

Robin Simmons  
Regional Land Manager

September 28, 2017

Anthony Mackey  
Oklahoma Water Resources Board  
3800 N. Classen  
Oklahoma City, OK 73118

Re: Martin Marietta/Material Producers Davis Quarry Q2 2017 Monitoring Report

Dear Mr. Mackey:

Attached please find the Q2 2017 monitoring report and associated data and calculations for Martin Marietta/Material Producers' Davis Quarry. During Q3 2016 at the Davis Quarry a new water recovery system was built and brought online to maximize the recovery and reuse of water from the plant. In addition, the in-pit sump was relocated to a lower level. As a result of these changes, the monitoring of water levels was temporarily suspended while the new water retention facilities were established. Full monitoring of pond water levels was re-established in April 2017.

Sincerely,

A handwritten signature in cursive script that reads 'Robin L. Simmons'.

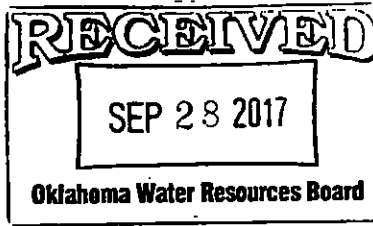
Robin L. Simmons, EIT  
Land Manager

North Texas/Oklahoma District  
1503 LBJ Parkway Suite 400, Dallas, Texas 75234  
t. (972) 350-8228 f (972) 647-3363 m. (214) 213-6024 e. Robin.Simmons@martinmarietta.com  
www.martinmarietta.com

# MMM Davis Quarry 2017 Monitoring Report

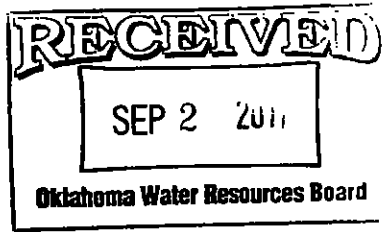
All volumes are in acre-feet

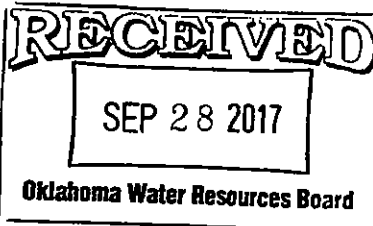
	Total Groundwater Entering Pit	Total Stormwater Entering Pit	Total Stormwater Diverted from Pit	Total Water Diverted	Water Sent To Holding Basin	Groundwater Augmentation	Streamwater Augmentation	Consumptive Use of Stormwater	Consumptive Use of Groundwater	Groundwater Pumped From Well
January-17		4.81	4.81	4.81	N/A	0.00	0.00	2.68	0.00	0.00
February-17		10.47	10.47	10.47	N/A	0.00	0.00	3.05	0.00	0.00
March-17		5.40	5.40	5.40	N/A	0.00	0.00	3.36	0.00	0.00
<b>1st QTR Totals</b>	0.00	20.68	20.68	20.68	0.00	0.00	0.00	9.09	0.00	0.00
April-17	-4.84	5.66	5.66	0.82	N/A	-4.84	0.00	4.14	0.00	0.00
May-17	1.94	-7.43	7.43	9.37	N/A	1.94	0.00	3.35	0.00	0.00
June-17	-3.59	1.55	1.55	-2.05	N/A	-3.59	0.00	3.43	0.00	0.00
<b>2nd QTR Totals</b>	-6.49	14.64	14.64	8.15	0.00	-6.49	0.00	10.93	0.00	0.00



Consumptive Use	January	February	March	April	May	June
Water Truck Usage	0.37	0.40	0.71	1.99	1.04	0.86
Moisture Content of Product Shipped	2.31	2.65	2.65	2.15	2.31	2.57
Misc on site use	-	-	-	-	-	-
Misc off site	-	-	-	-	-	-
Total	2.68	3.05	3.36	4.14	3.35	3.43

Shipped Tons	January	February	March	April	May	June
Base	27,811	40,538	32,314	28,698	22,291	25,813
Coarse Aggregate	50,585	50,566	55,895	48,746	59,184	69,993
Fine Aggregate	25,282	25,771	29,586	20,687	25,743	26,096
Total	103,678	116,875	117,794	98,131	107,218	121,902
Moisture Shipped	2.31	2.65	2.65	2.15	2.31	2.57





# Davis Water Balance

	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
	31	31	29	31	30	31	30
<b>Monitoring Period, Days</b>							
<b>Monthly Production, tons</b>	98,920	115,597	153,589	90,714	92,462	122,847	
<b>Product Moisture Content</b>	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
<b>Water Truck Loads</b>	12	13	23	65	34	28	
<b>Month End Water Elevs.</b>							
1) Freshwater pond, depth to water			17.769	13.326	19.301	13.15	
2) Pit Sump, depth to water			4.762	5.583	4.934	2.304	
<b>Pond Surface Acres</b>							
1) Freshwater pond	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
<b>Total surface acres</b>	1.259	1.259	1.259	1.259	1.259	1.259	1.259
<b>Pond Water Volume Change</b>							
1) Freshwater pond				-4.163	5.599	-5.763	
2) Pit Sump				0.264	-0.209	-0.847	
3) Change in settling pond storage				0.000	0.000	0.000	
<b>Net Volume Change</b>				-3.899	5.390	-6.610	
<b>Water Inputs, ac-ft</b>							
Rural Water	0.101	0.000	0.000	0.000	0.000	0.000	0.000
Lake Water	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
Precipitation	4.809	10.473	5.397	5.664	7.427	1.550	
<b>Total Water Input</b>	<b>4.910</b>	<b>10.473</b>	<b>5.397</b>	<b>5.664</b>	<b>7.427</b>	<b>1.550</b>	
<b>Water Usage, ac-ft</b>							
Product moisture content	2.547	2.977	3.955	2.336	2.381	3.164	
Haul road dust control	0.368	0.399	0.706	1.995	1.043	0.859	
Evaporation losses	0.234	0.268	0.399	0.392	0.557	0.542	
Misc usage							
<b>Total Water Usage, Ac-ft</b>	<b>3.150</b>	<b>3.643</b>	<b>5.060</b>	<b>4.723</b>	<b>3.982</b>	<b>4.565</b>	
<b>Net Water Input</b>	<b>1.760</b>	<b>6.829</b>	<b>0.337</b>	<b>0.941</b>	<b>3.445</b>	<b>-3.015</b>	
<b>emergency storage of precipitation and runoff, ac-ft</b>							
<b>Groundwater Inflow</b>				-4.839	1.944	-3.595	
<b>Groundwater Inflow, Avg Ac-ft/Day</b>				-0.161	0.063	-0.120	
<b>Groundwater Inflow, Avg Gallons/Day</b>				-52,562	20,438	-39,047	

**RECEIVED**

SEP 28 2017

Oklahoma Water Resources Board

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)	64.12	subject to refinement
Pit fringe (area drains to pit)	161.49	subject to refinement
Drainage to Pit (total area)	225.61	subject to refinement

Runoff from  
 $P_e = (P - 0.2)$   
 $S = (1000/P_e)$

**Quarry area Fringe area**

Date	Precip, in	Runoff, in	Runoff, in	Evapor, in/day
1-Apr	0.06	0.06	0.00	0.09
2-Apr	0.27	0.27	0.00	0.03
3-Apr	0.07	0.07	0.00	0.17
4-Apr	0.03	0.03	0.00	0.18
5-Apr	0.02	0.02	0.00	0.18
6-Apr	0.00	0.00	0.00	0.17
7-Apr	0.01	0.01	0.00	0.17
8-Apr	0.00	0.00	0.00	0.20
9-Apr	0.00	0.00	0.00	0.18
10-Apr	0.00	0.00	0.00	0.12
11-Apr	0.00	0.00	0.00	0.17
12-Apr	0.00	0.00	0.00	0.10
13-Apr	0.03	0.03	0.00	0.09
14-Apr	0.19	0.19	0.00	0.17
15-Apr	0.09	0.09	0.00	0.16
16-Apr	0.05	0.05	0.00	0.05
17-Apr	0.04	0.04	0.00	0.03
18-Apr	0.03	0.03	0.00	0.15
19-Apr	0.02	0.02	0.00	0.14
20-Apr	0.01	0.01	0.00	0.09
21-Apr	0.01	0.01	0.00	0.06
22-Apr	0.02	0.02	0.00	0.06
23-Apr	0.00	0.00	0.00	0.17
24-Apr	0.01	0.01	0.00	0.18
25-Apr	0.00	0.00	0.00	0.17
26-Apr	0.00	0.00	0.00	0.05
27-Apr	0.01	0.01	0.00	0.15
28-Apr	0.00	0.00	0.00	0.12
29-Apr	0.04	0.04	0.00	0.03
30-Apr	0.05	0.05	0.00	0.17
		0.00	0.00	
		1.06	0.00	
<b>Volume, ac-ft</b>		<b>5.66</b>	<b>0.00</b>	<b>3.741</b>
<b>Total Vol, ac-ft</b>		<b>5.66</b>		

**RECEIVED**

SEP 28 2017

Oklahoma Water Resources Board

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)	64.12	subject to refinement
Pit fringe (area drains to pit)	161.49	subject to refinement
Drainage to Pit (total area)	225.61	subject to refinement

**Quarry area Fringe area**

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-May	0.00	0.00	0.00	0.18
2-May	0.00	0.00	0.00	0.19
3-May	0.00	0.00	0.00	0.08
4-May	0.00	0.00	0.00	0.16
5-May	0.00	0.00	0.00	0.19
6-May	0.00	0.00	0.00	0.22
7-May	0.00	0.00	0.00	0.22
8-May	0.00	0.00	0.00	0.20
9-May	0.00	0.00	0.00	0.16
10-May	0.02	0.02	0.00	0.05
11-May	0.01	0.01	0.00	0.21
12-May	0.00	0.00	0.00	0.02
13-May	0.00	0.00	0.00	0.20
14-May	0.00	0.00	0.00	0.21
15-May	0.00	0.00	0.00	0.21
16-May	0.00	0.00	0.00	0.10
17-May	0.19	0.19	0.00	0.26
18-May	0.10	0.10	0.00	0.15
19-May	0.23	0.23	0.00	0.02
20-May	0.23	0.23	0.00	0.17
21-May	0.15	0.15	0.00	0.17
22-May	0.10	0.10	0.00	0.11
23-May	0.06	0.06	0.00	0.08
24-May	0.05	0.05	0.00	0.22
25-May	0.06	0.06	0.00	0.22
26-May	0.05	0.05	0.00	0.28
27-May	0.03	0.03	0.00	0.22
28-May	0.03	0.03	0.00	0.19
29-May	0.04	0.04	0.00	0.22
30-May	0.02	0.02	0.00	0.22
31-May	0.02	0.02	0.00	0.22
		1.39	0.00	0.00
<b>Volume, ac-ft</b>		<b>7.43</b>	<b>0.00</b>	<b>5.313</b>
<b>Total Vol, ac-ft</b>		<b>7.43</b>		

**RECEIVED**

SEP 28 2017

Oklahoma Water Resources Board

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)	64.12	subject to refinement
Pit fringe (area drains to pit)	161.49	subject to refinement
Drainage to Pit (total area)	225.61	subject to refinement

**Quarry area Fringe area**

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Jun	0.02	0.02	0.00	0.07
2-Jun	0.02	0.02	0.00	0.03
3-Jun	0.03	0.03	0.00	0.08
4-Jun	0.03	0.03	0.00	0.09
5-Jun	0.02	0.02	0.00	0.13
6-Jun	0.02	0.02	0.00	0.21
7-Jun	0.02	0.02	0.00	0.19
8-Jun	0.01	0.01	0.00	0.19
9-Jun	0.01	0.01	0.00	0.18
10-Jun	0.01	0.01	0.00	0.20
11-Jun	0.00	0.00	0.00	0.22
12-Jun	0.00	0.00	0.00	0.22
13-Jun	0.00	0.00	0.00	0.21
14-Jun	0.00	0.00	0.00	0.22
15-Jun	0.00	0.00	0.00	0.22
16-Jun	0.00	0.00	0.00	0.24
17-Jun	0.00	0.00	0.00	0.19
18-Jun	0.05	0.05	0.00	0.03
19-Jun	0.01	0.01	0.00	0.17
20-Jun	0.00	0.00	0.00	0.22
21-Jun	0.00	0.00	0.00	0.23
22-Jun	0.00	0.00	0.00	0.14
23-Jun	0.00	0.00	0.00	0.21
24-Jun	0.02	0.02	0.00	0.15
25-Jun	0.01	0.01	0.00	0.19
26-Jun	0.00	0.00	0.00	0.18
27-Jun	0.00	0.00	0.00	0.18
28-Jun	0.00	0.00	0.00	0.23
29-Jun	0.00	0.00	0.00	0.22
30-Jun	0.01	0.01	0.00	0.14
		0.00	0.00	
		0.29	0.00	
<b>Volume, ac-ft</b>		<b>1.55</b>	<b>0.00</b>	<b>5.166</b>
<b>Total Vol, ac-ft</b>		<b>1.55</b>		

**Cogburn, Matt**

---

**From:** Robin Simmons [Robin.Simmons@martinmarietta.com]  
**Sent:** Thursday, September 28, 2017 10:28 AM  
**To:** Mackey, Anthony; Cogburn, Matt  
**Cc:** Ron Kopplin, Johnny Parker  
**Subject:** MM Davis Quarry Q2 2017 Monitoring Report  
**Attachments:** MMM Davis Q2 2017 Report.pdf

Attached please find the Q2 monitoring report and associated data and calculations for Martin Marietta/Material Producers' Davis Quarry.

**Robin Simmons**  
Regional Land Manager

**Martin Marietta**  
1503 LBJ Frwy Suite 400, Dallas, TX 75234  
m 214-213-6024  
Robin.Simmons@martinmarietta.com  
[www.martinmarietta.com](http://www.martinmarietta.com)

