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NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

GETTYSBURG STATE COM #15H

OWB

Design: ACTUAL WELLPATH

Standard Survey Report

14 June, 2018

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

Project:	LEA COUNTY, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	BULLDOG				
Site Position:		Northing:	398,637.10 usft	Latitude:	32° 5' 36.820 N
From:	Map	Easting:	741,887.40 usft	Longitude:	103° 33' 8.116 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	GETTYSBURG STATE COM #15H					
Well Position	+N/-S	0.0 usft	Northing:	477,942.30 usft	Latitude:	32° 18' 39.898 N
	+E/-W	0.0 usft	Easting:	764,187.30 usft	Longitude:	103° 28' 41.576 W
Position Uncertainty		3.0 usft	Wellhead Elevation:	usft	Ground Level:	3,425.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	11/30/2017	6.89	60.14	47,940.33930193

Design:	ACTUAL WELLPATH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	188.45	

Survey Program		Date	6/11/2018	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,680.0	GYRO (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
10,758.0	18,905.0	MWD - CURVE/LATERAL (OWB)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.82	351.20	100.0	0.7	-0.1	-0.7	0.82	0.82	0.00	
125.0	0.64	347.41	125.0	1.0	-0.2	-1.0	0.75	-0.72	-15.16	
150.0	0.69	347.52	150.0	1.3	-0.2	-1.3	0.20	0.20	0.44	
175.0	0.84	348.50	175.0	1.6	-0.3	-1.6	0.60	0.60	3.92	
200.0	0.99	342.86	200.0	2.0	-0.4	-1.9	0.70	0.60	-22.56	
225.0	1.23	338.58	225.0	2.5	-0.6	-2.4	1.02	0.96	-17.12	
250.0	1.24	339.19	250.0	3.0	-0.8	-2.8	0.07	0.04	2.44	

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Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
275.0	1.34	339.47	275.0	3.5	-1.0	-3.3	0.40	0.40	1.12
300.0	1.30	339.34	300.0	4.0	-1.2	-3.8	0.16	-0.16	-0.52
325.0	1.31	337.99	325.0	4.6	-1.4	-4.3	0.13	0.04	-5.40
350.0	1.34	337.77	350.0	5.1	-1.6	-4.8	0.12	0.12	-0.88
375.0	1.45	336.49	374.9	5.7	-1.8	-5.3	0.46	0.44	-5.12
400.0	1.51	334.84	399.9	6.3	-2.1	-5.9	0.29	0.24	-6.60
425.0	1.51	332.37	424.9	6.8	-2.4	-6.4	0.26	0.00	-9.88
450.0	1.55	333.92	449.9	7.4	-2.7	-7.0	0.23	0.16	6.20
475.0	1.64	334.26	474.9	8.1	-3.0	-7.5	0.36	0.36	1.36
500.0	1.68	333.67	499.9	8.7	-3.3	-8.1	0.17	0.16	-2.36
525.0	1.71	332.99	524.9	9.4	-3.6	-8.7	0.14	0.12	-2.72
550.0	1.85	335.92	549.9	10.1	-4.0	-9.4	0.67	0.56	11.72
575.0	1.92	337.81	574.9	10.8	-4.3	-10.1	0.37	0.28	7.56
600.0	1.92	338.83	599.8	11.6	-4.6	-10.8	0.14	0.00	4.08
625.0	1.97	339.92	624.8	12.4	-4.9	-11.6	0.25	0.20	4.36
650.0	1.76	344.65	649.8	13.2	-5.1	-12.3	1.04	-0.84	18.92
675.0	1.49	353.21	674.8	13.9	-5.3	-12.9	1.45	-1.08	34.24
700.0	1.25	9.96	699.8	14.5	-5.3	-13.5	1.86	-0.96	67.00
725.0	1.21	31.82	724.8	15.0	-5.1	-14.0	1.87	-0.16	87.44
750.0	1.30	41.60	749.8	15.4	-4.8	-14.5	0.93	0.36	39.12
775.0	1.30	48.82	774.8	15.8	-4.4	-15.0	0.65	0.00	28.88
800.0	1.49	55.64	799.8	16.2	-3.9	-15.4	1.01	0.76	27.28
825.0	1.70	57.64	824.8	16.5	-3.3	-15.9	0.87	0.84	8.00
850.0	1.75	60.57	849.8	16.9	-2.7	-16.4	0.41	0.20	11.72
875.0	1.76	59.52	874.7	17.3	-2.0	-16.8	0.13	0.04	-4.20
900.0	1.73	59.57	899.7	17.7	-1.3	-17.3	0.12	-0.12	0.20
925.0	1.75	57.70	924.7	18.1	-0.7	-17.8	0.24	0.08	-7.48
950.0	1.50	53.90	949.7	18.5	-0.1	-18.3	1.09	-1.00	-15.20
975.0	1.35	46.35	974.7	18.9	0.4	-18.7	0.96	-0.60	-30.20
1,000.0	1.24	42.47	999.7	19.3	0.8	-19.2	0.56	-0.44	-15.52
1,025.0	1.19	37.85	1,024.7	19.7	1.1	-19.6	0.44	-0.20	-18.48
1,050.0	1.09	28.45	1,049.7	20.1	1.4	-20.1	0.85	-0.40	-37.60
1,075.0	1.05	25.51	1,074.7	20.5	1.6	-20.5	0.27	-0.16	-11.76
1,100.0	1.09	19.39	1,099.7	21.0	1.8	-21.0	0.48	0.16	-24.48
1,125.0	0.92	15.97	1,124.7	21.4	1.9	-21.4	0.72	-0.68	-13.68
1,150.0	0.92	359.98	1,149.7	21.8	2.0	-21.8	1.02	0.00	-63.96
1,175.0	0.95	332.57	1,174.7	22.2	1.9	-22.2	1.78	0.12	-109.64
1,200.0	1.08	320.00	1,199.7	22.5	1.6	-22.5	1.03	0.52	-50.28
1,225.0	1.57	329.12	1,224.7	23.0	1.3	-22.9	2.13	1.96	36.48
1,250.0	1.41	319.55	1,249.6	23.5	0.9	-23.4	1.18	-0.64	-38.28
1,275.0	1.55	317.25	1,274.6	24.0	0.5	-23.8	0.61	0.56	-9.20
1,300.0	1.88	320.00	1,299.6	24.6	0.0	-24.3	1.36	1.32	11.00

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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
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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)
1,325.0	2.13	322.67	1,324.6	25.2	-0.5	-24.9	1.07	1.00	10.68
1,350.0	2.30	321.76	1,349.6	26.0	-1.1	-25.6	0.69	0.68	-3.64
1,375.0	2.51	322.52	1,374.6	26.8	-1.8	-26.3	0.85	0.84	3.04
1,400.0	2.97	321.98	1,399.5	27.8	-2.5	-27.1	1.84	1.84	-2.16
1,425.0	3.36	321.65	1,424.5	28.9	-3.4	-28.1	1.56	1.56	-1.32
1,450.0	3.54	322.18	1,449.5	30.1	-4.3	-29.1	0.73	0.72	2.12
1,475.0	3.57	321.62	1,474.4	31.3	-5.3	-30.2	0.18	0.12	-2.24
1,500.0	3.64	322.07	1,499.4	32.5	-6.2	-31.2	0.30	0.28	1.80
1,525.0	3.62	322.08	1,524.3	33.8	-7.2	-32.3	0.08	-0.08	0.04
1,550.0	3.63	321.61	1,549.3	35.0	-8.2	-33.4	0.13	0.04	-1.88
1,575.0	3.67	319.72	1,574.2	36.2	-9.2	-34.5	0.51	0.16	-7.56
1,600.0	3.88	315.33	1,599.2	37.4	-10.3	-35.5	1.43	0.84	-17.56
1,625.0	4.28	309.10	1,624.1	38.6	-11.6	-36.5	2.39	1.60	-24.92
1,650.0	4.51	304.93	1,649.0	39.8	-13.1	-37.4	1.57	0.92	-16.68
1,675.0	4.56	303.51	1,673.9	40.9	-14.8	-38.3	0.49	0.20	-5.68
1,700.0	4.63	303.90	1,698.9	42.0	-16.4	-39.1	0.31	0.28	1.56
1,725.0	4.65	302.85	1,723.8	43.1	-18.1	-40.0	0.35	0.08	-4.20
1,750.0	4.65	303.30	1,748.7	44.2	-19.8	-40.8	0.15	0.00	1.80
1,775.0	4.67	302.07	1,773.6	45.3	-21.5	-41.7	0.41	0.08	-4.92
1,800.0	4.79	294.45	1,798.5	46.3	-23.3	-42.4	2.56	0.48	-30.48
1,825.0	5.07	284.21	1,823.4	47.0	-25.4	-42.8	3.69	1.12	-40.96
1,850.0	5.48	277.84	1,848.3	47.4	-27.6	-42.9	2.86	1.64	-25.48
1,875.0	5.44	277.47	1,873.2	47.7	-30.0	-42.8	0.21	-0.16	-1.48
1,900.0	5.41	277.02	1,898.1	48.0	-32.3	-42.8	0.21	-0.12	-1.80
1,925.0	5.63	275.75	1,923.0	48.3	-34.7	-42.7	1.01	0.88	-5.08
1,950.0	5.72	275.28	1,947.9	48.6	-37.2	-42.6	0.41	0.36	-1.88
1,975.0	5.73	275.19	1,972.7	48.8	-39.7	-42.4	0.05	0.04	-0.36
2,000.0	5.55	276.04	1,997.6	49.0	-42.1	-42.3	0.79	-0.72	3.40
2,025.0	5.38	276.52	2,022.5	49.3	-44.5	-42.2	0.70	-0.68	1.92
2,050.0	5.16	277.94	2,047.4	49.6	-46.7	-42.2	1.02	-0.88	5.68
2,075.0	4.97	278.65	2,072.3	49.9	-48.9	-42.2	0.80	-0.76	2.84
2,100.0	4.78	280.09	2,097.2	50.2	-51.0	-42.2	0.90	-0.76	5.76
2,125.0	4.54	284.76	2,122.1	50.7	-53.0	-42.3	1.79	-0.96	18.68
2,150.0	3.97	277.43	2,147.1	51.0	-54.8	-42.4	3.15	-2.28	-29.32
2,175.0	3.83	276.68	2,172.0	51.2	-56.5	-42.4	0.60	-0.56	-3.00
2,200.0	3.75	276.86	2,197.0	51.4	-58.2	-42.3	0.32	-0.32	0.72
2,225.0	3.79	282.61	2,221.9	51.7	-59.8	-42.4	1.52	0.16	23.00
2,250.0	3.69	278.60	2,246.8	52.0	-61.4	-42.4	1.12	-0.40	-16.04
2,275.0	3.54	276.99	2,271.8	52.2	-62.9	-42.4	0.72	-0.60	-6.44
2,300.0	3.48	277.97	2,296.7	52.4	-64.5	-42.4	0.34	-0.24	3.92
2,325.0	3.43	279.26	2,321.7	52.7	-65.9	-42.4	0.37	-0.20	5.16
2,350.0	3.33	276.48	2,346.7	52.9	-67.4	-42.4	0.77	-0.40	-11.12

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Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
2,375.0	3.24	272.62	2,371.6	53.0	-68.8	-42.3	0.95	-0.36	-15.44
2,400.0	3.21	274.70	2,396.6	53.1	-70.2	-42.2	0.48	-0.12	8.32
2,425.0	3.20	273.10	2,421.5	53.2	-71.6	-42.1	0.36	-0.04	-6.40
2,450.0	3.24	279.46	2,446.5	53.3	-73.0	-42.0	1.44	0.16	25.44
2,475.0	3.28	281.86	2,471.5	53.6	-74.4	-42.1	0.57	0.16	9.60
2,500.0	3.14	283.80	2,496.4	53.9	-75.8	-42.2	0.71	-0.56	7.76
2,525.0	3.01	285.94	2,521.4	54.2	-77.1	-42.3	0.69	-0.52	8.56
2,550.0	3.10	288.04	2,546.3	54.6	-78.4	-42.5	0.57	0.36	8.40
2,575.0	3.21	289.98	2,571.3	55.1	-79.7	-42.8	0.61	0.44	7.76
2,600.0	3.33	291.80	2,596.3	55.6	-81.0	-43.1	0.63	0.48	7.28
2,625.0	3.44	293.50	2,621.2	56.1	-82.3	-43.4	0.60	0.44	6.80
2,650.0	3.56	295.08	2,646.2	56.8	-83.7	-43.9	0.62	0.48	6.32
2,675.0	3.90	298.89	2,671.1	57.5	-85.2	-44.4	1.68	1.36	15.24
2,700.0	3.98	298.58	2,696.1	58.3	-86.7	-45.0	0.33	0.32	-1.24
2,725.0	4.03	299.06	2,721.0	59.2	-88.2	-45.6	0.24	0.20	1.92
2,750.0	3.74	299.85	2,745.9	60.0	-89.7	-46.2	1.18	-1.16	3.16
2,775.0	3.62	303.55	2,770.9	60.8	-91.1	-46.8	1.06	-0.48	14.80
2,800.0	3.53	303.91	2,795.8	61.7	-92.4	-47.5	0.37	-0.36	1.44
2,825.0	3.52	300.46	2,820.8	62.5	-93.7	-48.1	0.85	-0.04	-13.80
2,850.0	3.92	287.94	2,845.7	63.2	-95.1	-48.5	3.61	1.60	-50.08
2,875.0	4.04	284.48	2,870.7	63.7	-96.8	-48.8	1.07	0.48	-13.84
2,900.0	4.07	282.08	2,895.6	64.1	-98.5	-48.9	0.69	0.12	-9.60
2,925.0	3.99	282.32	2,920.6	64.4	-100.2	-49.0	0.33	-0.32	0.96
2,950.0	3.77	282.94	2,945.5	64.8	-101.9	-49.1	0.90	-0.88	2.48
2,975.0	3.39	282.22	2,970.5	65.2	-103.4	-49.3	1.53	-1.52	-2.88
3,000.0	3.11	280.97	2,995.4	65.4	-104.8	-49.3	1.16	-1.12	-5.00
3,025.0	2.89	278.53	3,020.4	65.7	-106.1	-49.4	1.02	-0.88	-9.76
3,050.0	2.89	277.73	3,045.4	65.8	-107.3	-49.4	0.16	0.00	-3.20
3,075.0	2.84	278.11	3,070.3	66.0	-108.6	-49.4	0.21	-0.20	1.52
3,100.0	2.85	278.19	3,095.3	66.2	-109.8	-49.3	0.04	0.04	0.32
3,125.0	3.48	283.89	3,120.3	66.5	-111.2	-49.4	2.81	2.52	22.80
3,150.0	3.86	286.15	3,145.2	66.9	-112.7	-49.6	1.63	1.52	9.04
3,175.0	3.87	286.49	3,170.1	67.3	-114.3	-49.8	0.10	0.04	1.36
3,200.0	3.79	287.20	3,195.1	67.8	-115.9	-50.1	0.37	-0.32	2.84
3,225.0	3.37	288.62	3,220.0	68.3	-117.4	-50.3	1.72	-1.68	5.68
3,250.0	2.98	290.12	3,245.0	68.8	-118.7	-50.6	1.59	-1.56	6.00
3,275.0	2.73	287.65	3,270.0	69.2	-119.9	-50.8	1.11	-1.00	-9.88
3,300.0	2.68	281.89	3,294.9	69.5	-121.0	-50.9	1.11	-0.20	-23.04
3,325.0	3.22	267.67	3,319.9	69.6	-122.3	-50.9	3.62	2.16	-56.88
3,350.0	3.44	263.74	3,344.9	69.5	-123.7	-50.5	1.27	0.88	-15.72
3,375.0	3.48	262.52	3,369.8	69.3	-125.2	-50.1	0.34	0.16	-4.88
3,400.0	3.43	261.66	3,394.8	69.1	-126.7	-49.7	0.29	-0.20	-3.44

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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
3,425.0	3.34	262.04	3,419.7	68.9	-128.2	-49.3	0.37	-0.36	1.52
3,450.0	3.21	263.42	3,444.7	68.7	-129.6	-48.9	0.61	-0.52	5.52
3,475.0	3.11	266.90	3,469.7	68.6	-131.0	-48.6	0.87	-0.40	13.92
3,500.0	3.22	276.89	3,494.6	68.6	-132.4	-48.4	2.25	0.44	39.96
3,525.0	3.46	285.46	3,519.6	68.9	-133.8	-48.5	2.21	0.96	34.28
3,550.0	3.47	287.86	3,544.5	69.3	-135.2	-48.7	0.58	0.04	9.60
3,575.0	3.46	288.17	3,569.5	69.8	-136.7	-49.0	0.08	-0.04	1.24
3,600.0	3.36	290.12	3,594.4	70.3	-138.1	-49.2	0.61	-0.40	7.80
3,625.0	3.20	292.94	3,619.4	70.8	-139.4	-49.6	0.91	-0.64	11.28
3,650.0	3.02	295.23	3,644.4	71.4	-140.6	-49.9	0.87	-0.72	9.16
3,675.0	3.10	296.70	3,669.3	71.9	-141.8	-50.3	0.45	0.32	5.88
3,700.0	3.68	301.31	3,694.3	72.7	-143.1	-50.9	2.56	2.32	18.44
3,725.0	4.07	301.45	3,719.2	73.5	-144.6	-51.5	1.56	1.56	0.56
3,750.0	4.18	300.84	3,744.2	74.5	-146.1	-52.2	0.47	0.44	-2.44
3,775.0	4.65	297.19	3,769.1	75.4	-147.8	-52.9	2.19	1.88	-14.60
3,800.0	5.48	293.00	3,794.0	76.3	-149.8	-53.5	3.63	3.32	-16.76
3,825.0	5.80	291.06	3,818.9	77.3	-152.1	-54.1	1.49	1.28	-7.76
3,850.0	5.85	290.88	3,843.7	78.2	-154.4	-54.6	0.21	0.20	-0.72
3,875.0	5.71	286.74	3,868.6	79.0	-156.8	-55.1	1.76	-0.56	-16.56
3,900.0	5.53	278.71	3,893.5	79.5	-159.2	-55.3	3.22	-0.72	-32.12
3,925.0	5.56	267.04	3,918.4	79.6	-161.6	-55.0	4.50	0.12	-46.68
3,950.0	5.66	265.05	3,943.3	79.5	-164.0	-54.5	0.87	0.40	-7.96
3,975.0	5.71	265.10	3,968.1	79.3	-166.5	-53.9	0.20	0.20	0.20
4,000.0	5.72	265.38	3,993.0	79.0	-169.0	-53.4	0.12	0.04	1.12
4,025.0	5.76	265.02	4,017.9	78.8	-171.5	-52.8	0.22	0.16	-1.44
4,050.0	5.69	266.59	4,042.8	78.7	-174.0	-52.3	0.69	-0.28	6.28
4,075.0	5.70	266.29	4,067.6	78.5	-176.4	-51.7	0.13	0.04	-1.20
4,100.0	5.67	266.87	4,092.5	78.4	-178.9	-51.2	0.26	-0.12	2.32
4,125.0	5.65	265.98	4,117.4	78.2	-181.4	-50.7	0.36	-0.08	-3.56
4,150.0	5.51	263.71	4,142.3	78.0	-183.8	-50.1	1.05	-0.56	-9.08
4,175.0	5.46	261.56	4,167.2	77.7	-186.2	-49.5	0.85	-0.20	-8.60
4,200.0	5.44	259.80	4,192.0	77.3	-188.5	-48.8	0.67	-0.08	-7.04
4,225.0	5.39	257.95	4,216.9	76.8	-190.8	-48.0	0.73	-0.20	-7.40
4,250.0	5.34	256.99	4,241.8	76.3	-193.1	-47.1	0.41	-0.20	-3.84
4,275.0	5.06	255.00	4,266.7	75.8	-195.3	-46.3	1.33	-1.12	-7.96
4,300.0	4.81	255.71	4,291.6	75.2	-197.4	-45.4	1.03	-1.00	2.84
4,325.0	4.38	257.29	4,316.5	74.8	-199.3	-44.7	1.79	-1.72	6.32
4,350.0	3.96	266.50	4,341.5	74.5	-201.1	-44.2	3.16	-1.68	36.84
4,375.0	3.66	277.70	4,366.4	74.6	-202.8	-44.0	3.20	-1.20	44.80
4,400.0	3.53	290.28	4,391.4	74.9	-204.3	-44.1	3.19	-0.52	50.32
4,425.0	3.47	297.21	4,416.3	75.5	-205.7	-44.5	1.71	-0.24	27.72
4,450.0	3.37	299.50	4,441.3	76.3	-207.0	-45.0	0.68	-0.40	9.16

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
4,475.0	3.31	300.68	4,466.2	77.0	-208.3	-45.6	0.36	-0.24	4.72
4,500.0	3.20	299.22	4,491.2	77.7	-209.5	-46.1	0.55	-0.44	-5.84
4,525.0	2.98	299.56	4,516.2	78.4	-210.7	-46.6	0.88	-0.88	1.36
4,550.0	2.89	299.51	4,541.1	79.0	-211.8	-47.0	0.36	-0.36	-0.20
4,575.0	2.82	298.41	4,566.1	79.6	-212.9	-47.5	0.36	-0.28	-4.40
4,600.0	2.89	299.87	4,591.1	80.2	-214.0	-47.9	0.40	0.28	5.84
4,625.0	3.03	297.71	4,616.0	80.8	-215.1	-48.4	0.72	0.56	-8.64
4,650.0	3.75	293.22	4,641.0	81.4	-216.4	-48.8	3.07	2.88	-17.96
4,675.0	4.45	290.92	4,665.9	82.1	-218.1	-49.2	2.88	2.80	-9.20
4,700.0	4.82	291.63	4,690.8	82.8	-220.0	-49.6	1.50	1.48	2.84
4,725.0	4.84	289.92	4,715.8	83.6	-221.9	-50.1	0.58	0.08	-6.84
4,750.0	4.90	289.58	4,740.7	84.3	-223.9	-50.5	0.27	0.24	-1.36
4,775.0	4.63	289.94	4,765.6	85.0	-225.9	-50.9	1.09	-1.08	1.44
4,800.0	4.63	289.89	4,790.5	85.7	-227.8	-51.3	0.02	0.00	-0.20
4,825.0	5.13	285.41	4,815.4	86.3	-229.8	-51.7	2.51	2.00	-17.92
4,850.0	5.64	279.40	4,840.3	86.8	-232.1	-51.8	3.04	2.04	-24.04
4,875.0	5.86	278.43	4,865.2	87.2	-234.6	-51.8	0.96	0.88	-3.88
4,900.0	5.99	277.75	4,890.0	87.6	-237.1	-51.8	0.59	0.52	-2.72
4,925.0	6.03	278.08	4,914.9	88.0	-239.7	-51.8	0.21	0.16	1.32
4,950.0	5.96	277.40	4,939.8	88.3	-242.3	-51.8	0.40	-0.28	-2.72
4,975.0	5.64	277.75	4,964.6	88.6	-244.8	-51.7	1.29	-1.28	1.40
5,000.0	5.38	277.15	4,989.5	88.9	-247.2	-51.7	1.07	-1.04	-2.40
5,025.0	5.29	276.65	5,014.4	89.2	-249.5	-51.6	0.41	-0.36	-2.00
5,050.0	5.18	276.73	5,039.3	89.5	-251.8	-51.5	0.44	-0.44	0.32
5,075.0	5.16	276.47	5,064.2	89.8	-254.0	-51.5	0.12	-0.08	-1.04
5,100.0	5.10	275.58	5,089.1	90.0	-256.2	-51.4	0.40	-0.24	-3.56
5,125.0	5.14	275.93	5,114.0	90.2	-258.4	-51.3	0.20	0.16	1.40
5,150.0	5.00	275.23	5,138.9	90.4	-260.6	-51.2	0.61	-0.56	-2.80
5,175.0	4.99	275.24	5,163.8	90.6	-262.8	-51.0	0.04	-0.04	0.04
5,200.0	4.94	275.03	5,188.7	90.8	-265.0	-50.9	0.21	-0.20	-0.84
5,225.0	5.04	274.94	5,213.6	91.0	-267.1	-50.8	0.40	0.40	-0.36
5,250.0	5.14	274.62	5,238.5	91.2	-269.3	-50.6	0.42	0.40	-1.28
5,275.0	5.08	274.42	5,263.4	91.4	-271.6	-50.5	0.25	-0.24	-0.80
5,300.0	5.21	274.38	5,288.3	91.5	-273.8	-50.3	0.52	0.52	-0.16
5,325.0	5.10	274.15	5,313.2	91.7	-276.0	-50.2	0.45	-0.44	-0.92
5,350.0	5.59	274.86	5,338.1	91.9	-278.4	-50.0	1.98	1.96	2.84
5,375.0	7.00	274.56	5,363.0	92.1	-281.1	-49.8	5.64	5.64	-1.20
5,400.0	6.07	274.54	5,387.8	92.3	-283.9	-49.6	3.72	-3.72	-0.08
5,425.0	5.73	274.72	5,412.7	92.5	-286.5	-49.5	1.36	-1.36	0.72
5,450.0	5.61	274.28	5,437.5	92.7	-288.9	-49.3	0.51	-0.48	-1.76
5,475.0	5.78	274.42	5,462.4	92.9	-291.4	-49.1	0.68	0.68	0.56
5,500.0	5.89	274.15	5,487.3	93.1	-294.0	-48.9	0.45	0.44	-1.08



Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,525.0	6.03	273.96	5,512.2	93.3	-296.5	-48.7	0.57	0.56	-0.76
5,550.0	5.78	273.49	5,537.0	93.5	-299.1	-48.5	1.02	-1.00	-1.88
5,575.0	6.21	273.50	5,561.9	93.6	-301.7	-48.3	1.72	1.72	0.04
5,600.0	6.85	275.74	5,586.7	93.9	-304.6	-48.1	2.75	2.56	8.96
5,625.0	7.00	275.81	5,611.5	94.2	-307.6	-48.0	0.60	0.60	0.28
5,650.0	6.80	275.79	5,636.4	94.5	-310.5	-47.8	0.80	-0.80	-0.08
5,675.0	7.20	275.93	5,661.2	94.8	-313.6	-47.7	1.60	1.60	0.56
5,700.0	7.57	276.26	5,686.0	95.1	-316.8	-47.6	1.49	1.48	1.32
5,725.0	6.84	276.42	5,710.8	95.5	-319.9	-47.4	2.92	-2.92	0.64
5,750.0	6.56	276.82	5,735.6	95.8	-322.8	-47.4	1.14	-1.12	1.60
5,775.0	6.46	277.45	5,760.4	96.2	-325.6	-47.3	0.49	-0.40	2.52
5,800.0	6.31	276.84	5,785.3	96.5	-328.3	-47.2	0.66	-0.60	-2.44
5,825.0	6.32	275.95	5,810.1	96.8	-331.1	-47.1	0.39	0.04	-3.56
5,850.0	6.28	275.18	5,835.0	97.1	-333.8	-47.0	0.37	-0.16	-3.08
5,875.0	7.31	274.85	5,859.8	97.3	-336.8	-46.8	4.12	4.12	-1.32
5,900.0	6.64	273.84	5,884.6	97.6	-339.8	-46.6	2.72	-2.68	-4.04
5,925.0	5.82	273.48	5,909.5	97.7	-342.5	-46.4	3.28	-3.28	-1.44
5,950.0	6.09	273.39	5,934.3	97.9	-345.1	-46.1	1.08	1.08	-0.36
5,975.0	6.03	273.19	5,959.2	98.0	-347.7	-45.9	0.25	-0.24	-0.80
6,000.0	6.02	273.58	5,984.1	98.2	-350.3	-45.7	0.17	-0.04	1.56
6,025.0	6.14	273.20	6,008.9	98.4	-353.0	-45.4	0.51	0.48	-1.52
6,050.0	6.62	274.34	6,033.8	98.5	-355.8	-45.2	1.99	1.92	4.56
6,075.0	6.96	275.69	6,058.6	98.8	-358.7	-45.0	1.50	1.36	5.40
6,100.0	7.07	276.21	6,083.4	99.1	-361.7	-44.9	0.51	0.44	2.08
6,125.0	7.13	276.15	6,108.2	99.4	-364.8	-44.8	0.24	0.24	-0.24
6,150.0	7.13	275.57	6,133.0	99.8	-367.9	-44.6	0.29	0.00	-2.32
6,175.0	7.01	275.45	6,157.8	100.1	-371.0	-44.5	0.48	-0.48	-0.48
6,200.0	7.05	275.39	6,182.6	100.3	-374.0	-44.3	0.16	0.16	-0.24
6,225.0	6.84	274.61	6,207.5	100.6	-377.0	-44.1	0.92	-0.84	-3.12
6,250.0	6.84	274.95	6,232.3	100.9	-380.0	-44.0	0.16	0.00	1.36
6,275.0	6.90	274.69	6,257.1	101.1	-383.0	-43.8	0.27	0.24	-1.04
6,300.0	6.86	273.98	6,281.9	101.3	-385.9	-43.6	0.38	-0.16	-2.84
6,325.0	6.87	274.48	6,306.7	101.6	-388.9	-43.3	0.24	0.04	2.00
6,350.0	6.84	274.34	6,331.6	101.8	-391.9	-43.1	0.14	-0.12	-0.56
6,375.0	6.78	274.06	6,356.4	102.0	-394.9	-42.9	0.27	-0.24	-1.12
6,400.0	6.71	273.85	6,381.2	102.2	-397.8	-42.7	0.30	-0.28	-0.84
6,425.0	6.72	273.77	6,406.0	102.4	-400.7	-42.4	0.05	0.04	-0.32
6,450.0	6.67	273.16	6,430.9	102.6	-403.6	-42.2	0.35	-0.20	-2.44
6,475.0	6.61	273.13	6,455.7	102.7	-406.5	-41.9	0.24	-0.24	-0.12
6,500.0	6.65	274.19	6,480.5	102.9	-409.4	-41.7	0.52	0.16	4.24
6,525.0	6.39	276.97	6,505.4	103.2	-412.2	-41.5	1.64	-1.04	11.12
6,550.0	6.27	282.01	6,530.2	103.6	-414.9	-41.6	2.27	-0.48	20.16

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
6,575.0	6.15	283.99	6,555.1	104.3	-417.6	-41.8	0.98	-0.48	7.92
6,600.0	6.02	284.53	6,579.9	104.9	-420.1	-42.1	0.57	-0.52	2.16
6,625.0	5.92	284.23	6,604.8	105.6	-422.6	-42.3	0.42	-0.40	-1.20
6,650.0	5.94	283.65	6,629.7	106.2	-425.1	-42.6	0.25	0.08	-2.32
6,675.0	5.92	282.22	6,654.5	106.8	-427.7	-42.8	0.60	-0.08	-5.72
6,700.0	5.97	279.22	6,679.4	107.2	-430.2	-42.9	1.26	0.20	-12.00
6,725.0	6.26	274.16	6,704.3	107.5	-432.9	-42.8	2.45	1.16	-20.24
6,750.0	6.60	270.54	6,729.1	107.7	-435.6	-42.5	2.12	1.36	-14.48
6,775.0	6.60	270.19	6,753.9	107.7	-438.5	-42.1	0.16	0.00	-1.40
6,800.0	6.96	270.25	6,778.8	107.7	-441.5	-41.7	1.44	1.44	0.24
6,825.0	7.62	273.66	6,803.6	107.8	-444.6	-41.3	3.16	2.64	13.64
6,850.0	8.07	275.57	6,828.3	108.1	-448.0	-41.1	2.08	1.80	7.64
6,875.0	8.30	276.50	6,853.1	108.4	-451.6	-40.9	1.06	0.92	3.72
6,900.0	8.40	276.89	6,877.8	108.9	-455.2	-40.8	0.46	0.40	1.56
6,925.0	8.46	276.73	6,902.5	109.3	-458.8	-40.7	0.26	0.24	-0.64
6,950.0	8.48	276.21	6,927.3	109.7	-462.5	-40.6	0.32	0.08	-2.08
6,975.0	8.52	276.16	6,952.0	110.1	-466.2	-40.5	0.16	0.16	-0.20
7,000.0	8.46	275.98	6,976.7	110.5	-469.8	-40.3	0.26	-0.24	-0.72
7,025.0	8.46	275.95	7,001.4	110.9	-473.5	-40.1	0.02	0.00	-0.12
7,050.0	8.41	275.98	7,026.2	111.3	-477.1	-40.0	0.20	-0.20	0.12
7,075.0	8.43	276.31	7,050.9	111.7	-480.8	-39.8	0.21	0.08	1.32
7,100.0	8.35	275.70	7,075.6	112.0	-484.4	-39.7	0.48	-0.32	-2.44
7,125.0	8.40	275.79	7,100.4	112.4	-488.0	-39.5	0.21	0.20	0.36
7,150.0	8.34	275.24	7,125.1	112.8	-491.6	-39.3	0.40	-0.24	-2.20
7,175.0	8.34	274.77	7,149.8	113.1	-495.3	-39.1	0.27	0.00	-1.88
7,200.0	8.30	274.89	7,174.6	113.4	-498.9	-38.9	0.17	-0.16	0.48
7,225.0	8.26	274.48	7,199.3	113.7	-502.5	-38.6	0.29	-0.16	-1.64
7,250.0	8.06	274.73	7,224.1	114.0	-506.0	-38.4	0.81	-0.80	1.00
7,275.0	7.86	274.49	7,248.8	114.2	-509.4	-38.2	0.81	-0.80	-0.96
7,300.0	7.48	273.87	7,273.6	114.5	-512.8	-37.9	1.56	-1.52	-2.48
7,325.0	7.17	273.71	7,298.4	114.7	-515.9	-37.7	1.24	-1.24	-0.64
7,350.0	7.09	273.84	7,323.2	114.9	-519.0	-37.4	0.33	-0.32	0.52
7,375.0	6.97	273.25	7,348.0	115.1	-522.1	-37.2	0.56	-0.48	-2.36
7,400.0	6.69	273.24	7,372.8	115.3	-525.1	-36.9	1.12	-1.12	-0.04
7,425.0	6.51	272.23	7,397.7	115.4	-527.9	-36.6	0.86	-0.72	-4.04
7,450.0	6.22	270.86	7,422.5	115.5	-530.7	-36.3	1.31	-1.16	-5.48
7,475.0	5.89	269.46	7,447.4	115.5	-533.3	-35.9	1.45	-1.32	-5.60
7,500.0	5.63	268.96	7,472.2	115.4	-535.9	-35.5	1.06	-1.04	-2.00
7,525.0	5.52	268.15	7,497.1	115.4	-538.3	-35.1	0.54	-0.44	-3.24
7,550.0	5.35	268.04	7,522.0	115.3	-540.6	-34.6	0.68	-0.68	-0.44
7,575.0	5.27	267.57	7,546.9	115.2	-543.0	-34.2	0.36	-0.32	-1.88
7,600.0	5.22	266.88	7,571.8	115.1	-545.2	-33.8	0.32	-0.20	-2.76

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
7,625.0	5.20	266.17	7,596.7	115.0	-547.5	-33.3	0.27	-0.08	-2.84
7,650.0	5.48	264.69	7,621.6	114.8	-549.8	-32.8	1.25	1.12	-5.92
7,675.0	5.45	266.79	7,646.5	114.6	-552.2	-32.3	0.81	-0.12	8.40
7,700.0	5.57	267.34	7,671.4	114.5	-554.6	-31.8	0.52	0.48	2.20
7,725.0	5.66	268.38	7,696.2	114.4	-557.0	-31.3	0.54	0.36	4.16
7,750.0	5.92	270.04	7,721.1	114.4	-559.6	-30.9	1.24	1.04	6.64
7,775.0	6.16	273.31	7,746.0	114.4	-562.2	-30.6	1.68	0.96	13.08
7,800.0	6.48	278.99	7,770.8	114.7	-564.9	-30.5	2.81	1.28	22.72
7,825.0	6.48	281.35	7,795.7	115.2	-567.7	-30.6	1.07	0.00	9.44
7,850.0	6.39	282.28	7,820.5	115.8	-570.4	-30.8	0.55	-0.36	3.72
7,875.0	6.23	282.86	7,845.4	116.4	-573.1	-31.0	0.69	-0.64	2.32
7,900.0	6.00	283.98	7,870.2	117.0	-575.7	-31.2	1.04	-0.92	4.48
7,925.0	5.80	283.43	7,895.1	117.6	-578.2	-31.4	0.83	-0.80	-2.20
7,950.0	5.74	283.34	7,920.0	118.2	-580.7	-31.6	0.24	-0.24	-0.36
7,975.0	5.79	283.00	7,944.8	118.8	-583.1	-31.9	0.24	0.20	-1.36
8,000.0	5.59	282.28	7,969.7	119.3	-585.5	-32.0	0.85	-0.80	-2.88
8,025.0	5.34	281.55	7,994.6	119.8	-587.8	-32.2	1.04	-1.00	-2.92
8,050.0	5.05	281.34	8,019.5	120.3	-590.1	-32.3	1.16	-1.16	-0.84
8,075.0	4.96	280.84	8,044.4	120.7	-592.2	-32.4	0.40	-0.36	-2.00
8,100.0	4.98	281.45	8,069.3	121.1	-594.3	-32.5	0.23	0.08	2.44
8,125.0	5.29	282.95	8,094.2	121.6	-596.5	-32.6	1.35	1.24	6.00
8,150.0	6.00	282.59	8,119.1	122.1	-598.9	-32.8	2.84	2.84	-1.44
8,175.0	6.41	282.75	8,143.9	122.7	-601.6	-33.0	1.64	1.64	0.64
8,200.0	6.58	283.18	8,168.8	123.3	-604.3	-33.3	0.71	0.68	1.72
8,225.0	6.76	283.78	8,193.6	124.0	-607.1	-33.5	0.77	0.72	2.40
8,250.0	7.58	281.68	8,218.4	124.7	-610.2	-33.7	3.44	3.28	-8.40
8,275.0	7.88	280.57	8,243.2	125.4	-613.5	-33.9	1.34	1.20	-4.44
8,300.0	7.93	280.45	8,267.9	126.0	-616.9	-34.0	0.21	0.20	-0.48
8,325.0	7.91	280.50	8,292.7	126.6	-620.2	-34.1	0.08	-0.08	0.20
8,350.0	7.70	280.64	8,317.5	127.2	-623.6	-34.3	0.84	-0.84	0.56
8,375.0	7.45	281.58	8,342.3	127.9	-626.8	-34.4	1.12	-1.00	3.76
8,400.0	7.25	282.10	8,367.0	128.5	-629.9	-34.6	0.84	-0.80	2.08
8,425.0	7.12	282.36	8,391.8	129.2	-633.0	-34.8	0.54	-0.52	1.04
8,450.0	6.89	283.05	8,416.7	129.9	-636.0	-35.0	0.98	-0.92	2.76
8,475.0	6.55	283.58	8,441.5	130.5	-638.8	-35.3	1.38	-1.36	2.12
8,500.0	6.25	282.95	8,466.3	131.2	-641.5	-35.5	1.23	-1.20	-2.52
8,525.0	6.03	282.95	8,491.2	131.8	-644.1	-35.7	0.88	-0.88	0.00
8,550.0	5.75	283.13	8,516.1	132.3	-646.6	-35.9	1.12	-1.12	0.72
8,575.0	5.59	283.27	8,540.9	132.9	-649.0	-36.1	0.64	-0.64	0.56
8,600.0	5.63	282.39	8,565.8	133.5	-651.4	-36.3	0.38	0.16	-3.52
8,625.0	5.66	281.96	8,590.7	134.0	-653.8	-36.5	0.21	0.12	-1.72
8,650.0	5.66	281.70	8,615.6	134.5	-656.2	-36.6	0.10	0.00	-1.04

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)	
8,675.0	5.91	280.15	8,640.4	135.0	-658.7	-36.7	1.18	1.00	-6.20	
8,700.0	6.59	277.12	8,665.3	135.4	-661.4	-36.7	3.02	2.72	-12.12	
8,725.0	7.33	275.26	8,690.1	135.7	-664.4	-36.6	3.09	2.96	-7.44	
8,750.0	7.47	275.98	8,714.9	136.0	-667.6	-36.5	0.67	0.56	2.88	
8,775.0	7.59	275.86	8,739.7	136.3	-670.9	-36.3	0.48	0.48	-0.48	
8,800.0	7.45	274.82	8,764.5	136.6	-674.1	-36.1	0.78	-0.56	-4.16	
8,825.0	6.93	273.86	8,789.3	136.9	-677.3	-35.9	2.13	-2.08	-3.84	
8,850.0	6.37	272.19	8,814.1	137.0	-680.2	-35.7	2.37	-2.24	-6.68	
8,875.0	6.13	272.37	8,839.0	137.1	-682.9	-35.4	0.96	-0.96	0.72	
8,900.0	5.88	273.03	8,863.8	137.3	-685.5	-35.1	1.04	-1.00	-2.64	
8,925.0	5.72	274.73	8,888.7	137.4	-688.0	-34.9	0.94	-0.64	6.80	
8,950.0	5.71	275.91	8,913.6	137.7	-690.5	-34.8	0.47	-0.04	4.72	
8,975.0	5.79	275.89	8,938.4	137.9	-693.0	-34.6	0.32	0.32	-0.08	
9,000.0	6.26	276.74	8,963.3	138.2	-695.6	-34.6	1.91	1.88	3.40	
9,025.0	6.59	277.76	8,988.2	138.6	-698.4	-34.5	1.40	1.32	4.08	
9,050.0	6.76	278.18	9,013.0	139.0	-701.2	-34.5	0.71	0.68	1.68	
9,075.0	6.90	277.29	9,037.8	139.4	-704.2	-34.4	0.70	0.56	-3.56	
9,100.0	8.08	278.01	9,062.6	139.8	-707.4	-34.4	4.73	4.72	2.88	
9,125.0	9.26	279.29	9,087.3	140.4	-711.1	-34.4	4.78	4.72	5.12	
9,150.0	9.76	279.02	9,112.0	141.0	-715.2	-34.5	2.01	2.00	-1.08	
9,175.0	9.77	279.22	9,136.6	141.7	-719.4	-34.5	0.14	0.04	0.80	
9,200.0	9.59	279.75	9,161.2	142.4	-723.5	-34.6	0.80	-0.72	2.12	
9,225.0	9.39	279.47	9,185.9	143.1	-727.6	-34.7	0.82	-0.80	-1.12	
9,250.0	8.95	278.73	9,210.6	143.7	-731.5	-34.7	1.82	-1.76	-2.96	
9,275.0	8.61	278.10	9,235.3	144.3	-735.3	-34.7	1.41	-1.36	-2.52	
9,300.0	8.40	276.36	9,260.0	144.7	-739.0	-34.6	1.33	-0.84	-6.96	
9,325.0	8.07	275.50	9,284.8	145.1	-742.5	-34.5	1.41	-1.32	-3.44	
9,350.0	8.03	274.34	9,309.5	145.4	-746.0	-34.3	0.67	-0.16	-4.64	
9,375.0	7.78	274.37	9,334.3	145.7	-749.5	-34.0	1.00	-1.00	0.12	
9,400.0	7.62	273.99	9,359.0	145.9	-752.8	-33.8	0.67	-0.64	-1.52	
9,425.0	7.48	275.93	9,383.8	146.2	-756.1	-33.6	1.16	-0.56	7.76	
9,450.0	7.58	275.87	9,408.6	146.5	-759.3	-33.4	0.40	0.40	-0.24	
9,475.0	7.86	280.80	9,433.4	147.0	-762.7	-33.4	2.87	1.12	19.72	
9,500.0	8.60	290.68	9,458.1	148.0	-766.1	-33.9	6.37	2.96	39.52	
9,525.0	9.02	294.40	9,482.8	149.5	-769.6	-34.8	2.83	1.68	14.88	
9,550.0	9.14	294.50	9,507.5	151.1	-773.2	-35.9	0.48	0.48	0.40	
9,575.0	8.73	294.60	9,532.2	152.7	-776.7	-37.0	1.64	-1.64	0.40	
9,600.0	8.28	294.48	9,556.9	154.3	-780.1	-38.0	1.80	-1.80	-0.48	
9,625.0	7.49	295.55	9,581.7	155.7	-783.2	-39.0	3.21	-3.16	4.28	
9,650.0	6.93	296.58	9,606.5	157.1	-786.0	-39.9	2.30	-2.24	4.12	
9,675.0	6.01	301.44	9,631.4	158.4	-788.5	-40.9	4.28	-3.68	19.44	
9,700.0	5.89	302.68	9,656.2	159.8	-790.7	-42.0	0.70	-0.48	4.96	

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)
9,725.0	5.48	303.21	9,681.1	161.2	-792.8	-43.0	1.65	-1.64	2.12
9,750.0	5.10	303.49	9,706.0	162.4	-794.7	-44.0	1.52	-1.52	1.12
9,775.0	4.98	303.20	9,730.9	163.6	-796.5	-44.9	0.49	-0.48	-1.16
9,800.0	4.89	302.24	9,755.8	164.8	-798.3	-45.8	0.49	-0.36	-3.84
9,825.0	5.07	304.51	9,780.7	166.0	-800.2	-46.7	1.07	0.72	9.08
9,850.0	5.18	302.22	9,805.6	167.2	-802.0	-47.6	0.93	0.44	-9.16
9,875.0	5.91	297.34	9,830.5	168.4	-804.1	-48.5	3.47	2.92	-19.52
9,900.0	6.97	293.24	9,855.3	169.6	-806.7	-49.3	4.62	4.24	-16.40
9,925.0	7.42	292.36	9,880.1	170.8	-809.5	-50.1	1.85	1.80	-3.52
9,950.0	7.63	293.91	9,904.9	172.1	-812.6	-50.9	1.17	0.84	6.20
9,975.0	7.66	296.51	9,929.7	173.5	-815.6	-51.9	1.39	0.12	10.40
10,000.0	7.27	296.39	9,954.5	175.0	-818.5	-52.9	1.56	-1.56	-0.48
10,025.0	6.99	297.10	9,979.3	176.4	-821.2	-53.8	1.17	-1.12	2.84
10,050.0	6.58	297.36	10,004.1	177.7	-823.9	-54.8	1.64	-1.64	1.04
10,075.0	6.08	296.97	10,029.0	179.0	-826.3	-55.7	2.01	-2.00	-1.56
10,100.0	5.58	294.52	10,053.8	180.1	-828.6	-56.4	2.23	-2.00	-9.80
10,125.0	4.97	291.06	10,078.7	181.0	-830.7	-57.0	2.75	-2.44	-13.84
10,150.0	4.61	291.22	10,103.6	181.7	-832.7	-57.5	1.44	-1.44	0.64
10,175.0	4.42	289.52	10,128.6	182.4	-834.5	-57.9	0.93	-0.76	-6.80
10,200.0	4.64	288.07	10,153.5	183.0	-836.4	-58.2	0.99	0.88	-5.80
10,225.0	5.01	284.24	10,178.4	183.6	-838.4	-58.5	1.96	1.48	-15.32
10,250.0	5.60	279.52	10,203.3	184.1	-840.7	-58.6	2.93	2.36	-18.88
10,275.0	5.75	278.00	10,228.2	184.5	-843.1	-58.6	0.85	0.60	-6.08
10,300.0	5.90	278.65	10,253.0	184.8	-845.6	-58.6	0.66	0.60	2.60
10,325.0	6.17	278.53	10,277.9	185.2	-848.2	-58.6	1.08	1.08	-0.48
10,350.0	6.52	277.59	10,302.7	185.6	-850.9	-58.6	1.46	1.40	-3.76
10,375.0	6.72	276.32	10,327.6	186.0	-853.8	-58.6	0.99	0.80	-5.08
10,400.0	6.63	276.87	10,352.4	186.3	-856.7	-58.5	0.44	-0.36	2.20
10,425.0	7.26	277.81	10,377.2	186.7	-859.7	-58.4	2.56	2.52	3.76
10,450.0	7.35	277.09	10,402.0	187.1	-862.8	-58.3	0.51	0.36	-2.88
10,475.0	6.99	276.66	10,426.8	187.5	-865.9	-58.3	1.46	-1.44	-1.72
10,500.0	7.13	278.86	10,451.6	187.9	-869.0	-58.2	1.22	0.56	8.80
10,525.0	6.92	277.43	10,476.4	188.3	-872.0	-58.2	1.09	-0.84	-5.72
10,550.0	7.10	277.19	10,501.3	188.7	-875.0	-58.1	0.73	0.72	-0.96
10,575.0	7.20	277.16	10,526.1	189.1	-878.1	-58.1	0.40	0.40	-0.12
10,600.0	6.93	277.44	10,550.9	189.5	-881.2	-58.0	1.09	-1.08	1.12
10,625.0	6.75	277.05	10,575.7	189.9	-884.1	-58.0	0.74	-0.72	-1.56
10,650.0	6.41	278.72	10,600.5	190.3	-887.0	-57.9	1.56	-1.36	6.68
10,675.0	6.06	280.34	10,625.4	190.7	-889.6	-58.0	1.57	-1.40	6.48
10,680.0	5.99	280.68	10,630.4	190.8	-890.2	-58.0	1.57	-1.40	6.80
10,758.0	4.06	272.72	10,708.1	191.7	-896.9	-57.9	2.63	-2.47	-10.21
10,852.0	6.35	245.97	10,801.7	189.7	-905.0	-54.8	3.49	2.44	-28.46

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,884.0	8.12	234.55	10,833.4	187.7	-908.5	-52.2	7.10	5.53	-35.69
10,915.0	11.19	229.64	10,864.0	184.5	-912.5	-48.5	10.24	9.90	-15.84
10,947.0	13.64	227.47	10,895.2	179.9	-917.7	-43.2	7.79	7.66	-6.78
10,989.0	16.96	226.26	10,935.7	172.3	-925.8	-34.5	7.94	7.90	-2.88
11,010.0	18.48	222.24	10,955.7	167.7	-930.2	-29.3	9.29	7.24	-19.14
11,041.0	20.52	217.00	10,985.0	159.8	-936.8	-20.5	8.66	6.58	-16.90
11,073.0	21.43	209.93	11,014.8	150.2	-943.1	-10.1	8.40	2.84	-22.09
11,104.0	19.71	206.41	11,043.9	140.6	-948.2	0.2	6.83	-5.55	-11.35
11,133.0	19.36	202.65	11,071.2	131.8	-952.2	9.5	4.50	-1.21	-12.97
11,164.0	19.78	199.85	11,100.4	122.1	-956.0	19.6	3.31	1.35	-9.03
11,195.0	21.21	194.32	11,129.5	111.8	-959.2	30.3	7.76	4.61	-17.84
11,227.0	25.31	192.06	11,158.8	99.5	-962.0	42.9	13.11	12.81	-7.06
11,258.0	28.93	190.10	11,186.4	85.6	-964.7	57.0	12.03	11.68	-6.32
11,290.0	31.56	188.90	11,214.1	69.7	-967.4	73.1	8.43	8.22	-3.75
11,321.0	33.92	190.55	11,240.1	53.2	-970.2	89.9	8.14	7.61	5.32
11,353.0	37.96	193.33	11,266.1	34.8	-974.1	108.6	13.61	12.63	8.69
11,384.0	42.69	194.34	11,289.7	15.3	-978.9	128.6	15.40	15.26	3.26
11,415.0	47.70	194.66	11,311.5	-5.9	-984.4	150.5	16.18	16.16	1.03
11,447.0	52.93	195.35	11,331.9	-29.7	-990.8	174.9	16.43	16.34	2.16
11,478.0	57.58	195.85	11,349.6	-54.2	-997.7	200.2	15.06	15.00	1.61
11,510.0	62.78	195.75	11,365.5	-80.9	-1,005.2	227.7	16.25	16.25	-0.31
11,541.0	65.39	195.06	11,379.1	-107.8	-1,012.6	255.4	8.65	8.42	-2.23
11,572.0	67.98	193.48	11,391.3	-135.4	-1,019.7	283.7	9.58	8.35	-5.10
11,604.0	71.29	193.17	11,402.5	-164.6	-1,026.6	313.6	10.38	10.34	-0.97
11,635.0	75.24	193.32	11,411.4	-193.5	-1,033.4	343.2	12.75	12.74	-0.48
11,657.0	78.18	193.70	11,416.4	-214.3	-1,038.4	364.5	13.47	13.36	1.73
11,704.0	83.35	195.87	11,424.0	-259.1	-1,050.2	410.6	11.91	11.00	4.62
11,751.0	84.16	196.26	11,429.1	-304.0	-1,063.1	456.9	1.91	1.72	0.83
11,846.0	88.99	194.85	11,434.8	-395.4	-1,088.6	551.0	5.30	5.08	-1.48
11,940.0	90.19	192.56	11,435.4	-486.7	-1,110.8	644.5	2.75	1.28	-2.44
12,034.0	91.29	190.35	11,434.2	-578.8	-1,129.5	738.4	2.63	1.17	-2.35
12,129.0	89.13	185.99	11,433.9	-672.8	-1,143.0	833.4	5.12	-2.27	-4.59
12,223.0	88.74	184.34	11,435.6	-766.4	-1,151.4	927.2	1.80	-0.41	-1.76
12,317.0	90.09	184.96	11,436.6	-860.1	-1,159.1	1,021.0	1.58	1.44	0.66
12,412.0	90.79	184.38	11,435.9	-954.8	-1,166.8	1,115.8	0.96	0.74	-0.61
12,506.0	89.89	183.60	11,435.3	-1,048.5	-1,173.3	1,209.5	1.27	-0.96	-0.83
12,600.0	89.11	182.24	11,436.1	-1,142.4	-1,178.1	1,303.0	1.67	-0.83	-1.45
12,694.0	89.66	179.96	11,437.1	-1,236.4	-1,179.9	1,396.3	2.49	0.59	-2.43
12,789.0	89.86	178.83	11,437.5	-1,331.4	-1,178.9	1,490.1	1.21	0.21	-1.19
12,883.0	91.88	179.72	11,436.1	-1,425.3	-1,177.7	1,582.9	2.35	2.15	0.95
12,978.0	92.63	180.53	11,432.4	-1,520.3	-1,177.9	1,676.8	1.16	0.79	0.85
13,072.0	93.56	179.94	11,427.3	-1,614.1	-1,178.3	1,769.7	1.17	0.99	-0.63

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,166.0	93.47	178.55	11,421.5	-1,707.9	-1,177.1	1,862.3	1.48	-0.10	-1.48
13,260.0	90.31	177.06	11,418.4	-1,801.8	-1,173.5	1,954.6	3.72	-3.36	-1.59
13,355.0	82.93	176.97	11,424.0	-1,896.4	-1,168.6	2,047.5	7.77	-7.77	-0.09
13,449.0	83.13	177.15	11,435.4	-1,989.6	-1,163.8	2,139.0	0.29	0.21	0.19
13,543.0	83.94	177.59	11,446.0	-2,082.9	-1,159.5	2,230.6	0.98	0.86	0.47
13,638.0	84.79	177.88	11,455.3	-2,177.4	-1,155.8	2,323.5	0.94	0.89	0.31
13,732.0	87.96	177.58	11,461.3	-2,271.1	-1,152.0	2,415.7	3.39	3.37	-0.32
13,826.0	89.24	177.74	11,463.6	-2,365.0	-1,148.2	2,508.0	1.37	1.36	0.17
13,921.0	90.59	179.66	11,463.7	-2,460.0	-1,146.0	2,601.6	2.47	1.42	2.02
14,015.0	90.59	180.94	11,462.8	-2,554.0	-1,146.5	2,694.7	1.36	0.00	1.36
14,109.0	88.57	181.01	11,463.4	-2,648.0	-1,148.1	2,787.9	2.15	-2.15	0.07
14,204.0	88.10	180.78	11,466.2	-2,742.9	-1,149.6	2,882.0	0.55	-0.49	-0.24
14,298.0	88.32	180.96	11,469.1	-2,836.8	-1,151.0	2,975.1	0.30	0.23	0.19
14,393.0	88.71	181.10	11,471.6	-2,931.8	-1,152.8	3,069.3	0.44	0.41	0.15
14,487.0	88.91	181.35	11,473.6	-3,025.8	-1,154.8	3,162.5	0.34	0.21	0.27
14,582.0	89.86	181.66	11,474.6	-3,120.7	-1,157.3	3,256.8	1.05	1.00	0.33
14,676.0	89.51	180.71	11,475.1	-3,214.7	-1,159.2	3,350.1	1.08	-0.37	-1.01
14,770.0	88.60	180.10	11,476.6	-3,308.7	-1,159.9	3,443.1	1.17	-0.97	-0.65
14,865.0	89.72	180.13	11,478.0	-3,403.7	-1,160.1	3,537.1	1.18	1.18	0.03
14,959.0	88.80	179.92	11,479.2	-3,497.7	-1,160.1	3,630.1	1.00	-0.98	-0.22
15,054.0	87.37	179.09	11,482.4	-3,592.6	-1,159.3	3,723.9	1.74	-1.51	-0.87
15,148.0	87.59	178.96	11,486.6	-3,686.5	-1,157.7	3,816.5	0.27	0.23	-0.14
15,242.0	87.81	178.84	11,490.3	-3,780.4	-1,155.9	3,909.2	0.27	0.23	-0.13
15,337.0	88.18	178.46	11,493.7	-3,875.3	-1,153.6	4,002.7	0.56	0.39	-0.40
15,431.0	88.63	178.39	11,496.3	-3,969.2	-1,151.1	4,095.3	0.48	0.48	-0.07
15,525.0	88.96	178.08	11,498.2	-4,063.2	-1,148.2	4,187.7	0.48	0.35	-0.33
15,620.0	89.41	178.45	11,499.6	-4,158.1	-1,145.3	4,281.2	0.61	0.47	0.39
15,714.0	90.14	178.41	11,500.0	-4,252.1	-1,142.7	4,373.8	0.78	0.78	-0.04
15,808.0	90.50	178.35	11,499.4	-4,346.0	-1,140.1	4,466.4	0.39	0.38	-0.06
15,903.0	91.34	178.60	11,497.9	-4,441.0	-1,137.5	4,559.9	0.92	0.88	0.26
15,997.0	91.85	178.80	11,495.3	-4,534.9	-1,135.4	4,652.5	0.58	0.54	0.21
16,091.0	91.09	179.11	11,492.9	-4,628.9	-1,133.7	4,745.2	0.87	-0.81	0.33
16,186.0	88.91	180.17	11,492.9	-4,723.9	-1,133.1	4,839.1	2.55	-2.29	1.12
16,280.0	88.35	180.13	11,495.1	-4,817.9	-1,133.3	4,932.1	0.60	-0.60	-0.04
16,374.0	88.80	179.95	11,497.5	-4,911.8	-1,133.4	5,025.0	0.52	0.48	-0.19
16,468.0	89.05	179.84	11,499.2	-5,005.8	-1,133.2	5,118.0	0.29	0.27	-0.12
16,562.0	89.55	179.72	11,500.4	-5,099.8	-1,132.9	5,210.9	0.55	0.53	-0.13
16,657.0	89.83	180.00	11,500.9	-5,194.8	-1,132.6	5,304.8	0.42	0.29	0.29
16,751.0	90.00	180.08	11,501.0	-5,288.8	-1,132.7	5,397.8	0.20	0.18	0.09
16,845.0	90.28	180.18	11,500.8	-5,382.8	-1,132.9	5,490.8	0.32	0.30	0.11
16,940.0	91.48	179.87	11,499.4	-5,477.8	-1,133.0	5,584.8	1.30	1.26	-0.33
17,034.0	92.13	179.77	11,496.4	-5,571.7	-1,132.7	5,677.7	0.70	0.69	-0.11

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well GETTYSBURG STATE COM #15H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Site:	BULLDOG	MD Reference:	RKB=3425+30 @ 3455.0usft (SCANDRILL QUEST)
Well:	GETTYSBURG STATE COM #15H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

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)	
17,128.0	91.79	180.01	11,493.2	-5,665.7	-1,132.5	5,770.6	0.44	-0.36	0.26	
17,222.0	90.25	180.11	11,491.5	-5,759.7	-1,132.6	5,863.5	1.64	-1.64	0.11	
17,317.0	90.31	180.02	11,491.0	-5,854.7	-1,132.7	5,957.5	0.11	0.06	-0.09	
17,411.0	90.42	180.25	11,490.4	-5,948.7	-1,132.9	6,050.5	0.27	0.12	0.24	
17,505.0	89.55	180.97	11,490.5	-6,042.7	-1,133.9	6,143.7	1.20	-0.93	0.77	
17,600.0	89.21	180.84	11,491.5	-6,137.6	-1,135.4	6,237.8	0.38	-0.36	-0.14	
17,694.0	88.77	180.32	11,493.1	-6,231.6	-1,136.4	6,330.9	0.72	-0.47	-0.55	
17,789.0	87.56	178.54	11,496.2	-6,326.6	-1,135.4	6,424.7	2.26	-1.27	-1.87	
17,883.0	88.46	178.32	11,499.5	-6,420.5	-1,132.8	6,517.2	0.99	0.96	-0.23	
17,978.0	89.27	179.01	11,501.3	-6,515.4	-1,130.6	6,610.8	1.12	0.85	0.73	
18,072.0	89.33	179.42	11,502.5	-6,609.4	-1,129.3	6,703.6	0.44	0.06	0.44	
18,166.0	89.78	179.83	11,503.2	-6,703.4	-1,128.7	6,796.5	0.65	0.48	0.44	
18,260.0	89.97	179.38	11,503.4	-6,797.4	-1,128.1	6,889.4	0.52	0.20	-0.48	
18,355.0	90.61	179.40	11,502.9	-6,892.4	-1,127.1	6,983.2	0.67	0.67	0.02	
18,449.0	92.07	179.81	11,500.7	-6,986.4	-1,126.4	7,076.0	1.61	1.55	0.44	
18,543.0	92.10	180.00	11,497.3	-7,080.3	-1,126.3	7,168.9	0.20	0.03	0.20	
18,637.0	91.15	180.05	11,494.7	-7,174.3	-1,126.3	7,261.9	1.01	-1.01	0.05	
18,732.0	90.34	180.12	11,493.4	-7,269.2	-1,126.4	7,355.9	0.86	-0.85	0.07	
18,826.0	89.83	180.36	11,493.3	-7,363.2	-1,126.8	7,448.9	0.60	-0.54	0.26	
18,905.0	89.83	180.36	11,493.5	-7,442.2	-1,127.3	7,527.1	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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