



Robin Simmons
Land Manager

January 23, 2015

Kent Wilkins
Oklahoma Water Resources Board
3800 N. Classen
Oklahoma City, OK 73118

Re: Martin Marietta/Material Producers Davis Quarry Q4 and 2014 Annual Monitoring Report

Dear Mr. Wilkins:

Attached please find the Annual and Q4 2014 monitoring report and associated data and calculations for Martin Marietta/Material Producers' Davis Quarry.

Sincerely,

A handwritten signature in blue ink that reads 'Robin L. Simmons'.

Robin L. Simmons, EIT
Land Manager

MMM Davis Quarry 2014 Monitoring Report

All volumes are in acre-feet.

	Total Groundwater Entering Pit	Total Stormwater Entering Pit	Total Pit Stormwater Diverted	Total Pit Water Diverted	Pit Water Sent To Holding Basin	Groundwater Augmentation	Streamwater Augmentation	Consumptive Use of Pit Water	Consumptive Use of Groundwater	Groundwater Pumped From Well
January-14	-7.51	0.72	0.72	-6.79	N/A	-7.51	0.00	3.36	0.00	0.00
February-14	2.55	1.38	1.38	3.92	N/A	2.55	0.00	3.12	0.00	0.00
March-14	-6.05	18.93	18.93	12.88	N/A	-6.05	0.00	3.63	0.00	0.00
1st QTR Totals	-11.02	21.03	21.03	10.01	0.00	-11.02	0.00	10.10	0.00	0.00
April-14	-8.90	10.19	10.19	1.29	N/A	-8.90	0.00	4.68	0.00	0.00
May-14	-4.12	9.78	9.78	5.66	N/A	-4.12	0.00	5.24	0.00	0.00
June-14	-35.01	48.77	48.77	13.76	N/A	-35.01	0.00	4.50	0.00	0.00
2nd QTR Totals	-48.04	68.75	68.75	20.71	0.00	-48.04	0.00	14.42	0.00	0.00
July-14	-16.08	23.62	23.62	7.54	N/A	-16.08	0.00	6.24	0.00	0.00
August-14	-4.95	8.20	8.20	3.25	N/A	-4.95	0.00	5.39	0.00	0.00
September-14	-9.00	16.32	16.32	7.32	N/A	-9.00	0.00	4.37	0.00	0.00
3rd QTR Totals	-30.03	48.14	48.14	18.11	0.00	-30.03	0.00	16.00	0.00	0.00
October-14	-3.99	9.47	9.47	5.48	N/A	-3.99	0.00	4.92	0.00	0.00
November-14	-22.44	29.31	29.31	6.87	N/A	-22.44	0.00	2.41	0.00	0.00
December-14	-1.52	4.80	4.80	3.28	N/A	-1.52	0.00	2.74	0.00	0.00
4th QTR Totals	-27.94	43.58	43.58	15.64	0.00	-27.94	0.00	10.07	0.00	0.00
2014 Totals	-117.03	181.50	181.50	64.47	0.00	-117.03	0.00	50.59	0.00	0.00

Note: Negative entries for Total Groundwater Entering Pit indicates that stormwater is entering the rock formation via the pit.

	Consumptive Use											
	January	February	March	April	May	June	July	August	September	October	November	December
Water Truck Usage	0.49	0.34	0.40	1.23	1.44	0.74	1.53	1.12	1.02	1.07	0.21	0.18
Moisture Content of Product Shipped	2.87	2.78	3.23	3.46	3.80	3.76	4.71	4.28	3.35	3.85	2.20	2.55
Misc on site use	-	-	-	-	-	-	-	-	-	-	-	-
Misc off site	-	-	-	-	-	-	-	-	-	-	-	-
Total	3.36	3.12	3.63	4.68	5.24	4.50	6.24	5.39	4.37	4.92	2.41	2.74

	January	February	March	April	May	June	July	August	September	October	November	December
Shipped Tons												
Base	52,439	49,339	54,065	58,759	62,687	54,216	71,245	52,829	30,794	48,855	34,944	34,875
Coarse Aggregate	75,435	62,483	76,095	94,111	97,268	83,133	97,426	90,572	102,187	95,585	45,747	81,682
Fine Aggregate	12,723	17,953	21,728	17,340	23,006	34,115	42,984	47,092	31,609	35,422	18,755	14,015
Total	140,597	129,775	151,888	170,210	182,961	171,463	211,655	190,493	164,590	179,862	99,446	130,572
Moisture Shipped	2.87	2.78	3.23	3.46	3.80	3.76	4.71	4.28	3.35	3.85	2.20	2.55

Davis Water Balance

	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
	31	28	31	30	31	30	31	31	30	31	30	31
Monitoring Period, Days												
Monthly Production, tons	129,160	112,239	155,305	168,000	173,134	150,060	201,703	177,700	186,275	161,934	83,463	127,208
Product Moisture Content	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Water Truck Loads	16	11	13	40	47	24	50	47	33.1	35	7	6
Month End Water Elevs.												
1) Freshwater pond, depth to water	18.392	18.152	9.338	14.164	15.169	6.947	6.968	9.878	8.768	9.086	4.404	4.485
2) Pit Sump, depth to water	15.111	14.273	14.249	14.823	14.336	11.656	10.595	12.262	12.217	11.567	11.714	12.133
Pond Surface Acres												
1) Freshwater pond	0.937	0.937	0.937	0.937	0.937	0.937	0.937	0.937	0.937	0.937	0.937	0.937
2) Pit Sump	0.322	0.322	0.322	0.322	0.322	0.322	0.322	0.322	0.322	0.322	0.322	0.322
Total surface acres	1.259	1.259	1.259	1.259	1.259	1.259	1.259	1.259	1.259	1.259	1.259	1.259
Pond Water Volume Change												
1) Freshwater pond	-6.766	0.225	8.259	-4.522	-0.942	7.704	-0.020	-2.727	1.040	-0.298	4.387	-0.076
2) Pit Sump	-0.047	0.270	0.008	-0.185	0.157	0.863	0.342	-0.537	0.014	0.209	-0.047	-0.135
3) Change in settling pond storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net Volume Change	-6.813	0.495	8.266	-4.707	-0.785	8.567	0.322	-3.263	1.055	-0.089	4.340	-0.211
Water Inputs, ac-ft												
Rural Water	4.103	0.017	0.247	0.081	0.084	0.059	0.087	0.087	0.065	0.057	0.083	0.083
Lake Water	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Well Water	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Precipitation	0.725	1.377	18.929	10.192	9.785	48.774	23.617	8.199	16.320	9.468	29.311	4.802
Total Water Input	4.828	1.394	19.175	10.273	9.869	48.833	23.705	8.286	16.385	9.525	29.394	4.885
Water Usage, ac-ft												
Product moisture content	3.326	2.890	4.000	4.326	4.459	3.864	5.194	4.576	4.797	4.170	2.149	3.276
Haul road dust control	0.491	0.338	0.399	1.228	1.442	0.737	1.534	1.442	1.016	1.074	0.215	0.184
Evaporation losses	0.311	0.219	0.457	0.522	0.630	0.654	0.576	0.583	0.515	0.383	0.251	0.116
Misc usage	0	0	0	0	0	0	0	0	0	0	0	0
Total Water Usage, Ac-ft	4.128	3.447	4.856	6.076	6.531	5.255	7.305	6.602	6.328	5.628	2.616	3.577
Net Water Input	0.699	-2.053	14.320	4.197	3.338	43.578	16.400	1.684	10.057	3.897	26.778	1.308
Groundwater Inflow	-7.513	2.548	-6.053	-8.904	-4.123	-35.011	-16.078	-4.948	-9.003	-3.986	-22.438	-1.519
Groundwater Inflow, Avg Ac-ft/Day	-0.242	0.091	-0.195	-0.297	-0.133	-1.167	-0.519	-0.160	-0.300	-0.129	-0.748	-0.049
Groundwater Inflow, Avg Gallons/Day	-78,968	29,650	-63,627	-96,715	-43,337	-380,277	-168,998	-52,009	-97,786	-41,895	-243,720	-15,968

October Precipitation Data

PIT RUNOFF ASSUMPTIONS		
Hydrologic Soil Group	D	
Land Use	gravel road	
AMC Condition	II (ave)	
CN (pit fringe)	88	area draining into pit
CN (pit)	100	area with direct interception
S (pit fringe)	1.364	area draining into pit
S (pit)	0.000	area with direct interception
Pit - Direct Interception (>95 ft deep)	54.36	subject to refinement
Pit fringe (area drains to pit)	68.34	subject to refinement
Drainage to Pit (total area)	122.70	subject to refinement

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Oct	0.00	0.00	0.00	0.15
2-Oct	0.33	0.33	0.00	0.14
3-Oct	0.00	0.00	0.00	0.13
4-Oct	0.00	0.00	0.00	0.17
5-Oct	0.00	0.00	0.00	0.12
6-Oct	0.15	0.15	0.00	0.13
7-Oct	0.00	0.00	0.00	0.16
8-Oct	0.00	0.00	0.00	0.12
9-Oct	0.00	0.00	0.00	0.11
10-Oct	0.32	0.32	0.00	0.08
11-Oct	0.04	0.04	0.00	0.02
12-Oct	0.73	0.73	0.00	0.11
13-Oct	0.50	0.50	0.00	0.04
14-Oct	0.00	0.00	0.00	0.16
15-Oct	0.00	0.00	0.00	0.13
16-Oct	0.00	0.00	0.00	0.17
17-Oct	0.00	0.00	0.00	0.12
18-Oct	0.00	0.00	0.00	0.11
19-Oct	0.00	0.00	0.00	0.10
20-Oct	0.00	0.00	0.00	0.12
21-Oct	0.00	0.00	0.00	0.11
22-Oct	0.02	0.02	0.00	0.09
23-Oct	0.00	0.00	0.00	0.11
24-Oct	0.00	0.00	0.00	0.11
25-Oct	0.00	0.00	0.00	0.14
26-Oct	0.00	0.00	0.00	0.16
27-Oct	0.00	0.00	0.00	0.11
28-Oct	0.00	0.00	0.00	0.10
29-Oct	0.00	0.00	0.00	0.11
30-Oct	0.00	0.00	0.00	0.12
31-Oct	0.00	0.00	0.00	0.09
		2.09	0.00	
Volume, ac-ft		9.47	0.00	3.652
Total Vol, ac-ft		9.47		

November Precipitation Data

PIT RUNOFF ASSUMPTIONS		
Hydrologic Soil Group	D	
Land Use	gravel road	
AMC Condition	II (ave)	
CN (pit fringe)	88	area draining into pit
CN (pit)	100	area with direct interception
S (pit fringe)	1.364	area draining into pit
S (pit)	0.000	area with direct interception
Pit - Direct Interception (>95 ft deep)	54.36	subject to refinement
Pit fringe (area drains to pit)	68.34	subject to refinement
Drainage to Pit (total area)	122.70	subject to refinement

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Nov	0.00	0.00	0.00	0.09
2-Nov	0.00	0.00	0.00	0.07
3-Nov	0.00	0.00	0.00	0.05
4-Nov	1.54	1.54	0.61	0.01
5-Nov	0.00	0.00	0.00	0.04
6-Nov	0.00	0.00	0.00	0.10
7-Nov	0.00	0.00	0.00	0.11
8-Nov	0.00	0.00	0.00	0.11
9-Nov	0.00	0.00	0.00	0.12
10-Nov	0.00	0.00	0.00	0.14
11-Nov	0.00	0.00	0.00	0.08
12-Nov	0.00	0.00	0.00	0.04
13-Nov	0.00	0.00	0.00	0.06
14-Nov	0.00	0.00	0.00	0.05
15-Nov	0.00	0.00	0.00	0.06
16-Nov	0.00	0.00	0.00	0.01
17-Nov	0.02	0.02	0.00	0.06
18-Nov	0.00	0.00	0.00	0.13
19-Nov	0.00	0.00	0.00	0.11
20-Nov	0.00	0.00	0.00	0.07
21-Nov	0.00	0.00	0.00	0.04
22-Nov	2.45	2.45	1.34	0.01
23-Nov	0.01	0.01	0.00	0.11
24-Nov	0.00	0.00	0.00	0.12
25-Nov	0.00	0.00	0.00	0.09
26-Nov	0.00	0.00	0.00	0.10
27-Nov	0.00	0.00	0.00	0.07
28-Nov	0.00	0.00	0.00	0.11
29-Nov	0.00	0.00	0.00	0.17
30-Nov	0.00	0.00	0.00	0.12
		0.00	0.00	
		4.02	1.95	
Volume, ac-ft		18.21	11.10	2.397
Total Vol, ac-ft		29.31		

December Precipitation Data

PIT RUNOFF ASSUMPTIONS		
Hydrologic Soil Group	D	
Land Use	gravel road	
AMC Condition	II (ave)	
CN (pit fringe)	88	area draining into pit
CN (pit)	100	area with direct interception
S (pit fringe)	1.364	area draining into pit
S (pit)	0.000	area with direct interception
Pit - Direct Interception (>95 ft deep)	54.36	subject to refinement
Pit fringe (area drains to pit)	68.34	subject to refinement
Drainage to Pit (total area)	122.70	subject to refinement

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Dec	0.00	0.00	0.00	0.04
2-Dec	0.00	0.00	0.00	0.04
3-Dec	0.05	0.05	0.00	0.01
4-Dec	0.01	0.01	0.00	0.02
5-Dec	0.01	0.01	0.00	0.02
6-Dec	0.00	0.00	0.00	0.03
7-Dec	0.00	0.00	0.00	0.01
8-Dec	0.00	0.00	0.00	0.05
9-Dec	0.00	0.00	0.00	0.06
10-Dec	0.00	0.00	0.00	0.05
11-Dec	0.01	0.01	0.00	0.02
12-Dec	0.01	0.01	0.00	0.01
13-Dec	0.01	0.01	0.00	0.04
14-Dec	0.17	0.17	0.00	0.02
15-Dec	0.00	0.00	0.00	0.12
16-Dec	0.00	0.00	0.00	0.06
17-Dec	0.53	0.53	0.00	0.00
18-Dec	0.00	0.00	0.00	0.01
19-Dec	0.01	0.01	0.00	0.01
20-Dec	0.00	0.00	0.00	0.01
21-Dec	0.00	0.00	0.00	0.01
22-Dec	0.00	0.00	0.00	0.05
23-Dec	0.00	0.00	0.00	0.05
24-Dec	0.00	0.00	0.00	0.08
25-Dec	0.00	0.00	0.00	0.09
26-Dec	0.00	0.00	0.00	0.04
27-Dec	0.11	0.11	0.00	0.01
28-Dec	0.14	0.14	0.00	0.05
29-Dec	0.00	0.00	0.00	0.06
30-Dec	0.00	0.00	0.00	0.02
31-Dec	0.00	0.00	0.00	0.01
		1.06	0.00	
Volume, ac-ft		4.80	0.00	1.11
Total Vol, ac-ft		4.80		