



west virginia department of environmental protection

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MEMORANDUM

To: Beverly McKeone, New Source Review Program Manager

From: Ed Andrews, Engineer 

Date: July 29, 2015

Subject: Permit Determinations PD15-053 for the West Virginia Army National Guard, Logan-Mingo Readiness Center, Facility Id No. 045-00147.

On July 15, 2015, the West Virginia Army National Guard (WVANG) submitted a permit determination for one fire water pump set to be located at the Logan-Mingo Readiness Center. This particular fire water pump is Clark Pump Model JU4H-UF24, which is driven by a John Deere Model 4045DF159 engine. The selected engine with this fire water pump is a four stroke, four cylinder diesel engine which will generate 83 horsepower at 3,000 rpm. The model year for the engine is 2014. Thus, the engine is an affected source under 40 CFR 60 Subpart III.

The applicant calculated the annual emissions from the engine in accordance with EPA's memorandum on "Calculating Potential to Emit (PTE) for Emergency". This guidance memorandum suggests that the potential to emit for an "emergency source" be based on reasonable and realistic "worst -case" estimate of the number of hours that the emission unit would be needed on an emergency basis. Therefore, EPA believes that 500 hours is an appropriate default assumption for estimating the number of hours that an emergency engine could be expected to operate under worst-case conditions.

Presented in Table #1 is a breakdown of each engine with corresponding emissions. The annual emissions generated from the combined total of these engines do not exceed 6 pounds per hour and 10 tons per year or 144 pounds per day of any one criteria pollutant.

The engine for the fire water pump set is subject to Subpart III, which establishes specific emission standards that the engine must achieve. EPA created two basic options in this subpart for sources to comply with these standards, which are engine manufacturers' certification program and source specific performance testing. The subpart specifically encourages owners/operators to purchase a certified engine (40 CFR §60.4211(b)(1)). Thus, it is understood that the engine is in compliance with emission standards if it is installed and configured according to the manufacturer's specifications. Under the purchasing a certified

engine option, the only other requirement for the owner/operator is to use diesel fuel that meets 40 CFR §80.510(b) for non-road diesel fuel, which are as follow:

- (1) Sulfur content. 15 ppm maximum.
- (2) Cetane index or aromatic content, as follows:
 - (i) A minimum cetane index of 40; or
 - (ii) A maximum aromatic content of 35 volume percent.

Therefore, a construction permit is not required for the engine under 45CSR13. Therefore, I recommend a no permit letter be issued to the WVANG for their Logan-Mingo Readiness Center.

Source Name		Firewater pump
Engine Manufacturer		John Deere
Model		4045DF159
EPA Certificate Number		EJDXL04.5141
Model Year		2014
Fuel Consumption Rate (gal/hr)		6.2
Brake Horsepower (Bhp)		83
Fuel Type		Diesel
PM/PM ₁₀ /PM _{2.5}	EF ¹ (g/Hp-hour)	0.18
	lb/hr	0.033
	TPY ²	0.01
NO _x	EF ¹ (g/Hp-hour)	4.29
	lb/hr	0.78
	TPY ²	0.20
SO ₂	EF ³ (lb/hp-hr)	0.00001
	lb/hr	0.001
	TPY ²	0.000
CO	EF ¹ (g/Hp-hour)	2.36
	lb/hr	0.43
	TPY ²	0.11
VOC	EF ¹ (g/Hp-hour)	0.41
	lb/hr	0.07
	TPY ²	0.02
CO ₂ e ⁴	EF lb/MMBtu	163.22
	lb/hr	139.65
	TPY ²	40.81

1 - EF (Emission Factor) listed were based on manufacturer test data unless noted.

2 - Annual Emission was based on operating schedule of 500 hours per year in accordance with EPA guidance policy letter dated September 6, 1995.

3 - SO₂ emissions were based on sulfur content of 0.015% in the diesel fuel.

4 - Special Pollutant under the Clean Air Act.