



17 April 2019
19-ED-085

Mr. Matt Cogburn
Planning and Management Division
Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118

RECEIVED

APR 17 2019

Oklahoma Water Resources Board

CONCRETE

SAND & GRAVEL

STONE

BLOCK

MASONRY

RE: Water Monitoring Plan Report, 1st Quarter 2019, for Dolese Bros. Co. Davis Quarry, Murray County, Oklahoma

Dear Mr. Cogburn.

According to the Oklahoma Water Resources Board's Title 785, Chapter 30, Subchapter 15, Part 4, *Mines with Preexisting Exemptions*, Dolese Bros. Co. Davis Quarry qualifies as a mine with a preexisting exemption. As part of maintaining this exemption status, the regulations require us to do the following:

1. Adopt and implement a plan to monitor and report to the Board the accumulation and disposition of pit water during the previous calendar year;
 - The Davis Quarry has adopted and implemented such a plan, and the tables below serve to report to the Board the accumulation and disposition of pit water during 1st Quarter 2019.
2. Make quarterly and annual reports of the measured or reasonably estimated groundwater and surface water volumes, separately stated, entering the pit, of the water that is diverted from the pit, of the disposition of the water from the pit, and of the consumptive use of the water from the pit on or before the deadlines provided by Title 82 of Oklahoma Statutes, § 1020.2(E)(1);
 - The Davis Quarry has continued to fulfill this obligation by compiling and submitting this 1st Quarter 2019 report. The specific information requested in this section is outlined in the tables shown below.
3. At any time after March 31, 2015, demonstrate to the satisfaction of the Board within the pertinent report or reports that the mine has not consumptively used during the previous twelve-month period, from the mining site, an amount of groundwater which combined with any amounts used from permitted groundwater wells exceeds the MEPS¹. Such demonstration may require providing to the Board a copy of the mine's monitoring plan and all of the data collected and procedures used to support the calculations and results reported
 - After 31 March 2015, the Davis Quarry will be willing to demonstrate to the Board that the mine site has not consumptively used during the previous twelve-month period from the mining site, an amount of groundwater which combined with any amounts used from permitted groundwater wells exceeds the MEPS. Example calculations used in the First Quarterly Monitoring Report for 2013 have already been submitted to the OWRB for review and analysis

¹ Mine's Equal Proportionate Share

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Below, in Tables 1, 2, and 3, are shown the 1st Quarter 2019 summary data collected at the Davis Quarry.

Table 1

Accumulation & Disposition of Pit Water during 1st Quarter 2019

| | <u>Groundwater</u> Acre-Feet | <u>Surface Water</u> Acre-Feet | <u>Total</u> Acre-Feet |
|---|---------------------------------|---------------------------------------|---------------------------|
| Water Entering The Mine Pit | 112.67 | 69.77 | 182.44 |
| Water Diverted From The Mine Pit Into Fresh Water Lake | 112.67 | 69.77 | 182.44 |
| Water Removed From Fresh Water Lake | 426.98 | 432.48 | 859.46 |
| Water Returned To Fresh Water Lake | 358.59 | 363.21 | 721.80 |
| Water Returned To Land Surface Overlying ASA² Basin | 62.46 | 63.26 | 125.72 |
| Water Consumptively Used | 100.78 | (See Table 3 for Calculations) | |

Table 2

Water Fluctuations in Fresh Water Lake during 1st Quarter 2019

| | |
|--------------------------------|------------------------|
| Average Size of Lake | 31.06 acres |
| Loss in Water Elevation | 3.15 feet |
| Loss in Lake Volume | 97.84 acre-feet |

Table 3

Consumptive Use Summary for 1st Quarter 2019

| | <u>Activity or Location</u> | <u>Amount of Pit Water Used,</u> Acre-Feet | <u>Groundwater Content,</u> Percent | <u>Groundwater Component,</u> Acre-Feet |
|---|--|---|--|--|
| 1 | North Water Well | 0.00 | All | 0.29 |
| 2 | South Water Well | 0.00 | All | 2.24 |
| 3 | Material Moisture Hauled from Site | 4.98 | 0.4968 | 2.48 |
| 4 | Land Application for Roadway Dust Suppression | 1.82 | 0.4968 | 0.90 |
| 5 | Evaporation from Mine Pit | 0.04 | 0.6172 | 0.02 |
| 6 | Offsite Dewatering | 190.93 | 0.4968 | 94.85 |
| Total Groundwater Consumption from ASA at Davis Quarry = | | 100.78 Acre-Feet | | |

² Arbuckle Simpson Aquifer

Below, in Table 4, please find the Groundwater Rights Summary for the Davis Quarry.

Table 4
Summary of Groundwater Rights for Davis Quarry

| |
|---|
| From Acreage on the Arbuckle-Simpson Aquifer And Included in the ASA Groundwater Rights (1,083 ac. + 113 ac. - 10 ac. on ASA)*(0.2 ac-ft/acre) = 237.2 acre-feet on the ASA |
| From Acreage off the Arbuckle-Simpson Aquifer And Excluded from the ASA Groundwater Rights (937 ac.- 135 ac. + 10 ac. off ASA)*(2.0 ac-ft/acre) = 1,624* acre-feet off the ASA <i>*We have acquired some additional property that is located off the ASA. We will adjust this acreage soon.</i> |

Based on the plan that we have adopted and implemented to monitor and report the accumulation and disposition of pit water, based on our actual consumptive use of groundwater quantities, and based on the timely submittal of all reports including this 1st Quarter 2019 report, we believe that the Davis Quarry is in full compliance with all of the regulations that allow us to maintain its preexisting exemption.

General Information

Our calculations show that Davis Quarry's total estimated groundwater consumption for 1st Quarter 2019 was 100.78 acre-feet. This equates to about 42.5% of Davis Quarry's Equal Proportionate Share (EPS) for the year.

- The calculations show the groundwater consumption to be this high because plant personnel were required to discharge some water from the Fresh Water Lake (FWL) due to high water conditions accumulated in the Fresh Water Lake during Fourth Quarter 2018 from well above-average rainfalls. In January 2019, the FWL was leaking back into the Mine Pit significantly enough that the pump in the Mine Pit could not keep it dewatered; consequently, they lowered the adjacent FWL about five (5) feet to reduce the leaking so the Mine Pit pump could again keep up with mine dewatering activities. Approximately 94% of the groundwater shown to be "consumed" during the quarter was as a result of this off-site dewatering.
- The remaining amount consumed during the quarter (approximately 6% of the total amount consumed) pertains to all other consumptive use activities, which include groundwater usage from two (2) small water wells, material moisture hauled from the site, dust suppression waters, and evaporation of Mine Pit water.

We have 237.2 acre-feet per year of groundwater rights available over the ASA at the Davis Quarry location, but our total available water rights for this site could also include other significant unused groundwater rights that we have at another site that also overlies the ASA in Murray County. These unused groundwater rights equate to approximately 266.6 acre-feet per year from 1,333 acres of land that overlies the ASA. Both the Davis Quarry property and the other land we own are located within the western lobe of the ASA.

During 1st Quarter 2019, the Davis Quarry logged 8.4 inches of rainfall, as measured using rain gauges. The effective runoff into the quarry pits and lakes from these rains was estimated to be only 3.28 inches. All of the individual rainfall events during the quarter were less than 2 inches.

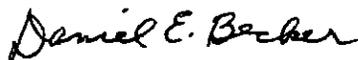
The "calculated" groundwater percentage in the Fresh Water Lake was 49.68% for the 1st Quarter 2019, and storm water comprised the other 50.32%. These percentages vary each quarter primarily because of the fluctuations in rainfall amounts and intensities during each quarter. For instance, during the previous quarter (4th Quarter 2018), the groundwater concentration in the FWL was only 15% compared to this quarter's concentration of 50%. However, we received nearly 19 inches of rain last quarter compared to only about 8 inches during the current quarter. The variation in the groundwater concentrations between last quarter and this quarter (15% versus 50%) shows the significant impact of the FWL seepage volume into the Mine Pit on the Mine Pit's groundwater concentration when the quarterly rainfall is low.

In the Annual Water Monitoring Reports for this quarry, we have always included more of the details regarding the water calculations and how they were performed, than are shown in the quarterly reports. The Annual Reports also detail how we always try to use the least controversial methods of calculating and estimating groundwater consumption at this facility. Since these detailed explanations were covered in the annual report for 2018, I will not outline them in these upcoming quarterly reports.

As we stated last quarter, water management always has been and continues to be very important to us at Dolese Bros. Co., especially at the Davis Quarry. We understand that the Arbuckle Simpson Aquifer is a unique aquifer that must be protected. Our plant personnel make daily efforts to responsibly manage the waters within our quarry boundaries so that when they return to their nearby homes and properties, these same quality waters will be available for their personal and community uses.

Please contact me if you have any questions or comments concerning this submittal. Thank you.

Sincerely,
DOLESE BROS. CO.



Daniel E. Becker, P.E.
Environmental Engineer

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cc: Mr. Chris Neel, Oklahoma Water Resources Board