

Received
 Office of Oil & Gas
 NOV 20 2015

Plan Data for 5H

Plan Point Information:

Dogleg	Severity	Unit:	Position offsets from Slot centre							
MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS	Build	Turn	
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(DLSU)	(DLSU)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1250.00	5.00	70.00	1249.68	3.73	10.24	-3.60	2.00	2.00	0.00	
1550.00	5.00	70.00	1548.54	12.67	34.81	-12.23	0.00	0.00	0.00	
2050.00	0.00	0.00	2047.91	20.13	55.30	-19.43	1.00	-1.00	0.00	
3102.09	0.00	0.00	3100.00	20.13	55.30	-19.43	0.00	0.00	0.00	
3363.27	10.45	103.71	3359.73	14.50	78.37	-38.39	4.00	4.00	0.00	
6672.10	10.45	103.71	6613.72	-127.68	661.25	-517.48	0.00	0.00	0.00	
7878.49	90.00	335.00	7403.00	565.22	463.45	144.10	8.00	6.59	-10.67	
9153.59	90.00	309.50	7403.00	1565.11	-310.78	1408.25	2.00	0.00	-2.00	
12892.01	90.00	309.50	7403.00	3942.94	-3195.52	5075.19	0.00	0.00	0.00	

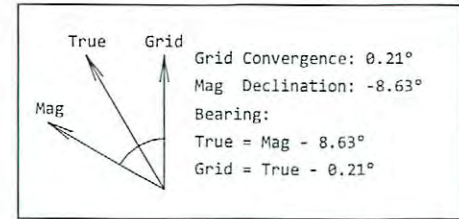


Plan Data for 5H

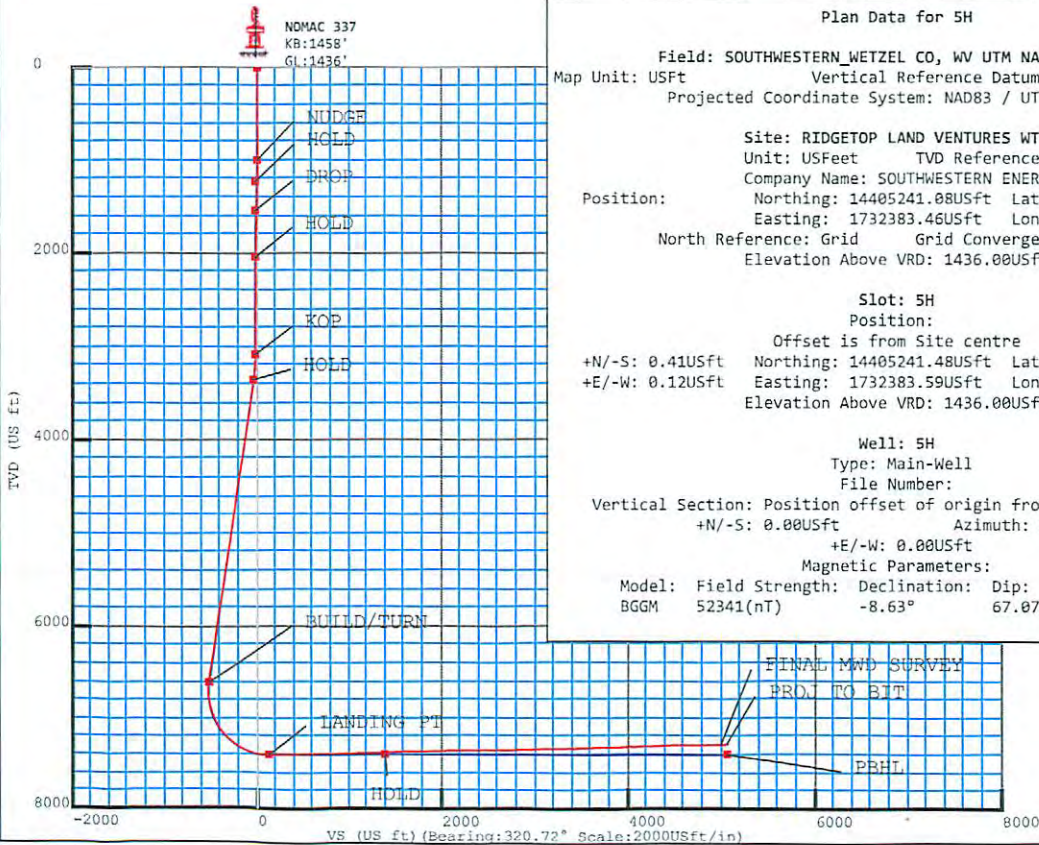
Target Set Information:
 Name: RIDGETOP 5H TARGETS

Position offsets from Slot centre

Name	TVD	+N/-S	+E/-W	Northing	Easting	Lat	Long
	(USft)	(USft)	(USft)	(USft)	(USft)	(°)	(°)
5H LP	7403.00	565.22	463.45	14405806.70	1732847.04	39.667438	-80.671540
5H PBHL	7403.00	3942.94	-3195.52	14409184.42	1729188.07	39.676750	-80.684508



VERTICAL SECTION AZM: 320.72°



Plan Data for 5H

Field: SOUTHWESTERN WETZEL CO, WV UTM NAD 83 (17N)
 Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
 Projected Coordinate System: NAD83 / UTM zone 17N

Site: RIDGETOP LAND VENTURES WTZ
 Unit: USFeet TVD Reference:
 Company Name: SOUTHWESTERN ENERGY

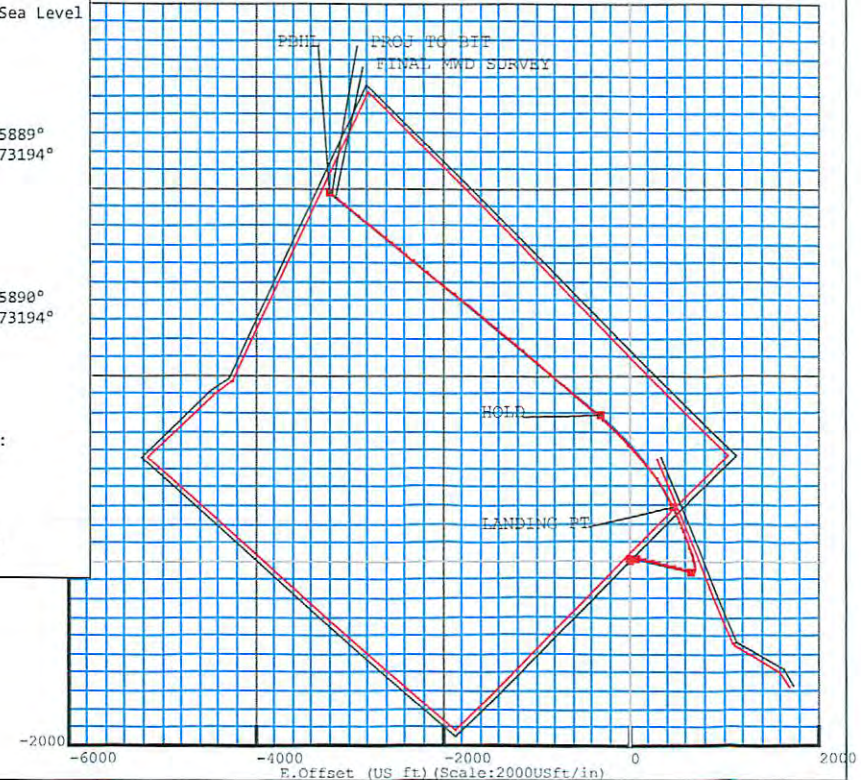
Position: Northing: 14405241.08USft Latitude: 39.665889°
 Easting: 1732383.46USft Longitude: -80.673194°

North Reference: Grid Grid Convergence: 0.21°
 Elevation Above VRD: 1436.00USft

Slot: 5H
 Position:
 Offset is from Site centre
 +N/-S: 0.41USft Northing: 14405241.48USft Latitude: 39.665890°
 +E/-W: 0.12USft Easting: 1732383.59USft Longitude: -80.673194°
 Elevation Above VRD: 1436.00USft

Well: 5H
 Type: Main-Well
 File Number:
 Vertical Section: Position offset of origin from Slot centre:
 +N/-S: 0.00USft Azimuth: 320.72°
 +E/-W: 0.00USft

Magnetic Parameters:
 Model: Field Strength: Declination: Dip: Date:
 BGGM 52341(nT) -8.63° 67.07° 2015-04-15



5D Survey Report

SOUTHWESTERN ENERGY

Field Name: *SOUTHWESTERN_WETZEL CO, WV UTM NAD 83 (17N)*
Site Name: *RIDGETOP LAND VENTURES WTZ*
Well Name: *5H*
Survey: *Definitive Survey*

03 June 2015

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Office of Oil & Gas
NOV 20 2015



Survey report for 5H

Field Name	Map Units : US ft		Company Name : SOUTHWESTERN ENERGY	
SOUTHWESTERN_WETZ EL CO, WV UTM NAD 83 (17N)	Vertical Reference Datum (VRD) : Mean Sea Level			
	Projected Coordinate System : NAD83 / UTM zone 17N			
	Comment :			
Site Name	Units : US ft	North Reference : Grid	Convergence Angle : 0.21	
RIDGETOP LAND VENTURES WTZ	Position	Northing : 14405241.08 US ft	Latitude : 39.665889	
		Easting : 1732383.46 US ft	Longitude : -80.673194	
	Elevation above Mean Sea Level: 1436.00 US ft			
Comment :				
Slot Name	Position (Offsets relative to Site Centre)			
5H	+N / -S : 0.41 US ft	Northing : 14405241.48 US ft	Latitude : 39.665890	
	+E / -W : 0.12 US ft	Easting : 1732383.59 US ft	Longitude : -80.673194	
	Slot TVD Reference : Ground Elevation			
Elevation above Mean Sea Level : 1436.00 US ft				
Comment :				
Well Name	Type : Main well	UWI :		
5H	Rig Height <i>Drill Floor</i> : 22.00 US ft	Comment :		
	Relative to Mean Sea Level: 1458.00 US ft	Closure Azimuth : 321.088°		
	Closure Distance : 5069.23 US ft			
Vertical Section (Position of Origin Relative to Slot)		+N / -S : 0.00 US ft	+E / -W : 0.00 US ft	Az : 320.72°

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5D Survey Report

Target Set

Name : RIDGETOP 5H TARGETS **Number of Targets :** 2

Comment :

TargetName:	Position (Relative to Slot centre)			
5H LP	+N / -S : 565.22US ft	Northing : 14405806.70 US ft	Latitude : 39°40'2.775438"	
Shape:	+E / -W : 463.45 US ft	Easting : 1732847.04US ft	Longitude : -80°40'17.543274"	
Cuboid	TVD (Drill Floor) : 7403.00 US ft			
Orientation	Azimuth : 0.00°	Inclination : 0.00°		
Dimensions	Length : 20.00 US ft	Breadth : 20.00 US ft	Height : 20.00 US ft	
TargetName:	Position (Relative to Slot centre)			
5H PBHL	+N / -S : 3942.94US ft	Northing : 14409184.42 US ft	Latitude : 39°40'36.299676"	
Shape:	+E / -W : -3195.52 US ft	Easting : 1729188.07US ft	Longitude : -80°41'4.199712"	
Cuboid	TVD (Drill Floor) : 7403.00 US ft			
Orientation	Azimuth : 0.00°	Inclination : 0.00°		
Dimensions	Length : 20.00 US ft	Breadth : 20.00 US ft	Height : 20.00 US ft	

Survey Name :Definitive Survey

Date : 19/Feb/2015 **Survey Tool :** **Comment :** **Company :**

Magnetic Model

Model Name: Default **Date:** 19/Feb/2015 **Field Strength:** 50000.0 nT **Declination:** 0.00° **Dip:** 0.00°

Survey Tool Ranges

Name	Start MD (us ft)	End MD (us ft)	Source Survey
EMS	0.00	806.00	SWN MSS
MWD	806.00	12880.00	WFT MWD

Well path created using minimum curvature

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 NOV 20 2015

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	14405241 .48	1732383. 59	0.00	0.00	0.00	0.00	0.00	0.00	
152.00	1.30	261.56	151.99	-0.25	-1.71	0.88	14405241 .23	1732381. 88	0.86	0.86	261.56	152.00	-1.72	0.00	
181.00	1.40	313.36	180.98	-0.06	-2.29	1.40	14405241 .43	1732381. 30	4.08	0.34	111.53	29.00	-1.62	1.61	
274.00	1.00	245.36	273.96	0.38	-3.85	2.74	14405241 .87	1732379. 74	1.49	-0.43	222.13	93.00	-3.34	-1.95	
367.00	0.50	138.76	366.96	-0.26	-4.32	2.54	14405241 .22	1732379. 27	1.33	-0.54	202.75	93.00	2.65	-3.42	
463.00	0.50	141.76	462.95	-0.90	-3.79	1.70	14405240 .58	1732379. 80	0.03	0.00	91.50	96.00	1.63	-3.53	
556.00	1.30	331.86	555.95	-0.29	-4.03	2.33	14405241 .19	1732379. 55	1.93	0.86	187.30	93.00	-1.64	3.69	
650.00	1.30	316.16	649.92	1.42	-5.28	4.44	14405242 .90	1732378. 31	0.38	0.00	262.15	94.00	-4.67	2.82	
712.00	0.90	248.46	711.92	1.75	-6.22	5.29	14405243 .23	1732377. 37	2.05	-0.65	220.99	62.00	-5.14	-3.91	
806.00	0.50	148.26	805.91	1.13	-6.69	5.10	14405242 .61	1732376. 90	1.17	-0.43	206.47	94.00	4.47	-5.09	
878.00	0.39	339.24	877.91	1.09	-6.61	5.03	14405242 .57	1732376. 98	1.23	-0.15	184.81	72.00	-3.36	5.79	
973.00	0.99	50.17	972.90	1.92	-6.09	5.34	14405243 .40	1732377. 50	0.99	0.63	94.07	95.00	3.45	5.37	
1068.00	2.88	55.49	1067.85	3.79	-3.49	5.15	14405245 .28	1732380. 09	2.00	1.99	8.09	95.00	1.51	5.31	
1163.00	4.09	53.85	1162.67	7.14	1.21	4.77	14405248 .63	1732384. 80	1.28	1.27	354.47	95.00	-0.75	6.34	
1258.00	4.69	51.91	1257.39	11.54	7.00	4.50	14405253 .02	1732390. 59	0.65	0.63	345.13	95.00	-1.62	8.36	
1353.00	4.83	58.54	1352.06	16.02	13.47	3.88	14405257 .51	1732397. 06	0.60	0.15	79.04	95.00	-0.39	10.58	
1448.00	5.35	65.95	1446.69	19.91	20.92	2.17	14405261 .40	1732404. 51	0.88	0.55	55.39	95.00	0.84	11.64	
1543.00	4.80	75.75	1541.32	22.70	28.82	-0.68	14405264 .18	1732412. 41	1.08	-0.58	127.21	95.00	2.70	11.26	
1637.00	4.51	82.11	1635.01	24.17	36.29	-4.27	14405265 .66	1732419. 88	0.63	-0.31	122.47	94.00	3.70	9.74	

Received
Office of Oil & Gas

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
1733.00	3.58	80.76	1730.77	25.17	42.99	-7.73	14405266 .66	1732426. 58	0.97	-0.97	185.17	96.00	2.71	8.60	
1827.00	3.10	85.83	1824.61	25.83	48.42	-10.66	14405267 .31	1732432. 01	0.60	-0.51	150.91	94.00	2.25	7.37	
1922.00	2.36	85.89	1919.50	26.16	52.94	-13.27	14405267 .64	1732436. 52	0.78	-0.78	179.81	95.00	0.54	6.58	
2017.00	1.44	80.13	2014.45	26.50	56.06	-14.98	14405267 .99	1732439. 65	0.99	-0.97	188.86	95.00	-1.94	6.16	
2112.00	0.81	71.83	2109.43	26.91	57.88	-15.81	14405268 .40	1732441. 47	0.68	-0.66	190.38	95.00	-4.56	5.64	
2207.00	0.69	50.33	2204.42	27.49	58.96	-16.05	14405268 .97	1732442. 54	0.32	-0.13	236.40	95.00	-7.51	3.33	
2302.00	1.19	41.18	2299.41	28.60	60.05	-15.88	14405270 .08	1732443. 63	0.55	0.53	338.68	95.00	-9.49	2.01	
2397.00	0.60	55.58	2394.39	29.62	61.10	-15.76	14405271 .10	1732444. 69	0.66	-0.62	166.23	95.00	-10.15	4.55	
2492.00	0.25	82.15	2489.39	29.93	61.72	-15.91	14405271 .41	1732445. 31	0.41	-0.37	163.45	95.00	-7.70	8.83	
2587.00	0.35	86.48	2584.39	29.98	62.22	-16.19	14405271 .46	1732445. 80	0.11	0.11	14.94	95.00	-7.51	9.40	
2682.00	0.21	103.22	2679.39	29.95	62.67	-16.49	14405271 .44	1732446. 26	0.17	-0.15	157.89	95.00	-4.93	11.25	
2777.00	0.27	86.03	2774.39	29.93	63.07	-16.76	14405271 .41	1732446. 66	0.10	0.06	301.00	95.00	-8.43	9.24	
2872.00	0.31	70.59	2869.39	30.03	63.53	-16.98	14405271 .52	1732447. 12	0.09	0.04	289.24	95.00	-11.05	6.60	
2961.00	0.34	32.59	2958.39	30.33	63.90	-16.98	14405271 .82	1732447. 49	0.24	0.03	258.63	89.00	-13.23	-1.75	
3093.00	0.81	60.13	3090.38	31.13	64.92	-17.01	14405272 .61	1732448. 51	0.40	0.36	44.72	132.00	-13.82	4.75	
3189.00	3.61	95.76	3186.30	31.16	68.52	-19.26	14405272 .65	1732452. 11	3.11	2.92	44.70	96.00	-9.45	12.67	
3284.00	6.90	98.41	3280.89	30.03	77.14	-25.60	14405271 .51	1732460. 73	3.47	3.46	5.54	95.00	-8.67	14.06	
3378.00	9.69	99.56	3373.90	27.89	90.53	-35.73	14405269 .37	1732474. 12	2.97	2.97	3.97	94.00	-7.05	15.42	
3473.00	10.69	106.71	3467.40	24.03	106.86	-49.05	14405265 .51	1732490. 44	1.70	1.05	55.23	95.00	-4.64	16.26	

Weatherford International Limited
Received
Office of Oil & Gas
 NOV 03 2015

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (%/100 US ft)	B.Rate (%/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
3568.00	10.24	108.92	3560.82	18.75	123.28	-63.53	14405260 .24	1732506. 87	0.63	-0.47	139.35	95.00	-4.11	15.20	
3663.00	9.62	108.42	3654.40	13.51	138.80	-77.42	14405254 .99	1732522. 39	0.66	-0.65	187.67	95.00	-3.44	13.68	
3757.00	10.56	105.55	3746.94	8.72	154.55	-91.10	14405250 .20	1732538. 14	1.13	1.00	330.44	94.00	-3.53	12.55	
3852.00	10.30	104.94	3840.37	4.19	171.14	-105.11	14405245 .68	1732554. 73	0.30	-0.27	202.71	95.00	-3.63	12.05	
3947.00	9.89	105.78	3933.90	-0.21	187.20	-118.69	14405241 .27	1732570. 79	0.46	-0.43	160.66	95.00	-2.89	11.60	
4042.00	11.13	103.43	4027.31	-4.56	203.97	-132.67	14405236 .92	1732587. 56	1.38	1.31	339.77	95.00	-3.45	11.23	
4137.00	11.52	104.49	4120.46	-9.07	222.08	-147.62	14405232 .42	1732605. 66	0.47	0.41	28.61	95.00	-4.70	11.22	
4232.00	11.60	104.73	4213.53	-13.87	240.50	-163.00	14405227 .62	1732624. 08	0.10	0.08	31.13	95.00	-6.50	10.98	
4327.00	11.46	105.41	4306.61	-18.80	258.83	-178.43	14405222 .68	1732642. 42	0.21	-0.15	136.18	95.00	-8.18	10.65	
4422.00	11.10	109.26	4399.78	-24.33	276.56	-193.93	14405217 .16	1732660. 15	0.88	-0.38	117.43	95.00	-8.90	10.14	
4517.00	10.45	105.61	4493.10	-29.66	293.49	-208.78	14405211 .82	1732677. 08	0.99	-0.68	224.61	95.00	-10.05	8.41	
4612.00	9.63	108.61	4586.65	-34.52	309.32	-222.56	14405206 .97	1732692. 91	1.02	-0.86	148.94	95.00	-8.98	7.89	
4706.00	8.95	102.57	4679.42	-38.62	323.91	-234.97	14405202 .87	1732707. 50	1.26	-0.72	232.15	94.00	-7.81	6.43	
4801.00	9.76	102.75	4773.15	-42.00	338.98	-247.12	14405199 .48	1732722. 57	0.85	0.85	2.16	95.00	-5.98	6.77	
4896.00	10.82	103.28	4866.62	-45.83	355.51	-260.55	14405195 .66	1732739. 10	1.12	1.12	5.36	95.00	-5.66	7.02	
4991.00	9.71	109.21	4960.10	-50.51	371.76	-274.46	14405190 .97	1732755. 34	1.61	-1.17	139.30	95.00	-4.64	6.83	
5086.00	10.13	105.25	5053.69	-55.35	387.38	-288.10	14405186 .14	1732770. 97	0.84	0.44	299.66	95.00	-4.21	5.48	
5180.00	10.74	110.09	5146.13	-60.53	403.58	-302.37	14405180 .95	1732787. 17	1.14	0.65	57.56	94.00	-3.80	4.62	
5274.00	10.41	108.82	5238.54	-66.28	419.85	-317.11	14405175 .21	1732803. 44	0.43	-0.35	214.61	94.00	-4.17	2.82	

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Weatherford International Limited
NOV 20 2015

5D 7.5.9 : 3 June 2015, 12:20:26 UTC

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
5370.00	10.42	103.43	5332.96	-71.09	436.50	-331.38	14405170 .39	1732820. 09	1.01	0.01	267.94	96.00	-4.32	1.69	
5464.00	10.35	99.93	5425.42	-74.52	453.09	-344.54	14405166 .96	1732836. 68	0.68	-0.07	261.95	94.00	-4.34	2.04	
5561.00	11.00	103.57	5520.74	-78.20	470.67	-358.51	14405163 .29	1732854. 25	0.97	0.67	47.85	97.00	-4.57	2.90	
5656.00	11.02	105.57	5613.99	-82.76	488.22	-373.16	14405158 .72	1732871. 81	0.40	0.02	87.98	95.00	-5.41	2.81	
5751.00	11.51	105.01	5707.16	-87.65	506.12	-388.28	14405153 .83	1732889. 71	0.53	0.52	347.14	95.00	-6.79	2.28	
5846.00	11.34	103.93	5800.28	-92.36	524.34	-403.46	14405149 .13	1732907. 93	0.29	-0.18	231.00	95.00	-8.45	1.91	
5941.00	10.55	104.05	5893.55	-96.72	541.85	-417.91	14405144 .77	1732925. 44	0.83	-0.83	178.41	95.00	-9.28	1.84	
6035.00	10.71	100.42	5985.94	-100.39	558.79	-431.48	14405141 .10	1732942. 37	0.73	0.17	281.65	94.00	-9.68	1.69	
6130.00	10.44	104.93	6079.33	-104.20	575.78	-445.19	14405137 .29	1732959. 37	0.92	-0.28	110.27	95.00	-9.71	2.76	
6224.00	9.96	102.31	6171.84	-108.13	591.96	-458.47	14405133 .36	1732975. 54	0.71	-0.51	222.74	94.00	-9.42	2.35	
6319.00	10.49	101.86	6265.33	-111.66	608.45	-471.64	14405129 .83	1732992. 03	0.56	0.56	351.21	95.00	-9.08	2.77	
6414.00	11.39	109.74	6358.61	-116.60	625.74	-486.42	14405124 .88	1733009. 33	1.84	0.95	62.87	95.00	-9.45	3.34	
6509.00	10.84	112.64	6451.83	-123.21	642.81	-502.34	14405118 .28	1733026. 40	0.83	-0.58	135.95	95.00	-10.58	1.61	
6557.00	11.28	115.13	6498.94	-126.94	651.23	-510.56	14405114 .54	1733034. 82	1.35	0.92	48.58	48.00	-11.17	0.53	
6589.00	10.99	115.79	6530.33	-129.60	656.81	-516.15	14405111 .89	1733040. 40	0.99	-0.91	156.60	32.00	-11.68	-0.52	
6620.00	10.31	104.83	6560.80	-131.59	662.15	-521.08	14405109 .89	1733045. 74	6.88	-2.19	246.11	31.00	-11.43	-3.37	
6652.00	10.50	85.41	6592.29	-132.09	667.83	-525.06	14405109 .39	1733051. 42	10.93	0.59	263.52	32.00	-9.81	-6.04	
6684.00	11.38	73.40	6623.71	-130.96	673.76	-527.93	14405110 .53	1733057. 35	7.62	2.75	285.14	32.00	-9.37	-5.71	
6716.00	11.86	63.11	6655.06	-128.57	679.72	-529.86	14405112 .92	1733063. 31	6.64	1.50	277.97	32.00	-10.14	-5.31	

Received
Office of Oil & Gas
NOV 20 2015

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
6747.00	11.17	50.07	6685.44	-125.20	684.87	-530.51	14405116 .29	1733068. 45	8.67	-2.23	248.83	31.00	-10.81	-6.10	
6779.00	10.77	35.33	6716.86	-120.77	688.97	-529.68	14405120 .72	1733072. 56	8.83	-1.25	254.69	32.00	-10.78	-7.50	
6810.00	11.61	22.28	6747.27	-115.52	691.83	-527.42	14405125 .97	1733075. 42	8.59	2.71	281.87	31.00	-10.37	-8.66	
6842.00	13.25	16.23	6778.52	-109.02	694.08	-523.81	14405132 .47	1733077. 66	6.54	5.12	318.57	32.00	-10.92	-8.72	
6873.00	14.88	11.17	6808.59	-101.70	695.84	-519.27	14405139 .78	1733079. 43	6.58	5.26	320.50	31.00	-11.50	-9.04	
6904.00	15.91	5.22	6838.48	-93.56	697.00	-513.70	14405147 .92	1733080. 59	6.08	3.32	300.22	31.00	-11.60	-9.73	
6936.00	17.39	357.14	6869.15	-84.42	697.16	-506.72	14405157 .07	1733080. 75	8.58	4.63	298.67	32.00	-10.85	-10.48	
6968.00	19.28	352.20	6899.52	-74.41	696.20	-498.37	14405167 .08	1733079. 79	7.64	5.91	318.21	32.00	-10.37	-10.12	
6999.00	21.28	351.00	6928.60	-63.78	694.63	-489.15	14405177 .71	1733078. 22	6.59	6.45	347.69	31.00	-10.36	-9.09	
7031.00	23.19	349.63	6958.22	-51.84	692.59	-478.61	14405189 .64	1733076. 17	6.18	5.97	344.18	32.00	-10.11	-8.22	
7063.00	24.95	350.77	6987.43	-38.98	690.37	-467.26	14405202 .50	1733073. 96	5.69	5.50	15.32	32.00	-9.84	-7.36	
7094.00	27.32	350.36	7015.26	-25.51	688.13	-455.41	14405215 .97	1733071. 72	7.67	7.65	355.46	31.00	-9.19	-7.25	
7126.00	30.00	348.83	7043.34	-10.42	685.35	-441.97	14405231 .06	1733068. 94	8.68	8.38	344.01	32.00	-8.45	-7.44	
7157.00	32.66	346.40	7069.82	5.31	681.88	-427.59	14405246 .80	1733065. 47	9.50	8.58	333.55	31.00	-7.75	-7.53	
7189.00	34.99	345.11	7096.40	22.57	677.49	-411.45	14405264 .06	1733061. 08	7.62	7.28	342.33	32.00	-7.20	-7.25	
7220.00	37.58	344.22	7121.39	40.26	672.64	-394.69	14405281 .75	1733056. 22	8.53	8.35	348.15	31.00	-6.71	-6.90	
7252.00	39.83	341.76	7146.36	59.39	666.77	-376.17	14405300 .88	1733050. 36	8.52	7.03	324.67	32.00	-6.06	-6.36	
7283.00	42.16	340.78	7169.76	78.65	660.24	-357.13	14405320 .13	1733043. 83	7.80	7.52	344.20	31.00	-5.48	-5.36	
7315.00	44.67	338.79	7193.00	99.28	652.63	-336.34	14405340 .76	1733036. 22	8.93	7.84	330.69	32.00	-4.82	-4.04	

Received
Office of Oil & Gas
NOV 20 2015

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
7347.00	47.21	339.31	7215.25	120.75	644.41	-314.52	14405362 .24	1733028. 00	8.02	7.94	8.55	32.00	-4.30	-2.51	
7378.00	50.03	339.08	7235.74	142.49	636.15	-292.46	14405383 .98	1733019. 74	9.11	9.10	356.42	31.00	-3.86	-1.34	
7410.00	52.35	339.27	7255.80	165.80	627.29	-268.80	14405407 .28	1733010. 88	7.26	7.25	3.71	32.00	-3.45	-0.32	
7442.00	54.93	340.08	7274.77	189.96	618.34	-244.44	14405431 .45	1733001. 93	8.32	8.06	14.43	32.00	-2.98	0.26	
7474.00	56.74	339.36	7292.74	214.80	609.16	-219.40	14405456 .28	1732992. 75	5.95	5.66	341.58	32.00	-2.33	0.55	
7505.00	60.03	339.68	7308.98	239.53	599.93	-194.41	14405481 .01	1732983. 52	10.65	10.61	4.82	31.00	-1.72	0.71	
7537.00	61.88	339.33	7324.52	265.73	590.13	-167.93	14405507 .21	1732973. 72	5.86	5.78	350.52	32.00	-1.14	0.65	
7569.00	65.05	339.40	7338.81	292.52	580.05	-140.81	14405534 .00	1732963. 63	9.91	9.91	1.15	32.00	-0.55	0.43	
7601.00	68.30	338.92	7351.48	319.98	569.59	-112.93	14405561 .46	1732953. 18	10.25	10.16	352.18	32.00	-0.33	0.09	
7632.00	70.57	339.01	7362.37	347.06	559.17	-85.37	14405588 .55	1732942. 76	7.33	7.32	2.14	31.00	-0.27	-0.37	
7664.00	73.96	338.80	7372.12	375.50	548.21	-56.42	14405616 .98	1732931. 79	10.61	10.59	356.59	32.00	-0.40	-1.02	
7696.00	77.50	338.93	7380.00	404.42	537.03	-26.95	14405645 .90	1732920. 61	11.07	11.06	2.05	32.00	-1.04	-1.88	
7727.00	79.77	338.81	7386.11	432.77	526.07	1.93	14405674 .25	1732909. 66	7.33	7.32	357.02	31.00	-1.89	-2.92	
7759.00	81.89	337.04	7391.21	462.04	514.20	32.10	14405703 .52	1732897. 79	8.59	6.62	320.36	32.00	-2.58	-3.71	
7791.00	83.20	336.50	7395.36	491.19	501.68	62.59	14405732 .68	1732885. 27	4.42	4.09	337.73	32.00	-2.82	-4.06	
7822.00	84.20	334.60	7398.76	519.24	488.93	92.38	14405760 .73	1732872. 52	6.89	3.23	297.80	31.00	-2.32	-3.94	
7854.00	86.79	335.12	7401.28	548.12	475.38	123.31	14405789 .60	1732858. 97	8.25	8.09	11.34	32.00	-1.43	-3.63	
7885.00	89.38	335.07	7402.31	576.22	462.33	153.32	14405817 .70	1732845. 92	8.36	8.35	358.89	31.00	-0.68	-3.66	
7917.00	90.49	334.72	7402.35	605.19	448.76	184.34	14405846 .68	1732832. 34	3.64	3.47	342.50	32.00	-0.65	-3.89	

Received
Office of Oil & Gas

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
7948.00	90.62	334.67	7402.05	633.22	435.51	214.43	14405874 .70	1732819. 09	0.45	0.42	338.96	31.00	-0.95	-4.35	
8043.00	91.91	331.47	7399.95	717.88	392.50	307.19	14405959 .37	1732776. 09	3.63	1.36	291.99	95.00	-3.04	-5.16	
8138.00	91.60	328.53	7397.04	800.11	345.03	400.89	14406041 .59	1732728. 61	3.11	-0.33	264.02	95.00	-5.95	-4.02	
8232.00	91.23	326.38	7394.72	879.32	294.48	494.21	14406120 .80	1732678. 06	2.32	-0.39	260.26	94.00	-8.28	-1.80	
8327.00	90.55	323.88	7393.24	957.24	240.17	588.91	14406198 .73	1732623. 76	2.73	-0.72	254.80	95.00	-9.75	1.15	
8422.00	91.73	320.90	7391.35	1032.48	182.22	683.84	14406273 .96	1732565. 80	3.37	1.24	291.63	95.00	-11.63	5.50	
8517.00	90.25	319.65	7389.71	1105.53	121.51	778.82	14406347 .01	1732505. 10	2.04	-1.56	220.19	95.00	-13.28	10.20	
8612.00	91.42	320.16	7388.33	1178.19	60.34	873.79	14406419 .68	1732443. 92	1.34	1.23	23.55	95.00	-14.66	12.38	
8707.00	90.88	317.47	7386.42	1249.67	-2.20	968.71	14406491 .15	1732381. 38	2.89	-0.57	258.68	95.00	-16.57	13.18	
8802.00	90.80	316.43	7385.03	1319.08	-67.05	1063.50	14406560 .57	1732316. 54	1.10	-0.08	265.61	95.00	-17.97	13.92	
8896.00	92.46	315.31	7382.36	1386.52	-132.47	1157.12	14406628 .00	1732251. 12	2.13	1.77	326.02	94.00	-20.63	13.31	
8991.00	92.53	312.75	7378.22	1452.48	-200.70	1251.37	14406693 .96	1732182. 89	2.69	0.07	271.62	95.00	-24.76	12.59	
9086.00	91.66	311.71	7374.75	1516.29	-270.99	1345.27	14406757 .77	1732112. 59	1.43	-0.92	230.09	95.00	-28.25	11.70	
9180.00	91.23	311.68	7372.38	1578.79	-341.16	1438.07	14406820 .28	1732042. 43	0.46	-0.46	183.99	94.00	-30.62	8.76	
9275.00	91.66	309.58	7369.98	1640.63	-413.23	1531.57	14406882 .11	1731970. 36	2.26	0.45	281.60	95.00	-33.00	6.89	
9370.00	92.03	310.08	7366.92	1701.45	-486.15	1624.81	14406942 .93	1731897. 44	0.65	0.39	53.48	95.00	-36.06	6.34	
9465.00	91.60	310.40	7363.91	1762.78	-558.63	1718.18	14407004 .27	1731824. 96	0.56	-0.45	143.35	95.00	-39.07	5.11	
9560.00	91.73	310.16	7361.15	1824.18	-631.07	1811.57	14407065 .66	1731752. 51	0.29	0.14	298.46	95.00	-41.83	3.81	
9655.00	90.55	310.28	7359.26	1885.51	-703.60	1904.95	14407126 .99	1731679. 99	1.25	-1.24	174.19	95.00	-43.73	2.62	

Received
Office of Oil & Gas
NOV 20 2015

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (%/100 US ft)	B.Rate (%/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
9750.00	90.99	310.56	7357.99	1947.10	-775.92	1998.41	14407188 .58	1731607. 67	0.55	0.46	32.47	95.00	-45.01	1.09	
9845.00	90.43	310.65	7356.81	2008.92	-848.03	2091.93	14407250 .41	1731535. 55	0.60	-0.59	170.87	95.00	-46.19	-0.75	
9939.00	90.43	311.42	7356.10	2070.64	-918.94	2184.59	14407312 .12	1731464. 65	0.82	0.00	90.00	94.00	-46.89	-3.27	
10034.00	90.92	309.88	7354.98	2132.52	-991.01	2278.11	14407374 .00	1731392. 58	1.70	0.52	287.66	95.00	-48.01	-5.18	
10129.00	90.68	309.85	7353.66	2193.40	-1063.92	2371.41	14407434 .89	1731319. 67	0.25	-0.25	187.12	95.00	-49.34	-5.79	
10224.00	90.37	309.54	7352.79	2254.08	-1137.01	2464.65	14407495 .56	1731246. 58	0.46	-0.33	225.00	95.00	-50.21	-6.11	
10319.00	90.86	309.46	7351.77	2314.50	-1210.31	2557.83	14407555 .98	1731173. 28	0.52	0.52	350.73	95.00	-51.22	-6.12	
10414.00	91.29	310.16	7349.98	2375.31	-1283.28	2651.09	14407616 .80	1731100. 31	0.86	0.45	58.43	95.00	-53.00	-6.63	
10508.00	91.32	309.71	7347.84	2435.64	-1355.33	2743.41	14407677 .12	1731028. 25	0.48	0.03	273.82	94.00	-55.14	-7.35	
10603.00	90.88	310.24	7346.02	2496.66	-1428.12	2836.72	14407738 .14	1730955. 47	0.73	-0.46	129.70	95.00	-56.97	-8.14	
10697.00	91.67	309.22	7343.93	2556.72	-1500.39	2928.98	14407798 .21	1730883. 20	1.37	0.84	307.78	94.00	-59.05	-8.52	
10792.00	91.42	309.20	7341.37	2616.76	-1573.98	3022.03	14407858 .24	1730809. 61	0.26	-0.26	184.57	95.00	-61.61	-8.04	
10887.00	91.42	309.54	7339.01	2677.00	-1647.39	3115.14	14407918 .48	1730736. 19	0.36	0.00	90.00	95.00	-63.96	-7.83	
10982.00	91.79	309.87	7336.35	2737.67	-1720.45	3208.36	14407979 .15	1730663. 14	0.52	0.39	41.71	95.00	-66.61	-8.18	
11077.00	90.80	308.43	7334.20	2797.63	-1794.10	3301.40	14408039 .11	1730589. 48	1.84	-1.04	235.50	95.00	-68.79	-7.60	
11172.00	91.05	308.60	7332.67	2856.78	-1868.43	3394.24	14408098 .26	1730515. 16	0.32	0.26	34.21	95.00	-70.32	-5.97	
11267.00	90.55	308.08	7331.34	2915.70	-1942.93	3487.02	14408157 .19	1730440. 66	0.76	-0.53	226.12	95.00	-71.65	-4.05	
11361.00	91.23	308.44	7329.88	2973.90	-2016.73	3578.80	14408215 .39	1730366. 86	0.82	0.72	27.89	94.00	-73.10	-2.02	
11456.00	91.42	307.13	7327.69	3032.09	-2091.79	3671.36	14408273 .58	1730291. 80	1.39	0.20	278.27	95.00	-75.29	0.82	

Received
Office of Oil & Gas

5D Survey Report

Survey Points (Relative to Slot centre, TVD relative to Drill Floor)															
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100 US ft)	B.Rate (°/100 US ft)	T.Face (°)	CL (US ft)	High to Plan (US ft)	Right to Plan (US ft)	Comment
11551.00	91.17	309.46	7325.54	3090.95	-2166.32	3764.10	14408332 .43	1730217. 26	2.47	-0.26	96.10	95.00	-77.44	2.81	
11646.00	92.91	309.89	7322.16	3151.56	-2239.39	3857.28	14408393 .04	1730144. 19	1.89	1.83	13.87	95.00	-80.74	2.52	
11741.00	91.97	310.87	7318.11	3213.04	-2311.69	3950.65	14408454 .53	1730071. 89	1.43	-0.99	133.81	95.00	-84.83	1.06	
11836.00	91.36	311.10	7315.35	3275.32	-2383.38	4044.24	14408516 .81	1730000. 21	0.69	-0.64	159.35	95.00	-87.62	-1.40	
11931.00	92.47	310.77	7312.18	3337.53	-2455.10	4137.81	14408579 .02	1729928. 48	1.22	1.17	343.46	95.00	-90.73	-3.79	
12026.00	92.77	309.97	7307.84	3399.00	-2527.41	4231.16	14408640 .49	1729856. 18	0.90	0.32	290.59	95.00	-95.05	-5.23	
12121.00	92.59	309.39	7303.39	3459.59	-2600.44	4324.30	14408701 .08	1729783. 15	0.64	-0.19	252.75	95.00	-99.50	-5.53	
12216.00	91.60	309.66	7299.92	3520.01	-2673.67	4417.43	14408761 .50	1729709. 92	1.08	-1.04	164.75	95.00	-103.03	-5.58	
12311.00	91.67	309.71	7297.21	3580.65	-2746.75	4510.64	14408822 .13	1729636. 84	0.09	0.07	35.53	95.00	-105.74	-5.89	
12405.00	90.18	309.68	7295.69	3640.68	-2819.06	4602.89	14408882 .16	1729564. 52	1.59	-1.59	181.15	94.00	-107.30	-6.21	
12500.00	89.91	309.53	7295.62	3701.24	-2892.26	4696.11	14408942 .72	1729491. 33	0.33	-0.28	209.05	95.00	-107.38	-6.39	
12595.00	90.92	309.86	7294.93	3761.91	-2965.35	4789.35	14409003 .40	1729418. 24	1.12	1.06	18.09	95.00	-108.05	-6.71	
12690.00	91.50	309.53	7292.92	3822.58	-3038.43	4882.57	14409064 .06	1729345. 15	0.70	0.61	330.37	95.00	-110.03	-7.04	
12785.00	91.60	309.74	7290.36	3883.15	-3111.57	4975.77	14409124 .64	1729272. 02	0.24	0.11	64.53	95.00	-112.60	-7.27	
12820.00	91.73	310.31	7289.34	3905.65	-3138.36	5010.14	14409147 .14	1729245. 23	1.67	0.37	77.14	35.00	-113.60	-7.59	FINAL MWD SURVEY
12880.00	91.73	310.31	7287.53	3944.45	-3184.09	5069.13	14409185 .94	1729199. 50	0.00	0.00	0.00	60.00	-115.41	-8.44	PROJ TO BIT

Formation Points (Relative to Slot centre, TVD relative to Drill Floor)				
Name	TVD (US ft)	MD (US ft)	F.Dip (°)	F.Dir (°)
BEFEA	2421.00	2423.61	0	0

Received
Office of Oil & Gas
Weatherford International Limited
NOV 20 2015

5D Survey Report

Formation Points (Relative to Slot centre, TVD relative to Drill Floor)					
Name	TVD (US ft)	MD (US ft)	F.Dip (°)	F.Dir (°)	
BIG INJUN	2533.00	2535.61	0	0	
BURKET	7143.00	7247.64	0	0	
TULLY	7180.00	7296.94	0	0	
MAHANTANGO	7204.00	7330.64	0	0	
UPPER MARCELLUS	7257.00	7411.98	0	0	
LOWER MARCELLUS	7278.00	7447.65	0	0	
ONONDAGA	7378.00	7687.09	0	0	

Office
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