

## 2021 4th Quarter Report

Report 2021

North Troy Quarry

Mill Creek, OK

Vulcan Materials Company

### VMC North Troy 2021 Monitoring Report

All volumes are in acre-feet.

	All Water Pumped	Total Stormwater Entering Pit note(a)	Total Groundwater Diverted	Pit Water Sent To Holding Basin	Groundwater Augmentation	Streamwater Augmentation	Defined Elements of Consumptive Use of Pit Water	Streamwater Pumped From Mill Creek	Groundwater Pumped From Wells	Total Annual Groundwater Allocation, Ac-ft
January-20	406.35	9.90	396.45	73.22	335.52	0.00	3.77	0.00	0.00	219.50
February-20	470.74	5.00	465.75	103.24	370.99	0.00	2.32	0.00	0.00	219.50
March-20	604.39	21.44	582.95	146.69	460.21	0.00	4.71	0.00	0.00	219.50
<b>1st QTR Totals</b>	<b>1481.48</b>	<b>36.34</b>	<b>1445.14</b>	<b>323.15</b>	<b>1166.72</b>	<b>0.00</b>	<b>10.79</b>	<b>0.00</b>	<b>0.00</b>	<b>N/A</b>
April-20	552.65	68.73	483.92	185.24	373.37	0.00	6.93	0.00	0.00	219.50
May-20	840.84	66.78	774.06	94.83	748.52	0.00	5.71	0.00	0.00	219.50
June-20	611.20	30.25	580.95	158.32	458.12	0.00	6.97	0.00	0.00	219.50
<b>2nd QTR Totals</b>	<b>2004.69</b>	<b>165.75</b>	<b>1838.94</b>	<b>438.39</b>	<b>1580.01</b>	<b>0.00</b>	<b>19.62</b>	<b>0.00</b>	<b>0.00</b>	<b>N/A</b>
July-20	756.02	49.10	706.92	11.97	750.35	0.00	7.52	0.00	0.00	219.50
August-20	173.58	59.58	114.00	59.54	122.99	0.00	6.44	0.00	0.00	219.50
September-20	1113.55	26.76	1086.79	81.54	1040.29	0.00	6.51	0.00	0.00	219.50
<b>3rd QTR Totals</b>	<b>2043.15</b>	<b>135.44</b>	<b>1907.71</b>	<b>153.05</b>	<b>1913.63</b>	<b>0.00</b>	<b>20.47</b>	<b>0.00</b>	<b>0.00</b>	<b>N/A</b>
October-20	245.70	53.53	192.17	26.42	227.55	0.00	5.57	0.00	0.00	219.50
November-20	708.24	7.49	700.75	44.56	670.31	0.00	4.28	0.00	0.00	219.50
December-20	427.34	21.88	405.46	45.11	389.19	0.00	4.32	0.00	0.00	219.50
<b>4th QTR Totals</b>	<b>1381.28</b>	<b>82.90</b>	<b>1298.38</b>	<b>116.09</b>	<b>1287.05</b>	<b>0.00</b>	<b>14.18</b>	<b>0.00</b>	<b>0.00</b>	<b>N/A</b>
2020 Totals	6910.60	420.43	6490.17	1030.68	5947.41	0.00	65.06	0.00	0.00	219.50
2020 Total (adj)	6910.60	420.43	6490.17	1030.68	5947.41	0.00	65.06	0.00	0.00	219.50

1st Qtr notes      Production well electric issue - unable pump / no sample  
                          New pond - transducer offline

2nd Qtr notes

3rd Qtr notes      Weather station offline - battery reset

4th Qtr notes

(a)                    Total Stormwater = Volume of precipitation that falls into producing mine pit and volume of precipitation that falls onto producing mine and flows over the land surface into the mine pit.

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# October 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)	111.00	subject to refinement	
Pit fringe (area drains to pit)	77.00	subject to refinement	
Drainage to Pit (total area)	188.00	subject to refinement	

Date	Precip, in.	Runoff, in.	Runoff, in.	Runoff, in.	Runoff, in.
1-Oct	0.02	0.02	0.00	0.07	Runoff formula
2-Oct	0.15	0.15	0.00	0.15	Pe = (P-0.2S)^2/(P+0.8S)
3-Oct	0.00	0.00	0.00	0.16	S = (1000/CN)-10
4-Oct	0.00	0.00	0.00	0.17	
5-Oct	0.00	0.00	0.00	0.18	Blue cells contain formulas
6-Oct	0.01	0.01	0.00	0.13	
7-Oct	0.00	0.00	0.00	0.18	
8-Oct	0.00	0.00	0.00	0.29	
9-Oct	0.00	0.00	0.00	0.33	Oct. Precip
10-Oct	2.31	2.31	1.22	0.21	N. Troy Rain gauge
11-Oct	0.00	0.00	0.00	0.17	
12-Oct	0.01	0.01	0.00	0.1	
13-Oct	1.05	1.05	0.00	0.07	
14-Oct	0.02	0.02	0.00	0.08	
15-Oct	0.01	0.01	0.00	0.11	
16-Oct	0.00	0.00	0.00	0.12	
17-Oct	0.01	0.01	0.00	0.12	
18-Oct	0.00	0.00	0.00	0.16	
19-Oct	0.00	0.00	0.00	0.24	
20-Oct	0.00	0.00	0.00	0.13	
21-Oct	0.00	0.00	0.00	0.13	
22-Oct	0.00	0.00	0.00	0.14	
23-Oct	0.00	0.00	0.00	0.19	
24-Oct	0.00	0.00	0.00	0.19	
25-Oct	0.00	0.00	0.00	0.13	
26-Oct	0.00	0.00	0.00	0.18	
27-Oct	1.35	1.35	0.00	0.13	
28-Oct	0.00	0.00	0.00	0.29	
29-Oct	0.00	0.00	0.00	0.25	
30-Oct	0.00	0.00	0.00	0.1	
31-Oct	0.00	0.00	0.00	0.13	
sum	4.94	4.94	1.22	5.03	
Volume, ac-ft	45.70	7.83			
Total Vol, ac-ft	53.53				Pan Evaporation from Sulphur Mesonet

\* Used Mesonet Pan Evaporation - Sulphur Rainfall data

# November 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)	111.00	subject to refinement	
Pit fringe (area drains to pit)	77.00	subject to refinement	
Drainage to Pit (total area)	188.00	subject to refinement	

Date	Precip, in.	Runoff, in.	Runoff, in.	Runoff, in.	Runoff, in.
1-Nov	0.25	0.25	0.00	0.12	Runoff formula
2-Nov	0.27	0.27	0.00	0.03	Pe = (P-0.2S)^2/(P+0.8S)
3-Nov	0.13	0.13	0.00	0.04	S = (1000/CN)-10
4-Nov	0.00	0.00	0.00	0.06	
5-Nov	0.00	0.00	0.00	0.07	Blue cells contain formulas
6-Nov	0.01	0.01	0.00	0.1	
7-Nov	0.00	0.00	0.00	0.15	
8-Nov	0.00	0.00	0.00	0.17	
9-Nov	0.00	0.00	0.00	0.11	Nov. Precip
10-Nov	0.15	0.15	0.00	0.04	N. Troy Rain gauge
11-Nov	0.00	0.00	0.00	0.1	
12-Nov	0.00	0.00	0.00	0.12	
13-Nov	0.00	0.00	0.00	0.09	
14-Nov	0.00	0.00	0.00	0.1	
15-Nov	0.00	0.00	0.00	0.12	
16-Nov	0.00	0.00	0.00	0.18	
17-Nov	0.00	0.00	0.00	0.2	
18-Nov	0.00	0.00	0.00	0.15	
19-Nov	0.00	0.00	0.00	0.14	
20-Nov	0.00	0.00	0.00	0.16	
21-Nov	0.00	0.00	0.00	0.07	
22-Nov	0.00	0.00	0.00	0.07	
23-Nov	0.00	0.00	0.00	0.18	
24-Nov	0.00	0.00	0.00	0.15	
25-Nov	0.00	0.00	0.00	0.13	
26-Nov	0.00	0.00	0.00	0.1	
27-Nov	0.00	0.00	0.00	0.09	
28-Nov	0.00	0.00	0.00	0.09	
29-Nov	0.00	0.00	0.00	0.12	
30-Nov	0.00	0.00	0.00	0.12	
sum	0.81	0.81	0.00	3.37	
Volume, ac-ft	7.49	0.00			
Total Vol, ac-ft	7.49				Pan Evaporation from Sulphur Mesonet

\* Used Mesonet Pan Evaporation - Sulphur Rainfall data

# December Precipitation/Evaporation Data

PIT RUNOFF ASSUMPTIONS			
Hydrologic Soil Group	D		
Land Use	gravel road		
AMC Condition	II (ave)		
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Pit fringe (area drains to pit)	77.00	subject to refinement	
Drainage to Pit (total area)	188.00	subject to refinement	

Date	Precip, in.	Runoff, in.	Runoff, in.	Runoff, in.	Runoff, in.
1-Dec	0.00	0.00	0.00	0.07	Runoff formula
2-Dec	0.00	0.00	0.00	0.1	Pe = (P-0.2S)^2/(P+0.8S)
3-Dec	0.00	0.00	0.00	0.07	S = (1000/CN)-10
4-Dec	0.01	0.01	0.00	0.03	
5-Dec	0.01	0.01	0.00	0.07	Blue cells contain form
6-Dec	0.00	0.00	0.00	0.2	
7-Dec	0.00	0.00	0.00	0.07	
8-Dec	0.00	0.00	0.00	0.07	
9-Dec	0.00	0.00	0.00	0.13	Dec. Precip
10-Dec	0.00	0.00	0.00	0.21	N. Troy Rain gauge
11-Dec	0.00	0.00	0.00	0.09	
12-Dec	0.00	0.00	0.00	0.1	
13-Dec	0.00	0.00	0.00	0.17	
14-Dec	0.00	0.00	0.00	0.13	
15-Dec	0.00	0.00	0.00	0.16	
16-Dec	0.00	0.00	0.00	0.18	
17-Dec	1.68	1.68	0.71	0.1	
18-Dec	0.00	0.00	0.00	0.08	
19-Dec	0.00	0.00	0.00	0.04	
20-Dec	0.00	0.00	0.00	0.04	
21-Dec	0.00	0.00	0.00	0.05	
22-Dec	0.01	0.01	0.00	0.08	
23-Dec	0.00	0.00	0.00	0.13	
24-Dec	0.00	0.00	0.00	0.21	
25-Dec	0.00	0.00	0.00	0.1	
26-Dec	0.00	0.00	0.00	0.07	
27-Dec	0.00	0.00	0.00	0.1	
28-Dec	0.06	0.06	0.00	0.13	
29-Dec	0.07	0.07	0.00	0.08	
30-Dec	0.00	0.00	0.00	0.09	
31-Dec	0.03	0.03	0.00	0.08	
sum	1.87	1.87	0.71	3.23	
Volume, ac-ft	17.30	4.59			
Total Vol, ac-ft	21.88				Pan Evaporation from Sulphur Mesonet

\* Used Mesonet Pan Evaporation - Sulphur Rainfall data

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October Shipments			November Shipments			December Shipments		
	Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped
Base Products	2,130	0.052	Base Products	3,859	0.094	Base Products	4,113	0.101
Coarse			Coarse			Coarse		
Aggregates	249,025	2.993	Aggregates	213,775	2.569	Aggregates	218,979	2.632
Fine			Fine			Fine		
Aggregates	8,371	0.266	Aggregates	5,917	0.188	Aggregates	9,868	0.314
	259,526	3.311		223,551	2.852		232,960	3.046

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