



Robin Simmons
Regional Land Manager

November 12, 2021

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Oklahoma Water Resources Board

Matt Cogburn
Oklahoma Water Resources Board
3800 N. Classen
Oklahoma City, OK 73118

Re: Martin Marietta/Material Producers Davis Quarry Q3 2021 Monitoring Report

Dear Mr. Cogburn:

Attached please find the Q3 2021 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
Regional Land Manager

MMM Davis Quarry 2021 Monitoring Report

All volumes are in acre-feet.

	Total Groundwater Entering Pit	Total Stormwater Entering Pit	Total Stormwater Diverted from Pit	Total Water Diverted	Water Sent To Holding Basin	Groundwater Augmentation	Streamwater Augmentation	Consumptive Use of Stormwater	Consumptive Use of Groundwater	Groundwater Pumped From Well
January-21	8.49	7.98	7.98	16.47	N/A	8.49	0.00	2.91	0.00	0.00
February-21	-0.52	3.69	3.69	3.17	N/A	-0.52	0.00	1.49	0.00	0.00
March-21	0.27	4.67	4.67	4.94	N/A	0.27	0.00	4.00	0.00	0.00
1st QTR Totals	8.23	16.35	16.35	24.58	0.00	8.23	0.00	8.39	0.00	0.00
April-21	-17.16	47.18	47.18	30.03	N/A	-17.16	0.00	3.80	0.00	0.00
May-21	-11.73	25.59	25.59	13.87	N/A	-11.73	0.00	5.99	0.00	0.00
June-21	-10.03	17.66	17.66	7.63	N/A	-10.03	0.00	5.30	0.00	0.00
2nd QTR Totals	-38.91	90.44	90.44	51.52	0.00	-38.91	0.00	15.09	0.00	0.00
July-21	-2.75	17.44	17.44	14.69	N/A	-2.75	0.00	7.01	0.00	0.00
August-21	-8.66	11.41	11.41	2.75	N/A	-8.66	0.00	5.17	0.00	0.00
September-21	-2.31	5.05	5.05	2.74	N/A	-2.31	0.00	6.11	0.00	0.00
3rd QTR Totals	-13.72	33.90	33.90	20.18	0.00	-13.72	0.00	18.29	0.00	0.00

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

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Davis Water Balance

	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21
Monitoring Period, Days	31	31	28	31	30	31	30	31	31	30
Monthly Production, tons	112,548	121,396	76,601	172,367	157,640	141,622	184,051	183,822	174,830	167,166
Product Moisture Content		3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Water Truck Loads		4	0	13	57	31	8	119	228	81
Month End Water Elevs.										
1) Freshwater pond, depth to water	13.575	13.283	14.307	17.891	17.194	17.558	15.229	16.651	15.716	15.032
2) Pit Sump, depth to water	32.469	38.184	38.081	36.267	47.378	50.252	51.46	53.235	51.78	49.917
Pond Surface Acres										
1) Freshwater pond		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2) Pit Sump		2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Total surface acres		3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Pond Water Volume Change										
1) Freshwater pond		-0.292	1.024	3.584	-0.697	0.364	-2.329	1.422	-0.935	-0.684
2) Pit Sump		13.145	-0.237	-4.172	25.555	6.610	2.778	4.083	-3.347	-4.285
3) Change in settling pond storage		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net Volume Change		12.853	0.787	-0.588	24.858	6.974	0.449	5.505	-4.282	-4.969
Water Inputs, ac-ft										
Rural Water		0.043	0.015	0.007	0.079	0.006	0.006	0.003	0.004	0.006
Lake Water		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
Precipitation		7.982	3.694	4.672	47.184	25.594	17.657	17.440	11.409	5.053
Total Water Input		8.024	3.709	4.680	47.264	25.601	17.663	17.443	11.413	5.059
Water Usage, ac-ft										
Product moisture content		3.126	1.973	4.439	4.060	3.647	4.740	4.734	4.502	4.305
Haul road dust control		0.123	0.123	0.203	0.350	0.190	0.196	0.730	1.473	2.486
Evaporation losses		0.413	0.302	0.892	0.837	0.906	1.254	1.287	1.060	0.925
Misc usage		-	-	-	-	2.16	0.99	2.44	-	-
Total Water Usage, Ac-ft		3.662	2.397	5.533	5.246	6.901	7.184	9.192	7.035	7.716
Net Water Input		4.362	1.312	-0.854	42.018	18.700	10.479	8.251	4.378	-2.657
emergency storage of precipitation and runoff, ac-ft										
Groundwater Inflow		8.490	-0.525	0.265	-17.159	-11.726	-10.030	-2.746	-8.660	-2.311
Groundwater Inflow, Avg Ac-ft/Day		0.274	-0.019	0.009	-0.572	-0.378	-0.334	-0.089	-0.279	-0.077
Groundwater Inflow, Avg Gallons/Day		89,244	-6,109	2,790	-186,379	-123,252	-108,942	-28,866	-91,024	-25,106

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Consumptive Use	January	February	March	April	May	June	July	August	September
Water Truck Usage	0.12	0.12	0.20	0.35	0.19	0.20	0.73	1.47	2.49
Moisture Content of Product Shipped	2.78	1.37	3.79	3.45	3.64	4.11	3.84	3.70	3.63
Misc on site use	-	-	-	-	-	-	-	-	-
Misc off site	-	-	-	-	2.16	0.99	2.44	-	-
Total	2.91	1.49	4.00	3.80	5.99	5.30	7.01	5.17	6.11

Shipped Tons	January	February	March	April	May	June	July	August	September
Base	28,145	15,853	37,153	40,978	52,599	80,562	57,570	38,190	20,270
Coarse Aggregate	63,545	36,461	106,102	88,218	88,742	69,491	80,618	97,161	91,345
Fine Aggregate	33,301	12,706	38,086	32,901	29,570	30,463	34,957	38,321	51,972
Total	124,991	65,020	181,340	162,096	170,911	180,516	173,145	173,673	163,588
Moisture Shipped	2.78	1.37	3.79	3.45	3.64	4.11	3.84	3.70	3.63

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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)	65.19	subject to refinement
Pit fringe (area drains to pit)	94.06	subject to refinement
Drainage to Pit (total area)	159.26	subject to refinement

		Quarry area		Fringe area	Evapor,
Date	Precip, in.	Runoff, in.	Runoff, in.		in/day
1-Jul	0.75	0.75	0.00		0.13
2-Jul	0.64	0.64	0.00		0.09
3-Jul	0.00	0.00	0.00		0.17
4-Jul	0.00	0.00	0.00		0.15
5-Jul	0.00	0.00	0.00		0.11
6-Jul	0.16	0.16	0.00		0.11
7-Jul	0.00	0.00	0.00		0.14
8-Jul	0.00	0.00	0.00		0.14
9-Jul	0.00	0.00	0.00		0.16
10-Jul	0.00	0.00	0.00		0.15
11-Jul	0.81	0.81	0.00		0.19
12-Jul	0.00	0.00	0.00		0.17
13-Jul	0.00	0.00	0.00		0.18
14-Jul	0.00	0.00	0.00		0.17
15-Jul	0.00	0.00	0.00		0.15
16-Jul	0.20	0.20	0.00		0.15
17-Jul	0.02	0.02	0.00		0.15
18-Jul	0.58	0.58	0.00		0.17
19-Jul	0.05	0.05	0.00		0.15
20-Jul	0.00	0.00	0.00		0.15
21-Jul	0.00	0.00	0.00		0.11
22-Jul	0.00	0.00	0.00		0.17
23-Jul	0.00	0.00	0.00		0.16
24-Jul	0.00	0.00	0.00		0.18
25-Jul	0.00	0.00	0.00		0.18
26-Jul	0.00	0.00	0.00		0.18
27-Jul	0.00	0.00	0.00		0.14
28-Jul	0.00	0.00	0.00		0.13
29-Jul	0.00	0.00	0.00		0.16
30-Jul	0.00	0.00	0.00		0.13
31-Jul	0.00	0.00	0.00		0.15
		3.21	0.00		
Volume, ac-ft		17.44	0.00	4.679	
Total Vol, ac-ft		17.44			

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August 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)	65.19	subject to refinement
Pit fringe (area drains to pit)	94.06	subject to refinement
Drainage to Pit (total area)	159.26	subject to refinement

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Aug	0.16	0.16	0.00	0.10
2-Aug	0.00	0.00	0.00	0.15
3-Aug	0.00	0.00	0.00	0.14
4-Aug	0.00	0.00	0.00	0.09
5-Aug	0.42	0.42	0.00	0.08
6-Aug	0.00	0.00	0.00	0.16
7-Aug	0.00	0.00	0.00	0.15
8-Aug	0.00	0.00	0.00	0.16
9-Aug	0.00	0.00	0.00	0.17
10-Aug	0.00	0.00	0.00	0.18
11-Aug	0.00	0.00	0.00	0.17
12-Aug	0.00	0.00	0.00	0.16
13-Aug	0.00	0.00	0.00	0.14
14-Aug	0.13	0.13	0.00	0.07
15-Aug	0.00	0.00	0.00	0.12
16-Aug	0.00	0.00	0.00	0.10
17-Aug	0.82	0.82	0.00	0.05
18-Aug	0.02	0.02	0.00	0.08
19-Aug	0.50	0.50	0.00	0.07
20-Aug	0.00	0.00	0.00	0.14
21-Aug	0.00	0.00	0.00	0.16
22-Aug	0.00	0.00	0.00	0.15
23-Aug	0.00	0.00	0.00	0.15
24-Aug	0.00	0.00	0.00	0.15
25-Aug	0.00	0.00	0.00	0.15
26-Aug	0.00	0.00	0.00	0.09
27-Aug	0.00	0.00	0.00	0.12
28-Aug	0.05	0.05	0.00	0.09
29-Aug	0.00	0.00	0.00	0.11
30-Aug	0.00	0.00	0.00	0.12
31-Aug	0.00	0.00	0.00	0.10
		2.10	0.00	
Volume, ac-ft		11.41	0.00	3.854
Total Vol, ac-ft		11.41		

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September 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)	65.19	subject to refinement
Pit fringe (area drains to pit)	94.06	subject to refinement
Drainage to Pit (total area)	159.26	subject to refinement

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Sep	0.00	0.00	0.00	0.13
2-Sep	0.00	0.00	0.00	0.12
3-Sep	0.00	0.00	0.00	0.13
4-Sep	0.06	0.06	0.00	0.13
5-Sep	0.00	0.00	0.00	0.11
6-Sep	0.00	0.00	0.00	0.13
7-Sep	0.00	0.00	0.00	0.13
8-Sep	0.00	0.00	0.00	0.14
9-Sep	0.00	0.00	0.00	0.13
10-Sep	0.00	0.00	0.00	0.13
11-Sep	0.00	0.00	0.00	0.14
12-Sep	0.00	0.00	0.00	0.12
13-Sep	0.00	0.00	0.00	0.12
14-Sep	0.00	0.00	0.00	0.11
15-Sep	0.00	0.00	0.00	0.11
16-Sep	0.00	0.00	0.00	0.10
17-Sep	0.00	0.00	0.00	0.10
18-Sep	0.00	0.00	0.00	0.11
19-Sep	0.00	0.00	0.00	0.08
20-Sep	0.00	0.00	0.00	0.10
21-Sep	0.00	0.00	0.00	0.11
22-Sep	0.00	0.00	0.00	0.12
23-Sep	0.00	0.00	0.00	0.12
24-Sep	0.00	0.00	0.00	0.10
25-Sep	0.00	0.00	0.00	0.12
26-Sep	0.00	0.00	0.00	0.13
27-Sep	0.00	0.00	0.00	0.11
28-Sep	0.06	0.06	0.00	0.08
29-Sep	0.01	0.01	0.00	0.09
30-Sep	0.80	0.80	0.00	0.03
		0.00	0.00	
		0.93	0.00	
Volume, ac-ft		5.05	0.00	3.365
Total Vol, ac-ft		5.05		

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