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Oklahoma Water Resources Board

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MASONRY

23 November 2021
21-ED-142

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

RE: Water Monitoring Plan Report, 3rd Quarter 2021, for Dolese Bros. Co. Davis Quarry, Murray County, Oklahoma

Dear Mr. Tutkowski:

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 2021.
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 2021 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 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
DOLESE BROS. CO.

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Below, in Tables 1, 2, and 3, are shown the 3rd Quarter 2021 summary data collected at the Davis Quarry.

Table 1

Accumulation & Disposition of Pit Water during 3rd Quarter 2021

	<u>Groundwater</u> Acre-Feet	<u>Surface Water</u> Acre-Feet	<u>Total</u> Acre-Feet
Water Entering The Mine Pit	285.96	47.23	333.19
Water Diverted From The Mine Pit Into Fresh Water Lake	285.85	47.21	333.07
Water Removed From Fresh Water Lake	1,179.80	367.08	1,546.88
Water Returned To Fresh Water Lake	1,116.69	347.44	1,464.14
Water Returned To Land Surface Overlying ASA² Basin	259.72	80.81	340.53
Water Consumptively Used	31.53	(See Table 3 for Calculations)	

Table 2

Water Fluctuations in Fresh Water Lake during 3rd Quarter 2021

Average Size of Lake	32.44 acres
<u>Loss</u> in Water Elevation	3.38 feet
<u>Loss</u> in Lake Volume	109.65 acre-feet

Table 3

Consumptive Use Summary for 3rd Quarter 2021

	Activity or Location	Amount of Pit Water Used, Acre-Feet	Groundwater Content, Percent	Groundwater Component, Acre-Feet
1	North Water Well	0.00	All	0.04
2	South Water Well	0.00	All	0.10
3	Material Moisture Hauled from Site	6.43	0.7627	4.90
4	Land Application for Roadway Dust Suppression	34.59	0.7627	26.39
5	Evaporation from Mine Pit	0.12	0.8582	0.10
6	Offsite Dewatering	0.00	0.7627	0.00
Total Groundwater Consumption from ASA at Davis Quarry = 31.53 Acre-Feet				

² Arbuckle Simpson Aquifer

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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

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 2021 report, we believe 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 2021 was 31.53 acre-feet. This equates to about 13.29% of Davis Quarry's Equal Proportionate Share (EPS) for the year.

- The calculations show the groundwater consumption to be fairly low for a variety of reasons. The primary reason was that water was not discharged offsite.
- We did not have to discharge any pit water during the third quarter even though we started the quarter with the Fresh Water Lake (FWL) at a high level. The lack of stormwater during the quarter prevented the FWL from reaching a level where discharge was necessary. The combination of consumptive use and evaporation from the FWL lowered the water level 3.38' during the third quarter.
- During this quarter, the entire amount of groundwater consumed was related to the following activities: the groundwater usage from two (2) small water wells, material moisture hauled from the site, dust suppression waters, and evaporation of Mine Pit water.
- Our present belief is that the current floor of the Mine Pit is above the water table of the Arbuckle Simpson Aquifer. Most of the time, we still use a small electric pump to keep this Mine Pit (work area) dewatered. This pump is having to return any storm water that enters the pit to the FWL along with any FWL leakage or groundwater seepage. When we have heavy storms at the site, as we did during Second Quarter 2021, we rented a portable diesel pump that assisted the electric pump until the volume of the storm was transferred from the Mine Pit to the FWL.

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To recap, we have 237.2 acre-feet of groundwater rights per year available over the ASA at the Davis Quarry location, but our total available water rights for this site also includes other significant groundwater rights we have at another site that also overlies the ASA in Murray County. These additional 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. Essentially, we have 503.8 acre-feet ($237.2 + 266.6 = 503.8$) of groundwater available to us at this facility.

During 3rd Quarter 2021, the Davis Quarry logged 8.90 inches of rainfall, as measured using rain gauges. The effective runoff into the quarry pits and lakes from these rains was estimated to be 2.21 inches. The largest rainfall event during the quarter was 1.3 inches. Only one other rainfall exceeded 1 inch during the quarter.

Due to the low amount of rainfall, the "calculated" groundwater percentage in the Fresh Water Lake was rather high at 76.27% for 3rd Quarter 2021, and storm water comprised the other 23.73%. These percentages typically vary each quarter due to the fluctuations in rainfall amounts and intensities in addition to the amount of leakage from the FWL. The leakage rate of the FWL into the Mine Pit is based on the water elevation in this lake, whereas a higher-level tends to leak more. Usually, the groundwater concentrations are lowest during rather wet quarters, and highest during dry quarters like this one. This trend proved to be true this quarter.

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 recently covered in the Annual Report for 2020, I will not outline them again in this quarterly report.

As we stated for many 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 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.

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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

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