



Robin Simmons
Regional Land Manager

October 21, 2022

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

Oklahoma Water Resources Board

Re: Martin Marietta/Material Producers Davis Quarry Q3 2022 Monitoring Report

Dear Mr. Cogburn:

Attached please find the Q3 2022 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 2022 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-22	-0.38	2.01	2.01	1.62	N/A	-0.38	0.00	2.65	0.00	0.00
February-22	-6.91	7.82	7.82	0.92	N/A	-6.91	0.00	2.09	0.00	0.00
March-22	-5.50	4.35	4.35	-1.15	N/A	-5.50	0.00	3.84	0.00	0.00
1st QTR Totals	-12.79	14.18	14.18	1.39	0.00	-12.79	0.00	8.59	0.00	0.00
April-22	-21.45	30.38	30.38	8.93	N/A	-21.45	0.00	4.56	0.00	0.00
May-22	-31.32	46.55	46.55	15.23	N/A	-31.32	0.00	3.01	0.00	0.00
June-22	-15.60	26.61	26.61	11.01	N/A	-15.60	0.00	4.59	0.00	0.00
2nd QTR Totals	-68.37	103.55	103.55	35.18	0.00	-68.37	0.00	12.17	0.00	0.00
July-22	-0.67	1.79	1.79	1.12	N/A	-0.67	0.00	4.42	0.00	0.00
August-22	-9.98	13.36	13.36	3.39	N/A	-9.98	0.00	6.44	0.00	0.00
September-22	-0.97	0.98	0.98	0.01	N/A	-0.97	0.00	5.18	0.00	0.00
3rd QTR Totals	-11.62	16.14	16.14	4.52	0.00	-11.62	0.00	16.04	0.00	0.00

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Davis Water Balance

	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
Monitoring Period, Days		31	28	31	30	31	30	31	31	30
Monthly Production, tons	90,917	117,157	75,519	127,567	150,402	181,882	167,041	163,734	191,203	168,026
Product Moisture Content		3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Water Truck Loads		18	12	39	80	54	195	184	216	179
Month End Water Elevs.										
1) Freshwater pond, depth to water	14.899	15.293	16.836	14.479	14.156	14.355	15.395	14.947	15.593	14.025
2) Pit Sump, depth to water	51.109	50.028	49.035	47.565	48.051	51.35	52.204	49.414	46.791	44.182
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		0.394	1.543	-2.357	-0.323	0.199	1.040	-0.448	0.646	-1.568
2) Pit Sump		-2.486	-2.284	-3.381	1.118	7.588	1.964	-6.417	-6.033	-6.001
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		-2.092	-0.741	-5.738	0.795	7.787	3.004	-6.865	-5.387	-7.569
Water Inputs, ac-ft										
Rural Water		0.280	1.111	0.135	0.084	0.113	0.000	0.067	0.007	0.005
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		2.009	7.823	4.346	30.384	46.554	26.608	1.793	13.365	0.978
Total Water Input		2.289	8.934	4.481	30.469	46.667	26.608	1.860	13.372	0.983
Water Usage, ac-ft										
Product moisture content		3.017	1.945	3.285	3.873	4.684	4.302	4.217	4.924	4.327
Haul road dust control		0.552	0.368	0.829	2.216	0.663	2.394	2.259	2.652	2.197
Evaporation losses		0.427	0.456	0.608	2.134	2.214	1.309	1.582	1.205	1.059
Misc usage		-	-	-	-	-	-	-	-	-
Total Water Usage, Ac-ft		3.996	2.769	4.722	8.223	7.561	8.005	8.057	8.780	7.583
Net Water Input		-1.707	6.165	-0.241	22.246	39.107	18.603	-6.197	4.592	-6.601
emergency storage of precipitation and runoff, ac-ft										
Groundwater Inflow		-0.385	-6.906	-5.497	-21.451	-31.320	-15.599	-0.668	-9.979	-0.968
Groundwater Inflow, Avg Ac-ft/Day		-0.012	-0.247	-0.177	-0.715	-1.010	-0.520	-0.022	-0.322	-0.032
Groundwater Inflow, Avg Gallons/Day		-4,045	-80,371	-57,783	-232,992	-329,216	-169,434	-7,021	-104,894	-10,514

Consumptive Use

	January	February	March	April	May	June	July	August	September
Water Truck Usage	0.55	0.37	0.83	2.22	0.66	2.39	2.26	2.65	2.20
Moisture Content of Product Shipped	2.10	1.72	3.02	2.35	2.35	2.20	2.16	3.79	2.98
Misc on site use	-	-	-	-	-	-	-	-	-
Misc off site	-	-	-	-	-	-	-	-	-
Total	2.65	2.09	3.84	4.56	3.01	4.59	4.42	6.44	5.18

	January	February	March	April	May	June	July	August	September
Shipped Tons									
Base	17,299	17,631	31,368	17,121	18,426	17,805	10,800	25,313	15,370
Coarse Aggregate	73,939	59,143	84,918	80,070	66,001	68,431	89,290	122,978	102,313
Fine Aggregate	17,057	12,157	28,695	21,894	26,857	21,872	17,371	39,587	32,222
Total	108,295	88,931	144,980	119,086	111,284	108,108	117,461	187,878	149,905
Moisture Shipped	2.10	1.72	3.02	2.35	2.35	2.20	2.16	3.79	2.98

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July 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

Runoff formula
 $Pe = (P-0.2S)^2 / (P+0.8S)$
 $S = (1000/CN) - 10$

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Jul	0.00	0.00	0.00	0.18
2-Jul	0.00	0.00	0.00	0.17
3-Jul	0.00	0.00	0.00	0.14
4-Jul	0.00	0.00	0.00	0.22
5-Jul	0.00	0.00	0.00	0.21
6-Jul	0.00	0.00	0.00	0.22
7-Jul	0.00	0.00	0.00	0.23
8-Jul	0.09	0.09	0.00	0.21
9-Jul	0.01	0.01	0.00	0.20
10-Jul	0.00	0.00	0.00	0.20
11-Jul	0.00	0.00	0.00	0.20
12-Jul	0.00	0.00	0.00	0.20
13-Jul	0.00	0.00	0.00	0.20
14-Jul	0.00	0.00	0.00	0.20
15-Jul	0.00	0.00	0.00	0.21
16-Jul	0.00	0.00	0.00	0.21
17-Jul	0.00	0.00	0.00	0.22
18-Jul	0.00	0.00	0.00	0.22
19-Jul	0.00	0.00	0.00	0.28
20-Jul	0.00	0.00	0.00	0.10
21-Jul	0.12	0.12	0.00	0.06
22-Jul	0.00	0.00	0.00	0.19
23-Jul	0.00	0.00	0.00	0.20
24-Jul	0.00	0.00	0.00	0.20
25-Jul	0.00	0.00	0.00	0.21
26-Jul	0.00	0.00	0.00	0.22
27-Jul	0.00	0.00	0.00	0.21
28-Jul	0.00	0.00	0.00	0.17
29-Jul	0.00	0.00	0.00	0.09
30-Jul	0.09	0.09	0.00	0.11
31-Jul	0.02	0.02	0.00	0.09
		0.33	0.00	
Volume, ac-ft		1.79	0.00	5.752
Total Vol, ac-ft		1.79		

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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
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Runoff formula
 $Pe = (P - 0.2S)^2 / (P + 0.8S)$
 $S = (1000/CN) - 10$



Quarry areFringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Aug	0.00	0.00	0.00	0.10
2-Aug	0.00	0.00	0.00	0.20
3-Aug	0.00	0.00	0.00	0.21
4-Aug	0.00	0.00	0.00	0.18
5-Aug	0.00	0.00	0.00	0.18
6-Aug	0.00	0.00	0.00	0.18
7-Aug	0.00	0.00	0.00	0.15
8-Aug	0.09	0.09	0.00	0.11
9-Aug	0.04	0.04	0.00	0.16
10-Aug	0.00	0.00	0.00	0.16
11-Aug	0.00	0.00	0.00	0.19
12-Aug	0.00	0.00	0.00	0.18
13-Aug	0.00	0.00	0.00	0.15
14-Aug	0.00	0.00	0.00	0.19
15-Aug	0.00	0.00	0.00	0.18
16-Aug	0.00	0.00	0.00	0.19
17-Aug	0.00	0.00	0.00	0.13
18-Aug	0.00	0.00	0.00	0.12
19-Aug	0.00	0.00	0.00	0.15
20-Aug	0.01	0.01	0.00	0.11
21-Aug	1.30	1.30	0.00	0.03
22-Aug	0.04	0.04	0.00	0.07
23-Aug	0.00	0.00	0.00	0.07
24-Aug	0.00	0.00	0.00	0.12
25-Aug	0.00	0.00	0.00	0.14
26-Aug	0.00	0.00	0.00	0.13
27-Aug	0.00	0.00	0.00	0.13
28-Aug	0.00	0.00	0.00	0.13
29-Aug	0.98	0.98	0.00	0.12
30-Aug	0.00	0.00	0.00	0.12
31-Aug	0.00	0.00	0.00	0.11
		2.46	0.00	
Volume, ac-ft		13.36	0.00	4.38
Total Vol, ac-ft		13.36		

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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
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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

Runoff formula
 $Pe = (P-0.2S)^2 / (P+0.8S)$
 $S = (1000/CN)-10$

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Sep	0.08	0.08	0.00	0.05
2-Sep	0.00	0.00	0.00	0.12
3-Sep	0.00	0.00	0.00	0.14
4-Sep	0.09	0.09	0.00	0.12
5-Sep	0.00	0.00	0.00	0.12
6-Sep	0.00	0.00	0.00	0.14
7-Sep	0.00	0.00	0.00	0.13
8-Sep	0.00	0.00	0.00	0.12
9-Sep	0.00	0.00	0.00	0.11
10-Sep	0.00	0.00	0.00	0.12
11-Sep	0.01	0.01	0.00	0.13
12-Sep	0.00	0.00	0.00	0.14
13-Sep	0.00	0.00	0.00	0.14
14-Sep	0.00	0.00	0.00	0.14
15-Sep	0.00	0.00	0.00	0.14
16-Sep	0.00	0.00	0.00	0.13
17-Sep	0.00	0.00	0.00	0.12
18-Sep	0.00	0.00	0.00	0.13
19-Sep	0.00	0.00	0.00	0.14
20-Sep	0.00	0.00	0.00	0.14
21-Sep	0.00	0.00	0.00	0.14
22-Sep	0.00	0.00	0.00	0.13
23-Sep	0.00	0.00	0.00	0.13
24-Sep	0.00	0.00	0.00	0.16
25-Sep	0.00	0.00	0.00	0.14
26-Sep	0.00	0.00	0.00	0.13
27-Sep	0.00	0.00	0.00	0.14
28-Sep	0.00	0.00	0.00	0.15
29-Sep	0.00	0.00	0.00	0.12
30-Sep	0.00	0.00	0.00	0.11
		0.00	0.00	
		0.18	0.00	
Volume, ac-ft		0.98	0.00	3.851
Total Vol, ac-ft		0.98		

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