



22 August 2016
16-ED-221

Mr. Kent Wilkins, Assistant Chief
Planning and Management Division
Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118

RE: **Water Monitoring Plan Report, 2nd Quarter 2016, for Dolese Bros. Co. Davis Quarry,
Murray County, Oklahoma**

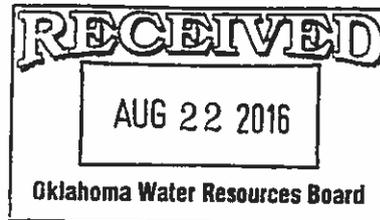
Dear Mr. Wilkins:

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:

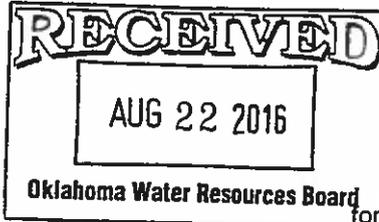
1. Adopt and implement a plan to monitor and report to the Board the accumulation and disposition of pit water during the previous calendar year;
 - The Davis Quarry has adopted and implemented such a plan, and the tables below serve to report to the Board the accumulation and disposition of pit water during the 2nd Quarter 2016.
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 2nd Quarter 2016 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, is shown the 2nd Quarter 2016 summary data collected at the Davis Quarry.

Table 1
Accumulation & Disposition of Pit Water During 2nd Quarter 2016

	<u>Groundwater</u> Acre-Feet	<u>Surface Water</u> Acre-Feet	<u>Total</u> Acre-Feet
Water Entering The Mine Pit	128.70	237.25	365.95
Water Diverted From The Mine Pit Into Fresh Water Lake	126.23	232.70	358.93
Water Removed From Fresh Water Lake	317.05	895.86	1,212.91
Water Returned To Fresh Water Lake	336.24	950.08	1,286.32
Water Returned To Land Surface Overlying Arbuckle Simpson Aquifer (ASA) Basin	14.34	40.53	54.87
Water Consumptively Used	81.31	(See Table 3 for Calculations)	

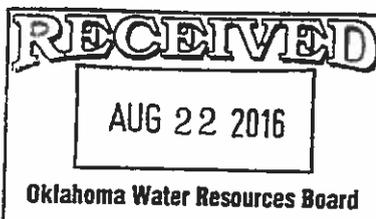
Table 2
Water Fluctuations in Fresh Water Lake during 2nd Quarter 2016

Average Size of Lake	31.36	acres
Loss in Water Elevation	3.96	feet
Loss in Lake Volume	124.19	acre-feet

Table 3
Consumptive Use Summary for 2nd Quarter 2016

	<u>Amount of Pit Water Used,</u> Acre-Feet	<u>Percent Groundwater</u>	<u>Groundwater Component,</u> Acre-Feet
1 North Water Well	0.00	All	1.66
2 South Water Well	0.00	All	0.98
3 Material Moisture Hauled from Site	4.81	26.14%	1.26
4 Land Application for Roadway Dust Suppression	7.41	26.14%	1.94
5 Evaporation from Mine Pit	4.03	34.99%	1.41
6 Offsite Dewatering	283.40	26.14%	74.07
For 2nd Quarter 2016,			
Total Groundwater Consumption from ASA² at Davis Quarry = 81.31 Acre-Feet			

² Arbuckle Simpson Aquifer



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Below, in Table 4, is 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 acres on ASA)*(0.2 ac-ft/acre) = 216.6 acre-feet on the ASA
From Acreage off the Arbuckle-Simpson Aquifer And Excluded from the ASA Groundwater Rights (937 acres off ASA)*(2.0 ac-ft/acre) = 1,874 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 2nd Quarterly Report for 2016, we believe that the Davis Quarry is in full compliance with all of the regulations that allow us to maintain its preexisting exemption.

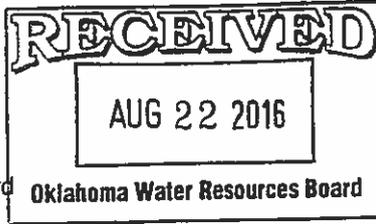
General Information--

Our calculations show that Davis Quarry's total groundwater consumption for 2nd Quarter 2016 was 81.31 acre-feet. This equates to about 37.5% of the Davis Quarry's equal proportionate share for the year. Annually, we have 216.6 acre-feet 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 own at another site that overlies the ASA in Murray County.

During 1st Quarter 2016, the Davis Quarry received only 5.0 inches of rainfall, which yielded only 1.79 inches of runoff; however, much more precipitation than this fell during 2nd Quarter 2016. During 2nd Quarter 2016, we received 21.60 inches of rainfall, yielding 11.02 inches of runoff. We were forced to discharge water from our site because of these significant rains.

As we predicted, the groundwater percentage of the Fresh Water Lake decreased considerably, from 72.17% to 26.14% from the first quarter to the second quarter, because of the significant increase in rainfall. For reasons mentioned in previous monitoring reports, even the calculated 26.14% groundwater portion of the Fresh Water Lake using current calculation methods is still indicating an amount of groundwater much higher than what is likely the actual content; but this figure is much better than the higher amounts we have encountered during drought quarters. The primary culprit causing these figures to indicate that groundwater concentrations are so high continues to be the quantity of water leaking from the Fresh Water Lake, which tends to skew the calculations.

Consider the following situations that often occur at Davis Quarry: During the majority of dry quarters, we have no reason to discharge water offsite; so, the total groundwater consumptive use is based only on water uses related to our crushed stone operation. However, during quarters when we receive considerable rainfall, we are forced to discharge



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water from our site because it inundates the lower Mine Pit region so much that we cannot operate. An analysis of these situations leads us to believe that the "storm water" is the primary reason for having to conduct offsite discharge, rather than any "groundwater" infiltration. While it may be rather difficult to prove, it is unlikely that our current Mine Pit has entered the Arbuckle Simpson Aquifer (ASA). Regardless, we will still continue to count all of the Fresh Water Lake seepage and delayed storm water seepage as groundwater until we get a better handle on the situation.

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

Sincerely,
DOLESE BROS. CO.

A handwritten signature in cursive script that reads "Daniel E. Becker".

Daniel E. Becker, P.E.
Environmental Engineer

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