



west virginia department of environmental protection

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Evaluation Memo

Application Number: PD15-048
Facility ID Number: 107-00010
Name of Applicant: North American Demolition Company
Name of Facility: SABIC Innovative Plastics
Location of Facility: Washington, Wood County
Latitude/Longitude: 39.259861°/-81.67970°
Application Type: Permit Determination
Submission Date: June 9, 2015
Complete Date: June 9, 2015
Due Date: July 21, 2015
Engineer: Joe Kessler

Background Information

On April 9, 2015 Michael Baker, Jr., Inc., submitted a Permit Determination Form (PDF) PD15-033 for the use of a portable crusher during the demolition of the SABIC Innovative Plastics facility in Washington, Wood County, WV. On April 20, 2015, a “no decision” was rendered on this PDF and additional information was requested if the PDF was resubmitted. On June 9, 2015, the PDF was resubmitted (properly this time by) by the North American Demolition Company (NADC).

Statutory Authority of the DAQ

The statutory authority of the of the DAQ is given under the Air Pollution Control Act (APCA) - West Virginia Code §22-5-1, et. seq. Based on the language under §22-5-1, et. seq., the DAQ, in making “stationary source” determinations under 45CSR13, does not take into consideration non-air quality issues such as nuisance potential (noise, sight line obstruction, traffic) or non-air quality environmental impacts.

Description of Process

The SABIC Innovative Plastics facility (107-00010) is being torn down. As part of that demolition process, NADC has submitted a PDF for the use of a Powerscreen Premiertrak 400 portable crusher to crush reinforced concrete for easy disposal. The unit substantively consists of one grizzly feeder screen, one crusher, and one output crushed material conveyer belt. The unit is capable of operating at different rates dependent on the size of the material to be crushed. The PDF included a statement from the vendor that indicates that when the unit is crushing reinforced concrete, the maximum throughput of the unit is approximately 60 tons/hour (TPH). The estimated maximum amount of reinforced concrete that will be crushed at the site is 27,000 tons. This will require the portable crusher to be on site for approximately 450 hours, or about two months on a 50 hours/week schedule.

Air Emissions and Calculation Methodologies

NADC Emissions Calculation

Total uncontrolled particulate matter emissions from the screening, primary crushing, and transfer point associated with the unit were based on the emission factors taken from the G40-B Non-Metallic Minerals General Permit calculation spreadsheet (a copy of the calculations are attached to this Evaluation Memo). As noted above, the maximum hourly capacity of reinforced concrete processed by the portable crusher was estimated to be 60 TPH. Based on information in the PDF, the total amount of reinforced concrete located at the site to be process is 27,000 tons. Therefore, NADC based their annual particulate matter emissions on this number. Controlled screening and crushing emissions were calculated based on a 50% capture efficiency for partial enclosures pursuant to DAQ policy (the enclosures are from the body of the unit itself and are considered inherent).

Based on the above, NADC calculated a maximum controlled emission rate of 0.82 lb-PM/hr and 0.18 tons-PM/year from use of the portable crusher.

DAQ Review of Calculation

The NADC calculations are considered to be reasonable, and the control percentages based on the inherent design of the unit (they cannot be reasonably be removed). However, it is important to note that (based on the G40 calculation spreadsheet) that the unit operating at 60 tons/hour and 54,000 TPY (twice the estimated amount) would have a maximum controlled emission rate of 0.82 lb-PM/hr and 0.37 tons-PM/year. This emission rate is still below the threshold that would define the unit as a stationary source under 45CSR13 (see below).

Determination of Permit Applicability

Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” The definition of “stationary source” is given under Section 2.24 of the 45CSR13 and includes four applicability tests under 2.24(a) through 2.24(d). Each applicability test with respect to the facility will be discussed below.

§45-13-2.24(a)

Section 2.24(a) states any facility that “is subject to any substantive requirement of an emission control rule promulgated by the Secretary” is defined as a stationary source. “Emission control rules promulgated by the Secretary” include state air quality regulations and, through 45CSR15, 45CSR16, and 45CSR34, all Federal National Emissions Standards of Hazardous Air Pollutants (NESHAPs), National New Source Performance Standards (NSPS), and Maximum Achievable Control Technology (MACT) rules. The following will discuss each potentially applicable rule and any substantive requirement that may apply to the facility.

45CSR7: To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations

Pursuant to §45-7-10.5, sources that emit less than one (1) pound per hour of particulate matter and an aggregate of less than one thousand (1000) pounds per year are exempt from the section 4.1 emissions standards (considered substantive) under 45CSR7. As noted above, the calculated maximum particulate matter emissions from the portable crusher are 0.82 lb-PM/hr and 0.18 tons-PM/year.

40 CFR 60, Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants

Pursuant to §60.670(c)(2), portable crushed stone plants with capacities of less than 150 tons/hour are exempt from Subpart OOO. As stated above, the unit in question has a capacity of 60 tons/hour of reinforced concrete.

§45-13-2.24(b)

Section 2.24(b) states any facility that “[d]ischarges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant” is defined as a stationary source. As noted above, the calculated maximum particulate matter emissions from the portable crusher are 0.82 lb-PM/hr and 0.18 tons-PM/year.

§45-13-2.24(c)

Section 2.24(c) states any facility that “[d]ischarges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis” is defined as a stationary source. NADC has not identified any HAPS potentially emitted from the proposed crushing activities.

§45-13-2.24(d)

Section 2.24(d) states any facility that “[d]ischarges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater.” Table 45-13A of 45CSR13 lists chemicals generally referred to as Toxic Air Pollutants (TAPS). NADC has not identified any TAPS potentially emitted from the proposed crushing activities.

Summary and Recommendation

Based on the information provided in the PDF, I recommend the issuance of a “no permit needed” letter to North American Demolition Company for the portable crusher to be used at the demolition of the SABIC Innovative Plastics facility located in Wood County, WV based on the following:

- The facility is not subject to a substantive requirement of an emission control rule promulgated by the Secretary; and
- The facility-wide uncontrolled emissions, as based on reasonably maximum parameters, are less, on a pollutant-by pollutant basis, of the amounts that would define the facility as a “stationary source’ under §45-13-2.24(b), 2.24(c), or 2.24(d).



Joe Kessler, PE
Engineer



Date

Concrete Crushing Emission Calculations

Potential (Worst Case) Schedule of Concrete Crushing Operations:

| | |
|----------------------------------|------------|
| Start: | 10/1/2015 |
| End: | 11/30/2015 |
| Weeks | 9 |
| Days/week | 5 |
| Hours/day | 10 |
| Potential Hours | 450 |
| % of 8760 annual potential hours | 5% |

Maximum Material Processing

| | |
|--------------------|--|
| MAX THRUPUT | |
| Tons Concrete/Hour | 60 <i>(expected 75% of max = 45 tons/hr)</i> |
| Total Tons | 27,000 |

Based on capacity of: Powerscreen Premiertrak 400

| Emission Factors | lb/ton of material throughput | | Source |
|------------------|-------------------------------|--------|---------------------------------------|
| | PM | PM10 | |
| Primary Crushing | 0.002 | 0.001 | WVDEP G40 Calculations |
| Screening | 0.025 | 0.0087 | AP-42, Table 11.19.2-2 (August 2004). |

Emission Calculations: WITHOUT CONTROL:

| Pollutant: | PM | PM10 | G40 Permit PM Threshold ⁽¹⁾ | % of Threshold |
|-------------------------|------|------|--|----------------|
| Primary Crushing | | | | |
| lb/hr | 0.12 | 0.06 | 6 | 2% |
| tpy | 0.03 | 0.01 | 10 | 0.3% |
| Screening: | | | | |
| lb/hr | 1.50 | 0.52 | 6 | 25% |
| tpy | 0.34 | 0.12 | 10 | 3.4% |

WITH CONTROL:

| PM | PM10 | G40 Permit PM Threshold ⁽¹⁾ | % of Threshold |
|---|------|--|----------------|
| <i>50% Control Efficiency (Partial enclosure)</i> | | | |
| 0.06 | 0.03 | 6 | 1% |
| 0.01 | 0.01 | 10 | 0.1% |
| <i>50% Control Efficiency (Partial enclosure)</i> | | | |
| 0.75 | 0.26 | 6 | 13% |
| 0.17 | 0.06 | 10 | 1.7% |

1. WVDEP regulates operations via a General Permit if any criteria pollutant exceeds 6 lbs/hr and 10 tpy.

Material Transfer Point:

| | | PM | PM10 |
|--------------------------|---|---------|---------|
| Particle Size Multiplier | k | 0.74 | 0.35 |
| Mean Wind Speed (mph) | U | 7 | |
| Moisture Content (%) | M | 10 | |
| | | PM | PM10 |
| | | 0.00015 | 0.00007 |

PM Emission Factor (lb/Ton processed)

$$E = k * (0.0032) * [(U/5)^{1.3}] / [(M/2)^{1.4}] = \text{pounds/ton}$$

Formula per AP-42, Fifth Edition, Rev 11/06. Table 13.2.4 Aggregate Handling and Storage Piles

Transfer Point Emissions:

| PM | | PM10 | |
|-----------|--------------------|-------|-------|
| lb/hr | TPY | lb/hr | TPY |
| 0.009 | 0.002 | 0.004 | 0.001 |
| (60 X EF) | (27,000 X EF/2000) | | |

SUMMARY:

| | lb/hr | | tpy | |
|--------------------------|-------------|-------------|-------------|-------------|
| | PM | PM10 | PM | PM10 |
| Primary Crushing | 0.06 | 0.03 | 0.01 | 0.01 |
| Screening: | 0.75 | 0.26 | 0.17 | 0.06 |
| Transfer Point Emissions | 0.009 | 0.004 | 0.002 | 0.001 |
| TOTAL | 0.82 | 0.30 | 0.18 | 0.07 |

Applicability Analysis:

Subpart 000—Standards of Performance for Nonmetallic Mineral Processing Plants

Not applicable to Subpart 000 because of exemption provided in 40 CFR 60.670(c)(2):

"(c) Facilities at the following plants are not subject to the provisions of this subpart:...

.....2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 136 megagrams per hour (150 tons per hour) or less."