DOLESE

CONCRETE
SAND & GRAVEL
STONE
BLOCK
MASONRY

2 March 2015
16-ED-074

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, 4th Quarter 2015 and 2015 Annual Summary, 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 4th Quarter 2015 and for Year 2015.
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 4th Quarter 2015 Report and 2015 Annual Summary. 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 [1]. 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

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

Below, in Tables 1, 2, and 3, is shown the 4th Quarter 2015 summary data collected at the Davis Quarry.

Table 1–4th Quarter 2015

ACCUMULATION & DISPOSITION OF PIT WATER DURING 4TH QUARTER 2015	Acre-Feet
Water entering the Mine Pit	
Groundwater	124.13
Surface Water	275.34
Total	**399.47**
Water diverted from the Mine Pit into Fresh Water Lake	
Groundwater	117.51
Surface Water	260.60
Total	**378.11**
Water removed from Fresh Water Lake	
Groundwater	241.69
Surface Water	777.26
Total	**1,018.95**
Water returned to Fresh Water Lake	
Groundwater	302.97
Surface Water	974.30
Total	**1,277.27**
Water returned to Land Surface overlying Arbuckle Simpson Aquifer (ASA) basin	
Groundwater	10.79
Surface Water	34.72
Total	**45.51**
Water consumptively used	
Groundwater (See Table 3 for calculations)	**46.10**

RECEIVED
MAR 09 2016
Oklahoma Water Resources Board

Table 2–4th Quarter 2015

Water Fluctuations in the Fresh Water Lake during 4th Quarter 2015	
Average Size of Lake	31.94 acres
Gain in Water Elevation	1.15 feet
Gain in Lake Volume	36.73 acre-feet

Table 3

Consumptive Use Summary for 4QTR15

	Activity or Location	Amount of Pit Water Used, Acre-Feet	Percent Ground-Water	Groundwater Component, Acre-Feet
1	North Water Well	0.00	All	3.33
2	South Water Well	0.00	All	0.91
3	Material Moisture Hauled from Site	5.04	23.72% *(0.2372)	1.19
4	Land Application for Roadway Dust Suppression	14.69	23.72% *(0.2372)	3.49
5	Evaporation from Mine Pit	1.00	30.99% *(0.3099)	0.31
6	Offsite Dewatering	154.44	23.72% *(0.2372)	36.87

For 4QTR15,
Total Groundwater Consumption from ASA[2] at Davis Quarry =
46.10 Acre-Feet

[2] Arbuckle Simpson Aquifer

Below, in Tables 4, 5, and 6, please find the 2015 Annual Summary data collected at the Davis Quarry.

Table 4–Annual Summary for 2015

ACCUMULATION & DISPOSITION OF PIT WATER DURING 2015	Acre-Feet
Water entering the Mine Pit	
Groundwater	462.01
Surface Water	947.25
Total	**1,409.26**
Water diverted from the Mine Pit into Fresh Water Lake	
Groundwater	412.64
Surface Water	975.97
Total	**1,388.61**
Water removed from Fresh Water Lake	
Groundwater	995.80
Surface Water	2,572.68
Total	**3,568.48**
Water returned to Fresh Water Lake	
Groundwater	1,159.17
Surface Water	3,049.29
Total	**4,208.46**
Water returned to Land Surface overlying Arbuckle Simpson Aquifer (ASA) basin	
Groundwater	64.91
Surface Water	167.01
Total	**231.92**
Water consumptively used	
Groundwater (See Consumptive Use Summary Table)	**180.33**

Table 5–Annual Summary for 2015

Water Fluctuations in the Fresh Water Lake during 2015	
Average Size of Lake during Year 2015	31.73 acres
Gain in Water Elevation	3.30 feet
Gain in Lake Volume	104.72 acre-feet

RECEIVED
MAR 09 2016
Oklahoma Water Resources Board

Table 6–Annual Summary for 2015

Consumptive Use Summary for 2015

	Activity or Location	Groundwater Component, Acre-Feet
1	North Water Well	4.79
2	South Water Well	3.70
3	Material Moisture Hauled from Site	5.77
4	Land Application for Roadway Dust Suppression	16.46
5	Evaporation from Mine Pit	4.13
6	Offsite Dewatering	145.46

For Calendar Year 2015,
Total Groundwater Consumption from ASA at Davis Quarry =
180.33 Acre-Feet

Below, in Table 7, please find the Groundwater Rights Summary for the Davis Quarry.

Table 7

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 all reports including this 4th Quarterly Report and Annual Summary for 2015, 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 2015 was 180.33 acre-feet. We have 216.6 acre-feet of groundwater rights available over the ASA at

the Davis Quarry location. Our total available water rights for this site could also include other unused groundwater rights that we own at another site that overlies the ASA in Murray County.

The weather provided a very interesting year in 2015 that started out rather dry, and then turned into one of the wettest years on record. As a general rule, we try to manage the water at our site as if we are in a drought, but we remain prepared to manage flood conditions with short notice. We always manage our stored water carefully, using it wisely and minimizing the escape of this water. However, when downstream flooding conditions occur, we juggle water at the site by allowing the water elevations of the Mine Pit and the Fresh Water Lake to rise as much as we can - even to levels that either nearly inundate our equipment, or significantly hinder the operation of the mine site by possibly causing us to abandon the working area. We typically maximize our storage of storm water during floods to deter the contribution to the downstream flooding where damage is occurring. This water management practice was well demonstrated during mid-year 2015 when some of our equipment was damaged by flooding, and our current mining location at the time had to be abandoned. The equipment had been damaged because we had delayed the discharge of our excess storm water until it was too late, given the intensity and duration of the storm event. Even when we were forced to discharge water offsite, the pumping rate was only at a fraction of the rate of the storm water entering our site. All of the water management practices that we use, pertaining to the management of drought and floods, are described in our Site Specific Water Management and Conservation Plan.

Detailed Information

The amount of groundwater shown that we consumed during 2015 equates to approximately 83% of our Equal Proportionate Share (EPS) at this facility. In order to better explain the activities relating to the amount we calculated that we consumed, it is important to note that over 80% of the water allegedly consumed was due to offsite dewatering because of high-water conditions. The remaining amount that we used (less than 20% of the total consumption) pertains to all other consumptive use activities (usage from water wells, material moisture hauled from site, dust suppression, and evaporation of Mine Pit water). These percentages show how efficiently we can manage our water, even with such record-setting rainfalls.

Below are listed the groundwater consumptive use figures reported for the last few years–

- 2013: Used 36.25 acre-feet of groundwater, or 16.7% of Davis Quarry's EPS.
- 2014: Used 61.66 acre-feet of groundwater, or 28.4% of Davis Quarry's EPS.
- 2015: Used 180.33 acre-feet of groundwater, or 83% of Davis Quarry's EPS.

Please let me assure you that we are not becoming a less efficient operation with respect to water management in the last three years. Our percentage of water used (with respect to the EPS) is directly related to the size, intensity, and frequency of storm events that occurred during the particular year. Based on our water balance formulas and assumptions, it appears that we use more groundwater during the years with heavy rains–because our site becomes flooded, and we have to dewater storm water that may contain ASA groundwater. Here are the rainfall totals for these same years:

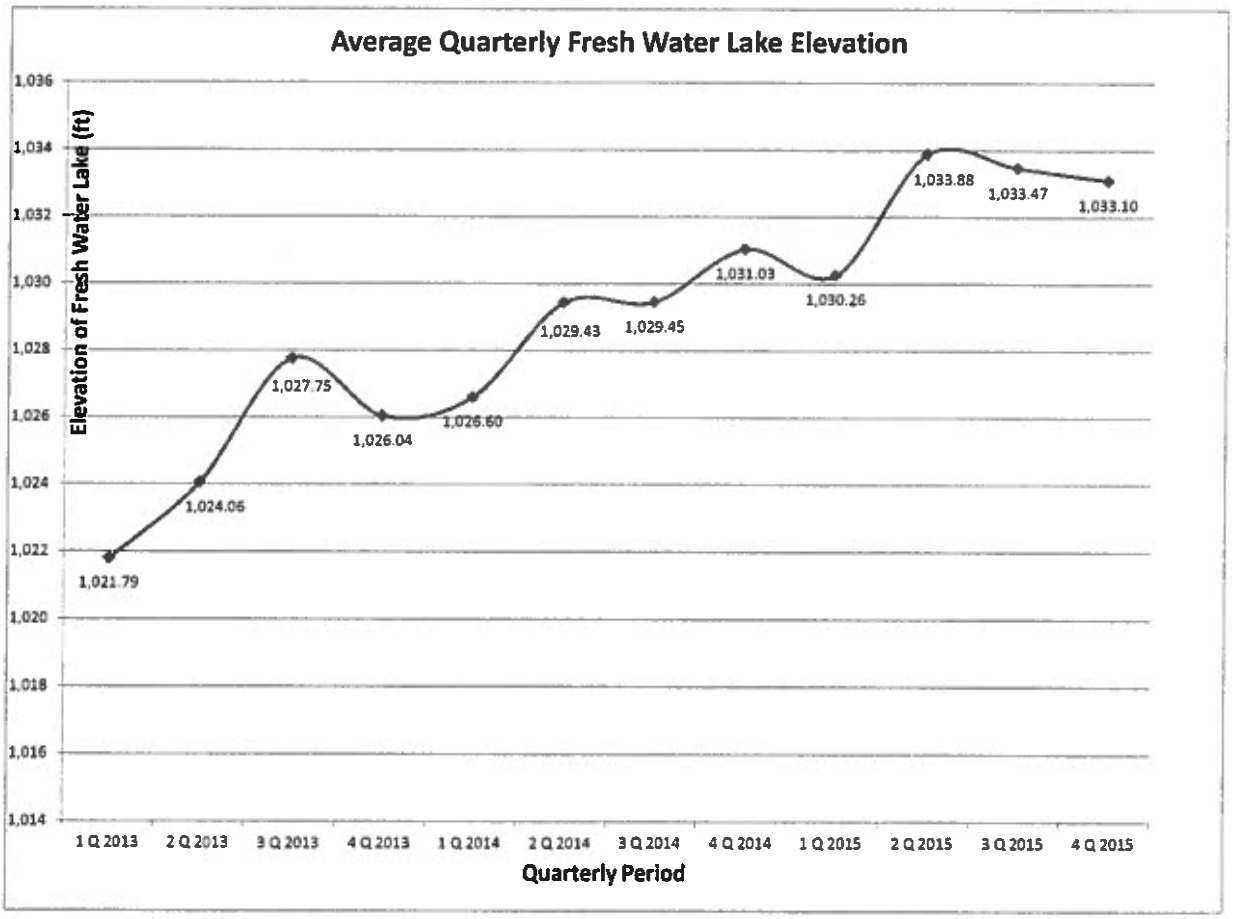
RECEIVED
MAR 09 2016
Oklahoma Water Resources Board

- 2013: Rained 34.17 inches during the year.
- 2014: Rained 36.20 inches during the year.
- 2015: Rained 77.15 inches during the year.

While our actual consumptive use for 2015 is comfortably within our groundwater use limits as calculated, we do firmly believe that this consumptive use figure is significantly overstated. Listed below are some reasons we believe our groundwater consumption figure is inflated. Many of these reasons have been addressed in detail in previously submitted Quarterly and Annual Reports; however, we believe that it is important to recap these items in this 2015 Annual Report.

- We are unable to determine the amount of seepage from the Fresh Water Lake that leaks back into our Mine Pit. Instead, we have chosen to simply count all of this seepage as groundwater entering the Mine Pit from the ASA.
- During certain dry periods in the last few years, we have noticed that very little seepage enters the Mine Pit. This led us to believe that the floor level of our Mine Pit was above the ASA water table in this area. Instead of trying to defend this belief, we have chosen to count all of the "delayed storm water runoff" that seeps into the Mine Pit as groundwater. We realize that the Mine Pit is slowly becoming deeper in this region, and it is possible that we will someday truly encounter ASA groundwater. At that time, we believe that we will easily recognize the fact that we have encountered groundwater because the pit floor would never dry up, and the transfer of water from the Mine Pit to the Fresh Water Lake would be an unending process. Again, our calculations have added non-groundwater (i.e., storm water) to the consumptive use figure.
- During Fourth Quarter 2015, on average, the Davis Quarry Fresh Water Lake was within 9 inches of storing the most water in the Davis Quarry FWL than ever stored in the history of the site, as shown on the following graph. The reason for this increased water storage is that we attempted to hold as much blended water as possible in our FWL to avoid its being discharged–and then being counted as consumption (specifically, the groundwater portion of the blend). We have pumped water offsite a few times, as indicated by the four (4) "dips" in the curve shown on the following graph, and in all of these discharge events we have counted the calculated groundwater portion of this blended water as consumption. While a couple of discharges that occurred during drought times certainly benefitted the downstream creeks, rivers, and water users, we accepted no credits for this "stream augmentation".

RECEIVED
MAR 0 9 2016
Oklahoma Water Resources Board



After completing the third full year of water monitoring at Davis Quarry, we have recorded extremely diverse weather conditions, including lengthy periods of drought, and record-setting rains. Our current system of water management at the site has seemingly worked well for us throughout this wide range of weather extremes. With such a complex undertaking as this water monitoring program, we have learned many things about water monitoring, and have recognized areas in which we can improve; as a result, we communicate more closely than ever with the Operations Manager at the Davis Quarry in order to better our water management practices and monitoring program.

We believe we were fortunate to have been able to detain large volumes of storm water at our site when the relentless rains began to fall during mid-year 2015 and caused widespread flooding, although we realize that the amounts we detained were rather small in the big picture. We truly believe that our quarry is an asset to the local community with respect to water conservation and management, because of its ability to detain storm water during heavy storms. Additionally, we store large volumes of water in percolating ponds perched above the ASA, and this water continually recharges the aquifer below. And, lastly, we are willing to share our water with our neighbors during drought, upon their request, provided water is available to us. This trend of sharing water with our neighbors, most of whom are cattle farmers, has been going on for decades at Dolese Bros. Co.

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

Sincerely,

DOLESE BROS. CO.

Daniel E. Becker

Daniel E. Becker, P.E.
Environmental Engineer

dh