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Oklahoma Water Resources Board

**DOLESE**

3 May 2021

21-ED-045

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

**RE: Water Monitoring Plan Report, 1<sup>st</sup> 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 1<sup>st</sup> 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 1<sup>st</sup> 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 MEPS<sup>1</sup>. 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.

<sup>1</sup> Mine's Equal Proportionate Share

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Below, in Tables 1, 2, and 3, are shown the 1<sup>st</sup> Quarter 2021 summary data collected at the Davis Quarry.

Table 1  
**Accumulation & Disposition of Pit Water during 1<sup>st</sup> Quarter 2021**

	<u>Groundwater</u> Acre-Feet	<u>Surface Water</u> Acre-Feet	<u>Total</u> Acre-Feet
<b>Water Entering The Mine Pit</b>	<b>147.51</b>	<b>35.11</b>	<b>182.62</b>
<b>Water Diverted From The Mine Pit Into Fresh Water Lake</b>	<b>147.45</b>	<b>35.10</b>	<b>182.55</b>
<b>Water Removed From Fresh Water Lake</b>	<b>688.05</b>	<b>289.98</b>	<b>978.03</b>
<b>Water Returned To Fresh Water Lake</b>	<b>659.34</b>	<b>277.88</b>	<b>937.22</b>
<b>Water Returned To Land Surface Overlying ASA<sup>2</sup> Basin</b>	<b>128.56</b>	<b>54.18</b>	<b>182.74</b>
<b>Water Consumptively Used</b>	<b>15.57</b>	<b>(See Table 3 for Calculations)</b>	

Table 2  
**Water Fluctuations in Fresh Water Lake during 1<sup>st</sup> Quarter 2021**

<b>Average Size of Lake</b>	<b>31.69 acres</b>
<b><u>Gain</u> in Water Elevation</b>	<b>0.4 feet</b>
<b><u>Gain</u> in Lake Volume</b>	<b>12.67 acre-feet</b>

Table 3  
**Consumptive Use Summary for 1<sup>st</sup> Quarter 2021**

	<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
<b>1</b>	<b>North Water Well</b>	<b>0.00</b>	<b>All</b>	<b>0.05</b>
<b>2</b>	<b>South Water Well</b>	<b>0.00</b>	<b>All</b>	<b>0.09</b>
<b>3</b>	<b>Material Moisture Hauled from Site</b>	<b>4.63</b>	<b>0.7035</b>	<b>3.26</b>
<b>4</b>	<b>Land Application for Roadway Dust Suppression</b>	<b>17.24</b>	<b>0.7035</b>	<b>12.13</b>
<b>5</b>	<b>Evaporation from Mine Pit</b>	<b>0.06</b>	<b>0.8077</b>	<b>0.05</b>
<b>6</b>	<b>Offsite Dewatering</b>	<b>0.00</b>	<b>0.7035</b>	<b>0.00</b>
<b>Total Groundwater Consumption from ASA at Davis Quarry = 15.57 Acre-Feet</b>				

<sup>2</sup> 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 <b>(1,186 ac. on ASA)*(0.2 ac-ft/acre) = 237.2 acre-feet on the ASA</b>
From Acreage off the Arbuckle-Simpson Aquifer And Excluded from the ASA Groundwater Rights <b>(1,630 ac. off ASA)*(2.0 ac-ft/acre) = 3,260* acre-feet off the ASA</b> <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 1<sup>st</sup> 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 1<sup>st</sup> Quarter 2021 was 15.57 acre-feet. This equates to about 6.56% of Davis Quarry's Equal Proportionate Share (EPS) for the year.

- The calculations show the groundwater consumption to be this low for a variety of reasons. The primary reason was that no water was required to be discharged offsite because the rainfall total for the quarter was very low. Essentially, very little water entered the Mine Pit and was required to be transferred to the Fresh Water Lake (FWL).
- 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 level of the Arbuckle Simpson Aquifer. We still use a small electric pump to keep this Mine Pit (work area) dewatered, and it only runs intermittently. This pump is having to return to the FWL any storm water that enters the pit along with any FWL leakage or groundwater seepage. When we have heavy storms at the site, we typically rent a portable pump that assists the electric pump until the volume of the storm is transferred from the Mine Pit to the FWL.

To recap, 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 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.

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During 1<sup>st</sup> Quarter 2021, the Davis Quarry logged 5.6 inches of rainfall, as measured using rain gauges. The effective runoff into the quarry pits and lakes from these rains was estimated to be 1.64 inches. Only two of the individual rainfall events during the quarter were greater than 1 inch, including the following rain gauge measurements: 1.1 and 1.4 inches.

The "calculated" groundwater percentage in the Fresh Water Lake was 70.35% for 1<sup>st</sup> Quarter 2021, and storm water comprised the other 29.65%. 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. 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.

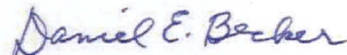
In the Annual Water Monitoring Reports for this quarry we have always included more of the details regarding the water calculations and how they were performed than are shown in the quarterly reports. The Annual Reports also detail how we always try to use the least controversial methods of calculating 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 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.

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

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