

12 November 2014
14-ED-544

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

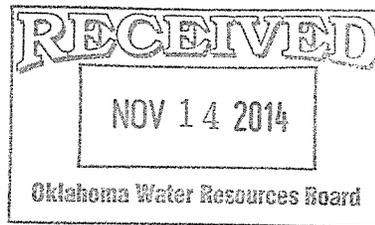
**RE: Water Monitoring Plan Report, 3rd Quarter 2014, for Dolese Bros. Co. Davis
Quarry, Murray County, Oklahoma**

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 Third 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 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. Additionally, 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



CONCRETE
SAND & GRAVEL
STONE
BLOCK
MASONRY

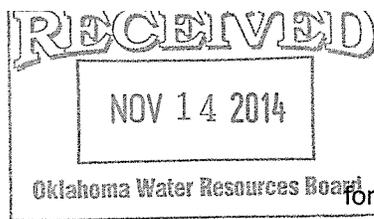


Table 1

Accumulation and Disposition of Pit Water during 3rd Quarter 2014	Acre-Feet
Water entering the Mine Pit	
Groundwater	118.74
Surface Water	57.33
Total	176.07
Water diverted from the Mine Pit into Fresh Water Lake (FWL)	
Groundwater	118.74
Surface Water	57.33
Total	176.07
Water removed from FWL	
Groundwater	435.38
Surface Water	351.07
Total	786.45
Water returned to FWL	
Groundwater	440.73
Surface Water	355.38
Total	796.11
Water returned to Land Surface overlying Arbuckle Simpson Aquifer (ASA) basin	
Groundwater	37.72
Surface Water	30.41
Total	68.13
Water consumptively used	
Groundwater (See Table 3 for calculations)	43.70

Table 2

Water Fluctuations in the FWL during 3rd Quarter 2014	
Average Size of FWL (water surface area) during Quarter	30.00 acres
Actual Loss in Water Elevation	0.77 feet
Actual Loss in Lake Volume	23.10 acre-feet

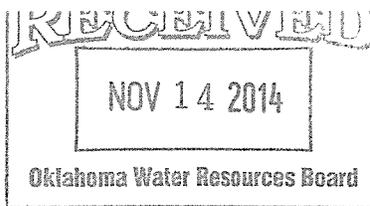


Table 3
Consumptive Use Summary for 3QTR14

Activity or Location	Amount of Pit Water Used, Acre-Feet	Percent Ground-Water	Groundwater Component, Acre-Feet
1 North Water Well	0.00	All	0.48
2 South Water Well	0.00	All	0.43
3 Material Moisture Hauled from Site	4.54	55.36% ×(0.5536)	2.51
4 Land Application for Roadway Dust Suppression	10.63	55.36% ×(0.5536)	5.88
5 Evaporation from Mine Pit	0.06	67.44% ×(0.6744)	0.04
6 Offsite Dewatering	62.06	55.36% ×(0.5536)	34.36
For <u>3QTR14</u> ,			
Total Groundwater Consumption from ASA at Davis Quarry =			43.70 Acre-Feet

Table 4
Groundwater Rights

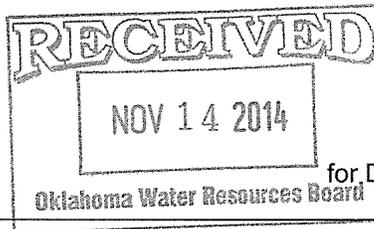
Davis Quarry Groundwater Rights

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

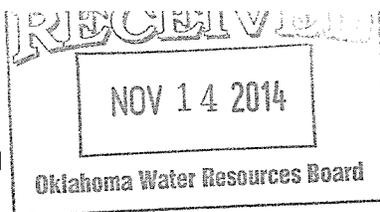
From Acreage OFF the Arbuckle-Simpson Aquifer
 And Excluded from the ASA Groundwater Rights:
 (937 acres off ASA)×(2.0 ac-ft/acre) = 1,874 acre-feet OFF the ASA

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 3rd Quarterly Report for 2014, we believe that the Davis Quarry is in full compliance with all of the regulations that allow it to maintain its preexisting exemption.

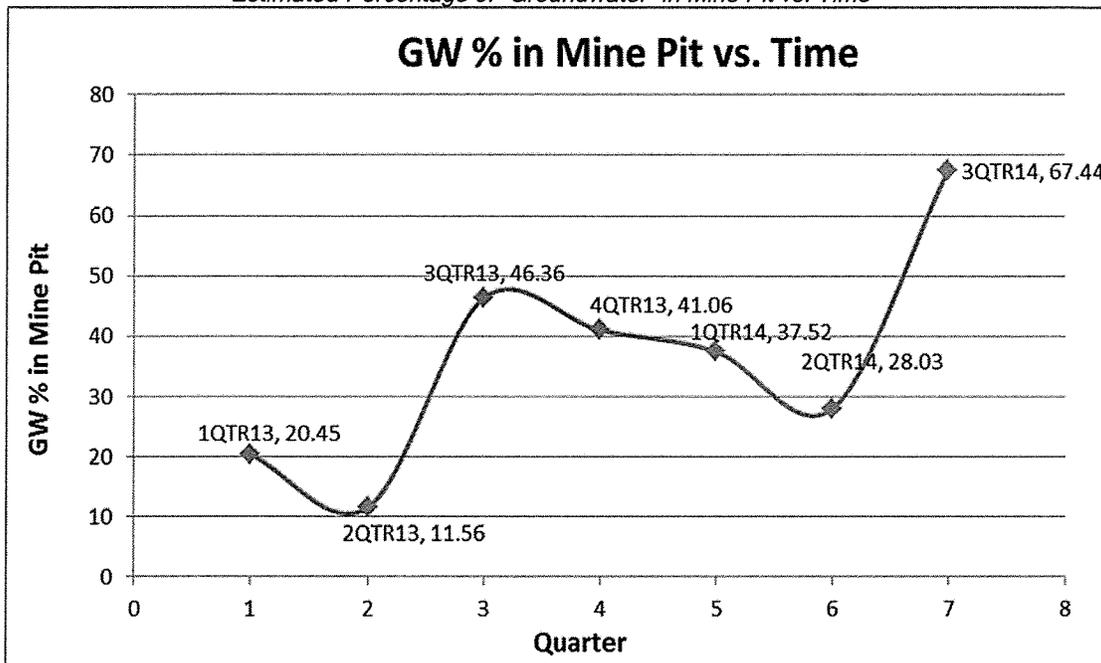
Data is still being collected to attempt to quantify the amount of "leakage" of water from the water storage lake (called the Fresh Water Lake (FWL)) back into the mining area (called the Mine Pit). We have taken some video footage of the leakage for documentation purposes. Our findings this quarter were again noteworthy:



- As expected, the FWL continues to leak back into the Mine Pit at a significant rate as a result of the lake's water level remaining very high. Actually, this FWL water elevation reached nearly 1,032 feet before we reluctantly discharged some water offsite. The reasons for discharging some of our stored water offsite are as follows:
 - Water was leaking (returning back to our Mine Pit through cracks) very quickly, causing us to run our Mine Pit dewatering pump(s) excessively.
 - We needed to perform some additional electrical work along the bank of the FWL to allow us to raise some of the pump's electric lines to prevent submerging them for extended periods.
 - The crushed stone pad used as a travelway to access the pumps at the FWL was becoming submerged. This area needed to be raised to allow for safe vehicle access to the pumps during high water conditions.
- Approximately 62.06 acre-feet of water was pumped offsite from the FWL during this discharge event.
- Using the methods of estimation originally selected for this water monitoring plan, the estimated groundwater percentages in the FWL and the Mine Pit have both spiked higher than ever before—even though the year-to-date precipitation (as of 7 November 2014) remains below normal for the Davis Quarry region. Essentially, it is highly unlikely that the water table of the aquifer rose into the floor of the Mine Pit during the quarter.
- Most all of the seepage appears to be along the one high-wall that abuts the FWL. We surveyed the elevation of the largest leak and determined that it was approximately 9 feet below the water elevation of the adjacent FWL. The head pressure of the water in the FWL noticeably causes the seepage to increase. If the "aquifer" is leaking into our Mine Pit, it seems that this water would enter the pit visibly from all four sides—which it is not.
- During Second Quarter 2014, we noted in our quarterly report's cover letter that when we receive substantial rainfall during a given quarter, the amount of seepage from the FWL into the Mine Pit is not as significant, percentage-wise.
 - This theory proved to be the case during Second Quarter 2014 when we received approximately 400% more rainfall than during First Quarter 2014—and the estimated groundwater percentage of the Mine Pit dropped from 37.52% to 28.03%, even though the elevation of the FWL was very high.
- Conversely, when we receive very little rainfall as experienced during Third Quarter 2014, the amount of seepage from the FWL into the Mine Pit tends to be very significant, percentage-wise. These conditions made it appear that the groundwater percentage spiked to 67.44% during the Third Quarter 2014, over 20% higher than ever before, because using current methods of estimating we cannot differentiate groundwater infiltration from FWL seepage into the Mine Pit to determine actual quantities or percentages of each. Note that for purposes of this study, we have therefore classified all waters entering the Mine Pit that are not storm water to be groundwater - so our "groundwater" includes FWL seepage.
 - To recap the previous groundwater percentages since the water monitoring program began, please see the following graph.

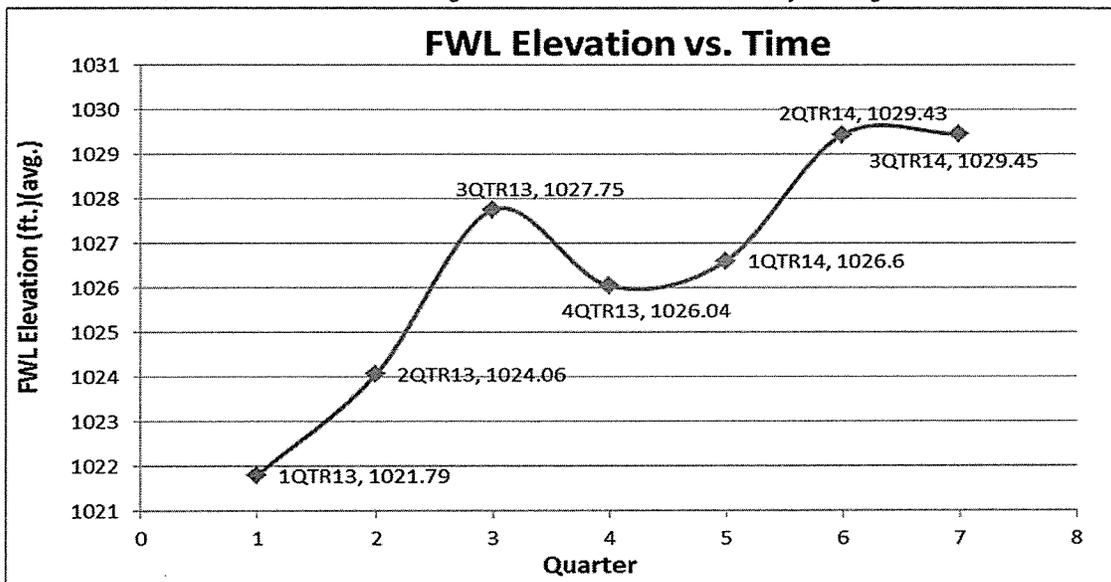


Estimated Percentage of "Groundwater" in Mine Pit vs. Time



- We attribute this spike in the Groundwater Percentage of the Mine Pit almost solely to the increased seepage of water from the FWL back into the Mine Pit, while receiving minimal rainfall and runoff into the Mine Pit. Shown below is how the water elevation of the FWL fluctuated during this same timeframe.

The FWL Elevation figures shown below are Quarterly Averages.



Until we gather more data on the quantity and specifics of this seepage, we do not plan to make any adjustments to the estimated groundwater percentages. We strongly believe that these estimated groundwater percentages are considerably higher than they should be, and it seems quite obvious to us that the seepage caused by the high level of the FWL is to blame. When this program began about two (2) years ago, the level of the FWL was approximately eight (8) feet lower than it is now. At that time, the groundwater percentage in the FWL was estimated to be in the range of 10-20%. Currently, the Mine Pit is estimated to be 67% groundwater. As a result of these potentially inflated percentages, the indicated consumptive use of groundwater appears to us to be greatly exaggerated.

Using the NOAA National Weather Service website, we analyzed the annual precipitation for the last four (4) Water Years, and precipitation at the Davis Quarry location was below average for all four years, sometimes very significantly. You would have to go back to Water Year 2010 to find a year with above average annual precipitation for this location. Based on this precipitation data, it is likely that the Arbuckle Simpson Aquifer's water level in this region dropped during this time, rather than somehow rising into our Mine Pit and thereby causing the actual groundwater percentage to rise.

We continue to study ways to confirm our theories about these matters, and we look forward to updating you about them in the future. Please recognize the fact that even with the potentially inflated groundwater percentages, the Davis Quarry has still consumed only about 25% of our allotment, and if it were not for our infrequent need to discharge water from the FWL during the 3rd Quarter 2014, we would have used only 10% of our annual allotment so far in 2014.

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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