Robin L. Simmons
Land Manager

March 30, 2016

RECEIVED
MAR 31 2016
Oklahoma Water Resources Board

Kent Wilkins
Oklahoma Water Resources Board
3800 N. Classen
Oklahoma City, OK 73118

Re: Martin Marietta/Material Producers Davis Quarry Q4 and Annual 2015 Monitoring Report

Dear Mr. Wilkins:

Attached please find the Q4 and Annual 2015 monitoring report and associated data and calculations for Martin Marietta/Material Producers' Davis Quarry.

Sincerely,

Robin L Simmons

Robin L. Simmons, EIT
Land Manager

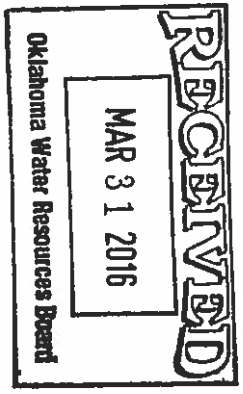
North Texas/Oklahoma District
1503 LBJ Parkway Suite 400, Dallas, Texas 75234
t. (972) 350-8228 f. (972) 647-3363 m. (214) 213-6024 e. Robin.Simmons@martinmarietta.com
www.martinmarietta.com

# MMM Davis Quarry 2015 Monitoring Report

All volumes are in acre-feet.

| | Total Groundwater Entering Pit | Total Stormwater Entering Pit | Total Stormwater Diverted from Pit | Total Water Diverted | Water Sent To Holding Basin | Groundwater Augmentation | Streamwater Augmentation | Consumptive Use of Stormwater | Consumptive Use of Groundwater | Groundwater Pumped From Well |
|---|---|---|---|---|---|---|---|---|---|---|
| January-15 | -3.92 | 8.43 | 8.43 | 4.51 | N/A | -3.92 | 0.00 | 2.50 | 0.00 | 0.00 |
| February-15 | -2.03 | 2.22 | 2.22 | 0.19 | N/A | -2.03 | 0.00 | 2.44 | 0.00 | 0.00 |
| March-15 | -18.27 | 13.86 | 13.86 | -4.41 | N/A | -18.27 | 0.00 | 3.06 | 0.00 | 0.00 |
| 1st QTR Totals | -24.22 | 24.51 | 24.51 | 0.28 | 0.00 | -24.22 | 0.00 | 7.99 | 0.00 | 0.00 |
| April-15 | -11.16 | 22.16 | 22.16 | 11.00 | N/A | -11.16 | 0.00 | 3.26 | 0.00 | 0.00 |
| May-15 | -4.48 | 118.01 | 118.01 | 113.53 | N/A | -4.48 | 0.00 | 48.88 | 0.00 | 0.00 |
| June-15 | -4.30 | 73.82 | 73.82 | 69.51 | N/A | -4.30 | 0.00 | 70.45 | 0.00 | 0.00 |
| 2nd QTR Totals | -19.94 | 213.99 | 213.99 | 194.04 | 0.00 | -19.94 | 0.00 | 122.58 | 0.00 | 0.00 |
| July-15 | 0.16 | 25.42 | 25.42 | 25.58 | N/A | 0.16 | 0.00 | 98.04 | 0.00 | 0.00 |
| August-15 | -6.98 | 4.35 | 4.35 | -2.63 | N/A | -6.98 | 0.00 | 4.87 | 0.00 | 0.00 |
| September-15 | -21.19 | 3.90 | 3.90 | -17.30 | N/A | -21.19 | 0.00 | 5.30 | 0.00 | 0.00 |
| 3rd QTR Totals | -28.01 | 33.66 | 33.66 | 5.66 | 0.00 | -28.01 | 0.00 | 108.22 | 0.00 | 0.00 |
| October-15 | 5.93 | 2.85 | 2.85 | 8.78 | N/A | 5.93 | 0.00 | 4.81 | 0.00 | 0.00 |
| November-15 | -15.36 | 14.77 | 14.77 | -0.59 | N/A | -15.36 | 0.00 | 3.14 | 0.00 | 0.00 |
| December-15 | -13.57 | 22.47 | 22.47 | 8.89 | N/A | -13.57 | 0.00 | 3.04 | 0.00 | 0.00 |
| 4th QTR Totals | -23.01 | 40.09 | 40.09 | 17.08 | 0.00 | -23.01 | 0.00 | 10.99 | 0.00 | 0.00 |
| 2015 Totals | -95.18 | 312.25 | 312.25 | 217.07 | 0.00 | -95.18 | 0.00 | 249.78 | 0.00 | 0.00 |

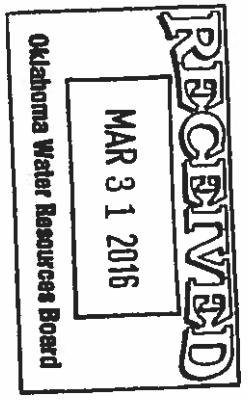
Note: Negative entries for Total Groundwater Entering Pit indicate that stormwater is entering the rock formation via the pit.



Consumptive Use

| | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Water Truck Usage | 0.31 | 0.47 | 0.43 | 0.46 | 0.28 | 0.68 | 1.30 | 1.81 | 1.57 | 1.57 | 0.58 | 0.46 |
| Moisture Content of Product Shipped | 2.19 | 1.97 | 2.63 | 2.80 | 2.01 | 3.33 | 3.95 | 3.06 | 3.74 | 3.25 | 2.56 | 2.58 |
| Misc on site use | - | - | - | - | - | - | - | - | - | - | - | - |
| Misc off site | - | - | - | - | 46.59 | 66.44 | 92.80 | - | - | - | - | - |
| Total | 2.50 | 2.44 | 3.06 | 3.26 | 48.88 | 70.45 | 98.04 | 4.87 | 5.30 | 4.81 | 3.14 | 3.04 |

| Shipped Tons | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Base | 29,097 | 20,414 | 31,530 | 25,822 | 32,366 | 45,970 | 46,060 | 23,801 | 38,537 | 36,816 | 28,022 | 30,818 |
| Coarse Aggregate | 74,067 | 64,315 | 80,129 | 83,096 | 52,877 | 89,148 | 80,829 | 80,657 | 75,357 | 69,068 | 53,158 | 62,754 |
| Fine Aggregate | 10,897 | 15,076 | 19,402 | 27,186 | 12,251 | 25,234 | 46,634 | 37,367 | 48,390 | 38,114 | 31,183 | 25,683 |
| Total | 114,060 | 99,806 | 131,062 | 136,104 | 97,494 | 160,352 | 173,523 | 141,825 | 162,284 | 143,999 | 112,362 | 119,255 |
| Moisture Shipped | 2.19 | 1.97 | 2.63 | 2.80 | 2.01 | 3.33 | 3.95 | 3.06 | 3.74 | 3.25 | 2.56 | 2.58 |



## Davis Water Balance

| | Dec-14 | Jan-15 | Feb-15 | Mar-15 | Apr-15 | May-15 | Jun-15 | Jul-15 | Aug-15 | Sep-15 | Oct-15 | Nov-15 | Dec-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring Period, Days** | | 31 | 28 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 |
| **Monthly Production, tons** | | 141,306 | 114,360 | 149,226 | 131,462 | 69,546 | 118,618 | 158,612 | 193,571 | 174,627 | 156,447 | 92,068 | 131,978 |
| **Product Moisture Content** | | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% | 3.5% |
| **Water Truck Loads** | | 10 | 15 | 14 | 15 | 9 | 22 | 42.2 | 62.16667 | 51 | 51 | 19 | 15 |
| ***Month End* Water Elevs.** | | | | | | | | | | | | | |
| 1) Freshwater pond, depth to water | 4.485 | 4.247 | 7.792 | 17.474 | 8.316 | 7.793 | 4.978 | 3.104 | 13.372 | 9.596 | 4.144 | 7.962 | 2.619 |
| 2) Pit Sump, depth to water | 12.133 | 11.346 | 11.442 | 11.207 | 12.064 | 11.322 | 10.508 | 11.035 | 11.747 | 9.79 | 10 | 10 | 10 |
| **Pond Surface Acres** | | | | | | | | | | | | | |
| 1) Freshwater pond | 0.937 | 0.937 | 0.937 | 0.937 | 0.937 | 0.937 | 0.937 | 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 | 0.322 | 0.322 | 0.322 | 0.322 | 0.322 | 0.322 | 0.322 |
| Total surface acres | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 | 1.259 |
| **Pond Water Volume Change** | | | | | | | | | | | | | |
| 1) Freshwater pond | | 0.223 | -3.322 | -9.072 | 8.581 | 0.490 | 2.638 | 1.756 | -9.621 | 3.538 | 5.109 | -3.577 | 5.006 |
| 2) Pit Sump | | 0.253 | -0.031 | 0.076 | -0.276 | 0.239 | 0.262 | -0.170 | -0.229 | 0.630 | -0.068 | 0.000 | 0.000 |
| 3) Change in settling pond storage | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Net Volume Change** | | **0.476** | **-3.353** | **-8.996** | **8.305** | **0.729** | **2.900** | **1.586** | **-9.850** | **4.168** | **5.041** | **-3.577** | **5.006** |
| | | | | | | | | | | | | | |
| **Water Inputs, ac-ft** | | | | | | | | | | | | | |
| Rural Water | | 0.136 | 0.075 | 0.066 | 1.728 | 4.410 | 4.412 | 3.836 | 0.464 | 4.122 | 2.218 | 0.176 | 0.176 |
| Lake Water | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 23.864 | 0.000 | 0.000 | 0.000 |
| Well Water | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Precipitation | | 8.426 | 2.220 | 13.862 | 22.163 | 118.009 | 73.815 | 25.419 | 4.349 | 3.896 | 2.854 | 14.768 | 22.468 |
| **Total Water Input** | | **8.562** | **2.295** | **13.927** | **23.891** | **122.419** | **78.228** | **29.255** | **4.813** | **31.882** | **5.072** | **14.943** | **22.644** |
| | | | | | | | | | | | | | |
| **Water Usage, ac-ft** | | | | | | | | | | | | | |
| Product moisture content | | 3.639 | 2.945 | 3.843 | 3.386 | 1.791 | 3.055 | 4.085 | 4.985 | 4.497 | 4.029 | 2.371 | 3.399 |
| Haul road dust control | | 0.307 | 0.470 | 0.430 | 0.460 | 0.276 | 0.675 | 1.295 | 1.908 | 1.565 | 1.565 | 0.583 | 0.460 |
| Evaporation losses | | 0.221 | 0.198 | 0.382 | 0.580 | 0.553 | 0.854 | 0.654 | 0.791 | 0.459 | 0.363 | 0.210 | 0.204 |
| Misc usage | | - | - | - | - | 46.59 | 66.44 | 92.80 | - | - | - | - | - |
| **Total Water Usage, Ac-ft** | | **4.167** | **3.613** | **4.654** | **4.426** | **49.210** | **71.024** | **98.833** | **7.684** | **6.522** | **5.957** | **3.165** | **4.063** |
| | | | | | | | | | | | | | |
| **Net Water Input** | | **4.395** | **-1.318** | **9.273** | **19.465** | **73.209** | **7.204** | **-69.579** | **-2.871** | **25.360** | **-0.884** | **11.779** | **18.581** |
| **emergency storage of precipitation and runoff, ac-ft** | | | | | | 68 | 71 | 71 | 0 | 0 | | | |
| **Groundwater Inflow** | | -3.919 | -2.034 | -18.269 | -11.160 | -4.480 | -4.304 | 0.165 | -6.979 | -21.192 | 5.925 | -15.356 | -13.574 |
| | | | | | | | | | | | | | |
| **Groundwater Inflow, Avg Ac-ft/Day** | | -0.126 | -0.073 | -0.589 | -0.372 | -0.145 | -0.143 | 0.005 | -0.225 | -0.706 | 0.191 | -0.512 | -0.438 |
| **Groundwater Inflow, Avg Gallons/Day** | | -41,191 | -23,674 | -192,033 | -121,219 | -47,094 | -46,747 | 1,733 | -73,359 | -2[illegible] | 62,282 | -166,795 | -142,685 |

RECEIVED
MAR 31 2016
Oklahoma Water Resources Board

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

| | | Quarry are | Fringe area | |
|---|---|---|---|---|
| Date | Precip, in. | Runoff, in. | Runoff, in. | Evapor, in/day |
| 1-Oct | 0.01 | 0.01 | 0.00 | 0.04 |
| 2-Oct | 0.00 | 0.00 | 0.00 | 0.12 |
| 3-Oct | 0.00 | 0.00 | 0.00 | 0.11 |
| 4-Oct | 0.00 | 0.00 | 0.00 | 0.12 |
| 5-Oct | 0.00 | 0.00 | 0.00 | 0.04 |
| 6-Oct | 0.00 | 0.00 | 0.00 | 0.12 |
| 7-Oct | 0.00 | 0.00 | 0.00 | 0.11 |
| 8-Oct | 0.00 | 0.00 | 0.00 | 0.85 |
| 9-Oct | 0.02 | 0.02 | 0.00 | 0.04 |
| 10-Oct | 0.00 | 0.00 | 0.00 | 0.12 |
| 11-Oct | 0.00 | 0.00 | 0.00 | 0.16 |
| 12-Oct | 0.00 | 0.00 | 0.00 | 0.15 |
| 13-Oct | 0.00 | 0.00 | 0.00 | 0.17 |
| 14-Oct | 0.00 | 0.00 | 0.00 | 0.05 |
| 15-Oct | 0.00 | 0.00 | 0.00 | 0.05 |
| 16-Oct | 0.00 | 0.00 | 0.00 | 0.07 |
| 17-Oct | 0.00 | 0.00 | 0.00 | 0.09 |
| 18-Oct | 0.00 | 0.00 | 0.00 | 0.12 |
| 19-Oct | 0.00 | 0.00 | 0.00 | 0.13 |
| 20-Oct | 0.00 | 0.00 | 0.00 | 0.13 |
| 21-Oct | 0.00 | 0.00 | 0.00 | 0.09 |
| 22-Oct | 0.24 | 0.24 | 0.00 | 0.03 |
| 23-Oct | 0.15 | 0.15 | 0.00 | 0.03 |
| 24-Oct | 0.03 | 0.03 | 0.00 | 0.04 |
| 25-Oct | 0.03 | 0.03 | 0.00 | 0.08 |
| 26-Oct | 0.02 | 0.02 | 0.00 | 0.09 |
| 27-Oct | 0.03 | 0.03 | 0.00 | 0.10 |
| 28-Oct | 0.02 | 0.02 | 0.00 | 0.10 |
| 29-Oct | 0.02 | 0.02 | 0.00 | 0.10 |
| 30-Oct | 0.03 | 0.03 | 0.00 | 0.01 |
| 31-Oct | 0.03 | 0.03 | 0.00 | 0.02 |
| | | 0.63 | 0.00 | |
| **Volume, ac-ft** | | **2.85** | **0.00** | **3.456** |
| **Total Vol, ac-ft** | | **2.85** | | |

RECEIVED
MAR 3 1 2015
Oklahoma Water Resources Board

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

| | | Quarry are | Fringe area | |
|---|---|---|---|---|
| Date | Precip, in. | Runoff, in. | Runoff, in. | Evapor, in/day |
| 1-Nov | 0.02 | 0.02 | 0.00 | 0.04 |
| 2-Nov | 0.02 | 0.02 | 0.00 | 0.07 |
| 3-Nov | 0.03 | 0.03 | 0.00 | 0.08 |
| 4-Nov | 0.02 | 0.02 | 0.00 | 0.05 |
| 5-Nov | 0.03 | 0.03 | 0.00 | 0.05 |
| 6-Nov | 0.01 | 0.01 | 0.00 | 0.09 |
| 7-Nov | 0.02 | 0.02 | 0.00 | 0.09 |
| 8-Nov | 0.01 | 0.01 | 0.00 | 0.08 |
| 9-Nov | 0.02 | 0.02 | 0.00 | 0.08 |
| 10-Nov | 0.02 | 0.02 | 0.00 | 0.08 |
| 11-Nov | 0.02 | 0.02 | 0.00 | 0.19 |
| 12-Nov | 0.01 | 0.01 | 0.00 | 0.09 |
| 13-Nov | 0.01 | 0.01 | 0.00 | 0.09 |
| 14-Nov | 0.01 | 0.01 | 0.00 | 0.07 |
| 15-Nov | 0.01 | 0.01 | 0.00 | 0.08 |
| 16-Nov | 0.02 | 0.02 | 0.00 | 0.01 |
| 17-Nov | 0.01 | 0.01 | 0.00 | 0.11 |
| 18-Nov | 0.01 | 0.01 | 0.00 | 0.13 |
| 19-Nov | 0.00 | 0.00 | 0.00 | 0.07 |
| 20-Nov | 0.02 | 0.02 | 0.00 | 0.08 |
| 21-Nov | 0.00 | 0.00 | 0.00 | 0.07 |
| 22-Nov | 0.22 | 0.22 | 0.00 | 0.09 |
| 23-Nov | 0.06 | 0.06 | 0.00 | 0.08 |
| 24-Nov | 0.00 | 0.00 | 0.00 | 0.05 |
| 25-Nov | 0.00 | 0.00 | 0.00 | 0.05 |
| 26-Nov | 0.80 | 0.80 | 0.00 | 0.01 |
| 27-Nov | 0.66 | 0.66 | 0.00 | 0.00 |
| 28-Nov | 0.48 | 0.48 | 0.00 | 0.01 |
| 29-Nov | 0.37 | 0.37 | 0.00 | 0.01 |
| 30-Nov | 0.35 | 0.35 | 0.00 | 0.02 |
| | | 0.00 | 0.00 | |
| | | 3.26 | 0.00 | |
| **Volume, ac-ft** | | **14.77** | **0.00** | **2.006** |
| **Total Vol, ac-ft** | | **14.77** | | |

RECEIVED
MAR 3 1 2016
Oklahoma Water Resources Board

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

| | | Quarry area | Fringe area | |
|---|---|---|---|---|
| Date | Precip, in. | Runoff, in. | Runoff, in. | Evapor, in/day |
| 1-Dec | 0.33 | 0.33 | 0.00 | 0.06 |
| 2-Dec | 0.28 | 0.28 | 0.00 | 0.07 |
| 3-Dec | 0.20 | 0.20 | 0.00 | 0.08 |
| 4-Dec | 0.16 | 0.16 | 0.00 | 0.07 |
| 5-Dec | 0.11 | 0.11 | 0.00 | 0.06 |
| 6-Dec | 0.11 | 0.11 | 0.00 | 0.07 |
| 7-Dec | 0.10 | 0.10 | 0.00 | 0.08 |
| 8-Dec | 0.10 | 0.10 | 0.00 | 0.10 |
| 9-Dec | 0.09 | 0.09 | 0.00 | 0.08 |
| 10-Dec | 0.08 | 0.08 | 0.00 | 0.08 |
| 11-Dec | 0.03 | 0.03 | 0.00 | 0.09 |
| 12-Dec | 0.00 | 0.00 | 0.00 | 0.03 |
| 13-Dec | 0.59 | 0.59 | 0.00 | 0.03 |
| 14-Dec | 0.00 | 0.00 | 0.00 | 0.08 |
| 15-Dec | 0.00 | 0.00 | 0.00 | 0.10 |
| 16-Dec | 0.00 | 0.00 | 0.00 | 0.08 |
| 17-Dec | 0.00 | 0.00 | 0.00 | 0.05 |
| 18-Dec | 0.00 | 0.00 | 0.00 | 0.05 |
| 19-Dec | 0.00 | 0.00 | 0.00 | 0.08 |
| 20-Dec | 0.00 | 0.00 | 0.00 | 0.03 |
| 21-Dec | 0.00 | 0.00 | 0.00 | 0.08 |
| 22-Dec | 0.00 | 0.00 | 0.00 | 0.07 |
| 23-Dec | 0.00 | 0.00 | 0.00 | 0.13 |
| 24-Dec | 0.00 | 0.00 | 0.00 | 0.06 |
| 25-Dec | 0.00 | 0.00 | 0.00 | 0.05 |
| 26-Dec | 0.52 | 0.52 | 0.00 | 0.02 |
| 27-Dec | 0.96 | 0.96 | 0.00 | 0.00 |
| 28-Dec | 0.25 | 0.25 | 0.00 | 0.09 |
| 29-Dec | 0.57 | 0.57 | 0.00 | 0.03 |
| 30-Dec | 0.40 | 0.40 | 0.00 | 0.04 |
| 31-Dec | 0.08 | 0.08 | 0.00 | 0.03 |
| | | 4.96 | 0.00 | |
| **Volume, ac-ft** | | **22.47** | **0.00** | **1.947** |
| **Total Vol, ac-ft** | | **22.47** | | |

RECEIVED
MAR 3 1 2016
Oklahoma Water Resources Board