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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	13-2938
Plant ID No.:	037-00095
Applicant:	Golden Triangle Construction
Facility Name:	Harpers Ferry Plant
Location:	Harpers Ferry, Jefferson County
SIC / NAICS Code:	3273 / 327320
Application Type:	Modification
Received Date:	June 4, 2012
Engineer Assigned:	Mindy Hendrickson
Fee Amount:	$2,00.00
Date Received:	$1,000 - June 5, 2012; $1,000 NSPS fees - June 18, 2012
Complete Date:	July 6, 2012
Applicant Ad Date:	May 7, 2012
Newspaper:	*The Journal*
UTM's:	Easting: 258.994 km Northing: 4353.655 km Zone: 18
Description:	Applicant proposes the addition of a 2005 John Deere 617 hp diesel engine. The concrete batch plant is currently permitted under G50-B091.

DESCRIPTION OF PROCESS

Golden Triangle Construction (Golden Triangle) proposes to construct a concrete batch plant to be located in Harpers Ferry, Jefferson County, West Virginia. The concrete batch plant will produce concrete at a maximum rate of 750 tons per hour and 750,000 tons per with the central mixer operating a maximum of 780 hours per year. A 617 hp John Deere 6125HF070 engine will be utilized to power the facility. The engine will utilize No. 2 fuel oil and will operate a maximum of 2,400 hours per year.

Aggregates will be delivered to the site by covered trucks and placed in open stockpiles OS-1, OS-2, and OS-3. Aggregate moisture is continually monitored and adjusted. Aggregate is transferred from the stockpiles via front-end loaders to weigh hopper bin WH-1, from where it is transferred on belt conveyor BC-1 to the central mixer CM-1.

Cement and flyash will also be delivered to the site by covered trucks. These materials will be transferred to storage bins BS-1 and BS-2 using a negative-pressure, fully-enclosed pumping system. These bins are fully enclosed on the sides. The materials are then gravity-fed to a weigh hopper bin WH-2. Materials are directly fed from WH-2 to CM-1.

All materials are moisture controlled before reaching the central mixer CM-1, which is fully enclosed. Concrete is then transferred from the mixer to trucks by a chute. A fitted shroud encloses the truck beds. All site haulroads will be surfaced with coarse gravel. A water truck will deliver moisture to haulroads and work areas, while a water spray system will delivery moisture to storage areas and transfer points.

Golden Triangle's facility will utilize the following equipment at the Harpers Ferry Plant site:

Table 1: Equipment Summary

Equipment ID No.	Description	Year Installed	Maximum Capacity		Control Equipment
Equipment					
WH-1	RexCon Model S Weigh Hopper	2012	560 tons/hr	436,800 tons/yr	
WH-2	RexCon Model S Weigh Hopper	2012	109 tons/hr	84,630 tons/yr	APCD-1
CM-1	RexCon Model S Central Mixer	2012	750 tons/hr	75,000 tons/yr	APCD-1
APCD-1	C&W RA200 Reverse Air Baghouse	2012			
CE-1	John Deere 6125HF070 Engine 460 kW – #2 fuel oil (2005 model year)	2012	617 bhp / 1800 rpm	74,400 gal/yr (#2 fuel oil)	
Conveyors					
BC-1	Belt Conveyor	2012	560 tons/hr	436,800 tons/yr	
Storage			**Storage Capacity**	**Maximum Yearly Throughput**	
OS-1	Open Stockpile – Sand	2012	7,000 tons	436,800 tons/yr	WS
OS-2	Open Stockpile – Limestone	2012	5,000 tons		WS
OS-3	Open Stockpile – Limestone	2012	5,000 tons		WS
BS-1	Storage Bin – Cement	2012	225 tons	84,630 tons/yr	FE
BS-2	Storage Bin – Flyash	2012	200 tons		FE

SITE INSPECTION

A pre-construction site inspection for the general permit registration application G50-B091 was performed by Joseph Kreger of the WVDAQ Eastern Panhandle Regional Office Compliance and Enforcement section on March 8, 2012. The site is in a location similar to an industrial park. Because the modification consists of only the addition of an engine, another inspection was deemed unnecessary.

Directions from application: Go west for 3.4 miles from Harpers Ferry on 340. Go south for 3/4 mile on Route 23. Site is on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Potential sources of fugitive particulate emissions from open stockpiles and the transfer of aggregates through the operating system will be controlled utilizing water sprays to maintain aggregate moisture content. A fully enclosed water pumping system will be used during the transfer of materials from trucks to storage bins BS-1 and BS-2, with the bins being fully enclosed. A baghouse system APCD-1 will control potential fugitive emissions from the transfer of cement and flyash into the weigh hopper WH-2 and emissions from the central mixer CM-1. Trucks will be loaded with concrete through a chute system that is fully enclosed by a fitted shroud. Haulroads and work areas will be surfaced with coarse gravel, and a water truck will be used to control emissions from these areas. Water will be applied at a rate of 350 gallons per minute and 0.2 to 0.5 gallons per square yard. All truck beds will be fitted with covers.

Emission calculations were performed by Maureen Barrett of Stanley Consultants, Inc. using General Permit G50-B Emissions Calculation Spreadsheet G50ECALC for Concrete Batch Plants. The proposed maximum controlled emissions for Golden Triangle's concrete batch facility are summarized in the following tables:

Table 2: Concrete Production Emissions Summary

Emission Source	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	TPY	lb/hour	TPY
		Fugitive Emissions		
Stockpile Emissions	0.43	1.87	0.20	0.88
Unpaved Haulroad Emissions	1.80	0.70	0.53	0.21
Fugitive Emissions Total	*2.23*	*2.57*	*0.73*	*1.08*
		Point Source Emissions		
Transfer Point Emissions	13.53	3.44	7.59	1.79
Point Source Emissions Total (PTE)	*13.53*	*3.44*	*7.59*	*1.79*
FACILITY EMISSIONS TOTAL	**15.76**	**6.01**	**8.32**	**2.87**

A diesel-fired engine will be utilized as a power source at the facility. The John Deere 6125HF070 engine is a 2005 model year Tier 2 engine rated at 617 hp / 460 kW. The engine will operate a maximum of 2,400 hours per year. Emissions were calculated in the application using 670 hp rather than 617 hp. Values were recalculated using the correct value of 617 hp / 460 kW. The fuel consumption is given by the manufacturer as 221.3 lb / hr, which is equivalent to 31 gallons per hour and 74,400 gallons per year (based on maximum engine operation of 2,400 hours per year). The engine has received a 2005 Model Year Certificate of Conformity by the EPA, and the engine meets fuel requirements of 40CFR89.

Table 3: Proposed Engine Emissions Summary

Source ID	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
CE-1	Volatile Organic Compounds	6.49	7.79
	Carbon Monoxide	3.55	4.26
	Total Particulate Matter	0.21	0.24

REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the proposed facility. The proposed construction of a ready mix concrete batch plant is subject to the following state and federal rules:

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 proposed modification is subject to the requirements of 45CSR13 because it will result in an increase in the potential to discharge 6.49 pounds per hour and 7.79 TPY of of Volatile Organic Compounds when the engine operates at the proposed maximum 2,400 hours per year. This calculates to the potential to discharge 34.12 TPY of Volatile Organic Compounds if operated at a full 8,760 hours per year. Since the potential to discharge is greater than six (6) pounds per hour and ten (10) tons per year, and 144 pounds per day of a regulated air pollutant (VOC), the proposed construction requires an application to modify. The applicant submitted an application fee of $1,000 on June 5, 2012 and an additional $1,000 for NSNS fees on June 19, 2012. The applicant published a Class I legal advertisement in The Journal on May 7, 2012.

45CSR22 Air Quality Management Fee Program

This rule establishes a program to collect fees for certificates to operate and for permits to construct, modify or relocate sources of air pollution. Funds collected from these fees will be used to supplement the Director's budget for the purpose of maintaining an effective air quality management program.

The proposed modification of a ready mix concrete batch plant will NOT be subject to the following state and federal rules:

45CSR2 To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

Per this rule, Section 2.14 defines an indirect heat exchanger as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. The engine does not meet this definition. Therefore, it is not subject to 45CSR2.

45CSR14 Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

In accordance with 45CSR14 Major Source Determination, the proposed concrete batch plant is not listed in Table 1. The facility will have a potential to emit 3.68 TPY of a regulated air pollutant (PM), not including fugitive emissions, which is less than the 45CSR14 threshold of 250 TPY. This Harpers Ferry site is not listed in Table 2, and so fugitive emissions are not included when determining source applicability. Therefore, the proposed construction is not subject to the requirements set forth within 45CSR14.

45CSR30 Requirements for Operating Permits

The facility's potential to emit will be 34.12 TPY of a regulated air pollutant (VOC), not including fugitive emissions, which is less than the 45CSR30 threshold of 100 TPY for a major source.

40CFR60 Subpart IIII

Standard of Performance for Stationary Compression Ignition Internal Combustion Engines

The requirements of Subpart IIII are NOT applicable to the proposed facility as defined in section §60.4200 (a)(2). The model year for the 460 kW John Deere 6125HF070 Diesel-fired Engine [CE-1] is 2005. For the purpose of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator. An engine may be subject to this subpart if it was ordered (constructed) after July 11, 2005 AND manufactured after April 1, 2006. Even though the construction permit will be dated 2012, this is not the construction date of the engines as defined in this subpart. Therefore, the facility is not subject to Subpart IIII.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and location of this facility and the limit of the proposed construction permit. This facility will be located in Jefferson County, WV, which is not designated as non-attainment for PM2.5 (particulate matter less than 2.5 microns in diameter). The facility is a minor source and not subject to 45CSR14.

MONITORING OF OPERATIONS

Maximum concrete production / operation hours, engine operation hours / fuel usage, and visible emissions will be monitored –

4.2.1. For the purpose of determining compliance with maximum throughput and emission limits set forth in 4.1.1. and 4.1.2., the permittee shall monitor concrete production and maintain certified daily records. An example form is included as Appendix A. Such records shall be retained onsite by the permittee for at least five (5) years. Certified records shall be made available to the Director or his duly authorized representative upon request.

4.2.2. For the purpose of determining compliance with the maximum fuel usage limits set forth in 4.1.3. and 4.1.4., the permittee shall maintain monthly No. 2 fuel oil records for the 617 hp John Deere Engine (CE-1) utilizing the form identified as Appendix C.

4.2.3. For the purpose of determining compliance with the opacity limits of 45CSR§7, the permittee shall conduct visible emission checks and / or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

a. The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course.

b. Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each source (stack, transfer point, fugitive emission source, etc.) for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of normal facility operation and appropriate weather conditions.

c. If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

CHANGES TO PERMIT G50-B091

General permit registration G50-B091 will be converted into a Rule 13 permit because of the addition of the 617 hp diesel engine. All other operations will remain the same.

RECOMMENDATION TO DIRECTOR

The information contained in this modification 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 impacts on the surrounding area should be minimized. Therefore, the granting of Rule 13 modification permit 13-2938 to Golden Triangle Construction for the construction of a concrete batch plant to be located in Harpers Ferry, Jefferson County, WV is hereby recommended.

Mindy Hendrickson
Permit Engineer

August 29, 2012

Date