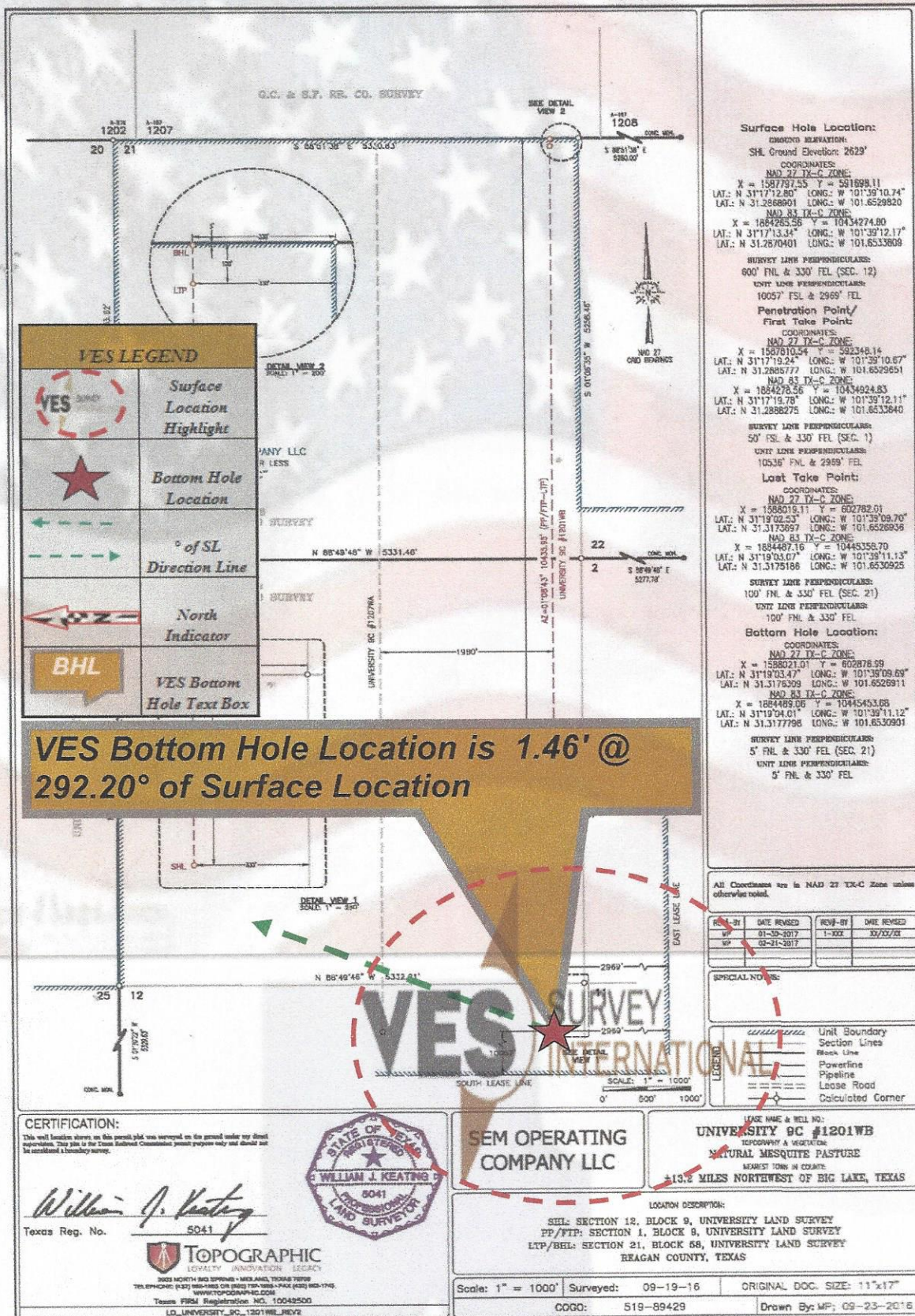






Company: SEM OPERATING
Lease/Well: University 9C/1201WB

Rig Name: PRODUCTION
State/County: TEXAS/REAGAN
VS-Azi: 0.00 Degrees

Latitude: 31.28689, Longitude: -101.65298
Grid North = True North +0.68 degs (NAD 27)
Grid Correction Applied = +0.68 degs



Depth Reference : GROUND LEVEL

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: e-line gyro-de_01.ut
Minimum Curvature Method
Report Date/Time: 5/4/2017 / 13:11

V.E.S Survey International
Midland, Texas
432-563-5444

Surveyor: Robert Williams
University 9C 1201WB / API 42-383-39818

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
50.00	0.44	305.22	50.00	0.11	-0.16	0.11	0.19	305.22	0.88
100.00	0.51	307.70	100.00	0.36	-0.49	0.36	0.60	306.13	0.14
150.00	0.44	307.22	150.00	0.61	-0.82	0.61	1.02	306.68	0.14
200.00	0.21	301.62	200.00	0.77	-1.05	0.77	1.30	306.40	0.45
250.00	0.21	291.09	249.99	0.85	-1.21	0.85	1.48	305.15	0.08
300.00	0.33	277.96	299.99	0.91	-1.44	0.91	1.70	302.19	0.26
350.00	0.08	324.36	349.99	0.95	-1.60	0.95	1.86	300.76	0.56
400.00	0.22	91.98	399.99	0.98	-1.52	0.98	1.81	302.66	0.55
450.00	0.24	160.26	449.99	0.87	-1.39	0.87	1.64	302.13	0.52
500.00	0.30	175.64	499.99	0.64	-1.35	0.64	1.49	295.52	0.19
516.00	0.36	189.78	515.99	0.55	-1.35	0.55	1.46	292.20	0.60



I Robert Williams certify that I am employed by VES Survey International. That I did on the day(s) of 04/28/17 through 04/28/17 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 516.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of SEM Operating for the University 9C Well # #1201WB API # 42-383-39818 in Reagan County / Parish Texas; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by VES Survey International.

A handwritten signature in blue ink, appearing to read "Robert Williams", is written over a horizontal line.

Robert Williams
Service Technician
VES Survey International



· Directional Drilling · Horizontal Drilling · MWD/LWD · Mud Motors

July 7, 2017

Railroad Commission of Texas
Oil and Gas Division
P.O. Box 12967
Capitol Station
Austin, Texas 78711

Attention: Pamela Johns

Re: SEM Operating Company, LLC
University 9C #1201WB
Reagan County, Texas
API No. 42-383-39818

Enclosed, please find the original and one copy of the survey performed on the referenced well by Aim Directional Services, LLC (P-5 No. 009134). Other information required by your office is as follows:

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Date Performed</u>	<u>Type of Survey</u>
Allison Reinert VP Engineering	Lateral 1	683' - 14735'	05/06/17 – 05/23/17	MWD
Allison Reinert VP Engineering	Lateral 2	7916' - 19215'	05/24/17 – 06/12/17	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and the lease line (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Allison Reinert
VP Engineering

Enclosures

cc:



· Directional Drilling · Horizontal Drilling · MWD/LWD · Mud Motors

July 7, 2017

State of Texas
County of Reagan

I, Allison Reinert, certify that; I am employed by Aim Directional Services, LLC; that I did on the day(s) of May 6, 2017 through May 23, 2017 conduct or supervise the taking of a directional MWD survey from a depth of 683 feet to a depth of 14735 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Aim Directional Services, LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of SEM Operating Company, LLC for University 9C #1201WB Lateral 1 API No. 42-383-39818 in Reagan County, Texas; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Aim Directional Services, LLC.

Allison Reinert
VP Engineering

Aim Directional Services, LLC

Survey Report

Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 1 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

Project	Reagan County, Texas		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site	University 9C #1201WB		
Site Position:		Northing:	591,698.11 usft
From:	Map	Easting:	1,587,797.55 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	31° 17' 12.804 N
		Longitude:	101° 39' 10.735 W
		Grid Convergence:	-0.68 °

Well	#1201WB		
Well Position	+N/-S	0.00 usft	Northing: 591,698.11 usft
	+E/-W	0.00 usft	Easting: 1,587,797.55 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	31° 17' 12.804 N
		Longitude:	101° 39' 10.735 W
		Ground Level:	2,629.00 usft

Wellbore	Lateral 1 Surveys				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/7/2017	6.03	59.65	47,785.10000000

Design	Aim MWD Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	516.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	1.15	

Survey Program	Date	5/31/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
50.00	516.00	VES Gyro Surveys (VES Gyro Surveys)	VES_C670Ga_GYROFLEX_	VESSI Gyroflex Gyro	
683.00	14,735.00	Aim MWD Surveys (Lateral 1 Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

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)	
516.00	0.36	189.78	515.99	0.56	-1.36	0.53	0.00	0.00	0.00	
Tie-in to VES Gyro Surveys										
683.00	0.18	117.45	682.99	-0.08	-1.21	-0.10	0.21	-0.11	-43.31	
First Aim MWD Survey										
885.00	0.26	151.20	884.99	-0.63	-0.71	-0.64	0.07	0.04	16.71	
1,074.00	0.26	136.96	1,073.99	-1.32	-0.21	-1.32	0.03	0.00	-7.53	
1,263.00	0.53	122.37	1,262.98	-2.10	0.82	-2.08	0.15	0.14	-7.72	
1,451.00	0.44	109.81	1,450.98	-2.81	2.23	-2.76	0.07	-0.05	-6.68	
1,645.00	0.44	13.57	1,644.97	-2.34	3.11	-2.27	0.34	0.00	-49.61	

Aim Directional Services, LLC

Survey Report

Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 1 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)	
1,834.00	0.48	84.76	1,833.97	-1.56	4.07	-1.48	0.28	0.02	37.67	
2,022.00	0.84	78.43	2,021.96	-1.21	6.20	-1.09	0.20	0.19	-3.37	
2,211.00	1.63	88.01	2,210.91	-0.84	10.24	-0.63	0.43	0.42	5.07	
2,400.00	2.11	76.23	2,399.81	0.08	16.31	0.41	0.32	0.25	-6.23	
2,589.00	2.73	76.41	2,588.64	1.97	24.06	2.45	0.33	0.33	0.10	
2,777.00	3.21	77.02	2,776.39	4.20	33.55	4.88	0.26	0.26	0.32	
2,966.00	1.36	74.47	2,965.23	5.99	40.86	6.81	0.98	-0.98	-1.35	
3,155.00	1.80	56.81	3,154.16	8.22	45.51	9.13	0.34	0.23	-9.34	
3,344.00	2.02	60.67	3,343.05	11.47	50.90	12.49	0.13	0.12	2.04	
3,532.00	2.73	61.64	3,530.89	15.22	57.73	16.38	0.38	0.38	0.52	
3,721.00	2.11	46.26	3,719.72	19.77	64.20	21.05	0.47	-0.33	-8.14	
3,910.00	2.51	306.50	3,908.63	24.64	63.39	25.90	1.87	0.21	-52.78	
4,099.00	2.24	312.13	4,097.47	29.58	57.32	30.72	0.19	-0.14	2.98	
4,287.00	1.98	310.37	4,285.34	34.14	52.12	35.18	0.14	-0.14	-0.94	
4,475.00	1.45	325.40	4,473.25	38.21	48.30	39.17	0.37	-0.28	7.99	
4,570.00	1.41	318.99	4,568.22	40.08	46.85	41.01	0.17	-0.04	-6.75	
4,695.00	1.41	334.10	4,693.19	42.62	45.17	43.52	0.30	0.00	12.09	
4,884.00	1.49	329.36	4,882.13	46.83	42.90	47.68	0.08	0.04	-2.51	
5,072.00	1.27	324.00	5,070.07	50.62	40.43	51.42	0.14	-0.12	-2.85	
5,260.00	1.80	291.65	5,258.01	53.39	36.46	54.11	0.53	0.28	-17.21	
5,449.00	1.85	280.05	5,446.91	55.02	30.70	55.62	0.20	0.03	-6.14	
5,638.00	1.76	296.10	5,635.82	56.83	25.09	57.32	0.27	-0.05	8.49	
5,826.00	1.58	308.61	5,823.74	59.71	20.47	60.11	0.22	-0.10	6.65	
6,015.00	1.27	317.84	6,012.68	62.89	17.03	63.22	0.20	-0.16	4.88	
6,204.00	1.49	295.61	6,201.63	65.51	13.40	65.76	0.30	0.12	-11.76	
6,392.00	1.98	284.97	6,389.54	67.40	8.06	67.55	0.31	0.26	-5.66	
6,486.00	1.71	282.86	6,483.49	68.13	5.13	68.22	0.30	-0.29	-2.24	
6,675.00	1.36	285.94	6,672.43	69.38	0.22	69.37	0.19	-0.19	1.63	
6,863.00	1.36	227.05	6,860.38	68.47	-3.56	68.39	0.71	0.00	-31.32	
7,052.00	0.97	225.73	7,049.34	65.83	-6.35	65.69	0.21	-0.21	-0.70	
7,241.00	0.66	192.95	7,238.32	63.65	-7.73	63.48	0.29	-0.16	-17.34	
7,429.00	0.40	165.44	7,426.31	61.96	-7.81	61.79	0.19	-0.14	-14.63	
7,618.00	0.57	135.91	7,615.31	60.64	-6.99	60.49	0.16	0.09	-15.62	
7,753.00	0.31	195.94	7,750.30	59.81	-6.63	59.67	0.37	-0.19	44.47	
7,777.00	0.18	138.72	7,774.30	59.72	-6.62	59.58	1.09	-0.54	-238.42	
7,871.00	9.32	20.33	7,867.89	66.76	-3.87	66.67	10.01	9.72	-125.95	
7,965.00	23.91	13.74	7,957.73	92.55	3.34	92.59	15.63	15.52	-7.01	
8,059.00	33.63	7.50	8,040.05	136.97	11.28	137.17	10.81	10.34	-6.64	
8,091.00	35.82	5.04	8,066.35	155.09	13.26	155.32	8.12	6.84	-7.69	
8,122.00	37.05	4.07	8,091.29	173.44	14.72	173.70	4.38	3.97	-3.13	
8,154.00	36.79	3.81	8,116.87	192.62	16.04	192.90	0.95	-0.81	-0.81	
8,185.00	36.62	4.34	8,141.73	211.10	17.36	211.41	1.16	-0.55	1.71	
8,216.00	37.14	2.67	8,166.52	229.67	18.49	229.99	3.64	1.68	-5.39	

Aim Directional Services, LLC

Survey Report

Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 1 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
8,248.00	39.03	358.98	8,191.71	249.40	18.76	249.72	9.24	5.91	-11.53
8,279.00	41.71	354.14	8,215.33	269.42	17.54	269.72	13.30	8.65	-15.61
8,311.00	43.69	352.21	8,238.85	290.97	14.95	291.21	7.42	6.19	-6.03
8,342.00	45.54	352.38	8,260.92	312.54	12.03	312.72	5.98	5.97	0.55
8,373.00	48.48	353.00	8,282.05	335.03	9.15	335.15	9.60	9.48	2.00
8,405.00	51.34	354.05	8,302.66	359.35	6.40	359.41	9.28	8.94	3.28
8,436.00	53.63	355.02	8,321.54	383.83	4.06	383.83	7.79	7.39	3.13
8,468.00	56.79	356.60	8,339.79	410.03	2.14	409.99	10.67	9.88	4.94
8,499.00	60.57	358.10	8,355.91	436.48	0.93	436.41	12.87	12.19	4.84
8,530.00	63.74	359.50	8,370.38	463.88	0.36	463.80	10.98	10.23	4.52
8,562.00	66.77	0.65	8,383.78	492.94	0.40	492.85	10.02	9.47	3.59
8,593.00	70.33	1.44	8,395.11	521.78	0.93	521.70	11.73	11.48	2.55
8,625.00	73.58	1.35	8,405.02	552.20	1.67	552.12	10.16	10.16	-0.28
8,656.00	77.58	0.21	8,412.74	582.21	2.07	582.13	13.39	12.90	-3.68
8,692.00	82.81	359.33	8,418.87	617.67	1.93	617.59	14.73	14.53	-2.44
8,745.00	89.10	0.38	8,422.61	670.51	1.80	670.41	12.03	11.87	1.98
8,839.00	90.90	0.29	8,422.61	764.51	2.35	764.40	1.92	1.91	-0.10
8,933.00	91.96	359.59	8,420.26	858.48	2.25	858.35	1.35	1.13	-0.74
9,027.00	92.13	359.85	8,416.91	952.41	1.79	952.26	0.33	0.18	0.28
9,122.00	93.58	359.06	8,412.18	1,047.29	0.89	1,047.10	1.74	1.53	-0.83
9,216.00	88.35	358.10	8,410.59	1,141.21	-1.44	1,140.95	5.66	-5.56	-1.02
9,310.00	89.63	359.59	8,412.25	1,235.17	-3.33	1,234.86	2.09	1.36	1.59
9,404.00	92.00	1.44	8,410.91	1,329.15	-2.49	1,328.83	3.20	2.52	1.97
9,499.00	88.92	358.27	8,410.15	1,424.12	-2.73	1,423.78	4.65	-3.24	-3.34
9,593.00	89.36	357.04	8,411.56	1,518.03	-6.58	1,517.59	1.39	0.47	-1.31
9,687.00	90.15	352.82	8,411.96	1,611.64	-14.88	1,611.02	4.57	0.84	-4.49
9,781.00	89.54	354.41	8,412.22	1,705.05	-25.34	1,704.20	1.81	-0.65	1.69
9,875.00	89.41	358.10	8,413.08	1,798.83	-31.47	1,797.84	3.93	-0.14	3.93
9,970.00	87.34	2.40	8,415.77	1,893.77	-31.06	1,892.76	5.02	-2.18	4.53
10,064.00	88.84	3.19	8,418.91	1,987.60	-26.48	1,986.67	1.80	1.60	0.84
10,158.00	88.88	3.11	8,420.78	2,081.44	-21.32	2,080.59	0.10	0.04	-0.09
10,252.00	89.67	3.37	8,421.97	2,175.28	-16.00	2,174.52	0.88	0.84	0.28
10,346.00	90.81	4.07	8,421.57	2,269.08	-9.90	2,268.42	1.42	1.21	0.74
10,441.00	91.56	4.42	8,419.61	2,363.80	-2.87	2,363.26	0.87	0.79	0.37
10,535.00	92.26	5.22	8,416.47	2,457.41	5.02	2,457.02	1.13	0.74	0.85
10,629.00	91.21	3.02	8,413.63	2,551.12	11.77	2,550.84	2.59	-1.12	-2.34
10,723.00	90.81	1.96	8,411.97	2,645.01	15.85	2,644.80	1.21	-0.43	-1.13
10,818.00	89.76	1.17	8,411.50	2,739.98	18.45	2,739.79	1.38	-1.11	-0.83
10,912.00	89.05	359.85	8,412.48	2,833.96	19.28	2,833.78	1.59	-0.76	-1.40
11,006.00	89.93	1.35	8,413.31	2,927.95	20.27	2,927.77	1.85	0.94	1.60
11,100.00	92.09	3.81	8,411.65	3,021.83	24.50	3,021.71	3.48	2.30	2.62
11,194.00	89.01	2.32	8,410.75	3,115.68	29.52	3,115.64	3.64	-3.28	-1.59
11,289.00	89.05	2.32	8,412.36	3,210.59	33.37	3,210.61	0.04	0.04	0.00
11,383.00	88.53	2.14	8,414.35	3,304.49	37.02	3,304.57	0.59	-0.55	-0.19

Aim Directional Services, LLC

Survey Report

Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 1 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)	
11,477.00	89.01	2.23	8,416.36	3,398.40	40.61	3,398.53	0.52	0.51	0.10	
11,571.00	88.88	0.73	8,418.09	3,492.35	43.03	3,492.51	1.60	-0.14	-1.60	
11,665.00	89.93	1.70	8,419.07	3,586.32	45.03	3,586.50	1.52	1.12	1.03	
11,759.00	91.65	2.58	8,417.77	3,680.24	48.54	3,680.48	2.06	1.83	0.94	
11,854.00	92.75	2.32	8,414.13	3,775.09	52.59	3,775.38	1.19	1.16	-0.27	
11,948.00	92.26	2.14	8,410.02	3,868.93	56.25	3,869.27	0.56	-0.52	-0.19	
12,042.00	89.58	359.68	8,408.51	3,962.89	57.74	3,963.25	3.87	-2.85	-2.62	
12,136.00	89.71	358.89	8,409.09	4,056.88	56.57	4,057.19	0.85	0.14	-0.84	
12,230.00	90.29	359.33	8,409.09	4,150.86	55.11	4,151.13	0.77	0.62	0.47	
12,324.00	90.86	358.18	8,408.15	4,244.83	53.06	4,245.04	1.37	0.61	-1.22	
12,419.00	88.62	359.94	8,408.58	4,339.81	51.51	4,339.97	3.00	-2.36	1.85	
12,513.00	92.09	2.75	8,408.00	4,433.76	53.71	4,433.94	4.75	3.69	2.99	
12,607.00	88.79	2.32	8,407.28	4,527.65	57.87	4,527.90	3.54	-3.51	-0.46	
12,701.00	89.10	2.75	8,409.01	4,621.54	62.03	4,621.86	0.56	0.33	0.46	
12,795.00	91.25	4.25	8,408.72	4,715.36	67.76	4,715.77	2.79	2.29	1.60	
12,889.00	90.20	3.46	8,407.53	4,809.14	74.08	4,809.66	1.40	-1.12	-0.84	
12,984.00	89.80	2.40	8,407.53	4,904.01	78.94	4,904.61	1.19	-0.42	-1.12	
13,078.00	90.20	3.02	8,407.53	4,997.91	83.38	4,998.57	0.78	0.43	0.66	
13,172.00	89.58	2.58	8,407.71	5,091.79	87.97	5,092.53	0.81	-0.66	-0.47	
13,266.00	90.33	4.25	8,407.78	5,185.62	93.57	5,186.46	1.95	0.80	1.78	
13,360.00	90.29	4.25	8,407.28	5,279.36	100.54	5,280.32	0.04	-0.04	0.00	
13,455.00	89.80	2.05	8,407.20	5,374.21	105.76	5,375.25	2.37	-0.52	-2.32	
13,549.00	90.59	0.21	8,406.88	5,468.19	107.61	5,469.25	2.13	0.84	-1.96	
13,643.00	90.15	359.85	8,406.27	5,562.19	107.66	5,563.23	0.60	-0.47	-0.38	
13,737.00	89.85	359.85	8,406.27	5,656.19	107.42	5,657.20	0.32	-0.32	0.00	
13,832.00	90.11	0.21	8,406.31	5,751.19	107.47	5,752.18	0.47	0.27	0.38	
13,926.00	90.68	359.85	8,405.66	5,845.18	107.52	5,846.16	0.72	0.61	-0.38	
14,020.00	90.20	0.47	8,404.94	5,939.18	107.78	5,940.15	0.83	-0.51	0.66	
14,114.00	90.02	1.35	8,404.76	6,033.17	109.27	6,034.14	0.96	-0.19	0.94	
14,208.00	89.93	0.73	8,404.80	6,127.15	110.98	6,128.14	0.67	-0.10	-0.66	
14,303.00	90.68	0.38	8,404.29	6,222.14	111.90	6,223.14	0.87	0.79	-0.37	
14,397.00	89.67	0.73	8,404.01	6,316.14	112.81	6,317.13	1.14	-1.07	0.37	
14,491.00	90.37	1.79	8,403.97	6,410.11	114.87	6,411.13	1.35	0.74	1.13	
14,585.00	90.46	2.14	8,403.29	6,504.05	118.10	6,505.11	0.38	0.10	0.37	
14,679.00	90.46	2.93	8,402.54	6,597.96	122.26	6,599.08	0.84	0.00	0.84	
Last Aim MWD Survey										
14,735.00	90.46	2.93	8,402.09	6,653.88	125.12	6,655.05	0.00	0.00	0.00	
Projection to TD										

Aim Directional Services, LLC

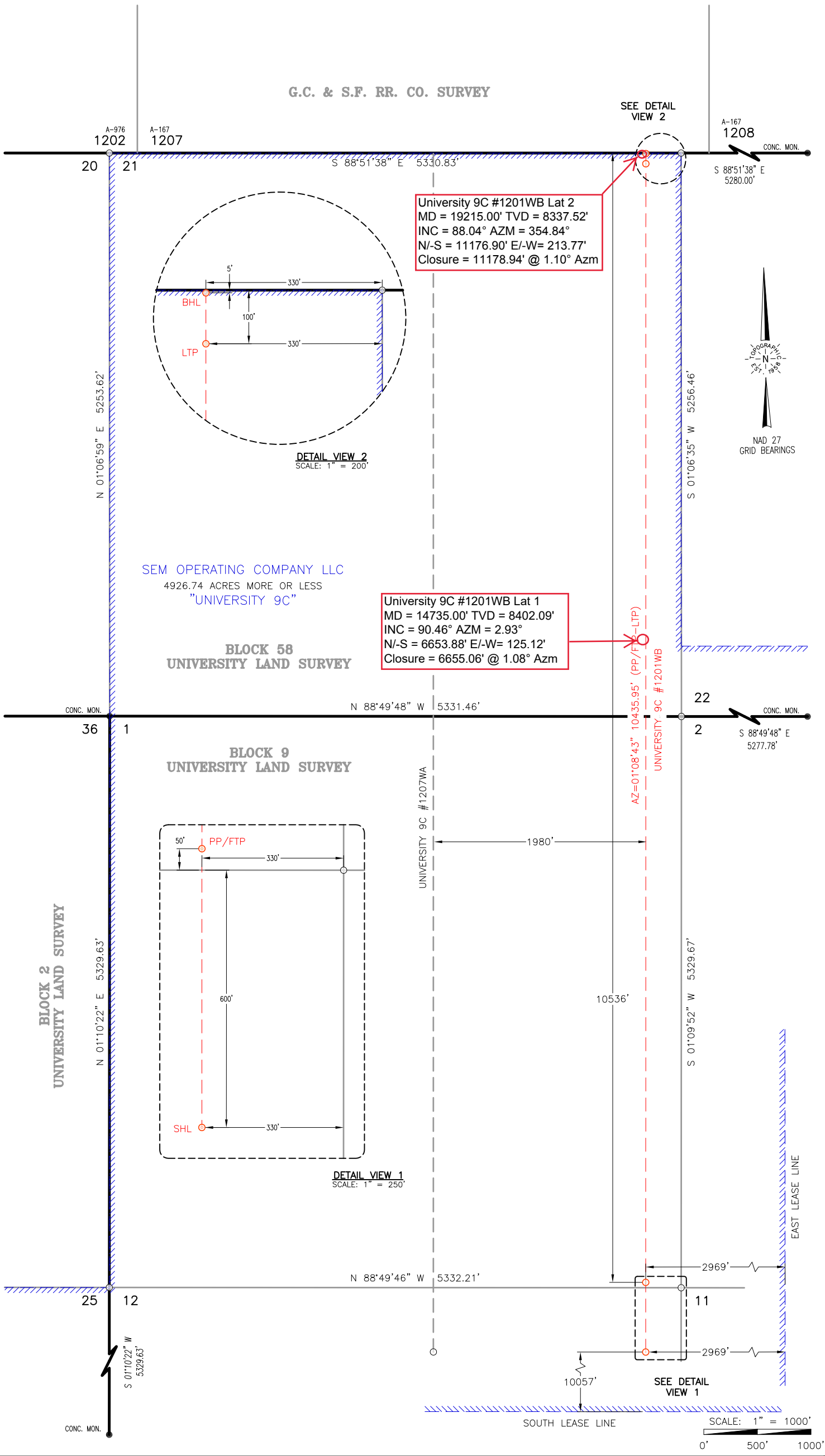
Survey Report

Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 1 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
516.00	515.99	0.56	-1.36	Tie-in to VES Gyro Surveys
683.00	682.99	-0.08	-1.21	First Aim MWD Survey
14,679.00	8,402.54	6,597.96	122.26	Last Aim MWD Survey
14,735.00	8,402.09	6,653.88	125.12	Projection to TD

G.C. & S.F. RR. CO. SURVEY



Surface Hole Location:

GROUND ELEVATION:
SHL Ground Elevation: 2629'

COORDINATES:
NAD 27 TX-C ZONE:
X = 1587797.55 Y = 591698.11
LAT.: N 31°17'12.80" LONG.: W 101°39'10.74"
LAT.: N 31.2868901 LONG.: W 101.6529820
NAD 83 TX-C ZONE:
X = 1884265.56 Y = 10434274.80
LAT.: N 31°17'13.34" LONG.: W 101°39'12.17"
LAT.: N 31.2870401 LONG.: W 101.6533809

SURVEY LINE PERPENDICULARS:

600' FNL & 330' FEL (SEC. 12)

UNIT LINE PERPENDICULARS:

10057' FSL & 2969' FEL

Penetration Point/
First Take Point:

COORDINATES:
NAD 27 TX-C ZONE:
X = 1587810.54 Y = 592348.14
LAT.: N 31°17'19.24" LONG.: W 101°39'10.67"
LAT.: N 31.2886777 LONG.: W 101.6529651
NAD 83 TX-C ZONE:
X = 1884278.56 Y = 10434924.83
LAT.: N 31°17'19.78" LONG.: W 101°39'12.11"
LAT.: N 31.2888275 LONG.: W 101.6533640

SURVEY LINE PERPENDICULARS:

50' FSL & 330' FEL (SEC. 1)

UNIT LINE PERPENDICULARS:

10536' FNL & 2969' FEL

Last Take Point:

COORDINATES:
NAD 27 TX-C ZONE:
X = 1588019.11 Y = 602782.01
LAT.: N 31°19'02.53" LONG.: W 101°39'09.70"
LAT.: N 31.3173697 LONG.: W 101.6526936
NAD 83 TX-C ZONE:
X = 1884487.16 Y = 10445358.70
LAT.: N 31°19'03.07" LONG.: W 101°39'11.13"
LAT.: N 31.3175186 LONG.: W 101.6530925

SURVEY LINE PERPENDICULARS:

100' FNL & 330' FEL (SEC. 21)

UNIT LINE PERPENDICULARS:

100' FNL & 330' FEL

Bottom Hole Location:

COORDINATES:
NAD 27 TX-C ZONE:
X = 1588021.01 Y = 602876.99
LAT.: N 31°19'03.47" LONG.: W 101°39'09.69"
LAT.: N 31.3176309 LONG.: W 101.6526911
NAD 83 TX-C ZONE:
X = 1884489.06 Y = 10445453.68
LAT.: N 31°19'04.01" LONG.: W 101°39'11.12"
LAT.: N 31.3177798 LONG.: W 101.6530901

SURVEY LINE PERPENDICULARS:

5' FNL & 330' FEL (SEC. 21)

UNIT LINE PERPENDICULARS:

5' FNL & 330' FEL

All Coordinates are in NAD 27 TX-C Zone unless otherwise noted.

REV#-BY	DATE REVISED	REV#-BY	DATE REVISED
MP	01-30-2017	1-XXX	XX/XX/XX
MP	02-21-2017		

SPECIAL NOTES:

LEGEND		Unit Boundary
		Section Lines
		Block Line
		Powerline
		Pipeline
		Lease Road
		Calculated Corner

CERTIFICATION:

This well location shown on this permit plat was surveyed on the ground under my direct supervision. This plat is for Texas Railroad Commission permit purpose only and should not be considered a boundary survey.

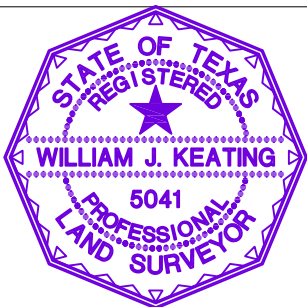
William J. Keating
Texas Reg. No. 5041



2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

Texas FIRM Registration NO. 10042500

LO_UNIVERSITY_9C_1201WB_REV2



SEM OPERATING
COMPANY LLC

LEASE NAME & WELL NO.:
UNIVERSITY 9C #1201WB

TOPOGRAPHY & VEGETATION:

NATURAL MESQUITE PASTURE

NEAREST TOWN IN COUNTY:

±13.2 MILES NORTHWEST OF BIG LAKE, TEXAS

LOCATION DESCRIPTION:

SHL: SECTION 12, BLOCK 9, UNIVERSITY LAND SURVEY
PP/FTP: SECTION 1, BLOCK 9, UNIVERSITY LAND SURVEY
LTP/BHL: SECTION 21, BLOCK 58, UNIVERSITY LAND SURVEY
REAGAN COUNTY, TEXAS

Scale: 1" = 1000'

Surveyed: 09-19-16

ORIGINAL DOC. SIZE: 11"x17"

COGO: 519-89429

Drawn By: MP; 09-23-2016



· Directional Drilling · Horizontal Drilling · MWD/LWD · Mud Motors

July 7, 2017

State of Texas
County of Reagan

I, Allison Reinert, certify that; I am employed by Aim Directional Services, LLC; that I did on the day(s) of May 6, 2017 through May 23, 2017 conduct or supervise the taking of a directional MWD survey from a depth of 683 feet to a depth of 14735 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Aim Directional Services, LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of SEM Operating Company, LLC for University 9C #1201WB Lateral 1 API No. 42-383-39818 in Reagan County, Texas; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Aim Directional Services, LLC.

Allison Reinert
VP Engineering



· Directional Drilling · Horizontal Drilling · MWD/LWD · Mud Motors

July 7, 2017

Railroad Commission of Texas
Oil and Gas Division
P.O. Box 12967
Capitol Station
Austin, Texas 78711

Attention: Pamela Johns

Re: SEM Operating Company, LLC
University 9C #1201WB
Reagan County, Texas
API No. 42-383-39818

Enclosed, please find the original and one copy of the survey performed on the referenced well by Aim Directional Services, LLC (P-5 No. 009134). Other information required by your office is as follows:

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Date Performed</u>	<u>Type of Survey</u>
Allison Reinert VP Engineering	Lateral 1	683'- 14735'	05/06/17 – 05/23/17	MWD
Allison Reinert VP Engineering	Lateral 2	7916'- 19215'	05/24/17 – 06/12/17	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and the lease line (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Allison Reinert
VP Engineering

Enclosures

cc:



· Directional Drilling · Horizontal Drilling · MWD/LWD · Mud Motors

July 7, 2017

State of Texas
County of Reagan

I, Allison Reinert, certify that; I am employed by Aim Directional Services, LLC; that I did on the day(s) of May 24, 2017 through June 12, 2017 conduct or supervise the taking of a directional MWD survey from a depth of 7916 feet to a depth of 19215 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Aim Directional Services, LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of SEM Operating Company, LLC for University 9C #1201WB Lateral 2 API No. 42-383-39818 in Reagan County, Texas; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Aim Directional Services, LLC.

Allison Reinert
VP Engineering

Aim Directional Services

Survey Report



Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 2 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

Project	Reagan County, Texas		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas Central 4203		

Site	University 9C #1201WB		
Site Position:		Northing:	591,698.11 usft
From:	Map	Easting:	1,587,797.55 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	31° 17' 12.804 N
		Longitude:	101° 39' 10.735 W
		Grid Convergence:	-0.68 °

Well	#1201WB		
Well Position	+N/-S	0.00 usft	Northing: 591,698.11 usft
	+E/-W	0.00 usft	Easting: 1,587,797.55 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	31° 17' 12.804 N
		Longitude:	101° 39' 10.735 W
		Ground Level:	2,629.00 usft

Wellbore	Lateral 2 Surveys				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/2/2017	6.03	59.65	47,777.20000000

Design	Aim MWD Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	7,871.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	1.15	

Survey Program	Date	6/12/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
50.00	516.00	VES Gyro Surveys (VES Gyro Surveys)	VES_C670Ga_GYROFLEX_	VESSI Gyroflex Gyro	
683.00	7,871.00	Aim MWD Surveys (Lateral 1 Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	
7,916.00	19,215.00	Aim MWD Surveys (Lateral 2 Surveys)	B001Mb_MWD+HRGM	OWSG MWD + HRGM	

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	
50.00	0.44	305.22	50.00	0.11	-0.16	0.11	0.88	0.88	0.00	
100.00	0.51	307.70	100.00	0.36	-0.49	0.35	0.15	0.14	4.96	
150.00	0.44	307.22	150.00	0.61	-0.82	0.59	0.14	-0.14	-0.96	
200.00	0.21	301.62	200.00	0.77	-1.05	0.75	0.46	-0.46	-11.20	
250.00	0.21	291.09	249.99	0.85	-1.21	0.83	0.08	0.00	-21.06	
300.00	0.33	277.96	299.99	0.91	-1.44	0.88	0.27	0.24	-26.26	
350.00	0.08	324.36	349.99	0.96	-1.60	0.92	0.56	-0.50	92.80	
400.00	0.22	91.98	399.99	0.98	-1.53	0.95	0.55	0.28	255.24	

Aim Directional Services

Survey Report



Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 2 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
450.00	0.24	160.26	449.99	0.88	-1.40	0.85	0.52	0.04	136.56
500.00	0.30	175.64	499.99	0.65	-1.35	0.62	0.19	0.12	30.76
516.00	0.36	189.78	515.99	0.56	-1.36	0.53	0.63	0.38	88.38
683.00	0.18	117.45	682.99	-0.08	-1.21	-0.10	0.21	-0.11	-43.31
885.00	0.26	151.20	884.99	-0.63	-0.71	-0.64	0.07	0.04	16.71
1,074.00	0.26	136.96	1,073.99	-1.32	-0.21	-1.32	0.03	0.00	-7.53
1,263.00	0.53	122.37	1,262.98	-2.10	0.82	-2.08	0.15	0.14	-7.72
1,451.00	0.44	109.81	1,450.98	-2.81	2.23	-2.76	0.07	-0.05	-6.68
1,645.00	0.44	13.57	1,644.97	-2.34	3.11	-2.27	0.34	0.00	-49.61
1,834.00	0.48	84.76	1,833.97	-1.56	4.07	-1.48	0.28	0.02	37.67
2,022.00	0.84	78.43	2,021.96	-1.21	6.20	-1.09	0.20	0.19	-3.37
2,211.00	1.63	88.01	2,210.91	-0.84	10.24	-0.63	0.43	0.42	5.07
2,400.00	2.11	76.23	2,399.81	0.08	16.31	0.41	0.32	0.25	-6.23
2,589.00	2.73	76.41	2,588.64	1.97	24.06	2.45	0.33	0.33	0.10
2,777.00	3.21	77.02	2,776.39	4.20	33.55	4.88	0.26	0.26	0.32
2,966.00	1.36	74.47	2,965.23	5.99	40.86	6.81	0.98	-0.98	-1.35
3,155.00	1.80	56.81	3,154.16	8.22	45.51	9.13	0.34	0.23	-9.34
3,344.00	2.02	60.67	3,343.05	11.47	50.90	12.49	0.13	0.12	2.04
3,532.00	2.73	61.64	3,530.89	15.22	57.73	16.38	0.38	0.38	0.52
3,721.00	2.11	46.26	3,719.72	19.77	64.20	21.05	0.47	-0.33	-8.14
3,910.00	2.51	306.50	3,908.63	24.64	63.39	25.90	1.87	0.21	-52.78
4,099.00	2.24	312.13	4,097.47	29.58	57.32	30.72	0.19	-0.14	2.98
4,287.00	1.98	310.37	4,285.34	34.14	52.12	35.18	0.14	-0.14	-0.94
4,475.00	1.45	325.40	4,473.25	38.21	48.30	39.17	0.37	-0.28	7.99
4,570.00	1.41	318.99	4,568.22	40.08	46.85	41.01	0.17	-0.04	-6.75
4,695.00	1.41	334.10	4,693.19	42.62	45.17	43.52	0.30	0.00	12.09
4,884.00	1.49	329.36	4,882.13	46.83	42.90	47.68	0.08	0.04	-2.51
5,072.00	1.27	324.00	5,070.07	50.62	40.43	51.42	0.14	-0.12	-2.85
5,260.00	1.80	291.65	5,258.01	53.39	36.46	54.11	0.53	0.28	-17.21
5,449.00	1.85	280.05	5,446.91	55.02	30.70	55.62	0.20	0.03	-6.14
5,638.00	1.76	296.10	5,635.82	56.83	25.09	57.32	0.27	-0.05	8.49
5,826.00	1.58	308.61	5,823.74	59.71	20.47	60.11	0.22	-0.10	6.65
6,015.00	1.27	317.84	6,012.68	62.89	17.03	63.22	0.20	-0.16	4.88
6,204.00	1.49	295.61	6,201.63	65.51	13.40	65.76	0.30	0.12	-11.76
6,392.00	1.98	284.97	6,389.54	67.40	8.06	67.55	0.31	0.26	-5.66
6,486.00	1.71	282.86	6,483.49	68.13	5.13	68.22	0.30	-0.29	-2.24
6,675.00	1.36	285.94	6,672.43	69.38	0.22	69.37	0.19	-0.19	1.63
6,863.00	1.36	227.05	6,860.38	68.47	-3.56	68.39	0.71	0.00	-31.32
7,052.00	0.97	225.73	7,049.34	65.83	-6.35	65.69	0.21	-0.21	-0.70
7,241.00	0.66	192.95	7,238.32	63.65	-7.73	63.48	0.29	-0.16	-17.34
7,429.00	0.40	165.44	7,426.31	61.96	-7.81	61.79	0.19	-0.14	-14.63
7,618.00	0.57	135.91	7,615.31	60.64	-6.99	60.49	0.16	0.09	-15.62
7,753.00	0.31	195.94	7,750.30	59.81	-6.63	59.67	0.37	-0.19	44.47

Aim Directional Services

Survey Report



Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
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Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 2 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
7,777.00	0.18	138.72	7,774.30	59.72	-6.62	59.58	1.09	-0.54	-238.42
7,871.00	9.32	20.33	7,867.89	66.76	-3.87	66.67	10.01	9.72	-125.95
7,916.00	15.91	11.90	7,911.79	76.23	-1.33	76.18	15.17	14.64	-18.73
7,948.00	20.44	358.10	7,942.20	86.11	-0.61	86.08	19.44	14.16	-43.13
7,981.00	26.42	352.03	7,972.47	99.16	-1.82	99.10	19.52	18.12	-18.39
8,013.00	32.04	353.70	8,000.38	114.66	-3.74	114.56	17.74	17.56	5.22
8,044.00	35.96	348.96	8,026.08	131.77	-6.39	131.62	15.26	12.65	-15.29
8,075.00	39.52	357.75	8,050.61	150.58	-8.52	150.38	20.79	11.48	28.35
8,107.00	42.81	354.23	8,074.70	171.58	-10.01	171.35	12.57	10.28	-11.00
8,138.00	44.57	354.49	8,097.11	192.89	-12.12	192.61	5.71	5.68	0.84
8,170.00	45.32	358.71	8,119.77	215.45	-13.45	215.13	9.61	2.34	13.19
8,201.00	46.59	4.34	8,141.33	237.70	-12.85	237.40	13.68	4.10	18.16
8,233.00	49.23	5.48	8,162.78	261.36	-10.81	261.09	8.66	8.25	3.56
8,264.00	52.09	3.90	8,182.43	285.25	-8.86	285.02	10.03	9.23	-5.10
8,295.00	54.55	2.23	8,200.94	310.07	-7.53	309.86	9.03	7.94	-5.39
8,327.00	56.53	3.81	8,219.05	336.42	-6.14	336.23	7.41	6.19	4.94
8,358.00	58.77	5.83	8,235.64	362.51	-3.93	362.36	9.08	7.23	6.52
8,390.00	61.58	7.85	8,251.55	390.07	-0.62	389.98	10.35	8.78	6.31
8,421.00	63.87	8.82	8,265.76	417.33	3.38	417.31	7.89	7.39	3.13
8,452.00	66.15	8.38	8,278.85	445.11	7.58	445.17	7.47	7.35	-1.42
8,484.00	68.84	6.97	8,291.10	474.40	11.52	474.54	9.34	8.41	-4.41
8,515.00	71.65	5.22	8,301.58	503.41	14.61	503.60	10.51	9.06	-5.65
8,547.00	73.63	3.72	8,311.13	533.86	16.99	534.09	7.64	6.19	-4.69
8,578.00	75.52	2.40	8,319.37	563.70	18.59	563.96	7.35	6.10	-4.26
8,610.00	77.98	1.00	8,326.71	594.83	19.51	595.10	8.79	7.69	-4.38
8,635.00	80.40	359.59	8,331.40	619.38	19.63	619.65	11.15	9.68	-5.64
8,666.00	83.08	359.59	8,335.85	650.06	19.41	650.31	8.65	8.65	0.00
8,698.00	85.14	359.94	8,339.13	681.88	19.28	682.13	6.53	6.44	1.09
8,760.00	89.85	1.70	8,341.84	743.80	20.17	744.05	8.11	7.60	2.84
8,855.00	89.93	1.61	8,342.02	838.76	22.91	839.05	0.13	0.08	-0.09
8,949.00	89.14	0.47	8,342.79	932.74	24.62	933.04	1.48	-0.84	-1.21
9,043.00	90.33	359.85	8,343.22	1,026.73	24.88	1,027.03	1.43	1.27	-0.66
9,138.00	90.15	359.50	8,342.82	1,121.73	24.34	1,122.00	0.41	-0.19	-0.37
9,232.00	89.71	359.15	8,342.94	1,215.73	23.24	1,215.95	0.60	-0.47	-0.37
9,326.00	91.03	359.33	8,342.33	1,309.71	21.99	1,309.89	1.42	1.40	0.19
9,421.00	91.47	359.77	8,340.26	1,404.69	21.24	1,404.83	0.65	0.46	0.46
9,515.00	91.43	359.33	8,337.88	1,498.65	20.51	1,498.76	0.47	-0.04	-0.47
9,609.00	89.67	355.90	8,336.98	1,592.55	16.59	1,592.56	4.10	-1.87	-3.65
9,703.00	89.89	358.10	8,337.34	1,686.42	11.68	1,686.31	2.35	0.23	2.34
9,798.00	90.11	0.56	8,337.34	1,781.40	10.56	1,781.25	2.60	0.23	2.59
9,892.00	89.41	2.40	8,337.73	1,875.36	12.99	1,875.25	2.09	-0.74	1.96
9,986.00	89.14	1.96	8,338.92	1,969.29	16.57	1,969.22	0.55	-0.29	-0.47
10,081.00	90.15	2.40	8,339.51	2,064.22	20.18	2,064.21	1.16	1.06	0.46

Aim Directional Services

Survey Report



Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 2 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)	
10,175.00	89.85	357.22	8,339.51	2,158.18	19.87	2,158.15	5.52	-0.32	-5.51	
10,269.00	89.45	355.11	8,340.09	2,251.97	13.58	2,251.79	2.28	-0.43	-2.24	
10,363.00	89.71	358.36	8,340.78	2,345.80	8.23	2,345.49	3.47	0.28	3.46	
10,457.00	90.29	359.33	8,340.78	2,439.78	6.34	2,439.41	1.20	0.62	1.03	
10,552.00	89.76	357.92	8,340.73	2,534.75	4.06	2,534.32	1.59	-0.56	-1.48	
10,646.00	89.36	359.33	8,341.46	2,628.72	1.80	2,628.22	1.56	-0.43	1.50	
10,740.00	89.71	1.17	8,342.22	2,722.71	2.21	2,722.20	1.99	0.37	1.96	
10,835.00	90.07	0.29	8,342.40	2,817.70	3.42	2,817.20	1.00	0.38	-0.93	
10,929.00	90.24	0.29	8,342.15	2,911.70	3.90	2,911.19	0.18	0.18	0.00	
11,023.00	90.15	358.71	8,341.83	3,005.69	3.08	3,005.15	1.68	-0.10	-1.68	
11,117.00	90.02	357.13	8,341.69	3,099.62	-0.33	3,098.99	1.69	-0.14	-1.68	
11,211.00	89.41	359.77	8,342.15	3,193.58	-2.88	3,192.88	2.88	-0.65	2.81	
11,305.00	90.46	5.04	8,342.26	3,287.46	1.07	3,286.82	5.72	1.12	5.61	
11,400.00	88.84	3.99	8,342.84	3,382.16	8.54	3,381.65	2.03	-1.71	-1.11	
11,494.00	92.48	6.97	8,341.76	3,475.70	17.52	3,475.35	5.00	3.87	3.17	
11,589.00	92.22	6.27	8,337.86	3,569.99	28.46	3,569.84	0.79	-0.27	-0.74	
11,683.00	92.18	6.09	8,334.26	3,663.37	38.57	3,663.41	0.20	-0.04	-0.19	
11,777.00	92.53	5.39	8,330.39	3,756.82	47.96	3,757.03	0.83	0.37	-0.74	
11,871.00	91.74	3.90	8,326.89	3,850.44	55.57	3,850.78	1.79	-0.84	-1.59	
11,965.00	88.97	359.68	8,326.31	3,944.36	58.51	3,944.74	5.37	-2.95	-4.49	
12,059.00	90.55	0.29	8,326.70	4,038.36	58.48	4,038.72	1.80	1.68	0.65	
12,154.00	90.07	359.85	8,326.19	4,133.36	58.60	4,133.70	0.69	-0.51	-0.46	
12,247.00	89.10	1.17	8,326.86	4,226.35	59.42	4,226.69	1.76	-1.04	1.42	
12,341.00	91.25	0.82	8,326.57	4,320.33	61.06	4,320.68	2.32	2.29	-0.37	
12,436.00	89.05	0.29	8,326.33	4,415.32	61.98	4,415.67	2.38	-2.32	-0.56	
12,530.00	90.64	1.52	8,326.58	4,509.30	63.46	4,509.67	2.14	1.69	1.31	
12,624.00	88.66	358.80	8,327.15	4,603.29	63.72	4,603.64	3.58	-2.11	-2.89	
12,718.00	90.07	0.56	8,328.20	4,697.27	63.20	4,697.59	2.40	1.50	1.87	
12,812.00	90.51	0.03	8,327.72	4,791.27	63.68	4,791.58	0.73	0.47	-0.56	
12,906.00	87.16	359.15	8,329.63	4,885.23	63.01	4,885.51	3.68	-3.56	-0.94	
13,000.00	86.68	358.54	8,334.68	4,979.08	61.12	4,979.30	0.83	-0.51	-0.65	
13,094.00	87.30	1.35	8,339.62	5,072.94	61.03	5,073.14	3.06	0.66	2.99	
13,188.00	89.05	3.28	8,342.61	5,166.81	64.83	5,167.07	2.77	1.86	2.05	
13,282.00	89.01	1.96	8,344.20	5,260.69	69.12	5,261.02	1.40	-0.04	-1.40	
13,377.00	90.99	4.25	8,344.20	5,355.54	74.27	5,355.95	3.19	2.08	2.41	
13,472.00	90.68	3.37	8,342.82	5,450.32	80.58	5,450.84	0.98	-0.33	-0.93	
13,566.00	89.89	3.37	8,342.35	5,544.16	86.10	5,544.77	0.84	-0.84	0.00	
13,660.00	90.33	2.58	8,342.17	5,638.03	90.98	5,638.72	0.96	0.47	-0.84	
13,754.00	89.23	2.23	8,342.53	5,731.94	94.93	5,732.69	1.23	-1.17	-0.37	
13,848.00	90.55	2.05	8,342.71	5,825.87	98.44	5,826.68	1.42	1.40	-0.19	
13,942.00	90.24	3.11	8,342.06	5,919.78	102.67	5,920.64	1.17	-0.33	1.13	
14,036.00	90.73	3.90	8,341.27	6,013.60	108.42	6,014.56	0.99	0.52	0.84	
14,130.00	91.74	1.44	8,339.24	6,107.46	112.79	6,108.50	2.83	1.07	-2.62	
14,224.00	89.54	359.68	8,338.19	6,201.44	113.71	6,202.48	3.00	-2.34	-1.87	

Aim Directional Services

Survey Report



Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 2 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)
14,319.00	89.93	358.80	8,338.63	6,296.43	112.45	6,297.42	1.01	0.41	-0.93
14,413.00	90.07	356.69	8,338.63	6,390.36	108.75	6,391.25	2.25	0.15	-2.24
14,508.00	89.76	357.22	8,338.77	6,485.22	103.71	6,486.00	0.65	-0.33	0.56
14,602.00	89.89	355.90	8,339.06	6,579.05	98.07	6,579.69	1.41	0.14	-1.40
14,696.00	89.89	357.83	8,339.24	6,672.90	92.93	6,673.42	2.05	0.00	2.05
14,790.00	88.35	358.36	8,340.68	6,766.84	89.80	6,767.28	1.73	-1.64	0.56
14,884.00	89.19	1.17	8,342.70	6,860.80	89.42	6,861.22	3.12	0.89	2.99
14,979.00	89.19	1.52	8,344.05	6,955.77	91.65	6,956.21	0.37	0.00	0.37
15,073.00	92.62	4.16	8,342.56	7,049.62	96.30	7,050.13	4.60	3.65	2.81
15,166.00	93.89	3.72	8,337.28	7,142.25	102.68	7,142.87	1.44	1.37	-0.47
15,261.00	93.45	2.49	8,331.20	7,236.91	107.82	7,237.62	1.37	-0.46	-1.29
15,355.00	91.12	1.61	8,327.45	7,330.77	111.17	7,331.52	2.65	-2.48	-0.94
15,450.00	88.57	2.58	8,327.71	7,425.70	114.65	7,426.50	2.87	-2.68	1.02
15,544.00	90.77	3.81	8,328.25	7,519.54	119.89	7,520.43	2.68	2.34	1.31
15,639.00	92.18	4.69	8,325.80	7,614.25	126.92	7,615.26	1.75	1.48	0.93
15,734.00	90.90	4.07	8,323.25	7,708.93	134.18	7,710.07	1.50	-1.35	-0.65
15,828.00	88.13	1.52	8,324.05	7,802.80	138.76	7,804.01	4.01	-2.95	-2.71
15,922.00	88.00	0.47	8,327.22	7,896.73	140.39	7,897.96	1.12	-0.14	-1.12
16,015.00	87.12	0.38	8,331.18	7,989.64	141.08	7,990.86	0.95	-0.95	-0.10
16,111.00	87.52	1.26	8,335.67	8,085.53	142.45	8,086.76	1.01	0.42	0.92
16,205.00	89.01	2.93	8,338.52	8,179.41	145.89	8,180.69	2.38	1.59	1.78
16,300.00	89.10	3.63	8,340.08	8,274.25	151.32	8,275.62	0.74	0.09	0.74
16,395.00	88.92	4.78	8,341.72	8,368.97	158.29	8,370.46	1.23	-0.19	1.21
16,489.00	90.02	2.58	8,342.59	8,462.77	164.32	8,464.36	2.62	1.17	-2.34
16,583.00	89.89	2.32	8,342.67	8,556.68	168.34	8,558.34	0.31	-0.14	-0.28
16,677.00	89.85	1.70	8,342.88	8,650.62	171.63	8,652.33	0.66	-0.04	-0.66
16,771.00	91.03	0.47	8,342.16	8,744.60	173.41	8,746.32	1.81	1.26	-1.31
16,865.00	90.81	359.24	8,340.65	8,838.59	173.18	8,840.28	1.33	-0.23	-1.31
16,959.00	90.11	356.87	8,339.89	8,932.52	169.99	8,934.13	2.63	-0.74	-2.52
17,054.00	90.15	357.83	8,339.68	9,027.42	165.59	9,028.92	1.01	0.04	1.01
17,148.00	89.80	358.80	8,339.72	9,121.38	162.83	9,122.81	1.10	-0.37	1.03
17,242.00	90.24	357.66	8,339.69	9,215.33	159.93	9,216.68	1.30	0.47	-1.21
17,336.00	90.29	357.92	8,339.25	9,309.26	156.30	9,310.52	0.28	0.05	0.28
17,431.00	89.19	355.72	8,339.68	9,404.11	151.03	9,405.24	2.59	-1.16	-2.32
17,525.00	89.85	356.16	8,340.47	9,497.87	144.38	9,498.85	0.84	0.70	0.47
17,619.00	90.15	357.22	8,340.47	9,591.71	138.95	9,592.56	1.17	0.32	1.13
17,713.00	89.93	356.25	8,340.41	9,685.55	133.60	9,686.28	1.06	-0.23	-1.03
17,808.00	89.76	357.92	8,340.66	9,780.43	128.76	9,781.04	1.77	-0.18	1.76
17,902.00	92.04	359.94	8,339.19	9,874.39	127.01	9,874.95	3.24	2.43	2.15
17,996.00	91.60	2.49	8,336.20	9,968.31	129.00	9,968.89	2.75	-0.47	2.71
18,090.00	88.79	0.82	8,335.88	10,062.26	131.72	10,062.88	3.48	-2.99	-1.78
18,184.00	89.58	2.58	8,337.22	10,156.20	134.50	10,156.86	2.05	0.84	1.87
18,278.00	88.53	4.07	8,338.77	10,250.03	139.96	10,250.77	1.94	-1.12	1.59

Aim Directional Services

Survey Report



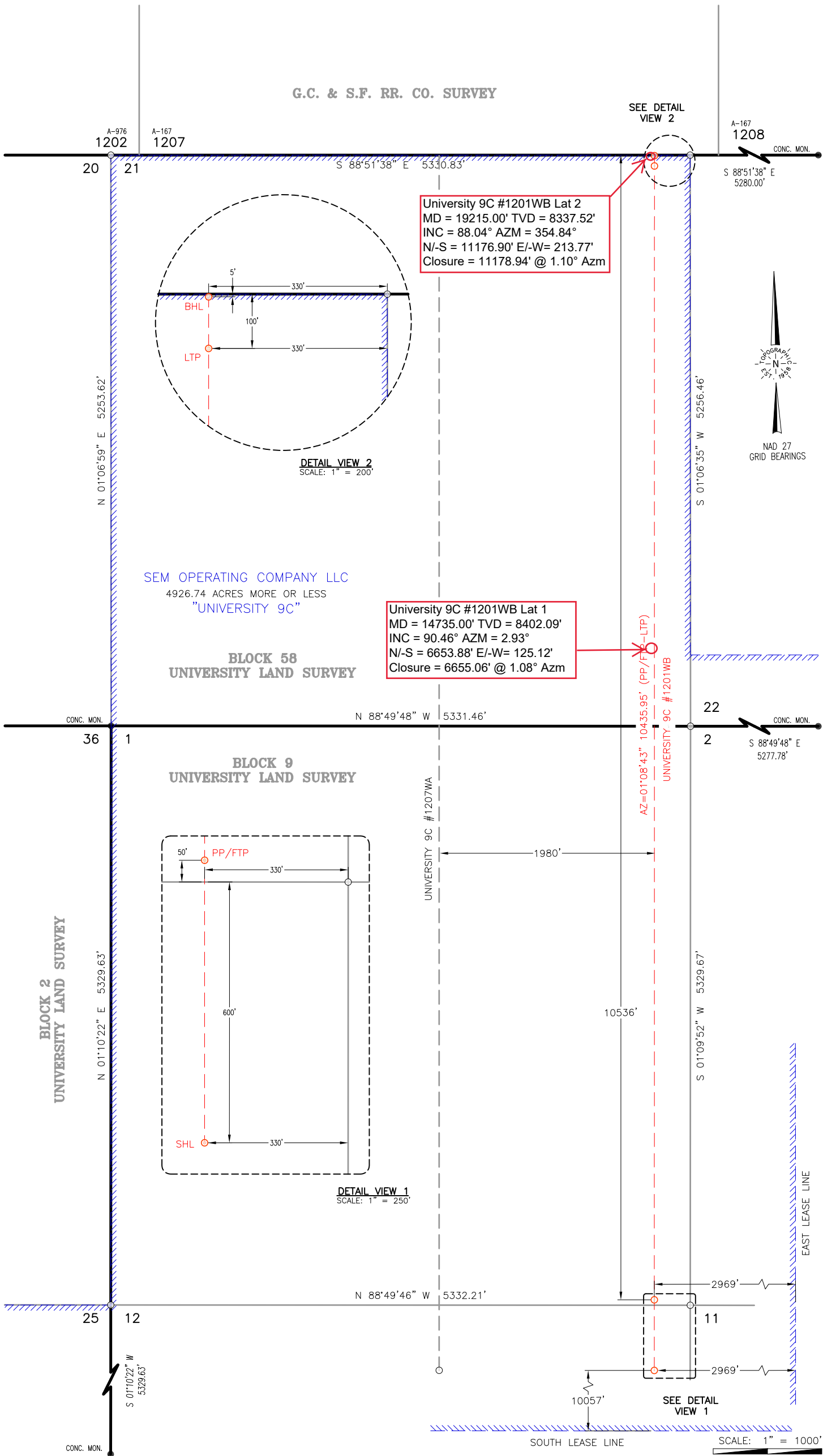
Company:	SEM Operating Company, LLC	Local Co-ordinate Reference:	Site University 9C #1201WB
Project:	Reagan County, Texas	TVD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Site:	University 9C #1201WB	MD Reference:	2629'GL+26'KB @ 2655.00usft (Planning)
Well:	#1201WB	North Reference:	Grid
Wellbore:	Lateral 2 Surveys	Survey Calculation Method:	Minimum Curvature
Design:	Aim MWD Surveys	Database:	EDM 5000.14 Single User Db

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)	
18,372.00	90.86	10.75	8,339.27	10,343.18	152.07	10,344.15	7.53	2.48	7.11	
18,466.00	90.46	13.74	8,338.19	10,435.03	172.00	10,436.38	3.21	-0.43	3.18	
18,560.00	89.76	13.30	8,338.00	10,526.42	193.98	10,528.19	0.88	-0.74	-0.47	
18,655.00	90.99	12.16	8,337.38	10,619.08	214.91	10,621.26	1.77	1.29	-1.20	
18,749.00	90.81	4.51	8,335.90	10,712.01	228.53	10,714.44	8.14	-0.19	-8.14	
18,843.00	91.16	1.35	8,334.29	10,805.86	233.33	10,808.37	3.38	0.37	-3.36	
18,938.00	91.25	359.77	8,332.29	10,900.83	234.26	10,903.34	1.67	0.09	-1.66	
19,033.00	88.88	354.76	8,332.18	10,995.68	229.73	10,998.08	5.83	-2.49	-5.27	
19,127.00	88.22	355.28	8,334.56	11,089.30	221.57	11,091.51	0.89	-0.70	0.55	
19,157.00	88.04	354.84	8,335.54	11,119.17	218.99	11,121.33	1.58	-0.60	-1.47	
Final Aim MWD Survey @ 19157'MD										
19,215.00	88.04	354.84	8,337.52	11,176.90	213.77	11,178.94	0.00	0.00	0.00	
Projection to TD @ 19215'MD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
19,157.00	8,335.54	11,119.17	218.99	Final Aim MWD Survey @ 19157'MD	
19,215.00	8,337.52	11,176.90	213.77	Projection to TD @ 19215'MD	

Checked By: _____ Approved By: _____ Date: _____

G.C. & S.F. RR. CO. SURVEY



Surface Hole Location:

GROUND ELEVATION:
SHL Ground Elevation: 2629'

COORDINATES:
NAD 27 TX-C ZONE:
X = 1587797.55 Y = 591698.11
LAT.: N 31°17'12.80" LONG.: W 101°39'10.74"
LAT.: N 31.2868901 LONG.: W 101.6529820
NAD 83 TX-C ZONE:
X = 1884265.56 Y = 10434274.80
LAT.: N 31°17'13.34" LONG.: W 101°39'12.17"
LAT.: N 31.2870401 LONG.: W 101.6533809

SURVEY LINE PERPENDICULARS:

600' FNL & 330' FEL (SEC. 12)

UNIT LINE PERPENDICULARS:

10057' FSL & 2969' FEL

Penetration Point/
First Take Point:

COORDINATES:
NAD 27 TX-C ZONE:
X = 1587810.54 Y = 592348.14
LAT.: N 31°17'19.24" LONG.: W 101°39'10.67"
LAT.: N 31.2886777 LONG.: W 101.6529651
NAD 83 TX-C ZONE:
X = 1884278.56 Y = 10434924.83
LAT.: N 31°17'19.78" LONG.: W 101°39'12.11"
LAT.: N 31.2888275 LONG.: W 101.6533640

SURVEY LINE PERPENDICULARS:

50' FSL & 330' FEL (SEC. 1)

UNIT LINE PERPENDICULARS:

10536' FNL & 2969' FEL

Last Take Point:

COORDINATES:
NAD 27 TX-C ZONE:
X = 1588019.11 Y = 602782.01
LAT.: N 31°19'02.53" LONG.: W 101°39'09.70"
LAT.: N 31.3173697 LONG.: W 101.6526936
NAD 83 TX-C ZONE:
X = 1884487.16 Y = 10445358.70
LAT.: N 31°19'03.07" LONG.: W 101°39'11.13"
LAT.: N 31.3175186 LONG.: W 101.6530925

SURVEY LINE PERPENDICULARS:

100' FNL & 330' FEL (SEC. 21)

UNIT LINE PERPENDICULARS:

100' FNL & 330' FEL

Bottom Hole Location:

COORDINATES:
NAD 27 TX-C ZONE:
X = 1588021.01 Y = 602876.99
LAT.: N 31°19'03.47" LONG.: W 101°39'09.69"
LAT.: N 31.3176309 LONG.: W 101.6526911
NAD 83 TX-C ZONE:
X = 1884489.06 Y = 10445453.68
LAT.: N 31°19'04.01" LONG.: W 101°39'11.12"
LAT.: N 31.3177798 LONG.: W 101.6530901

SURVEY LINE PERPENDICULARS:

5' FNL & 330' FEL (SEC. 21)

UNIT LINE PERPENDICULARS:

5' FNL & 330' FEL

All Coordinates are in NAD 27 TX-C Zone unless otherwise noted.

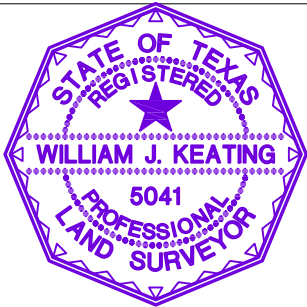
REV#-BY	DATE REVISED	REV#-BY	DATE REVISED
MP	01-30-2017	1-XXX	XX/XX/XX
MP	02-21-2017		

SPECIAL NOTES:

LEGEND		Unit Boundary
		Section Lines
		Block Line
		Powerline
		Pipeline
		Lease Road
		Calculated Corner

CERTIFICATION:

This well location shown on this permit plat was surveyed on the ground under my direct supervision. This plat is for Texas Railroad Commission permit purpose only and should not be considered a boundary survey.



Texas Reg. No. 5041



2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

Texas FIRM Registration NO. 10042500

LO_UNIVERSITY_9C_1201WB_REV2

SEM OPERATING
COMPANY LLC

LEASE NAME & WELL NO.:
UNIVERSITY 9C #1201WB

TOPOGRAPHY & VEGETATION:

NATURAL MESQUITE PASTURE

NEAREST TOWN IN COUNTY:

±13.2 MILES NORTHWEST OF BIG LAKE, TEXAS

LOCATION DESCRIPTION:

SHL: SECTION 12, BLOCK 9, UNIVERSITY LAND SURVEY
PP/FTP: SECTION 1, BLOCK 9, UNIVERSITY LAND SURVEY
LTP/BHL: SECTION 21, BLOCK 58, UNIVERSITY LAND SURVEY
REAGAN COUNTY, TEXAS

Scale: 1" = 1000'

Surveyed: 09-19-16

ORIGINAL DOC. SIZE: 11"x17"

COGO: 519-89429

Drawn By: MP; 09-23-2016



· Directional Drilling · Horizontal Drilling · MWD/LWD · Mud Motors

July 7, 2017

State of Texas
County of Reagan

I, Allison Reinert, certify that; I am employed by Aim Directional Services, LLC; that I did on the day(s) of May 24, 2017 through June 12, 2017 conduct or supervise the taking of a directional MWD survey from a depth of 7916 feet to a depth of 19215 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Aim Directional Services, LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of SEM Operating Company, LLC for University 9C #1201WB Lateral 2 API No. 42-383-39818 in Reagan County, Texas; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Aim Directional Services, LLC.

Allison Reinert
VP Engineering