



Jesse Martindale
Sr. Environmental Engineer

June 20, 2023

Matt Cogburn
Oklahoma Water Resources Board
3800 N. Classen
Oklahoma City, OK 73118

RECEIVED

DEC 06 2024

OKLAHOMA WATER RESOURCES BOARD

Re: Martin Marietta Davis Quarry 2023 Q1 Report

Dear Mr. Cogburn:

Attached please find the revised Q1 monitoring report and associated data and calculations for the Martin Marietta Davis Quarry with the requested updated information.

As is typical at the Davis Quarry, we see more precipitation and runoff entering the pit than the total water we use from the pit. Also typically, we do not see a rise in water levels in the pit that correspond to the additional precipitation and runoff that we know is entering the pit and not being used. Thus we still see a net decrease of water within the pit indicating that we continue to augment groundwater through the pit.

Regards,

A handwritten signature in blue ink that reads 'Jesse Martindale'.

Jesse Martindale
Sr. Environmental Engineer

MM Davis Quarry 2023 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-23 | -4.37 | 5.50 | 5.50 | 1.13 | N/A | -4.37 | 0.00 | 3.57 | 0.00 | 0.00 |
| February-23 | -0.45 | 18.82 | 18.82 | 18.37 | N/A | -0.45 | 0.00 | 2.46 | 0.00 | 0.00 |
| March-23 | -1.19 | 22.79 | 22.79 | 21.60 | N/A | -1.19 | 0.00 | 3.22 | 0.00 | 0.00 |
| 1st QTR Totals | -6.01 | 47.11 | 47.11 | 41.10 | 0.00 | -6.01 | 0.00 | 9.25 | 0.00 | 0.00 |

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

Total groundwater entering the pit = total stormwater entering the pit - total water diverted

Groundwater Right Value (MEPS): 68 acre-feet

Consumptive Use

| | January | February | March |
|-------------------------------------|---------|----------|-------|
| Water Truck Usage | 1.31 | 0.25 | - |
| Moisture Content of Product Shipped | 2.25 | 2.22 | 3.22 |
| Misc on site use | - | - | - |
| Misc off site | - | - | - |
| Total | 3.57 | 2.46 | 3.22 |

| Shipped Tons | January | February | March |
|------------------|---------|----------|---------|
| Base | 23,239 | 16,326 | 23,066 |
| Coarse Aggregate | 74,255 | 83,049 | 120,556 |
| Fine Aggregate | 17,010 | 17,476 | 25,930 |
| Total | 114,504 | 116,851 | 169,552 |
| Moisture Shipped | 2.25 | 2.22 | 3.22 |

Davis Water Balance

| | Dec-22 | Jan-23 | Feb-23 | Mar-23 |
|---|----------|----------------|---------------|----------------|
| Monitoring Period, Days | | 31 | 28 | 31 |
| Monthly Production, tons | 120,624 | 159,499 | 129,817 | 198,017 |
| Product Moisture Content | | 3.5% | 3.5% | 3.5% |
| Water Truck Loads | | 107 | 20 | 0 |
| Month End Water Elevs. | | | | |
| 1) Freshwater pond, depth to water | 14.19505 | 14.76528 | 13.61745 | 16.87028 |
| 2) Pit Sump, depth to water | 51.07803 | 49.83852 | 53.11196 | 55.79677 |
| Pond Surface Acres | | | | |
| 1) Freshwater pond | | 1.0 | 1.0 | 1.0 |
| 2) Pit Sump | | 4.58 | 4.58 | 4.58 |
| Total surface acres | | 5.580703 | 5.580703 | 5.58070271 |
| Pond Water Volume Change | | | | |
| 1) Freshwater pond | | 0.570 | -1.148 | 3.253 |
| 2) Pit Sump | | -5.678 | 14.995 | 12.298 |
| 3) Change in settling pond storage | | 0.000 | 0.000 | 0.000 |
| Net Volume Change | | -5.108 | 13.847 | 15.551 |
| Water Inputs, ac-ft | | | | |
| Rural Water | | 0.203 | 0.173 | 0.075 |
| Lake Water | | 0.000 | 0.000 | 0.000 |
| Well Water | | 0.000 | 0.000 | 0.000 |
| Precipitation | | 5.499 | 18.819 | 22.791 |
| Total Water Input | | 5.702 | 18.992 | 22.866 |
| Water Usage, ac-ft | | | | |
| Product moisture content | | 4.108 | 3.343 | 5.100 |
| Haul road dust control | | 1.313 | 0.246 | 0.000 |
| Evaporation losses | | 1.020 | 1.104 | 1.029 |
| Misc usage | | - | - | - |
| Total Water Usage, Ac-ft | | 6.441 | 4.693 | 6.128 |
| Net Water Input | | -0.740 | 14.299 | 16.737 |
| emergency storage of precipitation and runoff, ac-ft | | | | |
| Groundwater Inflow | | -4.368 | -0.452 | -1.186 |
| Groundwater Inflow, Avg Ac-ft/Day | | -0.141 | -0.016 | -0.038 |
| Groundwater Inflow, Avg Gallons/Day | | -45,912 | -5,265 | -12,470 |

January 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) | 73.32 | subject to refinement |
| Pit fringe (area drains to pit) | 91.38 | subject to refinement |
| Drainage to Pit (total area) | 164.70 | subject to refinement |

Quarry area Fringe area

| Date | Precip, in. | Runoff, in. | Runoff, in. | Evapor, in/day |
|-------------------------|-------------|-------------|-------------|----------------|
| 1-Jan | 0.00 | 0.00 | 0.00 | 0.07 |
| 2-Jan | 0.00 | 0.00 | 0.00 | 0.04 |
| 3-Jan | 0.00 | 0.00 | 0.00 | 0.09 |
| 4-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 5-Jan | 0.00 | 0.00 | 0.00 | 0.08 |
| 6-Jan | 0.00 | 0.00 | 0.00 | 0.07 |
| 7-Jan | 0.00 | 0.00 | 0.00 | 0.05 |
| 8-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 9-Jan | 0.00 | 0.00 | 0.00 | 0.10 |
| 10-Jan | 0.00 | 0.00 | 0.00 | 0.13 |
| 11-Jan | 0.00 | 0.00 | 0.00 | 0.17 |
| 12-Jan | 0.00 | 0.00 | 0.00 | 0.08 |
| 13-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 14-Jan | 0.00 | 0.00 | 0.00 | 0.08 |
| 15-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 16-Jan | 0.00 | 0.00 | 0.00 | 0.13 |
| 17-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 18-Jan | 0.04 | 0.04 | 0.00 | 0.14 |
| 19-Jan | 0.00 | 0.00 | 0.00 | 0.09 |
| 20-Jan | 0.00 | 0.00 | 0.00 | 0.07 |
| 21-Jan | 0.02 | 0.02 | 0.00 | 0.07 |
| 22-Jan | 0.00 | 0.00 | 0.00 | 0.05 |
| 23-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 24-Jan | 0.37 | 0.37 | 0.00 | 0.01 |
| 25-Jan | 0.47 | 0.47 | 0.00 | 0.03 |
| 26-Jan | 0.00 | 0.00 | 0.00 | 0.07 |
| 27-Jan | 0.00 | 0.00 | 0.00 | 0.12 |
| 28-Jan | 0.00 | 0.00 | 0.00 | 0.06 |
| 29-Jan | 0.00 | 0.00 | 0.00 | 0.01 |
| 30-Jan | 0.00 | 0.00 | 0.00 | 0.01 |
| 31-Jan | 0.00 | 0.00 | 0.00 | 0.01 |
| | | 0.90 | 0.00 | |
| Volume, ac-ft | | 5.50 | 0.00 | 2.194 |
| Total Vol, ac-ft | | 5.50 | | |

February 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) | 73.32 | subject to refinement |
| Pit fringe (area drains to pit) | 91.38 | subject to refinement |
| Drainage to Pit (total area) | 164.70 | subject to refinement |

Quarry area Fringe area

| Date | Precip, in. | Runoff, in. | Runoff, in. | Evapor, in/day |
|-------------------------|-------------|--------------|-------------|----------------|
| 1-Feb | 0.00 | 0.00 | 0.00 | 0.01 |
| 2-Feb | 0.06 | 0.06 | 0.00 | 0.01 |
| 3-Feb | 0.02 | 0.02 | 0.00 | 0.06 |
| 4-Feb | 0.00 | 0.00 | 0.00 | 0.09 |
| 5-Feb | 0.00 | 0.00 | 0.00 | 0.08 |
| 6-Feb | 0.00 | 0.00 | 0.00 | 0.09 |
| 7-Feb | 0.43 | 0.43 | 0.00 | 0.01 |
| 8-Feb | 0.52 | 0.52 | 0.00 | 0.01 |
| 9-Feb | 0.01 | 0.01 | 0.00 | 0.07 |
| 10-Feb | 0.00 | 0.00 | 0.00 | 0.03 |
| 11-Feb | 0.00 | 0.00 | 0.00 | 0.07 |
| 12-Feb | 0.00 | 0.00 | 0.00 | 0.13 |
| 13-Feb | 0.00 | 0.00 | 0.00 | 0.08 |
| 14-Feb | 0.32 | 0.32 | 0.00 | 0.15 |
| 15-Feb | 1.05 | 1.05 | 0.00 | 0.12 |
| 16-Feb | 0.00 | 0.00 | 0.00 | 0.07 |
| 17-Feb | 0.00 | 0.00 | 0.00 | 0.08 |
| 18-Feb | 0.00 | 0.00 | 0.00 | 0.06 |
| 19-Feb | 0.00 | 0.00 | 0.00 | 0.15 |
| 20-Feb | 0.00 | 0.00 | 0.00 | 0.16 |
| 21-Feb | 0.00 | 0.00 | 0.00 | 0.12 |
| 22-Feb | 0.26 | 0.26 | 0.00 | 0.17 |
| 23-Feb | 0.00 | 0.00 | 0.00 | 0.09 |
| 24-Feb | 0.00 | 0.00 | 0.00 | 0.02 |
| 25-Feb | 0.00 | 0.00 | 0.00 | 0.02 |
| 26-Feb | 0.41 | 0.41 | 0.00 | 0.03 |
| 27-Feb | 0.00 | 0.00 | 0.00 | 0.18 |
| 28-Feb | 0.00 | 0.00 | 0.00 | 0.21 |
| | | 0.00 | 0.00 | |
| | | 0.00 | 0.00 | |
| | | 0.00 | 0.00 | |
| | | 3.08 | 0.00 | |
| Volume, ac-ft | | 18.82 | 0.00 | 2.374 |
| Total Vol, ac-ft | | 18.82 | | |

March 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) | 73.32 | subject to refinement |
| Pit fringe (area drains to pit) | 91.38 | subject to refinement |
| Drainage to Pit (total area) | 164.70 | subject to refinement |

Quarry area Fringe area

| Date | Precip, in. | Runoff, in. | Runoff, in. | Evapor, in/day |
|------------------|-------------|-------------|-------------|----------------|
| 1-Mar | 0.00 | 0.00 | 0.00 | 0.12 |
| 2-Mar | 0.53 | 0.53 | 0.00 | 0.11 |
| 3-Mar | 0.11 | 0.11 | 0.00 | 0.10 |
| 4-Mar | 0.00 | 0.00 | 0.00 | 0.08 |
| 5-Mar | 0.00 | 0.00 | 0.00 | 0.15 |
| 6-Mar | 0.00 | 0.00 | 0.00 | 0.02 |
| 7-Mar | 0.00 | 0.00 | 0.00 | 0.04 |
| 8-Mar | 0.77 | 0.77 | 0.00 | 0.00 |
| 9-Mar | 0.18 | 0.18 | 0.00 | 0.08 |
| 10-Mar | 0.01 | 0.01 | 0.00 | 0.06 |
| 11-Mar | 0.00 | 0.00 | 0.00 | 0.03 |
| 12-Mar | 0.00 | 0.00 | 0.00 | 0.08 |
| 13-Mar | 0.00 | 0.00 | 0.00 | 0.08 |
| 14-Mar | 0.00 | 0.00 | 0.00 | 0.03 |
| 15-Mar | 0.00 | 0.00 | 0.00 | 0.07 |
| 16-Mar | 0.43 | 0.43 | 0.00 | 0.08 |
| 17-Mar | 0.00 | 0.00 | 0.00 | 0.09 |
| 18-Mar | 0.00 | 0.00 | 0.00 | 0.06 |
| 19-Mar | 0.00 | 0.00 | 0.00 | 0.09 |
| 20-Mar | 0.00 | 0.00 | 0.00 | 0.08 |
| 21-Mar | 0.02 | 0.02 | 0.00 | 0.01 |
| 22-Mar | 0.00 | 0.00 | 0.00 | 0.04 |
| 23-Mar | 0.01 | 0.01 | 0.00 | 0.08 |
| 24-Mar | 1.35 | 1.35 | 0.00 | 0.09 |
| 25-Mar | 0.01 | 0.01 | 0.00 | 0.08 |
| 26-Mar | 0.00 | 0.00 | 0.00 | 0.07 |
| 27-Mar | 0.00 | 0.00 | 0.00 | 0.13 |
| 28-Mar | 0.00 | 0.00 | 0.00 | 0.05 |
| 29-Mar | 0.00 | 0.00 | 0.00 | 0.11 |
| 30-Mar | 0.31 | 0.31 | 0.00 | 0.06 |
| 31-Mar | 0.00 | 0.00 | 0.00 | 0.07 |
| | | 3.73 | 0.00 | |
| Volume, ac-ft | | 22.79 | 0.00 | 2.212 |
| Total Vol, ac-ft | | 22.79 | | |