3.0 Air Quality Standards and Regulatory Analysis

The following Ohio and Federal air quality regulatory programs were evaluated for potential applicability to the proposed Great Bend IGCC project:

- Ambient Air Quality Classification
- New Source Review - Prevention of Significant Deterioration and Non-Attainment Permitting
- Ohio Permit-by-Rule Requirements (OAC 3745-31-03)
- New Source Performance Standards
- National Emission Standards for Hazardous Air Pollutants
- Risk Management Program
- Acid Rain Program
- NOx SIP Call Requirement
- Clean Air Interstate Rule
- Compliance Assurance Monitoring
- Stack Height Requirements
- Title V Operating Permit Program
- Ohio Air Pollution Control Regulation (OAC 3745-15)
- Ohio Particulate Emissions Regulation (OAC 3745-17)
- Ohio Sulfur Dioxide Emissions Regulation (OAC 3745-18)
- Ohio Organic Compounds & Carbon Monoxide Emissions Regulation (OAC 3745-21)
- OEPA Air Dispersion Modeling Guidance (OEPA Engineering Guide #69)
- OEPA Air Toxics Policy and Engineering Guide #70.

3.1 Ambient Air Quality Classification

The proposed Great Bend IGCC facility will be located in the Great Bend area of Meigs County, Ohio. Meigs County is currently designated attainment or unclassifiable for all national ambient air quality standards (NAAQS), as noted in 40 CFR 81.

3.2 New Source Review - Prevention of Significant Deterioration Program

Ohio has an approved Prevention of Significant Deterioration (PSD) and Non-Attainment Permitting Program. Ohio EPA implements the program and regulates new major sources of emissions under Ohio Administrative Code (OAC) Chapter 3745-31 (Permits to Install New Sources).

The PSD program is a new source review process established to ensure new emission sources will not cause a significant deterioration of local ambient air quality. PSD applies only to major new sources or major modifications of an existing source located in areas designated as attainment or unclassifiable with the NAAQS. A major stationary source is defined as one of 28 source categories identified in 40 CFR 52.21 (also in OAC 3745-31-01 (KKK)) with a potential to emit more than 100 tons per year of any regulated pollutant, or as any other stationary source with a potential to emit greater than 250 tons per year of a regulated pollutant. Potential emissions are determined after the application of pollution control equipment or any other federally enforceable restrictions. The proposed project will be located in Meigs County, which has been designated as attainment or unclassifiable for all NAAQS. As a result, the non-attainment new source review requirements are not applicable.

The proposed IGCC Project is categorized as a fossil fuel-fired steam electrical generating plant per 40 CFR 60 Subpart Da and OAC 3745-31-01 (KKK). The proposed project is also considered a major source since it has the potential to emit greater than 100 tons per year of at least one regulated pollutant. The following table evaluates the potential emissions from the proposed facility to the PSD applicability thresholds for criteria pollutants and other applicable emissions.

Table 3-1: PSD Applicability to the Proposed IGCC Project

PSD Pollutant	PSD Significance Threshold (tpy)	IGCC Facility Potential to Emit (tpy)	PSD Review Applicable
Carbon Monoxide (CO)	100	944	Yes
Nitrogen Oxides (NO_x)	40	1,562	Yes
Sulfur Dioxide (SO_2)	40	586	Yes
Sulfuric Acid Mist (H_2SO_4)	7	98	Yes
Particulate Matter $\leq$10 microns (PM_{10})	15	204 (PM_{10} - filterable)	Yes
Volatile Organic Compounds (VOC)	40	83	Yes
Lead (Pb)	0.6	<0.04	No

Potential emissions from the proposed project are greater than one or more PSD significance thresholds. As a result, the proposed project is subject to a PSD review and must file a permit to install application to Ohio EPA in accordance with OAC 3745-31. A PSD review generally consists of the following:

- An evaluation of existing ambient air quality;
- A case-by-case determination of Best Available Control Technology (BACT) based on an evaluation of technical feasibility, as well as energy, environmental, and economic impacts;
- An ambient air quality impact analysis to demonstrate the potential emissions do not cause or contribute to an exceedance of PSD increments and the NAAQS;
- An assessment demonstrating no significant impacts to general growth, soil, vegetation, and visibility; and
- An opportunity for public participation in the permitting process.

Existing Air Quality Analysis

The PSD regulation requires an analysis of the existing air quality for all regulated compounds for which emissions from the facility result in modeled maximum concentrations greater than the PSD ambient monitoring significance levels. A demonstration of existing air quality can be satisfied by air measurement data from either a state-operated or private network, or by a pre-construction monitoring program that is specifically designed to collect data in the vicinity of the proposed facility. As described in the air quality analysis section, the project is conducting the air modeling analysis per OEPA Engineering Guide # 69 to justify selection of the data utilized to represent the existing ambient air quality in the project area.

Best Available Control Technology (BACT) Analysis

A BACT analysis is required for all compounds with emissions greater than the applicable PSD significance thresholds. As indicated in the table above comparing the PSD significance thresholds and the estimated potential emissions from the proposed IGCC facility, a BACT analysis is required for NO_x, CO, VOC, SO_2, H_2SO_4, and particulate emissions. All other emissions are below the PSD Significant Emission Rates and do not require a BACT analysis. OAC 3745-31-03(A)(3) requires a demonstration that proposed new sources will employ best available technology (BAT). The BACT analysis in Section 5 represents the associated BAT analysis.

Proposed Source Ambient Impact Analysis

The PSD and Ohio regulations require an assessment of air quality impacts to demonstrate compliance with NAAQS and PSD increments. Potential impacts to soils, vegetation, visibility, and growth will also be evaluated. The potential impacts are evaluated by performing an air quality modeling analysis. A summary of the modeling protocol and analysis results is provided in Section 7.

3.3 Ohio Permit-by-Rule Requirements (OAC 3745-31-03)

OAC 3745-31 establishes permit-by-rule provisions for certain sources, which exempt these sources from the major source permit to install requirements. These provisions do not, however, exempt any air contaminant source from requirements of the federal Clean Air Act, including being considered for purposes of determining whether the facility constitutes a major source or is otherwise regulated under OAC 3745-77 (Title V Program) or any requirement to list insignificant activities and emission levels in a Title V permit application. In addition, this rule does not relieve the owner or operator from the requirement of including the emissions associated with the exempt sources into any major new source review permitting action.

Permit-by-rule exemptions exempt certain source from the requirement to obtain a permit to install as long as the owner or operator complies with all of the permit-by-rule general provisions, meets the applicable qualifying criteria, and complies with the associated permit-by-rule specific requirements. Permit-by-rule provisions were identified for the proposed emergency generator, emergency fire pump, and gasifier preheating operations. The appropriate Ohio EPA permit-by-rule notification form for each of these source is included in Appendix J.

The following general provisions are applicable to all permit-by-rule sources:

- Records pertaining to monitoring data, testing data, and support information must be retained for at least five years and made available upon request.
- Submit a written notification to OEPA prior to installation.
- Monitoring and recordkeeping reports must be periodically submitted to OEPA.
- A written deviation report must be submitted to OEPA within thirty days of the deviation.
- Scheduled maintenance and malfunction events must be reported as applicable.

Permit-by-Rule: Emergency Electrical Generators & Firefighting Water Pumps [3745-31-03(A)(4)(b)]

This permit-by-rule applies to emergency electrical generators, emergency firefighting water pumps, or emergency air compressors powered by internal combustion engines greater than 50 horsepower (37.3 Kilowatts) where each engine operates at any one facility for no more than 500 hours per rolling 12 month period and where such engine burns gasoline, natural gas, distillate oil (with less than or equal to 0.5% by weight sulfur), or liquid petroleum gas. In addition to the aforementioned general provisions, the following requirements by this permit-by-rule exemption apply to the proposed emergency generator and emergency fire pump:

- Maintain monthly records that contain the rolling twelve month hours of operation; and
- Maintain records on the type of fuel used and the sulfur content (% by weight) of any distillate oil used.

Permit-by-Rule: Preheating Activities [3745-31-03(A)(4)(j)]

Boilers, preheaters, air heaters, water heaters, or heaters used for other heat exchange media that meet all of the following qualifications are eligible to use this permit-by-rule:

- The maximum rated heat input capacity of the unit is greater than ten million British thermal units (Btu) per hour and less than or equal to one hundred million Btu per hour.
- The unit is capable of only burning natural gas.
- The emissions from the unit consist entirely of the products of fuel combustion.
- Units with a maximum design heat input of $\geq$50 mmBTU must be equipped with low NO_x burners or other controls to meet an emission limit of 0.050 lb NO_x per mmBTU.

The proposed gasifier preheating operations meet the applicable requirements of this permit-by-rule. Each proposed gasifier units will burn only natural gas and have a maximum rated heat input capacity of 19.1 mmBTU/hour. Therefore, the following permit-by-rule requirements apply to both gasifier preheat vent #1 and preheat vent #2.

Preheating Activities Permit-by-Rule emission limits and control requirements:

- Units shall burn only natural gas.
- Particulate Emission Limits: $\leq$ 0.020 lb/mmBTU; $\leq$ 8.76 tons/year
- NO_x Limits: $\leq$ 5.0 lb/hour; $\leq$ 21.90 tons/year
- Carbon Monoxide Limits: $\leq$ 8.24 lb/hour; $\leq$ 36.07 tons/year
- Organic Compounds Limits: $\leq$ 1.08 lb/hour; $\leq$ 4.72 tons/year
- SO_2 Limits: $\leq$ 0.06 lb/hour; $\leq$ 0.26 tons/year
- Visible Emissions Limit: $\leq$ 5% opacity, as a 6-minute average

The permit-by-rule also specifies the following monitoring and recordkeeping requirements that are applicable to the proposed gasifier preheaters:

- Maintain, at the location of the unit, documentation showing the maximum rated heat input capacity of the unit(s) and evidence that the unit(s) can only fire natural gas.
- Maintain monthly records of the total amount of natural gas fired for the unit(s).

Reporting requirements by this permit-by-rule are in accordance with 40 CFR 60, Subpart Dc and require the following to be reported to Ohio EPA:

- Construction date (no later than thirty days after such date).
- Anticipated start-up date (not more than sixty days or less than thirty days prior to such date).
- Actual start-up date (within fifteen days after such date).
- Performance testing date (if required, at least thirty days prior to testing).
- Maximum rated heat input capacity of the unit(s) and the type of fuel(s) fired (no later than thirty days after installation date).

The following testing requirements are established by this permit-by-rule:

- Compliance with the hourly emission limitations is based on multiplying the maximum hourly gas firing capacity of the unit (in million cubic feet per hour) by the emission factor specified by the USEPA in Section 1.4 of the "Compilation of Air Pollutant Emission Factors (AP-42)", (in pound per million cubic feet fired) for each pollutant. Compliance with the pound per million Btu particulate emission limitation is based on dividing the filterable particulate emission factor specified by the USEPA in Section 1.4 of the "Compilation of Air Pollutant Emission Factors (AP-42)" by 1,020. If required by the Ohio EPA, the owner or operator shall demonstrate compliance with the pound per million Btu and hourly emission limitations of this permit-by-rule in accordance with the appropriate test methods specified in Appendix A, 40 CFR 60.
- Compliance with the annual emission limitations shall be assumed as long as compliance with the pound per million Btu and hourly emission limitations are maintained. These annual emission limitations represent the emissions calculated at the maximum capacity of the equipment and 8,760 hours per year of operation.
- If required by OEPA, compliance with the visible particulate emissions limitations shall be demonstrated in accordance with Method 9 of Appendix A, 40 CFR Part 60.

Certain sources and activities are identified as being permanently exempted from the permit to install requirements of OAC 3745-31. The proposed air separation unit is exempted from the permit to install requirements per OAC 3745-31-03(A)(1)(gg).

3.4 Ohio Air Pollution Control Regulation (OAC 3745-15)

OAC 3745-15 specifies general requirements to control air pollution in Ohio, and includes provisions regarding de minimis sources and emission source malfunction requirements that apply to the proposed project. Section 15-05 provides an exemption from permitting requirements for de minimis sources having a potential to emit less than 10 lb/day and less than 25 tons/year. The de minimis thresholds do not exempt any source that is a part of a major new source or major modification that would be required to meet any requirements under applicable state or federal regulations. Section 15-06(B) requires that any malfunction of an emission source or air pollution control equipment that causes the violation of any applicable law requires immediate notification of the Ohio EPA. If the malfunction continues for over 72 hours, the owner or operator shall provide a written statement within 2 weeks that details a program to prevent, detect, and correct similar future failures or breakdowns of equipment.

3.5 New Source Performance Standards

New Source Performance Standards (NSPS) have been developed by the USEPA in 40 CFR 60 for specific source categories. Applicable NSPS to the proposed project are:

- Subpart A (General Provisions);
- Subpart Da (NSPS for Electric Utility Steam Generating Units) applicable to the combustion turbines;
- Subpart Db (NSPS for Industrial-Commercial-Institutional Steam Generating Units) applicable to the auxiliary boiler;
- Subpart Y (NSPS for Coal Preparation Plants) applicable to the coal handling & processing equipment;
- Subpart HHHH (Emission Guidelines & Compliance Times for Coal-Fired Electric Steam Generating Units) applicable to the combustion turbines;

Subpart A: (General Provisions)

40 CFR 60 Subpart A contains general notification, record keeping, and monitoring requirements. As specified in 40 CFR 60.1, Subpart A applies to emission units subject to any regulation contained in 40 CFR 60 (NSPS regulations), unless the applicable NSPS regulation specifically exempts the emission unit. In addition, Section 60.8 establishes a requirement to conduct an initial performance test within 60 days after achieving the maximum production rate at which the source will be operated, but not later than 180 days after initial startup of such source. The specific test methods and procedures to comply with 40 CFR 60.8 are specified in 40 CFR 60.335.

Subpart Da: (NSPS for Electric Utility Steam Generating Units)

Subpart Da was updated on February 27, 2006 (with a final reconsideration published June 9, 2006) and applies to electric utility steam generating units that are capable of combusting more than 73 MW (250 mmBTU/hour) heat input of fossil fuel and that commence construction or modifications after September 18, 1978. The updated rule clarifies that IGCC combustion turbines using coal-derived syngas are classified as coal-fired electric generating units and are subject to Subpart Da. The following Subpart Da requirements apply to the proposed combustion turbines:

Table 3-2: NSPS Subpart Da Requirements for the Proposed IGCC Combustion Turbines

Pollutant	NSPS Emission Limit	NSPS Monitoring Requirements
NO_x [1]	1.0 lb/MWh	Continuous Emissions Monitoring System
SO_2 [1]	(a) 1.4 lb/MWh or (b) 95% Reduction	Continuous Emission Monitoring System
Filterable PM [2]	(a) 0.14 lb/MWh or (b) 0.015 lb/mmBTU or (c) 0.03 lb/mmBTU & a 99.9% reduction	None
Opacity	20% (6-minute average), except one 6-minute period per hour of no more than 27%	None (Continuous Opacity Monitoring not required for gaseous fuels)
Hg [3]	0.000020 lb/MWh	Continuous Emissions Monitoring System

[1] 30-day rolling average

[2] As demonstrated by reference method stack testing

[3] 12-month rolling average

Subpart Db: (NSPS for Industrial-Commercial-Institutional Steam Generating Units)
40 CFR 60 Subpart Db applies to steam generating units with a heat input capacity greater than 29 megawatts (100 MMBTU/hr) and for which construction is commenced after June 19, 1984. Subpart Db states [40 CFR 60.40b(j)] that units meeting the applicability requirement of Subpart Db and constructed after June 19, 1986 are not subject to Subpart D. The following Subpart Db requirements apply to the proposed auxiliary boiler:

Table 3-3: NSPS Subpart Db Requirements for the Proposed Auxiliary Boiler

Pollutant	NSPS Emission Limit	NSPS Monitoring Requirements
NO_x [1]	(a) 0.20 lb/mmBTU or (b) 2.1 lb/MWh	Fuel Certification
SO_2 [1]	0.20 lb/mmBTU	Fuel Certification
Filterable PM	Exempt per 40 CFR 60.43b(h)(5)	Fuel Certification
Opacity	Exempt per 40 CFR 60.43b(h)(5)	None

[1] 30-day rolling average

Subpart Y: (NSPS for Coal Preparation Plants)
Subpart Y applies to coal preparation plants that process more than 200 tons per day. Since the coal handling capacity at the IGCC power station is greater than 200 tons per day, the coal handling operations will be subject to Subpart Y. The affected source for the proposed project is the coal crushing station. The only emission limit in Subpart Y for this source is to limit opacity to 20% or less. Subpart Y requires that an initial performance test using EPA Reference Method 9 be conducted to demonstrate the NSPS can be achieved.

Subpart HHHH: (Emission Guidelines & Compliance Times for Coal-Fired Electric Steam Generating Units - Mercury Budget Trading Program General Provisions)
As part of the EPA's Clean Air Mercury Rule (CAMR), EPA has promulgated Subpart HHHH of 40 CFR Part 60, which establishes the model rule provisions of the mercury budget-trading program for coal-fired utility boilers. In the model rule, EPA has identified an allowance allocation methodology and set up a national trading program for mercury emissions. States can adopt the model through delegation or incorporation into existing state standards and participation in the EPA-administered trading program. Ohio EPA has commenced its rule development process to implement Subpart HHHH. The market-based cap-and-trade approach will be implemented in two phases. Phase I reductions will occur in 2010, followed by Phase II reductions in 2018. The rule also specifies mercury emissions monitoring, recordkeeping and reporting requirements. As identified in Subpart HHHH, a "Unit" is defined as a stationary coal-fired boiler or combustion turbine, while a "mercury budget unit" is defined as "a unit serving at any time…a generator with a nameplate capacity of more than 25 MWe producing electricity for sale". The IGCC combustion turbines meet this definition and are the only mercury budget units associated with the proposed project.

Subpart GG & Subpart KKKK: (NSPS for Stationary Gas Turbines)
Subpart GG and Subpart KKKK both include provisions clarifying that IGCC process combustion turbines are regulated as a coal-fired utility unit under NSPS Subpart Da, Db, or Dc based on their size. Therefore, Subpart GG and Subpart KKKK do not apply to the proposed IGCC combustion turbines. A negative applicability determination is requested in concurrence that Subpart GG and Subpart KKKK do not apply to the proposed project.

3.6 National Emission Standards for Hazardous Air Pollutants (NESHAP)

Section 112 of the Clean Air Act addresses the control of hazardous air pollutant (HAP) emission and contains provisions for the regulation of these emissions from applicable sources through the NESHAP program. 40 CFR 63 establishes the requirements of the NESHAP program, including the application of Maximum Achievable Control Technology (MACT) to major sources of HAPs. Major sources of HAPS are defined as sources with the potential to emit greater than 10 tons/year of any individual HAP or 25 tons/year of any combination of HAPs. Potential emissions from the proposed project will be less than both of these thresholds.

The NESHAP program also identifies specific emission source categories that are to be regulated regardless of potential emissions. On March 29, 2005 the EPA issued a final agency action that delisted electric utility steam generating units from the applicable NESHAP/Section 112 source category list. A final reconsideration of this action was published on June 9, 2006. However, EPA has determined to regulate coal-fired utility mercury emissions through the NSPS program as discussed in Section 3.5. The NSPS mercury emission requirements are only applicable to the proposed combustion turbines. Other potentially applicable NESHAP provisions were reviewed and are discussed below.

NESHAP for Industrial Process Cooling Towers (Subpart Q)

Subpart Q is applicable to cooling towers that use chromium-based treatment chemicals. The cooling towers proposed to be used at the IGCC Power Station will not use chromium-based treatment chemicals and therefore will not be subject to this regulation. A negative applicability determination is requested in concurrence that Subpart Q does not apply to the proposed project.

NESHAP Combustion Turbine MACT (Subpart YYYY)

This rule applies to stationary combustion turbines located at a major source of HAP emissions. Subpart YYYY does not apply because the proposed facility is not a major source of HAP emissions. A negative applicability determination is requested in concurrence that Subpart YYYY does not apply to the proposed project.

NESHAP for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ)

This rule applies to stationary reciprocating internal combustion engines (RICE) located at a major source of HAP emissions. Subpart ZZZZ does not apply because the proposed facility is not a major source of HAP emissions. A negative applicability determination is requested in concurrence that Subpart ZZZZ does not apply to the proposed project.

NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters (Subpart DDDDD)

This rule applies to industrial, commercial, and institutional boilers and process heaters located at a major source of HAP emissions. Subpart DDDDD does not apply because the facility is not a major source of HAP emissions. A negative applicability determination is requested in concurrence that Subpart DDDDD does not apply to the proposed project.

Case-by-Case MACT

Subsection 112(g)(2)(B) of the CAA provides that a case-by-case MACT analysis be conducted for major sources of HAPs, unless the source has been specifically regulated or exempted from regulation under subsection 112. Since the facility will not be a major source of HAP emissions, it will not be required to develop a case-by-case MACT evaluation. In addition, EPA has taken action to de-list coal-fired utilities from requiring regulation under subsection 112 which would also negate the requirement to conduct a case-by-case MACT.

3.7 Risk Management Program

The Risk Management Program (RMP) applies to stationary sources that have greater than a threshold quantity of a regulated flammable or toxic chemical in a process. The intent of RMP is to prevent accidental releases to the air and mitigate the consequences of such releases by focusing on prevention measures. OAC 3745-104 incorporates by reference the RMP requirements. The proposed facility is not expected to have any processes containing substances in excess of applicable threshold quantities. Evaluations will be ongoing throughout the design process and applicable requirements of this regulation will be identified in supplemental information if any thresholds are expected to be exceeded.

3.8 Acid Rain Program

Pursuant to Title IV of the 1990 CAA Amendments, EPA established a program to control emissions that potentially contribute to the formation of acid rain. Ohio adopted the requirements of the Acid Rain program (40 CFR 72-78) in OAC 3745-103. The program is applicable only to the proposed IGCC combustion turbines and includes the following requirements:

- Submittal of an Acid Rain Permit application 24 months prior to commencing operation;
- Development and implementation of an Acid Rain program compliance plan;
- Annual surrendering of SO_2 emission allowances for SO_2 emissions from the combustion turbines;
- Implementation of applicable emission monitoring requirements.

40 CFR 75 establishes continuous emission monitoring provisions, which generally require the installation of continuous emission monitoring systems (CEMS). The proposed combustion turbines will meet the 40 CFR 75 monitoring requirements by utilizing flow monitoring and CEMS for SO_2, NO_x, and CO_2. Per 40 CFR 74.14(c), gas-fired units are exempt from opacity monitoring.

3.9 NO_x Budget and Emission Allowance Program

40 CFR 96 establishes the provisions of the NO_x Budget Trading Program for state implementation plans as a means of mitigating the interstate transport of ozone and nitrogen oxides, an ozone precursor. OAC 3745-14 establishes a NO_x cap and trade program to implement 40 CFR 96 and is applicable to the proposed combustion turbines and auxiliary boiler. This regulation does not apply to other emission sources at the proposed facility because they either do not meet the definition of an electrical generating unit or do not have a heat input capacity greater than 250 MMBtu/hr. The primary requirement of this program is to surrender allowances for ozone season NO_x emissions from applicable sources. The rule also establishes provisions for monitoring, recordkeeping, and reporting of NO_x emissions. The requirements of this rule will be incorporated by provisions established by the Clean Air Interstate Rule discussed in Section 3.10.

3.10 Clean Air Interstate Rule

The Clean Air Interstate Rule (CAIR) is designed to improve ambient ozone and fine particulate concentrations through the reduction of regionally transported SO_2 and NO_x emissions. CAIR outlines the model provisions of a multi-state cap and trade program for power plants. Ohio does have the option to establish an independent program that achieves comparable CAIR reductions. CAIR will be implemented in two phases. Phase I requirements begin in 2009 for NO_x and in 2010 for SO_2. Phase II requirements begin in 2015. The CAIR program will incorporate the requirements of the existing NO_x budget program discussed in Sections 3.9. A CAIR permit will be required prior to commencing operations. Specific provisions for filing the application and obtaining a permit are currently being developed by Ohio EPA.

3.11 Compliance Assurance Monitoring

The Compliance Assurance Monitoring (CAM) provisions of 40 CFR 64 apply to major stationary sources that meet the following criteria: contain a unit subject to an emission limit for a regulated compound; use a control device (as defined in 40 CFR 64.1) to achieve compliance with the limit; and have pre-control emissions equivalent to major source levels. Emission units subject to the following applicable requirements identified in 40 CFR 64.2(b) are exempt from CAM:

- Post November 15, 1990 NSPS or NESHAP;
- Stratospheric ozone protection;
- Acid Rain Program;
- Limits that solely apply under approved trading programs;
- Emission caps that meet 70.4(b)(12);
- Title V Permit with specific continuous compliance demonstration requirements;

Particulate matter, SO_2, NO_x, and Hg emissions are regulated by a post-1990 NSPS limitation, and SO_2 and NO_x are subject to the Acid Rain program monitoring requirements, so CAM does not apply to these emissions. SO_2 monitoring requirements will be used to demonstrate continuous compliance with H_2SO_4 limits. CO and VOC are not vented to a control device during normal operations, and are not subject to CAM.

3.12 Stack Height Requirements

OAC 3745-16 applies to all new and existing air emission sources. The regulation requires that any emission limit will not be based on a stack height greater than the Good Engineering Practice (GEP) stack height. All modeling demonstrations for the proposed plant will utilize stack heights that are equivalent to or less than GEP.

3.13 Title V Operating Permit Program

Title V of 1990 Federal Clean Air Act Amendments established air permitting and reporting requirements for major emission sources. OAC 3745-77 adopts the provisions of the program and requires the proposed project to submit a Title V Operating Permit application within 12 months of commencing operation.

3.14 Ohio Particulate Emission Regulation (OAC 3745-17)

OAC 3745-17 regulates particulate emissions by establishing particulate mass and visible emission limits for applicable sources, including fuel burning equipment, stationary gas turbines, and industrial processes. Section 17-10 establishes particulate mass limits for fuel burning equipment, which applies to the proposed auxiliary boiler. Section 17-11 establishes particulate mass standards that are applicable to the proposed combustion turbines, cooling tower, sulfur recovery system, and material handling baghouses. Emission rates are specifically stated in the regulation for the combustion turbines. For the cooling tower, sulfur recovery system, and material handling baghouses, mass emission limits are calculated using either Figure II or Table I listed in OAC 3745-17-11.

The allowable particulate emission rate for the cooling tower per Table I, using a circulating water process weight of greater than 6,000,000 lbs/hr, is 92.7 lb/hr. For the sulfur recovery system, an allowable particulate emission rate of 60.3 lb/hr was calculated using the applicable equation from Table I [Allowable Particulate Rate = $(55)(P^{0.11}) - 40$] and an assumed process weight of 238 tons/hour.

The material handling system includes baghouse point sources at the Coal Reclaim Station and the Coal Crusher Building. The uncontrolled particulate emissions are 1.34 lbs/hour from the Reclaim Station and 11.62 lbs/hour from the Crusher Building. Utilizing the applicable equation from Figure II (A = 0.20 U) resulted in allowable emission rates of 0.27 lbs/hour from the Reclaim Station and 2.3 lbs/hour from the Crusher Building. Both sources have a process weight of 1,600 tons/hour. Utilizing the applicable equation from Table I [$E = (55)(P^{0.11}) - 40$] resulted in an allowable emission rate of 83.8 lb/hour from each the Reclaim Station and Crusher Building. The more stringent allowable rates derived from Figure II apply. The following table summarizes the applicable 3745-17 particulate emission limits for the proposed project:

Table 3-4: Applicable OAC 3745-17 Particulate Emission Limits

Proposed Emission Source	Applicable Particulate Mass Limit	Applicable Particulate Mass Regulation
Auxiliary Boiler	0.02 lb/mmBTU	17-10 (B)(1)
Cooling Tower	92.7 lb/hr	17-11 (A)(2) & Table I
Sulfur Recovery System	60.3 lb/hr	17-11 (A)(2) & Table I
Reclaim Station Baghouse	0.27 lb/hr	17-11 (A)(2) & Figure II
Crusher Building Baghouse	2.3 lb/hr	17-11 (A)(2) & Figure II
Combustion Turbines	0.040 lb/mmBTU	17-11 (B)(4)

Per OAC 17-07 (A)(1), a visible emission limit of 20% is applicable to the auxiliary boiler, sulfur recovery system, combustion turbines, reclaim station baghouse, and the crusher building baghouse.

The fugitive emission requirements of 3745-17-07 and 3745-17-08 do not apply to the proposed material handling and fugitive emission sources because the project will not be located in an applicable Appendix A area as described in 3745-17-08. OAC 3745-17 also does not apply to sources regulated under permit-by-rule requirements.

3.15 Ohio Sulfur Dioxide Emissions Regulation (OAC 3745-18)

OAC 3745-18 establishes SO_2 emission limits for new sources and is applicable to the proposed combustion turbines and sulfur recovery system. Section 18-06(F) establishes an SO_2 limit of 0.5 lb/mmBTU for each combustion turbine. Additionally, section 18-59(A) establishes SO_2 limits of 4.5 lb/mmBTU that is specific to any coal-fired steam generating unit in Meigs County, which would also apply to the proposed combustion turbines. The regulation also notes that not withstanding the SO_2 limits identified in the rule, NSPS requirements shall be followed where applicable.

NSPS Subpart Da establishes more stringent SO_2 emission limits for the combustion turbines than those presented by OAC 3745-18. In addition, the SO_2 monitoring requirements associated with NSPS Subpart Da, the Acid Rain Program, and the CAIR program will result in the use of continuous monitors to demonstrate compliance. Therefore, the already applicable NSPS SO_2 limits and compliance demonstration monitoring requirements for the combustion turbines will assure compliance with the separate, less stringent, SO_2 limits per OAC 3745-18.

For the sulfur recovery system, an allowable SO_2 emission rate of 1166.7 lb/hr was calculated using the equation provided in OAC 3745-18-06(E)(2) [Allowable SO_2 Emission Rate = $(30)(P^{0.67})$] and an assumed process weight of 238 tons/hour.

Section 18-06(A) of the regulation exempts the proposed auxiliary boiler because it is classified as fuel burning equipment that only utilizes natural gas. The regulation also does not apply to the cooling tower, material handling system, and sources regulated under permit-by-rule requirements.

3.16 Ohio Organic Compound and Carbon Monoxide Emissions Regulation (OAC 3745-21)

OAC 3745-21 regulates emissions of carbon monoxide, photochemically reactive materials, hydrocarbons, and related materials. Section 21-07(J)(2) of the regulation applies to the proposed flare and requires the use of a smokeless flare or equally equivalent control equipment to control potential emissions. This regulation does not apply to other emission sources at the proposed facility.

3.17 Ohio EPA Engineering Guide #69

OEPA Engineering Guide #69 provides guidance for performing air dispersion modeling of a proposed source. As discussed in Section 7.0 the modeling protocols for the proposed project will incorporate the applicable provisions of Engineering Guide #69.

3.18 Ohio EPA Air Toxics Policy and Engineering Guide #70

This policy establishes guidelines to evaluate and limit the potential impacts of potential hazardous air pollutant emissions from new sources. Ohio Engineering Guide #70 requires an air dispersion modeling analysis of potential impacts if a source has a potential to emit greater than 1 ton per year of HAPs. This analysis is not required for the proposed project because the applicable potential HAP emissions are less than the 1 ton per year threshold.