west virginia department of environmental protection

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Earl Ray Tomblin, Governor
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MEMORANDUM

To: Beverly McKeone, P.E. – New Source Review Program Manager

From: Ed Andrews, Engineer

Date: September 23, 2016

Subject: Permit Determination Request for the replacement of air nozzles on the gird floor for CFB Boilers 1 & 2 (PD16-056 & PD16-052) for Morgantown Energy Associates (061-0027)

On September 9, 2016, Morgantown Energy Associates (MEA) filed Permit Determination Request PD16-052 and followed up addition determination request on September 21, 2016 after the DAQ determination that the September 9, 2016 determination did not contain enough information to make a complete determination for the replacement of air nozzles for the grid floor of both CFB boilers at the Morgantown Energy Facility.

MEA plans on replacing the air nozzles on the gird floor for both CFB boilers this October. This activity does not meet the criteria under routine maintenance, repair and replacement under 45 CSR 13, and 45 CSR 14. Thus, the proposed activity is evaluated under both of these permitting rules to determine if a permit required for the replacement of the air nozzles in the gird floor of the CFB boilers. The following discussion only covers the question whether "reconstruction" as defined in 40 CFR §60.15(b) satisfied by replacement of the gird floor.

Under 40 CFR §60.15(b), "reconstruction" means the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility.

In PD16-052, MEA just simply claimed the cost of replacing the gird floors as an operating expense without any justification. The NSPS rules define capital expense as follows: Capital Expenditure means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be

reduced by any "excluded additions" as defined in IRS Publication 534, as would be done for tax purposes.

In PD16-056, MEA has estimated the cost of the replacement to cost $400,000. Also, MEA provided the projected capital cost of a new CFB boiler to be $28,005,317. Thus, the cost of the replacement of the gird floor would represent approximately 1.4% of the cost of a new CFB boiler. Therefore, "reconstruction" under Part 60 is not satisfied as result of this replacement project and no new stringent standards under Part 60 would be applicable to the CFB boilers as result of this project.

This particular project does not represent any increase in emissions under 45 CSR 13 nor a significant emissions increase and significant net emissions increase under 45 CSR 14 (See File PD16-052 and attached memo for PD16-052.

Based on the information submitted in PD16-052 and PD16-056, this writer concurs with MEA that a permit under 45 CSR 13 is not required for this gird floor replacement project on the CFR boilers at the Morgantown Energy Facility. Thus, this writer recommends issuing a no permit letter to Morgantown Energy Associates for this proposed activities at their Morgantown Energy Facility under 45 CSR 13.

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MEMORANDUM

To: Beverly McKeone, P.E. – New Source Review Program Manager

From: Ed Andrews, Engineer

Date: September 12, 2016

Subject: Permit Determination Request for the replacement of air nozzles on the gird floor for CFB Boilers 1 & 2 (PD16-052) for Morgantown Energy Associates (061-0027)

On September 9, 2016, Morgantown Energy Associates (MEA) filed Permit Determination Request PD16-052 for the replacement of air nozzles for the grid floor of both CFB boilers at the Morgantown Energy Facility.

MEA plans on replacing the air nozzles on the gird floor for both CFB boilers this October. This activity does not meet the criteria under routine maintenance, repair and replacement under 45 CSR 13, and 45 CSR 14. Thus, the proposed activity is evaluated under both of these permitting rules to determine if a permit required for the replacement of the air nozzles in the gird floor of the CFB boilers.

Under 45 CSR 14, MEA conducted the applicability test prescribed in 45 CSR 14-3.4.c. for each of the NSR pollutants. The application developed a baseline emissions which went back 5 years (60 months from October 2016 to November 2011) from commencement of proposed replacement. Using the past emissions by month, MEA sum the emissions for 24 consecutive months and divided by 2 to develop the 2 year averages emissions. MEA used the highest emission rate that has occurred within the 5 year window for each of the NSR pollutant to select the baseline emissions. The following table identifies the selected time period for each of the pollutant used to formulate the baseline emissions.

Table 1 – Selected Time Periods for the Baseline Emissions

Pollutant	Time period	Baseline Emissions (tons per year)
NO_x	Jul 2014 to Jun 2016	1,105.72
SO_2	Jul 2014 to Jun 2016	1,018.04
CO	Nov 2011 to Oct 2013	196.73
PM	Jan 2014 to Dec 2015	26.50

PM_{10}	Oct 2012 to Sep 2014	74.71
$PM_{2.5}$	Nov 2011 to Oct 2013	65.38
VOC	Jan 2014 to Dec 2015	3.94
Pb	Jan 2014 to Dec 2015	0.008
H_2SO_4	Jan 2014 to Dec 2015	48.70

MEA projected the future emissions on project heat input rates and anticipated hours of operation. In the future, MEA will increase the efficiency of the SO2 dry scrubber to achieve compliance with the alternative HCl limit in MATS of 0.20 lb of SO2 per MMBtu of heat input. MEA compliance dated for meeting this limit is April 16, 2017. The highest project heat input for the future is 95% of highest heat input recorded in the past five years.

The results of this applicability for 45 CSR 14 indicate that the future emissions from the CFB Boilers of every NSR pollutants than the baseline emissions rate. See Table 2. Thus, the air nozzles replacement in the gird floor does not trigger a major modification permit under 45 CSR 14 and MEA has satisfied the notification requirements of 45 CSR §14-19.8.b. within this determination submittal.

Table 2 – Actual to Projected Applicability Test

Pollutant	Max. Projected Actual Emissions (tpy)	Baseline Emissions (typ)	Net Change (tpy)
NO_x	1,063.12	-1,105.72	-42.6
SO_2	675.37	-1,018.04	-342.67
CO	193.67	-196.73	-3.06
PM	25.51	-26.50	-0.99
PM_{10}	71.13	-74.71	-3.58
$PM_{2.5}$	64.39	-65.38	-0.99
VOC	3.72	-3.94	-0.22
Pb	0.01	-0.01	0.0
H_2SO_4	46.40	-48.70	-2.30

For applicability under 45 CSR 13, MEA claims that the proposed replacement will not result in any increase of emissions. Thus, Modification is not triggered under 45 CSR 13-2.17.a. through d. 45 CSR 13 has a substantive rule requirement provision. The CFB boilers are subject to 40 CFR 60 Subpart Da upon initial start-up of each unit.

Under Subpart Da, the two triggers which beings in new or more stringent emission standards or requirements are "modification" and "reconstruction" of affected sources. Under Part 60, "modification" is triggered if the affected source makes a changes that results in an hourly increase of emissions that is regulated by the subpart (40 CFR §60.2). Further, MEA claims that 40 CFR §60.14(h) provide an exemption from "modification" under Part 60.

The writer does not agree with MEA claim of that §60.14(h) exemptions stream electric unit from "modification" but instead §60.14(h) states how the Administrator will evaluate whether "modification" is triggered under Part 60. §60.14(h) determines if "modification" for a

stream electric unit is triggered if the maximum hourly emissions of any pollutant regulated under this section above the maximum hourly emissions achievable at the unit during the 5 years priors to the change.

The pollutants the two pollutants in question for "modification" would be particulate matter and sulfur dioxide. MEA claims that the new design of the air nozzles should improve mixing of the fuel and limestone within the furnace section of the boiler, which should increase the absorption of the sulfur in the fuel which is collected in the bag house. Thus, the hourly sulfur dioxide emissions is predicted not to increase for either unit. The sulfur dioxide emissions from both units are measured on continuous basis using a SO2 CEMs.

MEA did not provide any information that supports their claim that particulate matter would not increase. The most recent compliance test occurred on March 19, 2015 with a measured results of 2.76 pounds of PM per hour. There was another PM test conducted within the 5 year window which occurred on March 7, 2012. The measured PM rate from this test was 5.83 pounds per hour. This result could be used as a maximum hourly PM rate within the 5 year window for "modification". Under the MATs (40 CFR 63, Subpart UUUUU), MEA is currently required to conduct PM test once every calendar quarter for the at least the next 3 years. Thus, the DAQ will have actual measured of both of these pollutants in the future to support MEA claim that "modification" is not triggered.

In this submittal, MEA claims that "reconstruction" under Part 60 does not apply because the CFR are already affected units under Subpart Da. Second, MEA made a unsupported statement that the cost of replacement of the air nozzles should be categorized as an operating expense.

This writer disagrees with the applicant on both points. EPA has updated the performance standards in Subpart Da several times over the year with the most recent changes February 28, 2005 and May 4, 2011. Both of these dates are used as trigger dates for either construction, reconstruction, or modification of affected sources under the subpart. Thus, one must evaluate the cost of the replacement and compare to a new unit to see if "reconstruction" under Part 60 is or is not trigger.

The NSPS rules define capital expense as follows: Capital Expenditure means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to an existing facility must not be reduced by any "excluded additions" as defined in IRS Publication 534, as would be done for tax purposes. -

MEA made no attempt to justify why the nozzle replacement is not consider an capital expenditure or make a case the "reconstruction" is not triggered. Thus, this writer cannot make a complete determination whether a permit is or is not required for this activity under 45 CSR 13. Therefore, this writer recommends issuing a no decision letter to MEA for the air nozzle replacement with regards to needing a modification permit under 45 CSR 13.