

**Synthetic Minor Determination and/or**  **Netting Determination**  
**Permit To Install 16-02294**

**A. Source Description**

The Akron Thermal facility is currently a major stationary source for purposes of Prevention of Significant Deterioration (PSD), Ohio's attainment provisions listed in Ohio Administrative Code (OAC) chapter 31 regulations, and Title V applicability and is located in Summit County, Ohio. The Akron Thermal facility is proposing to modify two of their existing 180 MMBtu per hour fired boilers (emissions units B003 and B004) that currently burn natural gas and wood to include the combustion of a mixture of tired derived fuel (TDF) and wood.

**B. Facility Emissions and Attainment Status**

This project (the combustion of a mixture of TDF with wood) has a potential to emit increase above baseline tons per year emission levels after the change in the method of operation (burning of TDF with wood) of over twenty five (25) tons per year of particulate matter (PM), fifteen (15) tons per year of particulate matter less than 10 microns (PM10), forty (40) tons per year of sulfur dioxide (SO<sub>2</sub>), seven (7) tons per year of sulfuric acid mist, forty (40) tons per year of nitrogen oxides (NO<sub>x</sub>), and one hundred (100) tons per year of carbon monoxide (CO) emissions. At these emissions levels, the Akron Thermal facility would trigger PSD review for the PM, PM10, NO<sub>x</sub>, SO<sub>2</sub>, sulfuric acid mist, and CO. This facility is located in Summit County which is currently designated as attainment for all criteria pollutants and therefore the applicability of new source review regulations would be both PSD and Ohio attainment provisions listed in Ohio Administrative Code (OAC) chapter 31 regulations.

**C. Source Emissions**

In order to avoid PSD review and the attainment provisions listed in OAC chapter 31 regulations, the Akron Thermal facility is requesting state and federal enforceable fuel usage restrictions (61,654 tons of a mixture of 20% TDF with wood) to limit the potential to emit of PM, PM10, NO<sub>x</sub>, and CO. With this restriction in place the potential to emit increase would be limited to the following:

11.22 tons per year of PM;  
11.4 tons per year of PM10;  
38.6 tons per year of NO<sub>x</sub>; and  
85.5 tons per year of CO.

**D. Conclusion**

Adherence of all the terms and conditions of this permit will avoid B003 and B004 being subject to both PSD review and the attainment provisions listed in OAC chapter 31 regulations for the following pollutants: PM, PM10, NO<sub>x</sub>, and CO. However, B003 and B004 are subject to both PSD review and the attainment provisions listed in OAC chapter 31 regulations for SO<sub>2</sub> and sulfuric acid mist. See staff determination in this permit for more details of that analysis.



State of Ohio Environmental Protection Agency

**RE: DRAFT PERMIT TO INSTALL  
SUMMIT COUNTY**

**CERTIFIED MAIL**

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center

**Application No: 16-02294**

**DATE: 9/25/2003**

Akron Thermal Energy Corp  
Jim Benson  
226 Opportunity Pkwy  
Akron, OH 443072232

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed or final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **\$1600** will be due. Please do not submit any payment now.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.

Very truly yours,

Michael W. Ahern, Supervisor  
Field Operations and Permit Section  
Division of Air Pollution Control

CC: USEPA

ARAQMD

Akron Metropolitan Area Transportation Study

WV

PA

**SUMMIT COUNTY**

**PUBLIC NOTICE  
ISSUANCE OF DRAFT PERMIT TO INSTALL  
SUBJECT TO PREVENTION OF SIGNIFICANT DETERIORATION REVIEW  
FOR AKRON THERMAL ENERGY CORPORATION**

Public Notice is hereby given that the Staff of the Ohio Environmental Protection Agency (EPA) has recommended to the Director that the Ohio EPA issue a draft action of a Permit to Install (PTI) to Akron Thermal Energy Corporation in Summit County, Ohio. The draft was issued on September 25, 2003.

This draft permit proposes allowable emission rates from the following operations: two 180 MMBtu/hour solid fuel (wood), natural gas, and tire derived fuel (TDF) fired boilers for steam generation controlled by electrostatic precipitators. The new allowable emissions are, in tons per year:

Particulate Matter (PM)	36.2
Particulate Matter less than 10µm (PM <sub>10</sub> )	36.2
Sulfur Dioxides (SO <sub>2</sub> )	135.46
Carbon Monoxides (CO)	56.29
Nitrogen Oxides (NO <sub>x</sub> )	130.24
Organic Compounds (OC)	3.15
Sulfuric Acid Mist	23.44
HCL	7.5

This facility is subject to the applicable provisions of the Prevention of Significant Deterioration (PSD) regulations as promulgated by U.S. EPA (40 CFR 52.21).

All areas surrounding the Akron Thermal Energy Corporation facility are Class II PSD areas. It is Ohio EPA policy to allow an applicant to consume no more than 50% of the available PSD Class II increment except in specific instances where limited amounts above 50% are allowed.

Akron Thermal exceeded Ohio EPA the modeling thresholds for PM<sub>10</sub>, SO<sub>2</sub> and CO. Project impacts for each of these pollutants were well below 50 per cent of the corresponding PSD Class II increment. Therefore, the ambient air impact of the new installation is acceptable to Ohio EPA.

This permit has been given an interim restriction on the amount of TDF due to modeling issues with other facilities in Summit County. This restriction can be released once these issues have been resolved.

A draft action (permit no. 16-02294) was issued on September 25, 2003. Within 30 days from the date of this notice, any interested party may submit comments or request a public hearing. Comments are to be sent to the Akron Air Pollution Control, 146 South High Street, Room 904, Akron, Ohio, 44308.

Further information concerning this application, which is available for public inspection, may be secured from Sean Vadas at the above address during normal business hours. Telephone number: (330) 375-2480.

**STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT  
UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS  
FOR THE AKRON THERMAL ENERGY CORPORATION  
LOCATED IN SUMMIT COUNTY, OHIO**

**PTI NUMBER 16-02294**

**September 25, 2003**

Ohio Environmental Protection Agency  
Division of Air Pollution Control  
122 S. Front Street  
Columbus, Ohio 43215

The Clean Air Act and regulations promulgated thereunder require that major air pollution sources undergoing construction or modification comply with all applicable Prevention of Significant Deterioration (PSD) provisions and non-attainment area New Source Review (NSR) requirements. The federal PSD rules govern emission increases in attainment areas for major sources, which are sources with the potential to emit 250 tons per year or more of any pollutant regulated under the Clean Air Act, or 100 tons per year or more if the source is included in one of 28 source categories. In non-attainment areas, the definition of major source is one having at least 100 tons per year potential emissions. A major modification is one resulting in a contemporaneous increase in emissions which exceeds the significance level of one or more pollutants. Any changes in actual emissions within a five-year period are considered to be contemporaneous. In addition, Ohio now has incorporated the PSD and NSR requirements by rule under Ohio Administrative Code (OAC) Chapter 3745-31.

Both PSD and non-attainment rules require that certain analyses be performed before a facility can obtain a permit authorizing construction of a new source or major modification to a major source. The principal requirements of the PSD regulations are:

- 1) Best Available Control Technology (BACT) review - A detailed engineering review must be performed to ensure that BACT is being installed for the pollutants for which the new source is a major source.
- 2) Ambient Air Quality Review - An analysis must be completed to ensure the continued maintenance of the National Ambient Air Quality Standards (NAAQS) and that any increases in ambient air pollutant concentrations do not exceed the PSD incremental values set pursuant to the Clean Air Act.

For nonattainment areas, the requirements are:

- 1) Lowest Achievable Emissions Rate (LAER) - New major sources must install controls that represent the lowest emission levels (highest control efficiency) that has been achieved in practice.
- 2) The emissions from the new major source must be offset by a reduction of existing emissions of the same pollutant by at least the same amount, and a demonstration must be made that the project results in a net air quality benefit. This is more completely described in the Emission Offset Interpretative Ruling as found in Appendix S of 40 Code of Federal Regulations (CFR) Part 51.
- 3) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing State Implementation Plan (SIP) or are on an approved schedule resulting in full compliance with the SIP.

For rural ozone non-attainment areas, the requirements are:

- 1) LAER - New major sources must install controls that represent the lowest emissions levels (highest control efficiency) that has been achieved in practice.
- 2) The facility must certify that all major sources owned or operated in the state by the same entity are either in compliance with the existing SIP or are on an approved schedule resulting in full compliance with the SIP.

Finally, New Source Performance Standards (NSPS), SIP emission standards and public participation requirements must be followed in all cases.

### Site Description

The Akron Thermal Energy Corporation facility is currently located in Akron, Ohio (West of the Ohio Canal, North of Bartges Street and Southwest of Opportunity Parkway), Summit County.

This area is classified as attainment for all of the criteria pollutants, total suspended particulates (PM), particulate matter less than 10 microns (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) [note that NO<sub>x</sub> is a precursor to ozone], carbon monoxide (CO), volatile organic compounds (VOC) [note that VOC is a precursor to ozone] and lead (Pb).

### Facility Description

Akron Thermal Energy Corporation operates five combustion units, (B001, B002, B003, B004 and B005). B001 is a 220 MMBtu/hour spreader stoker coal fired boiler controlled with a multi-clone and an electrostatic precipitator, and referred to as Boiler #32 by Akron Thermal Energy Corporation which was installed in 1966 and recently a continuous opacity monitor (COM) was installed. B002 is a 267 MMBtu/hour natural gas and oil fired boiler and referred to as Boiler #31 and was installed in 1952. B003, B004 and B005 were installed in 1974 and are Babcock&Wilcox (B&W) 2-drum Sterling type design with a Detroit Stoker traveling grate. Each combustion unit is rated at 180 million British Thermal Unit (MMBtu)/hour (hr) heat input and produces 130,000 lb/hr of saturated steam at 500 psig and 467F. Combustion units B003 & B004 currently burn solid fuel (wood) or gas and exhaust to a common stack. Combustion unit B005 no longer has the capability to burn solid fuel and currently burns waste oil or gas and exhausts to its own stack.

Sized solid fuel is feed to combustion units B003 and B004 through a series of conveyors to the top of the plant. From here, this material is discharged into hoppers and gravity fed to 3 screw augurs which meter fuel into the combustion unit's feeders. The feeders consist of 3 spouts, which drop the fuel into the combustion unit. Fuel in the feed spouts is evenly distributed across the traveling grate by means of air swept spouts. In order to facilitate clean and thorough combustion, a balanced draft system, consisting of a 250 horsepower (hp) forced fan, a 250 hp induced draft fan and a 150 hp over-fire air fan, is used. Combustion in each of the combustion unit is controlled by a fuel to air ratio controller and excess air is continuously monitored by an oxygen sensor. To maximize efficiency each combustion unit has a 5,125 square foot (sq. ft.) economizer and a Ljungstrom Regenerative Air Heater. Air emissions are controlled by a four-field UOP electric static precipitator. A continuous opacity monitor (COM) monitors visible emission from the combustion unit's common stack.

## New Source Review (NSR)/PSD Applicability

Although there will be no physical change to the combustion units (B003 and B004) or feeders or change in the heat input associated with B003 and B004, Akron Thermal Energy Corporation proposes the addition of tire derived fuel (TDF) that will constitute a change in the operation thereby triggering the need for an air Permit-To-Install (PTI). The proposed fuel feed system will consist of a wood hopper and drag conveyor and a TDF hopper and conveyor. The feed-rate of the TDF would be electronically limited by the feed-rate of the wood to maintain a proposed federally enforced limitation of 20 percent (%) TDF with waste wood (due to air dispersion modeling concerns of other facilities located in the modeled impact area, the permittee will be required to limit the burning of TDF to 15.5% until such time as Ohio EPA resolves modeling issues. For more details, see air dispersion modeling analysis later in this staff determination.) The combined TDF/wood mixture would be fed onto a bucket elevator and conveyed to the top of the plant. From this point, the TDF/wood mixture would be fed into the combustion unit in the same manner as the existing wood feed system. The Akron Thermal Energy Corporation also proposes a federally enforced annual limit of 12,333 tons of TDF, to be mixed with no less than 49,323 tons of waste wood = 61,654 tons of 20% TDF mixed fuel, (883,008 MMBtu/year of mixed fuel).

The proposed Akron Thermal Energy Corporation modification will generate NO<sub>x</sub>, PM/PM<sub>10</sub>, SO<sub>2</sub>, CO, VOC and lead emissions. The Akron Thermal Energy Corporation is currently a major stationary source as defined in federal PSD and OAC chapter 3745-31 regulations- attainment provisions - because it is one of the twenty-eight source categories (each combustion unit is 180 MMBtu/hr heat input and there are at least three combustion units which equates to 540 MMBtu/hour. Akron Thermal has five combustion units.). That is, the source category that the Akron Thermal Energy Corporation triggers are combustion units with over 250 MMBtu/hr of heat input for fossil-fuel fired boilers. The Akron Thermal Energy Corporation provides heat and cooling services to approximately 200 government, commercial, residential, and industrial customers in the downtown Akron area. Major customers include Akron's three major hospitals; Akron's Convention Center, and the University of Akron.

When a modification is made to a major source, PSD applies when there is a significant increase in the PTE after the modification, compared to the actual emissions before the modification.

Akron Thermal Energy Corporation is accepting process restrictions, such that they would trigger PSD for SO<sub>2</sub> and Sulfuric Acid Mist as documented below in Table 1.

TABLE 1  
PRELIMINARY POLLUTANT EMISSION RATES

### Akron Thermal Energy Corporation

<u>AIR POLLUTANT</u>	<u>RESTRICTED AND LAST TWO YEARS OF ACTUAL TPY</u>	<u>PSD SIGNIFICANT THRESHOLD</u>
NO <sub>x</sub>	38.46	40
CO	85.49	100
VOC	7.39	40
PM	22.46	25
PM <sub>10</sub>	11.4	15
SO <sub>2</sub>	132.75	40
Lead (Pb)	0.04	0.6

Mercury	0.00	0.10
Beryllium	0.00	0.0004
Fluorides	0.02	3.0
Vinyl Chlorides	0.00	1.00
Sulfuric Acid Mist	16.44	7.00
Benzene	0.71	0.00

Based upon this information, PSD review is required for SO<sub>2</sub> and Sulfuric Acid Mist. New Source Review is not applicable, due to attainment status.

### Control Technology Review

#### **SO<sub>2</sub> and Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub>) BACT**

As part of the application for any source regulated under the PSD requirements, an analysis must be conducted that demonstrates that BACT will be employed by the source. The Akron Thermal Energy Corporation facility is subject to PSD regulations which mandate a case-by-case BACT analysis be performed for SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub>. The application used a "top-down" approach to determine an appropriate level of control as depicted in United States Environmental Protection Agency's (EPA) draft *New Source Review Workshop Manual* (EPA 1990b) issued on March 15, 1990. In brief, the top-down process provides that all available control technologies be ranked in descending order of control efficiencies. The PSD applicant first examines the most stringent - - or "top" - - alternative. That alternative is established as BACT unless the applicant demonstrates, and the permitting authority in its informed judgment agrees, that the technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case. This process continues until a control alternative is determined to be technically feasible and without adverse economic, energy, and environmental impact and then this option is selected as BACT.

Akron Thermal Energy Corporation looked at the following technologies as part of the required PSD "top-down" approach case-by-case BACT analysis by providing an explanation of how each of these technologies operates and how these technologies are or are not technically feasible to their proposed project and provided what other similar operations are doing in terms of technology by reviewing previous BACT determinations of permitted air contaminant sources.

- Wet Scrubbing Systems
- Spray-Drying Systems
- Dry Additive Injection, and
- Dry Scrubber Systems.

### Background

The production of sulfur oxides (mainly SO<sub>2</sub>) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) are directly related to the sulfur content of the fuel used in the combustion units. The uncontrolled SO<sub>2</sub> emissions factor applicable during (1) 100% combustion of waste wood is 0.007 pounds per MMBtu and during (2) a combustion mix of 80% waste wood and 20% TDF is 0.31 pounds per MMBtu based on recent stack tests. The uncontrolled H<sub>2</sub>SO<sub>4</sub> emissions factor applicable during (1) 100% combustion of waste wood is 0.006 pounds per MMBtu and during (2) a combustion mix of 80% waste wood and 20% TDF is 0.053 pounds per MMBtu, also based on recent stack tests. Post combustion flue gas desulphurization techniques use an alkaline reagent to absorb SO<sub>2</sub> and produce sodium

or calcium sulfate compounds. These solids must then be removed in the downstream equipment. Types of SO<sub>2</sub> emissions controls include wet scrubbing, spray-drying, dry additive injection, and dry scrubbing. Controls to reduce SO<sub>2</sub> emissions will also reduce sulfuric acid mist emissions.

## **Summation of Control Technologies**

### Wet Scrubbing

Wet scrubbing systems are best for high-sulfur fuels and can be designed to achieve efficiencies in excess of 90 percent. However, in addition to system complexity, a wet waste, either in the form of a slurry or a dissolved salt, is produced. The resultant wastewater must be treated in a settling pond and reclamation system or a de-watering system prior to disposal. The treatment and disposal of the waste can add significantly to the control costs for wet scrubbing systems.

### Spray-drying systems

Spray-drying systems are applicable to low and medium-sulfur fuels. An alkali solution (slurry) is atomized into very fine droplets and mixed with the flue gas where the SO<sub>x</sub> is absorbed by the droplets and neutralized. As the droplets evaporate, a dry powder containing sulfur salts is formed. Spent sorbent particles not collected in the spray-dryer are captured downstream by the particulate control device. Control efficiencies range from 70% to 90%.

### Dry Additive Injection Systems

Dry additive injection systems inject a dry sorbent, (sodium or calcium-based reagents), into the flue gas stream to control SO<sub>2</sub> emissions. The sorbents react with the SO<sub>2</sub> in the flue gas to form a solid that is removed by the particulate control device. In the case of units with fabric filter particulate control, additional sorbent reaction takes place on the surface of the fabric filter. Depending on the particulate control device, removal efficiencies range between 40% to 70%.

### Dry Scrubber System

In a dry scrubber system, hydrated lime is moistened with water and injected into a venturi reactor where it is mixed with the flue gas. The SO<sub>2</sub> is absorbed by the alkali solution formed on the surface of the hydrated lime and neutralized. As the water evaporates, a dry powder containing sulfur salts is formed. A particulate control device captures particulate downstream. As with spray-drying, the dry waste can generally be disposed in a landfill. Control efficiencies range from 90% to 95%.

### Summary of Control Technology Technical Feasibility

Control Technology	Control Efficiency	Technical Feasible?
Wet Scrubbing	In excess of 90%	Yes
Spray-drying systems	70-90%	Yes
Dry Additive Injection Systems	40% to 70%	Yes
Dry Scrubber System	90-95%	Yes

The vast majority of SO<sub>2</sub> and sulfuric acid mist emissions result from the combustion of TDF. Therefore, TDF combustion was a focus of the RBLC database search.

Previous BACT determinations have included the use of a lime scrubber.

From EPA RACT/BACT/LAER Clearinghouse:

1. One TDF boiler with a rated capacity of less than 250 MMBtu/hr was found in the search of sources permitted within the most recent ten years. The primary fuel in this 240 MMBtu/hr boiler, located at Chewton Glen Energy in Illinois, is waste tires with natural gas backup. Therefore, the SO<sub>2</sub> emissions that could potentially be removed are much greater than those proposed at Akron Thermal. SO<sub>2</sub> emissions are controlled using a lime scrubber with a 95.4% control efficiency. The post-control emission limit for this boiler is 0.1 lb/MMBtu. The pre-control emission rate is therefore 2.17 lb/MMbtu. The annual emission limit for this boiler is 97.8 tons per year post-control. This makes the pre-control emissions 2,126 tons per year. The permit for this boiler was issued November 19, 1993. Although this source is somewhat similar in size to Boilers 1 and 2 at Akron Thermal, it must be noted that the primary fuel at this facility is waste tires and therefore the SO<sub>2</sub> emissions from this source are much higher (more than 15 times higher) on an uncontrolled basis than those proposed for the Akron Thermal Energy Corporation.
2. A 500 MMBtu/hr spreader stoker boiler firing wood and tires located in Michigan. SO<sub>2</sub> emissions are controlled using a limitation on the allowable combustion of TDF of 45 tons/day rather than using control equipment. Also, the alkaline nature of the wood ash is thought to remove some of the SO<sub>2</sub> resulting from tire combustion to around 5% of theoretical emissions. The annual SO<sub>2</sub> emission limits for this source are 39 tons per year and 0.0224 lb/MMBtu. The permit for this boiler was issued September 18, 2001.
3. Two 384 MMBtu/hr spreader stoker boilers firing coal, tires and wood. Tire chips contribute up to 15% heat input. The annual SO<sub>2</sub> emission limits for this source are 1,682 tons per year (more than 10 times that proposed at the Akron Thermal Energy Corporation) and 0.50 lb/MMBtu (more than 60% higher than that proposed at Akron Thermal Energy Corporation). SO<sub>2</sub> emissions are controlled with a lime spray-dryer and a baghouse. The permitted SO<sub>2</sub> emission control efficiency is 90%. Therefore, the pre-controlled SO<sub>2</sub> emissions for this source are 16,820 tons per year. The permit for these boilers was issued April 5, 2001.

No information was available regarding the cost effectiveness of SO<sub>2</sub> controls for those sources listed above in the RBLC database.

Cost effectiveness information is known, however, for three recently permitted dual fuel boilers at Virginia Commonwealth University in Richmond, Virginia. Each of the three boilers has a rated heat input capacity of 150.6 MMBtu/hr and burn No. 6 or No. 2 fuel oil and natural gas. The total SO<sub>2</sub> emission limit in the March 31, 2002, PSD permit for the 3 boilers is 196.3 tons per year. Wet and dry scrubbers were considered in the BACT analysis for these boilers. The cost analysis for wet scrubbers showed a cost of \$8,018 per ton of SO<sub>2</sub> emissions removed based on the emissions increase associated with the modification and \$6,325 per ton of SO<sub>2</sub> removed based on the total emissions. Dry scrubbing was projected to be considerably more expensive. At these costs, the Virginia Department of Environmental Quality determined that wet scrubbing was economically infeasible. No SO<sub>2</sub> emissions controls were required as a result of the BACT analysis.

Although the boilers listed above where SO<sub>2</sub> controls were installed have annual uncontrolled potential emissions much greater than those proposed at the Akron Thermal Energy Corporation, the control techniques are consistent with those identified for evaluation here. For this application, Akron Thermal Energy Corporation evaluated the economic feasibility of wet and dry scrubbers for SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> removal. Assuming an SO<sub>2</sub> control efficiency of 90%, the cost for a wet scrubber for the Akron Thermal Energy Corporation operation was \$10,848 per ton of SO<sub>2</sub> removed from the increase associated with this project and \$9,903 per ton of total SO<sub>2</sub> removed. Dry scrubbing at an efficiency of 92% resulted in a cost of \$19,706 per ton of SO<sub>2</sub> removed from the increase associated with the project and \$17,990 per ton of total SO<sub>2</sub> removed. It should be noted that the cost estimated for the dry scrubbing system assumes that the existing electro-static precipitators (ESP) would handle the particulate matter from the boilers and the increased particulate matter from the operation of the dry scrubbing system. Normally, a baghouse would be installed downstream of the dry scrubbing system. If baghouses were required here, the estimated cost of the dry scrubbing system would increase substantially. Control cost estimation calculations are presented in the Appendix of the air PTI/PSD application. The control costs presented here and in the calculations in the Appendix were based on a vendor quotes for similar sized coal-fired boilers at another facility.

While these control devices are technically feasible, they are not economically feasible based on the small amount of SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> emissions that are available for control. Akron Thermal Energy Corporation requests that SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> emissions be controlled by the proposed 20% limit on TDF combustion. No additional SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> controls are proposed as BACT for this modification.

#### New Source Performance Standards (NSPS) Applicability

As required under the Clean Air Act, EPA has promulgated standards of performance for categories of new air contaminant sources listed in 40 CFR Part 60. The OAC regulations do not contain any NSPS regulations beyond those promulgated at the Federal level. The only source specific NSPS applicable to the TDF modification is Subpart Db of 40 CFR Part 60 for Industrial-Commercial-Institutional Steam Generating Units. Although these units at one time were considered incinerators, Subpart Eb would no longer apply, since these units are prohibited from burning municipal solid wastes and only burn wastes that are excluded from this classification. Listed below is a summary of the emission limits established by Subpart Db.

#### **New Source Performance Standards, per 40 CFR Part 60, Subpart Db**

Pollutant	Actual Emissions lb/MMBtu	Emission Limit per 40 CFR Part 60, Subpart Db lb/MMBtu	Reference
SO <sub>2</sub>	0.31	0.8	40 CFR 60.42b(a)
PM	0.08	0.1	40 CFR 60.43b(c)
NO <sub>x</sub>	0.21	0.3	40 CFR 60.44b(d)

However, based upon the amounts of emissions generated by the addition of burning TDF in B003 and B004, only SO<sub>2</sub> and PM pounds per hour emissions are increasing above pre-air permit to install application levels based upon recent stack tests. Although by increasing both the SO<sub>2</sub> and PM pounds per hour emission values above pre-air permit to install application levels, this action results in both B003 and B003 being subject to NSPS, Subpart Db of 40 CFR Part 60 for Industrial-Commercial-Institutional Steam Generating Units. Steam Generating Unit means pursuant to 40 CFR Part 60.41b, Subpart Db a device that combusts any fuel or

byproduct/waste to produce steam or to heat water or any other heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a co-generation system or a combined cycle system. This term does not include process heaters as they are defined in 40 CFR Part 60.41b, Subpart Db.

For B003 and B004, NSPS, Subpart Db of 40 CFR Part 60, there are no SO<sub>2</sub> requirements because those requirements are applicable only when burning coal or fuel oil. In this case, B003 and B004 are burning natural gas, wood, and TDF. However, Akron Thermal Energy Corporation has shown by the above table that it could comply with a SO<sub>2</sub> limitation in that subpart if need be.

For PM, Akron Thermal Energy Corporation has indicated that it can comply with NSPS, Subpart Db of 40 CFR Part 60 pursuant to 40 CFR 60.43b(c). To comply with NSPS, Subpart Db of 40 CFR Part 60 pursuant to 40 CFR 60.43b(f) Akron Thermal Energy Corporation will be monitoring opacity employing their existing continuous opacity monitor (COM).

For NO<sub>x</sub>, since there is no increase in pounds per hour emissions above pre-air permit to install application levels and based upon 40 CFR 60.14(a) which states in part that upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere, B003 and B004 are not subject to the NO<sub>x</sub> requirements listed in 40 CFR 60.44b(d).

However in order to establish a state of Ohio Best Available Technology limitation, Ohio EPA has chosen to assign requirements from NSPS, Subpart Db for NO<sub>x</sub>. This would include requirements listed in 40 CFR 60.44b(d) which also establish that B003 and B004 would not be required to install a continuous emissions monitor (CEM) for NO<sub>x</sub>.

#### National Emission Standards for Hazardous Air Pollutants (NESHAP) Part 61 and 63 Applicability

Section 112 of the Clean Air Act provides the EPA with a vehicle for developing a defined list of hazardous air pollutants (HAPS). The proposed regulations, which have been developed to implement Section 112(b), are presented in 40 CFR Parts 63. Unlike the NSPS, emissions limits or control requirements developed to implement Section 112 of the Act, as proposed, are applicable to both new and existing sources. There are currently no NESHAP regulations for these types of boilers, although the EPA has proposed the National Emissions Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heater. When these regulations take effect, the Akron Thermal Energy Corporation existing air contaminant sources contained within the facility will be required to comply with the MACT limitations promulgated for this source category.

Subpart B of 40 CFR Part 63 applies to major sources of HAPs for which an NESHAP has not been promulgated. The regulations require a case-by-case MACT determination as pre-construction approval for major new sources of HAPs. Major sources are defined as a facility with the potential to emit 10 tons of more of any single HAP or 25 tons per year of combined HAPs. Based on the emission calculations presented in Section 4 of the PSD air PTI application, the TDF project will not be a major source of HAPs and therefore not subject to regulations promulgated under 40 CFR Part 63.

However, Ohio EPA has inserted in the facility wide terms and conditions of the draft air permit to install terms and conditions that specify that Akron Thermal Energy Corporation on a facility wide basis (that is, the existing emissions units at the facility do in fact emit over major HAP source levels. Akron Thermal Energy Corporation has submitted part I, but the proposed terms and conditions would require Akron Thermal Energy Corporation to submit part II if USEPA does not promulgate the above mentioned MACT standard by May 15, 2004.

## Ohio Regulations and Policies

In addition to the Federal PSD, NSPS and NESHAPs provisions, there are a number of OEPA air quality requirements that apply to the TDF modification. The applicable requirements of Ohio Regulations are summarized below. The PSD application was prepared and submitted in order to satisfy the permit requirements outlined in OAC rules Chapter 3745-31.

The following state air quality requirements apply:

### Visible and Particulate Matter Emissions

Visible emissions are limited by 3745-17-07 (A):

- Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six minute average; and
- Visible particulate emissions from any stack may exceed 20 percent opacity, as a six-minute average, for not more than six consecutive minutes in any 60 minutes, but shall not exceed 60 percent opacity, as a six-minute average, at any time.

Exemptions are listed in 3745-17-07 (A), and test methods are listed in 3745-17-03.

Particulate Matter emissions are limited by 3745-17-10:

Particulate emission rates for combustion sources are limited by curve P-1 of 3745-17-10 (C). Based on this curve and a facility heat input of 540 MMBtu/hr, (3 units x 180 MMBtu/hr), the particulate emission limit would be 0.12 lb/MMBtu. Based on Table 3-1 and Table 3-3 contained within the PSD air PTI application, the TDF modification will meet these particulate emission limits.

### Nitrogen Oxide and Carbon Monoxide Emissions

Nitrogen oxide (NO<sub>x</sub>) emissions must meet "the latest available control techniques and operating practices in accordance with best current technology," according to 3745-23-06. Carbon monoxide emissions are similarly regulated by 3745-21-08. The TDF modification will comply with the federal NSPS for NO<sub>x</sub> and CO as discussed above.

### Volatile Organic Compound Emissions

According to 3745-21-07, "emission sources of photochemically reactive materials shall minimize such emissions by use of "the latest available control techniques and operating practices in accordance with best current technology."

- OAC rule 3745-31-05 (A)(3) - BAT

Installation of all new air contaminant sources must employ BAT as defined in OAC rule 3745-31-01.

- OAC rule 3745-17-07(A)

This rule applies to new air contaminant sources that emit particulate emissions from stacks. The rule reads visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average, except by rule.

- OAC rule 3745-17-10

This rule applies to installations in which fuel, including any product or by-product of a manufacturing process, is burned for the primary purpose of producing heat or power by indirect heat transfer. The rule reads in part the maximum allowable amount of particulate emissions for any new or existing fuel burning equipment which is fired only with gaseous fuels, excluding blast furnace, and/or shall be 0.020 pound per million Btu of actual heat input.

### Background Ambient Air Quality and Preconstruction Monitoring

U.S. EPA regulations require that a year of representative ambient air quality data be obtained as part of the PSD application. As a fulfillment of this requirement, an applicant may conduct monitoring on-site, model to demonstrate a "de minimus" impact, or use existing air quality data. U.S. EPA has set up specific conditions on the acceptability of existing air quality monitors to ensure the monitor is representative of air quality in the area.

The Akron Thermal project would result in emissions increases of SO<sub>2</sub> above the PSD significant emission rates. In this instance, Akron Thermal Energy Corporation has conducted ambient air quality modeling that predicts the ambient air quality impact of the source(s) to be less than the monitoring de minimus concentrations for SO<sub>2</sub>.

The following table below summaries the peak predicted impact concentration versus the De Minimus pre-application monitoring concentration:

Monitoring Pollutant	Averaging Period	Predicted Impact Concentration	Monitoring De Minimus Concentration
SO <sub>2</sub>	24-hour	11.77 ug/m <sup>3</sup>	13 µg/m <sup>3</sup>

Based upon the above, Akron Thermal would not be required to conduct pre-application monitoring.

### Modeling Analysis

Ambient air concentrations were modeled using ISCST3 version 02035, in urban mode using regulatory default options. Receptors were placed around the property line at 100-meter spacing. Terrain effects were also considered. Building downwash was calculated using BPIP version 95086.

Five years of meteorological data was used and surface measurements for the period 1987 through 1991 were collected at Akron, Ohio National Weather Service Station Number 14895 using an anemometer height of 6.1 meters. Mixing height measurements were taken at Pittsburgh, Pennsylvania National Weather Service Station Number 94823.

### Modeling Results

The maximum modeled SO<sub>2</sub> concentrations for each of the averaging times were above the corresponding significant impact increments. It was therefore necessary to perform a PSD and NAAQS analyses for SO<sub>2</sub>.

## PSD Increments

Modeling was performed to determine if the SO<sub>2</sub> impact from the proposed installation would contribute significantly to violations of the PSD increments for SO<sub>2</sub>. Increment consuming sources within the inventory were identified. Modeled impacts indicated that there were no violations of the PSD increment for SO<sub>2</sub>.

Monitoring Pollutant	Averaging Period	Predicted Impact Concentration (high annual, h2h 3-hr and 24-hr)	PSD Increment
SO <sub>2</sub>	24-hour	8.62 ug/m <sup>3</sup>	91.0 µg/m <sup>3</sup>
	3-hour	29.37 ug/m <sup>3</sup>	512 ug/m <sup>3</sup>
	Annual	1.24 ug/m <sup>3</sup>	20 ug/m <sup>3</sup>

## NAAQS

Modeling was performed to determine if the project would contribute significantly to violations of the NAAQS. Inventory files were compiled for the major sources in the seven count region surrounding Akron. Initial modeling indicated modeled violations in the vicinity of facilities within Akron Thermal's significant impact area. Summit County facilities have emission limits that were developed using models and model guidance that was less stringent than that which is being applied in this PSD analysis. The County is attainment for SO<sub>2</sub> and monitored violations have not occurred in over twenty five years.

Of the violations modeled, Akron Thermal successfully demonstrated that they did not significantly contribute to the problem with the exception of those occurring near the University of Akron. The University of Akron currently purchases steam needs from Akron Thermal and normally does not operate their boilers, and when they are operated, they operate on natural gas with fuel oil as a backup. This indicates that this is a modeled allowable problem and not an actual air quality problem

Nonetheless, the Akron Thermal project in it's initial state contributes to modeled violations of the NAAQS and would be unacceptable. It was determined if the project reduced the percentage of TDF to 15.5 percent, then the project would have insignificant impact on any modeled violations. Akron Thermal will accept this limitation until notified by Ohio EPA that the modeled violations have been corrected. The current demonstration will then support an emission rate consistent with 20 percent TDF.

Ohio EPA has begun discussions with facilities in Summit County who are potentially implicated in the modeled violations. We will prepare a timetable for the correction of this by the end of 2003.

Monitoring Pollutant	Averaging Period	Predicted Impact Concentration (high annual, h2h 3-hr and 24-hr)	NAAQS
SO <sub>2</sub>	24-hour	764.7 ug/m <sup>3</sup>	365 µg/m <sup>3</sup>
	3-hour	1427.5 ug/m <sup>3</sup>	1300 ug/m <sup>3</sup>
	Annual	145.3 ug/m <sup>3</sup>	80 ug/m <sup>3</sup>

Impacts excluding the University of Akron.

Monitoring Pollutant	Averaging Period	Predicted Impact Concentration (high annual, h2h 3-hr and 24-hr)	NAAQS
SO2	24-hour 3-hour Annual	293.9 ug/m3 780.5 ug/m3 53.2 ug/m3	365 µg/m <sup>3</sup> 1300 ug/m3 80 ug/m3

Ohio EPA’s Acceptable Incremental Impacts

All areas surrounding the Akron Thermal Energy Corporation facility are Class II PSD areas. It is Ohio EPA policy to allow an applicant to consume no more than 50% of the available PSD Class II increment except in specific instances where limited amounts above 50% are allowed.

Akron Thermal exceeded Ohio EPA the modeling thresholds for PM10, SO2 and CO. project impacts for each of these pollutants were well below 50 per cent of the corresponding PSD Class II increment Therefore, the ambient air impact of the new installation is acceptable to Ohio EPA.

Ohio EPA’s Air Toxics Analysis

Increases of toxic pollutants that are identified in the American Conference of Governmental Industrial Hygienists handbook are evaluated for the incremental impact of the project. The modeled impact is compared to a fraction of the time weighted average concentration know as the maximum acceptable ground level concentration (MAGLC). Akron Thermal evaluated several toxics that would increase as part of the proposed project. The stack was modeled at a ‘unit’ emission rate and the modeled impact was scaled according to the individual emission rates. The calculated impacts were well below their respective MAGLCs

Secondary Impact Analysis

Growth:

The new installation will utilize existing facility space and will not result in a significant increase in employees at the facility. As such, there will be limited impacts on growth of housing and surrounding industry to support this growth. It is not anticipated that the proposed project would result in an increase in secondary emissions associated with non-project related activities. Therefore, impacts due to secondary emissions are considered to be insignificant.

Soil, Vegetation, and Visibility:

For the most part, soils and vegetation are generally protected by the secondary NAAQS. Ambient concentrations for criteria pollutants below this level are not generally expected to cause harmful effects to soil and vegetation. The facility’s impact for NOx, CO, PM10, and SO<sub>2</sub> are below Ohio EPA’s acceptable incremental impacts provide sample protection of the NAAQS. Maintaining ambient pollutant levels with the NAAQS should amply protect soils and

vegetation.

### Additional Impacts

Class I areas are areas of special national or regional value from a natural, scenic, recreational, or historic perspective.

PSD regulations provide special protection for such areas that are located within 100 kilometers of a proposed installation of a new air contaminant source. The proposed project is not located within 200 kilometers of any

Class I areas. As such, the proposed installation of the new air contaminants sources will not "affect" any Class I areas.

### Conclusions

Based upon the analysis of the permit to install application and the supporting documentation provided by Akron Thermal Energy Corporation, the Ohio EPA staff has determined that the proposed project will comply with all applicable State and Federal environmental regulations and that the requirements for BACT are satisfied.

Therefore,  
the Ohio EPA staff recommends that a PSD air permit to install be issued to Akron Thermal Energy Corporation.



**Permit To Install  
Terms and Conditions**

**Issue Date: To be entered upon final issuance  
Effective Date: To be established upon payment of final fee amount identified in this permit**

**DRAFT PERMIT TO INSTALL 16-02294**

Application Number: 16-02294  
APS Premise Number: 1677010757  
Permit Fee: **\$1,600** (To be established upon payment of final fee amount identified in this permit)  
Name of Facility: Akron Thermal Energy Corp  
Person to Contact: Jim Benson  
Address: 226 Opportunity Pkwy  
Akron, OH 443072232

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**226 Opportunity Pkwy  
Akron, Ohio**

Description of proposed emissions unit(s):  
**Change in the Method of Operation, Inclusion of Shredded Tires as Fuel Component.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

Akron Thermal Energy Corp

Facility ID: 1677010757

PTI Application: 16-02294

Issued: To be entered upon final issuance

Part I - GENERAL TERMS AND CONDITIONS

**A. State and Federally Enforceable Permit To Install General Terms and Conditions**

**1. Monitoring and Related Recordkeeping and Reporting Requirements**

- a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - i. The date, place (as defined in the permit), and time of sampling or measurements.
  - ii. The date(s) analyses were performed.
  - iii. The company or entity that performed the analyses.
  - iv. The analytical techniques or methods used.
  - v. The results of such analyses.
  - vi. The operating conditions existing at the time of sampling or measurement.
- b. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
  - ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See B.9 below if no deviations occurred during the quarter.

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- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
- iv. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

## **2. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## **3. Risk Management Plans**

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

## **4. Title IV Provisions**

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

## **5. Severability Clause**

A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

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**6. General Requirements**

- a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and reissuance, or modification, or for denial of a permit renewal application.
- b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c. This permit may be modified, reopened, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d. This permit does not convey any property rights of any sort, or any exclusive privilege.
- e. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

**7. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit To Install fees within 30 days after the issuance of this Permit To Install.

**8. Federal and State Enforceability**

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit

shall not be federally enforceable and shall be enforceable under State law only.

## 9. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
  - i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
  - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

## 10. Permit To Operate Application

- a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete

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**Facility ID: 1677010757**

**Issued: To be entered upon final issuance**

Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

**11. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**12. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

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**B. State Only Enforceable Permit To Install General Terms and Conditions**

**1. Compliance Requirements**

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

**2. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

**3. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**4. Termination of Permit To Install**

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

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**5. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

**6. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**7. Applicability**

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

**8. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the

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facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

Akron Thermal Energy Corp

PTI Application: 16-02204

Issued

Facility ID: 1677010757

Emissions Unit ID: B003

9. **Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)**

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

C. **Permit To Install Summary of Allowable Emissions**

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

<u>Pollutant</u>	<u>Tons Per Year</u>
PM	36.2
NOx	130.24
SO2	135.46
CO	56.29
OC	3.15
HCl	7.5
Sulfuric Acid Mist	23.44

**Akron Thermal Energy Corp**

**PTI Application: 16-02294**

**Issued: To be entered upon final issuance**

**Facility ID: 1677010757**

**Issued: To be entered upon final issuance**

**Part II - FACILITY SPECIFIC TERMS AND CONDITIONS**

**A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions**

**I. MACT "Hammer" Requirements**

1. The permittee will be subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial & Institutional Boilers, 40 CFR Part 63, Subpart DDDDD. U.S. EPA failed to promulgate this standard by May 15, 2002, the Maximum Achievable Control Technology (MACT) hammer date. In accordance with 40 CFR Part 63, Subpart B (40 CFR Parts 63.50 through 63.56), the permittee shall submit an application to revise the permit to include equivalent emission limitations as a result of a case-by-case MACT determination. The application shall be submitted in two parts. The deadline to submit the Part I application, as specified in 40 CFR Part 63.53, was May 15, 2002.
2. If the final MACT standard is not promulgated by the deadline specified by U.S. EPA, the permittee shall submit the Part II application as specified in 40 CFR Part 63.53. The Part II application shall be submitted within 60 days after the deadline to promulgate the respective standard, as specified by the settlement between U.S. EPA and Sierra Club. It must contain the following information:
  - a. for a new affected source, the anticipated date of startup of operation;
  - b. the hazardous air pollutants (HAPs) emitted by each affected source in the relevant source category and an estimated total uncontrolled and controlled emission rate for HAPs from the affected source;
  - c. any existing federal, State, or local limitations or requirements applicable to the affected source;
  - d. for each affected emission point or group of affected emission points, an identification of control technology in place;
  - e. information relevant to establishing the MACT floor (or MACT emission limitation), and, at the option of the permittee, a recommended MACT floor; and
  - f. any other information reasonably needed by the permitting authority including, at the discretion of the permitting authority, information required pursuant to Subpart A of 40 CFR Part 63.

The Part II application for a MACT determination may, but is not required to, contain the following information:

- a. recommended emission limitations for the affected source and support information. (the permittee may recommend a specific design, equipment, work practice, or

- operational standard, or combination thereof, as an emission limitation);
  - b. a description of the control technologies that would be applied to meet the emission limitation, including technical information on the design, operation, size, estimated control efficiency and any other information deemed appropriate by the permitting authority, and identification of the affected sources to which the control technologies must be applied; and
  - c. relevant parameters to be monitored and frequency of monitoring to demonstrate continuous compliance with the MACT emission limitation over the applicable reporting period.
- 3. If the NESHAP is promulgated before May 15, 2004, the facility shall be subject to the rule as an existing major source with a compliance date as specified in the NESHAP. Pursuant to the Subpart, the permittee shall submit the following notifications:
  - a. Within 120 days after promulgation of 40 CFR Part 63, Subpart DDDDD, the permittee shall submit an Initial Notification Report which certifies whether or not the permittee is subject to the promulgated standard. If the permittee is subject to the final standard, the following information shall also be included in the Initial Notification Report, in accordance with 40 CFR Part 63.9(b)(2):
    - i. the name and mailing address of the permittee;
    - ii. the physical location of the source if it is different from the mailing address;
    - iii. identification of the relevant MACT standard and the source's compliance date;
    - iv. a brief description of the nature, design, size, and method of operation of the source, including the operating design capacity and an identification of each emission point of each HAP; and
    - v. a statement confirming the facility is a major source for HAPs.
  - b. Within 60 days following completion of any required compliance demonstration activity specified in 40 CFR Part 63, Subpart DDDDD, the permittee shall submit a notification of compliance status that contains the following information:
    - i. the methods used to determine compliance;
    - ii. the results of any performance tests, visible emission observations, continuous monitoring systems performance evaluations, and/or other monitoring procedures or methods that were conducted;
    - iii. the methods that will be used for determining continuous compliance, including a description of monitoring and reporting requirements and test methods;

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- iv. the type and quantity of HAPs emitted by the source, reported in units and averaging times in accordance with the test methods specified in 40 CFR Part 63, Subpart DDDDD;
- v. an analysis demonstrating whether the affected source is a major source or an area source;
- vi. a description of the air pollution control equipment or method for each emission point, including each control device or method for each HAP and the control efficiency (percent) for each control device or method; and
- vii a statement of whether or not the permittee has complied with the requirements of 40 CFR Part 63, Subpart DDDDD.

**B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions**

This permit shall become effective only after the permittee has paid this permit's permit-to-install fee.

**Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. State and Federally Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
B003 - Unit #1, Babcock and Wilcox 180 MMBtu/hr wood, natural gas, and tire derived fuel (TDF) fired boiler for steam generation, controlled with an electrostatic precipitator - modification to combust a mixture of 20% TDF with wood and avoid PSD review for PM/PM-10, NOx, and CO	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)
	OAC rule 3745-17-09
	OAC rule 3745-17-10(B)

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OAC rule 3745-18-06(D)	Applicable Emissions <u>Limitations/Control Measures</u>	emissions
OAC rule 3745-21-07(B) OAC rule 3745-21-08(B) OAC rule 3745-23-06(B)	The requirements of this rule also include compliance with the requirements of OAC	shall not exceed 0.24 lb/MMBtu of actual heat input, and 43.3 lbs/hr; carbon monoxide (CO) emissions shall not exceed 18.0 lbs/hr;
40 CFR 60, Subpart Db	rule 3745-17-07(A), 3745-17-09, 3745-17-	organic compounds (OC) emissions shall not exceed 0.36 lb/hr and 1.58 tpy of OC;
OAC rule 3745-31-(13) thru (20)	1(B), 3745-18-06(D), 3745-31-05(D), 3745-31- (13) thru (20), and 40 CFR 60 Subpart Db.	hydrogen chloride (HCl) shall not exceed 0.86 lb/hr and 3.75 tpy of HCl; sulfuric acid mist emissions shall not exceed 0.053 lb/MMBtu of actual heat input, and 9.56 lbs/hr; and,
OAC rule 3745-31-05(D)	When burning natural gas exclusively, particulate emissions (PE) shall not exceed 0.02 lb/MMBtu of actual heat input.	See A.I.2.d below. 20% opacity as a 6-minute average, (except for one 6-minute period per hour of not more than 27% opacity).
	When burning a combination of the following fuels: natural gas, TDF and/or wood (as described in term A.II.3), PE shall not exceed 0.08 lb/MMBtu of actual heat input, and 14.4 lbs/hr of PE;	See A.II.1 below. PHASE ONE: Maximum of 15.5% TDF burned with waste wood.
	nitrogen oxides (NO <sub>x</sub> ) emissions shall not exceed 0.24 lb/MMBtu of actual heat input, and 43.2 lbs/hr;	PHASE TWO: Maximum of 20% TDF burned with waste wood. See A.II.6 below.
	sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.31 lb/MMBtu of actual heat input, and 55.8 lbs/hr, except when burning at 15.5% TDF the following limitations are applicable: SO <sub>2</sub>	See A.I.2.a below. Applicable PE rule when burning wood (A.II.3), see A.I.2.a below. Applicable PE rule when burning natural

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gas, see A.I.2.a below.	rolling 12-month period for emissions units B003 and B004 combined.
Applicable SO <sub>2</sub> rule when burning natural gas, see A.I.2.a below.	130.24 tons of NO <sub>x</sub> per rolling 12-month period for emissions units B003 and B004 combined.
See A.I.2.f below	
See A.I.2.a and c below.	56.29 tons of CO per rolling 12-month period for emissions units B003 and B004 combined.
The tons of emissions per rolling 12-month period shall not exceed:	
SO <sub>2</sub> - 67.7	See A.I.2.b below.
Sulfuric Acid Mist - 11.7.	The annual capacity factor for natural gas shall be limited to 10 percent (0.10) or less for this emissions unit per rolling 12-month period.
See A I.2.e below.	
This emissions unit is limited to burning natural gas, TDF, and/or wood (as described in term A.II.3), or a combination of these fuels. The amount of these fuels for emissions units B003 and B004 is limited by the equation found in paragraph A.II.2 and limitation of no more than 61,654 tons of TDF mix burned per rolling 12-month period.	*All particulate matter less than 10 microns (PM <sub>10</sub> ) is considered to be PM.
36.22 tons of particulate matter* (PM) per	

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**2. Additional Terms and Conditions**

- 2.a** The emissions limitation established by this rule is less stringent than the emission limitation established by OAC rule 3745-31-05.
- 2.b** Based upon information submitted by the applicant in their permit application, the annual actual emissions for B003 and B004 based upon years 2001 and 2002 reporting are as follows:
- PM - 13.76 tpy;  
 NO<sub>x</sub> - 91.64 tpy; and  
 CO - 43.10 tpy.
- 2.c** The application and enforcement of the provisions of the New Source Performance Standards (NSPS), as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60, are delegated to the Ohio Environmental Protection Agency. The requirements of 40 CFR Part 60 are also federally enforceable.
- 2.d** The hourly mass emission limitations (PE, NO<sub>x</sub>, SO<sub>2</sub>, CO, HCl, and sulfuric acid mist) are based upon maximum values and therefore the permittee does not need to keep hourly records to show compliance with those limitations.
- 2.e** The permittee is required to perform a Best Available Control Technology (BACT) review for SO<sub>2</sub> and sulfuric acid mist. The emissions limits based on the BACT requirements are listed under OAC rule 3745-31-(13) through(20) above. The following determinations have been made for each pollutant:
- SO<sub>2</sub> - Restricting the amount of TDF burned in this emissions unit; and
- Sulfuric acid mist - Restricting the amount of TDF burned in this emissions unit.
- See also term A.II.6.
- 2.f** The permittee satisfies the "best available control techniques and operating practices" and "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08 and 3745-21-07(B), respectively, by complying with the best available technology requirements of OAC rule 3745-31-05(A)(3).

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

## II. Operational Restrictions

1. The permittee shall not burn any oil in this emissions unit
2. Emission, Natural Gas, TDF/Wood Mix, and Wood Burned Restrictions:

In order to avoid applicability of the federal Prevention of Significant Deterioration and state OAC 3745-31-13 thru 20 rules for PM/PM-10, NO<sub>x</sub>, and CO, Akron Thermal shall restrict the use of fuels burned in emissions units B003 through B004 combined by the following formula#:

$$\left( \frac{X \text{ lbs of wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.04 \text{ lb of PM}}{10^6 \text{ BTU}} \right) \left( \frac{5500 \text{ BTU}}{\text{lbs of wood}} \right) +$$

$$\left( \frac{Y \text{ lbs of TDF / wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.08 \text{ lb of PM}}{10^6 \text{ BTU}} \right) \left( \frac{7161 \text{ BTU}}{\text{lbs of TDF / wood}} \right) +$$

$$\left( \frac{Z \text{ CF natural gas burned}}{\text{rolling 12-month period}} \right) \left( \frac{7.6 \text{ lbs of PM}}{10^6 \text{ CF of natural gas}} \right) \leq$$

$$\left( \frac{72440 \text{ lbs of PM}}{\text{rolling 12-month period}} \right)$$
  

$$\left( \frac{X \text{ lbs of wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.24 \text{ lb of NO}_x}{10^6 \text{ BTU}} \right) \left( \frac{5500 \text{ BTU}}{\text{lbs of wood}} \right) +$$

$$\left( \frac{Y \text{ lbs of TDF / wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.22 \text{ lb of NO}_x}{10^6 \text{ BTU}} \right) \left( \frac{7161 \text{ BTU}}{\text{lbs of TDF / wood}} \right) +$$

$$\left( \frac{Z \text{ CF natural gas burned}}{\text{rolling 12-month period}} \right) \left( \frac{280 \text{ lbs of NO}_x}{10^6 \text{ CF of natural gas}} \right) \leq$$

$$\left( \frac{260,480 \text{ lbs of NO}_x}{\text{rolling 12-month period}} \right)$$

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$$\left( \frac{X \text{ lbs of wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.10 \text{ lb of CO}}{10^6 \text{ BTU}} \right) \left( \frac{5500 \text{ BTU}}{\text{lbs of wood}} \right) +$$

$$\left( \frac{Y \text{ lbs of TDF / wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.08 \text{ lb of CO}}{10^6 \text{ BTU}} \right) \left( \frac{7161 \text{ BTU}}{\text{lbs of TDF / wood}} \right) +$$

$$\left( \frac{Z \text{ CF natural gas burned}}{\text{rolling 12-month period}} \right) \left( \frac{84 \text{ lbs of CO}}{10^6 \text{ CF of natural gas}} \right) \leq$$

$$\left( \frac{112,580 \text{ lbs of CO}}{\text{rolling 12-month period}} \right)$$

Where:

X is the pounds of pure wood burned per rolling 12-month period

Y is the pounds of TDF/wood mix burned per rolling 12-month period

Z is the cubic feet of natural gas burned per rolling 12-month period

# note that stack testing and/or fuel analysis required in this permit might change the emission factors used to calculate the above PM, NO<sub>x</sub>, and CO lbs value based upon a rolling 12-month period listed above. Should more accurate emission factors be developed, the permittee shall use them, provided the new emission factors are mutually agreeable to the Ohio EPA, Akron RAQMD, and the permittee.

In addition, during the first 12 calendar months of operation while burning TDF/wood mix following the issuance of this permit, the permittee shall not exceed the TDF/wood mix burned limitations specified in the following table:

Month	Maximum Allowable TDF Mix Burned (B003 - B004) (tons)
1	12,330
1 - 2	12,330
1 - 3	24,660
1 - 4	24,660
1 - 5	36,990
1 - 6	36,990
1 - 7	49,230
1 - 8	49,230
1 - 9	61,654
1 - 10	61,654
1 - 11	61,654
1 - 12	61,654

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After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual used TDF mix limitation shall be based upon a rolling, 12-month summation of TDF mix burned, in tons.

The permittee has existing natural gas and wood usage records such that the permittee does not need to be limited on a monthly basis for the first year.

3. Wood Burned Restrictions:

The permittee shall only burn live tree trimmings and whole, but chipped trees from area land clearing operations. The permittee shall not burn wood or wood waste derived from any manufacturing operations or any other operation which coats, treats, or otherwise contaminates the wood or wood waste.

The permittee shall only burn wet wood that has a moisture content of 20% or greater.

4. ESP Restrictions:

The average total combined power input (in kilowatts) to all fields of the ESP, for any 3-hour block of time when the emissions unit is in operation, shall be no less than 90 percent of the total combined power input, as a 3-hour average, during the most recent emissions test that demonstrated the emissions unit was in compliance with the particulate emission limitation.

The permittee shall operate the ESP during any operation of this emissions unit, except the ESP may not be operated during periods of start-up until the exhaust gases have achieved a temperature of 250 degrees Fahrenheit at the inlet of the ESP or during periods of shutdown when the temperature of the exhaust gases has dropped below 250 degrees Fahrenheit at the inlet of the ESP.

The operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by the Ohio EPA, compliance with the mass emission limitations shall be determined by performing concurrent mass emission tests and parameter readings, using US EPA-approved methods and procedures. The results of any required emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitations.

5. Natural Gas Annual Capacity Factor Limitation:

In order to comply with the NO<sub>x</sub> lb/MMBtu limitation listed under OAC rule 3745-31-05(A)(5) in term A.I.1, the maximum annual natural gas capacity factor for this emissions unit shall not exceed 10 percent, based upon a rolling, 12-month calculation of the annual capacity factor.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, the permittee shall not exceed the monthly natural gas capacity factor limitations specified in the following table:

<u>Month</u>	<u>Maximum Allowable Monthly Natural Gas Capacity Factor</u>
1	10 percent
1-2	10 percent
1-3	10 percent
1-4	10 percent
1-5	10 percent
1-6	10 percent
1-7	10 percent
1-8	10 percent
1-9	10 percent

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1-10	10 percent
1-11	10 percent
1-12	10 percent

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the production rates.

6. Phase One / Phase Two Operating Scenario Restrictions:

In order to comply with air dispersion modeling requirements listed in both federal Prevention of Significant Deterioration and state OAC 3745-31-13 thru 20 regulations, the permittee shall operate this emissions unit at a maximum of 15.5% TDF burned with waste wood (Phase One). Once the permittee receives written approval from the Director, the permittee may operate this emissions unit at a maximum of 20% TDF burned with waste wood (Phase Two). But in no case shall the permittee operate this emissions unit without complying with the air dispersion modeling requirements listed in both federal Prevention of Significant Deterioration and state OAC 3745-31-13 thru 20 regulations.

**III. Monitoring and/or Record keeping Requirements**

1. The permittee shall monitor and record the following information on a daily basis:
  - a. the tons of wood that was fed to the boiler that day;
  - b. the tons of TDF that was fed to the boiler that day;
  - c. the calculated ratio of TDF/wood mixture that was burned that day,
  - d. the natural gas consumption for each day (in million cubic feet); and
  - e. the total actual heat input to the emissions unit, calculated as follows:

$$DI = DI_g + DI_w + DI_t$$

DI = Total heat input for each day, mmBtu  
 DI<sub>g</sub> = Daily heat input rate from Gas  
 DI<sub>w</sub> = Daily heat input rate from Wood  
 DI<sub>t</sub> = Daily heat input rate from TDF

When the unit is combusting natural gas, use the following equation to calculate heat input rate:

$$DI_g = (Q_g * GCV_g) / 10^3$$

Where:

DI<sub>g</sub> = Daily heat input rate from pipeline natural gas, mmBtu/day.

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$Q_g$  = Metered flow rate of gaseous fuel combusted during unit operation, thousand standard cubic feet per day.

$GCV_g$  = Gross calorific value of natural gas, as determined by sampling (for each monthly sample of pipeline natural gas, or as verified by the contractual supplier at least once every month pipeline natural gas is combusted) using ASTM D1826-88, ASTM D3588-91, ASTM D4891-89, GPA Standard 2172-86 "Calculation of Gross Heating Value, Relative Density and Compressibility Factor for Natural Gas Mixtures from Compositional Analysis," or GPA Standard 2261-90 "Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography," Btu/scf.

$10^3$  = Conversion of thousand Btu to mmBtu.

When the unit is combusting wood, use the following equation to calculate heat input rate:

$$DI_w = V_w * GCV_w / 10^6$$

Where:

$DI_w$  = Daily heat input rate from wood, mmBtu/day.

$V_w$  = Volume rate of wood consumed per day, measured in lbs/day

$GCV_w$  = Gross calorific value of wood, as measured by ASTM D2015 during most recent stack test, Btu/unit mass, in lbs.

$10^6$  = Conversion of Btu to mmBtu.

When the unit is combusting TDF, use the following equation to calculate heat input rate:

$$DI_t = V_t * GCV_t / 10^6$$

Where:

$DI_t$  = Daily heat input rate from TDF, mmBtu/day.

$V_t$  = Volume rate of TDF consumed per day, measured in lbs/day

$GCV_t$  = Gross calorific value of TDF, as measured by ASTM E711 during most recent stack test, Btu/unit mass, in lbs.

$10^6$  = Conversion of Btu to mmBtu.

## 2. Continuous Opacity Monitoring Requirements:

A statement of certification of the existing continuous opacity monitoring system shall be maintained on site and shall consist of a letter from the Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 1. Proof of certification shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.

The permittee shall operate and maintain existing equipment to continuously monitor and record the opacity of the particulate emissions from this emissions unit. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

The permittee shall maintain records of all data obtained by the continuous opacity

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monitoring system including, but not limited to, percent opacity on an instantaneous (one-minute) and 6-minute block average basis, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

The continuous emission monitoring system consists of all the equipment used to acquire data and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software.

Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous opacity monitoring system designed to ensure continuous valid and representative readings of opacity. The plan shall include, as a minimum, conducting and recording daily automatic zero/span checks, provisions for conducting a quarterly audit of the continuous opacity monitoring system, and a description of preventive maintenance activities. The plan shall describe step by step procedures for ensuring that sections 7.1.4, 7.4.1, 7.4.2, and Table 1-1 of Performance Specification 1 are maintained on a continuous basis. The quality assurance/quality control plan and a logbook dedicated to the continuous opacity monitoring system must be kept on site and available for inspection during regular office hours.

**3. ESP Requirements:**

The permittee shall monitor and record the following on an hourly basis during any operation of the ESP:

- a. the secondary voltage, in kilovolts, and the secondary current in amps, for each transformer rectifier (TR) set in the ESP;
- b. the power input (in kilowatts) of each TR set for each hour (calculated by multiplying the secondary voltage (in kilovolts) by the secondary current (in amps) for each TR set); and
- c. the total power input to the ESP for each hour (add together the power inputs for the TR sets operating during the hour).

The permittee shall record the following information for each day:

- a. all 3-hour blocks of time during which the average total combined power input to the ESP, when the emissions unit was in operation, was less than 90 percent of the total combined power input, as a 3-hour average, during the most recent emissions test that demonstrated the emissions unit was in compliance with the particulate emission limitation; and

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- b. the duration of any downtime for the ESP monitoring equipment for secondary voltage and current specified above, the ESP sections that are out of service, and the duration of the downtime for each section, when the associated emissions unit was in operation.
4. The permittee shall operate and maintain a temperature monitor and recorder that measures and records the temperature of the boiler exhaust gases entering the ESP as follows:
  - a. during all periods of start-up until the ESP is operational or until the inlet temperature of the ESP achieves the temperature level specified in OAC rule 3745-17-07(A)(3)(a)(i); and
  - b. during all periods of shutdown until the inlet temperature to the ESP drops below the temperature level specified in OAC rule 3745-17-07(A)(3)(b)(i).

The temperature monitor and recorder shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee, and shall be capable of accurately measuring the temperature of the emissions unit exhaust gases in degrees Fahrenheit.

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5. The permittee shall maintain monthly records of the following information in emission units B003 - B004:
  - a. the pounds of only wood burned;
  - b. the pounds of TDF/wood mix burned;
  - c. the cubic feet of natural gas burned;
  - d. the rolling, 12-month summation of natural gas and pure wood used;
  - e. the calculations and the results of the determination that the formulas in term A.II.2 was met;
  - f. beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the TDF mix burned figures; and
  - g. the rolling, 12-month summation of SO<sub>2</sub> and Sulfuric Acid Mist emission limitations.

Also, during the first 12 calendar months of operation following the issuance of this permit, the permittee shall record the cumulative TDF mix burned levels for each calendar month.

6. The permittee shall calculate the annual capacity factor as defined in 40 CFR Part 60.41b individually for each fuel burned each calendar quarter pursuant to 40 CFR Part 60.49b.(d). The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.
7. The permittee shall monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in section A.IV.10.
8. The permittee shall maintain daily records of the following information for each day that a TDF/wood mix is burned in the emissions unit:
  - a. the pounds of TDF burned;
  - b. the pounds of wood burned in conjunction with TDF; and
  - c. the ratio of TDF burned as a mixture with wood, i.e., (a) / [(a) + (b)], in percentage

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(average).

#### **IV. Reporting Requirements**

1. The permittee shall submit reports (hardcopy and electronic) within 30 days following the end of each calendar quarter to the Akron Regional Air Quality Management District documenting all instances of opacity values in excess of the limitations specified above, detailing the date,

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commencement and completion times, duration, magnitude (percent opacity), reason (if known), and corrective actions taken (if any) of each 6-minute block average above the applicable opacity limitation(s).

The reports shall also document any continuous opacity monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report.

These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

2. The permittee shall submit deviation (excursion) reports which identify:
  - a. all periods of time during start-up and shutdown of the emissions unit when the ESP was not in operation and the temperature of the emissions unit exhaust gases exceeded the temperature levels specified in OAC rule 3745-17-07(A)(3)(a)(i) and (b)(i);
  - b. all 3-hour blocks of time during which the average total combined power input to all fields of the ESP does not comply with the operational restriction specified in Section A.II of this permit;
  - c. all periods in which the TDF / wood mix exceeded 20% TDF and the actual composition for that time period; and
  - d. during Phase One operating scenario, all periods in which the TDF / wood mix exceeded 15.5% TDF and the actual composition for that time period.
3. The permittee shall submit quarterly reports which identify the sections of the ESP that

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were out of service along with the time period(s) involved. These quarterly reports shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall address the information obtained during the previous calendar quarter.

4. The permittee shall submit deviation (excursion) reports which identify all exceedances of rolling, 12-month limitations and, for the first 12 calendar months of operation following the issuance of this permit, all exceedances of the maximum allowable cumulative TDF mix burned and PM,

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NO<sub>x</sub>, and CO emission levels (compliance with PM, NO<sub>x</sub>, and CO emissions levels are demonstrated thru the use of the formula described in term A.II.2) for emission units B003 - B004.

5. The permittee shall submit deviation (excursion) reports which identify all exceedances of rolling, 12-month limitations for SO<sub>2</sub> and sulfuric acid mist.
6. The permittee shall submit deviation (excursion) reports that identify all exceedances of the natural gas annual capacity factor limitation and, for the first 12 calendar months of operation following the issuance of the permit, all exceedances of the monthly allowable natural gas capacity factor.
7. The deviation reports shall be submitted as specified in General Condition A.1.c of this permit.
8. The permittee shall submit quarterly reports which specify the total quantity of each fuel combusted in this emissions unit for each calendar month during the calendar quarter. These quarterly reports shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall address the data obtained during the previous calendar quarter.
9. The permittee shall submit an initial notification of startup. This notification shall include:
  - a. the date of initial startup;
  - b. the design heat input capacity of the facility and an identification of the fuels to be combusted in the affected facility; and
  - c. the annual capacity factor at which the permittee anticipates operating the facility based on all fuels fired and based on each individual fuel fired.
10. The permittee shall submit for approval within 360 days of startup a plan that identifies the operating conditions to be monitored to demonstrate compliance with the nitrogen oxide emission limitations. The plan shall:
  - a. identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxide emission rates (i.e., ng/J or lbs/million Btu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);
  - b. include the data and information that the owner or operator used to identify the

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relationship between nitrogen oxides emission rates and these operating conditions;  
and

- c. identify how these operating conditions, including steam generating unit load, will be monitored on an hourly basis by the permittee during the period of operating of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the permittee.
11. The permittee shall submit excess emission reports for any calculated exceedance of the nitrogen oxide emission limitation. All reports shall be submitted by the 30th day following the end of the 6 month reporting period.
  12. Pursuant to the NSPS, section 60.7, the source owner/operator is hereby advised of the requirement to submit a written report to the administrator (not more than 60 days or as soon as practicable before the change is commenced) the following:
    - a. information describing the precise nature of the change;
    - b. present and proposed emissions control systems;
    - c. productive capacity of the facility before and after the change; and
    - d. expected completion date of the change.

The administrator may request additional relevant information subsequent to this notice.

13. Report required in term A.IV.12 is to be sent to:

Ohio Environmental Protection Agency  
DAPC - Permit Management Unit  
P. O. Box 163669  
Columbus, Ohio 43216-3669

and

Akron Air Pollution Control  
146 South High Street  
Room 904  
Akron, Ohio 44308

## **V. Testing Requirements**

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in

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accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of the permit.
- b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for particulate, nitrogen oxide, sulfur dioxide, carbon monoxide, organic compounds, hydrogen chloride and sulfuric acid mist.
- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

for PE, Methods 1-5 of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix);

for NO<sub>x</sub>, Methods 1-4 and 7E of 40 CFR Part 60, Appendix A (while firing only wood);

for SO<sub>2</sub>, Methods 1-4 and 6C of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix);

for CO, Methods 1-4 and 10 of 40 CFR Part 60, Appendix A (while firing only wood);

for OC, Methods 1-4 and 25A of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix);

for HCl, Methods 1-4 and 26 of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix); and

for H<sub>2</sub>SO<sub>4</sub> mist, Methods 1-4 and 8 of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix).

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
2. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

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3. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
4. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.
5. The reported OC mass emission value shall have been converted from "as carbon" to actual OC emission rate. The determination of the weight fraction of carbon may be based on standard analytical techniques or material formulation data.
6. The permittee shall demonstrate the maximum heat input capacity of the steam generating unit by operating it as maximum capacity for 24 hours. The permittee shall determine the maximum heat input capacity using the heat loss method described in section 5 and 7.3 of the ASME Power Test Codes 4.1. This demonstration of maximum heat input capacity shall be made during the initial performance test. It shall be made within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of the emissions unit. Subsequent demonstrations may be required by the Administrator at any other time. If this demonstration indicates that the maximum heat input capacity of the emissions unit is less than that stated by the manufacturer of the emissions unit, the maximum heat input capacity determined during this demonstration shall be used to determine the capacity utilization rate for the emissions unit. Otherwise, the maximum heat input capacity provided by the manufacturer is used.
7. Compliance with the emission limitation(s) in Section A.I. of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitation:  
  
0.02 lb of PE/MMBtu of actual heat input, when combusting only natural gas  
Applicable Compliance Method:  
  
The AP-42 [(7/98) Table 1.4-2] emission factor for natural gas combustion is 7.6 lbs of particulate per 10<sup>6</sup> scf. This factor is based on an average natural gas heating value of 1,020 Btu/scf and is equivalent to 0.007451 lb of particulate per mmBtu.
  - b. Emission Limitation:

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0.08 lb of PE/MMBtu of actual heat input

14.4 lbs/hr of PE

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 5, 40 CFR Part 60, Appendix A.

c. Emission Limitation:

0.24 lb of NO<sub>x</sub>/MMBtu of actual heat input

43.2 lbs/hr of NO<sub>x</sub>

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 7E, 40 CFR Part 60, Appendix A.

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## d. Emission Limitation:

0.31 lb of SO<sub>2</sub> / MMBtu of actual heat input  
55.8 lbs/hr of SO<sub>2</sub>

0.24 lb of SO<sub>2</sub> / MMBtu of actual heat input  
43.3 lbs/hr of SO<sub>2</sub> when burning 15.5% TDF.

## Applicable Compliance Method:

If required, compliance shall be determined by emission testing in accordance with Methods 1-4 and 6C, 40 CFR Part 60, Appendix A.

## e. Emission Limitation:

18.0 lbs/hr of CO

## Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 10, 40 CFR Part 60, Appendix A.

## f. Emission Limitation:

0.36 lbs/hr of OC  
1.58 tpy of OC

## Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 25A, 40 CFR Part 60, Appendix A.

## g. Emission Limitation:

0.86 lbs/hr of HCl  
3.75 tpy of HCl

## Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods

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1-4 and 26, 40 CFR Part 60, Appendix A.

## h. Emission Limitation:

0.053 lb of sulfuric acid mist/MMBtu  
9.56 lbs/hr of sulfuric acid mist

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 8, 40 CFR Part 60, Appendix A.

## i. Emission Limitation:

20% opacity as a 6-minute average, (except for one 6-minute period per hour of not more than 27% opacity)

Applicable Compliance Method:

Compliance with the visible emission limitation shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures in OAC rule 3745-17-03(B)(1).

## j. Emission Limitation:

67.7 tpy of SO<sub>2</sub>

Applicable Compliance Method:

Multiply the result of most recent stack test, in pounds/MMBtu, by the rated boiler capacity of 180 MMBtu/hr, by the maximum operating hours of 8760 hours/year and divide by 2000 to convert the result to tons.

## k. Emission Limitation:

11.7 tpy of sulfuric acid mist

Applicable Compliance Method:

Multiply the result of most recent stack test, in pounds/MMBtu, by the rated boiler capacity of 180 MMBtu/hr, by the maximum operating hours of 8760 hours/year and divide by 2000 to convert the result to tons.

## l. Emission Limitation:

36.22 tpy of PM for B003 and B004 combined

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130.24 tpy of NO<sub>x</sub> for B003 and B004 combined

56.29 tpy of CO for B003 and B004 combined

Applicable Compliance Method:

The permittee shall demonstrate compliance with the above limitations based upon the record keeping requirements of section III.5 of these T&Cs.

m. Emission Limitation:

annual capacity factor for natural gas shall be limited to 10 percent (0.10)

Applicable Compliance Method:

The permittee shall demonstrate compliance with the above limitations based upon the record keeping requirements of section III.6 of these T&Cs.

**VI. Miscellaneous Requirements**

1. The terms and conditions in this Permit to Install shall supersede all the air pollution control requirements for this emissions unit contained in permits to install 16-037, 16-294, and 16-02187 issued on March 17, 1976, July 11, 1984, and March 26, 2002 respectively.

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**Issued: To be entered upon final issuance****B. State Only Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B003 - Unit #1, Babcock and Wilcox 180 MMBtu/hr wood, natural gas, and tire derived fuel (TDF) fired boiler for steam generation, controlled with an electrostatic precipitator - modification to combust a mixture of 20% TDF with wood and avoid PSD review for PM/PM-10, NO <sub>x</sub> , and CO	OAC rule 3745-31-05(A)(3)	None

**2. Additional Terms and Conditions**

- 2.a None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record keeping Requirements**

1. The permit to install for these emissions units (B003 - B004) was evaluated based on the actual materials (typically coatings and cleanup materials) and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy

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("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Manganese

TLV (mg/m<sup>3</sup>): 0.2

Maximum Hourly Emission Rate (lbs/hr): 0.12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.022

MAGLC (ug/m<sup>3</sup>): 0.714

Pollutant: Acrolein

TLV (mg/m<sup>3</sup>): 0.23

Maximum Hourly Emission Rate (lbs/hr): 0.89

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.167

MAGLC (ug/m<sup>3</sup>): 4.02

Pollutant: Benzene

TLV (mg/m<sup>3</sup>): 32

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.070

MAGLC (ug/m<sup>3</sup>): 37.95

Pollutant: Biphenyl

TLV (mg/m<sup>3</sup>): 1.3

Maximum Hourly Emission Rate (lbs/hr): 3.31

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.264

MAGLC (ug/m<sup>3</sup>): 29.97

Pollutant: 1,3-Butadiene

TLV (mg/m<sup>3</sup>): 4.4

Maximum Hourly Emission Rate (lbs/hr): 1.40

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.264

MAGLC (ug/m<sup>3</sup>): 105.13

Pollutant: Ethylbenzene

TLV (mg/m<sup>3</sup>): 434

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.070

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MAGLC (ug/m3): 10,316.81

Pollutant: Formaldehyde

TLV (mg/m3): 0.27

Maximum Hourly Emission Rate (lbs/hr): 0.97

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.184

MAGLC (ug/m3): 6.45

Pollutant: Naphthalene

TLV (mg/m3): 52

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.070

MAGLC (ug/m3): 1,245.77

Pollutant: Phenol

TLV (mg/m3): 19

Maximum Hourly Emission Rate (lbs/hr): 0.40

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.075

MAGLC (ug/m3): 457.29

Pollutant: Styrene

TLV (mg/m3): 213

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.070

MAGLC (ug/m3): 2,024.49

Pollutant: Toluene

TLV (mg/m3): 188

Maximum Hourly Emission Rate (lbs/hr): 0.20

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.038

MAGLC (ug/m3): 4,476.68

Pollutant: Sulfuric Acid Mist

TLV (mg/m3): 1

Maximum Hourly Emission Rate (lbs/hr): 19.11

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3.607

MAGLC (ug/m3): 23.81

Pollutant: Hydrogen Chloride

TLV (mg/m3): 5

Maximum Hourly Emission Rate (lbs/hr): 0.86

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.161

MAGLC (ug/m3): 130.60

Pollutant: Lead

TLV (mg/m3): 0.05

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Maximum Hourly Emission Rate (lbs/hr): 0.04

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.01

MAGLC (ug/m3): 1.19

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

2. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"
  - a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
  - b. documentation of its evaluation and determination that the changed emissions unit

still satisfies the "Air Toxic Policy"; and

- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

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Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
B004 - Unit #2, Babcock and Wilcox 180 MMBtu/hr wood, natural gas, and tire derived fuel (TDF) fired boiler for steam generation, controlled with an electrostatic precipitator - modification to combust a mixture of 20% TDF with wood and avoid PSD review for PM/PM-10, NOx, and CO	OAC rule 3745-31-05(A)(3)

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	<u>Applicable Emissions Limitations/Control Measures</u>	
		emissions shall not exceed 0.24 lb/MMBtu of actual heat input, and 43.3 lbs/hr;
OAC rule 3745-17-07(A)	The requirements of this rule also include compliance with the requirements of OAC	carbon monoxide (CO) emissions shall not exceed 18.0 lbs/hr;
OAC rule 3745-17-09	rule 3745-17-07(A), 3745-17-09, 3745-17-	organic compounds (OC) emissions shall not exceed 0.36 lb/hr and 1.58 tpy of OC;
OAC rule 3745-17-10(B)	10(B), 3745-18-06(D), 3745-31-05(D), 3745-31-	hydrogen chloride (HCl) shall not exceed 0.86 lb/hr and 3.75 tpy of HCl;
OAC rule 3745-18-06(D)	(13) thru (20), and 40 CFR 60 Subpart Db.	sulfuric acid mist emissions shall not exceed 0.053 lb/MMBtu of actual heat input, and 9.56 lbs/hr; and,
OAC rule 3745-21-07(B)	When burning natural gas exclusively,	See A.I.2.d below.
OAC rule 3745-21-08(B)	particulate emissions (PE) shall not exceed	20% opacity as a 6-minute average, (except for one 6-minute period per hour of not more than 27% opacity).
OAC rule 3745-23-06(B)	0.02 lb/MMBtu of actual heat input.	See A.II.1 below.
40 CFR 60, Subpart Db	When burning a combination of the following fuels: natural gas, TDF and/or	PHASE ONE: Maximum of 15.5% TDF burned with waste wood.
OAC rule 3745-31-(13) thru (20)	wood (as described in term A.II.3), PE shall not exceed 0.08 lb/MMBtu of actual heat input, and 14.4 lbs/hr of PE;	PHASE TWO: Maximum of 20% TDF burned with waste wood.
OAC rule 3745-31-05(D)	nitrogen oxides (NO <sub>x</sub> ) emissions shall not exceed 0.24 lb/MMBtu of actual heat input, and 43.2 lbs/hr;	See A.II.6 below.
	sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 0.31 lb/MMBtu of actual heat input, and 55.8 lbs/hr, except when burning at 15.5% TDF the following limitations are applicable: SO <sub>2</sub>	See A.I.2.a below. Applicable PE rule when burning wood (A.II.3), see A.I.2.a below. Applicable PE rule when burning natural

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gas, see A.I.2.a below.	matter* (PM) per rolling 12-month period for emissions units B003 and B004 combined.
Applicable SO <sub>2</sub> rule when burning natural gas, see A.I.2.a below.	130.24 tons of NO <sub>x</sub> per rolling 12-month period for emissions units B003 and B004 combined.
See A.I.2.f below.	56.29 tons of CO per rolling 12-month period for emissions units B003 and B004 combined.
See A.2.a and c below.	The tons of emissions per rolling 12-month period shall not exceed:
SO <sub>2</sub> - 67.7	See A.I.2.b below.
Sulfuric Acid Mist - 11.7	The annual capacity factor for natural gas shall be limited to 10 percent (0.10) or less for this emissions unit per rolling 12-month period.
See A.I.2.e below.	*All particulate matter less than 10 microns (PM <sub>10</sub> ) is considered to be PM.
This emissions unit is limited to burning natural gas, TDF, and/or wood (as described in term A.II.3), or a combination of these fuels. The amount of these fuels for emissions units B003 and B004 is limited by the equation found in paragraph A.II.2 and limitation of no more than 61,654 tons of TDF mix burned per rolling 12-month period.	
36.22 tons of particulate	



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satisfy the "best available control techniques and operating practices" still exists as part of the federally-approved SIP for Ohio.

**II. Operational Restrictions**

1. The permittee shall not burn any oil in this emissions unit

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2. Emission, Natural Gas, TDF/Wood Mix, and Wood Burned Restrictions:

In order to avoid applicability of the federal Prevention of Significant Deterioration and state OAC 3745-31-13 thru 20 rules for PM/PM-10, NO<sub>x</sub>, and CO, Akron Thermal shall restrict the use of fuels burned in emissions units B003 through B004 combined by the following formula#:

$$\left( \frac{\text{X lbs of wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.10 \text{ lb of CO}}{10^6 \text{ BTU}} \right) \left( \frac{5500 \text{ BTU}}{\text{lbs of wood}} \right) +$$

$$\left( \frac{\text{Y lbs of TDF / wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.08 \text{ lb of CO}}{10^6 \text{ BTU}} \right) \left( \frac{7161 \text{ BTU}}{\text{lbs of TDF / wood}} \right)$$

$$\left( \frac{\text{Z CF natural gas burned}}{\text{rolling 12-month period}} \right) \left( \frac{84 \text{ lbs of CO}}{10^6 \text{ CF of natural gas}} \right) \leq$$

$$\left( \frac{112,580 \text{ lbs of CO}}{\text{rolling 12-month period}} \right);$$

$$\left( \frac{\text{X lbs of wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.24 \text{ lb of NO}_x}{10^6 \text{ BTU}} \right) \left( \frac{5500 \text{ BTU}}{\text{lbs of wood}} \right) +$$

$$\left( \frac{\text{Y lbs of TDF / wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.22 \text{ lb of NO}_x}{10^6 \text{ BTU}} \right) \left( \frac{7161 \text{ BTU}}{\text{lbs of TDF / wood}} \right)$$

$$\left( \frac{\text{Z CF natural gas burned}}{\text{rolling 12-month period}} \right) \left( \frac{280 \text{ lbs of NO}_x}{10^6 \text{ CF of natural gas}} \right) \leq$$

$$\left( \frac{260,480 \text{ lbs of NO}_x}{\text{rolling 12-month period}} \right);$$

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$$\left( \frac{X \text{ lbs of wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.04 \text{ lb of PM}}{10^6 \text{ BTU}} \right) \left( \frac{5500 \text{ BTU}}{\text{lbs of wood}} \right) +$$

$$\left( \frac{Y \text{ lbs of TDF/ wood burned}}{\text{rolling 12-month period}} \right) \left( \frac{0.08 \text{ lb of PM}}{10^6 \text{ BTU}} \right) \left( \frac{7161 \text{ BTU}}{\text{lbs of TDF/ wood}} \right) +$$

$$\left( \frac{Z \text{ CF natural gas burned}}{\text{rolling 12-month period}} \right) \left( \frac{7.6 \text{ lbs of PM}}{10^6 \text{ CF of natural gas}} \right) \leq$$

$$\left( \frac{72440 \text{ lbs of PM}}{\text{rolling 12-month period}} \right)$$

Where;

X is the pounds of pure wood burned per rolling 12 – month period.

Y is the pounds of TDF/ wood mix burned per rolling 12 – month period.

Z is the cubic feet of natural gas burned per rolling 12 – month period.

# note that stack testing and/or fuel analysis required in this permit might change the emission factors used to calculate the above PM, NO<sub>x</sub>, and CO lbs value based upon a rolling 12-month period listed above. Should more accurate emission factors be developed, the permittee shall use them, provided the new emission factors are mutually agreeable to the Ohio EPA, Akron RAQMD, and the permittee.

In addition, during the first 12 calendar months of operation while burning TDF/wood mix following the issuance of this permit, the permittee shall not exceed the TDF/wood mix burned limitations specified in the following table:

<b>Month</b>	<b>Maximum Allowable TDF Mix Burned (B003 - B004) (tons)</b>
1	12,330
1 - 2	12,330
1 - 3	24,660
1 - 4	24,660
1 - 5	36,990
1 - 6	36,990
1 - 7	49,230
1 - 8	49,230
1 - 9	61,654
1 - 10	61,654
1 - 11	61,654
1 - 12	61,654

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual used TDF mix limitation shall be based upon a rolling,

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12-month summation of TDF mix burned, in tons.

The permittee has existing natural gas and wood usage records such that the permittee does not need to be limited on a monthly basis for the first year.

3. Wood Burned Restrictions:

The permittee shall only burn live tree trimmings and whole, but chipped trees from area land clearing operations. The permittee shall not burn wood or wood waste derived from any manufacturing operations or any other operation which coats, treats, or otherwise contaminates the wood or wood waste.

The permittee shall only burn wet wood that has a moisture content of 20% or greater.

4. ESP Restrictions:

The average total combined power input (in kilowatts) to all fields of the ESP, for any 3-hour block of time when the emissions unit is in operation, shall be no less than 90 percent of the total combined power input, as a 3-hour average, during the most recent emissions test that demonstrated the emissions unit was in compliance with the particulate emission limitation.

The permittee shall operate the ESP during any operation of this emissions unit, except the ESP may not be operated during periods of start-up until the exhaust gases have achieved a temperature of 250 degrees Fahrenheit at the inlet of the ESP or during periods of shutdown when the temperature of the exhaust gases has dropped below 250 degrees Fahrenheit at the inlet of the ESP.

The operation of the control equipment outside of the restrictions established above may or may not indicate a mass emission violation. If required by the Ohio EPA, compliance with the mass emission limitations shall be determined by performing concurrent mass emission tests and parameter readings, using US EPA-approved methods and procedures. The results of any required emission tests and parameter readings shall be used in determining whether or not the operation of the control equipment outside of the restrictions specified above is indicative of a possible violation of the mass emission limitations.

5. Natural Gas Annual Capacity Factor Limitation:

In order to comply with the NO<sub>x</sub> lb/MMBtu limitation listed under OAC rule 3745-31-05(A)(5) in term A.I.1, the maximum annual natural gas capacity factor for this emissions unit shall not exceed 10 percent, based upon a rolling, 12-month calculation of the annual capacity factor.

To ensure enforceability during the first 12 calendar months of operation following the issuance of this permit, the permittee shall not exceed the monthly natural gas capacity

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factor limitations specified in the following table:

<u>Month</u>	<u>Maximum Allowable Monthly Natural Gas Capacity Factor</u>
1	10 percent
1-2	10 percent
1-3	10 percent
1-4	10 percent
1-5	10 percent
1-6	10 percent
1-7	10 percent
1-8	10 percent
1-9	10 percent
1-10	10 percent
1-11	10 percent
1-12	10 percent

After the first 12 calendar months of operation following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the production rates.

6. Phase One / Phase Two Operating Scenario Restrictions:

In order to comply with air dispersion modeling requirements listed in both federal Prevention of Significant Deterioration and state OAC 3745-31-13 thru 20 regulations, the permittee shall operate at a maximum of 15.5% TDF burned with waste wood (Phase One). Once the permittee receives written approval from the Director, the permittee may operate at a maximum of 20% TDF burned with waste wood (Phase Two). But in no case shall the permittee operate this emissions unit without complying with the air dispersion modeling requirements listed in both federal Prevention of Significant Deterioration and state OAC 3745-31-13 thru 20 regulations.

### III. Monitoring and/or Record keeping Requirements

1. The permittee shall monitor and record the following information on a daily basis:
  - a. the tons of wood that was fed to the boiler that day;
  - b. the tons of TDF that was fed to the boiler that day;
  - c. the calculated ratio of TDF/wood mixture that was burned that day,
  - d. the natural gas consumption for each day (in million cubic feet); and

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- e. the total actual heat input to the emissions unit, calculated as follows:

$$DI = DI_g + DI_w + DI_t$$

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DI	=	Total heat input for each day, MMBTU
DI <sub>g</sub>	=	Daily heat input rate from Gas
DI <sub>w</sub>	=	Daily heat input rate from Wood
DI <sub>t</sub>	=	Daily heat input rate from TDF

When the unit is combusting natural gas, use the following equation to calculate heat input rate:

$$DI_g = (Q_g * GCV_g) / 10^3$$

Where:

DI <sub>g</sub>	=	Daily heat input rate from pipeline natural gas, MMBtu/day.
Q <sub>g</sub>	=	Metered flow rate of gaseous fuel combusted during unit operation, thousand standard cubic feet per day.
GCV <sub>g</sub>	=	Gross calorific value of natural gas, as determined by sampling (for each monthly sample of pipeline natural gas, or as verified by the contractual supplier at least once every month pipeline natural gas is combusted) using ASTM D1826-88, ASTM D3588-91, ASTM D4891-89, GPA Standard 2172-86 "Calculation of Gross Heating Value, Relative Density and Compressibility Factor for Natural Gas Mixtures from Compositional Analysis," or GPA Standard 2261-90 "Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography," Btu/scf.
10 <sup>3</sup>	=	Conversion of thousand Btu to MMBtu.

When the unit is combusting wood, use the following equation to calculate heat input rate:

$$DI_w = V_w * GCV_w / 10^6$$

Where:

DI <sub>w</sub>	=	Daily heat input rate from wood, MMBtu/day.
V <sub>w</sub>	=	Volume rate of wood consumed per day, measured in lbs/day
GCV <sub>w</sub>	=	Gross calorific value of wood, as measured by ASTM D2015 during most recent stack test, Btu/unit mass, in lbs.
10 <sup>6</sup>	=	Conversion of Btu to MMBtu.

When the unit is combusting TDF, use the following equation to calculate heat input rate:

$$DI_t = V_t * GCV_t / 10^6$$

Where:

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$DI_t$	=	Daily heat input rate from TDF, MMBtu/day.
$V_t$	=	Volume rate of TDF consumed per day, measured in lbs/day
$GCV_t$	=	Gross calorific value of TDF, as measured by ASTM E711 during most recent stack test, Btu/unit mass, in lbs.
$10^6$	=	Conversion of Btu to MMBtu.

**Issued: To be entered upon final issuance**2. Continuous Opacity Monitoring Requirements:

A statement of certification of the existing continuous opacity monitoring system shall be maintained on site and shall consist of a letter from the Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 1. Proof of certification shall be made available to the Director (the appropriate Ohio EPA District Office or local air agency) upon request.

The permittee shall operate and maintain existing equipment to continuously monitor and record the opacity of the particulate emissions from this emissions unit. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

The permittee shall maintain records of all data obtained by the continuous opacity monitoring system including, but not limited to, percent opacity on an instantaneous (one-minute) and 6-minute block average basis, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

The continuous emission monitoring system consists of all the equipment used to acquire data and includes the sample extraction and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software.

Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous opacity monitoring system designed to ensure continuous valid and representative readings of opacity. The plan shall include, as a minimum, conducting and recording daily automatic zero/span checks, provisions for conducting a quarterly audit of the continuous opacity monitoring system, and a description of preventive maintenance activities. The plan shall describe step by step procedures for ensuring that sections 7.1.4, 7.4.1, 7.4.2, and Table 1-1 of Performance Specification 1 are maintained on a continuous basis. The quality assurance/quality control plan and a logbook dedicated to the continuous opacity monitoring system must be kept on site and available for inspection during regular office hours.

3. ESP Requirements:

The permittee shall monitor and record the following on an hourly basis during any operation of the ESP:

- a. the secondary voltage, in kilovolts, and the secondary current in amps, for each

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transformer rectifier (TR) set in the ESP;

- b. the power input (in kilowatts) of each TR set for each hour (calculated by multiplying the secondary voltage (in kilovolts) by the secondary current (in amps) for each TR set); and
- c. the total power input to the ESP for each hour (add together the power inputs for the TR sets operating during the hour).

The permittee shall record the following information for each day:

- a. all 3-hour blocks of time during which the average total combined power input to the ESP, when the emissions unit was in operation, was less than 90 percent of the total combined power input, as a 3-hour average, during the most recent emissions test that demonstrated the emissions unit was in compliance with the particulate emission limitation; and
  - b. the duration of any downtime for the ESP monitoring equipment for secondary voltage and current specified above, the ESP sections that are out of service, and the duration of the downtime for each section, when the associated emissions unit was in operation.
4. The permittee shall operate and maintain a temperature monitor and recorder that measures and records the temperature of the boiler exhaust gases entering the ESP as follows:
- a. during all periods of start-up until the ESP is operational or until the inlet temperature of the ESP achieves the temperature level specified in OAC rule 3745-17-07(A)(3)(a)(i); and
  - b. during all periods of shutdown until the inlet temperature to the ESP drops below the temperature level specified in OAC rule 3745-17-07(A)(3)(b)(i).

The temperature monitor and recorder shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee, and shall be capable of accurately measuring the temperature of the emissions unit exhaust gases in degrees Fahrenheit.

5. The permittee shall maintain monthly records of the following information in emission units B003 - B004:
- a. the pounds of only wood burned;
  - b. the pounds of TDF/wood mix burned;
  - c. the cubic feet of natural gas burned;

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- d. the rolling, 12-month summation of natural gas and pure wood used;
- e. the calculations and the results of the determination that the formulas in term A.II.2 was met;
- f. beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the TDF mix burned figures; and

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- g. the rolling, 12-month summation of SO<sub>2</sub> and Sulfuric Acid Mist emission limitations.

Also, during the first 12 calendar months of operation following the issuance of this permit, the permittee shall record the cumulative TDF mix burned levels for each calendar month.

6. The permittee shall calculate the annual capacity factor as defined in 40 CFR Part 60.41b individually for each fuel burned each calendar quarter pursuant to 40 CFR Part 60.49b.(d). The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month.
7. The permittee shall monitor steam generating unit operating conditions and predict nitrogen oxides emission rates as specified in section A.IV.10.
8. The permittee shall maintain daily records of the following information for each day that a TDF/wood mix is burned in the emissions unit:
  - a. the pounds of TDF burned;
  - b. the pounds of wood burned in conjunction with TDF; and
  - c. the ratio of TDF burned as a mixture with wood, i.e., (a) / [(a) + (b)], in percentage (average).

**IV. Reporting Requirements**

1. The permittee shall submit reports (hardcopy and electronic) within 30 days following the end of each calendar quarter to the Akron Regional Air Quality Management District documenting all instances of opacity values in excess of the limitations specified above, detailing the date, commencement and completion times, duration, magnitude (percent opacity), reason (if known), and corrective actions taken (if any) of each 6-minute block average above the applicable opacity limitation(s).

The reports shall also document any continuous opacity monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the

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emissions unit was on line shall be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report.

These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

2. The permittee shall submit deviation (excursion) reports which identify:
  - a. all periods of time during start-up and shutdown of the emissions unit when the ESP was not in operation and the temperature of the emissions unit exhaust gases exceeded the temperature levels specified in OAC rule 3745-17-07(A)(3)(a)(i) and (b)(i);
  - b. all 3-hour blocks of time during which the average total combined power input to all fields of the ESP does not comply with the operational restriction specified in Section A.II of this permit;
  - c. all periods in which the TDF / wood mix exceeded 20% TDF and the actual composition for that time period; and
  - d. during Phase One operating scenario, all periods in which the TDF / wood mix exceeded 15.5% TDF and the actual composition for that time period.
3. The permittee shall submit quarterly reports which identify the sections of the ESP that were out of service along with the time period(s) involved. These quarterly reports shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall address the information obtained during the previous calendar quarter.
4. The permittee shall submit deviation (excursion) reports which identify all exceedances of rolling, 12-month limitations and, for the first 12 calendar months of operation following the issuance of this permit, all exceedances of the maximum allowable cumulative TDF mix burned and PM, NO<sub>x</sub>, and CO emission levels (compliance with PM, NO<sub>x</sub>, and CO emissions levels are demonstrated thru the use of the formula described in term A.II.2) for emission units B003 - B004.
5. The permittee shall submit deviation (excursion) reports which identify all exceedances of rolling, 12-month limitations for SO<sub>2</sub> and sulfuric acid mist.
6. The permittee shall submit deviation (excursion) reports that identify all exceedances of

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the natural gas annual capacity factor limitation and, for the first 12 calendar months of operation following the issuance of the permit, all exceedances of the monthly allowable natural gas capacity factor.

7. The deviation reports shall be submitted as specified in General Condition A.1.c of this permit.
8. The permittee shall submit quarterly reports which specify the total quantity of each fuel combusted in this emissions unit for each calendar month during the calendar quarter. These quarterly reports shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall address the data obtained during the previous calendar quarter.

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9. The permittee shall submit an initial notification of startup. This notification shall include:
  - a. the date of initial startup;
  - b. the design heat input capacity of the facility and an identification of the fuels to be combusted in the affected facility;
  - c. the annual capacity factor at which the permittee anticipates operating the facility based on all fuels fired and based on each individual fuel fired.
10. The permittee shall submit for approval within 360 days of startup a plan that identifies the operating conditions to be monitored to demonstrate compliance with the nitrogen oxide emission limitations. The plan shall:
  - a. identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxide emission rates (i.e., ng/J or lbs/million Btu heat input). Steam generating unit operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);
  - b. include the data and information that the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions; and
  - c. identify how these operating conditions, including steam generating unit load, will be monitored on an hourly basis by the permittee during the period of operating of the affected facility; the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate; and the type and format of the records of these operating conditions, including steam generating unit load, that will be maintained by the permittee.
11. The permittee shall submit excess emission reports for any calculated exceedance of the nitrogen oxide emission limitation. All reports shall be submitted by the 30th day following the end of the 6 month reporting period.
12. Pursuant to the NSPS, section 60.7, the source owner/operator is hereby advised of the requirement to written report (not more than 60 days or as soon as practicable before the change is commenced) the following:

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- a. information describing the precise nature of the change;
- b. present and proposed emissions control systems;
- c. productive capacity of the facility before and after the change; and
- d. expected completion date of the change.

The administrative may request additional relevant information subsequent to this notice.

13. Report required in term A.IV.12 is to be sent to:

Ohio Environmental Protection Agency  
DAPC - Permit Management Unit  
P. O. Box 163669  
Columbus, Ohio 43216-3669

and

Akron Air Pollution Control  
146 South High Street  
Room 904  
Akron, Ohio 44308

## **V. Testing Requirements**

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
  - a. The emission testing shall be conducted within 3 months after issuance of the permit.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for particulate, nitrogen oxide, sulfur dioxide, carbon monoxide, organic compounds, hydrogen chloride and sulfuric acid mist.
  - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

for PE, Methods 1-5 of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix);

for NO<sub>x</sub>, Methods 1-4 and 7E of 40 CFR Part 60, Appendix A (while firing only wood);

for SO<sub>2</sub>, Methods 1-4 and 6C of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix);

for CO, Methods 1-4 and 10 of 40 CFR Part 60, Appendix A (while firing only wood);

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for OC, Methods 1-4 and 25A of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix);

for HCl, Methods 1-4 and 26 of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix); and

for H<sub>2</sub>SO<sub>4</sub> mist, Methods 1-4 and 8 of 40 CFR Part 60, Appendix A (while firing 20%TDF and wood mix).

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.
2. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).
3. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
4. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.
5. The reported OC mass emission value shall have been converted from "as carbon" to actual OC emission rate. The determination of the weight fraction of carbon may be based on standard analytical techniques or material formulation data.
6. The permittee shall demonstrate the maximum heat input capacity of the steam generating unit by operating it as maximum capacity for 24 hours. The permittee shall determine the

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maximum heat input capacity using the heat loss method described in section 5 and 7.3 of the ASME Power Test Codes 4.1. This demonstration of maximum heat input capacity shall be made during the initial performance test. It shall be made within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of the emissions unit. Subsequent demonstrations may be required by the Administrator at any other time. If this demonstration indicates that the maximum heat input capacity of the emissions unit is less than that stated by the manufacturer of the emissions unit, the maximum heat input capacity determined during this demonstration shall be used to determine the capacity utilization rate for the emissions unit. Otherwise, the maximum heat input capacity provided by the manufacturer is used.

7. Compliance with the emission limitation(s) in Section A.I. of these terms and conditions shall be determined in accordance with the following method(s):

- a. Emission Limitation:

0.02 lb of PE/MMBTU of actual heat input, when combusting only natural gas

Applicable Compliance Method:

The AP-42 [(7/98) Table 1.4-2] emission factor for natural gas combustion is 7.6 lbs of particulate per  $10^6$  scf. This factor is based on an average natural gas heating value of 1,020 Btu/scf and is equivalent to 0.007451 lb of particulate per MMBtu.

- b. Emission Limitation:

0.08 lb of PE/MMBTU of actual heat input  
14.4 lbs/hr of PE

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 5, 40 CFR Part 60, Appendix A.

- c. Emission Limitation:

0.24 lb of NO<sub>x</sub>/MMBTU of actual heat input  
43.2 lbs/hr of NO<sub>x</sub>

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 7E, 40 CFR Part 60, Appendix A.

- d. Emission Limitation:

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0.31 lb of SO<sub>2</sub> / MMBTU of actual heat input  
55.8 lbs/hr of SO<sub>2</sub>

0.24 lb of SO<sub>2</sub> / MMBTU of actual heat input  
43.3 lbs/hr of SO<sub>2</sub> when burning 15.5% TDF.

Applicable Compliance Method:

If required, compliance shall be determined by emission testing in accordance with Methods 1-4 and 6C, 40 CFR Part 60, Appendix A.

e. Emission Limitation:

18.0 lbs/hr of CO

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Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 10, 40 CFR Part 60, Appendix A.

f. Emission Limitation:

0.36 lbs/hr of OC  
1.58 tpy of OC

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 25A, 40 CFR Part 60, Appendix A.

g. Emission Limitation:

0.86 lbs/hr of HCl  
3.75 tpy of HCl

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 26, 40 CFR Part 60, Appendix A.

h. Emission Limitation:

0.053 lb of sulfuric acid mist / MMBTU  
9.56 lbs/hr of sulfuric acid mist

Applicable Compliance Method:

Compliance shall be determined by emission testing in accordance with Methods 1-4 and 8, 40 CFR Part 60, Appendix A.

i. Emission Limitation:

20% opacity as a 6-minute average, (except for one 6-minute period per hour of not more than 27% opacity)

Applicable Compliance Method:

Compliance with the visible emission limitation shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures in OAC rule 3745-17-03(B)(1).

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## j. Emission Limitation:

67.7 tpy of SO<sub>2</sub>

## Applicable Compliance Method:

Multiply the result of most recent stack test, in pounds/MMBTU, by the rated boiler capacity of 180 MMBTU/hr, by the maximum operating hours of 8760 hours/year and divide by 2000 to convert the result to tons.

## k. Emission Limitation:

11.7 tpy of sulfuric acid mist

## Applicable Compliance Method:

Multiply the result of most recent stack test, in pounds/MMBTU, by the rated boiler capacity of 180 MMBTU/hr, by the maximum operating hours of 8760 hours/year and divide by 2000 to convert the result to tons.

## l. Emission Limitation:

36.22 tpy of PM for B003 and B004 combined  
130.24 tpy of NO<sub>x</sub> for B003 and B004 combined  
56.29 tpy of CO for B003 and B004 combined

## Applicable Compliance Method:

The permittee shall demonstrate compliance with the above limitations based upon the record keeping requirements of section III.5 of these T&Cs.

## m. Emission Limitation:

annual capacity factor for natural gas shall be limited to 10 percent (0.10)

## Applicable Compliance Method:

The permittee shall demonstrate compliance with the above limitations based upon the record keeping requirements of section III.6 of these T&Cs.

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**VI. Miscellaneous Requirements**

1. The terms and conditions in this Permit to Install shall supersede all the air pollution control requirements for this emissions unit contained in permits to install 16-037, 16-294, and 16-02187 issued on March 17, 1976, July 11, 1984, and March 26, 2002 respectively.

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**Issued: To be entered upon final issuance****B. State Only Enforceable Section****I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B004 - Unit #2, Babcock and Wilcox 180 MMBTU/hr wood, natural gas, and tire derived fuel (TDF) fired boiler for steam generation, controlled with an electrostatic precipitator - modification to combust a mixture of 20% TDF with wood and avoid PSD review for PM/PM-10, NOx, and CO	OAC rule 3745-31-05(A)(3)	None

**2. Additional Terms and Conditions****2.a** None**II. Operational Restrictions**

None

**III. Monitoring and/or Record keeping Requirements**

1. The permit to install for these emissions units (B003 - B004) was evaluated based on the actual materials (typically coatings and cleanup materials) and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy

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("Air Toxic Policy") was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant(s):

Pollutant: Manganese

TLV (mg/m<sup>3</sup>): 0.2

Maximum Hourly Emission Rate (lbs/hr): 0.12

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.022

MAGLC (ug/m<sup>3</sup>): 0.714

Pollutant: Acrolein

TLV (mg/m<sup>3</sup>): 0.23

Maximum Hourly Emission Rate (lbs/hr): 0.89

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.167

MAGLC (ug/m<sup>3</sup>): 4.02

Pollutant: Benzene

TLV (mg/m<sup>3</sup>): 32

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.070

MAGLC (ug/m<sup>3</sup>): 37.95

Pollutant: Biphenyl

TLV (mg/m<sup>3</sup>): 1.3

Maximum Hourly Emission Rate (lbs/hr): 3.31

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.264

MAGLC (ug/m<sup>3</sup>): 29.97

Pollutant: 1,3-Butadiene

TLV (mg/m<sup>3</sup>): 4.4

Maximum Hourly Emission Rate (lbs/hr): 1.40

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.264

MAGLC (ug/m<sup>3</sup>): 105.13

Pollutant: Ethylbenzene

TLV (mg/m<sup>3</sup>): 434

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 0.070

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MAGLC (ug/m3): 10,316.81

Pollutant: Formaldehyde

TLV (mg/m3): 0.27

Maximum Hourly Emission Rate (lbs/hr): 0.97

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.184

MAGLC (ug/m3): 6.45

Pollutant: Naphthalene

TLV (mg/m3): 52

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.070

MAGLC (ug/m3): 1,245.77

Pollutant: Phenol

TLV (mg/m3): 19

Maximum Hourly Emission Rate (lbs/hr): 0.40

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.075

MAGLC (ug/m3): 457.29

Pollutant: Styrene

TLV (mg/m3): 213

Maximum Hourly Emission Rate (lbs/hr): 0.37

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.070

MAGLC (ug/m3): 2,024.49

Pollutant: Toluene

TLV (mg/m3): 188

Maximum Hourly Emission Rate (lbs/hr): 0.20

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.038

MAGLC (ug/m3): 4,476.68

Pollutant: Sulfuric Acid Mist

TLV (mg/m3): 1

Maximum Hourly Emission Rate (lbs/hr): 19.11

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 3.607

MAGLC (ug/m3): 23.81

Pollutant: Hydrogen Chloride

TLV (mg/m3): 5

Maximum Hourly Emission Rate (lbs/hr): 0.86

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.161

MAGLC (ug/m3): 130.60

Pollutant: Lead

TLV (mg/m3): 0.05

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Maximum Hourly Emission Rate (lbs/hr): 0.04

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.01

MAGLC (ug/m3): 1.19

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

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- a. changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

2. The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"
  - a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
  - b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
  - c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**Akron Thermal Energy Corp**  
**PTI Application: 16-02294**  
**Issued**

**Facility ID: 1677010757**

Emissions Unit ID: B004

**VI. Miscellaneous Requirements**

None