DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B353825958

FACILITY: BEST CONCRETE & SUPPLY INC.		SRN / ID: B3538
LOCATION: 17200 DIX-TOLEDO, BROWNSTOWN		DISTRICT: Detroit
CITY: BROWNSTOWN		COUNTY: WAYNE
CONTACT: Gary Pachota , Owner		ACTIVITY DATE: 06/27/2014
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Compliance	SOURCE CLASS:
SUBJECT: FY 2014 - Targeted Inspection		
RESOLVED COMPLAINTS:		

Source: SRN B3538

Location: 17200 Dix Toledo Highway, Brownstown, MI 48192

Date of Inspection: June 27, 2014

Reason for Inspection: Targeted Inspection

Inspector: Nazaret Sandoval, DEQ - AQD

Personnel Present: Gary Pachota, Owner

Facility Phone Number: (734) 283-7055

Email: GPBestConcrete@sbcglobal.net

1. FACILITY BACKGROUND

Best Concrete and Supply (BEST) is a family owned company that supplies cement to residential accounts for driveways and occasional basement walls. The company has operated at its current location in the six-acre industrial complex since 1965. The facility is a batch plant involving the manufacture of ready-mix concrete from sand and gravel. After the country's economic debacle of 2008, the work force at the plant has decreased from 16 employees to 8 workers in 2014.

2. INSPECTION NARRATIVE

On June 27, 2014 at 11:00 AM, I arrived at the plant for an unannounced inspection. I was greeted by Linda Farrar, the facility's secretary. She notified Mr. Gary Pachota, one of the owners of BEST that I was there to conduct an inspection of the facility. Mr. Pachota was busy operating the cement batcher and dispatching the trucks, but I waited a couple of minutes and Mr. Pachota kindly agreed on meeting with me shortly after my arrival.

At the opening meeting I introduced myself to Mr. Pachota, I handed out the brochure "DEQ Environmental Inspections: Right and Responsibilities" and I explained the purpose of the inspection. The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; and the Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules. I also described that in accordance with our records, BEST is a concrete batch plant that has been categorized as a "minor source" of particulate matter. As such, the plant is exempt from the requirements of R

336.1201 (1) to obtain a permit to install (PTI); however, all the requirements cited under Rule R 336.1289 (d) (i) (Rule 289) are to be met.

I discussed the requirements of Rule 289 from the "Permit to Install Exemption Handbook" and I suggested Mr. Pachota to make a copy of that section of the handbook for his future reference. I also discussed the Fugitive Dust Control Plan (FDCP), dated December 15, 1986, which had been approved by the former AQD / MDNR on March 17, 1987. I reminded Mr. Pachota that he is responsible of the routine implementation of the FDCP. The specific requirements of the FDCP and compliance evaluation are cited later in this inspection report.

I requested the production records for the last five years, and the regular schedules of dust suppressants applications documenting fugitive dust control.

At the end of our opening meeting and after I received /reviewed the production records, we went outside for a plant walk-through to observe the process. Mr. Pachota explained the sequence of operations and I took this opportunity to ask him questions about the process, and to observe if there were visible emissions of particulate matter generated by the batch concrete operations.

During the site inspection I noticed the plant area is nearly completely paved and there are not storage piles. As Mr. Pachota explained, the sand and aggregate delivery trucks dump directly into the underground aggregate bins so material handling on-site is minimized. I also noticed that the back of the site was occupied by a non-metallic mineral processing facility portable crusher plant. Mr. Pachota indicated that he has leased the space to "Freeport Stone & Supply, Inc." to operate the cruncher plant in a temporary basis.

At the end of the meeting I summarized my impressions about the facility's compliance with the cited exemption and its requirements. I also informed Mr. Pachota that I would prepare an inspection report with the findings. I left the facility at about 1 PM.

3. COMPLAINT/COMPLIANCE HISTORY

According to our records the last inspection to this facility was conducted on May 13, 2004. Since then, we have no records of citizen complaints registered against this facility.

4. PROCESS DESCRIPTION

The batch process for cement manufacture at the plant is as follows:

- Delivery vehicles load sand and stone directly into underground storage bins.
- The sand and stone mixture travels up a slant conveyor into the batcher.
- Fly-ash and Portland cement are dispensed from storage silos and are mixed with the sand and stone in the batcher.
- The various cement formulations are computer controlled from within the dispatch building.
- Outbound cement trucks are loaded from the batch mixer and lastly, water is added.

Portland cement is comprised of calcium, silica aluminum, and iron. Roughly half of Portland cement particles are less than 10 microns in diameter.

BEST's batcher is completely enclosed. Two small bag house- bin vent collectors are present atop the cement and fly ash silos to control pneumatic loading emissions. There is also a fabric filter for the truck load-out.

A "Typical Concrete batching Process Flow Diagram" has been included in Appendix A. The diagram shows the individual equipment and operations that could potentially generate particulate emissions. It also identifies the specific Standard Classification Codes (SCC) that characterizes each section of the batch concrete production process.

5. APPLICABLE AIR REGULATIONS AND COMPLIANCE EVALUATION

RULE 336.1289 - Permit to Install Exemptions; asphalt and concrete production equipment.
As indicated earlier in this report, Rule 289 exempts BEST from obtaining a permit to install. Section (d) of the rule exempts concrete batch plant that meets all of the following requirements:

(i) The plant shall produce not more than 200,000 cubic yards per year.
(ii) The plant shall use either a fabric filter dust collector, a slurry mixer system, a drop chute, a mixer flap gate, or an enclosure for truck loading operations.
(iii) All cement handling operations, such as silo loading and cement weighing hoppers, shall either be enclosed by a building or equipped with a fabric filter dust control.
(iv)The owner or operator shall keep monthly records of the cubic yards of concrete produced.
(v) Before commencing operations, the owner or operator shall notify the appropriate air quality division district supervisor of the location where the concrete batch plant will be operating under this exemption.
(vi) The concrete batch plant shall be located not less than 250 feet from any residential or commercial establishment or place of public assembly unless all of the cement handling operations, excluding the cement silo storage and loading operations, are enclosed within at least a 3-sided structure.
(vii) The owner or operator shall implement a fugitive dust plan

EVALUATION of COMPLIANCE WITH RULE 289 items (i) to (vii):

Items (i) to (vi):
At this facility, particulate emissions from the batcher are controlled by wet slurry addition and enclosure of the truck load-out. Particulate emissions from the silos are properly controlled by fabric filter bag-houses
The owner keeps monthly production records. A copy of the records was handed out to me during the inspection. The concrete production records in cubic yards, from January 2009 to May 2014, are included in Appendix B.
The equipment has not been moved from the original permitted location. Therefore, there isn't any residential or commercial establishment located less than 250 feet from the site operations

Item (vii) – Fugitive Dust Control Plan
Rule 289 requires that BEST implement the following fugitive dust plan:

(A) The drop distance at each transfer point shall be reduced to the minimum the equipment can achieve.

(B) On-site vehicles shall be loaded to prevent their contents from dropping, leaking, blowing, or otherwise escaping. This shall be accomplished by loading so that no part of the load shall come in contact within 6 inches of the top of any sideboard, side panel or tailgate. Otherwise, the truck shall be tarped.

(C) All of the following provisions apply for site roadways and the plant yard:

(1) The dust on the site roadways and the plant yard shall be controlled by applications of water, calcium chloride, or other acceptable and approved fugitive dust control compounds. Applications of dust suppressants shall be done as often as necessary to meet an opacity limit of 5%.

(2) All paved roadways and plant yards shall be swept as needed between applications.

(3) Any material spillage on roads shall be cleaned up immediately.

(4) A record of all applications of dust suppressants and roadway and plant yard sweepings shall be kept for the most recent 5-year period and be made available to the department upon request.

(D) All of the following provisions apply for storage piles:

(1) Stockpiling of all nonmetallic minerals shall be performed to minimize drop distance and control potential dust problems.

(2) Stockpiles shall be watered on an as needed basis in order to meet an opacity limit of 5%. Equipment to apply water or dust suppressant shall be available at the site or on call for use at the site within a given operating day.

(3) A record of all watering shall be kept on file for the most recent 5-year period and be made available to the department upon request.

(E) The provisions and procedures of this fugitive dust plan are subject to adjustment by written notification from the department if, following an inspection, the department determines the fugitive dust requirements or permitted opacity limits are not being met.

EVALUATION OF FUGITIVE DUST CONTROL PLAN IMPLEMENTATION:
BEST has been implementing their fugitive dust control plan. Fugitive dust in excess of 5% opacity was not observed during the site inspection. The plant area is nearly completely paved and there are not storage piles. As indicated earlier, the sand and aggregate delivery trucks dump directly into the underground aggregate bins so material handling on-site is minimized. Drop heights are also minimized.

Mr. Pachota said that he used to employ an on-site wet sweeper truck regularly for fugitive dust and track-out control. However, the truck has been out of service for about two years and instead, he has been using the Ready-Mix trucks to discharge water on the driveway to keep dust down (which might not be as efficient as a vacuum sweeper). Records of wet sweeping treatments are kept in file. The records were available for review and showed a frequency of once or twice per month water application (no records of water quantities).

6. POLLUTANT EMISSIONS

As indicated earlier in this report, the only pollutant of concern from this facility is particulate matter consisting mostly of cement dust with some aggregate and sand dust. Essentially, we could say that there is only one major point source of emissions, the transfer of cement to a silo, which is controlled by a fabric filter. All other emissions are fugitive in nature and include the transfer of sand and aggregate, truck and mixer loading and vehicle traffic which are controlled using preventive and mitigation measures.

Although we expect particulate emissions from this source to be insignificant, this section of the report has been included to illustrate how the plant-wide emission factors per cubic yard of truck mix concrete from EPA AP-42 Chapter 11.12 are used to estimate the emissions of

particulate matter from the concrete batch operations at the facility. The AP-42 emission factors have been updated by the EPA in June 2006, with additional updates and equation corrections incorporated in August 2011. This exercise will help us to determine if the new AP -42 factors will have a significant impact on the magnitude of the plant-wide estimated emissions. The calculations are presented on Appendix C.

The quantity of particulate emissions from re-suspension of loose material on the road surface due to "in-plant" truck traffic has been estimated based on AP-42, Section 13.2.1.3 (January 2011 edition) and using specific information provided by Mr. Pachota for an average day of concrete manufacturing at the plant. The information included: the number of Ready-Mix trucks operating in an average year, truck traffic frequency -including material loading trucks, the total number of trips per day, the in-plant mileage per trips, and the weight of the trucks. The calculated emissions of PM-10 generated from vehicular traffic on the "in-plant" paved roads have been summarized in a separate sheet on Appendix C.

It is important to mention that the emissions calculations showed in Appendix C did not include fugitive emissions of particulate matter generated from wind erosion. Since there are not storage piles onsite it has been assumed that the dust blown by the wind is insignificant. In addition, the bulk aggregates and sand material arrives to the plant damp (with an average moisture of 5% or more and with a silt content of less than 0.7 %) and.it is transferred thru the plant from underground storage bins via conveyors belts which are either underground or cover with metal shroud.

The first sheet in Appendix C shows the emissions results when road dust and windblown dust are excluded. The plant –wide emission factors for uncontrolled total particulate emissions (PM) and (PM-10) for an average concrete batch formulation are: 0.35 lbs. /yd3 and 0.10 lbs. /yd3 respectively. The emission factors for controlled emissions are 0.06 lbs. /yd3 for PM, and 0.02 lbs. /yd3 for PM-10.

According to records in our files the AP42 emission factor for total uncontrolled particulate emission in 2001 was 0.2 lbs. PM /yd3; whereas a factor equal to 0.35 lbs. PM /yd3 was determined using the 2006 edition of the AP-42.
In 2001, a conversion factor of 1.0 pound PM-10 per 2.1 pounds of total PM was used to calculate the PM-10 emissions, resulting in 0.095 lbs. PM-10 /yd3. This result is similar to the 2006's emission factor of 0.10 lbs. PM-10/yd3.
In 2001, 80 % control efficiency was assumed to estimate the controlled emissions of PM-10, which resulted in 0.02 lbs. /yd3 for PM-10. That's the same emission factor obtained for controlled PM-10 when the AP-42 data from the 2006 edition was used

In summary, it appears that the new AP-42 emission factors (June 2006) will only have an impact on the magnitude of the total particulate emissions (PM) but not on the PM-10 emissions.

For illustrative purposes we used the highest annual production (20,638 yd^3) recorded at the facility during a five-year period from 2009 to 2013 to calculate the "actual" emissions. The results show that the uncontrolled PM emissions were 3.58 tons / year and 1.06 tons/year for PM-10. For controlled operations the results show insignificant emissions, 0.62 tons/year for PM, and 0.24 tons/year for PM-10.

The second sheet in Appendix C shows the procedure to estimate the uncontrolled PM-10 emissions generated from truck traffic in the plant for an average year of production at their current annual rate. The results show 0.53 tons/year of uncontrolled PM-10 dust emissions from in-plant paved roads.

The total uncontrolled PM-10 emissions for the max production rate recorded at this facility from 2009 to 2013, when dust traffic is added, is estimated to be 1.59 tons /year.

For any facility subject to the annual production rate limit specified under Rule 289 (i), the worst case scenario of particulate emission from batch concrete operations using truck mix loading would be when the production rate reaches 200,000 cubic yards of concrete per year. Under this condition the estimated uncontrolled PM-10 emissions (excluding road dust and windblown dust) would be 10.29 tons/year. The total uncontrolled PM emissions would reach 35 tons/year.

7. MAERS REPORT

According to the results included in Appendix C, BEST's particulate emissions do not exceed the MAERS reporting threshold of 25 tons per year for PM, and do not exceed the MAERS reporting threshold of 15 tons per year for PM-10. Therefore, the facility is not obligated to use the Michigan Annual Emission Report Database to submit the annual pollutant emissions reports to DEQ.

8. FINAL COMPLIANCE DETERMINATION

Based on annual cement production determined from monthly recordkeeping, BEST is operating under the permit exemption in Rule 289 and it is also complying with their approved fugitive dust control plan

Excess fugitive dust and track out were not observed during the inspection.

As a result of the inspection and the evaluation of the production/particulate emissions, it can be concluded that BEST is operating in compliance with the applicable federal and state air regulations.

NAME C Sandoval DATE 8/14/14 SUPERVISOR W. M