



Jesse Martindale

Sr. Environmental Engineer

September 29, 2023

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DEC 06 2024

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

OKLAHOMA WATER RESOURCES BOARD

Re: Martin Marietta Davis Quarry 2023 Q2 Report

Dear Mr. Cogburn:

Attached please find the Q2 monitoring report and associated data and calculations for the Martin Marietta Davis Quarry with the requested updated information.

As is typical at the Davis Quarry, we see more precipitation and runoff entering the pit than the total water we use from the pit. Also typically, we do not see a rise in water levels in the pit that correspond to the additional precipitation and runoff that we know is entering the pit and not being used. Thus we still see a net decrease of water within the pit indicating that we continue to augment groundwater through the pit.

Regards,

A handwritten signature in blue ink that reads 'Jesse Martindale'.

Jesse Martindale
Sr. Environmental Engineer

North Texas/Oklahoma District

1503 LBJ Freeway Suite 400, Dallas, Texas 75234

t. (972) 647-3742 f. (972) 647-3363 m. (817) 307-9128 e. jesse.martindale@martinmarietta.com

www.martinmarietta.com

MM Davis Quarry 2023 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-23	-4.37	5.50	5.50	1.13	N/A	-4.37	0.00	3.57	0.00	0.00
February-23	-0.45	18.82	18.82	18.37	N/A	-0.45	0.00	2.46	0.00	0.00
March-23	-1.19	22.79	22.79	21.60	N/A	-1.19	0.00	3.22	0.00	0.00
1st QTR Totals	-6.01	47.11	47.11	41.10	0.00	-6.01	0.00	9.25	0.00	0.00
April-23	-5.14	7.82	7.82	2.68	N/A	-5.14	0.00	3.48	0.00	0.00
May-23	-8.17	14.79	14.79	6.62	N/A	-8.17	0.00	3.44	0.00	0.00
June-23	-5.34	16.93	16.93	11.58	N/A	-5.34	0.00	3.19	0.00	0.00
2nd QTR Totals	-18.65	39.53	39.53	20.88	0.00	-18.65	0.00	10.11	0.00	0.00

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

Total groundwater entering the pit = total stormwater entering the pit - total water diverted

Groundwater Right Value (MEPS): 68 acre-feet

Davis Water Balance

	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23
Monitoring Period, Days		31	28	31	30	31	30
Monthly Production, tons	120,624	159,499	129,817	198,017	186,934	148,208	124,439
Product Moisture Content		3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Water Truck Loads		107	20	0	41	16	19
Month End Water Elevs.							
1) Freshwater pond, depth to water	14.19505	14.76528	13.61745	16.87028	15.57677	13.77614	14.41761
2) Pit Sump, depth to water	51.07803	49.83852	53.11196	55.79677	55.2249	55.59291	56.42099
Pond Surface Acres							
1) Freshwater pond		1.0	1.0	1.0	1.0	1.0	1.0
2) Pit Sump		4.58	4.58	4.58	5.95	5.95	5.95
Total surface acres		5.580703	5.580703	5.58070271	6.95064059	6.9506406	6.950641
Pond Water Volume Change							
1) Freshwater pond		0.570	-1.148	3.253	-1.294	-1.801	0.641
2) Pit Sump		-5.678	14.995	12.298	-3.403	2.190	4.928
3) Change in settling pond storage		0.000	0.000	0.000	0.000	0.000	0.000
Net Volume Change		-5.108	13.847	15.551	-4.697	0.389	5.569
Water Inputs, ac-ft							
Rural Water		0.203	0.173	0.075	0.026	0.014	0.075
Lake Water		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
Precipitation		5.499	18.819	22.791	7.821	14.787	16.925
Total Water Input		5.702	18.992	22.866	7.847	14.800	17.000
Water Usage, ac-ft							
Product moisture content		4.108	3.343	5.100	4.814	3.817	3.205
Haul road dust control		1.313	0.246	0.000	0.503	0.196	0.233
Evaporation losses		1.020	1.104	1.029	2.090	2.228	2.651
Misc usage		-	-	-	-	-	-
Total Water Usage, Ac-ft		6.441	4.693	6.128	7.408	6.241	6.089
Net Water Input		-0.740	14.299	16.737	0.440	8.559	10.911
emergency storage of precipitation and runoff, ac-ft							
Groundwater Inflow		-4.368	-0.452	-1.186	-5.136	-8.170	-5.342
Groundwater Inflow, Avg Ac-ft/Day		-0.141	-0.016	-0.038	-0.171	-0.264	-0.178
Groundwater Inflow, Avg Gallons/Day		-45,912	-5,265	-12,470	-55,786	-85,880	-58,022

Consumptive Use

	January	February	March	April	May	June
Water Truck Usage	1.31	0.25	-	0.50	0.20	0.23
Moisture Content of Product Shipped	2.25	2.22	3.22	2.98	3.24	2.95
Misc on site use	-	-	-	-	-	-
Misc off site	-	-	-	-	-	-
Total	3.57	2.46	3.22	3.48	3.44	3.19

Shipped Tons	January	February	March	April	May	June
Base	23,239	16,326	23,066	17,047	35,888	17,767
Coarse Aggregate	74,255	83,049	120,556	102,832	86,233	84,072
Fine Aggregate	17,010	17,476	25,930	30,740	31,434	37,368
Total	114,504	116,851	169,552	150,619	153,555	139,207
Moisture Shipped	2.25	2.22	3.22	2.98	3.24	2.95

April 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)	73.32	subject to refinement
Pit fringe (area drains to pit)	91.38	subject to refinement
Drainage to Pit (total area)	164.70	subject to refinement

Quarry area Fringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Apr	0.00	0.00	0.00	0.16
2-Apr	0.20	0.20	0.00	0.11
3-Apr	0.00	0.00	0.00	0.19
4-Apr	0.00	0.00	0.00	0.09
5-Apr	0.00	0.00	0.00	0.13
6-Apr	0.00	0.00	0.00	0.10
7-Apr	0.00	0.00	0.00	0.14
8-Apr	0.00	0.00	0.00	0.15
9-Apr	0.00	0.00	0.00	0.10
10-Apr	0.00	0.00	0.00	0.11
11-Apr	0.00	0.00	0.00	0.14
12-Apr	0.00	0.00	0.00	0.15
13-Apr	0.00	0.00	0.00	0.16
14-Apr	0.00	0.00	0.00	0.13
15-Apr	0.00	0.00	0.00	0.16
16-Apr	0.00	0.00	0.00	0.17
17-Apr	0.00	0.00	0.00	0.19
18-Apr	0.00	0.00	0.00	0.10
19-Apr	0.00	0.00	0.00	0.16
20-Apr	0.00	0.00	0.00	0.12
21-Apr	0.00	0.00	0.00	0.16
22-Apr	0.05	0.05	0.00	0.07
23-Apr	0.13	0.13	0.00	0.09
24-Apr	0.00	0.00	0.00	0.08
25-Apr	0.02	0.02	0.00	0.06
26-Apr	0.74	0.74	0.00	0.03
27-Apr	0.08	0.08	0.00	0.04
28-Apr	0.06	0.06	0.00	0.04
29-Apr	0.00	0.00	0.00	0.16
30-Apr	0.00	0.00	0.00	0.17
		0.00	0.00	
		1.28	0.00	
Volume, ac-ft		7.82	0.00	3.609
Total Vol, ac-ft		7.82		

May 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)	73.32	subject to refinement
Pit fringe (area drains to pit)	91.38	subject to refinement
Drainage to Pit (total area)	164.70	subject to refinement

Quarry areaFringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-May	0.00	0.00	0.00	0.16
2-May	0.00	0.00	0.00	0.16
3-May	0.27	0.27	0.00	0.05
4-May	0.30	0.30	0.00	0.06
5-May	0.00	0.00	0.00	0.19
6-May	0.51	0.51	0.00	0.17
7-May	0.09	0.09	0.00	0.12
8-May	0.00	0.00	0.00	0.19
9-May	0.00	0.00	0.00	0.15
10-May	0.00	0.00	0.00	0.12
11-May	0.07	0.07	0.00	0.10
12-May	0.00	0.00	0.00	0.14
13-May	0.04	0.04	0.00	0.14
14-May	0.59	0.59	0.00	0.06
15-May	0.03	0.03	0.00	0.13
16-May	0.00	0.00	0.00	0.09
17-May	0.00	0.00	0.00	0.13
18-May	0.12	0.12	0.00	0.07
19-May	0.03	0.03	0.00	0.15
20-May	0.00	0.00	0.00	0.15
21-May	0.00	0.00	0.00	0.09
22-May	0.00	0.00	0.00	0.12
23-May	0.00	0.00	0.00	0.14
24-May	0.00	0.00	0.00	0.11
25-May	0.00	0.00	0.00	0.08
26-May	0.00	0.00	0.00	0.09
27-May	0.00	0.00	0.00	0.12
28-May	0.29	0.29	0.00	0.11
29-May	0.00	0.00	0.00	0.12
30-May	0.08	0.08	0.00	0.16
31-May	0.00	0.00	0.00	0.17
		2.42	0.00	0.00
Volume, ac-ft		14.79	0.00	3.846
Total Vol, ac-ft		14.79		

June 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)	73.32	subject to refinement
Pit fringe (area drains to pit)	91.38	subject to refinement
Drainage to Pit (total area)	164.70	subject to refinement

Quarry areaFringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Jun	0.00	0.00	0.00	0.14
2-Jun	0.00	0.00	0.00	0.18
3-Jun	0.31	0.31	0.00	0.06
4-Jun	0.00	0.00	0.00	0.07
5-Jun	0.16	0.16	0.00	0.15
6-Jun	0.26	0.26	0.00	0.16
7-Jun	0.00	0.00	0.00	0.16
8-Jun	0.00	0.00	0.00	0.19
9-Jun	0.00	0.00	0.00	0.18
10-Jun	0.01	0.01	0.00	0.16
11-Jun	0.00	0.00	0.00	0.19
12-Jun	1.18	1.18	0.00	0.06
13-Jun	0.02	0.02	0.00	0.09
14-Jun	0.00	0.00	0.00	0.18
15-Jun	0.37	0.37	0.00	0.12
16-Jun	0.03	0.03	0.00	0.16
17-Jun	0.11	0.11	0.00	0.14
18-Jun	0.08	0.08	0.00	0.19
19-Jun	0.00	0.00	0.00	0.18
20-Jun	0.00	0.00	0.00	0.17
21-Jun	0.00	0.00	0.00	0.15
22-Jun	0.00	0.00	0.00	0.13
23-Jun	0.24	0.24	0.00	0.11
24-Jun	0.00	0.00	0.00	0.19
25-Jun	0.00	0.00	0.00	0.19
26-Jun	0.00	0.00	0.00	0.16
27-Jun	0.00	0.00	0.00	0.15
28-Jun	0.00	0.00	0.00	0.19
29-Jun	0.00	0.00	0.00	0.21
30-Jun	0.00	0.00	0.00	0.18
		0.00	0.00	
		2.77	0.00	
Volume, ac-ft		16.93	0.00	4.577
Total Vol, ac-ft		16.93		