



8 June 2016
16-ED-135

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, 1st 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 1st 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 1st 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

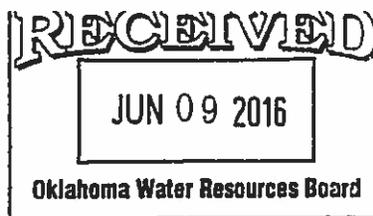
DOLESE BROS. CO.

20 NW 13th Street • P.O. Box 677

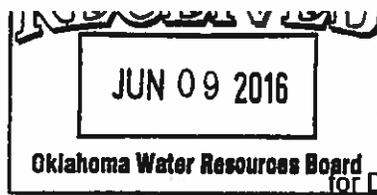
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Below, in Tables 1, 2, and 3, is shown the 1st Quarter 2016 summary data collected at the Davis Quarry.

Table 1
Accumulation & Disposition of Pit Water During 1st Quarter 2016

	<u>Groundwater</u> Acre-Feet	<u>Surface Water</u> Acre-Feet	<u>Total</u> Acre-Feet
Water Entering The Mine Pit	156.86	38.36	195.22
Water Diverted From The Mine Pit Into Fresh Water Lake	161.62	43.16	204.78
Water Removed From Fresh Water Lake	633.95	244.46	878.41
Water Returned To Fresh Water Lake	664.98	256.43	921.41
Water Returned To Land Surface Overlying Arbuckle Simpson Aquifer (ASA) Basin	26.04	10.04	36.08
Water Consumptively Used	72.91	(See Table 3 for Calculations)	

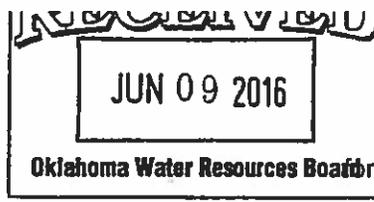
Table 2
Water Fluctuations in Fresh Water Lake during 1st Quarter 2016

Average Size of Lake	31.76 acres
Loss in Water Elevation	0.06 feet
Loss in Lake Volume	1.91 acre-feet

Table 3
Consumptive Use Summary for 1st Quarter 2016

Activity or Location	Amount of Pit Water Used, Acre-Feet	Percent Groundwater	Groundwater Component, Acre-Feet
1 North Water Well	0.00	All	0.45
2 South Water Well	0.00	All	0.99
3 Material Moisture Hauled from Site	4.50	72.17%	3.25
4 Land Application for Roadway Dust Suppression	13.30	72.17%	9.60
5 Evaporation from Mine Pit	1.14	75.70%	0.86
6 Offsite Dewatering	80.03	72.17%	57.76
For 1st Quarter 2016, Total Groundwater Consumption from ASA² at Davis Quarry = 72.91 Acre-Feet			

² Arbuckle Simpson Aquifer



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 1st 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.

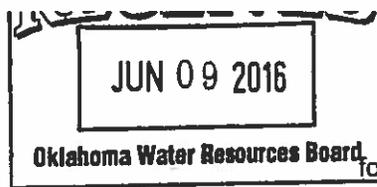
General Information—

Our calculations show that Davis Quarry's total groundwater consumption for 1st Quarter 2016 was 72.91 acre-feet. This equates to about 34% of the Davis Quarry's equal proportionate share for the year. 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.

As is typical in Oklahoma, we have observed wide fluctuations in the weather over the last few quarters. The last few quarters in 2015 had been very wet, but 1st Quarter 2016 was very dry. We received only 5.0 inches of rainfall during the quarter, which yielded only 1.79 inches (estimated) of runoff from the quarry area into the Mine Pit. This is our second lowest quarterly rainfall amount measured since water monitoring began in 2013.

The significance of receiving only a small amount of storm water runoff into the Mine Pit all relates to the method of calculation that we use to estimate the storm water/groundwater percentage in the Mine Pit, and the fact that the Fresh Water Lake (water storage lake) leaks back into the Mine Pit continuously. To recap the calculation methods, we estimate the amount of storm water that runs into the Mine Pit using runoff calculations, and divide it by the total amount pumped from this pit into the Fresh Water Lake. Generally, this result is the storm water percentage in the Mine Pit and the remainder is considered the groundwater percentage. When water remains in the pit from previous quarters, this complicates the formula determining these percentages, but the concept is the same.

Now, for the significance of the Fresh Water Lake's leaking back into the Mine Pit—this is where things get interesting. The Fresh Water Lake is considerably higher in elevation than the Mine Pit (where most storm water collects and where we mine stone).



The Mine Pit is dewatered by pumping this water into the Fresh Water Lake. These two water bodies are separated by a narrow limestone formation, and the water from the higher elevation Fresh Water Lake continually seeps back into the Mine Pit – essentially recirculating the water by means of the pumping and the seepage.

Since this leakage is obviously not new storm water (measured by a rain gauge) that was calculated to enter the Mine Pit, this blended water is all classified as groundwater, by default. If we believed that we could adequately estimate this amount of seepage from the Fresh Water Lake, we would do so – but with all the other factors influencing the rise and fall of water in both of these water bodies – we have decided for now to simply count all of this seepage as groundwater to avoid controversy.

Offsite Discharge–

In late January 2016, we realized that we still had too much water in our Mine Pit from the previous year's rainfalls, so we decided to conduct offsite dewatering from our Fresh Water Lake to free up some water holding volume to allow some additional transfer of water from the Mine Pit. When we decided to discharge offsite during January 2016, we did not anticipate that we would receive only 1.79 inches of effective storm water runoff from our quarry area into our Mine Pit during the entire quarter. Because of the minimal storm water inflows into the Mine Pit, and because of the heavy seepage from the Fresh Water Lake (through the high-wall face) back into the Mine Pit, the estimated groundwater concentration using the current calculation methods skyrocketed from 23.72% to 72.17% in the Fresh Water Lake since the previous quarter. This means that nearly three-quarters of the water discharged offsite in January 2016 was counted as groundwater, along with three-quarters of our other consumptive uses. The end result is that we supposedly "consumed" about 73 acre-feet of groundwater during the quarter, our highest "estimated" consumptive use yet.

Future Considerations–

We are confident that these wide fluctuations in the weather will stabilize, resulting in quarterly consumptive groundwater use figures more in the average range. We believe that we will have plenty of groundwater rights regardless of what the weather does.

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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