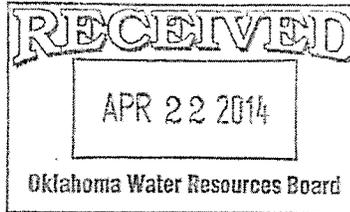




21 April 2014  
14-ED-250

CONCRETE

SAND & GRAVEL



STONE

BLOCK

MASONRY

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 2014, 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 previous quarter. Once the year ends, we will summarize the accumulation and disposition of pit water for the calendar year.
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 First Quarterly Report for 2014, enclosed. 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 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. Additionally, 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

DOLESE BROS. CO.  
20 NW 13th Street • P.O. Box 677  
Oklahoma City, OK 73101-0677  
405.235.2311

Copies to:  
• Dan Becker  
• Tom Dupuis  
• Davis Quarry - Water Monitoring File  
• Out-Chron



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

*Table 1*

<b>Accumulation and Disposition of Pit Water during 1<sup>st</sup> Quarter 2014</b>		<b>Acre-Feet</b>
<b>Water entering the Mine Pit</b>		
Groundwater		23.28
Surface Water		38.77
<b>Total</b>		<b>62.05</b>
<b>Water diverted from the Mine Pit into Fresh Water Lake (FWL)</b>		
Groundwater		23.28
Surface Water		38.77
<b>Total</b>		<b>62.05</b>
<b>Water removed from FWL</b>		
Groundwater		196.44
Surface Water		359.41
<b>Total</b>		<b>555.85</b>
<b>Water returned to FWL</b>		
Groundwater		176.42
Surface Water		322.80
<b>Total</b>		<b>499.22</b>
<b>Water returned to Land Surface overlying Arbuckle Simpson Aquifer (ASA) basin</b>		
Groundwater		30.77
Surface Water		56.31
<b>Total</b>		<b>87.08</b>
<b>Water consumptively used</b>		
Groundwater (See Table 3 for calculations)		5.08

*Table 2*

<b>Water Fluctuations in the FWL during 1<sup>st</sup> Quarter 2014</b>	
Average Size of FWL (water surface area) during Quarter	28.76 acres
Gain in Water Elevation	0.09 feet
Gain in Lake Volume	2.59 acre-feet

Table 3

**Consumptive Use Summary for 1QTR14**

Activity or Location	Amount of Pit Water Used, Acre-Feet	Percent Ground-Water	Groundwater Component, Acre-Feet
1 North Water Well	0.00	All	0.83
2 South Water Well	0.00	All	0.55
3 Material Moisture Hauled from Site	3.48	35.34% ×(0.3534)	1.23
4 Land Application for Roadway Dust Suppression	6.85	35.34% ×(0.3534)	2.42
5 Evaporation from Mine Pit	0.11	37.52% ×(0.3752)	0.04
6 Offsite Dewatering	0.00	35.34% ×(0.3534)	0.00
<b>For 1QTR14, Total Groundwater Consumption from ASA at Davis Quarry =</b>			<b>5.08 Acre-Feet</b>

Table 4

**Groundwater Rights**

**Davis Quarry Groundwater Rights**

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

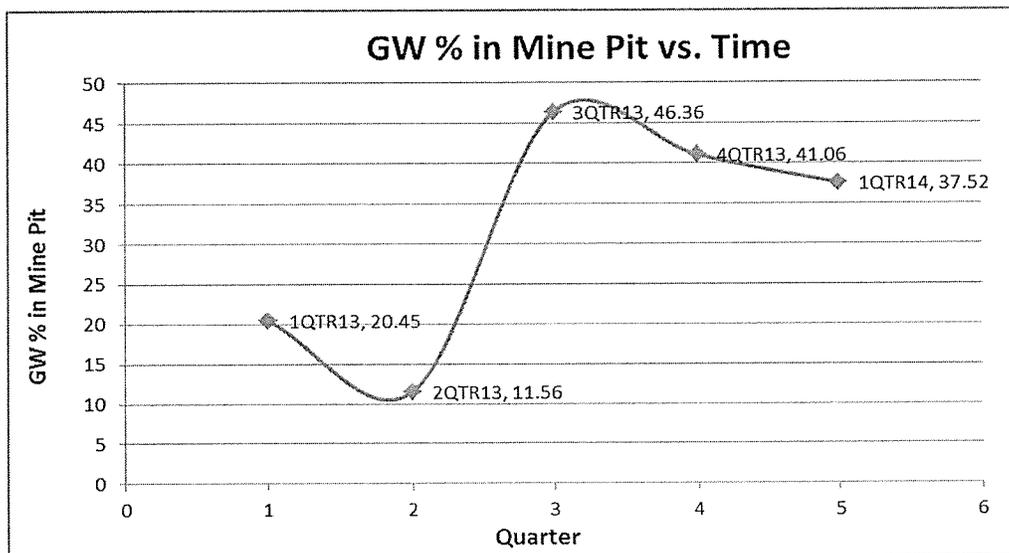
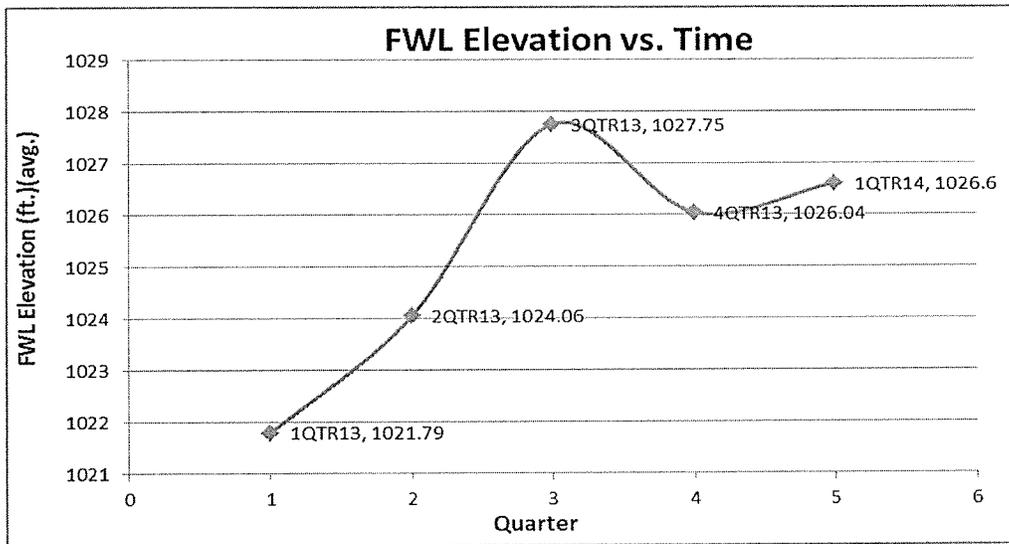
From Acreage OFF the Arbuckle-Simpson Aquifer  
 And Excluded from the ASA Groundwater Rights:  
 (937 acres off ASA)×(2.0 ac-ft/acre) = 1,874 acre-feet OFF the ASA

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 this 1<sup>st</sup> Quarterly Report and Annual Summary for 2014, we believe that the Davis Quarry is in full compliance with all of the regulations that allow us to maintain its preexisting exemption.

In the last couple of Quarterly Water Monitoring Reports that were submitted to you, we outlined our initial determination for the cause of the increase in the groundwater composition calculated for the Mine Pit. From a practical standpoint, we think that these “observed” increases in groundwater concentration compared to the first two (2) quarters of monitoring were caused by the leaking of our FWL back into the Mine Pit, primarily at higher water elevations. To clarify and expand upon this point, when the FWL leaks, the water returns back to the Mine Pit where it is again required to be pumped back into the FWL, making it appear that additional “groundwater” is naturally seeping into the Mine Pit. As you will recall, we always dewater the Mine Pit (mining

area) and transfer it to the FWL for the storage of water. Since our calculation method for determining the groundwater percentage of the Mine Pit is based solely on the amount of storm water estimated to run into the Mine Pit compared to the amount of water dewatered from this Pit—the leaking of the FWL will cause significant deviations from the actual groundwater composition of this lake.

In an attempt to confirm our theory that this lake leaks increasingly more (into the Mine Pit) as it fills up, we will begin using charts to compare the FWL water elevations to the calculated groundwater percentages of the Mine Pit, to see if there is a proportional relationship. Below, please find a couple of charts that show this comparison after the first five (5) quarters of monitoring.



While these chart curves are not identical, we believe that they definitely show a trend that the groundwater percentage increases as the level of the FWL increases. We believe that the most

likely cause for the groundwater percentage to increase in the Mine Pit is a rise of the Arbuckle Simpson Aquifer water level, because our Mine Pit floor has remained at roughly the same elevation. Also, we do not believe that the water level of the aquifer rose, because the rainfall amounts in this area of the state are well below average. We will continue to monitor these variables and update this curve to see if this trend continues over time.

Until such time that we confirm that we have a trend that proves that water from the FWL leaks back into the Mine Pit noticeably "faster" at higher levels, causing groundwater levels to increase — we will not make any adjustments to the calculated groundwater percentages.

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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