18	35.32	32.73	-90.53	-314.77	-303.49	1,094.46	1,048.04	46.42	23.578				
9,400.00	9,327.18	9,346.95	9,327.18	35.64	33.07	-90.53	-314.77	-303.49	1,094.46	1,047.56	46.90	23.335				
9,500.00	9,427.18	9,446.95	9,427.18	35.97	33.42	-90.53	-314.77	-303.49	1,094.46	1,047.07	47.39	23.096				
9,600.00	9,527.18	9,546.95	9,527.18	36.29	33.76	-90.53	-314.77	-303.49	1,094.46	1,046.59	47.87	22.862				
9,700.00	9,627.18	9,646.95	9,627.18	36.61	34.11	-90.53	-314.77	-303.49	1,094.46	1,046.10	48.36	22.633				
9,800.00	9,727.18	9,746.95	9,727.18	36.94	34.45	-90.53	-314.77	-303.49	1,094.46	1,045.61	48.84	22.407				
9,900.00	9,827.18	9,846.95	9,827.18	37.26	34.80	-90.53	-314.77	-303.49	1,094.46	1,045.13	49.33	22.187				
10,000.00	9,927.18	9,946.95	9,927.18	37.59	35.15	-90.53	-314.77	-303.49	1,094.46	1,044.64	49.82	21.970				
10,100.00	10,027.18	10,046.95	10,027.18	37.92	35.49	-90.53	-314.77	-303.49	1,094.46	1,044.15	50.30	21.757				
10,200.00	10,127.18	10,146.95	10,127.18	38.24	35.84	-90.53	-314.77	-303.49	1,094.46	1,043.67	50.79	21.548				
10,300.00	10,227.18	10,246.95	10,227.18	38.57	36.19	-90.53	-314.77	-303.49	1,094.46	1,043.18	51.28	21.343				
10,400.00	10,327.18	10,346.95	10,327.18	38.90	36.53	-90.53	-314.77	-303.49	1,094.46	1,042.69	51.77	21.142				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design				Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #4									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			
10,500.00	10,427.18	10,446.95	10,427.18	39.23	36.88	-90.53	-314.77	-303.49	1,094.46	1,042.20	52.26	20.944			
10,600.00	10,527.18	10,546.95	10,527.18	39.56	37.23	-90.53	-314.77	-303.49	1,094.46	1,041.71	52.74	20.750			
10,700.00	10,627.18	10,646.95	10,627.18	39.89	37.58	-90.53	-314.77	-303.49	1,094.46	1,041.22	53.23	20.559			
10,800.00	10,727.18	10,746.95	10,727.18	40.22	37.92	-90.53	-314.77	-303.49	1,094.46	1,040.73	53.72	20.372			
10,900.00	10,827.18	10,846.95	10,827.18	40.55	38.27	-90.53	-314.77	-303.49	1,094.46	1,040.24	54.21	20.188			
11,000.00	10,927.18	10,946.95	10,927.18	40.88	38.62	-90.53	-314.77	-303.49	1,094.46	1,039.75	54.70	20.007			
11,100.00	11,027.18	11,046.95	11,027.18	41.21	38.97	-90.53	-314.77	-303.49	1,094.46	1,039.26	55.19	19.829			
11,200.00	11,127.18	11,146.95	11,127.18	41.55	39.32	-90.53	-314.77	-303.49	1,094.46	1,038.77	55.69	19.654			
11,300.00	11,227.18	11,246.95	11,227.18	41.88	39.67	-90.53	-314.77	-303.49	1,094.46	1,038.28	56.18	19.482			
11,349.82	11,277.00	11,296.78	11,277.00	42.04	39.84	-90.53	-314.77	-303.49	1,094.46	1,038.04	56.42	19.398			
11,400.00	11,327.11	11,346.93	11,327.15	42.21	40.01	90.12	-315.06	-303.49	1,094.46	1,037.79	56.67	19.314			
11,450.00	11,376.67	11,397.09	11,377.15	42.38	40.19	90.27	-318.84	-303.45	1,094.47	1,037.56	56.91	19.230			
11,500.00	11,425.46	11,447.49	11,426.87	42.55	40.37	90.41	-327.02	-303.38	1,094.50	1,037.33	57.17	19.144			
11,550.00	11,473.13	11,498.14	11,475.91	42.73	40.56	90.55	-339.62	-303.27	1,094.53	1,037.10	57.44	19.056			
11,600.00	11,519.30	11,549.04	11,523.88	42.91	40.76	90.69	-356.59	-303.12	1,094.58	1,036.87	57.71	18.966			
11,650.00	11,563.63	11,600.17	11,570.36	43.09	40.96	90.82	-377.85	-302.94	1,094.63	1,036.64	58.00	18.874			
11,700.00	11,605.78	11,651.55	11,614.97	43.27	41.16	90.95	-403.30	-302.72	1,094.70	1,036.41	58.29	18.781			
11,750.00	11,645.43	11,703.15	11,657.30	43.45	41.37	91.07	-432.78	-302.46	1,094.77	1,036.18	58.59	18.686			
11,800.00	11,682.27	11,754.97	11,696.96	43.64	41.59	91.18	-466.10	-302.17	1,094.84	1,035.95	58.90	18.589			
11,850.00	11,716.02	11,806.99	11,733.60	43.82	41.81	91.28	-503.01	-301.84	1,094.92	1,035.71	59.22	18.491			
11,900.00	11,746.44	11,859.20	11,766.84	44.01	42.05	91.37	-543.25	-301.49	1,095.00	1,035.46	59.54	18.390			
11,950.00	11,773.28	11,911.59	11,796.38	44.21	42.29	91.45	-586.48	-301.11	1,095.08	1,035.20	59.88	18.287			
12,000.00	11,796.35	11,964.12	11,821.91	44.41	42.54	91.52	-632.37	-300.71	1,095.16	1,034.93	60.23	18.182			
12,050.00	11,815.46	12,016.79	11,843.19	44.63	42.80	91.58	-680.53	-300.29	1,095.24	1,034.65	60.59	18.075			
12,100.00	11,830.48	12,069.57	11,859.98	44.85	43.07	91.62	-730.54	-299.85	1,095.32	1,034.35	60.96	17.967			
12,150.00	11,841.28	12,122.42	11,872.12	45.08	43.34	91.65	-781.97	-299.40	1,095.39	1,034.05	61.34	17.858			
12,200.00	11,847.79	12,175.34	11,879.47	45.31	43.62	91.67	-834.35	-298.94	1,095.45	1,033.73	61.72	17.749			
12,238.85	11,849.85	12,216.49	11,881.83	45.50	43.84	91.67	-875.42	-298.58	1,095.49	1,033.47	62.02	17.664			
12,300.00	11,851.02	12,277.82	11,882.80	45.82	44.18	91.66	-936.74	-298.05	1,095.55	1,033.06	62.49	17.531			
12,400.00	11,852.94	12,377.82	11,884.37	46.37	44.77	91.65	-1,036.72	-297.17	1,095.64	1,032.32	63.32	17.303			
12,500.00	11,854.85	12,477.82	11,885.94	46.98	45.42	91.63	-1,136.70	-296.30	1,095.73	1,031.51	64.22	17.062			
12,600.00	11,856.77	12,577.81	11,887.51	47.64	46.11	91.61	-1,236.69	-295.42	1,095.82	1,030.63	65.19	16.809			
12,700.00	11,858.68	12,677.81	11,889.08	48.34	46.86	91.59	-1,336.67	-294.55	1,095.91	1,029.68	66.24	16.546			
12,800.00	11,860.60	12,777.81	11,890.65	49.09	47.64	91.57	-1,436.65	-293.67	1,096.01	1,028.66	67.34	16.275			
12,900.00	11,862.51	12,877.81	11,892.22	49.89	48.48	91.55	-1,536.64	-292.80	1,096.10	1,027.59	68.51	15.999			
13,000.00	11,864.43	12,977.81	11,893.79	50.72	49.35	91.54	-1,636.62	-291.92	1,096.19	1,026.45	69.74	15.719			
13,100.00	11,866.34	13,077.81	11,895.36	51.60	50.26	91.52	-1,736.60	-291.05	1,096.28	1,025.26	71.02	15.436			
13,200.00	11,868.26	13,177.81	11,896.93	52.51	51.21	91.50	-1,836.59	-290.17	1,096.37	1,024.02	72.35	15.153			
13,300.00	11,870.17	13,277.81	11,898.50	53.46	52.19	91.48	-1,936.57	-289.30	1,096.46	1,022.72	73.74	14.869			
13,400.00	11,872.09	13,377.81	11,900.07	54.45	53.21	91.46	-2,036.55	-288.42	1,096.56	1,021.38	75.17	14.587			
13,500.00	11,874.00	13,477.81	11,901.64	55.46	54.26	91.45	-2,136.54	-287.55	1,096.65	1,020.00	76.65	14.307			
13,600.00	11,875.91	13,577.81	11,903.21	56.51	55.34	91.43	-2,236.52	-286.67	1,096.74	1,018.57	78.17	14.031			
13,700.00	11,877.83	13,677.81	11,904.78	57.58	56.44	91.41	-2,336.50	-285.80	1,096.83	1,017.11	79.73	13.758			
13,800.00	11,879.74	13,777.81	11,906.35	58.68	57.57	91.39	-2,436.49	-284.92	1,096.93	1,015.61	81.32	13.489			
13,900.00	11,881.66	13,877.81	11,907.92	59.81	58.73	91.37	-2,536.47	-284.05	1,097.02	1,014.07	82.95	13.225			
14,000.00	11,883.57	13,977.81	11,909.49	60.96	59.91	91.35	-2,636.45	-283.17	1,097.11	1,012.50	84.62	12.966			
14,100.00	11,885.49	14,077.81	11,911.06	62.13	61.11	91.34	-2,736.44	-282.30	1,097.21	1,010.89	86.31	12.712			
14,200.00	11,887.40	14,177.80	11,912.63	63.33	62.33	91.32	-2,836.42	-281.42	1,097.30	1,009.26	88.04	12.464			
14,300.00	11,889.32	14,277.80	11,914.20	64.54	63.57	91.30	-2,936.40	-280.55	1,097.39	1,007.60	89.79	12.222			
14,400.00	11,891.23	14,377.80	11,915.77	65.77	64.83	91.28	-3,036.39	-279.67	1,097.49	1,005.92	91.57	11.986			
14,500.00	11,893.15	14,477.80	11,917.34	67.03	66.11	91.26	-3,136.37	-278.80	1,097.58	1,004.21	93.37	11.755			
14,600.00	11,895.06	14,577.80	11,918.91	68.30	67.40	91.25	-3,236.35	-277.92	1,097.67	1,002.48	95.19	11.531			

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #4		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
14,700.00	11,896.98	14,677.80	11,920.48	69.58	68.71	91.23	-3,336.33	-277.05	1,097.77	1,000.72	97.04	11.312				
14,800.00	11,898.89	14,777.80	11,922.05	70.88	70.04	91.21	-3,436.32	-276.17	1,097.86	998.95	98.91	11.099				
14,900.00	11,900.81	14,877.80	11,923.62	72.20	71.37	91.19	-3,536.30	-275.30	1,097.95	997.15	100.80	10.892				
15,000.00	11,902.72	14,977.80	11,925.19	73.52	72.72	91.17	-3,636.28	-274.42	1,098.05	995.34	102.71	10.691				
15,100.00	11,904.63	15,077.80	11,926.76	74.87	74.09	91.16	-3,736.27	-273.55	1,098.14	993.51	104.63	10.495				
15,200.00	11,906.55	15,177.80	11,928.33	76.22	75.46	91.14	-3,836.25	-272.67	1,098.24	991.67	106.57	10.305				
15,300.00	11,908.46	15,277.80	11,929.90	77.58	76.84	91.12	-3,936.23	-271.80	1,098.33	989.80	108.53	10.120				
15,400.00	11,910.38	15,377.80	11,931.47	78.96	78.24	91.10	-4,036.22	-270.92	1,098.42	987.93	110.50	9.941				
15,500.00	11,912.29	15,477.80	11,933.04	80.35	79.64	91.08	-4,136.20	-270.05	1,098.52	986.04	112.48	9.766				
15,600.00	11,914.21	15,577.80	11,934.61	81.74	81.06	91.07	-4,236.18	-269.17	1,098.61	984.13	114.48	9.596				
15,700.00	11,916.12	15,677.79	11,936.18	83.15	82.48	91.05	-4,336.17	-268.30	1,098.71	982.22	116.49	9.432				
15,800.00	11,918.04	15,777.79	11,937.75	84.56	83.91	91.03	-4,436.15	-267.42	1,098.80	980.29	118.51	9.271				
15,900.00	11,919.95	15,877.79	11,939.32	85.99	85.35	91.01	-4,536.13	-266.55	1,098.90	978.35	120.55	9.116				
16,000.00	11,921.87	15,977.79	11,940.89	87.42	86.80	90.99	-4,636.12	-265.67	1,098.99	976.40	122.59	8.964				
16,100.00	11,923.78	16,077.79	11,942.46	88.86	88.26	90.97	-4,736.10	-264.80	1,099.09	974.44	124.65	8.817				
16,200.00	11,925.70	16,177.79	11,944.03	90.30	89.72	90.96	-4,836.08	-263.92	1,099.18	972.47	126.71	8.674				
16,300.00	11,927.61	16,277.79	11,945.60	91.76	91.18	90.94	-4,936.07	-263.05	1,099.28	970.49	128.79	8.536				
16,400.00	11,929.53	16,377.79	11,947.17	93.22	92.66	90.92	-5,036.05	-262.17	1,099.37	968.50	130.87	8.400				
16,500.00	11,931.44	16,477.79	11,948.74	94.68	94.14	90.90	-5,136.03	-261.30	1,099.47	966.51	132.96	8.269				
16,600.00	11,933.35	16,577.79	11,950.31	96.16	95.62	90.88	-5,236.02	-260.42	1,099.57	964.50	135.06	8.141				
16,700.00	11,935.27	16,677.79	11,951.88	97.63	97.12	90.87	-5,336.00	-259.55	1,099.66	962.49	137.17	8.017				
16,800.00	11,937.18	16,777.79	11,953.45	99.12	98.61	90.85	-5,435.98	-258.67	1,099.76	960.47	139.29	7.896				
16,900.00	11,939.10	16,877.79	11,955.02	100.61	100.11	90.83	-5,535.97	-257.80	1,099.85	958.45	141.41	7.778				
17,000.00	11,941.01	16,977.79	11,956.59	102.10	101.62	90.81	-5,635.95	-256.92	1,099.95	956.41	143.54	7.663				
17,100.00	11,942.93	17,077.79	11,958.16	103.60	103.13	90.79	-5,735.93	-256.05	1,100.05	954.38	145.67	7.552				
17,200.00	11,944.84	17,177.79	11,959.73	105.10	104.64	90.78	-5,835.91	-255.17	1,100.14	952.33	147.81	7.443				
17,300.00	11,946.76	17,277.78	11,961.30	106.61	106.16	90.76	-5,935.90	-254.30	1,100.24	950.28	149.96	7.337				
17,400.00	11,948.67	17,377.78	11,962.87	108.12	107.68	90.74	-6,035.88	-253.42	1,100.34	948.22	152.11	7.234				
17,500.00	11,950.59	17,477.78	11,964.44	109.64	109.21	90.72	-6,135.86	-252.55	1,100.43	946.16	154.27	7.133				
17,600.00	11,952.50	17,577.78	11,966.01	111.16	110.74	90.70	-6,235.85	-251.67	1,100.53	944.10	156.43	7.035				
17,700.00	11,954.42	17,677.78	11,967.58	112.68	112.27	90.69	-6,335.83	-250.80	1,100.63	942.03	158.60	6.940				
17,800.00	11,956.33	17,777.78	11,969.15	114.21	113.81	90.67	-6,435.81	-249.92	1,100.72	939.95	160.77	6.846				
17,900.00	11,958.25	17,877.78	11,970.72	115.74	115.35	90.65	-6,535.80	-249.05	1,100.82	937.87	162.95	6.756				
18,000.00	11,960.16	17,977.78	11,972.29	117.28	116.89	90.63	-6,635.78	-248.17	1,100.92	935.79	165.13	6.667				
18,100.00	11,962.07	18,077.78	11,973.86	118.81	118.44	90.61	-6,735.76	-247.30	1,101.01	933.70	167.32	6.580				
18,200.00	11,963.99	18,177.78	11,975.43	120.35	119.99	90.60	-6,835.75	-246.42	1,101.11	931.61	169.51	6.496				
18,300.00	11,965.90	18,277.78	11,977.00	121.90	121.54	90.58	-6,935.73	-245.55	1,101.21	929.51	171.70	6.414				
18,400.00	11,967.82	18,377.78	11,978.57	123.44	123.09	90.56	-7,035.71	-244.67	1,101.31	927.41	173.90	6.333				
18,500.00	11,969.73	18,477.78	11,980.14	124.99	124.65	90.54	-7,135.70	-243.80	1,101.41	925.31	176.10	6.254				
18,600.00	11,971.65	18,577.78	11,981.71	126.54	126.21	90.52	-7,235.68	-242.92	1,101.50	923.20	178.30	6.178				
18,700.00	11,973.56	18,677.78	11,983.28	128.10	127.77	90.51	-7,335.66	-242.05	1,101.60	921.09	180.51	6.103				
18,800.00	11,975.48	18,777.78	11,984.85	129.65	129.34	90.49	-7,435.65	-241.17	1,101.70	918.98	182.72	6.029				
18,900.00	11,977.39	18,877.77	11,986.42	131.21	130.90	90.47	-7,535.63	-240.30	1,101.80	916.86	184.94	5.958				
19,000.00	11,979.31	18,977.77	11,987.99	132.77	132.47	90.45	-7,635.61	-239.42	1,101.90	914.74	187.15	5.888				
19,100.00	11,981.22	19,077.77	11,989.56	134.34	134.04	90.43	-7,735.60	-238.55	1,101.99	912.62	189.37	5.819				
19,200.00	11,983.14	19,177.77	11,991.13	135.90	135.61	90.42	-7,835.58	-237.67	1,102.09	910.50	191.60	5.752				
19,300.00	11,985.05	19,277.77	11,992.70	137.47	137.19	90.40	-7,935.56	-236.80	1,102.19	908.37	193.82	5.687				
19,400.00	11,986.97	19,377.77	11,994.27	139.04	138.76	90.38	-8,035.55	-235.92	1,102.29	906.24	196.05	5.623				
19,500.00	11,988.88	19,477.77	11,995.84	140.61	140.34	90.36	-8,135.53	-235.05	1,102.39	904.11	198.28	5.560				
19,600.00	11,990.79	19,577.77	11,997.41	142.18	141.92	90.34	-8,235.51	-234.17	1,102.49	901.98	200.51	5.498				
19,700.00	11,992.71	19,677.77	11,998.98	143.76	143.50	90.33	-8,335.50	-233.30	1,102.59	899.84	202.75	5.438				
19,800.00	11,994.62	19,777.77	12,000.55	145.34	145.08	90.31	-8,435.48	-232.42	1,102.69	897.70	204.98	5.379				

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



Total Directional Services

Anticollision Report



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Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 602H - OH - Plan #4		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				
19,900.00	11,996.54	19,877.77	12,002.12	146.91	146.67	90.29	-8,535.46	-231.55	1,102.79	895.56	207.22	5.322				
20,000.00	11,998.45	19,977.77	12,003.69	148.49	148.25	90.27	-8,635.44	-230.67	1,102.89	893.42	209.47	5.265				
20,100.00	12,000.37	20,077.77	12,005.26	150.08	149.84	90.26	-8,735.43	-229.80	1,102.98	891.27	211.71	5.210				
20,200.00	12,002.28	20,177.77	12,006.83	151.66	151.43	90.24	-8,835.41	-228.92	1,103.08	889.13	213.96	5.156				
20,300.00	12,004.20	20,277.77	12,008.40	153.24	153.02	90.22	-8,935.39	-228.05	1,103.18	886.98	216.20	5.103				
20,400.00	12,006.11	20,377.76	12,009.97	154.83	154.61	90.20	-9,035.38	-227.17	1,103.28	884.83	218.45	5.050				
20,500.00	12,008.03	20,477.76	12,011.54	156.42	156.20	90.18	-9,135.36	-226.30	1,103.38	882.68	220.70	4.999				
20,600.00	12,009.94	20,577.76	12,013.11	158.01	157.79	90.17	-9,235.34	-225.42	1,103.48	880.53	222.96	4.949				
20,700.00	12,011.86	20,677.76	12,014.68	159.60	159.39	90.15	-9,335.33	-224.55	1,103.58	878.37	225.21	4.900				
20,800.00	12,013.77	20,777.76	12,016.25	161.19	160.98	90.13	-9,435.31	-223.67	1,103.68	876.22	227.47	4.852				
20,900.00	12,015.68	20,877.76	12,017.82	162.78	162.58	90.11	-9,535.29	-222.80	1,103.78	874.06	229.73	4.805				
21,000.00	12,017.60	20,977.76	12,019.39	164.37	164.18	90.09	-9,635.28	-221.92	1,103.89	871.90	231.99	4.758				
21,100.00	12,019.51	21,077.76	12,020.96	165.97	165.78	90.08	-9,735.26	-221.05	1,103.99	869.74	234.25	4.713				
21,200.00	12,021.43	21,177.76	12,022.53	167.56	167.38	90.06	-9,835.24	-220.17	1,104.09	867.58	236.51	4.668				
21,300.00	12,023.34	21,277.76	12,024.10	169.16	168.98	90.04	-9,935.23	-219.30	1,104.19	865.42	238.77	4.624				
21,400.00	12,025.26	21,377.76	12,025.67	170.76	170.58	90.02	-10,035.21	-218.42	1,104.29	863.25	241.04	4.581				
21,500.00	12,027.17	21,477.76	12,027.24	172.36	172.18	90.00	-10,135.19	-217.55	1,104.39	861.09	243.30	4.539				
21,600.00	12,029.09	21,577.76	12,028.81	173.96	173.79	89.99	-10,235.18	-216.67	1,104.49	858.92	245.57	4.498				
21,700.00	12,031.00	21,677.76	12,030.38	175.56	175.39	89.97	-10,335.16	-215.80	1,104.59	856.75	247.84	4.457				
21,800.00	12,032.92	21,777.76	12,031.95	177.16	177.00	89.95	-10,435.14	-214.92	1,104.69	854.58	250.11	4.417				
21,900.00	12,034.83	21,877.76	12,033.51	178.76	178.61	89.93	-10,535.13	-214.05	1,104.79	852.41	252.38	4.377				
22,000.00	12,036.75	21,977.75	12,035.08	180.37	180.21	89.91	-10,635.11	-213.17	1,104.90	850.24	254.65	4.339				
22,100.00	12,038.66	22,077.75	12,036.65	181.97	181.82	89.90	-10,735.09	-212.30	1,105.00	848.07	256.93	4.301				
22,200.00	12,040.58	22,177.75	12,038.22	183.58	183.43	89.88	-10,835.08	-211.42	1,105.10	845.90	259.20	4.263				
22,300.00	12,042.49	22,277.75	12,039.79	185.19	185.04	89.86	-10,935.06	-210.55	1,105.20	843.72	261.48	4.227				
22,400.00	12,044.40	22,377.75	12,041.36	186.79	186.65	89.84	-11,035.04	-209.67	1,105.30	841.55	263.76	4.191				
22,500.00	12,046.32	22,477.75	12,042.93	188.40	188.26	89.83	-11,135.02	-208.80	1,105.41	839.37	266.03	4.155				
22,600.00	12,048.23	22,577.75	12,044.50	190.01	189.87	89.81	-11,235.01	-207.92	1,105.51	837.20	268.31	4.120				
22,700.00	12,050.15	22,677.75	12,046.07	191.62	191.49	89.79	-11,334.99	-207.05	1,105.61	835.02	270.59	4.086				
22,800.00	12,052.06	22,777.75	12,047.64	193.23	193.10	89.77	-11,434.97	-206.17	1,105.71	832.84	272.87	4.052				
22,900.00	12,053.98	22,877.75	12,049.21	194.84	194.71	89.75	-11,534.96	-205.30	1,105.82	830.66	275.15	4.019				
23,000.00	12,055.89	22,977.75	12,050.78	196.45	196.33	89.74	-11,634.94	-204.42	1,105.92	828.48	277.44	3.986				
23,100.00	12,057.81	23,077.75	12,052.35	198.06	197.95	89.72	-11,734.92	-203.55	1,106.02	826.30	279.72	3.954				
23,200.00	12,059.72	23,177.75	12,053.92	199.68	199.56	89.70	-11,834.91	-202.67	1,106.12	824.12	282.00	3.922				
23,300.00	12,061.64	23,277.75	12,055.49	201.29	201.18	89.68	-11,934.89	-201.80	1,106.23	821.94	284.29	3.891				
23,400.00	12,063.55	23,377.75	12,057.06	202.91	202.79	89.67	-12,034.87	-200.92	1,106.33	819.75	286.58	3.861				
23,411.94	12,063.78	23,389.58	12,057.25	203.10	202.99	89.66	-12,046.71	-200.82	1,106.34	819.49	286.85	3.857 SF				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.54	-0.99	-104.98	104.98					
100.00	100.00	100.00	100.00	0.13	0.13	-90.54	-0.99	-104.98	104.98	104.81	0.18	591.681		
200.00	200.00	200.00	200.00	0.48	0.48	-90.54	-0.99	-104.98	104.98	104.30	0.68	153.399		
300.00	300.00	300.00	300.00	0.84	0.84	-90.54	-0.99	-104.98	104.98	103.79	1.19	88.123		
400.00	400.00	400.00	400.00	1.20	1.20	-90.54	-0.99	-104.98	104.98	103.29	1.70	61.817		
500.00	500.00	500.00	500.00	1.56	1.56	-90.54	-0.99	-104.98	104.98	102.78	2.21	47.607		
600.00	600.00	600.00	600.00	1.92	1.92	-90.54	-0.99	-104.98	104.98	102.27	2.71	38.708		
700.00	700.00	700.00	700.00	2.28	2.28	-90.54	-0.99	-104.98	104.98	101.77	3.22	32.612		
800.00	800.00	800.00	800.00	2.63	2.63	-90.54	-0.99	-104.98	104.98	101.26	3.73	28.175		
900.00	900.00	900.00	900.00	2.99	2.99	-90.54	-0.99	-104.98	104.98	100.75	4.23	24.801		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-90.54	-0.99	-104.98	104.98	100.24	4.74	22.149		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-90.54	-0.99	-104.98	104.98	99.74	5.25	20.009		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.54	-0.99	-104.98	104.98	99.23	5.75	18.246		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-90.54	-0.99	-104.98	104.98	98.72	6.26	16.768		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-90.54	-0.99	-104.98	104.98	98.22	6.77	15.512		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.54	-0.99	-104.98	104.98	97.71	7.27	14.431		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.54	-0.99	-104.98	104.98	97.20	7.78	13.491		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.54	-0.99	-104.98	104.98	96.70	8.29	12.666		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.54	-0.99	-104.98	104.98	96.19	8.80	11.936		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.54	-0.99	-104.98	104.98	95.68	9.30	11.285		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.54	-0.99	-104.98	104.98	95.18	9.81	10.702		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	-90.54	-0.99	-104.98	104.98	94.67	10.32	10.176		
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	-90.54	-0.99	-104.98	104.98	94.16	10.82	9.700		
2,300.00	2,300.00	2,300.00	2,300.00	8.01	8.01	-90.54	-0.99	-104.98	104.98	93.65	11.33	9.266		
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	-90.54	-0.99	-104.98	104.98	93.15	11.84	8.869		
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	-90.54	-0.99	-104.98	104.98	92.64	12.34	8.505		
2,600.00	2,600.00	2,600.00	2,600.00	9.09	9.09	-90.54	-0.99	-104.98	104.98	92.13	12.85	8.169		
2,614.50	2,614.50	2,614.50	2,614.50	9.14	9.14	-90.54	-0.99	-104.98	104.98	92.06	12.92	8.123 CC		
2,689.00	2,689.00	2,688.98	2,688.98	9.41	9.41	-90.54	-0.99	-104.98	104.98	91.68	13.30	7.892		
2,700.00	2,700.00	2,699.71	2,699.71	9.44	9.44	158.40	-1.00	-105.00	105.02	91.66	13.36	7.863 ES		
2,800.00	2,799.98	2,797.21	2,797.19	9.78	9.77	158.34	-1.67	-106.39	107.93	94.12	13.82	7.812		
2,900.00	2,899.89	2,894.34	2,894.24	10.12	10.09	158.20	-3.41	-110.00	115.58	101.31	14.27	8.098		
3,000.00	2,999.66	2,990.79	2,990.47	10.46	10.42	158.00	-6.21	-115.78	127.93	113.21	14.72	8.690		
3,100.00	3,099.21	3,086.24	3,085.52	10.80	10.75	157.78	-10.01	-123.66	144.93	129.77	15.16	9.560		
3,200.00	3,198.48	3,180.40	3,179.03	11.15	11.07	157.55	-14.77	-133.52	166.53	150.94	15.59	10.682		
3,300.00	3,297.40	3,272.98	3,270.69	11.50	11.40	157.31	-20.43	-145.24	192.62	176.62	16.01	12.032		
3,377.22	3,373.50	3,346.38	3,343.22	11.78	11.66	157.19	-25.37	-155.46	215.32	198.96	16.37	13.157		
3,400.00	3,395.91	3,368.09	3,364.66	11.86	11.74	157.22	-26.83	-158.48	222.23	205.75	16.47	13.490		
3,500.00	3,494.29	3,463.39	3,458.81	12.23	12.08	157.33	-33.25	-171.77	252.53	235.58	16.94	14.905		
3,600.00	3,592.68	3,558.69	3,552.96	12.61	12.43	157.42	-39.67	-185.05	282.83	265.41	17.41	16.241		
3,700.00	3,691.06	3,653.99	3,647.11	12.99	12.79	157.48	-46.08	-198.33	313.13	295.24	17.89	17.503		
3,800.00	3,789.44	3,749.28	3,741.26	13.38	13.14	157.54	-52.50	-211.61	343.43	325.06	18.37	18.697		
3,900.00	3,887.82	3,844.58	3,835.41	13.77	13.51	157.59	-58.91	-224.90	373.73	354.88	18.85	19.827		
4,000.00	3,986.20	3,939.88	3,929.56	14.17	13.87	157.63	-65.33	-238.18	404.03	384.70	19.33	20.899		
4,100.00	4,084.58	4,035.18	4,023.71	14.57	14.24	157.66	-71.74	-251.46	434.33	414.51	19.82	21.916		
4,200.00	4,182.96	4,130.48	4,117.86	14.97	14.61	157.69	-78.16	-264.74	464.63	444.33	20.31	22.881		
4,300.00	4,281.34	4,225.78	4,212.01	15.38	14.98	157.72	-84.58	-278.03	494.94	474.14	20.80	23.799		
4,400.00	4,379.73	4,321.07	4,306.16	15.79	15.35	157.74	-90.99	-291.31	525.24	503.95	21.29	24.672		
4,500.00	4,478.11	4,416.37	4,400.31	16.20	15.73	157.76	-97.41	-304.59	555.54	533.76	21.78	25.504		
4,600.00	4,576.49	4,511.67	4,494.46	16.61	16.11	157.78	-103.82	-317.87	585.84	563.56	22.28	26.296		
4,700.00	4,674.87	4,606.97	4,588.61	17.03	16.49	157.80	-110.24	-331.16	616.14	593.37	22.78	27.053		
4,800.00	4,773.25	4,702.27	4,682.76	17.45	16.87	157.81	-116.66	-344.44	646.45	623.17	23.27	27.775		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - Plan #4		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				
4,900.00	4,871.63	4,797.56	4,776.91	17.87	17.26	157.83	-123.07	-357.72	676.75	652.97	23.78	28.465				
5,000.00	4,970.01	4,892.86	4,871.06	18.30	17.64	157.84	-129.49	-371.00	707.05	682.77	24.28	29.125				
5,100.00	5,068.39	5,088.16	4,965.21	18.72	18.03	157.85	-135.90	-384.29	737.35	712.57	24.78	29.756				
5,200.00	5,166.78	5,083.46	5,059.36	19.15	18.42	157.86	-142.32	-397.57	767.66	742.37	25.28	30.362				
5,300.00	5,265.16	5,178.76	5,153.51	19.58	18.81	157.87	-148.73	-410.85	797.96	772.17	25.79	30.942				
5,400.00	5,363.54	5,274.06	5,247.66	20.01	19.20	157.88	-155.15	-424.13	828.26	801.97	26.30	31.498				
5,500.00	5,461.92	5,369.35	5,341.81	20.44	19.59	157.89	-161.57	-437.42	858.56	831.76	26.80	32.033				
5,600.00	5,560.30	5,464.65	5,435.96	20.87	19.98	157.90	-167.98	-450.70	888.87	861.55	27.31	32.546				
5,700.00	5,658.68	5,559.95	5,530.11	21.31	20.38	157.91	-174.40	-463.98	919.17	891.35	27.82	33.040				
5,800.00	5,757.06	5,655.25	5,624.26	21.74	20.77	157.91	-180.81	-477.26	949.47	921.14	28.33	33.514				
5,900.00	5,855.44	5,750.55	5,718.41	22.18	21.17	157.92	-187.23	-490.55	979.77	950.93	28.84	33.971				
6,000.00	5,953.83	5,845.85	5,812.56	22.62	21.57	157.92	-193.64	-503.83	1,010.07	980.72	29.35	34.412				
6,100.00	6,052.21	5,941.14	5,906.70	23.06	21.96	157.93	-200.06	-517.11	1,040.38	1,010.51	29.87	34.836				
6,200.00	6,150.59	6,036.44	6,000.85	23.50	22.36	157.94	-206.48	-530.39	1,070.68	1,040.30	30.38	35.245				
6,300.00	6,248.97	6,131.74	6,095.00	23.94	22.76	157.94	-212.89	-543.68	1,100.98	1,070.09	30.89	35.639				
6,400.00	6,347.35	6,227.04	6,189.15	24.38	23.16	157.95	-219.31	-556.96	1,131.28	1,099.88	31.41	36.020				
6,500.00	6,445.73	6,322.34	6,283.30	24.82	23.56	157.95	-225.72	-570.24	1,161.59	1,129.66	31.92	36.388				
6,600.00	6,544.11	6,417.63	6,377.45	25.26	23.96	157.96	-232.14	-583.52	1,191.89	1,159.45	32.44	36.744				
6,700.00	6,642.49	6,512.93	6,471.60	25.71	24.36	157.96	-238.56	-596.80	1,222.19	1,189.24	32.95	37.088				
6,800.00	6,740.88	6,608.23	6,565.75	26.15	24.76	157.96	-244.97	-610.09	1,252.49	1,219.02	33.47	37.420				
6,900.00	6,839.26	6,703.53	6,659.90	26.59	25.17	157.97	-251.39	-623.37	1,282.80	1,248.81	33.99	37.742				
7,000.00	6,937.64	6,798.83	6,754.05	27.04	25.57	157.97	-257.80	-636.65	1,313.10	1,278.59	34.51	38.053				
7,100.00	7,036.02	6,894.13	6,848.20	27.49	25.97	157.97	-264.22	-649.93	1,343.40	1,308.38	35.03	38.355				
7,200.00	7,134.40	6,989.42	6,942.35	27.93	26.38	157.98	-270.63	-663.22	1,373.70	1,338.16	35.54	38.648				
7,300.00	7,232.78	7,084.72	7,036.50	28.38	26.78	157.98	-277.05	-676.50	1,404.01	1,367.94	36.06	38.931				
7,400.00	7,331.16	7,180.02	7,130.65	28.83	27.19	157.98	-283.47	-689.78	1,434.31	1,397.73	36.58	39.206				
7,416.60	7,347.50	7,195.84	7,146.28	28.90	27.25	157.98	-284.53	-691.99	1,439.34	1,402.67	36.67	39.251				
7,500.00	7,429.70	7,275.57	7,225.05	29.27	27.59	158.12	-289.90	-703.10	1,463.81	1,426.70	37.10	39.452				
7,600.00	7,528.64	7,371.79	7,320.11	29.69	28.00	158.22	-296.38	-716.51	1,491.00	1,453.38	37.62	39.630				
7,700.00	7,627.93	7,500.77	7,447.69	30.09	28.54	158.26	-304.61	-733.55	1,515.25	1,476.93	38.32	39.544				
7,800.00	7,727.50	7,654.50	7,600.45	30.48	29.15	158.29	-312.07	-749.00	1,533.89	1,494.79	39.10	39.227				
7,900.00	7,827.27	7,810.66	7,756.20	30.84	29.74	158.33	-316.91	-759.01	1,546.51	1,506.67	39.84	38.818				
8,000.00	7,927.19	7,968.32	7,913.78	31.19	30.28	158.38	-318.97	-763.29	1,553.00	1,512.48	40.52	38.328				
8,104.82	8,032.00	8,086.54	8,032.00	31.53	30.66	-90.53	-319.05	-763.45	1,554.44	1,513.38	41.06	37.861				
8,200.00	8,127.18	8,181.72	8,127.18	31.83	30.96	-90.53	-319.05	-763.45	1,554.44	1,512.93	41.50	37.452				
8,300.00	8,227.18	8,281.72	8,227.18	32.14	31.28	-90.53	-319.05	-763.45	1,554.44	1,512.46	41.98	37.031				
8,400.00	8,327.18	8,381.72	8,327.18	32.45	31.60	-90.53	-319.05	-763.45	1,554.44	1,511.99	42.45	36.618				
8,500.00	8,427.18	8,481.72	8,427.18	32.77	31.93	-90.53	-319.05	-763.45	1,554.44	1,511.51	42.92	36.214				
8,600.00	8,527.18	8,581.72	8,527.18	33.09	32.25	-90.53	-319.05	-763.45	1,554.44	1,511.04	43.40	35.817				
8,700.00	8,627.18	8,681.72	8,627.18	33.40	32.57	-90.53	-319.05	-763.45	1,554.44	1,510.56	43.87	35.429				
8,800.00	8,727.18	8,781.72	8,727.18	33.72	32.90	-90.53	-319.05	-763.45	1,554.44	1,510.09	44.35	35.049				
8,900.00	8,827.18	8,881.72	8,827.18	34.04	33.22	-90.53	-319.05	-763.45	1,554.44	1,509.61	44.83	34.676				
9,000.00	8,927.18	8,981.72	8,927.18	34.36	33.55	-90.53	-319.05	-763.45	1,554.44	1,509.13	45.30	34.311				
9,100.00	9,027.18	9,081.72	9,027.18	34.68	33.87	-90.53	-319.05	-763.45	1,554.44	1,508.66	45.78	33.953				
9,200.00	9,127.18	9,181.72	9,127.18	35.00	34.20	-90.53	-319.05	-763.45	1,554.44	1,508.18	46.26	33.601				
9,300.00	9,227.18	9,281.72	9,227.18	35.32	34.53	-90.53	-319.05	-763.45	1,554.44	1,507.70	46.74	33.257				
9,400.00	9,327.18	9,381.72	9,327.18	35.64	34.86	-90.53	-319.05	-763.45	1,554.44	1,507.22	47.22	32.919				
9,500.00	9,427.18	9,481.72	9,427.18	35.97	35.18	-90.53	-319.05	-763.45	1,554.44	1,506.74	47.70	32.587				
9,600.00	9,527.18	9,581.72	9,527.18	36.29	35.51	-90.53	-319.05	-763.45	1,554.44	1,506.26	48.18	32.262				
9,700.00	9,627.18	9,681.72	9,627.18	36.61	35.84	-90.53	-319.05	-763.45	1,554.44	1,505.77	48.66	31.943				
9,800.00	9,727.18	9,781.72	9,727.18	36.94	36.17	-90.53	-319.05	-763.45	1,554.44	1,505.29	49.15	31.630				
9,900.00	9,827.18	9,881.72	9,827.18	37.26	36.51	-90.53	-319.05	-763.45	1,554.44	1,504.81	49.63	31.322				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,000.00	9,927.18	9,981.72	9,927.18	37.59	36.84	-90.53	-319.05	-763.45	1,554.44	1,504.33	50.11	31.020		
10,100.00	10,027.18	10,081.72	10,027.18	37.92	37.17	-90.53	-319.05	-763.45	1,554.44	1,503.84	50.59	30.724		
10,200.00	10,127.18	10,181.72	10,127.18	38.24	37.50	-90.53	-319.05	-763.45	1,554.44	1,503.36	51.08	30.433		
10,300.00	10,227.18	10,281.72	10,227.18	38.57	37.83	-90.53	-319.05	-763.45	1,554.44	1,502.88	51.56	30.147		
10,400.00	10,327.18	10,381.72	10,327.18	38.90	38.17	-90.53	-319.05	-763.45	1,554.44	1,502.39	52.05	29.866		
10,500.00	10,427.18	10,481.72	10,427.18	39.23	38.50	-90.53	-319.05	-763.45	1,554.44	1,501.91	52.53	29.590		
10,600.00	10,527.18	10,581.72	10,527.18	39.56	38.84	-90.53	-319.05	-763.45	1,554.44	1,501.42	53.02	29.319		
10,700.00	10,627.18	10,681.72	10,627.18	39.89	39.17	-90.53	-319.05	-763.45	1,554.44	1,500.93	53.50	29.053		
10,800.00	10,727.18	10,781.72	10,727.18	40.22	39.51	-90.53	-319.05	-763.45	1,554.44	1,500.45	53.99	28.791		
10,900.00	10,827.18	10,881.72	10,827.18	40.55	39.84	-90.53	-319.05	-763.45	1,554.44	1,499.96	54.48	28.534		
11,000.00	10,927.18	10,981.72	10,927.18	40.88	40.18	-90.53	-319.05	-763.45	1,554.44	1,499.47	54.96	28.281		
11,100.00	11,027.18	11,081.72	11,027.18	41.21	40.51	-90.53	-319.05	-763.45	1,554.44	1,498.99	55.45	28.032		
11,200.00	11,127.18	11,181.72	11,127.18	41.55	40.85	-90.53	-319.05	-763.45	1,554.44	1,498.50	55.94	27.788		
11,300.00	11,227.18	11,281.72	11,227.18	41.88	41.19	-90.53	-319.05	-763.45	1,554.44	1,498.01	56.43	27.548		
11,349.82	11,277.00	11,331.54	11,277.00	42.04	41.36	-90.53	-319.05	-763.45	1,554.44	1,497.77	56.67	27.429		
11,349.85	11,277.03	11,331.57	11,277.03	42.05	41.36	-90.53	-319.05	-763.45	1,554.44	1,497.77	56.67	27.429		
11,400.00	11,327.11	11,381.65	11,327.11	42.21	41.52	90.11	-319.05	-763.45	1,554.44	1,497.52	56.92	27.311		
11,450.00	11,376.67	11,431.21	11,376.67	42.38	41.69	90.34	-319.05	-763.45	1,554.47	1,497.31	57.16	27.195		
11,500.00	11,425.46	11,480.01	11,425.46	42.55	41.86	90.72	-319.05	-763.45	1,554.57	1,497.16	57.41	27.080		
11,550.00	11,473.13	11,527.67	11,473.13	42.73	42.02	91.22	-319.05	-763.45	1,554.84	1,497.19	57.65	26.969		
11,600.00	11,519.30	11,577.95	11,519.30	42.91	42.19	91.82	-320.85	-763.43	1,555.34	1,497.43	57.91	26.858		
11,650.00	11,563.63	11,630.30	11,563.63	43.09	42.37	92.42	-327.37	-763.38	1,556.03	1,497.85	58.17	26.747		
11,700.00	11,605.78	11,684.60	11,605.78	43.27	42.56	93.02	-339.11	-763.27	1,556.91	1,498.45	58.45	26.635		
11,750.00	11,645.43	11,741.01	11,645.43	43.45	42.76	93.61	-356.56	-763.12	1,557.95	1,499.21	58.74	26.522		
11,800.00	11,682.27	11,799.68	11,682.27	43.64	42.97	94.18	-380.20	-762.91	1,559.12	1,500.08	59.04	26.408		
11,850.00	11,716.02	11,860.76	11,716.02	43.82	43.19	94.74	-410.51	-762.65	1,560.39	1,501.05	59.35	26.293		
11,900.00	11,746.44	11,924.35	11,746.44	44.01	43.43	95.27	-447.87	-762.32	1,561.72	1,502.05	59.66	26.175		
11,950.00	11,773.28	11,990.49	11,773.28	44.21	43.67	95.76	-492.52	-761.93	1,563.04	1,503.05	59.99	26.054		
12,000.00	11,796.35	12,059.15	11,796.35	44.41	43.93	96.21	-544.48	-761.48	1,564.32	1,503.98	60.33	25.928		
12,050.00	11,815.46	12,130.20	11,815.46	44.63	44.21	96.60	-603.49	-760.96	1,565.47	1,504.79	60.69	25.795		
12,100.00	11,830.48	12,203.39	12,050.74	44.85	44.52	96.93	-668.90	-760.39	1,566.46	1,505.40	61.06	25.652		
12,150.00	11,841.28	12,278.35	12,030.33	45.08	44.85	97.17	-739.65	-759.77	1,567.23	1,505.77	61.46	25.498		
12,200.00	11,847.79	12,354.56	12,045.66	45.31	45.20	97.32	-814.25	-759.11	1,567.74	1,505.85	61.89	25.332		
12,238.85	11,849.85	12,414.29	12,050.67	45.50	45.49	97.36	-873.74	-758.59	1,567.93	1,505.69	62.23	25.194		
12,300.00	11,851.02	12,479.19	12,051.62	45.82	45.83	97.35	-938.63	-758.02	1,567.95	1,505.25	62.70	25.006		
12,400.00	11,852.94	12,579.19	12,052.94	46.37	46.38	97.33	-1,038.61	-757.15	1,567.97	1,504.47	63.51	24.689		
12,500.00	11,854.85	12,679.19	12,054.25	46.98	46.99	97.31	-1,138.60	-756.27	1,568.00	1,503.61	64.39	24.352		
12,600.00	11,856.77	12,779.19	12,055.57	47.64	47.64	97.29	-1,238.59	-755.40	1,568.02	1,502.68	65.34	23.998		
12,700.00	11,858.68	12,879.18	12,056.89	48.34	48.35	97.26	-1,338.57	-754.52	1,568.05	1,501.69	66.36	23.631		
12,800.00	11,860.60	12,979.18	12,058.20	49.09	49.10	97.24	-1,438.56	-753.65	1,568.07	1,500.63	67.44	23.252		
12,900.00	11,862.51	13,079.18	12,059.52	49.89	49.89	97.22	-1,538.54	-752.77	1,568.10	1,499.51	68.58	22.864		
13,000.00	11,864.43	13,179.18	12,060.84	50.72	50.72	97.20	-1,638.53	-751.90	1,568.12	1,498.33	69.79	22.471		
13,100.00	11,866.34	13,279.18	12,062.15	51.60	51.60	97.17	-1,738.51	-751.02	1,568.14	1,497.10	71.04	22.073		
13,200.00	11,868.26	13,379.18	12,063.47	52.51	52.51	97.15	-1,838.50	-750.15	1,568.17	1,495.81	72.36	21.673		
13,300.00	11,870.17	13,479.17	12,064.78	53.46	53.45	97.13	-1,938.49	-749.27	1,568.20	1,494.48	73.72	21.273		
13,400.00	11,872.09	13,579.17	12,066.10	54.45	54.43	97.11	-2,038.47	-748.39	1,568.22	1,493.10	75.13	20.875		
13,500.00	11,874.00	13,679.17	12,067.42	55.46	55.45	97.09	-2,138.46	-747.52	1,568.25	1,491.67	76.58	20.479		
13,600.00	11,875.91	13,779.17	12,068.73	56.51	56.49	97.06	-2,238.44	-746.64	1,568.27	1,490.20	78.08	20.087		
13,700.00	11,877.83	13,879.17	12,070.05	57.58	57.56	97.04	-2,338.43	-745.77	1,568.30	1,488.69	79.61	19.699		
13,800.00	11,879.74	13,979.16	12,071.37	58.68	58.66	97.02	-2,438.41	-744.89	1,568.33	1,487.14	81.18	19.318		
13,900.00	11,881.66	14,079.16	12,072.68	59.81	59.78	97.00	-2,538.40	-744.02	1,568.35	1,485.56	82.79	18.943		
14,000.00	11,883.57	14,179.16	12,074.00	60.96	60.93	96.98	-2,638.39	-743.14	1,568.38	1,483.94	84.44	18.575		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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	11,885.49	14,279.16	12,075.31	62.13	62.10	96.95	-2,738.37	-742.27	1,568.41	1,482.30	86.11	18.214		
14,200.00	11,887.40	14,379.16	12,076.63	63.33	63.29	96.93	-2,838.36	-741.39	1,568.44	1,480.62	87.81	17.861		
14,300.00	11,889.32	14,479.16	12,077.95	64.54	64.50	96.91	-2,938.34	-740.52	1,568.46	1,478.92	89.55	17.516		
14,400.00	11,891.23	14,579.15	12,079.26	65.77	65.73	96.89	-3,038.33	-739.64	1,568.49	1,477.19	91.30	17.179		
14,500.00	11,893.15	14,679.15	12,080.58	67.03	66.98	96.86	-3,138.31	-738.76	1,568.52	1,475.43	93.09	16.850		
14,600.00	11,895.06	14,779.15	12,081.90	68.30	68.25	96.84	-3,238.30	-737.89	1,568.55	1,473.65	94.89	16.529		
14,700.00	11,896.98	14,879.15	12,083.21	69.58	69.53	96.82	-3,338.28	-737.01	1,568.58	1,471.85	96.72	16.217		
14,800.00	11,898.89	14,979.15	12,084.53	70.88	70.83	96.80	-3,438.27	-736.14	1,568.61	1,470.03	98.57	15.913		
14,900.00	11,900.81	15,079.14	12,085.84	72.20	72.14	96.78	-3,538.26	-735.26	1,568.63	1,468.19	100.44	15.617		
15,000.00	11,902.72	15,179.14	12,087.16	73.52	73.47	96.75	-3,638.24	-734.39	1,568.66	1,466.33	102.33	15.329		
15,100.00	11,904.63	15,279.14	12,088.48	74.87	74.81	96.73	-3,738.23	-733.51	1,568.69	1,464.45	104.24	15.049		
15,200.00	11,906.55	15,379.14	12,089.79	76.22	76.16	96.71	-3,838.21	-732.64	1,568.72	1,462.56	106.16	14.776		
15,300.00	11,908.46	15,479.14	12,091.11	77.58	77.52	96.69	-3,938.20	-731.76	1,568.75	1,460.65	108.10	14.512		
15,400.00	11,910.38	15,579.13	12,092.43	78.96	78.90	96.67	-4,038.18	-730.88	1,568.78	1,458.73	110.06	14.254		
15,500.00	11,912.29	15,679.13	12,093.74	80.35	80.28	96.64	-4,138.17	-730.01	1,568.81	1,456.79	112.03	14.004		
15,600.00	11,914.21	15,779.13	12,095.06	81.74	81.68	96.62	-4,238.16	-729.13	1,568.85	1,454.84	114.01	13.761		
15,700.00	11,916.12	15,879.13	12,096.37	83.15	83.08	96.60	-4,338.14	-728.26	1,568.88	1,452.87	116.00	13.524		
15,800.00	11,918.04	15,979.13	12,097.69	84.56	84.49	96.58	-4,438.13	-727.38	1,568.91	1,450.90	118.01	13.294		
15,900.00	11,919.95	16,079.13	12,099.01	85.99	85.92	96.55	-4,538.11	-726.51	1,568.94	1,448.91	120.03	13.071		
16,000.00	11,921.87	16,179.12	12,100.32	87.42	87.35	96.53	-4,638.10	-725.63	1,568.97	1,446.91	122.06	12.854		
16,100.00	11,923.78	16,279.12	12,101.64	88.86	88.78	96.51	-4,738.08	-724.76	1,569.00	1,444.90	124.10	12.643		
16,200.00	11,925.70	16,379.12	12,102.96	90.30	90.23	96.49	-4,838.07	-723.88	1,569.04	1,442.88	126.15	12.437		
16,300.00	11,927.61	16,479.12	12,104.27	91.76	91.68	96.47	-4,938.06	-723.01	1,569.07	1,440.85	128.22	12.238		
16,400.00	11,929.53	16,579.12	12,105.59	93.22	93.14	96.44	-5,038.04	-722.13	1,569.10	1,438.82	130.29	12.044		
16,500.00	11,931.44	16,679.11	12,106.90	94.68	94.60	96.42	-5,138.03	-721.25	1,569.13	1,436.77	132.36	11.855		
16,600.00	11,933.35	16,779.11	12,108.22	96.16	96.07	96.40	-5,238.01	-720.38	1,569.17	1,434.72	134.45	11.671		
16,700.00	11,935.27	16,879.11	12,109.54	97.63	97.55	96.38	-5,338.00	-719.50	1,569.20	1,432.65	136.55	11.492		
16,800.00	11,937.18	16,979.11	12,110.85	99.12	99.03	96.36	-5,437.98	-718.63	1,569.23	1,430.59	138.65	11.318		
16,900.00	11,939.10	17,079.11	12,112.17	100.61	100.52	96.33	-5,537.97	-717.75	1,569.27	1,428.51	140.76	11.149		
17,000.00	11,941.01	17,179.11	12,113.49	102.10	102.01	96.31	-5,637.96	-716.88	1,569.30	1,426.43	142.88	10.984		
17,100.00	11,942.93	17,279.10	12,114.80	103.60	103.51	96.29	-5,737.94	-716.00	1,569.34	1,424.34	145.00	10.823		
17,200.00	11,944.84	17,379.10	12,116.12	105.10	105.01	96.27	-5,837.93	-715.13	1,569.37	1,422.24	147.13	10.667		
17,300.00	11,946.76	17,479.10	12,117.43	106.61	106.52	96.24	-5,937.91	-714.25	1,569.41	1,420.14	149.26	10.514		
17,400.00	11,948.67	17,579.10	12,118.75	108.12	108.03	96.22	-6,037.90	-713.38	1,569.44	1,418.04	151.41	10.366		
17,500.00	11,950.59	17,679.10	12,120.07	109.64	109.55	96.20	-6,137.88	-712.50	1,569.48	1,415.92	153.55	10.221		
17,600.00	11,952.50	17,779.09	12,121.38	111.16	111.07	96.18	-6,237.87	-711.62	1,569.51	1,413.81	155.70	10.080		
17,700.00	11,954.42	17,879.09	12,122.70	112.68	112.59	96.16	-6,337.85	-710.75	1,569.55	1,411.69	157.86	9.943		
17,800.00	11,956.33	17,979.09	12,124.02	114.21	114.11	96.13	-6,437.84	-709.87	1,569.58	1,409.56	160.02	9.808		
17,900.00	11,958.25	18,079.09	12,125.33	115.74	115.64	96.11	-6,537.83	-709.00	1,569.62	1,407.43	162.19	9.678		
18,000.00	11,960.16	18,179.09	12,126.65	117.28	117.18	96.09	-6,637.81	-708.12	1,569.66	1,405.29	164.36	9.550		
18,100.00	11,962.07	18,279.09	12,127.96	118.81	118.71	96.07	-6,737.80	-707.25	1,569.69	1,403.15	166.54	9.425		
18,200.00	11,963.99	18,379.08	12,129.28	120.35	120.25	96.05	-6,837.78	-706.37	1,569.73	1,401.01	168.72	9.304		
18,300.00	11,965.90	18,479.08	12,130.60	121.90	121.80	96.02	-6,937.77	-705.50	1,569.77	1,398.86	170.91	9.185		
18,400.00	11,967.82	18,579.08	12,131.91	123.44	123.34	96.00	-7,037.75	-704.62	1,569.80	1,396.71	173.10	9.069		
18,500.00	11,969.73	18,679.08	12,133.23	124.99	124.89	95.98	-7,137.74	-703.75	1,569.84	1,394.55	175.29	8.956		
18,600.00	11,971.65	18,779.08	12,134.55	126.54	126.44	95.96	-7,237.73	-702.87	1,569.88	1,392.40	177.48	8.845		
18,700.00	11,973.56	18,879.07	12,135.86	128.10	127.99	95.94	-7,337.71	-701.99	1,569.92	1,390.24	179.68	8.737		
18,800.00	11,975.48	18,979.07	12,137.18	129.65	129.55	95.91	-7,437.70	-701.12	1,569.96	1,388.07	181.89	8.632		
18,900.00	11,977.39	19,079.07	12,138.49	131.21	131.11	95.89	-7,537.68	-700.24	1,569.99	1,385.90	184.09	8.528		
19,000.00	11,979.31	19,179.07	12,139.81	132.77	132.67	95.87	-7,637.67	-699.37	1,570.03	1,383.73	186.30	8.427		
19,100.00	11,981.22	19,279.07	12,141.13	134.34	134.23	95.85	-7,737.65	-698.49	1,570.07	1,381.56	188.51	8.329		
19,200.00	11,983.14	19,379.07	12,142.44	135.90	135.79	95.82	-7,837.64	-697.62	1,570.11	1,379.38	190.73	8.232		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Bus Driver Fed Com 702H - OH - Plan #4		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	11,985.05	19,479.06	12,143.76	137.47	137.36	95.80	-7,937.63	-696.74	1,570.15	1,377.21	192.95	8.138				
19,400.00	11,986.97	19,579.06	12,145.08	139.04	138.93	95.78	-8,037.61	-695.87	1,570.19	1,375.02	195.17	8.045				
19,500.00	11,988.88	19,679.06	12,146.39	140.61	140.50	95.76	-8,137.60	-694.99	1,570.23	1,372.84	197.39	7.955				
19,600.00	11,990.79	19,779.06	12,147.71	142.18	142.07	95.74	-8,237.58	-694.11	1,570.27	1,370.65	199.62	7.866				
19,700.00	11,992.71	19,879.06	12,149.02	143.76	143.65	95.71	-8,337.57	-693.24	1,570.31	1,368.47	201.85	7.780				
19,800.00	11,994.62	19,979.05	12,150.34	145.34	145.22	95.69	-8,437.55	-692.36	1,570.35	1,366.28	204.08	7.695				
19,900.00	11,996.54	20,079.05	12,151.66	146.91	146.80	95.67	-8,537.54	-691.49	1,570.39	1,364.08	206.31	7.612				
20,000.00	11,998.45	20,179.05	12,152.97	148.49	148.38	95.65	-8,637.53	-690.61	1,570.43	1,361.89	208.55	7.530				
20,100.00	12,000.37	20,279.05	12,154.29	150.08	149.96	95.63	-8,737.51	-689.74	1,570.48	1,359.69	210.79	7.451				
20,200.00	12,002.28	20,379.05	12,155.61	151.66	151.54	95.60	-8,837.50	-688.86	1,570.52	1,357.49	213.03	7.372				
20,300.00	12,004.20	20,479.04	12,156.92	153.24	153.13	95.58	-8,937.48	-687.99	1,570.56	1,355.29	215.27	7.296				
20,400.00	12,006.11	20,579.04	12,158.24	154.83	154.71	95.56	-9,037.47	-687.11	1,570.60	1,353.09	217.51	7.221				
20,500.00	12,008.03	20,679.04	12,159.55	156.42	156.30	95.54	-9,137.45	-686.24	1,570.64	1,350.89	219.76	7.147				
20,600.00	12,009.94	20,779.04	12,160.87	158.01	157.89	95.52	-9,237.44	-685.36	1,570.69	1,348.68	222.01	7.075				
20,700.00	12,011.86	20,879.04	12,162.19	159.60	159.47	95.49	-9,337.42	-684.48	1,570.73	1,346.47	224.26	7.004				
20,800.00	12,013.77	20,979.04	12,163.50	161.19	161.07	95.47	-9,437.41	-683.61	1,570.77	1,344.26	226.51	6.935				
20,900.00	12,015.68	21,079.03	12,164.82	162.78	162.66	95.45	-9,537.40	-682.73	1,570.82	1,342.05	228.76	6.867				
21,000.00	12,017.60	21,179.03	12,166.14	164.37	164.25	95.43	-9,637.38	-681.86	1,570.86	1,339.84	231.02	6.800				
21,100.00	12,019.51	21,279.03	12,167.45	165.97	165.84	95.41	-9,737.37	-680.98	1,570.90	1,337.63	233.27	6.734				
21,200.00	12,021.43	21,379.03	12,168.77	167.56	167.44	95.38	-9,837.35	-680.11	1,570.95	1,335.41	235.53	6.670				
21,300.00	12,023.34	21,479.03	12,170.08	169.16	169.04	95.36	-9,937.34	-679.23	1,570.99	1,333.20	237.79	6.607				
21,400.00	12,025.26	21,579.02	12,171.40	170.76	170.63	95.34	-10,037.32	-678.36	1,571.04	1,330.98	240.05	6.545				
21,500.00	12,027.17	21,679.02	12,172.72	172.36	172.23	95.32	-10,137.31	-677.48	1,571.08	1,328.76	242.32	6.484				
21,600.00	12,029.09	21,779.02	12,174.03	173.96	173.83	95.29	-10,237.30	-676.61	1,571.12	1,326.54	244.58	6.424				
21,700.00	12,031.01	21,879.02	12,175.35	175.56	175.43	95.27	-10,337.28	-675.73	1,571.17	1,324.32	246.85	6.365				
21,800.00	12,032.92	21,979.02	12,176.67	177.16	177.03	95.25	-10,437.27	-674.85	1,571.21	1,322.10	249.11	6.307				
21,900.00	12,034.83	22,079.02	12,177.98	178.76	178.64	95.23	-10,537.25	-673.98	1,571.26	1,319.88	251.38	6.250				
22,000.00	12,036.75	22,179.01	12,179.30	180.37	180.24	95.21	-10,637.24	-673.10	1,571.31	1,317.65	253.65	6.195				
22,100.00	12,038.66	22,279.01	12,180.61	181.97	181.84	95.18	-10,737.22	-672.23	1,571.35	1,315.43	255.92	6.140				
22,200.00	12,040.58	22,379.01	12,181.93	183.58	183.45	95.16	-10,837.21	-671.35	1,571.40	1,313.20	258.20	6.086				
22,300.00	12,042.49	22,479.01	12,183.25	185.19	185.05	95.14	-10,937.20	-670.48	1,571.45	1,310.97	260.47	6.033				
22,400.00	12,044.40	22,579.01	12,184.56	186.79	186.66	95.12	-11,037.18	-669.60	1,571.49	1,308.75	262.75	5.981				
22,500.00	12,046.32	22,679.00	12,185.88	188.40	188.27	95.10	-11,137.17	-668.73	1,571.54	1,306.52	265.02	5.930				
22,600.00	12,048.23	22,779.00	12,187.20	190.01	189.88	95.07	-11,237.15	-667.85	1,571.59	1,304.29	267.30	5.880				
22,700.00	12,050.15	22,879.00	12,188.51	191.62	191.49	95.05	-11,337.14	-666.97	1,571.63	1,302.06	269.58	5.830				
22,800.00	12,052.06	22,979.00	12,189.83	193.23	193.10	95.03	-11,437.12	-666.10	1,571.68	1,299.82	271.86	5.781				
22,900.00	12,053.98	23,079.00	12,191.14	194.84	194.71	95.01	-11,537.11	-665.22	1,571.73	1,297.59	274.14	5.733				
23,000.00	12,055.89	23,179.00	12,192.46	196.45	196.32	94.99	-11,637.10	-664.35	1,571.78	1,295.36	276.42	5.686				
23,100.00	12,057.81	23,278.99	12,193.78	198.06	197.93	94.96	-11,737.08	-663.47	1,571.83	1,293.12	278.70	5.640				
23,200.00	12,059.72	23,378.99	12,195.09	199.68	199.54	94.94	-11,837.07	-662.60	1,571.87	1,290.89	280.98	5.594				
23,300.00	12,061.64	23,478.99	12,196.41	201.29	201.15	94.92	-11,937.05	-661.72	1,571.92	1,288.65	283.27	5.549				
23,400.00	12,063.55	23,578.99	12,197.73	202.91	202.77	94.90	-12,037.04	-660.85	1,571.97	1,286.42	285.55	5.505				
23,411.94	12,063.78	23,590.93	12,197.88	203.10	202.96	94.90	-12,048.98	-660.74	1,571.98	1,286.15	285.83	5.500 SF				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-90.54	-0.33	-35.00	35.00					
100.00	100.00	100.00	100.00	0.13	0.13	-90.54	-0.33	-35.00	35.00	34.82	0.18	197.265		
200.00	200.00	200.00	200.00	0.48	0.48	-90.54	-0.33	-35.00	35.00	34.32	0.68	51.143		
300.00	300.00	300.00	300.00	0.84	0.84	-90.54	-0.33	-35.00	35.00	33.81	1.19	29.380		
400.00	400.00	400.00	400.00	1.20	1.20	-90.54	-0.33	-35.00	35.00	33.30	1.70	20.610		
500.00	500.00	500.00	500.00	1.56	1.56	-90.54	-0.33	-35.00	35.00	32.80	2.21	15.872		
600.00	600.00	600.00	600.00	1.92	1.92	-90.54	-0.33	-35.00	35.00	32.29	2.71	12.905		
700.00	700.00	700.00	700.00	2.28	2.28	-90.54	-0.33	-35.00	35.00	31.78	3.22	10.873		
800.00	800.00	800.00	800.00	2.63	2.63	-90.54	-0.33	-35.00	35.00	31.28	3.73	9.394		
900.00	900.00	900.00	900.00	2.99	2.99	-90.54	-0.33	-35.00	35.00	30.77	4.23	8.269		
1,000.00	1,000.00	1,000.00	1,000.00	3.35	3.35	-90.54	-0.33	-35.00	35.00	30.26	4.74	7.384		
1,100.00	1,100.00	1,100.00	1,100.00	3.71	3.71	-90.54	-0.33	-35.00	35.00	29.75	5.25	6.671		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.54	-0.33	-35.00	35.00	29.25	5.75	6.083		
1,300.00	1,300.00	1,300.00	1,300.00	4.43	4.43	-90.54	-0.33	-35.00	35.00	28.74	6.26	5.591		
1,400.00	1,400.00	1,400.00	1,400.00	4.79	4.79	-90.54	-0.33	-35.00	35.00	28.23	6.77	5.172		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.54	-0.33	-35.00	35.00	27.73	7.27	4.811		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.54	-0.33	-35.00	35.00	27.22	7.78	4.498		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.54	-0.33	-35.00	35.00	26.71	8.29	4.223		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.54	-0.33	-35.00	35.00	26.21	8.80	3.979		
1,900.00	1,900.00	1,900.00	1,900.00	6.58	6.58	-90.54	-0.33	-35.00	35.00	25.70	9.30	3.763		
2,000.00	2,000.00	2,000.00	2,000.00	6.94	6.94	-90.54	-0.33	-35.00	35.00	25.19	9.81	3.568		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	-90.54	-0.33	-35.00	35.00	24.69	10.32	3.393		
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	-90.54	-0.33	-35.00	35.00	24.18	10.82	3.234		
2,300.00	2,300.00	2,300.00	2,300.00	8.01	8.01	-90.54	-0.33	-35.00	35.00	23.67	11.33	3.089		
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	-90.54	-0.33	-35.00	35.00	23.16	11.84	2.957		
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	-90.54	-0.33	-35.00	35.00	22.66	12.34	2.835		
2,600.00	2,600.00	2,600.00	2,600.00	9.09	9.09	-90.54	-0.33	-35.00	35.00	22.15	12.85	2.724		
2,689.00	2,689.00	2,689.00	2,689.00	9.41	9.41	-90.54	-0.33	-35.00	35.00	21.70	13.30	2.631 CC		
2,700.00	2,700.00	2,700.00	2,700.00	9.44	9.45	158.41	-0.33	-35.00	35.02	21.66	13.36	2.622 ES		
2,800.00	2,799.98	2,799.98	2,799.98	9.78	9.80	159.32	-0.33	-35.00	36.51	22.66	13.85	2.636		
2,900.00	2,899.89	2,899.89	2,899.89	10.12	10.16	161.41	-0.33	-35.00	40.48	26.14	14.34	2.823		
3,000.00	2,999.66	2,999.66	2,999.66	10.46	10.52	164.04	-0.33	-35.00	47.00	32.17	14.83	3.169		
3,100.00	3,099.21	3,099.53	3,099.53	10.80	10.87	166.58	-0.42	-34.93	56.05	40.73	15.32	3.659		
3,200.00	3,198.48	3,200.20	3,200.17	11.15	11.20	167.76	-2.04	-33.58	66.25	50.46	15.79	4.197		
3,300.00	3,297.40	3,301.03	3,300.89	11.50	11.53	167.71	-5.70	-30.53	77.03	60.78	16.25	4.741		
3,377.22	3,373.50	3,379.00	3,378.66	11.78	11.79	167.13	-9.93	-27.01	85.76	69.15	16.61	5.164		
3,400.00	3,395.91	3,402.02	3,401.60	11.86	11.87	166.89	-11.42	-25.78	88.33	71.62	16.71	5.286		
3,500.00	3,494.29	3,502.67	3,501.76	12.23	12.21	165.38	-19.04	-19.43	98.58	81.40	17.18	5.738		
3,600.00	3,592.68	3,602.15	3,600.69	12.61	12.54	163.96	-27.04	-12.78	108.46	90.79	17.66	6.140		
3,700.00	3,691.06	3,701.62	3,699.62	12.99	12.88	162.77	-35.04	-6.13	118.39	100.24	18.15	6.522		
3,800.00	3,789.44	3,801.10	3,798.56	13.38	13.23	161.76	-43.03	0.52	128.37	109.73	18.64	6.886		
3,900.00	3,887.82	3,900.58	3,897.49	13.77	13.57	160.90	-51.03	7.17	138.38	119.24	19.14	7.231		
4,000.00	3,986.20	4,000.06	3,996.42	14.17	13.92	160.16	-59.03	13.82	148.42	128.78	19.63	7.559		
4,100.00	4,084.58	4,099.53	4,095.35	14.57	14.27	159.51	-67.02	20.48	158.47	138.34	20.13	7.871		
4,200.00	4,182.96	4,199.01	4,194.29	14.97	14.63	158.94	-75.02	27.13	168.55	147.91	20.64	8.167		
4,300.00	4,281.34	4,298.49	4,293.22	15.38	14.98	158.43	-83.01	33.78	178.64	157.50	21.14	8.449		
4,400.00	4,379.73	4,397.97	4,392.15	15.79	15.34	157.98	-91.01	40.43	188.74	167.09	21.65	8.717		
4,500.00	4,478.11	4,497.45	4,491.08	16.20	15.70	157.57	-99.01	47.08	198.86	176.69	22.16	8.972		
4,600.00	4,576.49	4,596.92	4,590.02	16.61	16.06	157.21	-107.00	53.74	208.98	186.30	22.68	9.215		
4,700.00	4,674.87	4,696.40	4,688.95	17.03	16.42	156.87	-115.00	60.39	219.11	195.92	23.19	9.447		
4,800.00	4,773.25	4,795.88	4,787.88	17.45	16.78	156.57	-123.00	67.04	229.25	205.54	23.71	9.669		
4,900.00	4,871.63	4,895.36	4,886.81	17.87	17.15	156.29	-130.99	73.69	239.39	215.16	24.23	9.880		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Kaston Fed Com 703H - OH - Plan #4		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
5,000.00	4,970.01	4,994.83	4,985.75	18.30	17.52	156.03	-138.99	80.34	249.54	224.79	24.75	10.083				
5,100.00	5,068.39	5,094.31	5,084.68	18.72	17.88	155.80	-146.99	86.99	259.69	234.42	25.27	10.276				
5,200.00	5,166.78	5,193.79	5,183.61	19.15	18.25	155.58	-154.98	93.65	269.85	244.05	25.80	10.461				
5,300.00	5,265.16	5,293.27	5,282.54	19.58	18.62	155.38	-162.98	100.30	280.01	253.69	26.32	10.638				
5,400.00	5,363.54	5,392.75	5,381.48	20.01	18.99	155.19	-170.98	106.95	290.17	263.32	26.85	10.808				
5,500.00	5,461.92	5,492.22	5,480.41	20.44	19.37	155.02	-178.97	113.60	300.34	272.96	27.38	10.971				
5,600.00	5,560.30	5,591.70	5,579.34	20.87	19.74	154.85	-186.97	120.25	310.51	282.60	27.91	11.127				
5,700.00	5,658.68	5,691.18	5,678.27	21.31	20.11	154.70	-194.97	126.91	320.68	292.24	28.44	11.277				
5,800.00	5,757.06	5,790.66	5,777.21	21.74	20.49	154.56	-202.96	133.56	330.85	301.89	28.97	11.422				
5,900.00	5,855.44	5,890.14	5,876.14	22.18	20.86	154.42	-210.96	140.21	341.03	311.53	29.50	11.561				
6,000.00	5,953.83	5,989.61	5,975.07	22.62	21.24	154.29	-218.95	146.86	351.20	321.17	30.03	11.694				
6,100.00	6,052.21	6,089.09	6,074.00	23.06	21.61	154.17	-226.95	153.51	361.38	330.82	30.57	11.823				
6,200.00	6,150.59	6,188.57	6,172.94	23.50	21.99	154.06	-234.95	160.16	371.56	340.46	31.10	11.946				
6,300.00	6,248.97	6,288.05	6,271.87	23.94	22.37	153.95	-242.94	166.82	381.75	350.11	31.64	12.066				
6,400.00	6,347.35	6,387.52	6,370.80	24.38	22.75	153.85	-250.94	173.47	391.93	359.75	32.18	12.181				
6,500.00	6,445.73	6,487.00	6,469.73	24.82	23.13	153.75	-258.94	180.12	402.11	369.40	32.71	12.292				
6,600.00	6,544.11	6,586.48	6,568.67	25.26	23.51	153.66	-266.93	186.77	412.30	379.05	33.25	12.399				
6,700.00	6,642.49	6,685.96	6,667.60	25.71	23.89	153.57	-274.93	193.42	422.48	388.69	33.79	12.503				
6,800.00	6,740.88	6,785.44	6,766.53	26.15	24.27	153.49	-282.93	200.08	432.67	398.34	34.33	12.603				
6,900.00	6,839.26	6,884.91	6,865.46	26.59	24.65	153.41	-290.92	206.73	442.86	407.99	34.87	12.700				
7,000.00	6,937.64	6,980.36	6,960.43	27.04	25.01	153.39	-298.23	212.81	453.33	417.94	35.39	12.808				
7,100.00	7,036.02	7,073.32	7,053.11	27.49	25.36	153.58	-303.72	217.37	465.09	429.20	35.89	12.957				
7,200.00	7,134.40	7,165.85	7,145.52	27.93	25.69	153.99	-307.46	220.48	478.24	441.87	36.38	13.147				
7,300.00	7,232.78	7,257.86	7,237.49	28.38	26.02	154.59	-309.47	222.15	492.81	455.97	36.84	13.378				
7,400.00	7,331.16	7,351.54	7,331.16	28.83	26.34	155.37	-309.86	222.48	508.76	471.47	37.29	13.643				
7,416.60	7,347.50	7,367.87	7,347.50	28.90	26.40	155.50	-309.86	222.48	511.48	474.11	37.37	13.686				
7,500.00	7,429.70	7,450.08	7,429.70	29.27	26.67	156.22	-309.86	222.48	524.33	486.56	37.77	13.882				
7,600.00	7,528.64	7,549.02	7,528.64	29.69	27.00	156.92	-309.86	222.48	537.63	499.38	38.25	14.054				
7,700.00	7,627.93	7,648.31	7,627.93	30.09	27.34	157.47	-309.86	222.48	548.59	509.86	38.74	14.162				
7,800.00	7,727.50	7,747.87	7,727.50	30.48	27.67	157.88	-309.86	222.48	557.18	517.96	39.22	14.206				
7,900.00	7,827.27	7,847.65	7,827.27	30.84	28.01	158.17	-309.86	222.48	563.36	523.66	39.71	14.188				
8,000.00	7,927.19	7,947.56	7,927.19	31.19	28.35	158.34	-309.86	222.48	567.13	526.94	40.19	14.111				
8,104.82	8,032.00	8,052.37	8,032.00	31.53	28.71	-90.53	-309.86	222.48	568.46	527.77	40.69	13.969				
8,200.00	8,127.18	8,147.55	8,127.18	31.83	29.03	-90.53	-309.86	222.48	568.46	527.32	41.15	13.815				
8,300.00	8,227.18	8,247.55	8,227.18	32.14	29.37	-90.53	-309.86	222.48	568.46	526.84	41.63	13.657				
8,400.00	8,327.18	8,347.55	8,327.18	32.45	29.71	-90.53	-309.86	222.48	568.46	526.36	42.10	13.502				
8,500.00	8,427.18	8,447.55	8,427.18	32.77	30.05	-90.53	-309.86	222.48	568.46	525.88	42.58	13.350				
8,600.00	8,527.18	8,547.55	8,527.18	33.09	30.39	-90.53	-309.86	222.48	568.46	525.40	43.06	13.201				
8,700.00	8,627.18	8,647.55	8,627.18	33.40	30.73	-90.53	-309.86	222.48	568.46	524.92	43.54	13.056				
8,800.00	8,727.18	8,747.55	8,727.18	33.72	31.07	-90.53	-309.86	222.48	568.46	524.44	44.02	12.913				
8,900.00	8,827.18	8,847.55	8,827.18	34.04	31.42	-90.53	-309.86	222.48	568.46	523.96	44.50	12.774				
9,000.00	8,927.18	8,947.55	8,927.18	34.36	31.76	-90.53	-309.86	222.48	568.46	523.48	44.98	12.637				
9,100.00	9,027.18	9,047.55	9,027.18	34.68	32.10	-90.53	-309.86	222.48	568.46	523.00	45.47	12.503				
9,200.00	9,127.18	9,147.55	9,127.18	35.00	32.45	-90.53	-309.86	222.48	568.46	522.51	45.95	12.371				
9,300.00	9,227.18	9,247.55	9,227.18	35.32	32.79	-90.53	-309.86	222.48	568.46	522.03	46.43	12.243				
9,400.00	9,327.18	9,347.55	9,327.18	35.64	33.13	-90.53	-309.86	222.48	568.46	521.55	46.92	12.116				
9,500.00	9,427.18	9,447.55	9,427.18	35.97	33.48	-90.53	-309.86	222.48	568.46	521.06	47.40	11.993				
9,600.00	9,527.18	9,547.55	9,527.18	36.29	33.82	-90.53	-309.86	222.48	568.46	520.58	47.89	11.871				
9,700.00	9,627.18	9,647.55	9,627.18	36.61	34.17	-90.53	-309.86	222.48	568.46	520.09	48.37	11.752				
9,800.00	9,727.18	9,747.55	9,727.18	36.94	34.51	-90.53	-309.86	222.48	568.46	519.61	48.86	11.635				
9,900.00	9,827.18	9,847.55	9,827.18	37.26	34.86	-90.53	-309.86	222.48	568.46	519.12	49.34	11.521				
10,000.00	9,927.18	9,947.55	9,927.18	37.59	35.20	-90.53	-309.86	222.48	568.46	518.63	49.83	11.408				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
10,100.00	10,027.18	10,047.55	10,027.18	37.92	35.55	-90.53	-309.86	222.48	568.46	518.15	50.32	11.298		
10,200.00	10,127.18	10,147.55	10,127.18	38.24	35.90	-90.53	-309.86	222.48	568.46	517.66	50.80	11.189		
10,300.00	10,227.18	10,247.55	10,227.18	38.57	36.24	-90.53	-309.86	222.48	568.46	517.17	51.29	11.083		
10,400.00	10,327.18	10,347.55	10,327.18	38.90	36.59	-90.53	-309.86	222.48	568.46	516.68	51.78	10.978		
10,500.00	10,427.18	10,447.55	10,427.18	39.23	36.94	-90.53	-309.86	222.48	568.46	516.20	52.27	10.876		
10,600.00	10,527.18	10,547.55	10,527.18	39.56	37.28	-90.53	-309.86	222.48	568.46	515.71	52.76	10.775		
10,700.00	10,627.18	10,647.55	10,627.18	39.89	37.63	-90.53	-309.86	222.48	568.46	515.22	53.25	10.676		
10,800.00	10,727.18	10,747.55	10,727.18	40.22	37.98	-90.53	-309.86	222.48	568.46	514.73	53.74	10.579		
10,900.00	10,827.18	10,847.55	10,827.18	40.55	38.33	-90.53	-309.86	222.48	568.46	514.24	54.23	10.483		
11,000.00	10,927.18	10,947.55	10,927.18	40.88	38.67	-90.53	-309.86	222.48	568.46	513.75	54.72	10.389		
11,100.00	11,027.18	11,047.55	11,027.18	41.21	39.02	-90.53	-309.86	222.48	568.46	513.26	55.21	10.297		
11,200.00	11,127.18	11,147.55	11,127.18	41.55	39.37	-90.53	-309.86	222.48	568.46	512.77	55.70	10.206		
11,300.00	11,227.18	11,247.55	11,227.18	41.88	39.72	-90.53	-309.86	222.48	568.46	512.28	56.19	10.117		
11,349.82	11,277.00	11,297.37	11,277.00	42.04	39.89	-90.53	-309.86	222.48	568.46	512.03	56.43	10.073		
11,349.92	11,277.10	11,297.48	11,277.10	42.05	39.89	-90.53	-309.86	222.48	568.46	512.03	56.43	10.073		
11,400.00	11,327.11	11,347.49	11,327.11	42.21	40.07	90.25	-309.86	222.48	568.47	511.80	56.67	10.031		
11,450.00	11,376.67	11,397.04	11,376.67	42.38	40.24	90.89	-309.86	222.48	568.54	511.63	56.90	9.991		
11,500.00	11,425.46	11,445.84	11,425.46	42.55	40.41	91.93	-309.86	222.48	568.81	511.68	57.13	9.957		
11,550.00	11,473.13	11,493.50	11,473.13	42.73	40.58	93.30	-309.86	222.48	569.53	512.20	57.34	9.933		
11,600.00	11,519.30	11,539.68	11,519.30	42.91	40.74	94.92	-309.86	222.48	571.02	513.49	57.54	9.924		
11,650.00	11,563.63	11,584.01	11,563.63	43.09	40.89	96.70	-309.86	222.48	573.67	515.94	57.73	9.938		
11,700.00	11,605.78	11,627.43	11,607.05	43.27	41.04	98.59	-309.90	222.48	577.89	519.98	57.91	9.979		
11,750.00	11,645.43	11,679.44	11,658.96	43.45	41.23	100.88	-312.90	222.51	583.61	525.46	58.15	10.037		
11,800.00	11,682.27	11,735.11	11,713.97	43.64	41.43	103.19	-321.31	222.58	590.54	532.15	58.39	10.114		
11,850.00	11,716.02	11,795.16	11,772.09	43.82	41.65	105.51	-336.31	222.71	598.52	539.92	58.60	10.213		
11,900.00	11,746.44	11,860.45	11,833.11	44.01	41.90	107.83	-359.42	222.92	607.29	548.55	58.75	10.338		
11,950.00	11,773.28	11,931.93	11,896.42	44.21	42.18	110.16	-392.49	223.21	616.54	557.76	58.78	10.489		
12,000.00	11,796.35	12,010.59	11,960.74	44.41	42.50	112.45	-437.68	223.60	625.85	567.18	58.67	10.667		
12,050.00	11,815.46	12,097.31	12,023.73	44.63	42.86	114.63	-497.15	224.13	634.73	576.30	58.43	10.863		
12,100.00	11,830.48	12,192.56	12,081.71	44.85	43.29	116.59	-572.59	224.79	642.59	584.48	58.10	11.060		
12,150.00	11,841.28	12,296.02	12,129.59	45.08	43.78	118.17	-664.14	225.59	648.82	590.98	57.84	11.217		
12,200.00	11,847.79	12,406.15	12,161.61	45.31	44.33	119.22	-769.33	226.52	652.87	595.01	57.86	11.284		
12,238.85	11,849.85	12,494.53	12,172.38	45.50	44.78	119.56	-856.97	227.29	654.22	596.03	58.19	11.243		
12,300.00	11,851.02	12,566.00	12,173.61	45.82	45.17	119.55	-928.41	227.91	654.16	595.49	58.67	11.150		
12,400.00	11,852.94	12,666.00	12,174.92	46.37	45.74	119.50	-1,028.40	228.79	653.95	594.53	59.41	11.007		
12,500.00	11,854.85	12,766.00	12,176.24	46.98	46.37	119.45	-1,128.38	229.67	653.74	593.51	60.22	10.856		
12,600.00	11,856.77	12,865.99	12,177.55	47.64	47.05	119.40	-1,228.37	230.55	653.53	592.44	61.09	10.698		
12,700.00	11,858.68	12,965.99	12,178.86	48.34	47.77	119.35	-1,328.36	231.43	653.32	591.30	62.02	10.535		
12,800.00	11,860.60	13,065.99	12,180.18	49.09	48.54	119.30	-1,428.34	232.31	653.11	590.11	63.00	10.367		
12,900.00	11,862.51	13,165.99	12,181.49	49.89	49.35	119.25	-1,528.33	233.19	652.90	588.86	64.03	10.196		
13,000.00	11,864.43	13,265.99	12,182.81	50.72	50.20	119.20	-1,628.31	234.06	652.69	587.57	65.12	10.023		
13,100.00	11,866.34	13,365.98	12,184.12	51.60	51.10	119.15	-1,728.30	234.94	652.48	586.23	66.26	9.848		
13,200.00	11,868.26	13,465.98	12,185.44	52.51	52.03	119.10	-1,828.28	235.82	652.28	584.84	67.44	9.672		
13,300.00	11,870.17	13,565.98	12,186.75	53.46	52.99	119.05	-1,928.27	236.70	652.07	583.40	68.67	9.496		
13,400.00	11,872.09	13,665.98	12,188.07	54.45	53.99	119.00	-2,028.26	237.58	651.86	581.93	69.94	9.321		
13,500.00	11,874.00	13,765.98	12,189.38	55.46	55.02	118.95	-2,128.24	238.46	651.66	580.41	71.25	9.146		
13,600.00	11,875.91	13,865.97	12,190.69	56.51	56.08	118.90	-2,228.23	239.34	651.45	578.86	72.59	8.974		
13,700.00	11,877.83	13,965.97	12,192.01	57.58	57.16	118.85	-2,328.21	240.21	651.25	577.27	73.97	8.804		
13,800.00	11,879.74	14,065.97	12,193.32	58.68	58.28	118.80	-2,428.20	241.09	651.05	575.66	75.39	8.636		
13,900.00	11,881.66	14,165.97	12,194.64	59.81	59.42	118.75	-2,528.18	241.97	650.84	574.01	76.84	8.470		
14,000.00	11,883.57	14,265.97	12,195.95	60.96	60.58	118.70	-2,628.17	242.85	650.64	572.32	78.32	8.308		
14,100.00	11,885.49	14,365.97	12,197.27	62.13	61.76	118.65	-2,728.16	243.73	650.44	570.62	79.82	8.149		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Kaston Fed Com 703H - OH - Plan #4		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	11,887.40	14,465.96	12,198.58	63.33	62.97	118.59	-2,828.14	244.61	650.24	568.88	81.35	7.993				
14,300.00	11,889.32	14,565.96	12,199.89	64.54	64.19	118.54	-2,928.13	245.49	650.03	567.12	82.91	7.840				
14,400.00	11,891.23	14,665.96	12,201.21	65.77	65.44	118.49	-3,028.11	246.36	649.83	565.34	84.49	7.691				
14,500.00	11,893.15	14,765.96	12,202.52	67.03	66.70	118.44	-3,128.10	247.24	649.63	563.53	86.10	7.545				
14,600.00	11,895.06	14,865.96	12,203.84	68.30	67.98	118.39	-3,228.08	248.12	649.43	561.71	87.72	7.403				
14,700.00	11,896.98	14,965.95	12,205.15	69.58	69.27	118.34	-3,328.07	249.00	649.23	559.86	89.37	7.264				
14,800.00	11,898.89	15,065.95	12,206.47	70.88	70.58	118.29	-3,428.05	249.88	649.03	558.00	91.04	7.129				
14,900.00	11,900.81	15,165.95	12,207.78	72.20	71.91	118.24	-3,528.04	250.76	648.84	556.11	92.72	6.998				
15,000.00	11,902.72	15,265.95	12,209.10	73.52	73.24	118.19	-3,628.03	251.64	648.64	554.22	94.42	6.870				
15,100.00	11,904.63	15,365.95	12,210.41	74.87	74.59	118.14	-3,728.01	252.51	648.44	552.30	96.14	6.745				
15,200.00	11,906.55	15,465.95	12,211.72	76.22	75.96	118.09	-3,828.00	253.39	648.24	550.37	97.87	6.623				
15,300.00	11,908.46	15,565.94	12,213.04	77.58	77.33	118.04	-3,927.98	254.27	648.05	548.42	99.62	6.505				
15,400.00	11,910.38	15,665.94	12,214.35	78.96	78.71	117.99	-4,027.97	255.15	647.85	546.47	101.39	6.390				
15,500.00	11,912.29	15,765.94	12,215.67	80.35	80.11	117.93	-4,127.95	256.03	647.66	544.49	103.16	6.278				
15,600.00	11,914.21	15,865.94	12,216.98	81.74	81.51	117.88	-4,227.94	256.91	647.46	542.51	104.95	6.169				
15,700.00	11,916.12	15,965.94	12,218.30	83.15	82.92	117.83	-4,327.93	257.78	647.27	540.52	106.75	6.063				
15,800.00	11,918.04	16,065.93	12,219.61	84.56	84.34	117.78	-4,427.91	258.66	647.07	538.51	108.56	5.960				
15,900.00	11,919.95	16,165.93	12,220.92	85.99	85.77	117.73	-4,527.90	259.54	646.88	536.49	110.39	5.860				
16,000.00	11,921.87	16,265.93	12,222.24	87.42	87.21	117.68	-4,627.88	260.42	646.69	534.47	112.22	5.763				
16,100.00	11,923.78	16,365.93	12,223.55	88.86	88.66	117.63	-4,727.87	261.30	646.50	532.43	114.06	5.668				
16,200.00	11,925.70	16,465.93	12,224.87	90.30	90.11	117.58	-4,827.85	262.18	646.30	530.39	115.92	5.576				
16,300.00	11,927.61	16,565.92	12,226.18	91.76	91.57	117.53	-4,927.84	263.06	646.11	528.33	117.78	5.486				
16,400.00	11,929.53	16,665.92	12,227.50	93.22	93.03	117.47	-5,027.83	263.93	645.92	526.27	119.65	5.398				
16,500.00	11,931.44	16,765.92	12,228.81	94.68	94.51	117.42	-5,127.81	264.81	645.73	524.20	121.53	5.313				
16,600.00	11,933.35	16,865.92	12,230.13	96.16	95.98	117.37	-5,227.80	265.69	645.54	522.13	123.42	5.231				
16,700.00	11,935.27	16,965.92	12,231.44	97.63	97.47	117.32	-5,327.78	266.57	645.35	520.04	125.31	5.150				
16,800.00	11,937.18	17,065.92	12,232.75	99.12	98.96	117.27	-5,427.77	267.45	645.17	517.95	127.21	5.072				
16,900.00	11,939.10	17,165.91	12,234.07	100.61	100.45	117.22	-5,527.75	268.33	644.98	515.86	129.12	4.995				
17,000.00	11,941.01	17,265.91	12,235.38	102.10	101.95	117.17	-5,627.74	269.21	644.79	513.75	131.04	4.921				
17,100.00	11,942.93	17,365.91	12,236.70	103.60	103.45	117.12	-5,727.72	270.08	644.60	511.64	132.96	4.848				
17,200.00	11,944.84	17,465.91	12,238.01	105.10	104.96	117.06	-5,827.71	270.96	644.42	509.53	134.89	4.777				
17,300.00	11,946.76	17,565.91	12,239.33	106.61	106.47	117.01	-5,927.70	271.84	644.23	507.41	136.82	4.709				
17,400.00	11,948.67	17,665.90	12,240.64	108.12	107.99	116.96	-6,027.68	272.72	644.04	505.28	138.76	4.641				
17,500.00	11,950.59	17,765.90	12,241.96	109.64	109.51	116.91	-6,127.67	273.60	643.86	503.15	140.70	4.576				
17,600.00	11,952.50	17,865.90	12,243.27	111.16	111.03	116.86	-6,227.65	274.48	643.68	501.02	142.66	4.512				
17,700.00	11,954.42	17,965.90	12,244.58	112.68	112.56	116.81	-6,327.64	275.36	643.49	498.88	144.61	4.450				
17,800.00	11,956.33	18,065.90	12,245.90	114.21	114.09	116.75	-6,427.62	276.23	643.31	496.74	146.57	4.389				
17,900.00	11,958.25	18,165.90	12,247.21	115.74	115.62	116.70	-6,527.61	277.11	643.13	494.59	148.53	4.330				
18,000.00	11,960.16	18,265.89	12,248.53	117.28	117.16	116.65	-6,627.60	277.99	642.94	492.44	150.50	4.272				
18,100.00	11,962.07	18,365.89	12,249.84	118.81	118.70	116.60	-6,727.58	278.87	642.76	490.28	152.48	4.215				
18,200.00	11,963.99	18,465.89	12,251.16	120.35	120.24	116.55	-6,827.57	279.75	642.58	488.13	154.45	4.160				
18,300.00	11,965.90	18,565.89	12,252.47	121.90	121.79	116.50	-6,927.55	280.63	642.40	485.96	156.44	4.106				
18,400.00	11,967.82	18,665.89	12,253.78	123.44	123.34	116.44	-7,027.54	281.51	642.22	483.80	158.42	4.054				
18,500.00	11,969.73	18,765.88	12,255.10	124.99	124.89	116.39	-7,127.52	282.38	642.04	481.63	160.41	4.002				
18,600.00	11,971.65	18,865.88	12,256.41	126.54	126.45	116.34	-7,227.51	283.26	641.86	479.46	162.40	3.952				
18,700.00	11,973.56	18,965.88	12,257.73	128.10	128.00	116.29	-7,327.50	284.14	641.68	477.28	164.40	3.903				
18,800.00	11,975.48	19,065.88	12,259.04	129.65	129.56	116.24	-7,427.48	285.02	641.50	475.11	166.40	3.855				
18,900.00	11,977.39	19,165.88	12,260.36	131.21	131.12	116.18	-7,527.47	285.90	641.33	472.92	168.40	3.808				
19,000.00	11,979.31	19,265.87	12,261.67	132.77	132.69	116.13	-7,627.45	286.78	641.15	470.74	170.41	3.762				
19,100.00	11,981.22	19,365.87	12,262.99	134.34	134.25	116.08	-7,727.44	287.66	640.97	468.56	172.42	3.718				
19,200.00	11,983.14	19,465.87	12,264.30	135.90	135.82	116.03	-7,827.42	288.53	640.80	466.37	174.43	3.674				
19,300.00	11,985.05	19,565.87	12,265.61	137.47	137.39	115.98	-7,927.41	289.41	640.62	464.18	176.44	3.631				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Bus Driver/Kaston Fed Com - Kaston Fed Com 703H - OH - Plan #4		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	11,986.97	19,665.87	12,266.93	139.04	138.96	115.92	-8,027.39	290.29	640.45	461.99	178.46	3.589					
19,500.00	11,988.88	19,765.87	12,268.24	140.61	140.54	115.87	-8,127.38	291.17	640.27	459.79	180.48	3.548					
19,600.00	11,990.79	19,865.86	12,269.56	142.18	142.11	115.82	-8,227.37	292.05	640.10	457.60	182.50	3.507					
19,700.00	11,992.71	19,965.86	12,270.87	143.76	143.69	115.77	-8,327.35	292.93	639.92	455.40	184.53	3.468					
19,800.00	11,994.62	20,065.86	12,272.19	145.34	145.27	115.72	-8,427.34	293.80	639.75	453.20	186.56	3.429					
19,900.00	11,996.54	20,165.86	12,273.50	146.91	146.85	115.66	-8,527.32	294.68	639.58	450.99	188.59	3.391					
20,000.00	11,998.45	20,265.86	12,274.81	148.49	148.43	115.61	-8,627.31	295.56	639.41	448.79	190.62	3.354					
20,100.00	12,000.37	20,365.85	12,276.13	150.08	150.01	115.56	-8,727.29	296.44	639.24	446.58	192.65	3.318					
20,200.00	12,002.28	20,465.85	12,277.44	151.66	151.60	115.51	-8,827.28	297.32	639.06	444.38	194.69	3.282					
20,300.00	12,004.20	20,565.85	12,278.76	153.24	153.19	115.45	-8,927.27	298.20	638.89	442.17	196.73	3.248					
20,400.00	12,006.11	20,665.85	12,280.07	154.83	154.77	115.40	-9,027.25	299.08	638.73	439.96	198.77	3.213					
20,500.00	12,008.03	20,765.85	12,281.39	156.42	156.36	115.35	-9,127.24	299.95	638.56	437.74	200.81	3.180					
20,600.00	12,009.94	20,865.85	12,282.70	158.01	157.95	115.30	-9,227.22	300.83	638.39	435.53	202.86	3.147					
20,700.00	12,011.86	20,965.84	12,284.02	159.60	159.54	115.24	-9,327.21	301.71	638.22	433.32	204.90	3.115					
20,800.00	12,013.77	21,065.84	12,285.33	161.19	161.14	115.19	-9,427.19	302.59	638.05	431.10	206.95	3.083					
20,900.00	12,015.68	21,165.84	12,286.64	162.78	162.73	115.14	-9,527.18	303.47	637.88	428.88	209.00	3.052					
21,000.00	12,017.60	21,265.84	12,287.96	164.37	164.33	115.09	-9,627.17	304.35	637.72	426.67	211.05	3.022					
21,100.00	12,019.51	21,365.84	12,289.27	165.97	165.92	115.03	-9,727.15	305.23	637.55	424.45	213.11	2.992					
21,200.00	12,021.43	21,465.83	12,290.59	167.56	167.52	114.98	-9,827.14	306.10	637.39	422.22	215.16	2.962					
21,300.00	12,023.34	21,565.83	12,291.90	169.16	169.12	114.93	-9,927.12	306.98	637.22	420.00	217.22	2.934					
21,400.00	12,025.26	21,665.83	12,293.22	170.76	170.72	114.88	-10,027.11	307.86	637.06	417.78	219.28	2.905					
21,500.00	12,027.17	21,765.83	12,294.53	172.36	172.32	114.82	-10,127.09	308.74	636.89	415.56	221.34	2.877					
21,600.00	12,029.09	21,865.83	12,295.84	173.96	173.92	114.77	-10,227.08	309.62	636.73	413.33	223.40	2.850					
21,700.00	12,031.00	21,965.83	12,297.16	175.56	175.52	114.72	-10,327.07	310.50	636.57	411.10	225.46	2.823					
21,800.00	12,032.92	22,065.82	12,298.47	177.16	177.13	114.67	-10,427.05	311.38	636.41	408.88	227.53	2.797					
21,900.00	12,034.83	22,165.82	12,299.79	178.76	178.73	114.61	-10,527.04	312.25	636.24	406.65	229.59	2.771					
22,000.00	12,036.75	22,265.82	12,301.10	180.37	180.34	114.56	-10,627.02	313.13	636.08	404.42	231.66	2.746					
22,100.00	12,038.66	22,365.82	12,302.42	181.97	181.94	114.51	-10,727.01	314.01	635.92	402.19	233.73	2.721					
22,200.00	12,040.58	22,465.82	12,303.73	183.58	183.55	114.45	-10,826.99	314.89	635.76	399.96	235.80	2.696					
22,300.00	12,042.49	22,565.81	12,305.05	185.19	185.16	114.40	-10,926.98	315.77	635.60	397.73	237.87	2.672					
22,400.00	12,044.40	22,665.81	12,306.36	186.79	186.76	114.35	-11,026.96	316.65	635.45	395.50	239.94	2.648					
22,500.00	12,046.32	22,765.81	12,307.67	188.40	188.37	114.30	-11,126.95	317.53	635.29	393.27	242.02	2.625					
22,600.00	12,048.23	22,865.81	12,308.99	190.01	189.98	114.24	-11,226.94	318.40	635.13	391.04	244.09	2.602					
22,700.00	12,050.15	22,965.81	12,310.30	191.62	191.59	114.19	-11,326.92	319.28	634.97	388.81	246.17	2.579					
22,800.00	12,052.06	23,065.80	12,311.62	193.23	193.21	114.14	-11,426.91	320.16	634.82	386.57	248.24	2.557					
22,900.00	12,053.98	23,165.80	12,312.93	194.84	194.82	114.08	-11,526.89	321.04	634.66	384.34	250.32	2.535					
23,000.00	12,055.89	23,265.80	12,314.25	196.45	196.43	114.03	-11,626.88	321.92	634.50	382.10	252.40	2.514					
23,100.00	12,057.81	23,365.80	12,315.56	198.06	198.04	113.98	-11,726.86	322.80	634.35	379.87	254.48	2.493					
23,200.00	12,059.72	23,465.80	12,316.87	199.68	199.66	113.92	-11,826.85	323.67	634.19	377.63	256.56	2.472					
23,300.00	12,061.64	23,565.80	12,318.19	201.29	201.27	113.87	-11,926.84	324.55	634.04	375.40	258.64	2.451					
23,400.00	12,063.55	23,665.79	12,319.50	202.91	202.89	113.82	-12,026.82	325.43	633.89	373.16	260.72	2.431					
23,411.94	12,063.78	23,677.74	12,319.66	203.10	203.08	113.81	-12,038.76	325.54	633.87	372.89	260.97	2.429 SF					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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	3.50	3.50	0.00	0.00	-92.32	-80.51	-1,990.77	1,992.40					
100.00	100.00	103.50	103.50	0.13	0.15	-92.32	-80.51	-1,990.77	1,992.40	1,992.20	0.20	N/A		
200.00	200.00	203.50	203.50	0.48	0.51	-92.32	-80.51	-1,990.77	1,992.40	1,991.69	0.70	2,826.256		
300.00	300.00	303.50	303.50	0.84	0.87	-92.32	-80.51	-1,990.77	1,992.40	1,991.19	1.21	1,644.173		
400.00	400.00	403.50	403.50	1.20	1.23	-92.32	-80.51	-1,990.77	1,992.40	1,990.68	1.72	1,159.248		
500.00	500.00	503.50	503.50	1.56	1.59	-92.32	-80.51	-1,990.77	1,992.40	1,990.17	2.23	895.207		
600.00	600.00	603.50	603.50	1.92	1.95	-92.32	-80.51	-1,990.77	1,992.40	1,989.66	2.73	729.131		
700.00	700.00	703.50	703.50	2.28	2.30	-92.32	-80.51	-1,990.77	1,992.40	1,989.16	3.24	615.031		
800.00	800.00	803.50	803.50	2.63	2.66	-92.32	-80.51	-1,990.77	1,992.40	1,988.65	3.75	531.809		
900.00	900.00	903.50	903.50	2.99	3.02	-92.32	-80.51	-1,990.77	1,992.40	1,988.14	4.25	468.424		
1,000.00	1,000.00	1,003.50	1,003.50	3.35	3.38	-92.32	-80.51	-1,990.77	1,992.40	1,987.64	4.76	418.540		
1,100.00	1,100.00	1,103.50	1,103.50	3.71	3.74	-92.32	-80.51	-1,990.77	1,992.40	1,987.13	5.27	378.257		
1,200.00	1,200.00	1,203.50	1,203.50	4.07	4.10	-92.32	-80.51	-1,990.77	1,992.40	1,986.62	5.77	345.048		
1,300.00	1,300.00	1,303.50	1,303.50	4.43	4.46	-92.32	-80.51	-1,990.77	1,992.40	1,986.12	6.28	317.200		
1,400.00	1,400.00	1,403.50	1,403.50	4.79	4.81	-92.32	-80.51	-1,990.77	1,992.40	1,985.61	6.79	293.511		
1,500.00	1,500.00	1,503.50	1,503.50	5.14	5.17	-92.32	-80.51	-1,990.77	1,992.40	1,985.10	7.30	273.114		
1,600.00	1,600.00	1,603.50	1,603.50	5.50	5.53	-92.32	-80.51	-1,990.77	1,992.40	1,984.60	7.80	255.368		
1,700.00	1,700.00	1,703.50	1,703.50	5.86	5.89	-92.32	-80.51	-1,990.77	1,992.40	1,984.09	8.31	239.787		
1,800.00	1,800.00	1,803.50	1,803.50	6.22	6.25	-92.32	-80.51	-1,990.77	1,992.40	1,983.58	8.82	225.998		
1,900.00	1,900.00	1,903.50	1,903.50	6.58	6.61	-92.32	-80.51	-1,990.77	1,992.40	1,983.07	9.32	213.709		
2,000.00	2,000.00	2,003.50	2,003.50	6.94	6.97	-92.32	-80.51	-1,990.77	1,992.40	1,982.57	9.83	202.688		
2,100.00	2,100.00	2,103.50	2,103.50	7.29	7.32	-92.32	-80.51	-1,990.77	1,992.40	1,982.06	10.34	192.747		
2,200.00	2,200.00	2,203.50	2,203.50	7.65	7.68	-92.32	-80.51	-1,990.77	1,992.40	1,981.55	10.84	183.736		
2,300.00	2,300.00	2,303.50	2,303.50	8.01	8.04	-92.32	-80.51	-1,990.77	1,992.40	1,981.05	11.35	175.530		
2,400.00	2,400.00	2,403.50	2,403.50	8.37	8.40	-92.32	-80.51	-1,990.77	1,992.40	1,980.54	11.86	168.026		
2,500.00	2,500.00	2,503.50	2,503.50	8.73	8.76	-92.32	-80.51	-1,990.77	1,992.40	1,980.03	12.36	161.136		
2,600.00	2,600.00	2,603.50	2,603.50	9.09	9.12	-92.32	-80.51	-1,990.77	1,992.40	1,979.53	12.87	154.790		
2,689.00	2,689.00	2,692.50	2,692.50	9.41	9.43	-92.32	-80.51	-1,990.77	1,992.40	1,979.07	13.32	149.548 CC		
2,700.00	2,700.00	2,703.50	2,703.50	9.44	9.47	156.62	-80.51	-1,990.77	1,992.41	1,979.03	13.38	148.937 ES		
2,800.00	2,799.98	2,803.48	2,803.48	9.78	9.83	156.63	-80.51	-1,990.77	1,993.88	1,980.01	13.87	143.782		
2,900.00	2,899.89	2,903.39	2,903.39	10.12	10.19	156.66	-80.51	-1,990.77	1,997.75	1,983.39	14.36	139.137		
3,000.00	2,999.66	3,003.16	3,003.16	10.46	10.55	156.70	-80.51	-1,990.77	2,004.02	1,989.17	14.85	134.956		
3,100.00	3,099.21	3,102.71	3,102.71	10.80	10.91	156.75	-80.51	-1,990.77	2,012.69	1,997.35	15.34	131.196		
3,200.00	3,198.48	3,201.98	3,201.98	11.15	11.26	156.82	-80.51	-1,990.77	2,023.77	2,007.94	15.83	127.822		
3,300.00	3,297.40	3,300.90	3,300.90	11.50	11.62	156.90	-80.51	-1,990.77	2,037.25	2,020.93	16.32	124.798		
3,377.22	3,373.50	3,377.00	3,377.00	11.78	11.89	156.98	-80.51	-1,990.77	2,049.30	2,032.60	16.70	122.682		
3,400.00	3,395.91	3,399.41	3,399.41	11.86	11.97	157.02	-80.51	-1,990.77	2,053.07	2,036.25	16.82	122.088		
3,500.00	3,494.29	3,497.79	3,497.79	12.23	12.32	157.21	-80.51	-1,990.77	2,069.62	2,052.31	17.31	119.575		
3,600.00	3,592.68	3,596.18	3,596.18	12.61	12.67	157.40	-80.51	-1,990.77	2,086.19	2,068.39	17.80	117.190		
3,700.00	3,691.06	3,694.56	3,694.56	12.99	13.03	157.59	-80.51	-1,990.77	2,102.79	2,084.49	18.30	114.924		
3,800.00	3,789.44	3,792.94	3,792.94	13.38	13.38	157.77	-80.51	-1,990.77	2,119.40	2,100.61	18.79	112.770		
3,900.00	3,887.82	3,891.32	3,891.32	13.77	13.73	157.96	-80.51	-1,990.77	2,136.04	2,116.75	19.29	110.719		
4,000.00	3,986.20	3,989.70	3,989.70	14.17	14.09	158.13	-80.51	-1,990.77	2,152.70	2,132.91	19.79	108.766		
4,100.00	4,084.58	4,088.08	4,088.08	14.57	14.44	158.31	-80.51	-1,990.77	2,169.38	2,149.08	20.29	106.904		
4,200.00	4,182.96	4,186.46	4,186.46	14.97	14.79	158.48	-80.51	-1,990.77	2,186.07	2,165.28	20.79	105.127		
4,300.00	4,281.34	4,284.84	4,284.84	15.38	15.14	158.65	-80.51	-1,990.77	2,202.79	2,181.49	21.30	103.430		
4,400.00	4,379.73	4,383.23	4,383.23	15.79	15.50	158.82	-80.51	-1,990.77	2,219.53	2,197.73	21.80	101.807		
4,500.00	4,478.11	4,481.61	4,481.61	16.20	15.85	158.99	-80.51	-1,990.77	2,236.28	2,213.98	22.31	100.256		
4,600.00	4,576.49	4,579.99	4,579.99	16.61	16.20	159.15	-80.51	-1,990.77	2,253.05	2,230.24	22.81	98.770		
4,700.00	4,674.87	4,678.37	4,678.37	17.03	16.55	159.31	-80.51	-1,990.77	2,269.84	2,246.53	23.32	97.347		
4,800.00	4,773.25	4,776.75	4,776.75	17.45	16.91	159.47	-80.51	-1,990.77	2,286.65	2,262.83	23.82	95.982		
4,900.00	4,871.63	4,875.13	4,875.13	17.87	17.26	159.63	-80.51	-1,990.77	2,303.47	2,279.14	24.33	94.672		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,970.01	4,973.51	4,973.51	18.30	17.61	159.78	-80.51	-1,990.77	2,320.31	2,295.47	24.84	93.415		
5,100.00	5,068.39	5,071.89	5,071.89	18.72	17.96	159.93	-80.51	-1,990.77	2,337.17	2,311.82	25.35	92.206		
5,200.00	5,166.78	5,170.28	5,170.28	19.15	18.32	160.08	-80.51	-1,990.77	2,354.04	2,328.19	25.86	91.044		
5,300.00	5,265.16	5,268.66	5,268.66	19.58	18.67	160.23	-80.51	-1,990.77	2,370.93	2,344.56	26.37	89.926		
5,400.00	5,363.54	5,367.04	5,367.04	20.01	19.02	160.37	-80.51	-1,990.77	2,387.83	2,360.96	26.87	88.850		
5,500.00	5,461.92	5,465.42	5,465.42	20.44	19.38	160.52	-80.51	-1,990.77	2,404.75	2,377.36	27.38	87.813		
5,600.00	5,560.30	5,550.61	5,550.60	20.87	19.67	160.63	-80.81	-1,990.92	2,421.85	2,394.00	27.85	86.960		
5,700.00	5,658.68	5,628.56	5,628.53	21.31	19.93	160.70	-82.45	-1,991.73	2,439.74	2,411.46	28.29	86.251		
5,800.00	5,757.06	5,700.00	5,699.91	21.74	20.16	160.74	-85.20	-1,993.09	2,458.47	2,429.77	28.70	85.670		
5,900.00	5,855.44	5,783.91	5,783.65	22.18	20.44	160.74	-89.97	-1,995.44	2,477.99	2,448.85	29.14	85.030		
6,000.00	5,953.83	5,861.19	5,860.65	22.62	20.69	160.71	-95.81	-1,998.33	2,498.33	2,468.77	29.57	84.495		
6,100.00	6,052.21	5,948.45	5,947.45	23.06	20.97	160.64	-103.81	-2,002.28	2,519.39	2,489.37	30.02	83.912		
6,200.00	6,150.59	6,046.12	6,044.59	23.50	21.30	160.56	-112.97	-2,006.80	2,540.56	2,510.04	30.52	83.256		
6,300.00	6,248.97	6,143.79	6,141.72	23.94	21.62	160.48	-122.12	-2,011.32	2,561.73	2,530.72	31.01	82.616		
6,400.00	6,347.35	6,241.46	6,238.86	24.38	21.94	160.40	-131.28	-2,015.84	2,582.90	2,551.40	31.50	81.991		
6,500.00	6,445.73	6,339.13	6,336.00	24.82	22.27	160.32	-140.43	-2,020.37	2,604.08	2,572.08	32.00	81.382		
6,600.00	6,544.11	6,436.80	6,433.13	25.26	22.60	160.24	-149.59	-2,024.89	2,625.27	2,592.77	32.50	80.787		
6,700.00	6,642.49	6,534.48	6,530.27	25.71	22.93	160.17	-158.74	-2,029.41	2,646.45	2,613.46	33.00	80.206		
6,800.00	6,740.88	6,632.15	6,627.40	26.15	23.26	160.10	-167.90	-2,033.93	2,667.65	2,634.15	33.50	79.639		
6,900.00	6,839.26	6,729.82	6,724.54	26.59	23.60	160.02	-177.05	-2,038.45	2,688.84	2,654.85	34.00	79.085		
7,000.00	6,937.64	6,827.49	6,821.68	27.04	23.94	159.95	-186.21	-2,042.98	2,710.05	2,675.54	34.50	78.545		
7,100.00	7,036.02	6,925.16	6,918.81	27.49	24.27	159.88	-195.36	-2,047.50	2,731.25	2,696.24	35.01	78.017		
7,200.00	7,134.40	7,022.83	7,015.95	27.93	24.61	159.81	-204.52	-2,052.02	2,752.46	2,716.94	35.51	77.501		
7,300.00	7,232.78	7,120.50	7,113.09	28.38	24.95	159.74	-213.68	-2,056.54	2,773.67	2,737.65	36.02	76.998		
7,400.00	7,331.16	7,218.18	7,210.22	28.83	25.30	159.68	-222.83	-2,061.06	2,794.89	2,758.36	36.53	76.506		
7,416.60	7,347.50	7,234.39	7,226.35	28.90	25.35	159.67	-224.35	-2,061.81	2,798.41	2,761.79	36.62	76.425		
7,500.00	7,429.70	7,316.01	7,307.52	29.27	25.64	159.69	-232.00	-2,065.59	2,815.27	2,778.23	37.04	76.004		
7,600.00	7,528.64	7,414.28	7,405.25	29.69	25.99	159.70	-241.21	-2,070.14	2,833.29	2,795.74	37.55	75.455		
7,700.00	7,627.93	7,512.91	7,503.34	30.09	26.34	159.67	-250.46	-2,074.71	2,848.89	2,810.83	38.06	74.859		
7,800.00	7,727.50	7,611.84	7,601.73	30.48	26.69	159.62	-259.73	-2,079.29	2,862.07	2,823.51	38.56	74.219		
7,900.00	7,827.27	7,711.00	7,700.35	30.84	27.04	159.53	-269.03	-2,083.88	2,872.83	2,833.77	39.07	73.538		
8,000.00	7,927.19	7,810.33	7,799.13	31.19	27.40	159.42	-278.34	-2,088.48	2,881.18	2,841.61	39.57	72.818		
8,104.82	8,032.00	7,914.56	7,902.79	31.53	27.77	-89.67	-288.11	-2,093.30	2,887.32	2,847.24	40.08	72.031		
8,200.00	8,127.18	8,009.21	7,996.92	31.83	28.11	-89.85	-296.98	-2,097.69	2,891.71	2,851.16	40.55	71.312		
8,300.00	8,227.18	8,108.66	8,095.83	32.14	28.47	-90.03	-306.30	-2,102.29	2,896.35	2,855.31	41.04	70.573		
8,400.00	8,327.18	8,223.20	8,209.76	32.45	28.88	-90.24	-316.81	-2,107.48	2,900.95	2,859.36	41.58	69.762		
8,500.00	8,427.18	8,374.62	8,360.77	32.77	29.42	-90.44	-326.75	-2,112.39	2,904.24	2,861.99	42.24	68.750		
8,600.00	8,527.18	8,526.69	8,512.74	33.09	29.95	-90.53	-331.33	-2,114.65	2,905.75	2,862.86	42.89	67.753		
8,700.00	8,627.18	8,644.63	8,630.68	33.40	30.36	-90.53	-331.65	-2,114.81	2,905.86	2,862.43	43.42	66.918		
8,800.00	8,727.18	8,744.63	8,730.68	33.72	30.71	-90.53	-331.65	-2,114.81	2,905.86	2,861.95	43.91	66.179		
8,900.00	8,827.18	8,844.63	8,830.68	34.04	31.06	-90.53	-331.65	-2,114.81	2,905.86	2,861.46	44.39	65.456		
9,000.00	8,927.18	8,944.63	8,930.68	34.36	31.41	-90.53	-331.65	-2,114.81	2,905.86	2,860.98	44.88	64.747		
9,100.00	9,027.18	9,044.63	9,030.68	34.68	31.76	-90.53	-331.65	-2,114.81	2,905.86	2,860.49	45.37	64.053		
9,200.00	9,127.18	9,144.63	9,130.68	35.00	32.11	-90.53	-331.65	-2,114.81	2,905.86	2,860.00	45.85	63.373		
9,300.00	9,227.18	9,244.63	9,230.68	35.32	32.47	-90.53	-331.65	-2,114.81	2,905.86	2,859.52	46.34	62.707		
9,400.00	9,327.18	9,344.63	9,330.68	35.64	32.82	-90.53	-331.65	-2,114.81	2,905.86	2,859.03	46.83	62.054		
9,500.00	9,427.18	9,444.63	9,430.68	35.97	33.17	-90.53	-331.65	-2,114.81	2,905.86	2,858.54	47.32	61.413		
9,600.00	9,527.18	9,544.63	9,530.68	36.29	33.52	-90.53	-331.65	-2,114.81	2,905.86	2,858.05	47.80	60.786		
9,700.00	9,627.18	9,644.63	9,630.68	36.61	33.87	-90.53	-331.65	-2,114.81	2,905.86	2,857.56	48.29	60.171		
9,800.00	9,727.18	9,744.63	9,730.68	36.94	34.22	-90.53	-331.65	-2,114.81	2,905.86	2,857.07	48.78	59.567		
9,900.00	9,827.18	9,844.63	9,830.68	37.26	34.57	-90.53	-331.65	-2,114.81	2,905.86	2,856.58	49.27	58.975		
10,000.00	9,927.18	9,944.63	9,930.68	37.59	34.92	-90.53	-331.65	-2,114.81	2,905.86	2,856.09	49.76	58.395		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
10,100.00	10,027.18	10,044.63	10,030.68	37.92	35.28	-90.53	-331.65	-2,114.81	2,905.86	2,855.60	50.25	57.825		
10,200.00	10,127.18	10,144.63	10,130.68	38.24	35.63	-90.53	-331.65	-2,114.81	2,905.86	2,855.11	50.74	57.266		
10,300.00	10,227.18	10,244.63	10,230.68	38.57	35.98	-90.53	-331.65	-2,114.81	2,905.86	2,854.62	51.23	56.717		
10,400.00	10,327.18	10,344.63	10,330.68	38.90	36.33	-90.53	-331.65	-2,114.81	2,905.86	2,854.13	51.73	56.179		
10,500.00	10,427.18	10,444.63	10,430.68	39.23	36.69	-90.53	-331.65	-2,114.81	2,905.86	2,853.64	52.22	55.650		
10,600.00	10,527.18	10,544.63	10,530.68	39.56	37.04	-90.53	-331.65	-2,114.81	2,905.86	2,853.15	52.71	55.131		
10,700.00	10,627.18	10,644.63	10,630.68	39.89	37.39	-90.53	-331.65	-2,114.81	2,905.86	2,852.66	53.20	54.621		
10,800.00	10,727.18	10,744.63	10,730.68	40.22	37.74	-90.53	-331.65	-2,114.81	2,905.86	2,852.16	53.69	54.120		
10,900.00	10,827.18	10,844.63	10,830.68	40.55	38.10	-90.53	-331.65	-2,114.81	2,905.86	2,851.67	54.19	53.628		
11,000.00	10,927.18	10,944.63	10,930.68	40.88	38.45	-90.53	-331.65	-2,114.81	2,905.86	2,851.18	54.68	53.144		
11,100.00	11,027.18	11,044.63	11,030.68	41.21	38.80	-90.53	-331.65	-2,114.81	2,905.86	2,850.68	55.17	52.669		
11,200.00	11,127.18	11,144.63	11,130.68	41.55	39.16	-90.53	-331.65	-2,114.81	2,905.86	2,850.19	55.66	52.203		
11,300.00	11,227.18	11,244.63	11,230.68	41.88	39.51	-90.53	-331.65	-2,114.81	2,905.86	2,849.70	56.16	51.744		
11,349.82	11,277.00	11,294.45	11,280.50	42.04	39.68	-90.53	-331.65	-2,114.81	2,905.86	2,849.45	56.40	51.518		
11,400.00	11,327.11	11,344.56	11,330.61	42.21	39.86	90.07	-331.65	-2,114.81	2,905.86	2,849.21	56.65	51.293		
11,450.00	11,376.67	11,394.24	11,380.29	42.38	40.04	90.19	-331.74	-2,114.81	2,905.87	2,848.98	56.90	51.072		
11,500.00	11,425.46	11,444.60	11,430.53	42.55	40.21	90.34	-334.86	-2,114.78	2,905.91	2,848.77	57.15	50.849		
11,550.00	11,473.13	11,495.66	11,481.01	42.73	40.39	90.49	-342.51	-2,114.71	2,905.98	2,848.57	57.41	50.621		
11,600.00	11,519.30	11,547.47	11,531.31	42.91	40.58	90.64	-354.83	-2,114.61	2,906.07	2,848.39	57.67	50.388		
11,650.00	11,563.63	11,600.03	11,581.00	43.09	40.77	90.78	-371.91	-2,114.46	2,906.18	2,848.23	57.95	50.150		
11,700.00	11,605.78	11,653.35	11,629.59	43.27	40.97	90.92	-393.83	-2,114.26	2,906.30	2,848.07	58.24	49.906		
11,750.00	11,645.43	11,707.44	11,676.58	43.45	41.18	91.05	-420.57	-2,114.03	2,906.45	2,847.92	58.53	49.657		
11,800.00	11,682.27	11,762.28	11,721.43	43.64	41.39	91.18	-452.08	-2,113.75	2,906.60	2,847.77	58.83	49.403		
11,850.00	11,716.02	11,817.85	11,763.60	43.82	41.61	91.29	-488.24	-2,113.44	2,906.77	2,847.62	59.15	49.142		
11,900.00	11,746.44	11,874.13	11,802.53	44.01	41.85	91.40	-528.84	-2,113.08	2,906.93	2,847.45	59.48	48.875		
11,950.00	11,773.28	11,931.05	11,837.67	44.21	42.09	91.49	-573.60	-2,112.69	2,907.10	2,847.28	59.81	48.602		
12,000.00	11,796.35	11,988.58	11,868.49	44.41	42.34	91.57	-622.14	-2,112.26	2,907.25	2,847.09	60.17	48.321		
12,050.00	11,815.46	12,046.63	11,894.51	44.63	42.61	91.64	-674.00	-2,111.80	2,907.40	2,846.87	60.53	48.034		
12,100.00	11,830.48	12,105.13	11,915.28	44.85	42.88	91.70	-728.66	-2,111.32	2,907.53	2,846.63	60.90	47.742		
12,150.00	11,841.28	12,163.97	11,930.44	45.08	43.16	91.73	-785.48	-2,110.83	2,907.64	2,846.36	61.29	47.444		
12,200.00	11,847.79	12,223.06	11,939.73	45.31	43.45	91.76	-843.81	-2,110.31	2,907.73	2,846.05	61.68	47.145		
12,238.85	11,849.85	12,269.07	11,942.76	45.50	43.68	91.76	-889.71	-2,109.91	2,907.78	2,845.80	61.98	46.913		
12,300.00	11,851.02	12,331.57	11,943.51	45.82	44.00	91.75	-952.21	-2,109.36	2,907.83	2,845.39	62.44	46.567		
12,400.00	11,852.94	12,431.57	11,944.59	46.37	44.56	91.74	-1,052.19	-2,108.48	2,907.90	2,844.66	63.24	45.979		
12,500.00	11,854.85	12,531.57	11,945.67	46.98	45.16	91.72	-1,152.18	-2,107.61	2,907.98	2,843.86	64.12	45.352		
12,600.00	11,856.77	12,631.56	11,946.75	47.64	45.82	91.71	-1,252.17	-2,106.73	2,908.05	2,842.98	65.07	44.692		
12,700.00	11,858.68	12,731.56	11,947.83	48.34	46.53	91.69	-1,352.15	-2,105.85	2,908.12	2,842.04	66.09	44.005		
12,800.00	11,860.60	12,831.56	11,948.91	49.09	47.29	91.67	-1,452.14	-2,104.97	2,908.20	2,841.03	67.17	43.297		
12,900.00	11,862.51	12,931.55	11,949.99	49.89	48.09	91.66	-1,552.13	-2,104.10	2,908.27	2,839.96	68.31	42.572		
13,000.00	11,864.43	13,031.55	11,951.08	50.72	48.93	91.64	-1,652.11	-2,103.22	2,908.35	2,838.83	69.52	41.835		
13,100.00	11,866.34	13,131.55	11,952.16	51.60	49.81	91.62	-1,752.10	-2,102.34	2,908.42	2,837.64	70.78	41.090		
13,200.00	11,868.26	13,231.54	11,953.24	52.51	50.74	91.61	-1,852.09	-2,101.46	2,908.50	2,836.40	72.10	40.341		
13,300.00	11,870.17	13,331.54	11,954.32	53.46	51.69	91.59	-1,952.07	-2,100.59	2,908.57	2,835.11	73.46	39.592		
13,400.00	11,872.09	13,431.54	11,955.40	54.45	52.69	91.57	-2,052.06	-2,099.71	2,908.65	2,833.77	74.88	38.845		
13,500.00	11,874.00	13,531.53	11,956.48	55.46	53.71	91.56	-2,152.05	-2,098.83	2,908.72	2,832.38	76.34	38.103		
13,600.00	11,875.91	13,631.53	11,957.56	56.51	54.77	91.54	-2,252.03	-2,097.95	2,908.80	2,830.96	77.84	37.368		
13,700.00	11,877.83	13,731.53	11,958.64	57.58	55.85	91.52	-2,352.02	-2,097.07	2,908.87	2,829.49	79.38	36.643		
13,800.00	11,879.74	13,831.52	11,959.73	58.68	56.96	91.51	-2,452.01	-2,096.20	2,908.95	2,827.99	80.97	35.928		
13,900.00	11,881.66	13,931.52	11,960.81	59.81	58.10	91.49	-2,551.99	-2,095.32	2,909.03	2,826.45	82.58	35.226		
14,000.00	11,883.57	14,031.51	11,961.89	60.96	59.26	91.47	-2,651.98	-2,094.44	2,909.10	2,824.87	84.23	34.537		
14,100.00	11,885.49	14,131.51	11,962.97	62.13	60.45	91.46	-2,751.97	-2,093.56	2,909.18	2,823.27	85.91	33.861		
14,200.00	11,887.40	14,231.51	11,964.05	63.33	61.65	91.44	-2,851.95	-2,092.69	2,909.26	2,821.63	87.63	33.200		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.00	11,889.32	14,331.50	11,965.13	64.54	62.88	91.43	-2,951.94	-2,091.81	2,909.34	2,819.97	89.37	32.555		
14,400.00	11,891.23	14,431.50	11,966.21	65.77	64.13	91.41	-3,051.93	-2,090.93	2,909.41	2,818.28	91.14	31.924		
14,500.00	11,893.15	14,531.50	11,967.29	67.03	65.39	91.39	-3,151.91	-2,090.05	2,909.49	2,816.56	92.93	31.309		
14,600.00	11,895.06	14,631.49	11,968.38	68.30	66.67	91.38	-3,251.90	-2,089.17	2,909.57	2,814.83	94.74	30.710		
14,700.00	11,896.98	14,731.49	11,969.46	69.58	67.97	91.36	-3,351.89	-2,088.30	2,909.65	2,813.07	96.58	30.126		
14,800.00	11,898.89	14,831.49	11,970.54	70.88	69.28	91.34	-3,451.87	-2,087.42	2,909.73	2,811.28	98.44	29.558		
14,900.00	11,900.81	14,931.48	11,971.62	72.20	70.61	91.33	-3,551.86	-2,086.54	2,909.81	2,809.48	100.32	29.005		
15,000.00	11,902.72	15,031.48	11,972.70	73.52	71.95	91.31	-3,651.85	-2,085.66	2,909.88	2,807.66	102.22	28.467		
15,100.00	11,904.63	15,131.48	11,973.78	74.87	73.30	91.29	-3,751.84	-2,084.79	2,909.96	2,805.83	104.14	27.944		
15,200.00	11,906.55	15,231.47	11,974.86	76.22	74.66	91.28	-3,851.82	-2,083.91	2,910.04	2,803.97	106.07	27.435		
15,300.00	11,908.46	15,331.47	11,975.94	77.58	76.04	91.26	-3,951.81	-2,083.03	2,910.12	2,802.11	108.02	26.941		
15,400.00	11,910.38	15,431.47	11,977.02	78.96	77.43	91.24	-4,051.80	-2,082.15	2,910.20	2,800.22	109.98	26.460		
15,500.00	11,912.29	15,531.46	11,978.11	80.35	78.82	91.23	-4,151.78	-2,081.27	2,910.28	2,798.32	111.96	25.994		
15,600.00	11,914.21	15,631.46	11,979.19	81.74	80.23	91.21	-4,251.77	-2,080.40	2,910.37	2,796.41	113.95	25.540		
15,700.00	11,916.12	15,731.45	11,980.27	83.15	81.65	91.20	-4,351.76	-2,079.52	2,910.45	2,794.49	115.96	25.099		
15,800.00	11,918.04	15,831.45	11,981.35	84.56	83.07	91.18	-4,451.74	-2,078.64	2,910.53	2,792.55	117.98	24.671		
15,900.00	11,919.95	15,931.45	11,982.43	85.99	84.50	91.16	-4,551.73	-2,077.76	2,910.61	2,790.60	120.00	24.254		
16,000.00	11,921.87	16,031.44	11,983.51	87.42	85.94	91.15	-4,651.72	-2,076.89	2,910.69	2,788.65	122.04	23.849		
16,100.00	11,923.78	16,131.44	11,984.59	88.86	87.39	91.13	-4,751.70	-2,076.01	2,910.77	2,786.68	124.09	23.456		
16,200.00	11,925.70	16,231.44	11,985.67	90.30	88.85	91.11	-4,851.69	-2,075.13	2,910.85	2,784.70	126.15	23.074		
16,300.00	11,927.61	16,331.43	11,986.76	91.76	90.31	91.10	-4,951.68	-2,074.25	2,910.94	2,782.71	128.22	22.702		
16,400.00	11,929.53	16,431.43	11,987.84	93.22	91.78	91.08	-5,051.66	-2,073.37	2,911.02	2,780.72	130.30	22.340		
16,500.00	11,931.44	16,531.43	11,988.92	94.68	93.25	91.06	-5,151.65	-2,072.50	2,911.10	2,778.71	132.39	21.989		
16,600.00	11,933.35	16,631.42	11,990.00	96.16	94.73	91.05	-5,251.64	-2,071.62	2,911.18	2,776.70	134.49	21.647		
16,700.00	11,935.27	16,731.42	11,991.08	97.63	96.22	91.03	-5,351.62	-2,070.74	2,911.27	2,774.68	136.59	21.314		
16,800.00	11,937.18	16,831.42	11,992.16	99.12	97.71	91.01	-5,451.61	-2,069.86	2,911.35	2,772.65	138.70	20.990		
16,900.00	11,939.10	16,931.41	11,993.24	100.61	99.21	91.00	-5,551.60	-2,068.99	2,911.44	2,770.62	140.82	20.675		
17,000.00	11,941.01	17,031.41	11,994.32	102.10	100.71	90.98	-5,651.58	-2,068.11	2,911.52	2,768.58	142.94	20.368		
17,100.00	11,942.93	17,131.41	11,995.41	103.60	102.22	90.96	-5,751.57	-2,067.23	2,911.60	2,766.53	145.08	20.070		
17,200.00	11,944.84	17,231.40	11,996.49	105.10	103.73	90.95	-5,851.56	-2,066.35	2,911.69	2,764.47	147.21	19.779		
17,300.00	11,946.76	17,331.40	11,997.57	106.61	105.24	90.93	-5,951.54	-2,065.48	2,911.77	2,762.42	149.36	19.495		
17,400.00	11,948.67	17,431.39	11,998.65	108.12	106.76	90.92	-6,051.53	-2,064.60	2,911.86	2,760.35	151.51	19.219		
17,500.00	11,950.59	17,531.39	11,999.73	109.64	108.28	90.90	-6,151.52	-2,063.72	2,911.94	2,758.28	153.66	18.950		
17,600.00	11,952.50	17,631.39	12,000.81	111.16	109.81	90.88	-6,251.50	-2,062.84	2,912.03	2,756.21	155.82	18.688		
17,700.00	11,954.42	17,731.38	12,001.89	112.68	111.34	90.87	-6,351.49	-2,061.96	2,912.11	2,754.13	157.99	18.433		
17,800.00	11,956.33	17,831.38	12,002.97	114.21	112.87	90.85	-6,451.48	-2,061.09	2,912.20	2,752.04	160.16	18.184		
17,900.00	11,958.25	17,931.38	12,004.06	115.74	114.41	90.83	-6,551.47	-2,060.21	2,912.29	2,749.96	162.33	17.940		
18,000.00	11,960.16	18,031.37	12,005.14	117.28	115.95	90.82	-6,651.45	-2,059.33	2,912.37	2,747.86	164.51	17.703		
18,100.00	11,962.07	18,131.37	12,006.22	118.81	117.49	90.80	-6,751.44	-2,058.45	2,912.46	2,745.77	166.69	17.472		
18,200.00	11,963.99	18,231.37	12,007.30	120.35	119.04	90.78	-6,851.43	-2,057.58	2,912.55	2,743.67	168.88	17.246		
18,300.00	11,965.90	18,331.36	12,008.38	121.90	120.59	90.77	-6,951.41	-2,056.70	2,912.63	2,741.56	171.07	17.026		
18,400.00	11,967.82	18,431.36	12,009.46	123.44	122.14	90.75	-7,051.40	-2,055.82	2,912.72	2,739.45	173.27	16.811		
18,500.00	11,969.73	18,531.36	12,010.54	124.99	123.70	90.74	-7,151.39	-2,054.94	2,912.81	2,737.34	175.47	16.600		
18,600.00	11,971.65	18,631.35	12,011.62	126.54	125.25	90.72	-7,251.37	-2,054.06	2,912.90	2,735.23	177.67	16.395		
18,700.00	11,973.56	18,731.35	12,012.71	128.10	126.81	90.70	-7,351.36	-2,053.19	2,912.98	2,733.11	179.87	16.195		
18,800.00	11,975.48	18,831.35	12,013.79	129.65	128.37	90.69	-7,451.35	-2,052.31	2,913.07	2,730.99	182.08	15.999		
18,900.00	11,977.39	18,931.34	12,014.87	131.21	129.94	90.67	-7,551.33	-2,051.43	2,913.16	2,728.87	184.30	15.807		
19,000.00	11,979.31	19,031.34	12,015.95	132.77	131.50	90.65	-7,651.32	-2,050.55	2,913.25	2,726.74	186.51	15.620		
19,100.00	11,981.22	19,131.34	12,017.03	134.34	133.07	90.64	-7,751.31	-2,049.68	2,913.34	2,724.61	188.73	15.437		
19,200.00	11,983.14	19,231.33	12,018.11	135.90	134.64	90.62	-7,851.29	-2,048.80	2,913.43	2,722.48	190.95	15.258		
19,300.00	11,985.05	19,331.33	12,019.19	137.47	136.21	90.60	-7,951.28	-2,047.92	2,913.52	2,720.34	193.17	15.082		
19,400.00	11,986.97	19,431.32	12,020.27	139.04	137.79	90.59	-8,051.27	-2,047.04	2,913.61	2,718.21	195.40	14.911		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Judge Baylor Fed Com - Judge Baylor Fed Com 601H - OH - Plan #3		Offset Site Error:		0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
19,500.00	11,988.88	19,531.32	12,021.36	140.61	139.36	90.57	-8,151.25	-2,046.16	2,913.70	2,716.07	197.63	14.743					
19,600.00	11,990.79	19,631.32	12,022.44	142.18	140.94	90.55	-8,251.24	-2,045.29	2,913.79	2,713.93	199.86	14.579					
19,700.00	11,992.71	19,731.31	12,023.52	143.76	142.52	90.54	-8,351.23	-2,044.41	2,913.88	2,711.78	202.09	14.418					
19,800.00	11,994.62	19,831.31	12,024.60	145.34	144.10	90.52	-8,451.21	-2,043.53	2,913.97	2,709.64	204.33	14.261					
19,900.00	11,996.54	19,931.31	12,025.68	146.91	145.68	90.51	-8,551.20	-2,042.65	2,914.06	2,707.49	206.57	14.107					
20,000.00	11,998.45	20,031.30	12,026.76	148.49	147.27	90.49	-8,651.19	-2,041.78	2,914.15	2,705.34	208.81	13.956					
20,100.00	12,000.37	20,131.30	12,027.84	150.08	148.85	90.47	-8,751.17	-2,040.90	2,914.24	2,703.19	211.05	13.808					
20,200.00	12,002.28	20,231.30	12,028.92	151.66	150.44	90.46	-8,851.16	-2,040.02	2,914.33	2,701.04	213.30	13.663					
20,300.00	12,004.20	20,331.29	12,030.01	153.24	152.03	90.44	-8,951.15	-2,039.14	2,914.42	2,698.88	215.54	13.521					
20,400.00	12,006.11	20,431.29	12,031.09	154.83	153.62	90.42	-9,051.13	-2,038.27	2,914.52	2,696.73	217.79	13.382					
20,500.00	12,008.03	20,531.29	12,032.17	156.42	155.21	90.41	-9,151.12	-2,037.39	2,914.61	2,694.57	220.04	13.246					
20,600.00	12,009.94	20,631.28	12,033.25	158.01	156.80	90.39	-9,251.11	-2,036.51	2,914.70	2,692.41	222.29	13.112					
20,700.00	12,011.86	20,731.28	12,034.33	159.60	158.39	90.37	-9,351.10	-2,035.63	2,914.79	2,690.25	224.55	12.981					
20,800.00	12,013.77	20,831.28	12,035.41	161.19	159.99	90.36	-9,451.08	-2,034.75	2,914.89	2,688.09	226.80	12.852					
20,900.00	12,015.68	20,931.27	12,036.49	162.78	161.58	90.34	-9,551.07	-2,033.88	2,914.98	2,685.92	229.06	12.726					
21,000.00	12,017.60	21,031.27	12,037.57	164.37	163.18	90.32	-9,651.06	-2,033.00	2,915.07	2,683.76	231.32	12.602					
21,100.00	12,019.51	21,131.26	12,038.66	165.97	164.78	90.31	-9,751.04	-2,032.12	2,915.17	2,681.59	233.58	12.480					
21,200.00	12,021.43	21,231.26	12,039.74	167.56	166.38	90.29	-9,851.03	-2,031.24	2,915.26	2,679.42	235.84	12.361					
21,300.00	12,023.34	21,331.26	12,040.82	169.16	167.98	90.28	-9,951.02	-2,030.37	2,915.36	2,677.25	238.10	12.244					
21,400.00	12,025.26	21,431.25	12,041.90	170.76	169.58	90.26	-10,051.00	-2,029.49	2,915.45	2,675.08	240.37	12.129					
21,500.00	12,027.17	21,531.25	12,042.98	172.36	171.18	90.24	-10,150.99	-2,028.61	2,915.55	2,672.91	242.63	12.016					
21,600.00	12,029.09	21,631.25	12,044.06	173.96	172.78	90.23	-10,250.98	-2,027.73	2,915.64	2,670.74	244.90	11.905					
21,700.00	12,031.00	21,731.24	12,045.14	175.56	174.39	90.21	-10,350.96	-2,026.85	2,915.74	2,668.57	247.17	11.797					
21,800.00	12,032.92	21,831.24	12,046.22	177.16	175.99	90.19	-10,450.95	-2,025.98	2,915.83	2,666.39	249.44	11.690					
21,900.00	12,034.83	21,931.24	12,047.31	178.76	177.60	90.18	-10,550.94	-2,025.10	2,915.93	2,664.22	251.71	11.584					
22,000.00	12,036.75	22,031.23	12,048.39	180.37	179.20	90.16	-10,650.92	-2,024.22	2,916.02	2,662.04	253.98	11.481					
22,100.00	12,038.66	22,130.50	12,049.46	181.97	180.80	90.14	-10,750.18	-2,023.35	2,916.12	2,659.87	256.25	11.380					
22,200.00	12,040.58	22,130.50	12,049.46	183.58	180.80	90.14	-10,750.18	-2,023.35	2,917.95	2,660.97	256.99	11.355 SF					
22,300.00	12,042.49	22,130.50	12,049.46	185.19	180.80	90.14	-10,750.18	-2,023.35	2,923.21	2,665.79	257.42	11.356					
22,400.00	12,044.40	22,130.50	12,049.46	186.79	180.80	90.14	-10,750.18	-2,023.35	2,931.87	2,674.32	257.55	11.384					
22,500.00	12,046.32	22,130.50	12,049.46	188.40	180.80	90.14	-10,750.18	-2,023.35	2,943.91	2,686.52	257.39	11.438					
22,600.00	12,048.23	22,130.50	12,049.46	190.01	180.80	90.14	-10,750.18	-2,023.35	2,959.27	2,702.34	256.93	11.518					
22,700.00	12,050.15	22,130.50	12,049.46	191.62	180.80	90.14	-10,750.18	-2,023.35	2,977.92	2,721.72	256.20	11.623					
22,800.00	12,052.06	22,130.50	12,049.46	193.23	180.80	90.14	-10,750.18	-2,023.35	2,999.78	2,744.58	255.20	11.754					
22,900.00	12,053.98	22,130.50	12,049.46	194.84	180.80	90.14	-10,750.18	-2,023.35	3,024.80	2,770.84	253.96	11.910					
23,000.00	12,055.89	22,130.50	12,049.46	196.45	180.80	90.14	-10,750.18	-2,023.35	3,052.89	2,800.39	252.50	12.091					
23,100.00	12,057.81	22,130.50	12,049.46	198.06	180.80	90.14	-10,750.18	-2,023.35	3,083.96	2,833.15	250.81	12.296					
23,200.00	12,059.72	22,130.50	12,049.46	199.68	180.80	90.14	-10,750.18	-2,023.35	3,117.94	2,869.00	248.94	12.525					
23,300.00	12,061.64	22,130.50	12,049.46	201.29	180.80	90.14	-10,750.18	-2,023.35	3,154.72	2,907.82	246.90	12.777					
23,400.00	12,063.55	22,130.50	12,049.46	202.91	180.80	90.14	-10,750.18	-2,023.35	3,194.21	2,949.49	244.71	13.053					
23,411.94	12,063.78	22,130.50	12,049.46	203.10	180.80	90.14	-10,750.18	-2,023.35	3,199.10	2,954.66	244.44	13.087					

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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	3.20	3.20	0.00	0.00	-92.35	-80.19	-1,955.78	1,957.42					
100.00	100.00	103.20	103.20	0.13	0.15	-92.35	-80.19	-1,955.78	1,957.42	1,957.23	0.20	9,890.114		
200.00	200.00	203.20	203.20	0.48	0.51	-92.35	-80.19	-1,955.78	1,957.42	1,956.72	0.70	2,779.727		
300.00	300.00	303.20	303.20	0.84	0.87	-92.35	-80.19	-1,955.78	1,957.42	1,956.21	1.21	1,616.342		
400.00	400.00	403.20	403.20	1.20	1.23	-92.35	-80.19	-1,955.78	1,957.42	1,955.71	1.72	1,139.409		
500.00	500.00	503.20	503.20	1.56	1.59	-92.35	-80.19	-1,955.78	1,957.42	1,955.20	2.22	879.796		
600.00	600.00	603.20	603.20	1.92	1.95	-92.35	-80.19	-1,955.78	1,957.42	1,954.69	2.73	716.533		
700.00	700.00	703.20	703.20	2.28	2.30	-92.35	-80.19	-1,955.78	1,957.42	1,954.18	3.24	604.377		
800.00	800.00	803.20	803.20	2.63	2.66	-92.35	-80.19	-1,955.78	1,957.42	1,953.68	3.75	522.580		
900.00	900.00	903.20	903.20	2.99	3.02	-92.35	-80.19	-1,955.78	1,957.42	1,953.17	4.25	460.284		
1,000.00	1,000.00	1,003.20	1,003.20	3.35	3.38	-92.35	-80.19	-1,955.78	1,957.42	1,952.66	4.76	411.259		
1,100.00	1,100.00	1,103.20	1,103.20	3.71	3.74	-92.35	-80.19	-1,955.78	1,957.42	1,952.16	5.27	371.671		
1,200.00	1,200.00	1,203.20	1,203.20	4.07	4.10	-92.35	-80.19	-1,955.78	1,957.42	1,951.65	5.77	339.036		
1,300.00	1,300.00	1,303.20	1,303.20	4.43	4.45	-92.35	-80.19	-1,955.78	1,957.42	1,951.14	6.28	311.669		
1,400.00	1,400.00	1,403.20	1,403.20	4.79	4.81	-92.35	-80.19	-1,955.78	1,957.42	1,950.64	6.79	288.391		
1,500.00	1,500.00	1,503.20	1,503.20	5.14	5.17	-92.35	-80.19	-1,955.78	1,957.42	1,950.13	7.29	268.348		
1,600.00	1,600.00	1,603.20	1,603.20	5.50	5.53	-92.35	-80.19	-1,955.78	1,957.42	1,949.62	7.80	250.910		
1,700.00	1,700.00	1,703.20	1,703.20	5.86	5.89	-92.35	-80.19	-1,955.78	1,957.42	1,949.12	8.31	235.600		
1,800.00	1,800.00	1,803.20	1,803.20	6.22	6.25	-92.35	-80.19	-1,955.78	1,957.42	1,948.61	8.82	222.051		
1,900.00	1,900.00	1,903.20	1,903.20	6.58	6.61	-92.35	-80.19	-1,955.78	1,957.42	1,948.10	9.32	209.975		
2,000.00	2,000.00	2,003.20	2,003.20	6.94	6.96	-92.35	-80.19	-1,955.78	1,957.42	1,947.59	9.83	199.145		
2,100.00	2,100.00	2,103.20	2,103.20	7.29	7.32	-92.35	-80.19	-1,955.78	1,957.42	1,947.09	10.34	189.378		
2,200.00	2,200.00	2,203.20	2,203.20	7.65	7.68	-92.35	-80.19	-1,955.78	1,957.42	1,946.58	10.84	180.524		
2,300.00	2,300.00	2,303.20	2,303.20	8.01	8.04	-92.35	-80.19	-1,955.78	1,957.42	1,946.07	11.35	172.460		
2,400.00	2,400.00	2,403.20	2,403.20	8.37	8.40	-92.35	-80.19	-1,955.78	1,957.42	1,945.57	11.86	165.087		
2,500.00	2,500.00	2,503.20	2,503.20	8.73	8.76	-92.35	-80.19	-1,955.78	1,957.42	1,945.06	12.36	158.318		
2,600.00	2,600.00	2,603.20	2,603.20	9.09	9.11	-92.35	-80.19	-1,955.78	1,957.42	1,944.55	12.87	152.082		
2,689.00	2,689.00	2,692.20	2,692.20	9.41	9.43	-92.35	-80.19	-1,955.78	1,957.42	1,944.10	13.32	146.931 CC		
2,700.00	2,700.00	2,703.20	2,703.20	9.44	9.47	156.59	-80.19	-1,955.78	1,957.44	1,944.06	13.38	146.331 ES		
2,800.00	2,799.98	2,803.18	2,803.18	9.78	9.83	156.60	-80.19	-1,955.78	1,958.90	1,945.04	13.87	141.268		
2,900.00	2,899.89	2,903.09	2,903.09	10.12	10.19	156.63	-80.19	-1,955.78	1,962.77	1,948.41	14.36	136.708		
3,000.00	2,999.66	3,002.86	3,002.86	10.46	10.55	156.67	-80.19	-1,955.78	1,969.04	1,954.19	14.85	132.607		
3,100.00	3,099.21	3,102.41	3,102.41	10.80	10.90	156.73	-80.19	-1,955.78	1,977.72	1,962.37	15.34	128.923		
3,200.00	3,198.48	3,201.68	3,201.68	11.15	11.26	156.80	-80.19	-1,955.78	1,988.79	1,972.96	15.83	125.618		
3,300.00	3,297.40	3,300.60	3,300.60	11.50	11.61	156.88	-80.19	-1,955.78	2,002.27	1,985.94	16.32	122.661		
3,377.22	3,373.50	3,376.70	3,376.70	11.78	11.89	156.96	-80.19	-1,955.78	2,014.32	1,997.61	16.70	120.593		
3,400.00	3,395.91	3,399.11	3,399.11	11.86	11.97	157.00	-80.19	-1,955.78	2,018.08	2,001.27	16.82	120.013		
3,500.00	3,494.29	3,497.49	3,497.49	12.23	12.32	157.20	-80.19	-1,955.78	2,034.63	2,017.32	17.31	117.559		
3,600.00	3,592.68	3,595.88	3,595.88	12.61	12.67	157.39	-80.19	-1,955.78	2,051.20	2,033.40	17.80	115.230		
3,700.00	3,691.06	3,694.26	3,694.26	12.99	13.03	157.58	-80.19	-1,955.78	2,067.80	2,049.50	18.30	113.017		
3,800.00	3,789.44	3,792.64	3,792.64	13.38	13.38	157.77	-80.19	-1,955.78	2,084.41	2,065.62	18.79	110.913		
3,900.00	3,887.82	3,891.02	3,891.02	13.77	13.73	157.95	-80.19	-1,955.78	2,101.05	2,081.76	19.29	108.910		
4,000.00	3,986.20	3,989.40	3,989.40	14.17	14.08	158.14	-80.19	-1,955.78	2,117.71	2,097.92	19.79	107.002		
4,100.00	4,084.58	4,087.78	4,087.78	14.57	14.44	158.31	-80.19	-1,955.78	2,134.39	2,114.09	20.29	105.184		
4,200.00	4,182.96	4,186.16	4,186.16	14.97	14.79	158.49	-80.19	-1,955.78	2,151.08	2,130.29	20.79	103.448		
4,300.00	4,281.34	4,284.54	4,284.54	15.38	15.14	158.66	-80.19	-1,955.78	2,167.80	2,146.50	21.30	101.791		
4,400.00	4,379.73	4,382.93	4,382.93	15.79	15.49	158.83	-80.19	-1,955.78	2,184.54	2,162.74	21.80	100.206		
4,500.00	4,478.11	4,481.31	4,481.31	16.20	15.85	159.00	-80.19	-1,955.78	2,201.29	2,178.99	22.30	98.691		
4,600.00	4,576.49	4,579.69	4,579.69	16.61	16.20	159.17	-80.19	-1,955.78	2,218.07	2,195.26	22.81	97.240		
4,700.00	4,674.87	4,713.30	4,713.28	17.03	16.66	159.35	-81.62	-1,954.90	2,234.24	2,210.85	23.40	95.492		
4,800.00	4,773.25	4,857.16	4,856.96	17.45	17.13	159.43	-87.57	-1,951.27	2,248.50	2,224.51	23.99	93.732		
4,900.00	4,871.63	5,001.84	5,001.10	17.87	17.60	159.40	-98.21	-1,944.77	2,260.77	2,236.19	24.58	91.982		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Judge Baylor Fed Com - Judge Baylor Fed Com 701H - OH - Plan #3		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
5,000.00	4,970.01	5,100.69	5,099.41	18.30	17.93	159.33	-107.03	-1,939.38	2,272.05	2,246.98	25.07	90.629				
5,100.00	5,068.39	5,200.02	5,198.19	18.72	18.26	159.27	-115.90	-1,933.96	2,283.34	2,257.78	25.57	89.315				
5,200.00	5,166.78	5,299.35	5,296.97	19.15	18.59	159.20	-124.77	-1,928.54	2,294.63	2,268.57	26.06	88.044				
5,300.00	5,265.16	5,398.68	5,395.76	19.58	18.93	159.14	-133.63	-1,923.12	2,305.93	2,279.37	26.56	86.813				
5,400.00	5,363.54	5,498.01	5,494.54	20.01	19.27	159.08	-142.50	-1,917.70	2,317.23	2,290.16	27.06	85.621				
5,500.00	5,461.92	5,597.33	5,593.33	20.44	19.61	159.02	-151.36	-1,912.28	2,328.53	2,300.96	27.57	84.466				
5,600.00	5,560.30	5,696.66	5,692.11	20.87	19.95	158.96	-160.23	-1,906.87	2,339.83	2,311.76	28.07	83.348				
5,700.00	5,658.68	5,795.99	5,790.89	21.31	20.29	158.90	-169.10	-1,901.45	2,351.14	2,322.56	28.58	82.264				
5,800.00	5,757.06	5,895.32	5,889.68	21.74	20.64	158.84	-177.96	-1,896.03	2,362.45	2,333.36	29.09	81.213				
5,900.00	5,855.44	5,994.65	5,988.46	22.18	20.99	158.78	-186.83	-1,890.61	2,373.76	2,344.16	29.60	80.194				
6,000.00	5,953.83	6,093.98	6,087.24	22.62	21.34	158.72	-195.70	-1,885.19	2,385.07	2,354.96	30.11	79.205				
6,100.00	6,052.21	6,193.30	6,186.03	23.06	21.69	158.66	-204.56	-1,879.77	2,396.39	2,365.76	30.63	78.246				
6,200.00	6,150.59	6,292.63	6,284.81	23.50	22.04	158.60	-213.43	-1,874.36	2,407.70	2,376.56	31.14	77.315				
6,300.00	6,248.97	6,391.96	6,383.59	23.94	22.39	158.55	-222.29	-1,868.94	2,419.02	2,387.37	31.66	76.412				
6,400.00	6,347.35	6,491.29	6,482.38	24.38	22.75	158.49	-231.16	-1,863.52	2,430.35	2,398.17	32.18	75.534				
6,500.00	6,445.73	6,590.62	6,581.16	24.82	23.11	158.43	-240.03	-1,858.10	2,441.67	2,408.98	32.69	74.681				
6,600.00	6,544.11	6,689.95	6,679.94	25.26	23.46	158.38	-248.89	-1,852.68	2,453.00	2,419.79	33.21	73.853				
6,700.00	6,642.49	6,789.28	6,778.73	25.71	23.82	158.32	-257.76	-1,847.26	2,464.33	2,430.59	33.74	73.048				
6,800.00	6,740.88	6,888.60	6,877.51	26.15	24.18	158.27	-266.63	-1,841.85	2,475.66	2,441.40	34.26	72.264				
6,900.00	6,839.26	6,987.93	6,976.29	26.59	24.54	158.22	-275.49	-1,836.43	2,487.00	2,452.21	34.78	71.503				
7,000.00	6,937.64	7,087.26	7,075.08	27.04	24.91	158.16	-284.36	-1,831.01	2,498.33	2,463.03	35.31	70.762				
7,100.00	7,036.02	7,186.59	7,173.86	27.49	25.27	158.11	-293.23	-1,825.59	2,509.67	2,473.84	35.83	70.041				
7,200.00	7,134.40	7,285.92	7,272.64	27.93	25.63	158.06	-302.09	-1,820.17	2,521.01	2,484.65	36.36	69.339				
7,300.00	7,232.78	7,384.23	7,370.41	28.38	25.99	158.01	-310.87	-1,814.81	2,532.35	2,495.47	36.88	68.661				
7,400.00	7,331.16	7,459.11	7,444.95	28.83	26.27	157.98	-316.93	-1,811.10	2,544.20	2,506.86	37.34	68.133				
7,416.60	7,347.50	7,471.40	7,457.20	28.90	26.31	157.98	-317.80	-1,810.57	2,546.26	2,508.85	37.42	68.050				
7,500.00	7,429.70	7,533.14	7,518.77	29.27	26.53	158.04	-321.69	-1,808.19	2,556.19	2,518.40	37.79	67.636				
7,600.00	7,528.64	7,600.00	7,585.53	29.69	26.77	158.10	-324.95	-1,806.20	2,566.80	2,528.59	38.21	67.168				
7,700.00	7,627.93	7,681.28	7,666.74	30.09	27.06	158.18	-327.56	-1,804.61	2,575.96	2,537.29	38.67	66.616				
7,800.00	7,727.50	7,755.35	7,740.81	30.48	27.32	158.25	-328.65	-1,803.94	2,583.69	2,544.60	39.09	66.091				
7,900.00	7,827.27	7,845.02	7,830.47	30.84	27.63	158.33	-328.75	-1,803.88	2,589.81	2,550.25	39.56	65.467				
8,000.00	7,927.19	7,944.93	7,930.39	31.19	27.97	158.39	-328.75	-1,803.88	2,593.58	2,553.52	40.05	64.754				
8,104.82	8,032.00	8,049.75	8,035.20	31.53	28.34	-90.53	-328.75	-1,803.88	2,594.91	2,554.35	40.56	63.973				
8,200.00	8,127.18	8,144.92	8,130.38	31.83	28.67	-90.53	-328.75	-1,803.88	2,594.91	2,553.89	41.02	63.258				
8,300.00	8,227.18	8,244.92	8,230.38	32.14	29.02	-90.53	-328.75	-1,803.88	2,594.91	2,553.41	41.50	62.523				
8,400.00	8,327.18	8,344.92	8,330.38	32.45	29.37	-90.53	-328.75	-1,803.88	2,594.91	2,552.93	41.99	61.805				
8,500.00	8,427.18	8,444.92	8,430.38	32.77	29.72	-90.53	-328.75	-1,803.88	2,594.91	2,552.44	42.47	61.102				
8,600.00	8,527.18	8,544.92	8,530.38	33.09	30.06	-90.53	-328.75	-1,803.88	2,594.91	2,551.96	42.95	60.413				
8,700.00	8,627.18	8,644.92	8,630.38	33.40	30.41	-90.53	-328.75	-1,803.88	2,594.91	2,551.48	43.44	59.740				
8,800.00	8,727.18	8,744.92	8,730.38	33.72	30.76	-90.53	-328.75	-1,803.88	2,594.91	2,550.99	43.92	59.081				
8,900.00	8,827.18	8,844.92	8,830.38	34.04	31.11	-90.53	-328.75	-1,803.88	2,594.91	2,550.51	44.41	58.435				
9,000.00	8,927.18	8,944.92	8,930.38	34.36	31.46	-90.53	-328.75	-1,803.88	2,594.91	2,550.02	44.89	57.803				
9,100.00	9,027.18	9,044.92	9,030.38	34.68	31.81	-90.53	-328.75	-1,803.88	2,594.91	2,549.53	45.38	57.183				
9,200.00	9,127.18	9,144.92	9,130.38	35.00	32.16	-90.53	-328.75	-1,803.88	2,594.91	2,549.05	45.87	56.577				
9,300.00	9,227.18	9,244.92	9,230.38	35.32	32.51	-90.53	-328.75	-1,803.88	2,594.91	2,548.56	46.35	55.982				
9,400.00	9,327.18	9,344.92	9,330.38	35.64	32.86	-90.53	-328.75	-1,803.88	2,594.91	2,548.07	46.84	55.400				
9,500.00	9,427.18	9,444.92	9,430.38	35.97	33.21	-90.53	-328.75	-1,803.88	2,594.91	2,547.58	47.33	54.828				
9,600.00	9,527.18	9,544.92	9,530.38	36.29	33.57	-90.53	-328.75	-1,803.88	2,594.91	2,547.10	47.82	54.269				
9,700.00	9,627.18	9,644.92	9,630.38	36.61	33.92	-90.53	-328.75	-1,803.88	2,594.91	2,546.61	48.30	53.720				
9,800.00	9,727.18	9,744.92	9,730.38	36.94	34.27	-90.53	-328.75	-1,803.88	2,594.91	2,546.12	48.79	53.181				
9,900.00	9,827.18	9,844.92	9,830.38	37.26	34.62	-90.53	-328.75	-1,803.88	2,594.91	2,545.63	49.28	52.653				
10,000.00	9,927.18	9,944.92	9,930.38	37.59	34.97	-90.53	-328.75	-1,803.88	2,594.91	2,545.14	49.77	52.135				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
10,100.00	10,027.18	10,044.92	10,030.38	37.92	35.32	-90.53	-328.75	-1,803.88	2,594.91	2,544.65	50.26	51.626		
10,200.00	10,127.18	10,144.92	10,130.38	38.24	35.67	-90.53	-328.75	-1,803.88	2,594.91	2,544.16	50.75	51.128		
10,300.00	10,227.18	10,244.92	10,230.38	38.57	36.03	-90.53	-328.75	-1,803.88	2,594.91	2,543.67	51.24	50.638		
10,400.00	10,327.18	10,344.92	10,330.38	38.90	36.38	-90.53	-328.75	-1,803.88	2,594.91	2,543.18	51.74	50.157		
10,500.00	10,427.18	10,444.92	10,430.38	39.23	36.73	-90.53	-328.75	-1,803.88	2,594.91	2,542.69	52.23	49.685		
10,600.00	10,527.18	10,544.92	10,530.38	39.56	37.08	-90.53	-328.75	-1,803.88	2,594.91	2,542.19	52.72	49.222		
10,700.00	10,627.18	10,644.92	10,630.38	39.89	37.43	-90.53	-328.75	-1,803.88	2,594.91	2,541.70	53.21	48.767		
10,800.00	10,727.18	10,744.92	10,730.38	40.22	37.79	-90.53	-328.75	-1,803.88	2,594.91	2,541.21	53.70	48.320		
10,900.00	10,827.18	10,844.92	10,830.38	40.55	38.14	-90.53	-328.75	-1,803.88	2,594.91	2,540.72	54.20	47.881		
11,000.00	10,927.18	10,944.92	10,930.38	40.88	38.49	-90.53	-328.75	-1,803.88	2,594.91	2,540.22	54.69	47.449		
11,100.00	11,027.18	11,044.92	11,030.38	41.21	38.84	-90.53	-328.75	-1,803.88	2,594.91	2,539.73	55.18	47.025		
11,200.00	11,127.18	11,144.92	11,130.38	41.55	39.20	-90.53	-328.75	-1,803.88	2,594.91	2,539.24	55.67	46.609		
11,300.00	11,227.18	11,244.92	11,230.38	41.88	39.55	-90.53	-328.75	-1,803.88	2,594.91	2,538.74	56.17	46.199		
11,349.82	11,277.00	11,294.75	11,280.20	42.04	39.73	-90.53	-328.75	-1,803.88	2,594.91	2,538.50	56.41	45.998		
11,400.00	11,327.11	11,344.86	11,330.31	42.21	39.90	90.07	-328.75	-1,803.88	2,594.91	2,538.25	56.66	45.797		
11,450.00	11,376.67	11,394.41	11,379.87	42.38	40.08	90.21	-328.75	-1,803.88	2,594.93	2,538.03	56.91	45.601		
11,500.00	11,425.46	11,443.21	11,428.66	42.55	40.25	90.44	-328.75	-1,803.88	2,595.00	2,537.84	57.15	45.406		
11,550.00	11,473.13	11,490.87	11,476.33	42.73	40.42	90.74	-328.75	-1,803.88	2,595.16	2,537.76	57.39	45.216		
11,600.00	11,519.30	11,537.05	11,522.50	42.91	40.58	91.10	-328.75	-1,803.88	2,595.49	2,537.86	57.63	45.033		
11,650.00	11,563.63	11,581.38	11,566.83	43.09	40.74	91.49	-328.75	-1,803.88	2,596.08	2,538.21	57.87	44.859		
11,700.00	11,605.78	11,623.52	11,608.98	43.27	40.89	91.90	-328.75	-1,803.88	2,597.03	2,538.93	58.10	44.697		
11,750.00	11,645.43	11,663.17	11,648.63	43.45	41.03	92.29	-328.75	-1,803.88	2,598.44	2,540.11	58.33	44.548		
11,800.00	11,682.27	11,708.76	11,694.20	43.64	41.19	92.76	-329.55	-1,803.87	2,600.38	2,541.81	58.57	44.396		
11,850.00	11,716.02	11,763.48	11,748.62	43.82	41.38	93.33	-335.03	-1,803.83	2,602.76	2,543.91	58.85	44.228		
11,900.00	11,746.44	11,823.97	11,807.86	44.01	41.59	93.92	-347.10	-1,803.72	2,605.51	2,546.37	59.15	44.052		
11,950.00	11,773.28	11,891.90	11,872.46	44.21	41.84	94.57	-368.01	-1,803.54	2,608.59	2,549.12	59.47	43.861		
12,000.00	11,796.35	11,969.44	11,942.56	44.41	42.13	95.27	-401.02	-1,803.25	2,611.89	2,552.06	59.83	43.657		
12,050.00	11,815.46	12,059.26	12,017.31	44.63	42.47	96.03	-450.64	-1,802.82	2,615.24	2,555.01	60.22	43.426		
12,100.00	11,830.48	12,140.47	12,077.25	44.85	42.80	96.59	-505.32	-1,802.35	2,618.41	2,557.81	60.60	43.209		
12,150.00	11,841.28	12,286.28	12,164.02	45.08	43.41	97.60	-621.94	-1,801.33	2,621.12	2,559.92	61.20	42.830		
12,200.00	11,847.79	12,424.79	12,216.45	45.31	44.04	98.18	-749.78	-1,800.22	2,623.01	2,561.17	61.84	42.419		
12,238.85	11,849.85	12,540.33	12,235.68	45.50	44.59	98.40	-863.50	-1,799.24	2,623.70	2,561.28	62.41	42.036		
12,300.00	11,851.02	12,622.91	12,237.47	45.82	45.00	98.40	-946.05	-1,798.52	2,623.73	2,560.77	62.96	41.676		
12,400.00	11,852.94	12,722.91	12,238.55	46.37	45.54	98.38	-1,046.03	-1,797.65	2,623.71	2,559.97	63.75	41.159		
12,500.00	11,854.85	12,822.90	12,239.63	46.98	46.13	98.36	-1,146.02	-1,796.78	2,623.70	2,559.09	64.61	40.609		
12,600.00	11,856.77	12,922.90	12,240.72	47.64	46.77	98.35	-1,246.01	-1,795.92	2,623.69	2,558.14	65.54	40.031		
12,700.00	11,858.68	13,022.90	12,241.80	48.34	47.46	98.33	-1,345.99	-1,795.05	2,623.67	2,557.13	66.54	39.428		
12,800.00	11,860.60	13,122.89	12,242.88	49.09	48.20	98.31	-1,445.98	-1,794.18	2,623.66	2,556.05	67.61	38.806		
12,900.00	11,862.51	13,222.89	12,243.96	49.89	48.98	98.29	-1,545.97	-1,793.31	2,623.64	2,554.91	68.74	38.169		
13,000.00	11,864.43	13,322.89	12,245.04	50.72	49.80	98.27	-1,645.96	-1,792.44	2,623.63	2,553.71	69.93	37.520		
13,100.00	11,866.34	13,422.88	12,246.12	51.60	50.67	98.25	-1,745.94	-1,791.57	2,623.62	2,552.45	71.17	36.865		
13,200.00	11,868.26	13,522.88	12,247.20	52.51	51.57	98.24	-1,845.93	-1,790.71	2,623.61	2,551.14	72.46	36.206		
13,300.00	11,870.17	13,622.88	12,248.28	53.46	52.51	98.22	-1,945.92	-1,789.84	2,623.59	2,549.78	73.81	35.546		
13,400.00	11,872.09	13,722.87	12,249.37	54.45	53.48	98.20	-2,045.90	-1,788.97	2,623.58	2,548.38	75.20	34.888		
13,500.00	11,874.00	13,822.87	12,250.45	55.46	54.49	98.18	-2,145.89	-1,788.10	2,623.57	2,546.93	76.64	34.233		
13,600.00	11,875.91	13,922.86	12,251.53	56.51	55.53	98.16	-2,245.88	-1,787.23	2,623.56	2,545.44	78.12	33.584		
13,700.00	11,877.83	14,022.86	12,252.61	57.58	56.59	98.14	-2,345.86	-1,786.36	2,623.55	2,543.91	79.64	32.943		
13,800.00	11,879.74	14,122.86	12,253.69	58.68	57.69	98.13	-2,445.85	-1,785.50	2,623.53	2,542.34	81.20	32.310		
13,900.00	11,881.66	14,222.85	12,254.77	59.81	58.81	98.11	-2,545.84	-1,784.63	2,623.52	2,540.73	82.79	31.688		
14,000.00	11,883.57	14,322.85	12,255.85	60.96	59.95	98.09	-2,645.82	-1,783.76	2,623.51	2,539.09	84.42	31.077		
14,100.00	11,885.49	14,422.85	12,256.94	62.13	61.12	98.07	-2,745.81	-1,782.89	2,623.50	2,537.42	86.08	30.477		
14,200.00	11,887.40	14,522.84	12,258.02	63.33	62.31	98.05	-2,845.80	-1,782.02	2,623.49	2,535.72	87.77	29.890		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:		0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
14,300.00	11,889.32	14,622.84	12,259.10	64.54	63.52	98.03	-2,945.78	-1,781.16	2,623.48	2,533.99	89.49	29.316			
14,400.00	11,891.23	14,722.84	12,260.18	65.77	64.75	98.02	-3,045.77	-1,780.29	2,623.47	2,532.24	91.23	28.755			
14,500.00	11,893.15	14,822.83	12,261.26	67.03	66.00	98.00	-3,145.76	-1,779.42	2,623.46	2,530.46	93.00	28.208			
14,600.00	11,895.06	14,922.83	12,262.34	68.30	67.27	97.98	-3,245.74	-1,778.55	2,623.46	2,528.66	94.80	27.674			
14,700.00	11,896.98	15,022.83	12,263.42	69.58	68.55	97.96	-3,345.73	-1,777.68	2,623.45	2,526.83	96.62	27.153			
14,800.00	11,898.89	15,122.82	12,264.51	70.88	69.85	97.94	-3,445.72	-1,776.81	2,623.44	2,524.98	98.45	26.646			
14,900.00	11,900.81	15,222.82	12,265.59	72.20	71.16	97.92	-3,545.71	-1,775.95	2,623.43	2,523.12	100.31	26.153			
15,000.00	11,902.72	15,322.82	12,266.67	73.52	72.49	97.91	-3,645.69	-1,775.08	2,623.42	2,521.23	102.19	25.672			
15,100.00	11,904.63	15,422.81	12,267.75	74.87	73.83	97.89	-3,745.68	-1,774.21	2,623.41	2,519.33	104.09	25.204			
15,200.00	11,906.55	15,522.81	12,268.83	76.22	75.18	97.87	-3,845.67	-1,773.34	2,623.41	2,517.41	106.00	24.750			
15,300.00	11,908.46	15,622.80	12,269.91	77.58	76.55	97.85	-3,945.65	-1,772.47	2,623.40	2,515.47	107.93	24.307			
15,400.00	11,910.38	15,722.80	12,270.99	78.96	77.92	97.83	-4,045.64	-1,771.60	2,623.39	2,513.52	109.87	23.877			
15,500.00	11,912.29	15,822.80	12,272.07	80.35	79.31	97.81	-4,145.63	-1,770.74	2,623.39	2,511.56	111.83	23.459			
15,600.00	11,914.21	15,922.79	12,273.16	81.74	80.70	97.80	-4,245.61	-1,769.87	2,623.38	2,509.58	113.80	23.052			
15,700.00	11,916.12	16,022.79	12,274.24	83.15	82.11	97.78	-4,345.60	-1,769.00	2,623.37	2,507.59	115.79	22.657			
15,800.00	11,918.04	16,122.79	12,275.32	84.56	83.52	97.76	-4,445.59	-1,768.13	2,623.37	2,505.58	117.79	22.272			
15,900.00	11,919.95	16,222.78	12,276.40	85.99	84.95	97.74	-4,545.57	-1,767.26	2,623.36	2,503.57	119.80	21.899			
16,000.00	11,921.87	16,322.78	12,277.48	87.42	86.38	97.72	-4,645.56	-1,766.39	2,623.36	2,501.54	121.82	21.535			
16,100.00	11,923.78	16,422.78	12,278.56	88.86	87.82	97.70	-4,745.55	-1,765.53	2,623.35	2,499.50	123.85	21.182			
16,200.00	11,925.70	16,522.77	12,279.64	90.30	89.26	97.68	-4,845.53	-1,764.66	2,623.35	2,497.46	125.89	20.838			
16,300.00	11,927.61	16,622.77	12,280.73	91.76	90.72	97.67	-4,945.52	-1,763.79	2,623.34	2,495.40	127.94	20.504			
16,400.00	11,929.53	16,722.77	12,281.81	93.22	92.18	97.65	-5,045.51	-1,762.92	2,623.34	2,493.34	130.00	20.179			
16,500.00	11,931.44	16,822.76	12,282.89	94.68	93.64	97.63	-5,145.50	-1,762.05	2,623.34	2,491.26	132.07	19.863			
16,600.00	11,933.35	16,922.76	12,283.97	96.16	95.11	97.61	-5,245.48	-1,761.19	2,623.33	2,489.18	134.15	19.555			
16,700.00	11,935.27	17,022.76	12,285.05	97.63	96.59	97.59	-5,345.47	-1,760.32	2,623.33	2,487.09	136.24	19.256			
16,800.00	11,937.18	17,122.75	12,286.13	99.12	98.08	97.57	-5,445.46	-1,759.45	2,623.33	2,484.99	138.33	18.964			
16,900.00	11,939.10	17,222.75	12,287.21	100.61	99.57	97.56	-5,545.44	-1,758.58	2,623.32	2,482.89	140.43	18.680			
17,000.00	11,941.01	17,322.74	12,288.30	102.10	101.06	97.54	-5,645.43	-1,757.71	2,623.32	2,480.78	142.54	18.404			
17,100.00	11,942.93	17,422.74	12,289.38	103.60	102.56	97.52	-5,745.42	-1,756.84	2,623.32	2,478.66	144.66	18.135			
17,200.00	11,944.84	17,522.74	12,290.46	105.10	104.06	97.50	-5,845.40	-1,755.98	2,623.32	2,476.54	146.78	17.873			
17,300.00	11,946.76	17,622.73	12,291.54	106.61	105.57	97.48	-5,945.39	-1,755.11	2,623.32	2,474.41	148.90	17.618			
17,400.00	11,948.67	17,722.73	12,292.62	108.12	107.08	97.46	-6,045.38	-1,754.24	2,623.31	2,472.28	151.04	17.369			
17,500.00	11,950.59	17,822.73	12,293.70	109.64	108.60	97.45	-6,145.36	-1,753.37	2,623.31	2,470.14	153.18	17.126			
17,600.00	11,952.50	17,922.72	12,294.78	111.16	110.12	97.43	-6,245.35	-1,752.50	2,623.31	2,467.99	155.32	16.890			
17,700.00	11,954.42	18,022.72	12,295.86	112.68	111.65	97.41	-6,345.34	-1,751.63	2,623.31	2,465.84	157.47	16.659			
17,800.00	11,956.33	18,122.72	12,296.95	114.21	113.17	97.39	-6,445.32	-1,750.77	2,623.31	2,463.69	159.62	16.434			
17,876.09	11,957.79	18,198.80	12,297.77	115.38	114.34	97.38	-6,521.40	-1,750.11	2,623.31	2,462.04	161.27	16.267			
17,900.00	11,958.25	18,222.71	12,298.03	115.74	114.70	97.37	-6,545.31	-1,749.90	2,623.31	2,461.53	161.78	16.215			
18,000.00	11,960.16	18,322.71	12,299.11	117.28	116.24	97.35	-6,645.30	-1,749.03	2,623.31	2,459.36	163.95	16.001			
18,100.00	11,962.07	18,422.71	12,300.19	118.81	117.78	97.34	-6,745.28	-1,748.16	2,623.31	2,457.20	166.12	15.792			
18,200.00	11,963.99	18,522.70	12,301.27	120.35	119.32	97.32	-6,845.27	-1,747.29	2,623.31	2,455.02	168.29	15.588			
18,300.00	11,965.90	18,622.70	12,302.35	121.90	120.86	97.30	-6,945.26	-1,746.43	2,623.31	2,452.85	170.47	15.389			
18,400.00	11,967.82	18,722.70	12,303.43	123.44	122.41	97.28	-7,045.25	-1,745.56	2,623.31	2,450.67	172.65	15.195			
18,500.00	11,969.73	18,822.69	12,304.52	124.99	123.96	97.26	-7,145.23	-1,744.69	2,623.32	2,448.48	174.83	15.005			
18,600.00	11,971.65	18,922.69	12,305.60	126.54	125.51	97.24	-7,245.22	-1,743.82	2,623.32	2,446.30	177.02	14.819			
18,700.00	11,973.56	19,022.68	12,306.68	128.10	127.06	97.23	-7,345.21	-1,742.95	2,623.32	2,444.11	179.21	14.638			
18,800.00	11,975.48	19,122.68	12,307.76	129.65	128.62	97.21	-7,445.19	-1,742.08	2,623.32	2,441.91	181.41	14.461			
18,900.00	11,977.39	19,222.68	12,308.84	131.21	130.18	97.19	-7,545.18	-1,741.22	2,623.33	2,439.72	183.61	14.288			
19,000.00	11,979.31	19,322.67	12,309.92	132.77	131.74	97.17	-7,645.17	-1,740.35	2,623.33	2,437.52	185.81	14.118			
19,100.00	11,981.22	19,422.67	12,311.00	134.34	133.31	97.15	-7,745.15	-1,739.48	2,623.33	2,435.32	188.01	13.953			
19,200.00	11,983.14	19,522.67	12,312.09	135.90	134.87	97.13	-7,845.14	-1,738.61	2,623.33	2,433.11	190.22	13.791			
19,300.00	11,985.05	19,622.66	12,313.17	137.47	136.44	97.12	-7,945.13	-1,737.74	2,623.34	2,430.90	192.43	13.632			

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
19,400.00	11,986.97	19,722.66	12,314.25	139.04	138.01	97.10	-8,045.11	-1,736.87	2,623.34	2,428.69	194.65	13.477		
19,500.00	11,988.88	19,822.66	12,315.33	140.61	139.58	97.08	-8,145.10	-1,736.01	2,623.35	2,426.48	196.87	13.326		
19,600.00	11,990.79	19,922.65	12,316.41	142.18	141.16	97.06	-8,245.09	-1,735.14	2,623.35	2,424.27	199.09	13.177		
19,700.00	11,992.71	20,022.65	12,317.49	143.76	142.73	97.04	-8,345.07	-1,734.27	2,623.36	2,422.05	201.31	13.032		
19,800.00	11,994.62	20,122.65	12,318.57	145.34	144.31	97.02	-8,445.06	-1,733.40	2,623.36	2,419.83	203.53	12.889		
19,900.00	11,996.54	20,222.64	12,319.65	146.91	145.89	97.01	-8,545.05	-1,732.53	2,623.37	2,417.61	205.76	12.750		
20,000.00	11,998.45	20,322.64	12,320.74	148.49	147.47	96.99	-8,645.04	-1,731.67	2,623.37	2,415.38	207.99	12.613		
20,100.00	12,000.37	20,422.64	12,321.82	150.08	149.05	96.97	-8,745.02	-1,730.80	2,623.38	2,413.16	210.22	12.479		
20,200.00	12,002.28	20,522.63	12,322.90	151.66	150.63	96.95	-8,845.01	-1,729.93	2,623.38	2,410.93	212.45	12.348		
20,300.00	12,004.20	20,622.63	12,323.98	153.24	152.22	96.93	-8,945.00	-1,729.06	2,623.39	2,408.70	214.69	12.219		
20,400.00	12,006.11	20,722.62	12,325.06	154.83	153.80	96.91	-9,044.98	-1,728.19	2,623.40	2,406.47	216.93	12.093		
20,500.00	12,008.03	20,822.62	12,326.14	156.42	155.39	96.90	-9,144.97	-1,727.32	2,623.40	2,404.24	219.17	11.970		
20,600.00	12,009.94	20,922.62	12,327.22	158.01	156.98	96.88	-9,244.96	-1,726.46	2,623.41	2,402.00	221.41	11.849		
20,700.00	12,011.86	21,022.61	12,328.31	159.60	158.57	96.86	-9,344.94	-1,725.59	2,623.42	2,399.76	223.65	11.730		
20,800.00	12,013.77	21,122.61	12,329.39	161.19	160.16	96.84	-9,444.93	-1,724.72	2,623.43	2,397.53	225.90	11.613		
20,900.00	12,015.68	21,222.61	12,330.47	162.78	161.76	96.82	-9,544.92	-1,723.85	2,623.43	2,395.29	228.15	11.499		
21,000.00	12,017.60	21,322.60	12,331.55	164.37	163.35	96.80	-9,644.90	-1,722.98	2,623.44	2,393.05	230.40	11.387		
21,100.00	12,019.51	21,422.60	12,332.63	165.97	164.94	96.79	-9,744.89	-1,722.11	2,623.45	2,390.80	232.65	11.277		
21,200.00	12,021.43	21,522.60	12,333.71	167.56	166.54	96.77	-9,844.88	-1,721.25	2,623.46	2,388.56	234.90	11.168		
21,300.00	12,023.34	21,622.59	12,334.79	169.16	168.14	96.75	-9,944.86	-1,720.38	2,623.47	2,386.32	237.15	11.062		
21,400.00	12,025.26	21,722.59	12,335.88	170.76	169.74	96.73	-10,044.85	-1,719.51	2,623.48	2,384.07	239.41	10.958		
21,500.00	12,027.17	21,822.59	12,336.96	172.36	171.34	96.71	-10,144.84	-1,718.64	2,623.49	2,381.82	241.67	10.856		
21,600.00	12,029.09	21,922.58	12,338.04	173.96	172.94	96.69	-10,244.82	-1,717.77	2,623.50	2,379.57	243.93	10.755		
21,700.00	12,031.00	22,022.58	12,339.12	175.56	174.54	96.68	-10,344.81	-1,716.91	2,623.51	2,377.32	246.19	10.657		
21,800.00	12,032.92	22,122.58	12,340.20	177.16	176.14	96.66	-10,444.80	-1,716.04	2,623.52	2,375.07	248.45	10.560		
21,900.00	12,034.83	22,222.57	12,341.28	178.76	177.74	96.64	-10,544.79	-1,715.17	2,623.53	2,372.82	250.71	10.464		
22,000.00	12,036.75	22,322.57	12,342.36	180.37	179.35	96.62	-10,644.77	-1,714.30	2,623.54	2,370.57	252.97	10.371		
22,100.00	12,038.66	22,422.56	12,343.44	181.97	180.95	96.60	-10,744.76	-1,713.43	2,623.55	2,368.31	255.24	10.279		
22,200.00	12,040.58	22,424.01	12,343.46	183.58	180.98	96.60	-10,746.20	-1,713.42	2,625.41	2,369.60	255.81	10.263 SF		
22,300.00	12,042.49	22,424.01	12,343.46	185.19	180.98	96.60	-10,746.20	-1,713.42	2,631.08	2,375.09	255.99	10.278		
22,400.00	12,044.40	22,424.01	12,343.46	186.79	180.98	96.60	-10,746.20	-1,713.42	2,640.52	2,384.73	255.79	10.323		
22,500.00	12,046.32	22,424.01	12,343.46	188.40	180.98	96.60	-10,746.20	-1,713.42	2,653.70	2,398.47	255.23	10.397		
22,600.00	12,048.23	22,424.01	12,343.46	190.01	180.98	96.60	-10,746.20	-1,713.42	2,670.56	2,416.24	254.32	10.501		
22,700.00	12,050.15	22,424.01	12,343.46	191.62	180.98	96.60	-10,746.20	-1,713.42	2,691.03	2,437.95	253.09	10.633		
22,800.00	12,052.06	22,424.01	12,343.46	193.23	180.98	96.60	-10,746.20	-1,713.42	2,715.04	2,463.49	251.55	10.793		
22,900.00	12,053.98	22,424.01	12,343.46	194.84	180.98	96.60	-10,746.20	-1,713.42	2,742.48	2,492.75	249.73	10.982		
23,000.00	12,055.89	22,424.01	12,343.46	196.45	180.98	96.60	-10,746.20	-1,713.42	2,773.26	2,525.61	247.65	11.198		
23,100.00	12,057.81	22,424.01	12,343.46	198.06	180.98	96.60	-10,746.20	-1,713.42	2,807.26	2,561.92	245.35	11.442		
23,200.00	12,059.72	22,424.01	12,343.46	199.68	180.98	96.60	-10,746.20	-1,713.42	2,844.38	2,601.53	242.85	11.713		
23,300.00	12,061.64	22,424.01	12,343.46	201.29	180.98	96.60	-10,746.20	-1,713.42	2,884.49	2,644.31	240.18	12.010		
23,400.00	12,063.55	22,424.01	12,343.46	202.91	180.98	96.60	-10,746.20	-1,713.42	2,927.46	2,690.09	237.37	12.333		
23,411.94	12,063.78	22,424.01	12,343.46	203.10	180.98	96.60	-10,746.20	-1,713.42	2,932.78	2,695.76	237.03	12.373		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													LHS Wildcat Fed Com - LHS Wildcat Fed Com 604H - OH - Plan #3		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	2,284.53							
100.00	100.00	65.00	65.00	0.13	0.09	91.02	-40.64	2,283.90	2,284.26	2,284.11	0.16	N/A				
200.00	200.00	165.00	165.00	0.48	0.37	91.02	-40.64	2,283.90	2,284.26	2,283.65	0.61	3,732.562				
300.00	300.00	265.00	265.00	0.84	0.73	91.02	-40.64	2,283.90	2,284.26	2,283.14	1.12	2,045.521				
400.00	400.00	365.00	365.00	1.20	1.09	91.02	-40.64	2,283.90	2,284.26	2,282.64	1.62	1,407.577				
500.00	500.00	465.00	465.00	1.56	1.45	91.02	-40.64	2,283.90	2,284.26	2,282.13	2.13	1,072.751				
600.00	600.00	565.00	565.00	1.92	1.81	91.02	-40.64	2,283.90	2,284.26	2,281.63	2.64	866.552				
700.00	700.00	665.00	665.00	2.28	2.17	91.02	-40.64	2,283.90	2,284.26	2,281.12	3.14	726.822				
800.00	800.00	765.00	765.00	2.63	2.53	91.02	-40.64	2,283.90	2,284.26	2,280.61	3.65	625.889				
900.00	900.00	865.00	865.00	2.99	2.88	91.02	-40.64	2,283.90	2,284.26	2,280.11	4.16	549.566				
1,000.00	1,000.00	965.00	965.00	3.35	3.24	91.02	-40.64	2,283.90	2,284.26	2,279.60	4.66	489.831				
1,100.00	1,100.00	1,065.00	1,065.00	3.71	3.60	91.02	-40.64	2,283.90	2,284.26	2,279.09	5.17	441.808				
1,200.00	1,200.00	1,165.00	1,165.00	4.07	3.96	91.02	-40.64	2,283.90	2,284.26	2,278.58	5.68	402.360				
1,300.00	1,300.00	1,265.00	1,265.00	4.43	4.32	91.02	-40.64	2,283.90	2,284.26	2,278.08	6.18	369.378				
1,400.00	1,400.00	1,365.00	1,365.00	4.79	4.68	91.02	-40.64	2,283.90	2,284.26	2,277.57	6.69	341.394				
1,500.00	1,500.00	1,465.00	1,465.00	5.14	5.03	91.02	-40.64	2,283.90	2,284.26	2,277.06	7.20	317.351				
1,600.00	1,600.00	1,565.00	1,565.00	5.50	5.39	91.02	-40.64	2,283.90	2,284.26	2,276.56	7.70	296.471				
1,700.00	1,700.00	1,665.00	1,665.00	5.86	5.75	91.02	-40.64	2,283.90	2,284.26	2,276.05	8.21	278.169				
1,800.00	1,800.00	1,765.00	1,765.00	6.22	6.11	91.02	-40.64	2,283.90	2,284.26	2,275.54	8.72	261.995				
1,900.00	1,900.00	1,865.00	1,865.00	6.58	6.47	91.02	-40.64	2,283.90	2,284.26	2,275.04	9.23	247.599				
2,000.00	2,000.00	1,965.00	1,965.00	6.94	6.83	91.02	-40.64	2,283.90	2,284.26	2,274.53	9.73	234.703				
2,100.00	2,100.00	2,065.00	2,065.00	7.29	7.19	91.02	-40.64	2,283.90	2,284.26	2,274.02	10.24	223.083				
2,200.00	2,200.00	2,165.00	2,165.00	7.65	7.54	91.02	-40.64	2,283.90	2,284.26	2,273.52	10.75	212.559				
2,300.00	2,300.00	2,265.00	2,265.00	8.01	7.90	91.02	-40.64	2,283.90	2,284.26	2,273.01	11.25	202.984				
2,400.00	2,400.00	2,365.00	2,365.00	8.37	8.26	91.02	-40.64	2,283.90	2,284.26	2,272.50	11.76	194.234				
2,500.00	2,500.00	2,465.00	2,465.00	8.73	8.62	91.02	-40.64	2,283.90	2,284.26	2,271.99	12.27	186.207				
2,600.00	2,600.00	2,565.00	2,565.00	9.09	8.98	91.02	-40.64	2,283.90	2,284.26	2,271.49	12.77	178.818				
2,689.00	2,689.00	2,654.00	2,654.00	9.41	9.30	91.02	-40.64	2,283.90	2,284.26	2,271.04	13.23	172.717				
2,700.00	2,700.00	2,665.00	2,665.00	9.44	9.34	-20.04	-40.64	2,283.90	2,284.25	2,270.97	13.28	172.004				
2,800.00	2,799.98	2,764.98	2,764.98	9.78	9.69	-20.06	-40.64	2,283.90	2,282.75	2,268.98	13.77	165.779				
2,900.00	2,899.89	2,864.89	2,864.89	10.12	10.05	-20.12	-40.64	2,283.90	2,278.79	2,264.53	14.26	159.797				
3,000.00	2,999.66	2,964.66	2,964.66	10.46	10.41	-20.21	-40.64	2,283.90	2,272.38	2,257.63	14.75	154.042				
3,100.00	3,099.21	3,064.21	3,064.21	10.80	10.77	-20.34	-40.64	2,283.90	2,263.52	2,248.28	15.24	148.495				
3,200.00	3,198.48	3,163.48	3,163.48	11.15	11.12	-20.51	-40.64	2,283.90	2,252.23	2,236.49	15.73	143.139				
3,300.00	3,297.40	3,262.40	3,262.40	11.50	11.48	-20.71	-40.64	2,283.90	2,238.51	2,222.29	16.23	137.959				
3,377.22	3,373.50	3,338.50	3,338.50	11.78	11.75	-20.90	-40.64	2,283.90	2,226.27	2,209.67	16.61	134.070				
3,400.00	3,395.91	3,360.91	3,360.91	11.86	11.83	-20.93	-40.64	2,283.90	2,222.45	2,205.74	16.72	132.942				
3,500.00	3,494.29	3,459.29	3,459.29	12.23	12.18	-21.10	-40.64	2,283.90	2,205.69	2,188.48	17.21	128.171				
3,600.00	3,592.68	3,557.68	3,557.68	12.61	12.54	-21.27	-40.64	2,283.90	2,188.95	2,171.24	17.70	123.652				
3,700.00	3,691.06	3,656.06	3,656.06	12.99	12.89	-21.44	-40.64	2,283.90	2,172.22	2,154.02	18.20	119.367				
3,800.00	3,789.44	3,754.44	3,754.44	13.38	13.24	-21.61	-40.64	2,283.90	2,155.51	2,136.82	18.70	115.299				
3,900.00	3,887.82	3,852.82	3,852.82	13.77	13.59	-21.79	-40.64	2,283.90	2,138.83	2,119.63	19.19	111.433				
4,000.00	3,986.20	3,951.20	3,951.20	14.17	13.95	-21.97	-40.64	2,283.90	2,122.16	2,102.47	19.69	107.755				
4,100.00	4,084.58	4,049.58	4,049.58	14.57	14.30	-22.15	-40.64	2,283.90	2,105.51	2,085.32	20.20	104.253				
4,200.00	4,182.96	4,147.96	4,147.96	14.97	14.65	-22.34	-40.64	2,283.90	2,088.89	2,068.19	20.70	100.915				
4,300.00	4,281.34	4,246.34	4,246.34	15.38	15.01	-22.52	-40.64	2,283.90	2,072.28	2,051.08	21.20	97.730				
4,400.00	4,379.73	4,344.73	4,344.73	15.79	15.36	-22.71	-40.64	2,283.90	2,055.70	2,033.99	21.71	94.689				
4,500.00	4,478.11	4,443.11	4,443.11	16.20	15.71	-22.91	-40.64	2,283.90	2,039.14	2,016.93	22.22	91.782				
4,600.00	4,576.49	4,541.49	4,541.49	16.61	16.06	-23.10	-40.64	2,283.90	2,022.61	1,999.88	22.73	89.001				
4,700.00	4,674.87	4,639.87	4,639.87	17.03	16.42	-23.31	-40.64	2,283.90	2,006.10	1,982.86	23.24	86.339				
4,800.00	4,773.25	4,738.25	4,738.25	17.45	16.77	-23.51	-40.64	2,283.90	1,989.61	1,965.86	23.75	83.788				
4,900.00	4,871.63	4,836.63	4,836.63	17.87	17.12	-23.72	-40.64	2,283.90	1,973.15	1,948.89	24.26	81.342				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,970.01	4,935.01	4,935.01	18.30	17.47	-23.93	-40.64	2,283.90	1,956.71	1,931.94	24.77	78.995		
5,100.00	5,068.39	5,033.39	5,033.39	18.72	17.83	-24.14	-40.64	2,283.90	1,940.30	1,915.02	25.28	76.741		
5,200.00	5,166.78	5,131.78	5,131.78	19.15	18.18	-24.36	-40.64	2,283.90	1,923.92	1,898.12	25.80	74.575		
5,300.00	5,265.16	5,230.16	5,230.16	19.58	18.53	-24.58	-40.64	2,283.90	1,907.56	1,881.25	26.31	72.492		
5,400.00	5,363.54	5,328.54	5,328.54	20.01	18.88	-24.80	-40.64	2,283.90	1,891.23	1,864.40	26.83	70.488		
5,500.00	5,461.92	5,426.92	5,426.92	20.44	19.24	-25.03	-40.64	2,283.90	1,874.93	1,847.59	27.35	68.558		
5,600.00	5,560.30	5,535.18	5,535.18	20.87	19.62	-25.29	-40.78	2,283.82	1,858.60	1,830.72	27.88	66.659		
5,700.00	5,658.68	5,631.69	5,631.63	21.31	20.07	-25.52	-43.93	2,281.89	1,840.82	1,812.37	28.45	64.715		
5,800.00	5,757.06	5,807.44	5,807.11	21.74	20.52	-25.64	-51.19	2,277.45	1,821.01	1,792.03	28.99	62.823		
5,900.00	5,855.44	5,942.10	5,941.11	22.18	20.96	-25.63	-62.45	2,270.58	1,799.20	1,769.69	29.51	60.961		
6,000.00	5,953.83	6,046.06	6,044.31	22.62	21.30	-25.55	-73.19	2,264.02	1,776.07	1,746.06	30.01	59.184		
6,100.00	6,052.21	6,143.31	6,140.84	23.06	21.62	-25.48	-83.31	2,257.84	1,752.90	1,722.40	30.50	57.470		
6,200.00	6,150.59	6,240.57	6,237.37	23.50	21.95	-25.41	-93.42	2,251.66	1,729.74	1,698.74	30.99	55.808		
6,300.00	6,248.97	6,337.83	6,333.90	23.94	22.28	-25.33	-103.53	2,245.48	1,706.58	1,675.09	31.49	54.194		
6,400.00	6,347.35	6,435.08	6,430.43	24.38	22.61	-25.25	-113.65	2,239.30	1,683.42	1,651.43	31.99	52.628		
6,500.00	6,445.73	6,532.34	6,526.96	24.82	22.94	-25.17	-123.76	2,233.13	1,660.26	1,627.78	32.49	51.108		
6,600.00	6,544.11	6,629.59	6,623.49	25.26	23.28	-25.09	-133.88	2,226.95	1,637.11	1,604.13	32.99	49.631		
6,700.00	6,642.49	6,726.85	6,720.02	25.71	23.61	-25.00	-143.99	2,220.77	1,613.96	1,580.48	33.49	48.197		
6,800.00	6,740.88	6,824.10	6,816.55	26.15	23.95	-24.92	-154.10	2,214.59	1,590.82	1,556.83	33.99	46.804		
6,900.00	6,839.26	6,921.36	6,913.08	26.59	24.29	-24.83	-164.22	2,208.42	1,567.68	1,533.18	34.49	45.449		
7,000.00	6,937.64	7,018.61	7,009.61	27.04	24.63	-24.73	-174.33	2,202.24	1,544.54	1,509.54	35.00	44.132		
7,100.00	7,036.02	7,115.87	7,106.15	27.49	24.98	-24.64	-184.44	2,196.06	1,521.41	1,485.90	35.50	42.851		
7,200.00	7,134.40	7,213.13	7,202.68	27.93	25.32	-24.54	-194.56	2,189.88	1,498.28	1,462.27	36.01	41.605		
7,300.00	7,232.78	7,310.38	7,299.21	28.38	25.67	-24.44	-204.67	2,183.71	1,475.15	1,438.63	36.52	40.393		
7,400.00	7,331.16	7,407.64	7,395.74	28.83	26.02	-24.33	-214.78	2,177.53	1,452.03	1,415.00	37.03	39.212		
7,416.60	7,347.50	7,423.78	7,411.77	28.90	26.08	-24.31	-216.46	2,176.50	1,448.19	1,411.08	37.11	39.019		
7,500.00	7,429.70	7,505.07	7,492.44	29.27	26.37	-24.09	-224.92	2,171.34	1,429.73	1,392.19	37.54	38.086		
7,600.00	7,528.64	7,602.96	7,589.60	29.69	26.72	-23.80	-235.10	2,165.12	1,409.73	1,371.69	38.05	37.053		
7,700.00	7,627.93	7,701.25	7,687.16	30.09	27.08	-23.47	-245.32	2,158.88	1,392.11	1,353.56	38.55	36.112		
7,800.00	7,727.50	7,799.87	7,785.04	30.48	27.44	-23.11	-255.57	2,152.61	1,376.88	1,337.83	39.05	35.258		
7,900.00	7,827.27	7,898.75	7,883.19	30.84	27.80	-22.72	-265.86	2,146.33	1,364.07	1,324.52	39.55	34.491		
8,000.00	7,927.19	7,984.85	7,968.72	31.19	28.11	-22.36	-274.30	2,141.17	1,354.09	1,314.05	40.04	33.817		
8,104.82	8,032.00	8,072.46	8,055.95	31.53	28.43	89.01	-281.24	2,136.93	1,347.50	1,306.96	40.55	33.234		
8,200.00	8,127.18	8,152.33	8,135.62	31.83	28.71	89.21	-286.08	2,133.98	1,343.89	1,302.89	40.99	32.783		
8,300.00	8,227.18	8,236.47	8,219.65	32.14	29.01	89.36	-289.64	2,131.80	1,341.25	1,299.79	41.46	32.350		
8,400.00	8,327.18	8,320.75	8,303.90	32.45	29.30	89.45	-291.63	2,130.59	1,339.79	1,297.86	41.92	31.958		
8,500.00	8,427.18	8,409.03	8,392.18	32.77	29.61	89.47	-292.07	2,130.32	1,339.46	1,297.07	42.39	31.599		
8,600.00	8,527.18	8,509.03	8,492.18	33.09	29.96	89.47	-292.07	2,130.32	1,339.46	1,296.58	42.87	31.242		
8,700.00	8,627.18	8,609.03	8,592.18	33.40	30.31	89.47	-292.07	2,130.32	1,339.46	1,296.10	43.36	30.893		
8,800.00	8,727.18	8,709.03	8,692.18	33.72	30.66	89.47	-292.07	2,130.32	1,339.46	1,295.61	43.84	30.551		
8,900.00	8,827.18	8,809.03	8,792.18	34.04	31.01	89.47	-292.07	2,130.32	1,339.46	1,295.13	44.33	30.216		
9,000.00	8,927.18	8,909.03	8,892.18	34.36	31.36	89.47	-292.07	2,130.32	1,339.46	1,294.64	44.82	29.888		
9,100.00	9,027.18	9,009.03	8,992.18	34.68	31.71	89.47	-292.07	2,130.32	1,339.46	1,294.16	45.30	29.567		
9,200.00	9,127.18	9,109.03	9,092.18	35.00	32.06	89.47	-292.07	2,130.32	1,339.46	1,293.67	45.79	29.253		
9,300.00	9,227.18	9,209.03	9,192.18	35.32	32.41	89.47	-292.07	2,130.32	1,339.46	1,293.18	46.28	28.945		
9,400.00	9,327.18	9,309.03	9,292.18	35.64	32.76	89.47	-292.07	2,130.32	1,339.46	1,292.69	46.76	28.643		
9,500.00	9,427.18	9,409.03	9,392.18	35.97	33.11	89.47	-292.07	2,130.32	1,339.46	1,292.21	47.25	28.347		
9,600.00	9,527.18	9,509.03	9,492.18	36.29	33.47	89.47	-292.07	2,130.32	1,339.46	1,291.72	47.74	28.056		
9,700.00	9,627.18	9,609.03	9,592.18	36.61	33.82	89.47	-292.07	2,130.32	1,339.46	1,291.23	48.23	27.772		
9,800.00	9,727.18	9,709.03	9,692.18	36.94	34.17	89.47	-292.07	2,130.32	1,339.46	1,290.74	48.72	27.493		
9,900.00	9,827.18	9,809.03	9,792.18	37.26	34.52	89.47	-292.07	2,130.32	1,339.46	1,290.25	49.21	27.219		
10,000.00	9,927.18	9,909.03	9,892.18	37.59	34.87	89.47	-292.07	2,130.32	1,339.46	1,289.76	49.70	26.951		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
10,100.00	10,027.18	10,009.03	9,992.18	37.92	35.22	89.47	-292.07	2,130.32	1,339.46	1,289.27	50.19	26.687		
10,200.00	10,127.18	10,109.03	10,092.18	38.24	35.58	89.47	-292.07	2,130.32	1,339.46	1,288.78	50.68	26.429		
10,300.00	10,227.18	10,209.03	10,192.18	38.57	35.93	89.47	-292.07	2,130.32	1,339.46	1,288.29	51.17	26.175		
10,400.00	10,327.18	10,309.03	10,292.18	38.90	36.28	89.47	-292.07	2,130.32	1,339.46	1,287.79	51.66	25.926		
10,500.00	10,427.18	10,409.03	10,392.18	39.23	36.63	89.47	-292.07	2,130.32	1,339.46	1,287.30	52.16	25.682		
10,600.00	10,527.18	10,509.03	10,492.18	39.56	36.99	89.47	-292.07	2,130.32	1,339.46	1,286.81	52.65	25.442		
10,700.00	10,627.18	10,609.03	10,592.18	39.89	37.34	89.47	-292.07	2,130.32	1,339.46	1,286.32	53.14	25.206		
10,800.00	10,727.18	10,709.03	10,692.18	40.22	37.69	89.47	-292.07	2,130.32	1,339.46	1,285.83	53.63	24.975		
10,900.00	10,827.18	10,809.03	10,792.18	40.55	38.05	89.47	-292.07	2,130.32	1,339.46	1,285.33	54.13	24.747		
11,000.00	10,927.18	10,909.03	10,892.18	40.88	38.40	89.47	-292.07	2,130.32	1,339.46	1,284.84	54.62	24.524		
11,100.00	11,027.18	11,009.03	10,992.18	41.21	38.75	89.47	-292.07	2,130.32	1,339.46	1,284.35	55.11	24.304		
11,200.00	11,127.18	11,109.03	11,092.18	41.55	39.11	89.47	-292.07	2,130.32	1,339.46	1,283.85	55.61	24.088		
11,300.00	11,227.18	11,209.03	11,192.18	41.88	39.46	89.47	-292.07	2,130.32	1,339.46	1,283.36	56.10	23.876		
11,349.82	11,277.00	11,258.86	11,242.00	42.04	39.63	89.47	-292.07	2,130.32	1,339.46	1,283.11	56.35	23.772		
11,375.75	11,302.91	11,284.77	11,267.91	42.13	39.73	-90.00	-292.07	2,130.32	1,339.46	1,282.98	56.47	23.718 CC		
11,400.00	11,327.11	11,308.98	11,292.13	42.21	39.81	-90.07	-292.09	2,130.32	1,339.46	1,282.86	56.60	23.667		
11,450.00	11,376.67	11,359.13	11,342.19	42.38	39.99	-90.23	-294.73	2,130.35	1,339.47	1,282.62	56.85	23.563		
11,500.00	11,425.46	11,409.64	11,392.18	42.55	40.16	-90.40	-301.81	2,130.42	1,339.49	1,282.39	57.10	23.458		
11,550.00	11,473.13	11,460.49	11,441.69	42.73	40.35	-90.56	-313.35	2,130.53	1,339.52	1,282.16	57.37	23.351		
11,600.00	11,519.30	11,511.70	11,490.31	42.91	40.53	-90.72	-329.35	2,130.69	1,339.57	1,281.93	57.63	23.242		
11,650.00	11,563.63	11,563.25	11,537.63	43.09	40.72	-90.88	-349.79	2,130.89	1,339.62	1,281.71	57.91	23.132		
11,700.00	11,605.78	11,615.16	11,583.21	43.27	40.92	-91.03	-374.57	2,131.13	1,339.68	1,281.48	58.19	23.021		
11,750.00	11,645.43	11,667.39	11,626.63	43.45	41.12	-91.17	-403.58	2,131.41	1,339.74	1,281.26	58.48	22.909		
11,800.00	11,682.27	11,719.95	11,667.47	43.64	41.32	-91.30	-436.62	2,131.74	1,339.81	1,281.03	58.78	22.794		
11,850.00	11,716.02	11,772.81	11,705.32	43.82	41.54	-91.42	-473.50	2,132.10	1,339.88	1,280.80	59.08	22.678		
11,900.00	11,746.44	11,825.95	11,739.78	44.01	41.76	-91.53	-513.92	2,132.49	1,339.95	1,280.55	59.39	22.560		
11,950.00	11,773.28	11,879.35	11,770.49	44.21	41.99	-91.63	-557.58	2,132.92	1,340.01	1,280.30	59.71	22.441		
12,000.00	11,796.35	11,932.97	11,797.11	44.41	42.23	-91.72	-604.11	2,133.38	1,340.07	1,280.03	60.04	22.319		
12,050.00	11,815.46	11,986.80	11,819.33	44.63	42.47	-91.79	-653.11	2,133.86	1,340.12	1,279.74	60.38	22.194		
12,100.00	11,830.48	12,040.79	11,836.91	44.85	42.73	-91.85	-704.13	2,134.36	1,340.17	1,279.44	60.73	22.069		
12,150.00	11,841.28	12,094.91	11,849.63	45.08	42.99	-91.89	-756.71	2,134.87	1,340.20	1,279.12	61.08	21.941		
12,200.00	11,847.79	12,149.11	11,857.34	45.31	43.25	-91.91	-810.34	2,135.40	1,340.22	1,278.78	61.44	21.813		
12,238.85	11,849.85	12,191.26	11,859.82	45.50	43.46	-91.92	-852.41	2,135.81	1,340.23	1,278.51	61.72	21.714		
12,300.00	11,851.02	12,252.58	11,860.95	45.82	43.78	-91.92	-913.71	2,136.41	1,340.23	1,278.05	62.18	21.555		
12,400.00	11,852.94	12,352.58	11,862.78	46.37	44.34	-91.92	-1,013.69	2,137.39	1,340.23	1,277.25	62.98	21.281		
12,500.00	11,854.85	12,452.58	11,864.61	46.98	44.95	-91.91	-1,113.67	2,138.37	1,340.23	1,276.38	63.86	20.989		
12,600.00	11,856.77	12,552.58	11,866.45	47.64	45.61	-91.91	-1,213.64	2,139.35	1,340.23	1,275.43	64.80	20.681		
12,700.00	11,858.68	12,652.58	11,868.28	48.34	46.33	-91.91	-1,313.62	2,140.33	1,340.24	1,274.41	65.82	20.362		
12,800.00	11,860.60	12,752.58	11,870.11	49.09	47.09	-91.90	-1,413.60	2,141.31	1,340.24	1,273.33	66.90	20.032		
12,900.00	11,862.51	12,852.58	11,871.95	49.89	47.89	-91.90	-1,513.58	2,142.29	1,340.24	1,272.19	68.05	19.694		
13,000.00	11,864.43	12,952.58	11,873.78	50.72	48.74	-91.90	-1,613.56	2,143.27	1,340.24	1,270.98	69.26	19.351		
13,100.00	11,866.34	13,052.58	11,875.61	51.60	49.62	-91.89	-1,713.54	2,144.25	1,340.24	1,269.72	70.52	19.005		
13,200.00	11,868.26	13,152.58	11,877.44	52.51	50.55	-91.89	-1,813.51	2,145.23	1,340.24	1,268.40	71.84	18.656		
13,300.00	11,870.17	13,252.58	11,879.28	53.46	51.51	-91.89	-1,913.49	2,146.20	1,340.24	1,267.03	73.21	18.308		
13,400.00	11,872.09	13,352.58	11,881.11	54.45	52.51	-91.88	-2,013.47	2,147.18	1,340.24	1,265.62	74.62	17.960		
13,500.00	11,874.00	13,452.58	11,882.94	55.46	53.54	-91.88	-2,113.45	2,148.16	1,340.24	1,264.16	76.08	17.615		
13,600.00	11,875.91	13,552.58	11,884.78	56.51	54.60	-91.88	-2,213.43	2,149.14	1,340.24	1,262.65	77.59	17.274		
13,700.00	11,877.83	13,652.58	11,886.61	57.58	55.69	-91.87	-2,313.41	2,150.12	1,340.24	1,261.11	79.13	16.936		
13,800.00	11,879.74	13,752.58	11,888.44	58.68	56.80	-91.87	-2,413.38	2,151.10	1,340.24	1,259.53	80.72	16.604		
13,900.00	11,881.66	13,852.58	11,890.28	59.81	57.94	-91.87	-2,513.36	2,152.08	1,340.24	1,257.91	82.34	16.278		
14,000.00	11,883.57	13,952.58	11,892.11	60.96	59.11	-91.86	-2,613.34	2,153.06	1,340.24	1,256.26	83.99	15.958		
14,100.00	11,885.49	14,052.58	11,893.94	62.13	60.30	-91.86	-2,713.32	2,154.04	1,340.25	1,254.57	85.67	15.644		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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	11,887.40	14,152.58	11,895.77	63.33	61.51	-91.85	-2,813.30	2,155.02	1,340.25	1,252.86	87.39	15.337		
14,300.00	11,889.32	14,252.58	11,897.61	64.54	62.74	-91.85	-2,913.28	2,156.00	1,340.25	1,251.12	89.13	15.037		
14,400.00	11,891.23	14,352.57	11,899.44	65.77	63.99	-91.85	-3,013.25	2,156.98	1,340.25	1,249.35	90.90	14.744		
14,500.00	11,893.15	14,452.57	11,901.27	67.03	65.26	-91.84	-3,113.23	2,157.96	1,340.25	1,247.56	92.69	14.459		
14,600.00	11,895.06	14,552.57	11,903.11	68.30	66.54	-91.84	-3,213.21	2,158.94	1,340.25	1,245.74	94.51	14.181		
14,700.00	11,896.98	14,652.57	11,904.94	69.58	67.84	-91.84	-3,313.19	2,159.92	1,340.25	1,243.90	96.35	13.910		
14,800.00	11,898.89	14,752.57	11,906.77	70.88	69.15	-91.83	-3,413.17	2,160.90	1,340.25	1,242.04	98.21	13.646		
14,900.00	11,900.81	14,852.57	11,908.61	72.20	70.48	-91.83	-3,513.15	2,161.88	1,340.25	1,240.16	100.10	13.390		
15,000.00	11,902.72	14,952.57	11,910.44	73.52	71.83	-91.83	-3,613.12	2,162.86	1,340.25	1,238.26	102.00	13.140		
15,100.00	11,904.63	15,052.57	11,912.27	74.87	73.18	-91.82	-3,713.10	2,163.84	1,340.25	1,236.34	103.91	12.898		
15,200.00	11,906.55	15,152.57	11,914.10	76.22	74.55	-91.82	-3,813.08	2,164.81	1,340.25	1,234.41	105.85	12.662		
15,300.00	11,908.46	15,252.57	11,915.94	77.58	75.93	-91.82	-3,913.06	2,165.79	1,340.26	1,232.46	107.80	12.433		
15,400.00	11,910.38	15,352.57	11,917.77	78.96	77.32	-91.81	-4,013.04	2,166.77	1,340.26	1,230.49	109.77	12.210		
15,500.00	11,912.29	15,452.57	11,919.60	80.35	78.72	-91.81	-4,113.02	2,167.75	1,340.26	1,228.51	111.75	11.994		
15,600.00	11,914.21	15,552.57	11,921.44	81.74	80.13	-91.81	-4,212.99	2,168.73	1,340.26	1,226.52	113.74	11.784		
15,700.00	11,916.12	15,652.57	11,923.27	83.15	81.54	-91.80	-4,312.97	2,169.71	1,340.26	1,224.51	115.75	11.579		
15,800.00	11,918.04	15,752.57	11,925.10	84.56	82.97	-91.80	-4,412.95	2,170.69	1,340.26	1,222.49	117.77	11.381		
15,900.00	11,919.95	15,852.57	11,926.94	85.99	84.41	-91.80	-4,512.93	2,171.67	1,340.26	1,220.46	119.80	11.188		
16,000.00	11,921.87	15,952.57	11,928.77	87.42	85.85	-91.79	-4,612.91	2,172.65	1,340.26	1,218.42	121.84	11.000		
16,100.00	11,923.78	16,052.57	11,930.60	88.86	87.30	-91.79	-4,712.89	2,173.63	1,340.26	1,216.37	123.89	10.818		
16,200.00	11,925.70	16,152.57	11,932.44	90.30	88.76	-91.78	-4,812.86	2,174.61	1,340.26	1,214.31	125.95	10.641		
16,300.00	11,927.61	16,252.57	11,934.27	91.76	90.22	-91.78	-4,912.84	2,175.59	1,340.26	1,212.24	128.02	10.469		
16,400.00	11,929.53	16,352.57	11,936.10	93.22	91.69	-91.78	-5,012.82	2,176.57	1,340.26	1,210.16	130.10	10.302		
16,500.00	11,931.44	16,452.57	11,937.93	94.68	93.17	-91.77	-5,112.80	2,177.55	1,340.27	1,208.08	132.19	10.139		
16,600.00	11,933.35	16,552.57	11,939.77	96.16	94.65	-91.77	-5,212.78	2,178.53	1,340.27	1,205.98	134.29	9.981		
16,700.00	11,935.27	16,652.57	11,941.60	97.63	96.14	-91.77	-5,312.76	2,179.51	1,340.27	1,203.88	136.39	9.827		
16,800.00	11,937.18	16,752.57	11,943.43	99.12	97.64	-91.76	-5,412.73	2,180.49	1,340.27	1,201.76	138.50	9.677		
16,900.00	11,939.10	16,852.57	11,945.27	100.61	99.13	-91.76	-5,512.71	2,181.47	1,340.27	1,199.65	140.62	9.531		
17,000.00	11,941.01	16,952.57	11,947.10	102.10	100.64	-91.76	-5,612.69	2,182.44	1,340.27	1,197.52	142.75	9.389		
17,100.00	11,942.93	17,052.57	11,948.93	103.60	102.15	-91.75	-5,712.67	2,183.42	1,340.27	1,195.39	144.88	9.251		
17,200.00	11,944.84	17,152.57	11,950.77	105.10	103.66	-91.75	-5,812.65	2,184.40	1,340.27	1,193.25	147.02	9.116		
17,300.00	11,946.76	17,252.57	11,952.60	106.61	105.17	-91.75	-5,912.63	2,185.38	1,340.27	1,191.11	149.16	8.985		
17,400.00	11,948.67	17,352.57	11,954.43	108.12	106.70	-91.74	-6,012.61	2,186.36	1,340.27	1,188.96	151.31	8.858		
17,500.00	11,950.59	17,452.57	11,956.26	109.64	108.22	-91.74	-6,112.58	2,187.34	1,340.27	1,186.81	153.47	8.733		
17,600.00	11,952.50	17,552.57	11,958.10	111.16	109.75	-91.74	-6,212.56	2,188.32	1,340.28	1,184.64	155.63	8.612		
17,700.00	11,954.42	17,652.57	11,959.93	112.68	111.28	-91.73	-6,312.54	2,189.30	1,340.28	1,182.48	157.80	8.494		
17,800.00	11,956.33	17,752.57	11,961.76	114.21	112.81	-91.73	-6,412.52	2,190.28	1,340.28	1,180.31	159.97	8.378		
17,900.00	11,958.25	17,852.57	11,963.60	115.74	114.35	-91.73	-6,512.50	2,191.26	1,340.28	1,178.14	162.14	8.266		
18,000.00	11,960.16	17,952.57	11,965.43	117.28	115.90	-91.72	-6,612.48	2,192.24	1,340.28	1,175.96	164.32	8.156		
18,100.00	11,962.07	18,052.57	11,967.26	118.81	117.44	-91.72	-6,712.45	2,193.22	1,340.28	1,173.77	166.51	8.049		
18,200.00	11,963.99	18,152.57	11,969.10	120.35	118.99	-91.72	-6,812.43	2,194.20	1,340.28	1,171.59	168.69	7.945		
18,300.00	11,965.90	18,252.57	11,970.93	121.90	120.54	-91.71	-6,912.41	2,195.18	1,340.28	1,169.40	170.89	7.843		
18,400.00	11,967.82	18,352.57	11,972.76	123.44	122.09	-91.71	-7,012.39	2,196.16	1,340.28	1,167.20	173.08	7.744		
18,500.00	11,969.73	18,452.57	11,974.59	124.99	123.65	-91.70	-7,112.37	2,197.14	1,340.28	1,165.00	175.28	7.646		
18,600.00	11,971.65	18,552.57	11,976.43	126.54	125.20	-91.70	-7,212.35	2,198.12	1,340.28	1,162.80	177.49	7.552		
18,700.00	11,973.56	18,652.57	11,978.26	128.10	126.77	-91.70	-7,312.32	2,199.10	1,340.29	1,160.59	179.69	7.459		
18,800.00	11,975.48	18,752.57	11,980.09	129.65	128.33	-91.69	-7,412.30	2,200.08	1,340.29	1,158.39	181.90	7.368		
18,900.00	11,977.39	18,852.57	11,981.93	131.21	129.89	-91.69	-7,512.28	2,201.05	1,340.29	1,156.17	184.11	7.280		
19,000.00	11,979.31	18,952.57	11,983.76	132.77	131.46	-91.69	-7,612.26	2,202.03	1,340.29	1,153.96	186.33	7.193		
19,100.00	11,981.22	19,052.57	11,985.59	134.34	133.03	-91.68	-7,712.24	2,203.01	1,340.29	1,151.74	188.55	7.108		
19,200.00	11,983.14	19,152.57	11,987.43	135.90	134.60	-91.68	-7,812.22	2,203.99	1,340.29	1,149.52	190.77	7.026		
19,300.00	11,985.05	19,252.57	11,989.26	137.47	136.17	-91.68	-7,912.19	2,204.97	1,340.29	1,147.30	192.99	6.945		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
19,400.00	11,986.97	19,352.57	11,991.09	139.04	137.75	-91.67	-8,012.17	2,205.95	1,340.29	1,145.07	195.22	6.866		
19,500.00	11,988.88	19,452.57	11,992.92	140.61	139.33	-91.67	-8,112.15	2,206.93	1,340.29	1,142.84	197.45	6.788		
19,600.00	11,990.79	19,552.57	11,994.76	142.18	140.90	-91.67	-8,212.13	2,207.91	1,340.30	1,140.61	199.68	6.712		
19,700.00	11,992.71	19,652.57	11,996.59	143.76	142.48	-91.66	-8,312.11	2,208.89	1,340.30	1,138.38	201.92	6.638		
19,800.00	11,994.62	19,752.57	11,998.42	145.34	144.07	-91.66	-8,412.09	2,209.87	1,340.30	1,136.14	204.15	6.565		
19,900.00	11,996.54	19,852.57	12,000.26	146.91	145.65	-91.66	-8,512.06	2,210.85	1,340.30	1,133.91	206.39	6.494		
20,000.00	11,998.45	19,952.57	12,002.09	148.49	147.24	-91.65	-8,612.04	2,211.83	1,340.30	1,131.67	208.63	6.424		
20,100.00	12,000.37	20,052.57	12,003.92	150.08	148.82	-91.65	-8,712.02	2,212.81	1,340.30	1,129.43	210.88	6.356		
20,200.00	12,002.28	20,152.57	12,005.76	151.66	150.41	-91.65	-8,812.00	2,213.79	1,340.30	1,127.18	213.12	6.289		
20,300.00	12,004.20	20,252.57	12,007.59	153.24	152.00	-91.64	-8,911.98	2,214.77	1,340.30	1,124.94	215.37	6.223		
20,400.00	12,006.11	20,352.57	12,009.42	154.83	153.59	-91.64	-9,011.96	2,215.75	1,340.30	1,122.69	217.62	6.159		
20,500.00	12,008.03	20,452.57	12,011.25	156.42	155.18	-91.63	-9,111.93	2,216.73	1,340.30	1,120.44	219.87	6.096		
20,600.00	12,009.94	20,552.57	12,013.09	158.01	156.77	-91.63	-9,211.91	2,217.71	1,340.31	1,118.19	222.12	6.034		
20,700.00	12,011.86	20,652.57	12,014.92	159.60	158.37	-91.63	-9,311.89	2,218.69	1,340.31	1,115.93	224.37	5.974		
20,800.00	12,013.77	20,752.57	12,016.75	161.19	159.96	-91.62	-9,411.87	2,219.66	1,340.31	1,113.68	226.63	5.914		
20,900.00	12,015.68	20,852.57	12,018.59	162.78	161.56	-91.62	-9,511.85	2,220.64	1,340.31	1,111.42	228.89	5.856		
21,000.00	12,017.60	20,952.57	12,020.42	164.37	163.16	-91.62	-9,611.83	2,221.62	1,340.31	1,109.16	231.15	5.799		
21,100.00	12,019.51	21,052.57	12,022.25	165.97	164.76	-91.61	-9,711.80	2,222.60	1,340.31	1,106.90	233.41	5.742		
21,200.00	12,021.43	21,152.57	12,024.09	167.56	166.36	-91.61	-9,811.78	2,223.58	1,340.31	1,104.64	235.67	5.687		
21,300.00	12,023.34	21,252.57	12,025.92	169.16	167.96	-91.61	-9,911.76	2,224.56	1,340.31	1,102.38	237.93	5.633		
21,400.00	12,025.26	21,352.57	12,027.75	170.76	169.56	-91.60	-10,011.74	2,225.54	1,340.31	1,100.12	240.20	5.580		
21,500.00	12,027.17	21,452.57	12,029.59	172.36	171.16	-91.60	-10,111.72	2,226.52	1,340.32	1,097.85	242.46	5.528		
21,600.00	12,029.09	21,552.57	12,031.42	173.96	172.77	-91.60	-10,211.70	2,227.50	1,340.32	1,095.59	244.73	5.477		
21,700.00	12,031.00	21,652.57	12,033.25	175.56	174.37	-91.59	-10,311.68	2,228.48	1,340.32	1,093.32	247.00	5.426		
21,800.00	12,032.92	21,752.57	12,035.08	177.16	175.98	-91.59	-10,411.65	2,229.46	1,340.32	1,091.05	249.27	5.377		
21,900.00	12,034.83	21,852.57	12,036.92	178.76	177.59	-91.59	-10,511.63	2,230.44	1,340.32	1,088.78	251.54	5.328		
22,000.00	12,036.75	21,952.57	12,038.75	180.37	179.19	-91.58	-10,611.61	2,231.42	1,340.32	1,086.51	253.81	5.281		
22,010.08	12,036.94	21,962.65	12,038.93	180.53	179.35	-91.58	-10,621.68	2,231.52	1,340.32	1,086.28	254.04	5.276		
22,100.00	12,038.66	22,051.09	12,040.56	181.97	180.78	-91.58	-10,710.11	2,232.38	1,340.32	1,084.25	256.08	5.234 ES		
22,200.00	12,040.58	22,051.09	12,040.56	183.58	180.78	-91.58	-10,710.11	2,232.38	1,344.16	1,087.20	256.96	5.231 SF		
22,300.00	12,042.49	22,051.09	12,040.56	185.19	180.78	-91.58	-10,710.11	2,232.38	1,355.38	1,099.09	256.29	5.288		
22,400.00	12,044.40	22,051.09	12,040.56	186.79	180.78	-91.58	-10,710.11	2,232.38	1,373.81	1,119.65	254.16	5.405		
22,500.00	12,046.32	22,051.09	12,040.56	188.40	180.78	-91.58	-10,710.11	2,232.38	1,399.16	1,148.41	250.76	5.580		
22,600.00	12,048.23	22,051.09	12,040.56	190.01	180.78	-91.58	-10,710.11	2,232.38	1,431.07	1,184.77	246.30	5.810		
22,700.00	12,050.15	22,051.09	12,040.56	191.62	180.78	-91.58	-10,710.11	2,232.38	1,469.10	1,228.07	241.03	6.095		
22,800.00	12,052.06	22,051.09	12,040.56	193.23	180.78	-91.58	-10,710.11	2,232.38	1,512.80	1,277.60	235.20	6.432		
22,900.00	12,053.98	22,051.09	12,040.56	194.84	180.78	-91.58	-10,710.11	2,232.38	1,561.68	1,332.67	229.01	6.819		
23,000.00	12,055.89	22,051.09	12,040.56	196.45	180.78	-91.58	-10,710.11	2,232.38	1,615.29	1,392.63	222.66	7.255		
23,100.00	12,057.81	22,051.09	12,040.56	198.06	180.78	-91.58	-10,710.11	2,232.38	1,673.16	1,456.88	216.28	7.736		
23,200.00	12,059.72	22,051.09	12,040.56	199.68	180.78	-91.58	-10,710.11	2,232.38	1,734.86	1,524.87	210.00	8.261		
23,300.00	12,061.64	22,051.09	12,040.56	201.29	180.78	-91.58	-10,710.11	2,232.38	1,800.01	1,596.13	203.88	8.829		
23,400.00	12,063.55	22,051.09	12,040.56	202.91	180.78	-91.58	-10,710.11	2,232.38	1,868.25	1,670.25	197.99	9.436		
23,411.94	12,063.78	22,051.09	12,040.56	203.10	180.78	-91.58	-10,710.11	2,232.38	1,876.59	1,679.28	197.31	9.511		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	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)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.00	0.00	0.00	0.00	0.00	0.00	91.00	-40.33	2,318.90	2,319.51					
100.00	100.00	65.40	65.40	0.13	0.09	91.00	-40.33	2,318.90	2,319.25	2,319.09	0.16	N/A		
200.00	200.00	165.40	165.40	0.48	0.38	91.00	-40.33	2,318.90	2,319.25	2,318.64	0.61	3,784.302		
300.00	300.00	265.40	265.40	0.84	0.73	91.00	-40.33	2,318.90	2,319.25	2,318.13	1.12	2,075.103		
400.00	400.00	365.40	365.40	1.20	1.09	91.00	-40.33	2,318.90	2,319.25	2,317.63	1.62	1,428.288		
500.00	500.00	465.40	465.40	1.56	1.45	91.00	-40.33	2,318.90	2,319.25	2,317.12	2.13	1,088.684		
600.00	600.00	565.40	565.40	1.92	1.81	91.00	-40.33	2,318.90	2,319.25	2,316.61	2.64	879.497		
700.00	700.00	665.40	665.40	2.28	2.17	91.00	-40.33	2,318.90	2,319.25	2,316.11	3.14	737.723		
800.00	800.00	765.40	765.40	2.63	2.53	91.00	-40.33	2,318.90	2,319.25	2,315.60	3.65	635.303		
900.00	900.00	865.40	865.40	2.99	2.89	91.00	-40.33	2,318.90	2,319.25	2,315.09	4.16	557.850		
1,000.00	1,000.00	965.40	965.40	3.35	3.24	91.00	-40.33	2,318.90	2,319.25	2,314.59	4.66	497.228		
1,100.00	1,100.00	1,065.40	1,065.40	3.71	3.60	91.00	-40.33	2,318.90	2,319.25	2,314.08	5.17	448.489		
1,200.00	1,200.00	1,165.40	1,165.40	4.07	3.96	91.00	-40.33	2,318.90	2,319.25	2,313.57	5.68	408.451		
1,300.00	1,300.00	1,265.40	1,265.40	4.43	4.32	91.00	-40.33	2,318.90	2,319.25	2,313.07	6.19	374.976		
1,400.00	1,400.00	1,365.40	1,365.40	4.79	4.68	91.00	-40.33	2,318.90	2,319.25	2,312.56	6.69	346.571		
1,500.00	1,500.00	1,465.40	1,465.40	5.14	5.04	91.00	-40.33	2,318.90	2,319.25	2,312.05	7.20	322.167		
1,600.00	1,600.00	1,565.40	1,565.40	5.50	5.39	91.00	-40.33	2,318.90	2,319.25	2,311.54	7.71	300.973		
1,700.00	1,700.00	1,665.40	1,665.40	5.86	5.75	91.00	-40.33	2,318.90	2,319.25	2,311.04	8.21	282.395		
1,800.00	1,800.00	1,765.40	1,765.40	6.22	6.11	91.00	-40.33	2,318.90	2,319.25	2,310.53	8.72	265.978		
1,900.00	1,900.00	1,865.40	1,865.40	6.58	6.47	91.00	-40.33	2,318.90	2,319.25	2,310.02	9.23	251.364		
2,000.00	2,000.00	1,965.40	1,965.40	6.94	6.83	91.00	-40.33	2,318.90	2,319.25	2,309.52	9.73	238.273		
2,100.00	2,100.00	2,065.40	2,065.40	7.29	7.19	91.00	-40.33	2,318.90	2,319.25	2,309.01	10.24	226.478		
2,200.00	2,200.00	2,165.40	2,165.40	7.65	7.55	91.00	-40.33	2,318.90	2,319.25	2,308.50	10.75	215.795		
2,300.00	2,300.00	2,265.40	2,265.40	8.01	7.90	91.00	-40.33	2,318.90	2,319.25	2,308.00	11.25	206.075		
2,400.00	2,400.00	2,365.40	2,365.40	8.37	8.26	91.00	-40.33	2,318.90	2,319.25	2,307.49	11.76	197.192		
2,500.00	2,500.00	2,465.40	2,465.40	8.73	8.62	91.00	-40.33	2,318.90	2,319.25	2,306.98	12.27	189.044		
2,600.00	2,600.00	2,565.40	2,565.40	9.09	8.98	91.00	-40.33	2,318.90	2,319.25	2,306.48	12.78	181.543		
2,689.00	2,689.00	2,654.40	2,654.40	9.41	9.30	91.00	-40.33	2,318.90	2,319.25	2,306.02	13.23	175.350		
2,700.00	2,700.00	2,665.40	2,665.40	9.44	9.34	-20.06	-40.33	2,318.90	2,319.24	2,305.95	13.28	174.625		
2,800.00	2,799.98	2,765.38	2,765.38	9.78	9.70	-20.09	-40.33	2,318.90	2,317.74	2,303.97	13.77	168.307		
2,900.00	2,899.89	2,865.29	2,865.29	10.12	10.05	-20.14	-40.33	2,318.90	2,313.78	2,299.52	14.26	162.239		
3,000.00	2,999.66	2,965.06	2,965.06	10.46	10.41	-20.23	-40.33	2,318.90	2,307.37	2,292.62	14.75	156.403		
3,100.00	3,099.21	3,064.61	3,064.61	10.80	10.77	-20.36	-40.33	2,318.90	2,298.51	2,283.27	15.24	150.780		
3,200.00	3,198.48	3,163.88	3,163.88	11.15	11.12	-20.53	-40.33	2,318.90	2,287.22	2,271.49	15.74	145.354		
3,300.00	3,297.40	3,262.80	3,262.80	11.50	11.48	-20.73	-40.33	2,318.90	2,273.51	2,257.28	16.23	140.107		
3,377.22	3,373.50	3,338.90	3,338.90	11.78	11.75	-20.91	-40.33	2,318.90	2,261.27	2,244.66	16.61	136.169		
3,400.00	3,395.91	3,361.31	3,361.31	11.86	11.83	-20.95	-40.33	2,318.90	2,257.45	2,240.73	16.72	135.027		
3,500.00	3,494.29	3,459.69	3,459.69	12.23	12.19	-21.11	-40.33	2,318.90	2,240.69	2,223.48	17.21	130.197		
3,600.00	3,592.68	3,558.08	3,558.08	12.61	12.54	-21.28	-40.33	2,318.90	2,223.94	2,206.24	17.70	125.622		
3,700.00	3,691.06	3,656.46	3,656.46	12.99	12.89	-21.45	-40.33	2,318.90	2,207.22	2,189.02	18.20	121.283		
3,800.00	3,789.44	3,754.84	3,754.84	13.38	13.24	-21.62	-40.33	2,318.90	2,190.51	2,171.82	18.70	117.165		
3,900.00	3,887.82	3,853.22	3,853.22	13.77	13.60	-21.79	-40.33	2,318.90	2,173.83	2,154.63	19.19	113.250		
4,000.00	3,986.20	3,951.60	3,951.60	14.17	13.95	-21.97	-40.33	2,318.90	2,157.16	2,137.47	19.70	109.527		
4,100.00	4,084.58	4,049.98	4,049.98	14.57	14.30	-22.15	-40.33	2,318.90	2,140.51	2,120.32	20.20	105.981		
4,200.00	4,182.96	4,148.36	4,148.36	14.97	14.65	-22.33	-40.33	2,318.90	2,123.89	2,103.19	20.70	102.601		
4,300.00	4,281.34	4,246.74	4,246.74	15.38	15.01	-22.51	-40.33	2,318.90	2,107.28	2,086.08	21.21	99.376		
4,400.00	4,379.73	4,345.13	4,345.13	15.79	15.36	-22.70	-40.33	2,318.90	2,090.70	2,068.99	21.71	96.297		
4,500.00	4,478.11	4,443.51	4,443.51	16.20	15.71	-22.89	-40.33	2,318.90	2,074.14	2,051.92	22.22	93.353		
4,600.00	4,576.49	4,533.45	4,533.45	16.61	16.03	-23.06	-40.46	2,318.97	2,057.69	2,034.99	22.70	90.635		
4,700.00	4,674.87	4,612.30	4,612.28	17.03	16.30	-23.18	-41.76	2,319.72	2,042.05	2,018.89	23.16	88.189		
4,800.00	4,773.25	4,700.00	4,699.91	17.45	16.58	-23.27	-44.88	2,321.49	2,027.39	2,003.77	23.62	85.836		
4,900.00	4,871.63	4,771.03	4,770.80	17.87	16.81	-23.30	-48.69	2,323.65	2,013.65	1,989.61	24.05	83.738		

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 Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.00	4,970.01	4,850.77	4,850.28	18.30	17.07	-23.30	-54.32	2,326.86	2,000.90	1,976.40	24.49	81.690		
5,100.00	5,068.39	4,930.67	4,929.76	18.72	17.34	-23.25	-61.41	2,330.89	1,989.10	1,964.16	24.94	79.753		
5,200.00	5,166.78	5,021.30	5,019.73	19.15	17.64	-23.16	-70.87	2,336.26	1,978.13	1,952.71	25.41	77.834		
5,300.00	5,265.16	5,120.63	5,118.33	19.58	17.97	-23.05	-81.39	2,342.25	1,967.26	1,941.35	25.91	75.920		
5,400.00	5,363.54	5,219.97	5,216.92	20.01	18.30	-22.94	-91.92	2,348.23	1,956.40	1,929.99	26.41	74.071		
5,500.00	5,461.92	5,319.31	5,315.52	20.44	18.64	-22.83	-102.44	2,354.21	1,945.55	1,918.64	26.91	72.286		
5,600.00	5,560.30	5,418.65	5,414.12	20.87	18.98	-22.72	-112.96	2,360.20	1,934.71	1,907.29	27.42	70.561		
5,700.00	5,658.68	5,517.98	5,512.71	21.31	19.33	-22.60	-123.49	2,366.18	1,923.87	1,895.94	27.93	68.894		
5,800.00	5,757.06	5,617.32	5,611.31	21.74	19.67	-22.49	-134.01	2,372.17	1,913.04	1,884.61	28.43	67.282		
5,900.00	5,855.44	5,716.66	5,709.91	22.18	20.02	-22.37	-144.54	2,378.15	1,902.22	1,873.28	28.94	65.723		
6,000.00	5,953.83	5,816.00	5,808.50	22.62	20.37	-22.25	-155.06	2,384.13	1,891.41	1,861.95	29.45	64.215		
6,100.00	6,052.21	5,915.33	5,907.10	23.06	20.72	-22.13	-165.58	2,390.12	1,880.60	1,850.63	29.97	62.755		
6,200.00	6,150.59	6,014.67	6,005.70	23.50	21.08	-22.01	-176.11	2,396.10	1,869.80	1,839.32	30.48	61.342		
6,300.00	6,248.97	6,114.01	6,104.30	23.94	21.43	-21.89	-186.63	2,402.08	1,859.01	1,828.02	31.00	59.974		
6,400.00	6,347.35	6,213.35	6,202.89	24.38	21.79	-21.77	-197.15	2,408.07	1,848.23	1,816.72	31.51	58.648		
6,500.00	6,445.73	6,312.68	6,301.49	24.82	22.15	-21.64	-207.68	2,414.05	1,837.46	1,805.43	32.03	57.363		
6,600.00	6,544.11	6,412.02	6,400.09	25.26	22.51	-21.51	-218.20	2,420.04	1,826.70	1,794.15	32.55	56.118		
6,700.00	6,642.49	6,511.36	6,498.68	25.71	22.88	-21.39	-228.73	2,426.02	1,815.94	1,782.87	33.07	54.910		
6,800.00	6,740.88	6,610.70	6,597.28	26.15	23.24	-21.26	-239.25	2,432.00	1,805.20	1,771.61	33.59	53.739		
6,900.00	6,839.26	6,710.03	6,695.88	26.59	23.61	-21.13	-249.77	2,437.99	1,794.46	1,760.35	34.11	52.602		
7,000.00	6,937.64	6,809.37	6,794.48	27.04	23.97	-20.99	-260.30	2,443.97	1,783.74	1,749.10	34.64	51.499		
7,100.00	7,036.02	6,927.52	6,911.84	27.49	24.41	-20.86	-272.08	2,450.67	1,772.69	1,737.49	35.20	50.354		
7,200.00	7,134.40	7,056.66	7,040.52	27.93	24.88	-20.82	-281.51	2,456.03	1,760.08	1,724.29	35.79	49.178		
7,300.00	7,232.78	7,185.17	7,168.86	28.38	25.33	-20.90	-287.13	2,459.23	1,745.80	1,709.44	36.36	48.011		
7,400.00	7,331.16	7,312.77	7,296.44	28.83	25.77	-21.12	-289.00	2,460.29	1,729.87	1,692.94	36.92	46.852		
7,416.60	7,347.50	7,329.23	7,312.90	28.90	25.83	-21.15	-289.00	2,460.29	1,727.09	1,690.08	37.01	46.667		
7,500.00	7,429.70	7,411.43	7,395.10	29.27	26.12	-21.25	-289.00	2,460.29	1,713.96	1,676.52	37.44	45.780		
7,600.00	7,528.64	7,510.38	7,494.04	29.69	26.46	-21.35	-289.00	2,460.29	1,700.46	1,662.51	37.95	44.804		
7,700.00	7,627.93	7,609.67	7,593.33	30.09	26.80	-21.44	-289.00	2,460.29	1,689.39	1,650.92	38.46	43.921		
7,800.00	7,727.50	7,709.23	7,692.90	30.48	27.15	-21.50	-289.00	2,460.29	1,680.75	1,641.78	38.97	43.128		
7,900.00	7,827.27	7,809.01	7,792.67	30.84	27.50	-21.55	-289.00	2,460.29	1,674.55	1,635.08	39.47	42.422		
8,000.00	7,927.19	7,908.92	7,892.59	31.19	27.85	-21.58	-289.00	2,460.29	1,670.78	1,630.81	39.97	41.800		
8,104.82	8,032.00	8,013.73	7,997.40	31.53	28.21	-89.47	-289.00	2,460.29	1,669.44	1,628.96	40.48	41.239		
8,200.00	8,127.18	8,108.91	8,092.58	31.83	28.55	-89.47	-289.00	2,460.29	1,669.44	1,628.50	40.94	40.777		
8,300.00	8,227.18	8,208.91	8,192.58	32.14	28.89	-89.47	-289.00	2,460.29	1,669.44	1,628.02	41.42	40.302		
8,400.00	8,327.18	8,308.91	8,292.58	32.45	29.24	-89.47	-289.00	2,460.29	1,669.44	1,627.54	41.91	39.837		
8,500.00	8,427.18	8,408.91	8,392.58	32.77	29.59	-89.47	-289.00	2,460.29	1,669.44	1,627.05	42.39	39.382		
8,600.00	8,527.18	8,508.91	8,492.58	33.09	29.94	-89.47	-289.00	2,460.29	1,669.44	1,626.57	42.88	38.937		
8,700.00	8,627.18	8,608.91	8,592.58	33.40	30.29	-89.47	-289.00	2,460.29	1,669.44	1,626.08	43.36	38.502		
8,800.00	8,727.18	8,708.91	8,692.58	33.72	30.64	-89.47	-289.00	2,460.29	1,669.44	1,625.60	43.85	38.076		
8,900.00	8,827.18	8,808.91	8,792.58	34.04	30.99	-89.47	-289.00	2,460.29	1,669.44	1,625.11	44.33	37.658		
9,000.00	8,927.18	8,908.91	8,892.58	34.36	31.35	-89.47	-289.00	2,460.29	1,669.44	1,624.63	44.82	37.250		
9,100.00	9,027.18	9,008.91	8,992.58	34.68	31.70	-89.47	-289.00	2,460.29	1,669.44	1,624.14	45.30	36.850		
9,200.00	9,127.18	9,108.91	9,092.58	35.00	32.05	-89.47	-289.00	2,460.29	1,669.44	1,623.65	45.79	36.458		
9,300.00	9,227.18	9,208.91	9,192.58	35.32	32.40	-89.47	-289.00	2,460.29	1,669.44	1,623.16	46.28	36.073		
9,400.00	9,327.18	9,308.91	9,292.58	35.64	32.75	-89.47	-289.00	2,460.29	1,669.44	1,622.68	46.77	35.697		
9,500.00	9,427.18	9,408.91	9,392.58	35.97	33.10	-89.47	-289.00	2,460.29	1,669.44	1,622.19	47.26	35.328		
9,600.00	9,527.18	9,508.91	9,492.58	36.29	33.45	-89.47	-289.00	2,460.29	1,669.44	1,621.70	47.74	34.966		
9,700.00	9,627.18	9,608.91	9,592.58	36.61	33.81	-89.47	-289.00	2,460.29	1,669.44	1,621.21	48.23	34.612		
9,800.00	9,727.18	9,708.91	9,692.58	36.94	34.16	-89.47	-289.00	2,460.29	1,669.44	1,620.72	48.72	34.264		
9,900.00	9,827.18	9,808.91	9,792.58	37.26	34.51	-89.47	-289.00	2,460.29	1,669.44	1,620.23	49.21	33.923		
10,000.00	9,927.18	9,908.91	9,892.58	37.59	34.86	-89.47	-289.00	2,460.29	1,669.44	1,619.74	49.70	33.588		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
10,100.00	10,027.18	10,008.91	9,992.58	37.92	35.21	89.47	-289.00	2,460.29	1,669.44	1,619.25	50.19	33.260		
10,200.00	10,127.18	10,108.91	10,092.58	38.24	35.57	89.47	-289.00	2,460.29	1,669.44	1,618.76	50.68	32.938		
10,300.00	10,227.18	10,208.91	10,192.58	38.57	35.92	89.47	-289.00	2,460.29	1,669.44	1,618.27	51.18	32.622		
10,400.00	10,327.18	10,308.91	10,292.58	38.90	36.27	89.47	-289.00	2,460.29	1,669.44	1,617.77	51.67	32.311		
10,500.00	10,427.18	10,408.91	10,392.58	39.23	36.62	89.47	-289.00	2,460.29	1,669.44	1,617.28	52.16	32.007		
10,600.00	10,527.18	10,508.91	10,492.58	39.56	36.98	89.47	-289.00	2,460.29	1,669.44	1,616.79	52.65	31.707		
10,700.00	10,627.18	10,608.91	10,592.58	39.89	37.33	89.47	-289.00	2,460.29	1,669.44	1,616.30	53.14	31.414		
10,800.00	10,727.18	10,708.91	10,692.58	40.22	37.68	89.47	-289.00	2,460.29	1,669.44	1,615.81	53.64	31.125		
10,900.00	10,827.18	10,808.91	10,792.58	40.55	38.04	89.47	-289.00	2,460.29	1,669.44	1,615.31	54.13	30.842		
11,000.00	10,927.18	10,908.91	10,892.58	40.88	38.39	89.47	-289.00	2,460.29	1,669.44	1,614.82	54.62	30.563		
11,100.00	11,027.18	11,008.91	10,992.58	41.21	38.74	89.47	-289.00	2,460.29	1,669.44	1,614.33	55.12	30.290		
11,200.00	11,127.18	11,108.91	11,092.58	41.55	39.10	89.47	-289.00	2,460.29	1,669.44	1,613.83	55.61	30.021		
11,300.00	11,227.18	11,208.91	11,192.58	41.88	39.45	89.47	-289.00	2,460.29	1,669.44	1,613.34	56.10	29.756		
11,349.82	11,277.00	11,258.73	11,242.40	42.04	39.63	89.47	-289.00	2,460.29	1,669.44	1,613.09	56.35	29.626		
11,378.88	11,306.05	11,287.78	11,271.45	42.14	39.73	-90.00	-289.00	2,460.29	1,669.44	1,612.95	56.49	29.551 CC		
11,400.00	11,327.11	11,308.85	11,292.51	42.21	39.80	-90.05	-289.00	2,460.29	1,669.44	1,612.84	56.60	29.496		
11,450.00	11,376.67	11,358.40	11,342.07	42.38	39.98	-90.27	-289.00	2,460.29	1,669.46	1,612.61	56.85	29.364		
11,500.00	11,425.46	11,407.20	11,390.86	42.55	40.15	-90.62	-289.00	2,460.29	1,669.55	1,612.44	57.11	29.232		
11,550.00	11,473.13	11,454.86	11,438.53	42.73	40.32	-91.09	-289.00	2,460.29	1,669.79	1,612.41	57.38	29.102		
11,600.00	11,519.30	11,501.04	11,484.70	42.91	40.48	-91.65	-289.00	2,460.29	1,670.28	1,612.64	57.65	28.975		
11,650.00	11,563.63	11,550.51	11,534.15	43.09	40.66	-92.31	-290.34	2,460.30	1,671.12	1,613.20	57.92	28.850		
11,700.00	11,605.78	11,603.39	11,586.67	43.27	40.84	-92.99	-296.38	2,460.36	1,672.25	1,614.04	58.21	28.728		
11,750.00	11,645.43	11,658.94	11,640.98	43.45	41.04	-93.67	-307.91	2,460.48	1,673.64	1,615.14	58.50	28.608		
11,800.00	11,682.27	11,717.50	11,696.75	43.64	41.25	-94.35	-325.69	2,460.65	1,675.26	1,616.46	58.80	28.492		
11,850.00	11,716.02	11,779.40	11,753.40	43.82	41.48	-95.02	-350.57	2,460.89	1,677.06	1,617.96	59.09	28.379		
11,900.00	11,746.44	11,844.99	11,810.12	44.01	41.73	-95.68	-383.43	2,461.21	1,678.99	1,619.60	59.39	28.270		
11,950.00	11,773.28	11,914.56	11,865.75	44.21	42.00	-96.32	-425.12	2,461.62	1,680.96	1,621.28	59.68	28.164		
12,000.00	11,796.35	11,988.28	11,918.74	44.41	42.30	-96.92	-476.30	2,462.12	1,682.89	1,622.92	59.97	28.061		
12,050.00	11,815.46	12,066.17	11,967.10	44.63	42.62	-97.47	-537.29	2,462.72	1,684.68	1,624.42	60.26	27.956		
12,100.00	11,830.48	12,148.02	12,008.51	44.85	42.98	-97.93	-607.80	2,463.41	1,686.23	1,625.67	60.56	27.844		
12,150.00	11,841.28	12,233.27	12,040.51	45.08	43.38	-98.29	-686.73	2,464.19	1,687.42	1,626.55	60.88	27.718		
12,200.00	11,847.79	12,321.06	12,060.86	45.31	43.79	-98.52	-772.04	2,465.02	1,688.19	1,626.96	61.23	27.573		
12,238.85	11,849.85	12,390.30	12,067.57	45.50	44.13	-98.60	-840.91	2,465.70	1,688.45	1,626.92	61.52	27.445		
12,300.00	11,851.02	12,455.78	12,068.94	45.82	44.46	-98.60	-906.37	2,466.34	1,688.46	1,626.49	61.97	27.248		
12,400.00	11,852.94	12,555.78	12,070.89	46.37	45.01	-98.60	-1,006.34	2,467.32	1,688.47	1,625.72	62.74	26.911		
12,500.00	11,854.85	12,655.78	12,072.85	46.98	45.61	-98.61	-1,106.32	2,468.29	1,688.48	1,624.88	63.59	26.551		
12,600.00	11,856.77	12,755.78	12,074.80	47.64	46.26	-98.61	-1,206.30	2,469.27	1,688.49	1,623.97	64.52	26.172		
12,700.00	11,858.68	12,855.78	12,076.76	48.34	46.96	-98.61	-1,306.27	2,470.25	1,688.49	1,622.99	65.51	25.776		
12,800.00	11,860.60	12,955.78	12,078.71	49.09	47.71	-98.61	-1,406.25	2,471.23	1,688.50	1,621.94	66.56	25.367		
12,900.00	11,862.51	13,055.78	12,080.67	49.89	48.50	-98.61	-1,506.22	2,472.21	1,688.51	1,620.83	67.68	24.948		
13,000.00	11,864.43	13,155.78	12,082.62	50.72	49.33	-98.61	-1,606.20	2,473.19	1,688.52	1,619.66	68.86	24.521		
13,100.00	11,866.34	13,255.78	12,084.58	51.60	50.21	-98.61	-1,706.18	2,474.17	1,688.53	1,618.44	70.10	24.089		
13,200.00	11,868.26	13,355.78	12,086.53	52.51	51.12	-98.61	-1,806.15	2,475.15	1,688.54	1,617.16	71.38	23.654		
13,300.00	11,870.17	13,455.78	12,088.49	53.46	52.07	-98.62	-1,906.13	2,476.13	1,688.55	1,615.82	72.72	23.218		
13,400.00	11,872.09	13,555.78	12,090.44	54.45	53.06	-98.62	-2,006.10	2,477.11	1,688.56	1,614.45	74.11	22.784		
13,500.00	11,874.00	13,655.78	12,092.40	55.46	54.07	-98.62	-2,106.08	2,478.09	1,688.57	1,613.02	75.55	22.351		
13,600.00	11,875.91	13,755.78	12,094.35	56.51	55.12	-98.62	-2,206.06	2,479.07	1,688.58	1,611.55	77.02	21.923		
13,700.00	11,877.83	13,855.78	12,096.31	57.58	56.20	-98.62	-2,306.03	2,480.04	1,688.59	1,610.05	78.54	21.500		
13,800.00	11,879.74	13,955.78	12,098.26	58.68	57.30	-98.62	-2,406.01	2,481.02	1,688.59	1,608.50	80.09	21.082		
13,900.00	11,881.66	14,055.78	12,100.22	59.81	58.43	-98.62	-2,505.98	2,482.00	1,688.60	1,606.92	81.69	20.672		
14,000.00	11,883.57	14,155.78	12,102.17	60.96	59.59	-98.63	-2,605.96	2,482.98	1,688.61	1,605.30	83.31	20.269		
14,100.00	11,885.49	14,255.78	12,104.13	62.13	60.76	-98.63	-2,705.94	2,483.96	1,688.62	1,603.65	84.97	19.874		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Offset Design													LHS Wildcat Fed Com - LHS Wildcat Fed Com 705H - OH - Plan #3		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)	Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,200.00	11,887.40	14,355.78	12,106.08	63.33	61.96	-98.63	-2,805.91	2,484.94	1,688.63	1,601.98	86.66	19.487				
14,300.00	11,889.32	14,455.78	12,108.04	64.54	63.18	-98.63	-2,905.89	2,485.92	1,688.64	1,600.27	88.37	19.108				
14,400.00	11,891.23	14,555.78	12,109.99	65.77	64.42	-98.63	-3,005.86	2,486.90	1,688.65	1,598.54	90.11	18.739				
14,500.00	11,893.15	14,655.78	12,111.95	67.03	65.68	-98.63	-3,105.84	2,487.88	1,688.66	1,596.78	91.88	18.379				
14,600.00	11,895.06	14,755.78	12,113.90	68.30	66.95	-98.63	-3,205.82	2,488.86	1,688.67	1,594.99	93.67	18.027				
14,700.00	11,896.98	14,855.78	12,115.86	69.58	68.25	-98.63	-3,305.79	2,489.84	1,688.68	1,593.19	95.49	17.685				
14,800.00	11,898.89	14,955.78	12,117.81	70.88	69.55	-98.64	-3,405.77	2,490.81	1,688.69	1,591.36	97.32	17.352				
14,900.00	11,900.81	15,055.78	12,119.77	72.20	70.87	-98.64	-3,505.75	2,491.79	1,688.70	1,589.52	99.18	17.027				
15,000.00	11,902.72	15,155.78	12,121.72	73.52	72.21	-98.64	-3,605.72	2,492.77	1,688.70	1,587.65	101.05	16.712				
15,100.00	11,904.63	15,255.78	12,123.68	74.87	73.55	-98.64	-3,705.70	2,493.75	1,688.71	1,585.77	102.94	16.405				
15,200.00	11,906.55	15,355.78	12,125.63	76.22	74.91	-98.64	-3,805.67	2,494.73	1,688.72	1,583.87	104.85	16.106				
15,300.00	11,908.46	15,455.78	12,127.59	77.58	76.28	-98.64	-3,905.65	2,495.71	1,688.73	1,581.96	106.77	15.816				
15,400.00	11,910.38	15,555.78	12,129.54	78.96	77.67	-98.64	-4,005.63	2,496.69	1,688.74	1,580.03	108.71	15.534				
15,500.00	11,912.29	15,655.78	12,131.50	80.35	79.06	-98.65	-4,105.60	2,497.67	1,688.75	1,578.08	110.67	15.260				
15,600.00	11,914.21	15,755.78	12,133.45	81.74	80.46	-98.65	-4,205.58	2,498.65	1,688.76	1,576.12	112.64	14.993				
15,700.00	11,916.12	15,855.78	12,135.41	83.15	81.87	-98.65	-4,305.55	2,499.63	1,688.77	1,574.15	114.62	14.734				
15,800.00	11,918.04	15,955.78	12,137.36	84.56	83.29	-98.65	-4,405.53	2,500.61	1,688.78	1,572.17	116.61	14.483				
15,900.00	11,919.95	16,055.78	12,139.32	85.99	84.72	-98.65	-4,505.51	2,501.59	1,688.79	1,570.17	118.61	14.238				
16,000.00	11,921.87	16,155.78	12,141.27	87.42	86.16	-98.65	-4,605.48	2,502.56	1,688.80	1,568.17	120.63	14.000				
16,100.00	11,923.78	16,255.78	12,143.23	88.86	87.60	-98.65	-4,705.46	2,503.54	1,688.80	1,566.15	122.65	13.769				
16,200.00	11,925.70	16,355.78	12,145.18	90.30	89.05	-98.65	-4,805.43	2,504.52	1,688.81	1,564.13	124.69	13.544				
16,300.00	11,927.61	16,455.78	12,147.14	91.76	90.51	-98.66	-4,905.41	2,505.50	1,688.82	1,562.09	126.73	13.326				
16,400.00	11,929.53	16,555.78	12,149.09	93.22	91.98	-98.66	-5,005.39	2,506.48	1,688.83	1,560.04	128.79	13.113				
16,500.00	11,931.44	16,655.78	12,151.05	94.68	93.45	-98.66	-5,105.36	2,507.46	1,688.84	1,557.99	130.85	12.907				
16,600.00	11,933.35	16,755.78	12,153.00	96.16	94.93	-98.66	-5,205.34	2,508.44	1,688.85	1,555.93	132.92	12.706				
16,700.00	11,935.27	16,855.78	12,154.96	97.63	96.41	-98.66	-5,305.31	2,509.42	1,688.86	1,553.86	135.00	12.510				
16,800.00	11,937.18	16,955.78	12,156.91	99.12	97.90	-98.66	-5,405.29	2,510.40	1,688.87	1,551.78	137.09	12.320				
16,900.00	11,939.10	17,055.78	12,158.87	100.61	99.39	-98.66	-5,505.27	2,511.38	1,688.88	1,549.70	139.18	12.134				
17,000.00	11,941.01	17,155.78	12,160.82	102.10	100.89	-98.67	-5,605.24	2,512.36	1,688.89	1,547.61	141.28	11.954				
17,100.00	11,942.93	17,255.78	12,162.78	103.60	102.39	-98.67	-5,705.22	2,513.33	1,688.90	1,545.51	143.39	11.779				
17,200.00	11,944.84	17,355.78	12,164.74	105.10	103.90	-98.67	-5,805.20	2,514.31	1,688.91	1,543.41	145.50	11.608				
17,300.00	11,946.76	17,455.78	12,166.69	106.61	105.41	-98.67	-5,905.17	2,515.29	1,688.91	1,541.30	147.62	11.441				
17,400.00	11,948.67	17,555.78	12,168.65	108.12	106.93	-98.67	-6,005.15	2,516.27	1,688.92	1,539.18	149.74	11.279				
17,500.00	11,950.59	17,655.78	12,170.60	109.64	108.45	-98.67	-6,105.12	2,517.25	1,688.93	1,537.06	151.87	11.121				
17,600.00	11,952.50	17,755.78	12,172.56	111.16	109.97	-98.67	-6,205.10	2,518.23	1,688.94	1,534.94	154.01	10.967				
17,700.00	11,954.42	17,855.78	12,174.51	112.68	111.50	-98.68	-6,305.08	2,519.21	1,688.95	1,532.80	156.15	10.816				
17,800.00	11,956.33	17,955.78	12,176.47	114.21	113.03	-98.68	-6,405.05	2,520.19	1,688.96	1,530.67	158.29	10.670				
17,900.00	11,958.25	18,055.78	12,178.42	115.74	114.57	-98.68	-6,505.03	2,521.17	1,688.97	1,528.53	160.44	10.527				
18,000.00	11,960.16	18,155.78	12,180.38	117.28	116.11	-98.68	-6,605.00	2,522.15	1,688.98	1,526.38	162.60	10.388				
18,100.00	11,962.07	18,255.78	12,182.33	118.81	117.65	-98.68	-6,704.98	2,523.13	1,688.99	1,524.23	164.75	10.252				
18,200.00	11,963.99	18,355.78	12,184.29	120.35	119.19	-98.68	-6,804.96	2,524.11	1,689.00	1,522.08	166.92	10.119				
18,300.00	11,965.90	18,455.78	12,186.24	121.90	120.74	-98.68	-6,904.93	2,525.08	1,689.01	1,519.92	169.08	9.989				
18,400.00	11,967.82	18,555.78	12,188.20	123.44	122.29	-98.68	-7,004.91	2,526.06	1,689.02	1,517.76	171.25	9.863				
18,500.00	11,969.73	18,655.78	12,190.15	124.99	123.84	-98.69	-7,104.88	2,527.04	1,689.02	1,515.60	173.42	9.739				
18,600.00	11,971.65	18,755.78	12,192.11	126.54	125.40	-98.69	-7,204.86	2,528.02	1,689.03	1,513.43	175.60	9.619				
18,700.00	11,973.56	18,855.78	12,194.06	128.10	126.95	-98.69	-7,304.84	2,529.00	1,689.04	1,511.26	177.78	9.501				
18,800.00	11,975.48	18,955.78	12,196.02	129.65	128.51	-98.69	-7,404.81	2,529.98	1,689.05	1,509.09	179.96	9.385				
18,900.00	11,977.39	19,055.78	12,197.97	131.21	130.08	-98.69	-7,504.79	2,530.96	1,689.06	1,506.91	182.15	9.273				
19,000.00	11,979.31	19,155.78	12,199.93	132.77	131.64	-98.69	-7,604.76	2,531.94	1,689.07	1,504.73	184.34	9.163				
19,100.00	11,981.22	19,255.78	12,201.88	134.34	133.21	-98.69	-7,704.74	2,532.92	1,689.08	1,502.55	186.53	9.055				
19,200.00	11,983.14	19,355.78	12,203.84	135.90	134.77	-98.70	-7,804.72	2,533.90	1,689.09	1,500.36	188.73	8.950				
19,300.00	11,985.05	19,455.78	12,205.79	137.47	136.34	-98.70	-7,904.69	2,534.88	1,689.10	1,498.17	190.93	8.847				

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	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		
19,400.00	11,986.97	19,555.78	12,207.75	139.04	137.92	-98.70	-8,004.67	2,535.86	1,689.11	1,495.98	193.13	8.746		
19,500.00	11,988.88	19,655.78	12,209.70	140.61	139.49	-98.70	-8,104.65	2,536.83	1,689.12	1,493.79	195.33	8.648		
19,600.00	11,990.79	19,755.78	12,211.66	142.18	141.07	-98.70	-8,204.62	2,537.81	1,689.13	1,491.59	197.53	8.551		
19,700.00	11,992.71	19,855.78	12,213.61	143.76	142.65	-98.70	-8,304.60	2,538.79	1,689.13	1,489.39	199.74	8.457		
19,800.00	11,994.62	19,955.78	12,215.57	145.34	144.23	-98.70	-8,404.57	2,539.77	1,689.14	1,487.19	201.95	8.364		
19,900.00	11,996.54	20,055.78	12,217.52	146.91	145.81	-98.70	-8,504.55	2,540.75	1,689.15	1,484.99	204.16	8.274		
20,000.00	11,998.45	20,155.78	12,219.48	148.49	147.39	-98.71	-8,604.53	2,541.73	1,689.16	1,482.79	206.38	8.185		
20,100.00	12,000.37	20,255.78	12,221.43	150.08	148.97	-98.71	-8,704.50	2,542.71	1,689.17	1,480.58	208.59	8.098		
20,200.00	12,002.28	20,355.78	12,223.39	151.66	150.56	-98.71	-8,804.48	2,543.69	1,689.18	1,478.37	210.81	8.013		
20,300.00	12,004.20	20,455.78	12,225.34	153.24	152.15	-98.71	-8,904.45	2,544.67	1,689.19	1,476.16	213.03	7.929		
20,400.00	12,006.11	20,555.78	12,227.30	154.83	153.73	-98.71	-9,004.43	2,545.65	1,689.20	1,473.95	215.25	7.848		
20,500.00	12,008.03	20,655.78	12,229.25	156.42	155.32	-98.71	-9,104.41	2,546.63	1,689.21	1,471.73	217.48	7.767		
20,600.00	12,009.94	20,755.78	12,231.21	158.01	156.92	-98.71	-9,204.38	2,547.60	1,689.22	1,469.52	219.70	7.689		
20,700.00	12,011.86	20,855.78	12,233.16	159.60	158.51	-98.72	-9,304.36	2,548.58	1,689.23	1,467.30	221.93	7.612		
20,800.00	12,013.77	20,955.78	12,235.12	161.19	160.10	-98.72	-9,404.33	2,549.56	1,689.24	1,465.08	224.16	7.536		
20,900.00	12,015.68	21,055.78	12,237.07	162.78	161.70	-98.72	-9,504.31	2,550.54	1,689.25	1,462.86	226.39	7.462		
21,000.00	12,017.60	21,155.78	12,239.03	164.37	163.29	-98.72	-9,604.29	2,551.52	1,689.25	1,460.64	228.62	7.389		
21,100.00	12,019.51	21,255.78	12,240.98	165.97	164.89	-98.72	-9,704.26	2,552.50	1,689.26	1,458.41	230.85	7.318		
21,200.00	12,021.43	21,355.78	12,242.94	167.56	166.49	-98.72	-9,804.24	2,553.48	1,689.27	1,456.19	233.08	7.247		
21,300.00	12,023.34	21,455.78	12,244.89	169.16	168.09	-98.72	-9,904.21	2,554.46	1,689.28	1,453.96	235.32	7.179		
21,400.00	12,025.26	21,555.78	12,246.85	170.76	169.69	-98.72	-10,004.19	2,555.44	1,689.29	1,451.73	237.56	7.111		
21,500.00	12,027.17	21,655.78	12,248.80	172.36	171.29	-98.73	-10,104.17	2,556.42	1,689.30	1,449.50	239.80	7.045		
21,600.00	12,029.09	21,755.78	12,250.76	173.96	172.89	-98.73	-10,204.14	2,557.40	1,689.31	1,447.27	242.04	6.980		
21,700.00	12,031.00	21,855.78	12,252.71	175.56	174.49	-98.73	-10,304.12	2,558.38	1,689.32	1,445.04	244.28	6.916		
21,800.00	12,032.92	21,955.78	12,254.67	177.16	176.10	-98.73	-10,404.10	2,559.35	1,689.33	1,442.81	246.52	6.853		
21,900.00	12,034.83	22,055.78	12,256.62	178.76	177.70	-98.73	-10,504.07	2,560.33	1,689.34	1,440.58	248.76	6.791		
22,000.00	12,036.75	22,155.78	12,258.58	180.37	179.31	-98.73	-10,604.05	2,561.31	1,689.35	1,438.34	251.01	6.730		
22,100.00	12,038.66	22,255.78	12,260.53	181.97	180.91	-98.73	-10,704.02	2,562.29	1,689.36	1,436.10	253.25	6.671 ES		
22,200.00	12,040.58	22,259.70	12,260.61	183.58	180.98	-98.73	-10,707.94	2,562.33	1,692.09	1,437.50	254.59	6.646 SF		
22,300.00	12,042.49	22,259.70	12,260.61	185.19	180.98	-98.73	-10,707.94	2,562.33	1,700.72	1,445.75	254.96	6.670		
22,400.00	12,044.40	22,259.70	12,260.61	186.79	180.98	-98.73	-10,707.94	2,562.33	1,715.13	1,460.72	254.41	6.742		
22,500.00	12,046.32	22,259.70	12,260.61	188.40	180.98	-98.73	-10,707.94	2,562.33	1,735.20	1,482.21	252.99	6.859		
22,600.00	12,048.23	22,259.70	12,260.61	190.01	180.98	-98.73	-10,707.94	2,562.33	1,760.73	1,509.94	250.80	7.021		
22,700.00	12,050.15	22,259.70	12,260.61	191.62	180.98	-98.73	-10,707.94	2,562.33	1,791.49	1,543.57	247.92	7.226		
22,800.00	12,052.06	22,259.70	12,260.61	193.23	180.98	-98.73	-10,707.94	2,562.33	1,827.20	1,582.74	244.47	7.474		
22,900.00	12,053.98	22,259.70	12,260.61	194.84	180.98	-98.73	-10,707.94	2,562.33	1,867.60	1,627.04	240.56	7.763		
23,000.00	12,055.89	22,259.70	12,260.61	196.45	180.98	-98.73	-10,707.94	2,562.33	1,912.37	1,676.06	236.31	8.093		
23,100.00	12,057.81	22,259.70	12,260.61	198.06	180.98	-98.73	-10,707.94	2,562.33	1,961.23	1,729.41	231.81	8.460		
23,200.00	12,059.72	22,259.70	12,260.61	199.68	180.98	-98.73	-10,707.94	2,562.33	2,013.87	1,786.71	227.16	8.866		
23,300.00	12,061.64	22,259.70	12,260.61	201.29	180.98	-98.73	-10,707.94	2,562.33	2,070.00	1,847.58	222.42	9.307		
23,400.00	12,063.55	22,259.70	12,260.61	202.91	180.98	-98.73	-10,707.94	2,562.33	2,129.36	1,911.68	217.67	9.782		
23,411.94	12,063.78	22,259.70	12,260.61	203.10	180.98	-98.73	-10,707.94	2,562.33	2,136.65	1,919.54	217.11	9.841		

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



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Kaston Fed Com 603H
Project:	Lea County, NM (NAD83)	TVD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Reference Site:	Bus Driver/Kaston Fed Com	MD Reference:	3057.5' GE + 30' KB @ 3087.50usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Kaston 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 #5	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3057.5' GE + 30' KB @ 3087.50usft

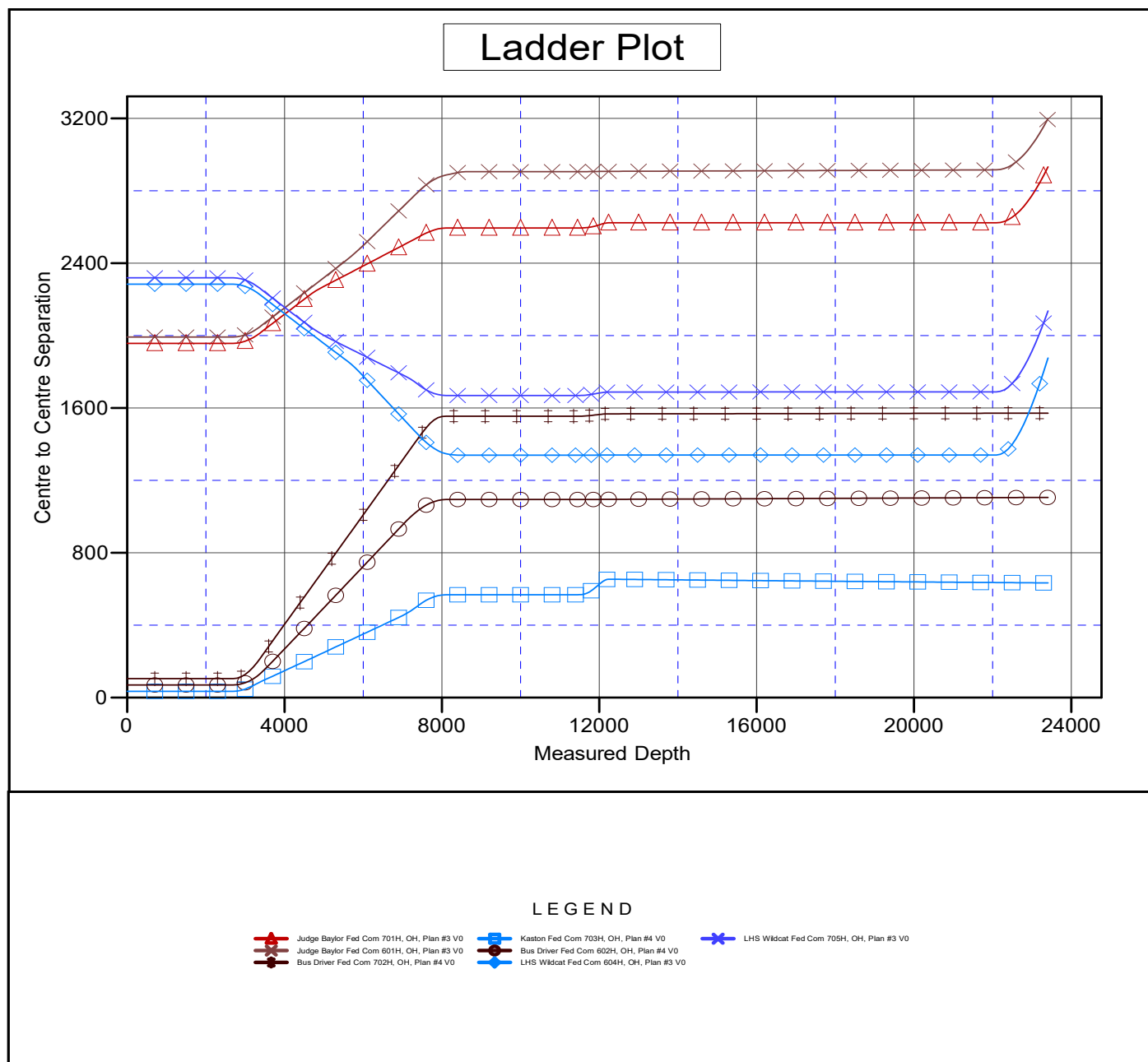
Coordinates are relative to: Kaston Fed Com 603H

Offset Depths are relative to Offset Datum

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

Central Meridian is -104.333334

Grid Convergence at Surface is: 0.54°



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



Total Directional Services

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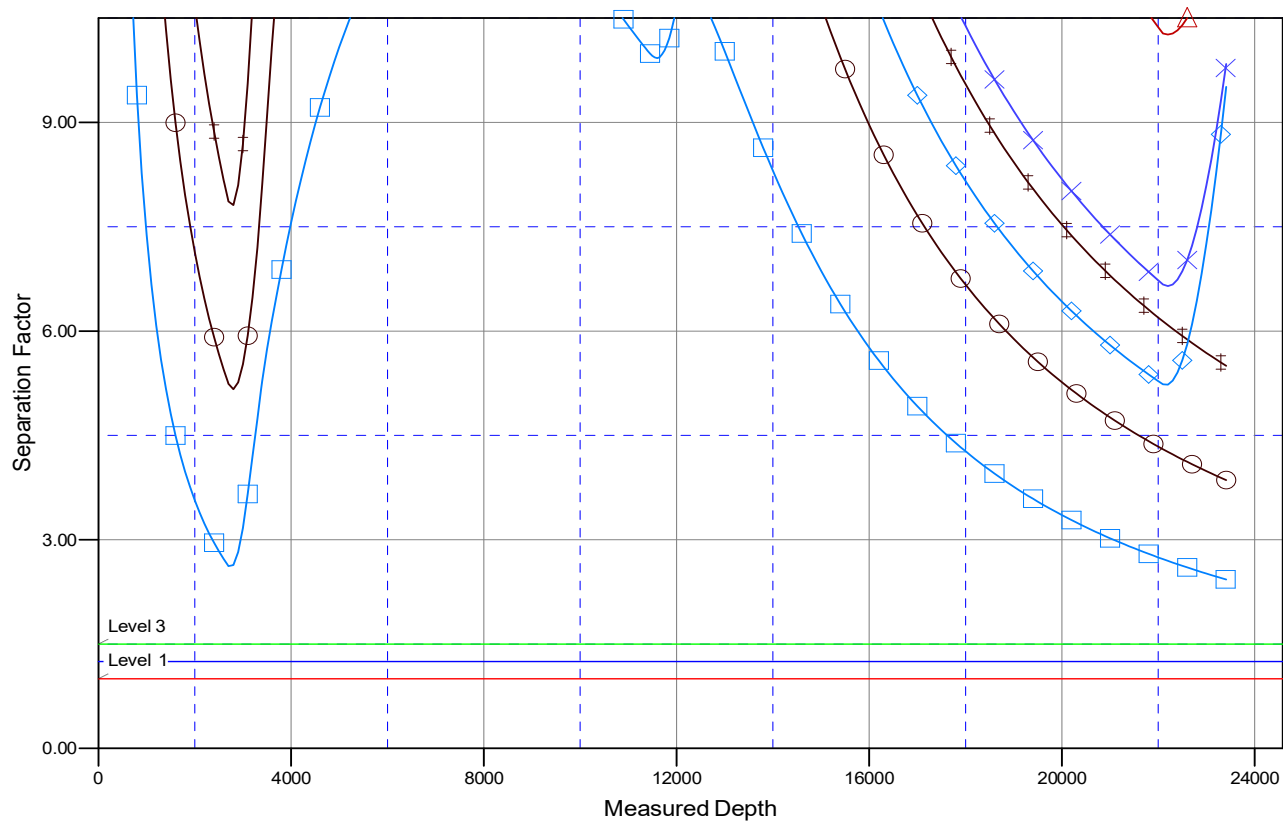
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Separation Factor Plot



LEGEND

Judge Baylor Fed Com 701H, OH, Plan #3 V0	Kaston Fed Com 703H, OH, Plan #4 V0	LHS Wildcat Fed Com 705H, OH, Plan #3 V0
Judge Baylor Fed Com 601H, OH, Plan #3 V0	Bus Driver Fed Com 602H, OH, Plan #4 V0	
Bus Driver Fed Com 702H, OH, Plan #4 V0	LHS Wildcat Fed Com 604H, OH, Plan #3 V0	

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FRANKLIN MOUNTAIN ENERGY



Geologic Prognosis

Well Name	Kaston Fed Com 603H
Operator	Franklin Mountain Energy, LLC
Project Area	PF Unit
Well Type	11,000' Third Bone Spring Lateral
API	
Permit Number	
Rig	

State	NM	County	Lea						
SHL	Township	25S/35E	Section	36	2,480'	FEL	312'	FSL	
BHL	Township	26S/35E	Section	13	2,020'	FEL	1,170'	FNL	
Surface Latitude	NAD 83	32.080431							
Surface Longitude	NAD 83	103.321782							
Bottom Hole Latitude	NAD 83	32.047323							
Bottom Hole Longitude	NAD 83	103.319224							
Ground Level	3,056'	Rig KB	30'	KB	3,086'				

Formations	PROG SS	PROG TVD	Picked TVD	delta	Potential/Issues
Cenozoic Alluvium (surface)	3,056'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,262'	824'			Carbonates
Salado	1,741'	1,345'			Salt, Carbonate & Clastics
Base Salt	497'	2,589'			Shaley Carbonate & Shale
Lamar	-1,994'	5,080'			Carbonate & Clastics
Bell Canyon	-2,032'	5,118'			Sandstone - oil/gas/water
Cherry Canyon	-2,881'	5,967'			Sandstone - oil/gas/water
Brushy Canyon	-4,262'	7,348'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,605'	8,691'			Shale/Carbonates - oil/gas
Avalon	-5,629'	8,715'			Shale/Carbonates - oil/gas
First Bone Spring Sand	-6,731'	9,817'			Sandstone - oil/gas/water
Second Bone Spring Carbonates	-6,870'	9,956'			Shale/Carbonates - oil/gas
Second Bone Spring Sand	-7,255'	10,341'			Sandstone - oil/gas/water
Third Bone Spring Carbonates	-7,955'	11,041'			Shale/Carbonates - oil/gas
Third Bone Spring Sand	-8,626'	11,712'			Sandstone - oil/gas/water
HZ Target at SHL	-8,755'	11,841'			Overpressure shale/sand- Oil/Gas
Wolfcamp	-8,868'	11,954'			Overpressure shale/sand- Oil/Gas
Wolfcamp A	-8,929'	12,015'			Overpressure Shale - Oil/Gas
Wolfcamp B	-9,149'	12,235'			Overpressure Shale - Oil/Gas

Target interval is expected to have an average apparent dip of ~1.1 degrees down along the lateral based on the Wolfcamp A structure

Target window tolerance is set at +/- 10'

Target Line: 11832' KBTVD @ 0' VS w/ 88.9° inc.

Offset Log: Talco Unit 001 (30025267470000)

Updated 4/19/21

FME Geologist	Ben Kessel		bkessel@fmellc.com	
	Office	720.414.7868	Cell	303.868.9946
FME Engineer				
Electric Logs	From		To	
Open-Hole	n/a			
MWD/LWD	MWD GR		Int. 1 Csg. Point	TD
Mud Log:				
t drill out of surface casing				
Sampling:	10' samples in vertical and through curve, 30' samples in lateral			
Samples:	1 set dry samples at footage frequency noted above			
Mud Gas:	Continuous			
Daily Contact:	Email distribution of mud log/daily report at 7:30am and 4:30 pm CST			
Daily Mud Log Email Distribution List				
Final Mud Log Distribution				
	Ben Kessel (bkessel@fmellc.com)			email
Cuttings/Samples Shipment Information				



U. S. Steel Tubular Products

7/14/2020 11:41:19 AM

5.500" 23.00lbs/ft (0.415" Wall) P110 USS-EAGLE SFH®



MECHANICAL PROPERTIES	Pipe	USS-EAGLE SFH™	
Minimum Yield Strength	110,000	--	psi
Maximum Yield Strength	140,000	--	psi
Minimum Tensile Strength	125,000	--	psi
DIMENSIONS	Pipe	USS-EAGLE SFH™	
Outside Diameter	5.500	5.830	in.
Wall Thickness	0.415	--	in.
Inside Diameter	4.670	4.585	in.
Standard Drift	4.545	4.545	in.
Alternate Drift	--	4.545	in.
Nominal Linear Weight, T&C	23.00	--	lbs/ft
Plain End Weight	22.56	--	lbs/ft
SECTION AREA	Pipe	USS-EAGLE SFH™	
Critical Area	6.630	5.507	sq. in.
Joint Efficiency	--	83.1	%
PERFORMANCE	Pipe	USS-EAGLE SFH™	
Minimum Collapse Pressure	14,540	14,540	psi
External Pressure Leak Resistance	--	9,130	psi
Minimum Internal Yield Pressure	14,520	14,520	psi
Minimum Pipe Body Yield Strength	729,000	--	lbs
Joint Strength	--	606,000	lbs
Compression Rating	--	606,000	lbs
Reference Length	--	17,900	ft
Maximum Uniaxial Bend Rating	--	76.2	deg/100 ft
MAKE-UP DATA	Pipe	USS-EAGLE SFH™	
Make-Up Loss	--	6.65	in.
Minimum Make-Up Torque	--	16,600	ft-lbs
Maximum Make-Up Torque	--	19,800	ft-lbs
Maximum Operating Torque	--	28,000	ft-lbs

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Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
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Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 28424

COMMENTS

Operator: Franklin Mountain Energy LLC 44 Cook Street Denver, CO 80206	OGRID: 373910
	Action Number: 28424
	Action Type: [C-103] NOI Change of Plans (C-103A)

COMMENTS

Created By	Comment	Comment Date
jagarcia	Accepted for record	6/25/2021

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jagarcia	Adhere to previous COA.	6/25/2021