

2nd Quarter Report 2015
 North Troy Quarry
 Mill Creek, OK
 Vulcan Materials Company

VMC North Troy 2015 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-15	162.21	7.10	7.10	158.53	0.00	168.13	0.00	4.21	0.00	0.00	353.50
February-15	155.63	3.41	3.41	162.20	0.00	169.85	0.00	4.55	0.00	0.00	353.50
March-15	180.47	16.17	16.17	187.42	46.28	43.93	105.05	6.91	0.00	0.00	353.50
1st QTR Totals	508.30	26.69	26.69	508.14	46.28	381.91	105.05	15.68	0.00	0.00	N/A
April-15	156.59	36.77	36.77	144.94	0.00	96.42	83.29	6.51	0.00	0.00	353.50
May-15	139.35	225.94	225.94	144.17	0.00	339.76	30.35	5.84	0.00	0.00	353.50
June-15	216.34	104.52	104.52	213.57	0.00	318.09	0.00	8.29	0.00	0.00	353.50
2nd QTR Totals	512.29	367.23	367.23	502.68	0.00	756.27	113.64	20.44	0.00	0.00	N/A
July-15	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.50
August-15	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.50
September-15	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.50
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-15	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.50
November-15	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.50
December-15	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.50
4th QTR Totals	#VALUE!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
2015 Totals	#VALUE!	393.92	393.92	1010.82	46.28	1138.18	218.69	36.11	0.00	0.00	353.50

1st Qtr Notes
 Weather Station - Battery failed
 Pond Transducer cable corroded
 2nd Qtr Notes
 New weather station installed

April Precipitation/Evaporation Data

PIT RUNOFF ASSUMPTIONS					
Hydrologic Soil Group	D				
Land Use	"gravel road"				
AMC Condition	II (ave)				
CN (pit fringe)	88				
CN (pit)	100				
S (pit fringe)	1.36363636				
S (pit)	0				
Pit - Direct Interception (>95 ft deep)	53.91				
Pit fringe (area drains to pit)	122.04				
Drainage to Pit (total area)	175.95				
Date	Precip. in.	Quarry area Runoff, in.	Fringe area Runoff, in.	Daily evaporation, in.	Daily
1-Apr	0.01	0.01	0.00	0.18	Runoff formula
2-Apr	0.00	0.00	0.00	0.28	Pe = (P-0.2S)^2/(P+0.8S)
3-Apr	0.00	0.00	0.00	0.28	S = (1000/CN)-10
4-Apr	0.00	0.00	0.00	0.25	
5-Apr	0.28	0.28	0.00	0.07	
6-Apr	0.01	0.01	0.00	0.18	Blue cells contain formulas
7-Apr	0.00	0.00	0.00	0.22	
8-Apr	0.01	0.01	0.00	0.17	
9-Apr	0.00	0.00	0.00	0.28	
10-Apr	0.00	0.00	0.00	0.25	
11-Apr	0.00	0.00	0.00	0.27	
12-Apr	0.00	0.00	0.00	0.22	
13-Apr	2.30	2.30	1.21	0.13	
14-Apr	0.23	0.23	0.00	0.07	
15-Apr	0.06	0.06	0.00	0.17	
16-Apr	0.00	0.00	0.00	0.18	
17-Apr	0.33	0.33	0.00	0.14	
18-Apr	0.36	0.36	0.00	0.21	
19-Apr	0.00	0.00	0.00	0.17	
20-Apr	0.00	0.00	0.00	0.21	
21-Apr	0.02	0.02	0.00	0.2	
22-Apr	0.06	0.06	0.00	0.19	
23-Apr	0.14	0.14	0.00	0.05	
24-Apr	0.60	0.60	0.00	0.07	
25-Apr	0.00	0.00	0.00	0.27	
26-Apr	0.35	0.35	0.00	0.23	
27-Apr	0.63	0.63	0.00	0.07	
28-Apr	0.03	0.03	0.00	0.1	
29-Apr	0.02	0.02	0.00	0.21	
30-Apr	0.00	0.00	0.00	0.21	
Sum	5.44	5.44	1.21	5.53	
Volume, ac-ft		24.44	12.33		
Total Vol, ac-ft		36.77			

5.53

May Precipitation/Evaporation Data

PIT RUNOFF ASSUMPTIONS	
Hydrologic Soil Group	D
Land Use	gravel road
AMC Condition	II (ave)
CN (pit fringe)	88
CN (pit)	100
S (pit fringe)	1.369636
S (pit)	0
Pit - Direct Interception (>95 ft deep)	53.91
Pit fringe (area drains to pit)	122.04
Drainage to Pit (total area)	175.95
	area draining into pit
	area with direct interception
	area with direct interception
	subject to refinement
	subject to refinement

Date	Quarry area		Fringe area		Daily
	Precip. in.	Runoff, in.	Runoff, in.	Evaporation, in.	
1-May	0.00	0.00	0.00	0.23	Runoff formula
2-May	0.00	0.00	0.00	0.25	Pe = (P-0.2S)^2/(P+0.8S)
3-May	0.00	0.00	0.00	0.31	S = (1000/CN)-10
4-May	0.00	0.00	0.00	0.27	
5-May	1.36	1.36	0.00	0.17	Blue cells contain formulas
6-May	0.46	0.46	0.00	0.22	
7-May	3.85	3.85	2.59	0.16	
8-May	2.85	2.85	1.69	0.14	
9-May	0.62	0.62	0.00	0.08	
10-May	1.75	1.75	0.77	0.09	
11-May	1.01	1.01	0.00	0.26	
12-May	0.00	0.00	0.00	0.2	
13-May	0.00	0.00	0.00	0.08	
14-May	0.00	0.00	0.00	0.21	
15-May	0.07	0.07	0.00	0.17	
16-May	0.31	0.31	0.00	0.17	
17-May	0.90	0.90	0.00	0.24	
18-May	0.01	0.01	0.00	0.24	
19-May	1.06	1.06	0.00	0.13	
20-May	3.92	3.92	2.65	0.11	
21-May	0.03	0.03	0.00	0.22	
22-May	1.70	1.70	0.73	0.05	
23-May	0.07	0.07	0.00	0.07	
24-May	2.38	2.38	1.28	0.11	
25-May	0.65	0.65	0.00	0.13	
26-May	0.00	0.00	0.00	0.22	
27-May	0.10	0.10	0.00	0.14	
28-May	2.11	2.11	1.05	0.2	
29-May	0.71	0.71	0.00	0.11	
30-May	0.01	0.01	0.00	0.12	
31-May	0.00	0.00	0.00	0.17	
sum	25.93	25.93	10.76	5.27	
Volume, ac-ft	116.49		109.45		
Total Vol, ac-ft	225.94				

5.27

June Precipitation/Evaporation Data

PIT RUNOFF ASSUMPTIONS	
Hydrologic Soil Group	D
Land Use	gravel road
AMC Condition	II (ave)
CN (pit fringe)	88
CN (pit)	100
S (pit fringe)	1.363636
S (pit)	0
Pit - Direct Interception (>95 ft deep)	53.91
Pit fringe (area drains to pit)	122.04
Drainage to Pit (total area)	175.95

Date	Precip, in.	Runoff, in.	Runoff, in.	Fringe area	Daily Evaporation, in.
1-Jun	0.00	0.00	0.00		0.24
2-Jun	0.00	0.00	0.00		0.29
3-Jun	0.00	0.00	0.00		0.32
4-Jun	0.00	0.00	0.00		0.31
5-Jun	0.00	0.00	0.00		0.27
6-Jun	0.00	0.00	0.00		0.28
7-Jun	0.00	0.00	0.00		0.31
8-Jun	0.00	0.00	0.00		0.24
9-Jun	0.00	0.00	0.00		0.3
10-Jun	0.00	0.00	0.00		0.33
11-Jun	0.00	0.00	0.00		0.39
12-Jun	0.00	0.00	0.00		0.35
13-Jun	0.97	0.97	0.00		0.22
14-Jun	1.18	1.18	0.00		0.22
15-Jun	0.85	0.85	0.00		0.22
16-Jun	0.80	0.80	0.00		0.11
17-Jun	5.66	5.66	4.30		0.04
18-Jun	1.66	1.66	0.70		0.19
19-Jun	0.00	0.00	0.00		0.26
20-Jun	0.00	0.00	0.00		0.32
21-Jun	0.07	0.07	0.00		0.2
22-Jun	0.00	0.00	0.00		0.35
23-Jun	0.00	0.00	0.00		0.32
24-Jun	0.00	0.00	0.00		0.33
25-Jun	0.00	0.00	0.00		0.34
26-Jun	0.08	0.08	0.00		0.27
27-Jun	0.02	0.02	0.00		0.29
28-Jun	0.00	0.00	0.00		0.28
29-Jun	0.00	0.00	0.00		0.26
30-Jun	0.66	0.66	0.00		0.29
sum	11.95	11.95	5.00		8.14
Volume, ac-ft		53.69	50.84		
Total Vol, ac-ft		104.52			

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

Blue cells contain formulas

Rainfall Data for 6/1-6/9 taken from Mill Creek stream gage due to weather station malfunction.

PI Sump Volumes

	West Sump				East Sump				New Freshwater Pond							
	Month End Depth-in-Water, Ft	Width, Ft	Length, Ft	Sump Volume Change, Ac-ft	Evaporation, in-Ft	Month End Depth-in-Water, Ft	Width, Ft	Length, Ft	Sump Volume Change, Ac-ft	Evaporation, in-Ft	Month End Depth-in-Water, Ft	Width, Ft	Length, Ft	Final Volume Change, Ac-ft	Evaporation, in-Ft	Total Evaporation, in-Ft
January-18	15.295	125	325	3.67	0.00	4	50	50	0.00	0.00	4.3	475	750	750	0.00	4.3
February-18	22.34	125	325	6.07	0.00	4	50	50	0.00	0.00	6.41	475	750	750	0.00	6.41
March-18	19.07	125	325	3.97	0.00	4	50	50	0.00	0.00	5.98	475	750	750	0.00	5.98
April-18	8.58	125	325	11.60	0.00	4	50	50	0.00	0.00	8.42	475	750	750	0.00	8.42
May-18	11.747	125	325	4.86	0.00	4	50	50	0.00	0.00	5.17	475	750	750	0.00	5.17
June-18	8.77	125	325	2.97	0.00	4	50	50	0.00	0.00	6.11	475	750	750	0.00	6.11
July-18		125	325		0.00	4	50	50	0.00	0.00		475	750	750	0.00	
August-18		125	325		0.00	4	50	50	0.00	0.00		475	750	750	0.00	
September-18		125	325		0.00	4	50	50	0.00	0.00		475	750	750	0.00	
October-18		125	325		0.00	4	50	50	0.00	0.00		475	750	750	0.00	
November-18		125	325		0.00	4	50	50	0.00	0.00		475	750	750	0.00	
December-18		125	325		0.00	4	50	50	0.00	0.00		475	750	750	0.00	

Sentling Cell Evaporation and Infiltration

	FO2 West				FO2 East				PO3/FO4 South Sentling Cell											
	Width, Ft	Length, Ft	Evaporation, in-Ft	Number of Production Days	Width, Ft	Length, Ft	Evaporation, in-Ft	Number of Production Days	Width, Ft	Length, Ft	Evaporation, in-Ft	Number of Production Days	Width, Ft	Length, Ft	Evaporation, in-Ft	Number of Production Days	Total Infiltration, in-Ft	Total Evaporation, in-Ft	Total Infiltration, in-Ft	Total Evaporation, in-Ft
January-18	50	330	0.00	21.00	50	350	0.00	17.00	200	435	0.00	23.00	200	435	0.00	23.00	0.00	0.00	0.00	0.00
February-18	50	330	0.00	25.00	50	350	0.00	17.00	200	435	0.00	17.00	200	435	0.00	17.00	0.00	0.00	0.00	0.00
March-18	50	330	0.00	25.00	50	350	0.00	17.00	200	435	0.00	17.00	200	435	0.00	17.00	0.00	0.00	0.00	0.00
April-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
May-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
June-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
July-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
August-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
September-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
October-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
November-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00
December-18	50	330	0.00	22.00	50	350	0.00	17.00	200	435	0.00	22.00	200	435	0.00	22.00	0.00	0.00	0.00	0.00

