



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3360
Plant ID No.: 061-00231
Applicant: Wendell H. Stone Company, Inc. DBA Stone & Company
Facility Name: Morgantown Batch Plant
Location: Monongalia County
NAICS Code: 327320
Application Type: Construction
Received Date: February 27, 2017
Engineer Assigned: Thornton E. Martin Jr.
Fee Amount: \$1,000
Date Received: March 02, 2017
Complete Date: April 11, 2017
Applicant Ad Date: March 03, 2017
Newspaper: *The Dominion Post*
UTM's: Easting: 586.774 km Northing: 4379.253 km Zone: 17
Description: Applicant proposes to construct a concrete batch plant capable of producing 50,000 yd³ per year.

DESCRIPTION OF PROCESS

Wendell H. Stone Company dba Stone & Company, Inc. (Stone) is planning to construct a concrete batch plant in Morgantown, West Virginia. Travel, working, and storage areas will be paved in concrete or asphalt. The facility will produce approximately 50,000 cubic yards of concrete per year (95,000 tons per year).

Sand and aggregate will be delivered to the site via dump trucks, and unloaded into designated stockpile areas (SP-AG and SP-SD). Cement and cement supplement will be delivered to the site via trucks and pneumatically unloaded into a storage silo. To minimize fugitive emissions, the aggregate stockpile and dump truck unloading areas will be sprayed with water on an as-needed basis. The silo will be equipped with a filter vent (baghouse), which has a control efficiency of 99.9% at 1 microns, also minimizing emissions.

The sand and aggregate will be transferred from the stockpiles to a hopper via a front-end

loader. From the hopper, the sand and aggregate will be weighed and then conveyed to the volumetric feeder/mixer. The cement and cement supplement are weighed and then also transferred to an enclosed volumetric feeder/mixer. Water will be added to the material and the produced concrete will then be loaded into trucks which exit the site via a paved route for offsite delivery.

All areas at the site will be paved. The haul roads will be sprayed with water on an as-needed basis to minimize fugitive dust emissions. Emission sources for the Morgantown Batch Plant include aggregate, sand, and cement transfer activities (MT-AG, MT-SD, and MT-CT), wind erosion from aggregate and sand stockpiles (SP-AG and SP-SD), transfer activities on the site's paved roads (HR-AG, HR-CT, HR-CON, and HR-END), and discharges from the baghouse (MT-CT-C).

The Applicant has provided the Material Safety Data Sheets (MSDS) for eleven (11) possible cement supplements that may be used at the proposed facility. Cement supplements (mineral admixtures) may be added to make the concrete mixtures more economical, reduce permeability, increase strength or influence other concrete properties. Chemical admixtures are usually liquid ingredients that are added to concrete to entrain air, reduce the water required to reach a required slump, retard or accelerate the setting rate, make the concrete more flowable or other more specialized functions. Please refer to Table 2 for a listing of approved admixtures (cement supplements).

There will be no stationary combustion sources. All power will be electric.

A 500-gallon diesel tank will also be located at the site for refueling the endloader and concrete trucks owned and operated by Wendell H. Stone Company, Inc.

Table 1: Emission Units Summary

Emission ID No.	Emission Point ID	A M R ¹	Description	Year Installed/ Modified	Design Capacity	Control Equipment ²
MT-AG	MT-AG	A	Transfer of Aggregate	2017	46,500 TPY	TC-PE
MT-SD	MT-SD	A	Transfer of Sand	2017	31,000 TPY	TC-PE
MT-CT	MT-CT	A	Transfer of Cement & Supplement	2017	13,500 TPY	MT-CT-C
SP-AG	SP-AG	A	Storage Pile of Aggregate	2017	46,500 TPY	SL-WG
SP-SD	SP-SD	A	Storage Pile of Sand	2017	31,000 TPY	SL-WG
HR-AG	HR-AG	A	Paved Haulroads - Aggregate Trucks	2017	77,500 TPY	WS
HR-CT	HR-CT	A	Paved Haulroads - Cement Tanker	2017	10,125 TPY	WS
HR-CON	HR-CON	A	Paved Haulroads - Concrete Mixer	2017	95,000 TPY	WS
HR-END	HR-END	A	Paved Haulroads - Endloader	2017	77,500 TPY	WS
Tanks						
TANK	N/A	A	Diesel	2017	500 gal/60,000 gal/yr	N
Control Equipment					Total Cloth Area (ft²)	Air/Cloth Ratio (ft/min)
MT-CT-C	MT-CT-C	A	Baghouse – Vince Hagen VH245JP - (used for loading/unloading cement silo)	2017	245	2.45 : 1 99.9% efficiency

¹ A - Addition; M - Modification; R - Removal

² TC-PE - Partial Enclosure; SL-WG - Wind Guard; WS - Water Spray; N/A - Not Applicable; N - None; MC-CT-C - Baghouse.

Table 2: Approved Admixtures (Cement Supplements)

Product Name	Chemical Family	Composition	CAS Number
Sika AIR 360	Aqueous solution	Sulfonic -acids, *	68439-57-6
Plastocrete 10N	Aqueous solution	Glycerol, *	56-81-5
SikaPlast 200	Aqueous solution	Sodium nitrate	7631-99-4
		Triethanolamine	102-71-6
		2,2-iminodiethanol, *	111-42-2
Plastocrete 161 HE	Liquid	Calcium chloride, *	10043-52-4
SikaSet R.H.E.	Aqueous solution	Calcium Nitrate	13477-34-4
		Salts of thiocyanic acid	540-72-7
		Methenamine, *	100-97-0
Sikament SPMN	Aqueous solution	Triethanolamine	102-71-6
		2,2-iminodiethanol, *	111-42-2
Plastiment	Liquid	Sodium salt of organic acid	Mixture
SikaViscocrete 1000	Liquid	‘*’	N/A
SikaTard 440	Liquid	Sodium salt of organic	Mixture
SikaStabilizer 4R	Liquid	Propylene glycol	57-55-6
Sikacrete 950-DP	Powder	Aluminum oxide	1344-28-1
		Calcium oxide	1305-78-8
		Carbon	7440-44-0
		Ferric Oxide	1309-37-1
		Magnesium oxide	1309-48-4
		Potassium hydroxide	1309-48-4
		Silica, Amorphous	69012-64-2
		Silica, Quartz	14808-60-7
		Sodium oxide	1310-73-2

* There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. (MSDS, 2. Composition)

SITE INSPECTION

Kirk Powroznik of the North Central Regional Office for the Division of Air Quality's (DAQ) Enforcement Section performed a Complaint Investigation / Plant Site Inspection on March 17, 2017. Site excavation was underway and footers were actively being poured for the proposed facility as allowed per 45CSR13-5.1.a. through 5.1.d.

Chuck Joseph, Inspector for the Department of Environmental Protection's (WVDEP) Wastewater/Environmental Enforcement stated that Stone & Company has a Notice of Intent (NOI) Construction Stormwater Permit for the earth disturbance taking place. The permit is for earth disturbance that is less than three (3) acres.

On March 20, 2017, Ben Blasingame with Civil & Environmental Consultants, Inc. contacted our Regional Office in Fairmont to provide an opportunity to answer any questions with regards to the project or permit application. Brian Tephabock, Supervisor with WVDEP DAQ and Mr. Powroznik expressed concerns about the potential for visible emissions from open stockpile loading and unloading and potential fugitive emissions from the site to affect homes that are in close proximity to the proposed facility. Mr. Blasingame stated that the stockpiles would be enclosed on three (3) sides with jersey barriers and that trees remaining onsite as well as proposed trees and shrubs to be planted would add a buffer. Mr. Tephabock and Mr. Powroznik mentioned there were concerns from the complainants about the extra truck traffic and the effect on the low water pressure in the area.

Directions: When on I-79, take exit 146 (Goshen Road). Head West on Goshen Road for 0.3 miles, then take a right onto Smithtown Road. The site will be on the right after 1.5 miles.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The estimated emission calculations were performed by the applicants' consultant and were checked for accuracy and completeness by the writer. All emission factors are based on AP-42, Fifth Edition, Revised 6/2006 for concrete batch plants (Section 11.12-2, updated and corrected 8/2011); aggregate handling and storage piles (Section 13.2.4, Revised 11/2006) and Revision 1/2011 for industrial paved roads (Section 13.2.1).

Fugitive emissions sources include those generated from the delivery and unloading of aggregate and sand by trucks, and the subsequent use of the endloader to transfer these materials to the hopper. The haul roads will be sprayed with water on an as-needed basis to minimize fugitive dust emissions. Fugitive emissions resulting from delivery and transfer by endloader are minimized by drop height. Fugitive emissions generated from weighing the aggregate and sand are controlled by enclosing the weigh hopper for these materials.

Cement and supplement transfer emissions are controlled by the use of a baghouse attached to an enclosed silo for the cement and supplement.

The baghouse utilizes “jet pulse” technology for the cleaning of the filter elements. The manufacturer specifies that to maintain the 99.9% collection efficiency, the filter elements should be inspected on a monthly basis for any visual imperfections and/or tears of any size. If an issue is found with any of the filter elements it is recommended that the entire set be replaced at the same time.

On April 03, 2017, the writer sent a Notice of Deficiency to the Applicant and Consultant in regards to the Paved Haulroad Analysis and associated emissions estimates. The maximum trips per hour and maximum trips per year were grossly exaggerated in error. On April 04, 2017, the writer received the revised information requested. The Paved Haulroad Analysis and associated emission estimates have been corrected and accurately reflect potential emissions for aggregate trucking of 25 tons/trip, cement and supplement trucking of 25 tons/trip, concrete trucking of 21.64 tons/trip and endloader transfers of 3 tons/trip. The corrected analysis greatly reduced the estimated emissions from 36.93 TPY to 6.98 TPY for haulroads.

Emission estimates are shown for the Morgantown facility based on a production of 95,000 tons/year of concrete and a total of 2,860 operating hours (10 hours/day, 5.5 days/week, 52 weeks/year). This equates to an average of 1.53 concrete truck trips per hour. Please refer to Table 3 for a summary of emissions:

Table 3: Emissions Summary (R13-3360)

Source	PM		PM ₁₀	
	lb/hr	TPY	lb/hr	TPY
Transfer Point Emissions	0.48	0.69	0.23	0.33
Point Source Emissions Total	0.48	0.69	0.23	0.33
Fugitive Emissions				
Paved Haulroad Emissions	4.88	6.98	0.20	0.29
Stockpile Emissions	0.08	0.34	0.04	0.16
Fugitive Emissions Total	4.96	7.32	0.24	0.45
Facility Emissions Total	5.44	8.01	0.46	0.78

REGULATORY APPLICABILITY

The proposed construction of a concrete batch plant is subject to the following state and federal rules:

45CSR7 To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations

The facility is subject to the requirements of 45CSR7 because it meets the definition of “Manufacturing Process” found in subsection 45CSR7.2.20. The facility should be in compliance with Subsection 3.1 (no greater than 20% opacity), Subsection 3.7 (no visible

emissions from any storage structure pursuant to subsection 5.1 which is required to have a full enclosure and be equipped with a control device), Subsection 4.1 (PM emissions shall not exceed those allowed under Table 45-7A), Subsection 5.1 (manufacturing process and storage structures must be equipped with a system to minimize emissions) and Subsection 5.2 (minimize PM emissions from haulroads and plant premises) when the particulate matter control methods and devices proposed within application R13-3360 are in operation.

According to Table 45-7B, for a type 'a' source with a maximum process weight rate of 66,434 lb/hour, the maximum allowable emission rate is approximately 31.66 lb/hour of particulate matter. The maximum emission rate is 0.48 lb/hour of particulate matter according to the estimated emissions in the permit Application.

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation

The potential to discharge controlled emissions is less than six (6) pounds per hour and ten (10) tons per year of a regulated air pollutant (PM), the applicant submitted the \$1000 application fee and published a Class I legal advertisement in *The Dominion Post* on March 03, 2017 pursuant to Section 2.24.a. of 45CSR13.

45CSR17 To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter

Per §45-17-3.1 no person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.

45CSR22 Air Quality Management Fee Program

In accordance with 45CSR22 - "Air Quality Management Fee Program", the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the Certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Various VOC/non-criteria regulated pollutants are emitted from the incomplete

combustion of diesel fuel. These emissions, however, are generally small and are not expected to adversely impact the quality of the surrounding ambient air.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed as the source is not a 'major source' as defined under Rule 14 and Monongalia County is designated as 'in attainment' for all Regulated Pollutants.

RECOMMENDATION TO DIRECTOR

The information contained in this construction application indicates that compliance with all applicable regulations should be achieved when all proposed particulate matter control methods are in operation. Due to the location, nature of the process, and control methods proposed, adverse air quality impacts on the surrounding area should be negligible. Therefore, the granting of a Rule 13 registration to Wendell H. Stone Company for the construction of their concrete batch plant located in Morgantown, Monongalia County, WV is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

April 11, 2017
Date