



Robin Simmons  
Regional Land Manager

May 31, 2018

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

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Re: Martin Marietta/Material Producers Davis Quarry Q1 2018 Monitoring Report

Dear Mr. Wilkins:

Attached please find the Q1 2018 monitoring report and associated data and calculations for Martin Marietta/Material Producers' Davis Quarry. In February the rain sensor on our weather station went out and was replaced in March. Mesonet weather rainfall data from Sulphur was used for the missing data.

As is typical at the Davis Quarry, in Q1 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.

Sincerely,

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

Robin L. Simmons  
Regional Land Manager

North Texas/Oklahoma District

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# MMM Davis Quarry 2018 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-18	-6.36	0.75	0.75	-5.61	N/A	-6.36	0.00	2.12	0.00	0.00
February-18	-37.63	52.39	52.39	14.75	N/A	-37.63	0.00	2.30	0.00	0.00
March-18	-21.44	26.01	26.01	4.58	N/A	-21.44	0.00	3.68	0.00	0.00
1st QTR Totals	-65.43	79.15	79.15	13.72	0.00	-65.43	0.00	8.10	0.00	0.00

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Consumptive Use

	January	February	March
Water Truck Usage	0.25	0.43	0.98
Moisture Content of Product Shipped	1.88	1.87	2.69
Misc on site use	-	-	-
Misc off site	-	-	-
Total	2.12	2.30	3.68

Shipped Tons	January	February	March
Base	16,947	16,864	33,565
Coarse Aggregate	53,012	51,726	64,907
Fine Aggregate	19,776	20,011	26,139
Total	89,735	88,602	124,610
Moisture Shipped	1.88	1.87	2.69

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## Davis Water Balance

	Dec-17	Jan-18	Feb-18	Mar-18
<b>Monitoring Period, Days</b>		31	28	31
<b>Monthly Production, tons</b>	87,122	96,625	69,024	120,887
<b>Product Moisture Content</b>		3.5%	3.5%	3.5%
<b>Water Truck Loads</b>		8	14	32
<b>Month End Water Elevs.</b>				
1) Freshwater pond, depth to water	14.323	5.863	19.865	19.365
2) Pit Sump, depth to water	2.145	2.202	1.919	4.843
<b>Pond Surface Acres</b>				
1) Freshwater pond	0.937	0.937	0.937	0.937
2) Pit Sump	0.322	0.322	0.322	0.322
Total surface acres	1.259	1.259	1.259	1.259
<b>Pond Water Volume Change</b>				
1) Freshwater pond		-7.927	13.120	-0.469
2) Pit Sump		0.018	-0.091	0.942
3) Change in settling pond storage		0.000	0.000	0.000
<b>Net Volume Change</b>		<b>-7.909</b>	<b>13.029</b>	<b>0.473</b>
<b>Water Inputs, ac-ft</b>				
Rural Water		0.649	0.491	0.282
Lake Water		0.000	0.000	0.000
Well Water		0.000	0.000	0.000
Precipitation		0.748	52.386	26.013
<b>Total Water Input</b>		<b>1.397</b>	<b>52.877</b>	<b>26.295</b>
<b>Water Usage, ac-ft</b>				
Product moisture content		2.488	1.778	3.113
Haul road dust control		0.246	0.430	0.982
Evaporation losses		0.212	0.006	0.291
Misc usage		-	-	-
<b>Total Water Usage, Ac-ft</b>		<b>2.946</b>	<b>2.213</b>	<b>4.386</b>
<b>Net Water Input</b>		<b>-1.548</b>	<b>50.663</b>	<b>21.909</b>
<b>emergency storage of precipitation and runoff, ac-ft</b>				
<b>Groundwater Inflow</b>		<b>-6.360</b>	<b>-37.635</b>	<b>-21.436</b>
<b>Groundwater Inflow, Avg Ac-ft/Day</b>		<b>-0.205</b>	<b>-1.344</b>	<b>-0.691</b>
<b>Groundwater Inflow, Avg Gallons/Day</b>		<b>-66,855</b>	<b>-437,976</b>	<b>-225,323</b>

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## January 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 areaFringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Jan	0.00	0.00	0.00	0.03
2-Jan	0.00	0.00	0.00	0.01
3-Jan	0.01	0.01	0.00	0.06
4-Jan	0.00	0.00	0.00	0.04
5-Jan	0.00	0.00	0.00	0.07
6-Jan	0.00	0.00	0.00	0.06
7-Jan	0.10	0.10	0.00	0.02
8-Jan	0.00	0.00	0.00	0.05
9-Jan	0.01	0.01	0.00	0.05
10-Jan	0.00	0.00	0.00	0.05
11-Jan	0.00	0.00	0.00	0.02
12-Jan	0.00	0.00	0.00	0.05
13-Jan	0.00	0.00	0.00	0.05
14-Jan	0.00	0.00	0.00	0.07
15-Jan	0.00	0.00	0.00	0.03
16-Jan	0.00	0.00	0.00	0.04
17-Jan	0.00	0.00	0.00	0.04
18-Jan	0.00	0.00	0.00	0.08
19-Jan	0.00	0.00	0.00	0.08
20-Jan	0.00	0.00	0.00	0.08
21-Jan	0.00	0.00	0.00	0.13
22-Jan	0.00	0.00	0.00	0.14
23-Jan	0.00	0.00	0.00	0.08
24-Jan	0.00	0.00	0.00	0.08
25-Jan	0.02	0.02	0.00	0.12
26-Jan	0.00	0.00	0.00	0.04
27-Jan	0.00	0.00	0.00	0.08
28-Jan	0.00	0.00	0.00	0.09
29-Jan	0.00	0.00	0.00	0.06
30-Jan	0.00	0.00	0.00	0.08
31-Jan	0.00	0.00	0.00	0.16
		0.14	0.00	
Volume, ac-ft		0.75	0.00	2.02
Total Vol, ac-ft		0.75		

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February 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-Feb	0.00	0.00	0.00	0.00
2-Feb	0.00	0.00	0.00	0.00
3-Feb	0.00	0.00	0.00	0.00
4-Feb	0.00	0.00	0.00	0.00
5-Feb	0.00	0.00	0.00	0.00
6-Feb	0.00	0.00	0.00	0.00
7-Feb	0.00	0.00	0.00	0.00
8-Feb	0.00	0.00	0.00	0.00
9-Feb	0.00	0.00	0.00	0.00
10-Feb	0.00	0.00	0.00	0.00
11-Feb	0.00	0.00	0.00	0.00
12-Feb	0.00	0.00	0.00	0.00
13-Feb	0.00	0.00	0.00	0.00
14-Feb	0.00	0.00	0.00	0.00
15-Feb	0.00	0.00	0.00	0.00
16-Feb	0.01	0.01	0.00	0.00
17-Feb	0.33	0.33	0.00	0.00
18-Feb	0.02	0.02	0.00	0.00
19-Feb	0.10	0.10	0.00	0.00
20-Feb	1.38	1.38	0.50	0.00
21-Feb	0.00	0.00	0.00	0.00
22-Feb	0.64	0.64	0.00	0.00
23-Feb	2.08	2.08	1.03	0.00
24-Feb	0.81	0.81	0.00	0.00
25-Feb	0.01	0.01	0.00	0.00
26-Feb	0.00	0.00	0.00	0.00
27-Feb	0.38	0.38	0.00	0.00
28-Feb	0.20	0.20	0.00	0.00
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		5.96	1.53	
Volume, ac-ft		31.85	20.54	0.05612
Total Vol, ac-ft		52.39		

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March 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 areFringe area

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-Mar	0.07	0.07	0.00	0.00
2-Mar	0.00	0.00	0.00	0.00
3-Mar	0.00	0.00	0.00	0.00
4-Mar	0.00	0.00	0.00	0.00
5-Mar	0.00	0.00	0.00	0.00
6-Mar	0.00	0.00	0.00	0.00
7-Mar	0.00	0.00	0.00	0.00
8-Mar	0.00	0.00	0.00	0.10
9-Mar	0.00	0.00	0.00	0.15
10-Mar	0.00	0.00	0.00	0.10
11-Mar	0.00	0.00	0.00	0.11
12-Mar	0.00	0.00	0.00	0.11
13-Mar	0.00	0.00	0.00	0.11
14-Mar	0.00	0.00	0.00	0.13
15-Mar	0.00	0.00	0.00	0.15
16-Mar	0.00	0.00	0.00	0.26
17-Mar	0.01	0.01	0.00	0.09
18-Mar	0.00	0.00	0.00	0.08
19-Mar	0.00	0.00	0.00	0.16
20-Mar	0.00	0.00	0.00	0.13
21-Mar	0.00	0.00	0.00	0.12
22-Mar	0.00	0.00	0.00	0.16
23-Mar	0.00	0.00	0.00	0.13
24-Mar	0.00	0.00	0.00	0.16
25-Mar	0.00	0.00	0.00	0.06
26-Mar	1.70	1.70	0.73	0.06
27-Mar	0.91	0.91	0.00	0.01
28-Mar	0.08	0.08	0.00	0.03
29-Mar	0.01	0.01	0.00	0.09
30-Mar	0.00	0.00	0.00	0.13
31-Mar	0.25	0.25	0.00	0.14
		3.03	0.73	
Volume, ac-ft		16.19	9.82	2.773
Total Vol, ac-ft		26.01		

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