4th Quarter Report 2014 & Annual Report 2014 Vulcan Materials Company - North Troy Quarry Mill Creek, Oklahoma

VMC North Troy 2014 Monitoring Report All volumes are in acre-feet.

Groundwater Stormwater Total Pit Water To Holding Groundwater Streamwater Consumptive Intering Pit Entering Pit Entering Pit Diverted Basin Augmentation Augmentation Use of Pit Water 175.70 1.98 1.98 174.21 26.91 151.66 0.00 3.96 203.20 3.05 3.05 1.98.27 0.00 204.25 0.00 3.36 182.17 8.00 8.00 180.05 49.37 186.8 0.00 7.47 182.17 8.00 180.05 49.37 138.68 0.00 7.49 165.76 6.24		Total	Total	Total Pit		Pit Water Sent				Streamwater	Groundwater	Total Annual
175.70 1.98 174.21 26.91 151.66 0.00 147.76 1.21 1.21 148.70 0.00 154.41 0.00 203.20 3.05 198.27 0.00 154.41 0.00 526.66 6.24 521.18 26.14 0.00 0.00 182.17 8.00 8.00 180.05 49.37 138.68 0.00 161.61 9.88 172.87 23.14 159.61 0.00 0.00 161.61 9.88 172.87 23.14 159.61 0.00 0.00 167.11 69.18 50.254 72.51 499.21 0.00 0.00 167.11 167.11 167.11 167.11 167.11 167.11 167.14 0.00 150.44 0.00 149.03 2.34 2.34 148.10 0.00 150.44 0.00 0.00 440.48 5.57 2.54 124.86 0.00 167.48 0.00 0.00		Groundwater Entering Pit	Stormwater Entering Pit	Stormwater Diverted	Total Pit Water Diverted	To Holding Basin	Groundwater Augmentation	Streamwater Augmentation	Consumptive Use of Pit Water	Pumped From Mill Creek	Pumped From Wells	Groundwater Allocation, Ac-ft
147.76 1.21 1.21 148.70 0.00 154.41 0.00 203.20 3.05 3.05 198.27 0.00 204.25 0.00 203.20 6.24 5.21.18 26.91 5.01.25 0.00 182.17 8.00 8.00 180.05 49.37 138.68 0.00 161.61 9.88 9.88 172.87 23.14 159.61 0.00 156.78 51.30 149.62 0.00 200.92 0.00 500.56 69.18 69.18 172.87 23.14 159.61 0.00 167.11 167.11 167.11 167.11 167.11 167.11 167.11 167.11 149.03 2.34 2.34 148.10 0.00 150.44 0.00 440.48 5.57 124.8 28.57 103.48 0.00 440.48 7.01 7.01 160.86 0.00 167.87 0.00 45.31 5.21 2.34 148.46	January-14	175.70	1.98			26.91	151.66	0.00	3.80	00.00	0.09	594.72
203.20 3.05 198.27 0.00 204.25 0.00 526.66 6.24 6.24 57.18 26.91 510.32 0.00 161.61 9.88 172.87 23.14 159.61 0.00 165.78 51.30 51.30 149.62 0.00 200.92 0.00 500.56 69.18 69.18 502.54 72.51 499.21 0.00 20 167.11 167.1 16.71 16.71 164.91 24.86 156.76 0.00 149.03 2.34 2.34 148.10 0.00 150.44 0.00 440.48 2.57 126.48 28.57 103.48 0.00 85.05 77.88 82.71 22.40 167.87 0.00 155.3 5.7 160.86 0.00 167.87 0.00 169.81 77.88 82.71 22.40 167.87 0.00 450.25 430.49 430.66 430.66 0.00 0.00 </th <th>February-14</th> <th>147.76</th> <th></th> <th>1.21</th> <th>148.70</th> <th>00.00</th> <th>154.41</th> <th>0.00</th> <th>3.96</th> <th>00.00</th> <th>00:00</th> <th>594.72</th>	February-14	147.76		1.21	148.70	00.00	154.41	0.00	3.96	00.00	00:00	594.72
526.66 6.24 6.24 521.18 26.91 510.32 0.00 182.17 8.00 8.00 180.05 49.37 138.68 0.00 161.61 9.88 172.87 23.14 159.61 0.00 156.78 51.30 149.62 0.00 200.92 0.00 500.56 69.18 69.18 502.54 72.51 499.21 0.00 167.11 16.71 16.71 16.491 24.86 156.76 0.00 149.03 2.34 148.10 0.00 150.44 0.00 440.48 2.57 12.48 28.57 10.44 0.00 85.05 77.88 82.71 22.40 13.48 0.00 175.32 5.21 16.08 0.00 167.87 0.00 480.81 5.21 187.45 34.06 158.60 0.00 480.78 6.01 160.86 0.00 167.87 0.00 480.78 34.06	March-14	203.20				00:0	204.25	0.00	7.17	00.00	0.07	594.72
182.17 8.00 8.00 180.05 49.37 138.68 0.00 161.61 9.88 9.88 172.87 23.14 159.61 0.00 156.78 51.30 61.30 149.62 0.00 200.92 0.00 500.56 69.18 69.18 50.24 72.51 499.21 0.00 167.11 16.71 16.71 164.91 24.86 156.76 0.00 149.03 2.34 2.34 148.10 0.00 150.44 0.00 440.48 2.57 2.57 126.48 0.00 150.44 0.00 440.48 2.57 2.57 126.48 0.00 100 20 440.43 2.45 2.45 439.49 53.43 410.68 0.00 85.05 77.88 82.71 160.86 0.00 167.87 0.00 430.18 5.21 15.21 43.06 158.60 0.00 430.18 40.14 44.66	1st QTR Totals	526.66			MARK SHOR	26.91	510.32	00.0	14.92	00.00	0.16	N/A
161.61 9.88 172.87 23.14 159.61 0.00 156.78 51.30 51.30 149.62 0.00 200.92 0.00 156.78 69.18 60.254 72.51 499.21 0.00 20 167.11 167.11 167.11 164.39 24.86 156.76 0.00 20 149.03 2.34 2.34 148.10 0.00 150.44 0.00 0.00 440.48 2.57 126.48 23.43 440.68 0.00 0.00 0.00 450.5 77.88 82.7 126.48 0.00 0.00 0.00 169.81 7.01 160.86 0.00 167.87 0.00 450.4 60.10 43.49 43.49 44.66 0.00 450.8 7.01 160.86 0.00 167.87 0.00 450.1 43.04 44.66 0.00 0.00 450.7 43.44 44.66 0.00 0.00	April-14	182.17	8.00			49.37	138.68	0.00	7.84	00.00	00.0	594.72
156.78 51.30 51.30 149.62 0.00 200.92 0.00	May-14	161.61	9.88			23.14	159.61	00:00	8.69	00'0	00:0	594.72
500.56 69.18 69.18 502.54 72.51 499.21 0.00 167.11 16.71	June-14	156.78				00.0	200.92	0.00	7.78	0.00	0.17	594.72
167.11 16.71 16.71 164.91 24.86 156.76 0.00 149.03 2.34 2.34 148.10 0.00 150.44 0.00 124.34 5.57 2.57 126.48 28.57 10.04 0.00 85.05 77.88 77.88 82.71 22.40 138.19 0.00 169.81 7.01 160.86 0.00 167.87 0.00 430.18 90.10 90.10 443.04 0.00 167.87 0.00 480.78 90.10 90.10 43.02 0.00 0.00 0.00	2nd QTR Totals	500.56				72.51	499.21	00:0	24.32	00.00	0.17	ΝΆ
149.03 2.34 2.34 148.10 0.00 150.44 0.00 124.34 5.57 5.57 126.48 28.57 103.48 0.00 124.34 24.62 24.62 439.49 5.34.3 410.68 0.00 169.81 7.01 7.01 160.86 0.00 167.87 0.00 175.32 5.21 187.45 34.06 158.60 0.00 140.78 140.14 140.43 140.74 146.68 0.00 140.78 140.74 140.7	July-14	167.11	16.71			24.86	156.76	00:0	8:58	00:0	00.0	594.72
124.34 5.57 5.57 126.48 28.57 103.48 0.00 440.48 24.62 24.62 439.49 53.43 410.68 0.00 85.05 77.88 87.78 88.24 0.00 138.19 0.00 169.81 70.1 7.01 160.86 0.00 167.87 0.00 175.32 5.21 187.45 34.06 158.60 0.00 430.78 90.10 431.02 56.46 446.66 0.00 450.78 400.41 484.33 200.41 484.87 0.00	August-14	149.03					150.44	0.00	8.46	00.00	00.00	594.72
440.48 24.62 24.62 439.49 53.43 410.68 0.00 3 85.05 77.88 77.88 82.71 22.40 138.19 0.00 169.81 7.01 7.01 160.86 0.00 167.87 0.00 175.32 5.21 5.21 187.45 34.06 158.60 0.00 430.18 90.10 431.01 464.66 0.00 0.00	September-14	124.34				28.57	103.48	00:00	8.13	00.00	98.0	594.72
85.05 77.88 77.88 82.71 22.40 138.19 0.00 169.81 7.01 7.01 160.86 0.00 167.87 0.00 175.32 5.21 5.21 187.45 34.06 158.60 0.00 430.10 90.10 431.02 56.46 464.66 0.00 180.7 88 100.14 180.13 200.34 1884.87 0.00	3rd QTR Totals	440.48	24.62			53.43		00:00	25.16	00.00	98.0	N/A
169.81 7.01 7.01 160.86 0.00 167.87 0.00 175.32 5.21 187.45 34.06 158.60 0.00 175.87 0.00 175.80 190.10 180.7 88 190.14 180.4 33 190.44 180.4 87 0.00 1.00	October-14	85.05				22.40	138.19	0.00	96.92	00.00	00.00	594.72
175.32 5.21 5.21 187.45 34.06 158.60 0.00 0.00 0.00 0.00 0.00 0.00 0.00	November-14	169.81	7.01	7.01	160.86	00:00	167.87	00:0	2.90	00'0	00:00	594.72
als 430.18 90.10 90.10 431.02 56.46 464.66 0.00	December-14	175.32	5.21	5.21		34.06	158.60	00:0	2.99	00'0	1.32	594.72
1807 88 100 14 100 14 1804 31 1884 87 0.00	4th QTR Totals	430.18	90.10	90.10	431.02	56.46	464.66	00.00	12.84	00.00	1.32	N/A
0.001	2014 Totals	1897.88	190.14	190.14	1894.23	209.31	1884.87	00.0	77.25	00.00	2.51	594.72

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			West Sump	d.				605 Sump				New Fres	New Freshwater Pond	P		
	Month End					Month End					Month End			Pond Volume		Total
	Depth-to- Water, Ft	Width, Ft	Lenath, Ft	Sump Volume Change, Ac-ft	Evaporation, ac- Depth-to-Water,	Depth-to-Water, Ft	Width. Ft	Sump Volume Length, Ft Change, Ac-ft	Sump Volume Evaporation, Change, Ac-ft ac-ft	Evaporation, ac-ft	Depth-to- Water, Ft	Width. Ft	Change, Evaporatio	Change, Ev	Evaporation, Evaporation	Evaporation,
January-14	17.634	125	325	1.49	0.20	4	20	20	00.00	0.01	3	475	750	0.00	1.76	1.97
February-14	18.64	125	325	-0.94	0.18	4	90	20	00.00	0.01	3	475	750	00.00	1.59	1.78
March-14	13.352	125	325	4.93	0.32	4	20	20	00.00	0.02	3	475	750	00.00	2.79	3,13
April-14	11.085	125	325	2.11	0.43	4	90	90	00'0	0.03	3	475	750	00.00	3.81	4.27
May-14	1 23.158	125	325	-11.26	0.45	4	20	20	00'0	0.03	4.311	475	750	-10.72	3.94	4.42
June-14	15.481	125	325	7.16	0.45	4	90	20	00.00	0.03	5.682	475	750	-11.21	3.99	4.47
July-14	13.118	125	325	2.20	0.45	4	90	90	00.00	0.03	4.516	475	750	9.54	3,98	4.46
August-14	12.126	125	325	0.93	0.68	4	20	20	00'0	0.04	6.865	475	750	-19.21	5.95	6.67
September-14	14.416	125	325	-2.14	0.52	4	90	20	00'0	0.03	6.097	475	750	6.28	4.57	5.12
October-14	11.908	125	325	2.34	0.45	4	20	90	00.00	0.03	5.543	475	750	4.53	3.92	4.39
November-14	1 2.31	125	325	8.95	0.02	4	90	20	00.00	00.00	8.147	475	750	-21.30	0.18	0.20
December-14	15 316	125	325	-12 13	0.04	4	50	50	000	000	A 0 B	476	750	47.07	30.0	30.0

				January-14	February-14	March-14	April-14	May-14	June-14	July-14	August-14	September-14	October-14	November-14	Docombor-14
SALES			Width, Ft	20	20	20	20	20	90	20	20	50	50	50	50
STATE OF STREET			Length, Ft	330	330	330	330	330	330	330	330	330	330	330	330
Minchell States of		Evaporation,	ac-ft	80'0	00'0	0.13	00'0	0.18	00'0	0.18	00'0	0.21	00'0	0.01	000
FO2 East	Number of	Production	Days	22.00	00'0	27.00	0.0	25.00	00'0	25.00	00.00	22.00	0.0	19.00	000
		Infiltration Rate,	Ac-ft/day	0.08	0.08	30.0	000	0.08	0.08	30.0	0.08	90.0	00.08	0.08	80 0
	Total	Infiltration Rate, Infiltration, Ac-	#	1.80	0.00	3 2.21	3 0.00	3 2.05	0.00	3 2.05	0.00	1.80	3 0.00	3 1.56	0000
			Width, Ft	20	90	90	20	20	90	90	20	90	20	09	50
			Length, Ft	350	350	350	350	350	350	350	350	350	350	350	350
FO2 West		Evaporation,	ac-ft	00'0	80'0	00'0	0.19	00'0	0.20	00'0	0.29	00'0	0.19	00.00	000
fest	Number of	Production	Days	00.00	18.00	00.00	23.00	00'0	25.00	00.00	22.00	00.00	24.00	00.00	21 00
		Infiltration	Rate, Ac-ft/day	0.22	0.22	0.22	0.22	0.22	0.22		0.22	0.22		0.22	0.00
	Total	Infiltration,	Ac-ft	00'0	4.01	00'0	5.13	00'0	5.57	00'0	4.90	00'0	5.35	00'0	4 68
	_	_	Width, Ft	200	200	200	200	200	200	200	200	200	200	200	200
FO		Length, Evap	T.	435	435	435	435	435	435	435	435	435	435	435	435
FO3/FO4 South Settling Cel	Nun	Evaporation, Proc		0.43	0.39	89'0	0.93	96'0	76.0	76.0	1.45	1.12	96.0	0.04	0.01
ettling Cell	Number of Infi	Production Ra	Days f	22.00	18.00	27.00	23.00	25.00	25.00	25.00	22.00	22.00	24.00	19.00	21 00
	nfiltration	Rate, Ac- Inf	ft/day	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	Total	Infiltration, Ev	Ac-ft	0.59	0.48	0.72	0.61	0.67	0.67	0.67	0.59	0.59	0.64	0.51	95 0
-	Total	Evaporation, Ir	ac-ft	0.51	0.47	0.81	1.12	1.15	1.17	1.16	1.75	1.33	1.15	90.0	0.01
	Total	nfiltration, ac	#	2.38	4.48	2.93	5.74	2.7	6.24	2.7	5.48	2.38	36'9	2.06	6.24

Settling Cell Evaporation and Infili

4th Quarter Report 2014 & Annual Report 2014 Vulcan Materials Company - North Troy Quarry Mill Creek, Oklahoma

Mill Creek 2014 Augmentation and Gage Data

Start Time Stop Date Stop Time Begin Reading End Reading Ac-Ft Pumped gage reading

October Precipitation/Evaporation Data

PIT RUNOFF	ASSUMPTIC	ONS
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
	T	

Quarry are Fringe area Daily in. Runoff formula Pe = (P-0.2S)^2/(P+0.8S) S = (1000/CN)-10

Blue cells contain formulas

		Quality area		Daily	
Date	Precip, in.	Runoff, in.	Runoff, in.	aporation,	İI
1-Oct	0.00	0.00	0.00	0.31	F
2-Oct	0.03	0.03	0.00	0.23	F
3-Oct	0.00	0.00	0.00	0.17	S
4-Oct	0.00	0.00	0.00	0.19	
5-Oct	0.00	0.00	0.00	0.17	
6-Oct		0.18	0.00	0.19	
7-Oct	0.00	0.00	0.00	0.25	
8-Oct		4.66	3.35	0.21	
9-Oct	0.00	0.00	0.00	0.24	
10-Oct	1.75	1.75	0.77	0.21	
11-Oct	0.14	0.14	0.00	0.05	
12-Oct	0.00	0.00	0.00	0.16	
13-Oct	1.26	1.26	0.00	0.1	
14-Oct	0.00	0.00	0.00	0.22	١
15-Oct	0.00	0.00	0.00	0.13	l
16-Oct	0.00	0.00	0.00	0.23	
17-Oct	0.00	0.00	0.00	0.2	١
18-Oct	0.00	0.00	0.00	0.18	١
19-Oct	0.00	0.00	0.00	0.15	١
20-Oct	0.00	0.00	0.00	0.14	١
21-Oct	0.00	0.00	0.00	0.13	
22-Oct	0.00	0.00	0.00	0.13	١
23-Oct	0.00	0.00	0.00	0.17	١
24-Oct	0.00	0.00	0.00	0.17	١
25-Oct	0.00	0.00	0.00	0.19	
26-Oct	0.00	0.00	0.00	0.28	l
27-Oct	0.00	0.00	0.00	0.25	
28-Oct	0.00	0.00	0.00	0.25	١
29-Oct	0.00	0.00	0.00	0.14	
30-Oct	0.00	0.00	0.00	0.16	
31-Oct	0.00	0.00	0.00	0.15	
sum	8.02	8.02	4.12	5.75	
Malana	EL	20.00	44.05		•

Volume, ac-ft 41.85 Total Vol, ac-ft 77.88

November Precipitation/Evaporation Data

		PIT	RUNOFF 4	ASSUMPTIO	ONS
	Hydrologic	Soil Group	TONOTT'	D	5140
		Use		gravel road	
		ondition		II (ave)	
	***	fringe)		88	area draining into pit
		(pit)		100	area with direct interception
		fringe)		1.363636	area draining into pit
		pit)		0	area with direct interception
Pit - D	irect Interce		t deep)	53.91	subject to refinement
	t fringe (are			122.04	subject to refinement
	rainage to F			175.95	subject to refinement
					,
		Quarry area	Fringe area	Daily	
Date	Precip, in.	Runoff, in.	Runoff, in.	aporation,	in.
1-Nov	0.00	0.00			Runoff formula
2-Nov	0.00		0.00		Pe = (P-0.2S)^2/(P+0.8S)
3-Nov					S = (1000/CN)-10
4-Nov		0.01	0.00		
5-Nov	0.01	0.01	0.00	0.0044	Blue cells contain formula
6-Nov		0.00	0.00	0.011	
7-Nov		0.00	0.00	0.01	
8-Nov		0.00	0.00		
9-Nov		0.00	0.00	0.0105	
10-Nov		0.00	0.00	0.0125	
11-Nov	0.00	0.00	0.00	0.007	
12-Nov	0.00	0.00	0.00		
13-Nov	0.00	0.00	0.00		
14-Nov	0.09	0.09			
15-Nov		0.13	0.00	0.0045	
16-Nov		0.00	0.00	0.0158	
17-Nov		0.00	0.00	0.006	
18-Nov		0.00	0.00	0.072	
19-Nov		0.00	0.00	0.007	
20-Nov		0.33	0.00	0.0066	
21-Nov	0.00 0.51	0.00	0.00	0.005 0.0058	
22-Nov		0.51	0.00		
23-Nov 24-Nov			0.00	0.0016	
25-Nov		0.06			
26-Nov	0.04	0.04	0.00		
27-Nov		0.03	0.00	0.001	
28-Nov	0.02	0.02	0.00	0.005	•
29-Nov	0.02	0.02	0.00		4
30-Nov	0.02	0.02	0.00		
JU-11UV	0.01	0.00	0.00	0.003123	
sum	1.56	1.56	0.00	0.27	
Julli	1.00	1.50	0.00	0.21	1

7.01

7.01

Volume, ac-ft

Total Vol, ac-ft

0.00

December Precipitation/Evaporation Data

Total Vol, ac-ft

5.21

F		PIT	RUNOFF 4	ASSUMPTIO	ONS
	Hydrologic	Soil Group		D	
		d Use		gravel road	
		ondition		II (ave)	
		t fringe)		88	area draining into pit
		(pit)		100	area with direct interception
		fringe)		1.363636	
		pit)		0	area with direct interception
Pit - Di		ption (>95 f	t deen)	53.91	subject to refinement
		a drains to		122.04	subject to refinement
		Pit (total are		175.95	subject to refinement
		Quarry area	Fringe area	Daily	,
Date				aporation,	in.
1-Dec	0.00				Runoff formula
2-Dec	0.05		0.00		Pe = (P-0.2S)^2/(P+0.8S)
3-Dec	0.05	0.05			S = (1000/CN)-10
4-Dec	0.02	0.02	0.00	0.00187	
5-Dec	0.01	0.01	0.00	0.001	Blue cells contain formulas
6-Dec	0.00	0.00	0.00	0.002	
7-Dec	0.00	0.00	0.00	0.001	
8-Dec	0.00	0.00	0.00	0.004	
9-Dec	0.01	0.01	0.00	0.005	
10-Dec	0.00	0.00	0.00	0.003	
11-Dec	0.01	0.01	0.00	0.0016	
12-Dec	0.02	0.02	0.00	0.001	
13-Dec	0.01		0.00	0.002	,
14-Dec	0.15		0.00	0.001	
15-Dec	0.11		0.00	0.004	
16-Dec 0.02 0.02 0.00		0.003			
17-Dec 0.05 0.05 0.00				0.001	
18-Dec	0.16			0.001	
19-Dec	0.17		0.00	0.001	
20-Dec	0.08		0.00	0.001	
21-Dec	0.03		0.00	0.001	
22-Dec	0.02		0.00	0.001	
23-Dec					•
24-Dec	0.00	0.00	0.00	0.003	
25-Dec	0.00		0.00	0.003	
26-Dec 27-Dec	0.03		0.00	0.006	
28-Dec	0.15	0.15	0.00	0.001	•
29-Dec	0.00	0.00	0.00	0.001	•
30-Dec	0.00	0.00	0.00	0.002	•
31-Dec	0.00	0.00	0.00	0.004	
sum	1.16		0.00		
Volum		5.21	0.00		I
voium	e, au-11	5.21	0.00		

4th Quarter Report 2014 & Annual Report 2014 Vulcan Materials Company - North Troy Quarry Mill Creek, Oklahoma

October Shipments			November Shipments			December Shipments		
		Ac-ft of			Ac-ft of			Ac-ft of
	Tons	water		Tons	water		Tons	water
	Shipped	shipped		Shipped	shipped		Shipped	shipped
Base			Base					
Products	318	0.008	Products	1,144	0.028	Base Products	1,703	0.042
Coarse			Coarse			Coarse		
Aggregates	103,812	1.248	Aggregates	157,319	1.891	Aggregates	188,971	2.271
Fine			Fine			Fine		
Aggregates	9,690	0.308	Aggregates	10,628	0.338	Aggregates	9,315	0.296
	113,820	1.563		169,090	2.256		199,989	2.609