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**MMM Davis Quarry 2013 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	Consumptive Use of Groundwater	Groundwater Pumped From Well
January-13	-5.02	5.07	5.07	0.05	N/A	-5.02	0.00	2.46	0.00	0.00
February-13	-17.25	29.87	29.87	12.62	N/A	-17.25	0.00	1.87	0.00	0.00
March-13	-1.55	2.90	2.90	1.34	N/A	-1.55	0.00	3.77	0.00	0.00
<b>1st QTR Totals</b>	<b>-23.82</b>	<b>37.84</b>	<b>37.84</b>	<b>14.02</b>	<b>0.00</b>	<b>-23.82</b>	<b>0.00</b>	<b>8.10</b>	<b>0.00</b>	<b>0.00</b>
April-13	-4.13	7.88	7.88	3.76	N/A	-4.13	0.00	3.31	0.00	0.00
May-13	-9.93	19.84	19.84	9.91	N/A	-9.93	0.00	3.20	0.00	0.00
June-13	-5.06	15.04	15.04	9.97	N/A	-5.06	0.00	3.24	0.00	0.00
<b>2nd QTR Totals</b>	<b>-19.12</b>	<b>42.76</b>	<b>42.76</b>	<b>23.64</b>	<b>0.00</b>	<b>-19.12</b>	<b>0.00</b>	<b>9.76</b>	<b>0.00</b>	<b>0.00</b>
July-13										
August-13										
September-13										
<b>3rd QTR Totals</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
October-13										
November-13										
December-13										
<b>4th QTR Totals</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2013 Totals</b>	<b>-42.94</b>	<b>80.60</b>	<b>80.60</b>	<b>37.66</b>	<b>0.00</b>	<b>-42.94</b>	<b>0.00</b>	<b>17.86</b>	<b>0.00</b>	<b>0.00</b>

Note: Negative entries for Total Groundwater Entering Pit indicates that stormwater is entering the rock formation via the pit.

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Runoff form  
Pe = (P-0.2)  
S = (1000)/K

April Precipitation 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)	1.364
S (pit)	0.000
Pit - Direct Interception (>95 ft deep)	54.36
Pit fringe (area drains to pit)	68.34
Drainage to Pit (total area)	122.70
area draining into pit	
area with direct interception	
area draining into pit	
area with direct interception	
subject to refinement	
subject to refinement	

Quarry area Fringe area

Date	Precip. in.	Runoff, in.	Runoff, in.	Evapor. in/day
1-Apr	0.00	0.00	0.00	0.185
2-Apr	0.46	0.46	0.00	0.012
3-Apr	0.54	0.54	0.00	0.012
4-Apr	0.16	0.16	0.00	0.064
5-Apr	0.00	0.00	0.00	0.151
6-Apr	0.00	0.00	0.00	0.199
7-Apr	0.00	0.00	0.00	0.121
8-Apr	0.00	0.00	0.00	0.157
9-Apr	0.00	0.00	0.00	0.165
10-Apr	0.45	0.45	0.00	0.037
11-Apr	0.00	0.00	0.00	0.156
12-Apr	0.00	0.00	0.00	0.164
13-Apr	0.00	0.00	0.00	0.179
14-Apr	0.00	0.00	0.00	0.226
15-Apr	0.00	0.00	0.00	0.21
16-Apr	0.00	0.00	0.00	0.074
17-Apr	0.01	0.01	0.00	0.07
18-Apr	0.09	0.09	0.00	0.108
19-Apr	0.00	0.00	0.00	0.202
20-Apr	0.00	0.00	0.00	0.248
21-Apr	0.00	0.00	0.00	0.187
22-Apr	0.00	0.00	0.00	0.214
23-Apr	0.03	0.03	0.00	0.032
24-Apr	0.00	0.00	0.00	0.164
25-Apr	0.00	0.00	0.00	0.169
26-Apr	0.00	0.00	0.00	0.094
27-Apr	0.00	0.00	0.00	0.12
28-Apr	0.00	0.00	0.00	0.206
29-Apr	0.00	0.00	0.00	0.251
30-Apr	0.00	0.00	0.00	0.226
Volume, ac-ft		1.74	0.00	4.403
Total Vol. ac-ft	7.88	7.88	0.00	

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S = (1000/K)

May Precipitation 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)	1.364
S (pit)	0.000
Pit - Direct Interception (>95 ft deep)	54.36
Pit fringe (area drains to pit)	68.34
Drainage to Pit (total area)	122.70

Date	Precip, in.	Runoff, in.	Runoff, in.	Evapor, in/day
1-May	0.00	0.00	0.00	0.163
2-May	0.08	0.08	0.00	0.032
3-May	0.00	0.00	0.00	0.181
4-May	0.00	0.00	0.00	0.209
5-May	0.00	0.00	0.00	0.101
6-May	0.00	0.00	0.00	0.173
7-May	0.00	0.00	0.00	0.213
8-May	0.00	0.00	0.00	0.231
9-May	0.00	0.00	0.00	0.103
10-May	0.05	0.05	0.00	0.157
11-May	0.00	0.00	0.00	0.189
12-May	0.00	0.00	0.00	0.216
13-May	0.00	0.00	0.00	0.737
14-May	0.00	0.00	0.00	0.331
15-May	0.26	0.26	0.00	0.07
16-May	0.39	0.39	0.00	0.043
17-May	0.13	0.13	0.00	0.121
18-May	0.00	0.00	0.00	0.204
19-May	0.00	0.00	0.00	0.253
20-May	0.19	0.19	0.00	0.138
21-May	0.69	0.69	0.00	0.042
22-May	0.58	0.58	0.00	0.21
23-May	0.41	0.41	0.00	0.159
24-May	0.23	0.23	0.00	0.153
25-May	0.50	0.50	0.00	0.097
26-May	0.06	0.06	0.00	0.162
27-May	0.00	0.00	0.00	0.145
28-May	0.00	0.00	0.00	0.154
29-May	0.09	0.09	0.00	0.092
30-May	0.22	0.22	0.00	0.141
31-May	0.50	0.50	0.00	0.22
Volume, ac-ft	4.38	0.00	0.00	5.44
Total Vol, ac-ft	19.84	0.00	0.00	19.84

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 S = (1000/K)

June Precipitation 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)	1.364
S (pit)	0.000
Pit - Direct Interception (>95 ft deep)	54.36
Pit fringe (area drains to pit)	68.34
Drainage to Pit (total area)	122.70

Date	Quarry area Fringe area			Evapor, In/day
	Precip, in.	Runoff, in.	Runoff, in.	
1-Jun	0.37	0.00	0.164	
2-Jun	0.00	0.00	0.217	
3-Jun	0.00	0.00	0.19	
4-Jun	0.76	0.76	0.196	
5-Jun	0.55	0.55	0.161	
6-Jun	0.28	0.28	0.107	
7-Jun	0.09	0.09	0.202	
8-Jun	0.00	0.00	0.212	
9-Jun	0.21	0.21	0.217	
10-Jun	0.00	0.00	0.288	
11-Jun	0.00	0.00	0.277	
12-Jun	0.00	0.00	0.27	
13-Jun	0.00	0.00	0.217	
14-Jun	0.00	0.00	0.116	
15-Jun	0.00	0.00	0.236	
16-Jun	0.00	0.00	0.178	
17-Jun	1.05	1.05	0.184	
18-Jun	0.01	0.01	0.119	
19-Jun	0.00	0.00	0.233	
20-Jun	0.00	0.00	0.243	
21-Jun	0.00	0.00	0.26	
22-Jun	0.00	0.00	0.255	
23-Jun	0.00	0.00	0.234	
24-Jun	0.00	0.00	0.237	
25-Jun	0.00	0.00	0.251	
26-Jun	0.00	0.00	0.266	
27-Jun	0.00	0.00	0.248	
28-Jun	0.00	0.00	0.222	
29-Jun	0.00	0.00	0.234	
30-Jun	0.00	0.00	0.00	
		3.32	0.00	
		15.04	0.00	6.515
		15.04		

Volume, ac-ft  
 Total Vol, ac-ft

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**Davis Water Balance**

	Dec '12	Jan '13	Feb '13	Mar '13	Apr '13	May '13
<b>Monitoring Period, Days</b>	31	31	28	31	30	31
<b>Monthly Production, tons</b>	66,679	92,706	135,696	115,360	158,653	159,534
<b>Product Moisture Content</b>	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
<b>Water Truck Loads</b>	12.5	4	1	12	26	21
<b>Month End Water Elevs.</b>						
1) Freshwater pond, depth to water	13.025	15.987	6.484	8.911	11.664	8.817
2) Pit Sump, depth to water	9.349	9.035	9.265	9.693	9.724	9.972
<b>Pond Surface Acres</b>						
1) Freshwater pond	0.937	0.937	0.937	0.937	0.937	0.937
2) Pit Sump	0.322	0.322	0.322	0.322	0.322	0.322
<b>Total surface acres</b>	1.259	1.259	1.259	1.259	1.259	1.259
<b>Pond Water Volume Change</b>						
1) Freshwater pond	#VALUE!	-2.775	8.904	-2.274	-2.580	2.668
2) Pit Sump	#VALUE!	0.101	-0.074	-0.138	-0.010	-0.080
3) Change in settling pond storage	0.000	0.000	0.000	0.000	1.000	2.000
<b>Net Volume Change</b>	#VALUE!	-2.674	8.830	-2.412	-1.590	4.588
<b>Water Inputs, ac-ft</b>						
Rural Water	0.000	0.000	0.000	0.000	0.000	0.000
Lake Water	0.000	0.000	0.000	0.000	0.000	0.000
Well Water	0.000	0.000	0.000	0.000	0.000	0.000
Precipitation	#REF!	5.074	29.868	2.899	7.862	19.841
<b>Total Water Input</b>	#REF!	5.074	29.868	2.899	7.862	19.841
<b>Water Usage, ac-ft</b>						
Product moisture content	1.717	2.387	3.495	2.971	4.086	4.108
Haul road dust control	0.384	0.123	0.031	0.368	0.798	0.644
Evaporation losses	#REF!	0.218	0.265	0.417	0.462	0.571
Misc usage	0	0	0	0	0	0
<b>Total Water Usage, Ac-ft</b>	#REF!	2.728	3.790	3.756	5.346	5.324
<b>Net Water Input</b>	#REF!	2.346	26.078	-0.857	2.536	14.517
<b>Groundwater Inflow</b>	#VALUE!	-5.020	-17.247	-1.555	-4.126	-9.930



Jun '13  
30  
139,973  
3.5%  
30

6,942  
9,945

0.937  
0.322  
1,259

1,757  
0.009  
3,000  
4,766

0.000  
0.000  
0.000  
15,039  
15,039

3,605  
0.921  
0.684

5,209

9,830

-5,065

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	Consumptive Use					
	January	February	March	April	May	June
Water Truck Usage	0.12	0.03	0.92	0.80	0.51	0.92
Moisture Content of Product Shipped	2.34	1.87	2.85	2.52	2.70	2.32
Misc on site use	-	-	-	-	-	-
Misc off site	-	-	-	-	-	-
<b>Total</b>	<b>2.46</b>	<b>1.90</b>	<b>3.77</b>	<b>3.31</b>	<b>3.20</b>	<b>3.24</b>

	Shipped Tons					
	January	February	March	April	May	June
Base	29,313	29,777	34,737	35,105	40,579	30,251
Coarse Aggregate	76,170	56,027	101,011	78,103	81,067	82,605
Fine Aggregate	14,275	8,731	14,477	14,257	14,244	10,229
<b>Total</b>	<b>119,758</b>	<b>94,535</b>	<b>150,225</b>	<b>127,465</b>	<b>135,890</b>	<b>123,085</b>
Moisture Shipped	2.34	1.87	2.85	2.52	2.70	2.32

