



18 November 2019
19-ED-207

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

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Oklahoma Water Resources Board

CONCRETE

SAND & GRAVEL

STONE

BLOCK

MASONRY

RE: Water Monitoring Plan Report, 3rd 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 3rd 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 3rd 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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Water Monitoring Plan Report
3rd Quarter 2019
for Dolese Bros. Co. Davis Quarry
Murray County, Oklahoma

Oklahoma Water Resources Board

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

Table 1

Accumulation & Disposition of Pit Water during 3rd Quarter 2019

	<u>Groundwater</u> Acre-Feet	<u>Surface Water</u> Acre-Feet	<u>Total</u> Acre-Feet
Water Entering The Mine Pit	424.09	72.56	496.65
Water Diverted From The Mine Pit Into Fresh Water Lake	424.09	72.56	496.65
Water Removed From Fresh Water Lake	886.41	240.05	1,126.46
Water Returned To Fresh Water Lake	1,109.75	300.53	1,410.28
Water Returned To Land Surface Overlying ASA² Basin	107.45	29.10	136.55
Water Consumptively Used	29.10	(See Table 3 for Calculations)	

Table 2

Water Fluctuations in Fresh Water Lake during 3rd Quarter 2019

Average Size of Lake	31.56 acres
<u>Gain</u> in Water Elevation	0.69 feet
<u>Gain</u> in Lake Volume	21.78 acre-feet

Table 3

Consumptive Use Summary for 3rd 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	0.21
2	South Water Well	0.00	All	1.22
3	Material Moisture Hauled from Site	6.87	78.69	5.40
4	Land Application for Roadway Dust Suppression	28.19	78.69	22.18
5	Evaporation from Mine Pit	0.11	85.39	0.09
6	Offsite Dewatering	0.00	N/A	0.00
Total Groundwater Consumption from ASA at Davis Quarry = 29.10 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 (1,186 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 (1,630 ac. off ASA)*(2.0 ac-ft/acre) = 3,260* acre-feet off the ASA <i>*We have acquired some additional property that is located off the ASA. We have adjusted the figures above to reflect these changes.</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 3rd 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 3rd Quarter 2019 was 29.10 acre-feet. This equates to about 12.3% of Davis Quarry's Equal Proportionate Share (EPS) for the year.

- The calculations this quarter show the groundwater consumption to be below average. We were not required to discharge any water offsite during the quarter because of the minimal amounts of rainfall received during the quarter. It is fortunate that we did not have to discharge water offsite because the groundwater concentration was rather high in the Fresh Water Lake, at nearly 79%.
- The groundwater consumed during the quarter pertains to the following 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 3rd Quarter 2019, the Davis Quarry logged only 7.6 inches of rainfall, as measured using rain gauges. The effective runoff into the quarry pits and lakes from these rains was estimated to be 3.41 inches. Most of these rain events this quarter were rather typical, as indicated by the largest three rain events: 2.2 inches, 1.4 inches, and 1.3 inches.

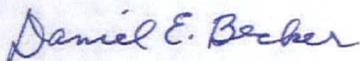
The "calculated" groundwater percentage in the Fresh Water Lake was 78.69% for the 3rd Quarter 2019, and storm water comprised the other 21.31%. These percentages can vary significantly each quarter primarily because of the fluctuations in the individual rainfall amounts and intensities each quarter. For instance, during the previous quarter (2nd Quarter 2019), the groundwater concentration in the FWL was 9.23% compared to this quarter's concentration of about 79%. However, we received about 22 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 (roughly 9% versus 79%) magnifies the impact of the FWL seepage volume into the Mine Pit on the Mine Pit's groundwater concentration when the quarterly rainfall is low, as was the case during 3rd Quarter 2019.

In the Annual Water Monitoring Reports submitted 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 quarterly reports.

As we stated during previous quarters, 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 and valuable 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

db

cc: Mr. Chris Neel, Oklahoma Water Resources Board