west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Phone: (304) 926-0475 • Fax: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R14-0005F
Plant ID No.:	049-00026
Applicant:	American Bituminous Power Partners, L.P.
Facility Name:	Grant Town Power Station
Location:	Grant Town, Marion County
NAICS Codes:	221112
Application Type:	Modification
Received Date:	May 17, 2016
Engineer Assigned:	Joe Kessler
Fee Amount:	$1,000
Date Received:	May 18, 2016
Complete Date:	June 15, 2016
Due Date:	September 13, 2016
Applicant's Ad Date:	May 20, 2016
Newspaper:	*Times West Virginian*
UTM's:	531.0 km Easting • 4,495.1 km Northing • Zone 17
Latitude/Longitude:	39.56203/-80.16270
Description:	Modification to limit SO_2 emissions below the applicability threshold for the Data Requirements Rule (DRR).

COPY

Entire Document
NON-CONFIDENTIAL

American Bituminous Power Partners, L.P. (AmBit) was initially issued Prevention of Significant Deterioration (PSD) Permit Number R14-0005 on March 10, 1989 for the construction of the Grant Town Power Station located just east of Grant Town, Marion County, West Virginia. The 80 mW_e base-load facility was permitted for two (2) 551.9 mmBtu/hr coal refuse-fired circulating fluidized bed (CFB) boilers along with ancillary coal refuse, limestone, and ash handling systems. Since that time, the facility has undergone additional permitting. The following will briefly describe each additional permitting action:

- On February 28, 1992, AmBit was issued Permit Number R14-0005A for the addition of specific stack emission limits for the two (2) CFBs;

- On July 17, 1992, AmBit was issued Permit Number R14-0005B for additional small changes to the facility;

- On October 7, 2003, AmBit was issued a Class II Administrative Update (A/U) as Permit Number R14-0005C to increase the volume of open stockpiles and to add a crusher;

- On December 22, 2003, AmBit was issued a Class II A/U as Permit Number R14-0005D for an additional open stockpile; and

- On August 6, 2010, AmBit was issued a Class II A/U as Permit Number R14-0005E to make the following changes: (1) allow for use of alternative chemical dust suppressants, (2) change footnoted HAP language under Table A.1, and (3) allow common stack SO_2 monitoring.

In addition to the above, AmBit has been issued many "no permit needed" determinations for a variety of small changes at the facility that did not meet permit applicability thresholds.

DESCRIPTION OF PROCESS/MODIFICATION

Existing Facility

AmBit's Grant Town Power Station is an approximately 80 mW_e base-load electric generating unit (EGU) located just east of Grant Town, Marion County, West Virginia. The facility consists primarily of two (2) 551.9 mmBtu/hr coal refuse-fired circulating fluidized bed (CFB) boilers. Additionally, the station contains ancillary coal refuse, limestone, and ash handling systems.

Proposed Modifications

AmBit has now submitted a permit application to take a federally enforceable emissions limit on SO_2 below the applicability threshold for the DRR. The DRR requires that any limit to be taken to remove DRR applicability must be set at less than 2,000 tons per year on a 30-day rolling average basis using a continuous emissions monitoring system (CEMS). Therefore, AmBit is proposing to take a limit of 1,990 tons per year (TPY) for the combined discharge of Boiler #1A (1S) and Boiler #lB (2S): which are the two CFB boilers. Both of these units discharge through a single stack (1E). This equates to a 30-day rolling average basis of 163.6 tons (1,990 tpy divided by 365 days per year and multiplied by 30 days). Furthermore, this would equate to a SO_2 emission rate of 0.41 lb/mmBtu based on operating at 551.9 mmBtu/hr per each CFB and a full year of operations. AmBit is not proposing any physical changes as part of the modification.

SITE INSPECTION

Due to the nature of the modification, the writer did not conduct a site inspection for this permitting action. According to information in the DAQ database, the last full on-site inspection occurred on May 23, 2016 by Mr. Michael Rowe of the Compliance/Enforcement Section. The result of this inspection was "Status Code 30 - In Compliance."

AIR EMISSIONS AND CALCULATION METHODOLOGIES

AmBit has proposed an aggregate (Boilers 1S and 2S) annual SO_2 emission limit of 1,990 TPY. As noted above this was based on keeping the facility-wide SO_2 PTE of Grant Town below the 2,000 TPY applicability threshold for the DRR. This was not a calculated limit and, therefore, AmBit did not include any emission calculations in the application. Compliance will be based on using CEMS. As there are no other substantive SO_2 emission sources located at the facility, this limit will provide a facility-wide enforceable SO_2 potential-to-emit (PTE) below 2,000 TPY.

Using information from the most recent Title V Fact Sheet (R30-4900026-2014), the existing facility-wide SO_2 PTE is 4,012.75 TPY. Therefore, the requested change will result in a decrease of 2,018.13 TPY of SO_2.

REGULATORY APPLICABILITY

The following will discuss only the regulatory applicability of general and specific rules to the emission units that have been proposed to be modified as part of this permitting action. It is important to note that as no physical changes have been proposed and the only pollutant affected is annual SO_2 emissions, only applicable rules with requirements pertaining to *annual* SO_2 shall be discussed.

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

The proposed modification of the Grant Town Power Station does not have the potential to increase the emissions of a regulated pollutant. Therefore, the proposed changes would normally be eligible to be reviewed as a Class II Administrative Update. However, AmBit voluntarily submitted the application as a modification (due to concerns over federal enforceability) and it was reviewed as such. Pursuant to §45-13-5.1, "[n]o person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without . . . obtaining a permit to construct."

As required under §45-13-8.3 ("Notice Level A"), AmBit placed a Class I legal advertisement in a "newspaper of *general circulation* in the area where the source is . . . located." The ad ran on May 20, 2016 in the *Times West Virginian* and the affidavit of publication for this legal advertisement was submitted on June 1, 2016.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration - (NON APPLICABILITY)

The Grant Town Power Station is located in Marion County, WV. Marion County is classified as "in attainment" with all National Ambient Air Quality Standards (NAAQS). As the

facility is a "listed source" under §45-14-2.43 ("Fossil-Fuel-Fired Steam Electric Plants Greater Than 250 Million Btu/Hour Heat Input"), the individual major source applicability threshold for all pollutants is 100 TPY. Based on information in the most recent Title V Fact Sheet (R30-4900026-2014), the existing facility-wide PTE of the Grant Town Power Station is greater than 100 TPY for CO, NO_x, PM_{10}, and SO_2. Therefore, the existing facility is defined as a "major stationary source" under 45CSR14 and the modifications evaluated herein are subject to a PSD Applicability Analysis.

The proposed adoption of an aggregate SO_2 emission limit for the boilers is considered, pursuant to §45-14-2.40, a "physical change or a *change in the method of operation* [emphasis added]." Therefore, to determine if the project is defined as a "major modification," pursuant to §45-14-3.4(a), the project is examined under a two-step applicability test: "[A] project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases -- a significant emissions increase (as defined in subsection [§45-14-2.75]), and a significant net emissions increase (as defined in subsections [§45-14-2.46] and [§45-14-2.74]). The proposed project is not a major modification if it does not cause a significant emissions increase. If the proposed project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase."

Therefore, for the proposed change to meet the definition of a major modification, the change itself must result in a significant emissions increase. The methodology for calculating the emissions increase under the first step is given under Sections §45-14-3.4(b), 3.4(c), 3.4(d) and 3.4(f). The substantive language relevant to the changes evaluated herein is given below:

> [§45-14-3.4(b)]
> The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to subdivisions 3.4.c through 3.4.f.
>
> [§45-14-3.4(c)]
> Actual-to-projected-actual applicability test for projects that only involve existing emissions units. -- A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in subsection 2.63) and the baseline actual emissions (as defined in subdivisions 2.8.a and 2.8.b), for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in subsection 2.74).

It is important to note that calculating baseline actual emissions for EGUs is unique and is given specific requirements under §45-14-2.8. The major difference for EGUs compared with non-EGUs is that the "lookback" period only extends back five years from the "period immediately preceding when the owner or operator begins actual construction of the project." In this case a conservative estimate of the begin actual construction date would be when the permit is issued, approximately October 2016. Therefore, the lookback period would begin in October 2011.

In Attachment N of the permit application, AmBit included an actual-to-projected-actual applicability analysis. According to AmBit, actual emissions were projected out for five years (§45-14-2.63) and were based on AmBit's "long term financial model," a model that includes projections for operating hours and plant generation. The model includes assumptions for

maintenance outage periods and plant operating history to accurately reflect operating time projections. Heat input determinations are then made from that same model based on generation levels and unit heat rate estimates that are also based on operating history and the design characteristics of the facility. Projected actual emissions were then calculated from these operating hour and heat input projections from that long term model.

However, Ambit also included in the analysis the use of emissions, pursuant to the definition of "projected actual emissions" under §45-14-2.63, that the boilers "could have accommodated." They also included emissions in the analysis that occurred prior to October 2011. However, using the past actual emissions data provided (based on CEMS) and not using any exclusion for emissions that could have been accommodated (sufficient justification for exclusion was not provided), the project's emissions still do not cause a significant emissions increase (see Table 1).

Table 1: PSD Applicability Analysis (in tons/year)

Pollutant	BAE	2-Yr Period Start	PAE	Difference	PSD Threshold(1)	PSD Review?
CO	764.74	Nov-11	774.85	10.11	100	No
NO_X	1,635.50	Nov-12	1,653.50	18.00	40	No
$PM_{2.5}$	46.23	Jan-12	50.46	4.23	10	No
PM_{10}	94.90	Jan-12	97.49	2.59	15	No
PM	128.71	Dec-11	132.80	4.09	25	No
SO_2	2,223.70	Nov-12	1,797.76	(425.94)	40	No
VOCs	36.35	Jan-12	36.94	0.59	40	No
Lead	0.0124	Nov-12	0.0208	0.0084	1	No

(1) §45-14-2.74(a).

Based on the information submitted by AmBit in Attachment N of the permit application (and in accordance with the provisions of 45CSR14), the modification evaluated herein is determined not to be defined as a "major modification" and, therefore, PSD Review pursuant to 45CSR14 is not required.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The Grant Town Power Station, defined under Title V as a "major source," was last issued a Title V renewal permit on September 30, 2014 (R30-4900026-2014). Proposed changes evaluated herein must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

No change in any non-criteria regulated pollutants was proposed as part of this permitting action.

AIR QUALITY IMPACT ANALYSIS

The estimated maximum increase in emissions are less than applicability thresholds that would define the proposed modification as "major" under 45CSR14 and, therefore, no air quality impacts modeling analysis was required. Additionally, based on the nature of the modification and the location of the source, an air quality impacts modeling analysis was not required under 45CSR13, Section 7.

MONITORING, COMPLIANCE DEMONSTRATIONS, REPORTING, AND RECORDING OF OPERATIONS

The only substantive change to the monitoring, compliance demonstration, reporting, and record-keeping requirements (MRR) in the draft permit was an inclusion of a requirement under B.9(b) specifically requiring AmBit to show compliance with the new DRR SO_2 limitations using a CEMS.

PERFORMANCE TESTING OF OPERATIONS

There was no change in the existing performance testing requirements.

CHANGES TO PERMIT R14-0005E

The substantive changes made changes to R14-0005E were limited to:

- New DRR SO_2 limitations added under SPECIFIC REQUIREMENTS A.1(a);
- Revised existing SO_2 limitations under SPECIFIC REQUIREMENTS A.9;
- Inclusion of a new requirement under OTHER REQUIREMENTS B.9(b) specifically requiring AmBit to show compliance with the new DRR SO_2 limitations using a Continuous Emission Monitoring System (CEMS); and
- Inclusion of language from §45-14-19.8(d) under OTHER REQUIREMENTS B.22 that requires Ambit to submit an annual certification of emissions for the previous year.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R14-0005F to American Bituminous Power Partners, L.P. for the proposed modification of the Grant Town Power Station located in Grant Town, Marion County, WV.

Joe Kessler, PE
Engineer

8/05/14
Date