



Directional Survey

JUN 12 2015

Well Name: THISTLE UNIT 34H

RECEIVED

Sub-Division	Region	Field Name	County	State/Province
DELAWARE BASIN	DELAWARE BASIN EAST	JOHNSON RANCH	LEA	NM
Surface Legal Location	API/UWI	Latitude (°)	Longitude (°)	Ground Elev MSL (ft)
Sec. 33 23S 33E	3002540719	32° 15' 16.932" N	103° 34' 42.843" W	3,665.00
				Orig KB Elevation (ft)
				3,688.00

Wellbores			
Wellbore Name	Parent Wellbore	SAP Well ID	Vertical Section Direction (°)
OH	OH	38091	3.39

Kick Offs & Key Depths			
Date		Type	Top Depth (ftKB)
3/16/2015		Kick Off	8,152.0
Actual Deviation Survey	Definitive?	Proposed?	Proposed Deviation Survey
<des>, Proposed? No	No	No	

Deviation Survey					
Date		Description			
MD Tie In (ftKB)	TVD Tie In (ftKB)	Inclination Tie In (°)	Azimuth Tie In (°)	NSTie In (ft)	EW Tie In (ft)

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
3/7/2015	190.00	0.45	275.00	190.00	0.02	0.07	-0.74	0.24	MS	EXTREME
3/2/2015	250.00	0.48	279.85	250.00	0.06	0.13	-1.23	0.08	MS	EXTREME
3/2/2015	335.00	0.31	25.79	334.99	0.31	0.40	-1.48	0.75	MS	EXTREME
3/7/2015	426.00	0.31	60.25	425.99	0.67	0.74	-1.16	0.20	MS	EXTREME
3/7/2015	517.00	0.33	120.55	516.99	0.69	0.73	-0.72	0.35	MS	EXTREME
3/7/2015	608.00	0.35	150.68	607.99	0.33	0.35	-0.35	0.20	MS	EXTREME
3/2/2015	696.00	0.40	192.27	695.99	-0.20	-0.18	-0.29	0.31	MS	EXTREME
3/7/2015	787.00	0.40	210.45	786.99	-0.79	-0.76	-0.52	0.14	MS	EXTREME
3/7/2015	878.00	0.35	230.87	877.99	-1.26	-1.21	-0.89	0.16	MS	EXTREME
3/2/2015	946.00	0.31	255.25	945.98	-1.46	-1.39	-1.23	0.21	MS	EXTREME
3/7/2015	1,037.00	0.31	270.25	1,036.98	-1.55	-1.45	-1.72	0.09	MS	EXTREME
3/7/2015	1,128.00	0.40	285.36	1,127.98	-1.50	-1.37	-2.27	0.14	MS	EXTREME
3/2/2015	1,233.00	0.49	294.36	1,232.98	-1.26	-1.09	-3.03	0.11	MS	EXTREME
3/7/2015	1,324.00	0.45	325.21	1,323.97	-0.84	-0.63	-3.59	0.28	MS	EXTREME
3/5/2015	1,494.00	0.40	331.84	1,493.97	0.19	0.44	-4.25	0.04	MS	EXTREME
3/2/2015	1,572.00	0.79	334.43	1,571.97	0.89	1.16	-4.61	0.50	MS	EXTREME
3/6/2015	1,654.00	1.01	324.94	1,653.96	1.95	2.27	-5.27	0.32	MS	EXTREME
3/7/2015	1,745.00	0.98	326.58	1,744.94	3.20	3.57	-6.16	0.05	MS	EXTREME
3/6/2015	1,868.00	0.88	328.15	1,867.93	4.81	5.25	-7.24	0.08	MS	EXTREME
3/6/2015	1,951.00	0.79	329.64	1,950.92	5.81	6.29	-7.86	0.11	MS	EXTREME
3/6/2015	2,046.00	0.70	334.35	2,045.91	6.86	7.38	-8.45	0.11	MS	EXTREME
3/6/2015	2,138.00	0.88	330.74	2,137.90	7.95	8.50	-9.03	0.20	MS	EXTREME
3/6/2015	2,232.00	0.88	316.64	2,231.89	9.05	9.65	-9.88	0.23	MS	EXTREME
3/6/2015	2,322.00	0.79	329.16	2,321.88	10.04	10.69	-10.67	0.23	MS	EXTREME
3/6/2015	2,416.00	1.01	318.83	2,415.87	11.16	11.87	-11.55	0.29	MS	EXTREME
3/6/2015	2,513.00	0.79	322.05	2,512.86	12.28	13.04	-12.53	0.23	MS	EXTREME
3/6/2015	2,607.00	0.88	316.07	2,606.85	13.25	14.07	-13.43	0.13	MS	EXTREME
3/6/2015	2,702.00	1.10	320.55	2,701.83	14.41	15.30	-14.51	0.25	MS	EXTREME
3/7/2015	2,893.00	1.19	320.24	2,892.79	17.21	18.24	-16.94	0.05	MS	EXTREME
3/7/2015	2,989.00	1.19	333.34	2,988.77	18.80	19.90	-18.03	0.28	MS	EXTREME
3/7/2015	3,084.00	1.19	327.14	3,083.75	20.45	21.61	-19.01	0.14	MS	EXTREME
3/7/2015	3,178.00	1.32	331.53	3,177.73	22.15	23.38	-20.05	0.17	MS	EXTREME
3/7/2015	3,274.00	1.32	333.64	3,273.70	24.05	25.34	-21.07	0.05	MS	EXTREME
3/7/2015	3,364.00	1.10	323.67	3,363.68	25.62	26.97	-22.04	0.34	MS	EXTREME
3/7/2015	3,458.00	1.10	339.75	3,457.67	27.14	28.54	-22.89	0.33	MS	EXTREME
3/7/2015	3,553.00	1.01	343.53	3,552.65	28.76	30.20	-23.44	0.12	MS	EXTREME
3/7/2015	3,647.00	1.10	345.73	3,646.64	30.40	31.87	-23.90	0.10	MS	EXTREME
3/7/2015	3,746.00	1.10	338.96	3,745.62	32.17	33.68	-24.48	0.13	MS	EXTREME
3/7/2015	3,834.00	1.19	339.75	3,833.60	33.77	35.32	-25.10	0.10	MS	EXTREME
3/7/2015	3,930.00	1.10	338.04	3,929.58	35.52	37.11	-25.78	0.10	MS	EXTREME
3/7/2015	4,022.00	0.88	338.04	4,021.57	36.96	38.58	-26.38	0.24	MS	EXTREME
3/7/2015	4,122.00	1.01	341.64	4,121.55	38.47	40.13	-26.94	0.14	MS	EXTREME
3/7/2015	4,217.00	1.10	336.63	4,216.54	40.06	41.77	-27.57	0.14	MS	EXTREME
3/7/2015	4,307.00	1.19	343.75	4,306.52	41.71	43.46	-28.17	0.19	MS	EXTREME
3/7/2015	4,406.00	0.88	347.97	4,405.50	43.41	45.19	-28.62	0.32	MS	EXTREME
3/7/2015	4,506.00	0.88	20.05	4,505.49	44.89	46.66	-28.52	0.49	MS	EXTREME
3/7/2015	4,601.00	0.62	69.44	4,600.48	45.80	47.52	-27.79	0.70	MS	EXTREME
3/7/2015	4,696.00	1.19	104.95	4,695.47	45.81	47.45	-26.35	0.81	MS	EXTREME
3/7/2015	4,798.00	2.81	121.26	4,797.41	44.43	45.88	-23.19	1.67	MS	EXTREME
3/7/2015	4,884.00	4.00	122.66	4,883.25	41.98	43.17	-18.86	1.39	MS	EXTREME
3/7/2015	4,983.00	4.31	118.75	4,981.99	38.69	39.51	-12.69	0.42	MS	EXTREME
3/7/2015	5,077.00	3.91	123.54	5,075.75	35.57	36.04	-6.93	0.56	MS	EXTREME
3/7/2015	5,203.00	2.70	122.10	5,201.54	31.99	32.09	-0.83	0.96	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,298.00	4.00	125.10	5,296.38	29.17	29.00	3.78	1.38	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,392.00	5.50	126.80	5,390.05	24.97	24.42	10.07	1.60	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,487.00	5.90	133.50	5,484.58	19.32	18.33	17.25	0.82	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,581.00	6.10	134.40	5,578.07	12.93	11.51	24.33	0.24	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,675.00	6.10	136.00	5,671.54	6.27	4.42	31.36	0.18	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,770.00	5.90	136.00	5,766.01	-0.46	-2.72	38.26	0.21	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,865.00	6.10	136.90	5,860.49	-7.24	-9.92	45.10	0.23	MS	LEAM DRILLING SYSTEMS
3/7/2015	5,959.00	6.20	135.60	5,953.95	-14.09	-17.19	52.07	0.18	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,053.00	5.80	136.10	6,047.44	-20.72	-24.24	58.91	0.43	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,147.00	5.90	137.40	6,140.95	-27.30	-31.22	65.47	0.18	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,242.00	5.90	137.20	6,235.45	-34.07	-38.40	72.10	0.02	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,336.00	5.70	138.10	6,328.96	-40.70	-45.42	78.50	0.23	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,431.00	5.80	139.30	6,423.49	-47.46	-52.57	84.78	0.16	MS	LEAM DRILLING SYSTEMS



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3/7/2015	6,525.00	6.00	138.80	6,516.99	-54.37	-59.87	91.11	0.22	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,621.00	6.20	137.90	6,612.44	-61.58	-67.49	97.89	0.23	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,716.00	6.40	140.40	6,706.87	-69.05	-75.37	104.71	0.36	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,810.00	6.30	140.90	6,800.29	-76.69	-83.41	111.30	0.12	MS	LEAM DRILLING SYSTEMS
3/7/2015	6,905.00	6.10	141.20	6,894.74	-84.27	-91.39	117.75	0.21	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,000.00	6.00	142.50	6,989.21	-91.76	-99.26	123.93	0.18	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,095.00	6.00	143.70	7,083.69	-99.34	-107.21	129.90	0.13	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,190.00	6.20	144.80	7,178.15	-107.17	-115.40	135.79	0.24	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,285.00	6.20	144.60	7,272.60	-115.18	-123.77	141.72	0.02	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,380.00	5.40	145.50	7,367.11	-122.70	-131.64	147.22	0.85	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,476.00	4.40	147.40	7,462.76	-129.25	-138.46	151.77	1.06	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,570.00	4.00	154.60	7,556.50	-135.04	-144.46	155.12	0.70	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,665.00	2.70	158.30	7,651.34	-139.97	-149.53	157.36	1.39	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,759.00	1.40	167.10	7,745.28	-143.08	-152.71	158.44	1.42	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,854.00	0.90	179.40	7,840.26	-144.93	-154.59	158.71	0.58	MS	LEAM DRILLING SYSTEMS
3/7/2015	7,948.00	0.20	205.20	7,934.25	-145.82	-155.48	158.64	0.77	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,043.00	0.20	212.30	8,029.25	-146.12	-155.77	158.49	0.03	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,138.00	0.40	306.10	8,124.25	-146.09	-155.71	158.13	0.48	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,169.00	2.40	357.50	8,155.24	-145.38	-155.00	158.01	7.01	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,200.00	5.50	356.10	8,186.17	-143.26	-152.87	157.88	10.00	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,232.00	7.90	355.30	8,217.94	-139.56	-149.14	157.60	7.51	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,263.00	11.80	355.20	8,248.48	-134.32	-143.86	157.16	12.58	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,295.00	15.30	356.80	8,279.59	-126.88	-136.38	156.65	11.00	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,326.00	18.60	356.80	8,309.24	-117.90	-127.36	156.15	10.65	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,358.00	22.30	358.00	8,339.21	-106.79	-116.19	155.65	11.64	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,389.00	25.70	357.80	8,367.53	-94.24	-103.59	155.18	10.97	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,421.00	29.10	357.50	8,395.94	-79.59	-88.88	154.58	10.63	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,452.00	32.30	357.50	8,422.59	-63.85	-73.07	153.89	10.32	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,484.00	34.60	359.90	8,449.29	-46.27	-55.44	153.50	8.29	MS	LEAM DRILLING SYSTEMS
3/7/2015	8,515.00	37.80	0.30	8,474.30	-27.99	-37.14	153.53	10.35	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,547.00	42.10	0.30	8,498.82	-7.48	-16.59	153.64	13.44	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,578.00	46.40	0.40	8,521.02	14.12	5.03	153.77	13.87	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,609.00	49.70	0.80	8,541.74	37.14	28.08	154.02	10.69	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,640.00	52.20	0.80	8,561.27	61.19	52.15	154.35	8.06	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,672.00	54.30	1.50	8,580.42	86.81	77.79	154.87	6.79	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,704.00	56.40	2.40	8,598.61	113.12	104.09	155.77	6.96	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,735.00	58.20	2.90	8,615.36	139.21	130.15	156.98	5.96	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,767.00	59.80	3.40	8,631.84	166.63	157.54	158.48	5.18	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,803.00	62.60	3.80	8,649.18	198.18	189.02	160.47	7.84	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,835.00	66.10	4.10	8,663.03	227.02	217.79	162.45	10.97	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,863.00	68.80	4.50	8,673.77	252.87	243.58	164.39	9.73	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,898.00	70.90	4.80	8,685.82	285.72	276.32	167.06	6.05	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,930.00	73.70	5.00	8,695.55	316.19	306.70	169.66	8.77	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,962.00	76.50	4.70	8,703.78	347.10	337.51	172.28	8.80	MS	LEAM DRILLING SYSTEMS
3/17/2015	8,993.00	78.90	4.70	8,710.38	377.38	367.69	174.76	7.74	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,025.00	80.40	5.00	8,716.13	408.85	399.06	177.42	4.78	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,056.00	80.10	5.40	8,721.38	439.39	429.48	180.19	1.60	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,088.00	81.30	5.40	8,726.55	470.94	460.92	183.16	3.75	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,120.00	84.20	5.50	8,730.59	502.66	492.52	186.17	9.07	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,152.00	86.30	5.90	8,733.24	534.53	524.25	189.34	6.68	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,183.00	88.70	6.20	8,734.59	565.46	555.04	192.61	7.80	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,215.00	91.00	6.40	8,734.68	597.42	586.85	196.12	7.21	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,278.00	91.50	6.40	8,733.30	660.32	649.44	203.14	0.79	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,373.00	90.10	6.10	8,731.98	755.19	743.86	213.48	1.51	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,469.00	89.30	5.70	8,732.48	851.09	839.35	223.35	0.93	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,563.00	90.00	5.70	8,733.05	945.01	932.89	232.68	0.74	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,658.00	89.60	5.90	8,733.38	1,039.93	1,027.40	242.28	0.47	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,752.00	90.00	5.40	8,733.71	1,133.85	1,120.94	251.54	0.68	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,847.00	90.70	4.50	8,733.13	1,228.82	1,215.58	259.73	1.20	MS	LEAM DRILLING SYSTEMS
3/17/2015	9,941.00	90.70	4.10	8,731.98	1,322.80	1,309.31	266.78	0.43	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,036.00	92.00	4.00	8,729.75	1,417.76	1,404.05	273.49	1.37	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,131.00	92.80	3.80	8,725.77	1,512.67	1,498.74	279.95	0.87	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,225.00	92.50	4.10	8,721.42	1,606.57	1,592.42	286.41	0.45	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,330.00	90.70	4.50	8,718.49	1,711.51	1,697.08	294.28	1.76	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,424.00	90.70	5.90	8,717.34	1,805.45	1,790.68	302.80	1.49	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,518.00	90.00	5.90	8,716.77	1,899.36	1,884.18	312.46	0.74	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,612.00	90.00	5.00	8,716.77	1,993.30	1,977.76	321.39	0.96	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,707.00	90.00	5.50	8,716.77	2,088.25	2,072.36	330.08	0.53	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,802.00	89.20	4.80	8,717.43	2,183.20	2,166.97	338.61	1.12	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,896.00	89.70	3.60	8,718.33	2,277.18	2,260.71	345.50	1.38	MS	LEAM DRILLING SYSTEMS
3/17/2015	10,990.00	90.10	5.40	8,718.50	2,371.16	2,354.42	352.87	1.96	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,085.00	90.90	5.70	8,717.67	2,466.09	2,448.97	362.06	0.90	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,179.00	90.70	3.60	8,716.35	2,560.05	2,542.64	369.68	2.24	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,273.00	91.40	4.30	8,714.63	2,654.03	2,636.40	376.15	1.05	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,368.00	90.50	3.10	8,713.06	2,749.02	2,731.19	382.28	1.58	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,462.00	90.60	2.40	8,712.15	2,843.00	2,825.08	386.79	0.75	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,557.00	89.50	2.40	8,712.07	2,937.99	2,919.99	390.77	1.16	MS	LEAM DRILLING SYSTEMS



Directional Survey

Well Name: THISTLE UNIT 34H

Sub-Division	Region	Field Name	County	State/Province	
DELAWARE BASIN	DELAWARE BASIN EAST	JOHNSON RANCH	LEA	NM	
Surface Legal Location	API/UWI	Latitude (°)	Longitude (°)	Ground Elev MSL (ft)	Orig KB Elevation (ft)
Sec. 33 23S 33E	3002540719	32° 15' 16.932" N	103° 34' 42.843" W	3,665.00	3,688.00

Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
3/17/2015	11,652.00	88.90	2.40	8,713.40	3,032.96	3,014.90	394.75	0.63	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,747.00	89.50	2.90	8,714.72	3,127.95	3,109.79	399.14	0.82	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,842.00	89.80	2.90	8,715.30	3,222.94	3,204.66	403.94	0.32	MS	LEAM DRILLING SYSTEMS
3/17/2015	11,937.00	89.50	2.40	8,715.89	3,317.93	3,299.56	408.34	0.61	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,031.00	90.80	3.80	8,715.64	3,411.93	3,393.42	413.42	2.03	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,127.00	90.30	3.30	8,714.72	3,507.92	3,489.23	419.36	0.74	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,221.00	89.90	2.90	8,714.55	3,601.92	3,583.09	424.45	0.60	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,317.00	89.80	3.40	8,714.80	3,697.92	3,678.94	429.72	0.53	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,412.00	90.00	3.80	8,714.97	3,792.92	3,773.76	435.69	0.47	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,507.00	90.60	4.50	8,714.47	3,887.91	3,868.50	442.56	0.97	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,601.00	90.20	3.30	8,713.82	3,981.90	3,962.28	448.96	1.35	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,696.00	90.60	3.10	8,713.15	4,076.89	4,057.13	454.26	0.47	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,790.00	90.80	3.80	8,712.01	4,170.89	4,150.95	459.91	0.77	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,885.00	91.00	4.10	8,710.51	4,265.87	4,245.72	466.46	0.38	MS	LEAM DRILLING SYSTEMS
3/17/2015	12,980.00	91.50	4.50	8,708.44	4,360.84	4,340.43	473.58	0.67	MS	LEAM DRILLING SYSTEMS
3/17/2015	13,075.00	91.60	5.00	8,705.87	4,455.77	4,435.07	481.44	0.54	MS	LEAM DRILLING SYSTEMS
3/17/2015	13,231.00	91.60	5.00	8,701.52	4,611.65	4,590.41	495.03	0.00	BIT	LEAM DRILLING SYSTEMS