

# 2017 2nd QUARTER REPORT

Report 2017

North Troy Quarry

Mill Creek, OK

Vulcan Materials Company

## VMC North Troy 2017 Monitoring Report

All volumes are in acre-feet.

	Total Groundwater Entering Pit	Total Stormwater Entering Pit	Total Pit Stormwater Diverted	Total Pit Water Diverted	Pit Water Sent To Holding Basin	Groundwater Augmentation	Streamwater Augmentation	Consumptive Use of Pit Water	Streamwater Pumped From Mill Creek	Groundwater Pumped From Wells	Total Annual Groundwater Allocation, Ac-ft
January-17	264.75	15.50	15.50	261.59	18.29	260.75	0.00	4.01	0.00	0.00	219.50
February-17	282.41	20.38	20.38	284.48	33.48	276.37	0.00	4.07	0.00	0.00	219.50
March-17	289.88	4.99	4.99	287.69	44.56	220.27	30.35	3.44	0.00	0.00	219.50
1st QTR Totals	837.04	40.87	40.87	833.76	96.33	757.39	30.35	11.53	0.00	0.00	N/A
April-17	290.81	12.17	12.17	296.13	9.02	304.77	0.00	4.49	0.00	0.00	219.50
May-17	253.78	105.92	105.92	248.01	46.74	263.71	45.88	5.68	0.00	0.00	219.50
June-17	372.93	9.57	9.57	373.55	49.96	341.65	0.00	9.59	0.00	0.00	219.50
2nd QTR Totals	917.53	127.66	127.66	917.69	105.72	910.12	45.88	19.76	0.00	0.00	N/A
July-17	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
August-17	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
September-17	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
3rd QTR Totals	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
October-17	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	219.50
November-17	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	219.50
December-17	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
4th QTR Totals	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	N/A
2017 Totals	#VALUE!	168.52	168.52	1751.46	202.05	1667.51	76.23	31.99	0.00	0.00	219.50

1st Qtr Notes

2nd Qtr Notes

3rd Qtr notes

RECEIVED

NOV 27 2017

WATER QUALITY DIVISION

## MILL CREEK 2017 AUGMENTATION and GAUGE DATA

[illegible]

RECEIVED

NGV 27 2017



April Precipitation/Evaporation 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)	1.36363636	area draining into pit
S (pit)	0	area with direct interception
Pit - Direct Interception (>95 ft deep)	53.91	subject to refinement
Pit fringe (area drains to pit)	122.04	subject to refinement
Drainage to Pit (total area)	175.95	subject to refinement

Date	Precip, in.	Quarry area Runoff, in.	Fringe area Runoff, in.	Daily evaporation, in.	
1-Apr	0.16	0.16	0.00	0.21	Runoff formula
2-Apr	1.16	1.16	0.00	0.06	$Pe = (P - 0.2S)^2 / (P + 0.8S)$
3-Apr		0.00	0.00	0.22	$S = (1000/CN) - 10$
4-Apr		0.00	0.00	0.27	Blue cells contain formulas
5-Apr		0.00	0.00	0.28	
6-Apr		0.00	0.00	0.2	
7-Apr		0.00	0.00	0.29	
8-Apr		0.00	0.00	0.34	
9-Apr		0.00	0.00	0.31	
10-Apr		0.00	0.00	0.24	
11-Apr		0.00	0.00	0.3	
12-Apr		0.00	0.00	0.14	
13-Apr		0.00	0.00	0.16	
14-Apr		0.00	0.00	0.3	
15-Apr		0.00	0.00	0.28	
16-Apr		0.00	0.00	0.07	
17-Apr		0.00	0.00	0.06	
18-Apr		0.00	0.00	0.18	
19-Apr		0.00	0.00	0.2	
20-Apr		0.00	0.00	0.18	
21-Apr	0.28	0.28	0.00	0.1	
22-Apr		0.00	0.00	0.13	
23-Apr		0.00	0.00	0.21	
24-Apr		0.00	0.00	0.26	
25-Apr		0.00	0.00	0.31	
26-Apr	0.36	0.36	0.00	0.12	
27-Apr		0.00	0.00	0.19	
28-Apr		0.00	0.00	0.19	
29-Apr	0.75	0.75	0.00	0.09	
30-Apr		0.00	0.00	0.19	
sum	2.71	2.71	0.00	6.08	6.08
Volume, ac-ft		12.17	0.00		
Total Vol, ac-ft		12.17			Pan Evaporation from Sulphur Mesonet

RECEIVED

NOV 27 2017

Water Resources Division

May Precipitation/Evaporation 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)	1.363636	area draining into pit
S (pit)	0	area with direct interception
Pit - Direct Interception (>95 ft deep)	53.91	subject to refinement
Pit fringe (area drains to pit)	122.04	subject to refinement
Drainage to Pit (total area)	175.95	subject to refinement

Date	Precip, in.	Runoff, in.	Runoff, in.	Evaporation, in.	
1-May		0.00	0.00	0.28	Runoff formula
2-May		0.00	0.00	0.28	Pe = (P-0.2S)*2/(P+0.8S)
3-May	0.04	0.04	0.00	0.17	S = (1000/CN)-10
4-May		0.00	0.00	0.27	
5-May		0.00	0.00	0.23	Blue cells contain formulas
6-May		0.00	0.00	0.24	
7-May		0.00	0.00	0.31	
8-May		0.00	0.00	0.3	
9-May		0.00	0.00	0.22	
10-May	0.24	0.24	0.00	0.1	
11-May	0.04	0.04	0.00	0.26	
12-May	0.52	0.52	0.00	0.17	
13-May		0.00	0.00	0.23	
14-May		0.00	0.00	0.32	
15-May		0.00	0.00	0.36	
16-May		0.00	0.00	0.23	
17-May		0.00	0.00	0.39	
18-May	1.77	1.77	0.78	0.28	
19-May	5.14	5.14	3.80	0.07	
20-May	0.51	0.51	0.00	0.23	
21-May		0.00	0.00	0.22	
22-May	0.47	0.47	0.00	0.18	
23-May	0.04	0.04	0.00	0.1	
24-May		0.00	0.00	0.27	
25-May		0.00	0.00	0.42	
26-May		0.00	0.00	0.35	
27-May	1.10	1.10	0.00	0.29	
28-May	1.69	1.69	0.72	0.26	
29-May		0.00	0.00	0.26	
30-May		0.00	0.00	0.26	
31-May		0.00	0.00	0.28	
sum	11.56	11.56	5.31	7.83	7.83
Volume, ac-ft		51.93	53.98		
Total Vol, ac-ft		105.92			Pan Evaporation from Sulphur Mesonet

RECEIVED

NOV 27 2017

Hydrologic Engineering Center

June Precipitation/Evaporation 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)	1.363636	area draining into pit
S (pit)	0	area with direct interception
Pit - Direct Interception (>95 ft deep)	53.91	subject to refinement
Pit fringe (area drains to pit)	122.04	subject to refinement
Drainage to Pit (total area)	175.95	subject to refinement

Date	Precip, in.	Runoff, in.	Runoff, in.	Evaporation, in.	
1-Jun	0.55	0.55	0.00	0.14	Runoff formula
2-Jun	0.04	0.04	0.00	0.07	Pe = (P-0.2S)^2/(P+0.8S)
3-Jun	1.06	1.06	0.00	0.13	S = (1000/CN)-10
4-Jun	0.28	0.28	0.00	0.14	
5-Jun	0.08	0.08	0.00	0.22	Blue cells contain formulas
6-Jun		0.00	0.00	0.3	
7-Jun		0.00	0.00	0.25	Rainfall Data for 6/1-6/9 taken from
8-Jun		0.00	0.00	0.24	Mill Creek stream gage due to
9-Jun		0.00	0.00	0.27	weather station malfunction.
10-Jun		0.00	0.00	0.34	
11-Jun		0.00	0.00	0.38	
12-Jun		0.00	0.00	0.34	
13-Jun		0.00	0.00	0.35	
14-Jun		0.00	0.00	0.32	
15-Jun		0.00	0.00	0.32	
16-Jun		0.00	0.00	0.35	
17-Jun		0.00	0.00	0.29	
18-Jun		0.00	0.00	0.1	
19-Jun	0.04	0.04	0.00	0.22	
20-Jun		0.00	0.00	0.29	
21-Jun		0.00	0.00	0.33	
22-Jun		0.00	0.00	0.22	
23-Jun		0.00	0.00	0.29	
24-Jun		0.00	0.00	0.27	
25-Jun		0.00	0.00	0.3	
26-Jun		0.00	0.00	0.26	
27-Jun		0.00	0.00	0.31	
28-Jun		0.00	0.00	0.35	
29-Jun		0.00	0.00	0.37	
30-Jun	0.08	0.08	0.00	0.25	
sum	2.13	2.13	0.00	8.01	8.01
Volume, ac-ft		9.57	0.00		
Total Vol, ac-ft		9.57			Pan Evaporation from Sulphur Mesonet

RECEIVED

NOV 27 2017

April Shipments			May Shipments			June Shipments		
	Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped
Base Products	263	0.006	Base Products	534	0.013	Base Products	861	0.021
Coarse			Coarse			Coarse		
Aggregates	178,890	2.150	Aggregates	254,259	3.056	Aggregates	219,476	2.638
Fine			Fine			Fine		
Aggregates	21,372	0.679	Aggregates	22,569	0.717	Aggregates	30,967	0.984
	200,525	2.836		277,362	3.786		251,304	3.643

RECEIVED

NOV 27 2017

Monthly Water Data, ac-ft

	Water Diverted From Pit	Storm Water Entering Pit	Net Sump Volume Change	Groundwater Sent To Holding Basin	Groundwater Sent To Infiltration Areas	Groundwater Used For Stream Augmentation	Evaporation	Moisture Content of Product Shipped	Water Truck Usage	Misc Pit Water Use On Site	Misc Pit Water Use Off Site	Production Well Permit 2002-602	North Well Permit 20060601A
January-17	277.09	15.50	3.16	18.29	258.80	0.00	0.00	2.50	1.51	0.00	0.00	0.00	0.00
February-17	304.86	20.38	-2.07	33.48	271.38	0.00	0.00	3.11	0.96	0.00	0.00	0.00	0.00
March-17	292.68	4.99	2.18	44.56	217.77	30.35	0.00	2.56	0.88	0.00	0.00	0.00	0.00
April-17	308.30	12.17	-5.31	9.02	299.28	0.00	0.50	2.84	1.15	0.00	0.00	0.00	0.00
May-17	353.93	105.92	5.77	46.74	261.32	45.88	0.65	3.79	1.25	0.00	0.00	0.00	0.00
June-17	383.12	9.57	-0.62	49.96	336.16	0.00	0.66	3.64	5.28	0.00	0.00	0.00	0.00
July-17		0.00					0.00	0.00		0.00	0.00		0.00
August-17		0.00					0.00	0.00		0.00	0.00		0.00
September-17		0.00					0.00	0.00		0.00	0.00		0.00
October-17		0.00					0.45	0.00		0.00	0.00		0.00
November-17		0.00					0.25	0.00		0.00	0.00		0.00
December-17		0.00					0.00	0.00		0.00	0.00		0.00

Pit Sump Volumes

	West Sump					905 Sump					New Freshwater Pond					Total Evaporation, ac-ft
	Month End Depth-to-Water, Ft	Width, Ft	Length, Ft	Sump Volume Change, Ac-ft	Evaporation, ac-ft	Month End Depth-to-Water, Ft	Width, Ft	Length, Ft	Sump Volume Change, Ac-ft	Evaporation, ac-ft	Month End Depth-to-Water, Ft	Width, Ft	Length, Ft	Pond Volume Change, Ac-ft	Evaporation, ac-ft	
January-17	11.432	125	325	3.16	0.24	4	50	50	0.00	0.01	4.29		750	0.00	0.00	0.25
February-17	13.649	125	325	-2.07	0.34	4	50	50	0.00	0.02	4.036		750	0.00	0.00	0.36
March-17	11.309	125	325	2.18	0.51	4	50	50	0.00	0.03	2.996		750	0.00	0.00	0.54
April-17	17.006	125	325	-5.31	0.47	4	50	50	0.00	0.03	4.603		750	0.00	0.00	0.50
May-17	10.822	125	325	5.77	0.61	4	50	50	0.00	0.04	5.104		750	0.00	0.00	0.65
June-17	11.483	125	325	-0.62	0.62	4	50	50	0.00	0.04	4.076		750	0.00	0.00	0.66
July-17		125	325		0.00	4	50	50	0.00	0.00			750		0.00	0.00
August-17		125	325		0.00	4	50	50	0.00	0.00			750		0.00	0.00
September-17		125	325		0.00	4	50	50	0.00	0.00			750		0.00	0.00
October-17		125	325		0.42	4	50	50	0.00	0.03			750		0.00	0.45
November-17		125	325		0.24	4	50	50	0.00	0.01			750		0.00	0.25
December-17		125	325		0.00	4	50	50	0.00	0.00			750		0.00	0.00

RECEIVED

NOV 27 2017