

2023 3rd Quarter Report

Report 2023

North Troy Quarry

Mill Creek, OK

Vulcan Materials Company

VMC North Troy 2023 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-23	499.50	12.03	487.48	6.50	497.74	0.00	8.01	0.00	0.00	219.50
February-23	525.00	27.20	497.81	9.00	518.39	0.00	5.12	0.00	0.00	219.50
March-23	582.00	39.31	542.69	23.00	565.24	0.00	8.01	0.00	0.00	219.50
1st QTR Totals	1606.50	78.53	1527.97	38.50	1581.36	0.00	21.14	0.00	0.00	N/A
April-23	611.00	16.84	594.17	24.00	589.17	0.00	8.89	0.00	0.00	219.50
May-23	501.00	24.79	476.21	75.00	431.74	0.00	8.83	0.00	0.00	219.50
June-23	642.00	50.59	591.41	70.00	574.71	0.00	8.28	0.00	0.00	219.50
2nd QTR Totals	1754.00	92.22	1661.78	169.00	1595.62	0.00	25.99	0.00	0.00	N/A
July-23	670.00	59.24	610.76	61.00	614.24	0.00	9.01	0.00	0.00	219.50
August-23	456.60	2.68	453.92	45.00	413.99	0.00	10.31	0.00	0.00	219.50
September-23	455.80	16.74	439.06	35.00	358.14	68.40	9.35	0.00	0.00	219.50
3rd QTR Totals	1582.40	78.67	1503.73	141.00	1386.36	68.40	28.67	0.00	0.00	N/A
October-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
November-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
December-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
4th QTR Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
2023 Totals	4942.90	249.41	4693.49	348.50	4563.35	68.40	75.80	0.00	0.00	219.50
2023 Total (adj)	4942.90	249.41	4693.49	348.50	4563.35	68.40	75.80	0.00	0.00	219.50

1st Qtr notes Production well electric issue - unable pump / no sample

2nd Qtr notes

3rd Qtr notes

4th Qtr notes

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July 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.	Evaporation, in.
1-Jul	0.00	0.00	0.00	0.00	0.27
2-Jul	0.00	0.00	0.00	0.00	0.27
3-Jul	0.47	0.47	0.00	0.00	0.28
4-Jul	0.00	0.00	0.00	0.00	0.31
5-Jul	0.00	0.00	0.00	0.00	0.3
6-Jul	0.00	0.00	0.00	0.00	0.25
7-Jul	0.20	0.20	0.00	0.00	0.15
8-Jul	0.01	0.01	0.00	0.00	0.25
9-Jul	0.34	0.34	0.00	0.00	0.21
10-Jul	0.00	0.00	0.00	0.00	0.24
11-Jul	3.39	3.39	2.17	2.17	0.23
12-Jul	0.00	0.00	0.00	0.00	0.32
13-Jul	0.07	0.07	0.00	0.00	0.34
14-Jul	0.01	0.01	0.00	0.00	0.18
15-Jul	0.02	0.02	0.00	0.00	0.15
16-Jul	0.39	0.39	0.00	0.00	0.2
17-Jul	0.00	0.00	0.00	0.00	0.29
18-Jul	0.00	0.00	0.00	0.00	0.43
19-Jul	0.00	0.00	0.00	0.00	0.38
20-Jul	0.00	0.00	0.00	0.00	0.3
21-Jul	0.00	0.00	0.00	0.00	0.22
22-Jul	0.00	0.00	0.00	0.00	0.26
23-Jul	0.00	0.00	0.00	0.00	0.26
24-Jul	0.00	0.00	0.00	0.00	0.34
25-Jul	0.00	0.00	0.00	0.00	0.39
26-Jul	0.00	0.00	0.00	0.00	0.41
27-Jul	0.00	0.00	0.00	0.00	0.4
28-Jul	0.00	0.00	0.00	0.00	0.4
29-Jul	0.00	0.00	0.00	0.00	0.33
30-Jul	0.00	0.00	0.00	0.00	0.31
31-Jul	0.00	0.00	0.00	0.00	0.32
sum	4.90	4.90	2.17	2.17	8.92
Volume, ac-ft		45.33	13.92		
Total Vol, ac-ft		59.24			

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

Blue cells contain formulas

8.92

Pan Evaporation from Sulphur Mesonet

August 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.	Evaporation, in.
1-Aug	0.00	0.00	0.00	0.00	0.39
2-Aug	0.00	0.00	0.00	0.00	0.42
3-Aug	0.00	0.00	0.00	0.00	0.43
4-Aug	0.00	0.00	0.00	0.00	0.41
5-Aug	0.00	0.00	0.00	0.00	0.38
6-Aug	0.00	0.00	0.00	0.00	0.33
7-Aug	0.00	0.00	0.00	0.00	0.34
8-Aug	0.00	0.00	0.00	0.00	0.25
9-Aug	0.04	0.04	0.00	0.00	0.25
10-Aug	0.00	0.00	0.00	0.00	0.28
11-Aug	0.00	0.00	0.00	0.00	0.38
12-Aug	0.01	0.01	0.00	0.00	0.32
13-Aug	0.00	0.00	0.00	0.00	0.36
14-Aug	0.00	0.00	0.00	0.00	0.27
15-Aug	0.00	0.00	0.00	0.00	0.28
16-Aug	0.00	0.00	0.00	0.00	0.27
17-Aug	0.00	0.00	0.00	0.00	0.44
18-Aug	0.00	0.00	0.00	0.00	0.33
19-Aug	0.00	0.00	0.00	0.00	0.34
20-Aug	0.00	0.00	0.00	0.00	0.32
21-Aug	0.00	0.00	0.00	0.00	0.32
22-Aug	0.00	0.00	0.00	0.00	0.33
23-Aug	0.00	0.00	0.00	0.00	0.29
24-Aug	0.00	0.00	0.00	0.00	0.28
25-Aug	0.00	0.00	0.00	0.00	0.31
26-Aug	0.24	0.24	0.00	0.00	0.31
27-Aug	0.00	0.00	0.00	0.00	0.33
28-Aug	0.00	0.00	0.00	0.00	0.31
29-Aug	0.00	0.00	0.00	0.00	0.28
30-Aug	0.00	0.00	0.00	0.00	0.27
31-Aug	0.00	0.00	0.00	0.00	0.29
sum	0.29	0.29	0.00	0.00	10.11
Volume, ac-ft		2.68	0.00		
Total Vol, ac-ft		2.68			

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

Blue cells contain formulas

10.11

Pan Evaporation from Sulphur Mesonet

Rainfall data

September 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.	Evaporation, in.
1-Sep	0.00	0.00	0.00	0.00	0.34
2-Sep	0.00	0.00	0.00	0.00	0.3
3-Sep	0.00	0.00	0.00	0.00	0.42
4-Sep	0.00	0.00	0.00	0.00	0.47
5-Sep	0.00	0.00	0.00	0.00	0.42
6-Sep	0.00	0.00	0.00	0.00	0.33
7-Sep	0.00	0.00	0.00	0.00	0.31
8-Sep	0.06	0.06	0.00	0.00	0.35
9-Sep	0.01	0.01	0.00	0.00	0.27
10-Sep	0.00	0.00	0.00	0.00	0.26
11-Sep	0.09	0.09	0.00	0.00	0.16
12-Sep	0.28	0.28	0.00	0.00	0.07
13-Sep	0.01	0.01	0.00	0.00	0.11
14-Sep	0.46	0.46	0.00	0.00	0.13
15-Sep	0.00	0.00	0.00	0.00	0.16
16-Sep	0.00	0.00	0.00	0.00	0.17
17-Sep	0.00	0.00	0.00	0.00	0.19
18-Sep	0.00	0.00	0.00	0.00	0.25
19-Sep	0.01	0.01	0.00	0.00	0.22
20-Sep	0.13	0.13	0.00	0.00	0.23
21-Sep	0.76	0.76	0.00	0.00	0.18
22-Sep	0.00	0.00	0.00	0.00	0.22
23-Sep	0.00	0.00	0.00	0.00	0.32
24-Sep	0.00	0.00	0.00	0.00	0.19
25-Sep	0.00	0.00	0.00	0.00	0.24
26-Sep	0.00	0.00	0.00	0.00	0.18
27-Sep	0.00	0.00	0.00	0.00	0.2
28-Sep	0.00	0.00	0.00	0.00	0.25
29-Sep	0.00	0.00	0.00	0.00	0.34
30-Sep	0.00	0.00	0.00	0.00	0.3
sum	1.81	1.81	0.00	0.00	7.58
Volume, ac-ft		16.74	0.00		
Total Vol, ac-ft		16.74			

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

Blue cells contain formulas

Evap data from Sulphur Mesonet

Pan Evaporation from Sulphur Mesonet

Rainfall data

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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-23	499.50	12.03	0.00	6.50	493.00	0.00	0.43	4.32	3.26	0.00	0.00	0.00	0.00
February-23	525.00	27.20	0.00	9.00	516.00	0.00	0.54	3.35	1.23	0.00	0.00	0.00	0.00
March-23	582.00	39.31	0.00	23.00	559.00	0.00	0.75	4.00	3.26	0.00	0.00	0.00	0.00
April-23	611.00	16.84	0.00	24.00	587.00	0.00	1.43	4.26	3.20	0.00	0.00	0.00	0.00
May-23	501.00	24.79	0.00	75.00	426.00	0.00	1.35	3.46	4.01	0.00	0.00	0.00	0.00
June-23	642.00	50.59	0.00	70.00	572.00	0.00	1.73	3.38	3.17	0.00	0.00	0.00	0.00
July-23	670.00	59.24	0.00	61.00	609.00	0.00	2.00	3.50	3.51	0.00	0.00	0.00	0.00
August-23	456.60	2.68	0.00	45.00	411.60	0.00	2.27	3.29	4.75	0.00	0.00	0.00	0.00
September-23	455.80	16.74	0.00	35.00	352.40	68.40	1.70	3.97	3.68	0.00	0.00	0.00	0.00
October-23		0.00					0.00	0.00		0.00	0.00		0.00
November-23		0.00					0.00	0.00		0.00	0.00		0.00
December-23		0.00					0.00	0.00		0.00	0.00		0.00

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Settling Cell Evaporation and Infiltration

	FO2 East						FO2 West						FO3/FO4 South Settling Cell							
	Width, Ft	Length, Ft	Evaporation, ac-ft	Number of Production Days	Infiltration Rate, Ac-ft/day	Total Infiltration, Ac-ft	Width, Ft	Length, Ft	Evaporation, ac-ft	Number of Production Days	Infiltration Rate, Ac-ft/day	Total Infiltration, Ac-ft	Width, Ft	Length, Ft	Evaporation, ac-ft	Number of Production Days	Infiltration Rate, Ac-ft/day	Total Infiltration, Ac-ft	Total Evaporation, ac-ft	Total Infiltration, ac-ft
January-23	50	330	0.00	0.00	0.08	0.00	50	350	0.10	19.00	0.22	4.23	200	435	0.51	19.00	0.03	0.51	0.61	4.74
February-23	50	330	0.12	22.00	0.08	1.80	50	350	0.00		0.22	0.00	200	435	0.53	22.00	0.03	0.59	0.75	2.39
March-23	50	330	0.00	0.00	0.08	0.00	50	350	0.18	25.00	0.22	5.57	200	435	0.58	25.00	0.03	0.67	1.05	6.24
April-23	50	330	0.20	20.00	0.08	1.64	50	350	0.00		0.22	0.00	200	435	1.06	20.00	0.03	0.53	1.26	2.17
May-23	50	330	0.00		0.08	0.00	50	350	0.20	23.00	0.22	5.13	200	435	1.00	23.00	0.03	0.63	1.21	5.74
June-23	50	330	0.24	25.00	0.08	2.05	50	350	0.00		0.22	0.00	200	435	1.28	25.00	0.03	0.67	1.53	2.71
July-23	50	330	0.00		0.08	0.00	50	350	0.30	21.00	0.22	4.68	200	435	1.44	21.00	0.03	0.56	1.78	5.24
August-23	50	330	0.32	21.00	0.08	1.72	50	350	0.00		0.22	0.00	200	435	1.68	25.00	0.03	0.67	2.00	2.38
September-23	50	330	0.00		0.08	0.00	50	350	0.25	23.00	0.22	5.13	200	435	1.26	23.00	0.03	0.51	1.52	5.74
October-23	50	330	0.00		0.08	0.00	50	350	0.00		0.22	0.00	200	435	0.00		0.03	0.00	0.00	0.00
November-23	50	330	0.00		0.08	0.00	50	350	0.00		0.22	0.00	200	435	0.00		0.03	0.00	0.00	0.00
December-23	50	330	0.00		0.08	0.00	50	350	0.00		0.22	0.00	200	435	0.00		0.03	0.00	0.00	0.00

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July Shipments			August Shipments			September Shipments		
	Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped
Base Products Coarse	10,485	0.257	Base Products Coarse	81	0.002	Base Products Coarse	511	0.013
Aggregates Fine	227,059	2.729	Aggregates Fine	220,381	2.649	Aggregates Fine	294,171	3.536
Aggregates	16,132	0.513	Aggregates	20,179	0.641	Aggregates	13,291	0.422
	253,676	3.498		240,641	3.292		307,973	3.970

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