

2022 1st Quarter Report

Report 2022

North Troy Quarry

Mill Creek, OK

Vulcan Materials Company

VMC North Troy 2022 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-22	599.84	4.07	595.77	3.47	601.12	0.00	4.06	0.00	0.00	219.50
February-22	338.68	8.60	330.08	8.53	332.32	0.00	3.56	0.00	0.00	219.50
March-22	747.52	0.00	747.52	21.60	732.65	0.00	4.41	0.00	0.00	219.50
1st QTR Totals	1686.04	12.67	1673.37	33.60	1666.09	0.00	12.03	0.00	0.00	N/A
April-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
May-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
June-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
2nd QTR Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
July-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
August-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
September-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
3rd QTR Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
October-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
November-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.50
December-22	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
2022 Totals	1686.04	12.67	1673.37	33.60	1666.09	0.00	12.03	0.00	0.00	219.50
2022 Total (adj)	1686.04	12.67	1673.37	33.60	1666.09	0.00	12.03	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

(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.

Oklahoma Water Resources Board

AUG 26 2022

RECEIVED

MILL CREEK 2022 AUGMENTATION and GAUGE DATA

Start Date	Start Time	Stop Date	Stop Time	Begin Reading	End Reading	Augmentation Ac - Ft pumped	Stormwater Pumped AF	Mill Creek Stream gauge Reading	Time Read	Stream height	Stream flow
January 2022	No water Pumped to Mill creek					0.00					
February 2022	No water Pumped to Mill creek					0.00					
March 2022	No water Pumped to Mill creek					0.00					
April 2022											
May 2022											
June 2022											
July 2022											
August 2022											
September 2022											
October 2022											
November 2022											
December 2022											
					Total	0.00					

0.00 Pumped to Mill Creek
 0.00 Augmented to Mill Creek
 Stormwater collected entering pit
 0 Stormwater pumped to Mill Creek

RECEIVED
 AUG 26 2022
 Oklahoma Water Resources Board

January 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)	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

Composite RCN

Date	Precip. in.	Quarry area Runoff, in.	Fringe area Runoff, in.	Daily Evaporation, in.	
1-Jan	0.38	0.38	0.00	0.07	Runoff formula
2-Jan	0.00	0.00	0.00	0.09	Pe = (P-0.25)^2/(P+0.85)
3-Jan	0.00	0.00	0.00	0.07	S = (1000/CN)-10
4-Jan	0.00	0.00	0.00	0.15	
5-Jan	0.00	0.00	0.00	0.13	Blue cells contain formulas
6-Jan	0.00	0.00	0.00	0.07	
7-Jan	0.00	0.00	0.00	0.06	
8-Jan	0.06	0.06	0.00	0.06	
9-Jan	0.00	0.00	0.00	0.15	
10-Jan	0.00	0.00	0.00	0.06	
11-Jan	0.00	0.00	0.00	0.09	
12-Jan	0.00	0.00	0.00	0.08	
13-Jan	0.00	0.00	0.00	0.09	
14-Jan	0.00	0.00	0.00	0.13	
15-Jan	0.00	0.00	0.00	0.11	
16-Jan	0.00	0.00	0.00	0.06	
17-Jan	0.00	0.00	0.00	0.08	
18-Jan	0.00	0.00	0.00	0.18	
19-Jan	0.00	0.00	0.00	0.13	
20-Jan	0.00	0.00	0.00	0.09	
21-Jan	0.00	0.00	0.00	0.05	
22-Jan	0.00	0.00	0.00	0.06	
23-Jan	0.00	0.00	0.00	0.07	
24-Jan	0.00	0.00	0.00	0.08	
25-Jan	0.00	0.00	0.00	0.17	
26-Jan	0.00	0.00	0.00	0.09	
27-Jan	0.00	0.00	0.00	0.05	
28-Jan	0.00	0.00	0.00	0.08	
29-Jan	0.00	0.00	0.00	0.13	
30-Jan	0.00	0.00	0.00	0.11	
31-Jan	0.00	0.00	0.00	0.16	
sum	0.44	0.44	0.00	2.38	

Volume, ac-ft 4.97 8.88
Total Vol, ac-ft 4.97 Pan Evaporation from Sulphur Mesonet

February 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)	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.	Quarry area Runoff, in.	Fringe area Runoff, in.	Daily Evaporation, in.	
1-Feb	0.00	0.00	0.00	0.11	Runoff formula
2-Feb	0.00	0.00	0.00	0.11	Pe = (P-0.25)^2/(P+0.85)
3-Feb	0.00	0.00	0.00	0.09	S = (1000/CN)-10
4-Feb	0.32	0.32	0.00	0.06	
5-Feb	0.02	0.02	0.00	0.08	Blue cells contain formulas
6-Feb	0.00	0.00	0.00	0.11	
7-Feb	0.00	0.00	0.00	0.08	
8-Feb	0.00	0.00	0.00	0.13	
9-Feb	0.00	0.00	0.00	0.11	
10-Feb	0.00	0.00	0.00	0.11	
11-Feb	0.00	0.00	0.00	0.21	
12-Feb	0.00	0.00	0.00	0.17	
13-Feb	0.00	0.00	0.00	0.11	
14-Feb	0.00	0.00	0.00	0.22	
15-Feb	0.00	0.00	0.00	0.25	
16-Feb	0.00	0.00	0.00	0.18	
17-Feb	0.29	0.29	0.00	0.17	
18-Feb	0.00	0.00	0.00	0.07	
19-Feb	0.00	0.00	0.00	0.14	
20-Feb	0.00	0.00	0.00	0.3	
21-Feb	0.16	0.16	0.00	0.13	
22-Feb	0.11	0.11	0.00	0.21	
23-Feb	0.00	0.00	0.00	0.04	
24-Feb	0.00	0.00	0.00	0.05	
25-Feb	0.01	0.01	0.00	0.08	
26-Feb	0.02	0.02	0.00	0.06	
27-Feb	0.00	0.00	0.00	0.09	
28-Feb	0.00	0.00	0.00	0.12	
		0.00	0.00		
		0.00	0.00		
		0.00	0.00		
sum	0.93	0.93	0.00	3.45	

Volume, ac-ft 8.60 6.98
Total Vol, ac-ft 8.60 Pan Evaporation from Sulphur Mesonet

March 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)	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.	Quarry area Runoff, in.	Fringe area Runoff, in.	Daily Evaporation, in.	
1-Mar	0.00	0.00	0.00		
2-Mar	0.00	0.00	0.00		
3-Mar	0.00	0.00	0.00		
4-Mar	0.00	0.00	0.00		
5-Mar	0.00	0.00	0.00		
6-Mar	0.00	0.00	0.00		
7-Mar	0.00	0.00	0.00		
8-Mar	0.00	0.00	0.00		
9-Mar	0.00	0.00	0.00		
10-Mar	0.00	0.00	0.00		
11-Mar	0.00	0.00	0.00		
12-Mar	0.00	0.00	0.00		
13-Mar	0.00	0.00	0.00		
14-Mar	0.00	0.00	0.00		
15-Mar	0.00	0.00	0.00		
16-Mar	0.00	0.00	0.00		
17-Mar	0.00	0.00	0.00		
18-Mar	0.00	0.00	0.00		
19-Mar	0.00	0.00	0.00		
20-Mar	0.00	0.00	0.00		
21-Mar	0.00	0.00	0.00		
22-Mar	0.00	0.00	0.00		
23-Mar	0.00	0.00	0.00		
24-Mar	0.00	0.00	0.00		
25-Mar	0.00	0.00	0.00		
26-Mar	0.00	0.00	0.00		
27-Mar	0.00	0.00	0.00		
28-Mar	0.00	0.00	0.00		
29-Mar	0.00	0.00	0.00		
30-Mar	0.00	0.00	0.00		
31-Mar	0.00	0.00	0.00		
sum	0.00	0.00	0.00	0.00	

Volume, ac-ft 0.00 0.00
Total Vol, ac-ft 0.00 Pan Evaporation from Sulphur Mesonet

Runoff formula
Pe = (P-0.25)^2/(P+0.85)
S = (1000/CN)-10
Blue cells cc

RECEIVED
 AUG 2 6 2022
 Oklahoma Water Resources Board

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-20	599.84	4.07	0.00	3.47	596.38	0.00	0.42	3.03	0.61	0.00	0.00	0.00	0.00
February-20	338.68	8.60	0.00	8.53	330.15	0.00	0.49	2.71	0.37	0.00	0.00	0.00	0.00
March-20	747.52	0.00	0.00	21.60	725.91	0.00	0.00	3.95	0.46	0.00	0.00	0.00	0.00
April-20		0.00				0.00	0.00	3.77		0.00	0.00		0.00
May-20		0.00				0.00	0.00	3.52		0.00	0.00		0.00
June-20		0.00				0.00	0.00	3.29		0.00	0.00		0.00
July-20		0.00				0.00	0.00	3.06		0.00	0.00		0.00
August-20		0.00				0.00	0.00	0.00		0.00	0.00		0.00
September-20		0.00				0.00	0.00	0.00		0.00	0.00		0.00
October-20		0.00				0.00	0.00	0.00		0.00	0.00		0.00
November-20		0.00				0.00	0.00	0.00		0.00	0.00		0.00
December-20		0.00				0.00	0.00	0.00		0.00	0.00		0.00

RECEIVED
 AUG 26 2022
 Oklahoma Water Resources Board

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-20	50	330	0.00		0.08	0.00	50	350	0.10	19.00	0.22	4.23	200	435	0.48	19.00	0.03	0.51	0.59	4.74
February-20	50	330	0.11	20.00	0.08	1.64	50	350	0.00		0.22	0.00	200	435	0.57	20.00	0.03	0.53	0.68	2.17
March-20	50	330	0.00	0.00	0.08	0.00	50	350	0.00	27.00	0.22	5.02	200	435	0.00	27.00	0.03	0.72	0.00	6.74
April-20	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
May-20	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
June-20	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
July-20	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
August-20	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
September-20	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
October-20	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-20	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-20	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

RECEIVED
 AUG 26 2022
 Oklahoma Water Resources Board

January Shipments			February Shipments			March Shipments		
	Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped		Tons Shipped	Ac-ft of water shipped
Base Products	2,229	0.055	Base Products	6,180	0.151	Base Products	5,041	0.123
Coarse			Coarse			Coarse		
Aggregates	223,984	2.692	Aggregates	197,985	2.380	Aggregates	284,232	3.416
			Fine					
Fine Aggregates	8,946	0.284	Aggregates	5,564	0.177	Fine Aggregates	12,865	0.409
	235,159	3.031		209,729	2.708		302,138	3.948

RECEIVED
AUG 26 2022
Oklahoma Water Resources Board