5.0 REGULATORY ANALYSIS

This section summarizes the pertinent regulations associated with the proposed MCC plant. Section 5.1 discusses federal rules, and Section 5.2 discusses Ohio rules.

5.1 Federal Rules

The federal rules evaluated for potential applicability to the MCC plant are New Source Review, New Source Performance Standards, and NESHAP. The applicability of each rule is discussed below. Table 5-1 provides a summary of the applicable federal rules, recordkeeping, and reporting information. In addition, the MCC facility will be required to obtain a Part 70 Title V air operating permit.

5.1.1 NESHAP for Source Categories

This section discusses the NESHAP for coke oven batteries, pushing, quenching, and combustion stacks.

National Emission Standards for Coke Oven Batteries—The MACT standards for coke oven batteries are contained in 40 CFR 63, Subpart L, National Emission Standards for Coke Oven Batteries. Specific requirements for nonrecovery (same as heat recovery) batteries are in Section 303 of this rule. The requirements are 0% leaks for doors, a capture/control system for charging, and daily monitoring of pressure in each oven or in a common battery (afterburner) tunnel.

The heat recovery ovens proposed for the MCC plant will be operated under negative pressure. This meets the requirements of the MACT rule and ensures compliance with the 0% door leakage standard. The ovens to be installed at the MCC plant have no topside lids or offtake piping, so those requirements are not applicable.

Table 5-1

Federal Rules for Nonrecovery Coke Oven Batteries

Emissions Unit	Rule Citation	Rule Summary	Compliance Demonstration		Recordkeeping		Reporting	
			Activity	Frequency	Activity	Frequency	Activity	Frequency
Coke Oven Batteries	40 CFR 63.306	Prepare work practice plan that addresses training and controlling emissions	Prepare and revise work practice plan that addresses training and procedures for controlling emissions	NA	Keep on file for 5 years	Initial and revise as necessary	Submit to Administrator if requested	As necessary
	40 CFR 63.310(a)	Operate equipment using good air pollution control practices	Operate according to standard operating procedures	Ongoing	NA	NA	NA	NA
	40 CFR 63.310(b) and 40 CFR 63.7310(c)	Develop and implement startup, shutdown, and malfunction plan	Describe procedures for operating during these periods	NA	Keep on file for 5 years	Initial and revise as necessary	Notify agency of malfunction within 24 hours; submit written report within 14 days	As necessary
	40 CFR 63.311(b)(2)	Certify initial compliance	Provide written statement to certify initial compliance	NA	Keep on file for 5 years	NA	Submit required notification within 45 days of compliance date	Initial
	40 CFR 63.311(c)	Written notification of intention to construct new coke oven battery	Provide agency with the notification	NA	Keep on file for 5 years	NA	Submit required notification	Initial
	40 CFR 63.311(d)	Semiannual compliance certification	Submit semiannual compliance certification to agency	NA	Keep on file for 5 years	Ongoing	Submit certifications and reports	Semiannually
	40 CFR 63.311(f)(1)	Documentation of nonrecovery requirements	Maintain files of required information (daily pressure monitoring, performance of work practice requirements)	Ongoing	Maintain information on-site for 1 year and available for 5 years	Ongoing	Submit certifications and deviations with semiannual report	Semiannually

Table 5-1

(Continued)

Emissions Unit	Rule Citation	Rule Summary	Compliance Demonstration		Recordkeeping		Reporting	
			Activity	Frequency	Activity	Frequency	Activity	Frequency
Coke Oven Doors	40 CFR 63.303(b)(1)(ii)	Demonstrate negative pressure	Monitor and record once a day the pressure of each oven or in a battery common tunnel	Daily	Summary of pressure in each battery common tunnel	Daily	Report incidence of positive pressure	Semiannually
	40 CFR 63.303(c)(1)	Observe each door for visible emissions	Record oven number from which visible emissions occur	Daily	Summary of doors with visible emissions	Daily	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.303(c)(2)	Corrective actions for doors with visible emissions	Stop visible emissions within 15 minutes	As necessary	Summary of actions taken	As necessary	Submit certifications and deviations with semiannual report	Semiannually
Charging	40 CFR 63.303(b)(2)	Use emission control system for capture and collection of charging emissions	Achieve compliance by the use of a traveling hood with a baghouse to capture and control emissions	Ongoing	Maintain design characteristics on file	Initial and revise as necessary	NA	NA
	40 CFR 63.303(d)(1)	Visible emissions from charging must be ≤20%	Observe five consecutive charges/week for each charging capture system	Weekly	Maintain records in file	Weekly	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.303(d)(2)	PM (filterable) emissions from control device must be ≤0.0081 lb/dry ton of coal	Perform stack test to demonstrate compliance	Initial within 180 days, then once per Title V permit term	Maintain test results in file	NA	Submit certification of test results	When test is performed

Table 5-1

(Continued)

Emissions Unit	Rule Citation	Rule Summary	Compliance Demonstration		Recordkeeping		Reporting	
			Activity	Frequency	Activity	Frequency	Activity	Frequency
Charging (continued)	40 CFR 63.303(d)(3)	Visible emissions from control device stack must be ≤10%	Operator will observe stack daily for any visible emissions. If any visible emissions are observed, perform visible emissions measurement using EPA Method 9	Daily	Summary of observations	Daily	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.303(d)(4)	Operating procedures during charging	Operating procedures must address uptake damper operation during charging	NA	Keep on file for 5 years	Initial and revise as necessary	Submit to Administrator if requested	NA
Pushing	40 CFR 63.7290(a)(4)	PM (filterable) limited to 0.04 lb/ton of coke from mobile control device that captures emissions during travel	Compliance is achieved by use of flat car pushing with traveling hood and multicyclone. Demonstrate with performance test	Initial within 180 days, then twice per Title V permit term	Keep on file for 5 years	Initial and revise as necessary	Submit certification of test results	When test is performed
	40 CFR 63.7290(b)(3)	Establish minimum volumetric flowrate	Establish minimum volumetric flowrate during performance test	Initial within 180 days, then twice per Title V permit term	Keep on file for 5 years	Initial and revise as necessary	Submit certification of test results	When test is performed
	40 CFR 63.7290(b)(3)(i)	Monitor pushing fan amps	Monitor multicyclone fan amps as a surrogate for flowrate. Daily average must be above minimum	Once per shift (every 8 hours)	Summary of data	Daily	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.7290(b)(4)	Monitor multicyclone pressure drop	Monitor multicyclone pressure drop. Describe in monitoring plan. Daily average must be in range	Each push	Summary of data	Daily	Submit certifications and deviations with semiannual report	Semiannually

Table 5-1

(Continued)

Emissions Unit	Rule Citation	Rule Summary	Compliance Demonstration		Recordkeeping		Reporting	
			Activity	Frequency	Activity	Frequency	Activity	Frequency
Pushing (continued)	40 CFR 63.7293(a)	Visually inspect ovens before pushing	Do not push an oven until operator verifies by looking into the oven that coking is complete	Daily	Summary of data	Daily	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.7300(c)(1)	Inspections	Inspect components important to system capture. Repair within 30 days or submit notice that repair will take longer	Monthly	Summary of data	Monthly	Submit notice for delayed repair or request for extension if necessary	As necessary.
	40 CFR 63.7300(c)(2)	Preventive maintenance	Establish preventive maintenance schedule	NA	Keep on file	Initial, revise as necessary	NA	NA
Quenching	40 CFR 63.7295(b)(1)	Quench tower baffle construction requirement	No more than 5% of the quench tower may be open to the sky	Ongoing	NA	NA	NA	NA
	40 CFR 63.7295(b)(2)	Quench tower baffle washing requirement	Baffles must be washed each day unless prohibited by cold temperature	Daily	Summary of data on file	Daily	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.7295(b)(3)	Quench tower inspection	Monthly inspection for blockage or missing baffles	Monthly	Summary of data on file	Monthly	Submit certifications and deviations with semiannual report	Semiannually
	40 CFR 63.7295(b)(4)	Quench tower repair	Initiate repair or replacement of baffles within 30 days	As necessary	Keep maintenance records on file	As necessary	NA	NA

Table 5-1

(Continued)

Emissions Unit	Rule Citation	Rule Summary	Compliance Demonstration		Recordkeeping		Reporting	
			Activity	Frequency	Activity	Frequency	Activity	Frequency
Quenching (continued)	40 CFR 63.7295(a)(1)(i)	Quench water quality	Verify that the quench water TDS is ≤1,100 mg/L by sampling	Weekly	Summary of data	Weekly	Submit initial certification, then certifications and deviations with semiannual report	Initial and semiannually

CFR = Code of Federal Regulations
EPA = U.S. Environmental Protection Agency
NA = Not Applicable
PM = Particulate Matter
TDS = Total Dissolved Solids

The charging system will be equipped with collection hoods that are vented to baghouses for control. The estimated capture efficiency is 90%, and the estimated collection efficiency of the baghouses is 99%. This system satisfies the requirement to have a system that minimizes emissions.

National Emission Standards for Coke Ovens: Pushing, Quenching and Combustion Stacks—The MACT standards for pushing and quenching are contained in 40 CFR 63, Subpart CCCCC, National Emission Standards for Coke Ovens: Pushing, Quenching, and Battery Stacks. No requirements for combustion stacks have been promulgated for nonrecovery ovens because of the negative pressure design.

The MACT standard for pushing establishes PM limits and monitoring requirements for control devices. Work practice procedures are also established for ensuring that an oven is coked out before pushing.

The MACT standard for quenching establishes a limitation for TDS in quench water. The standard contains construction requirements for baffles. Work practice procedures for cleaning baffles are also established.

5.1.2 Standards of Performance for New Stationary Sources

Coal processing, conveying, storage, transfer, and loading are regulated under "Standard of Performance for Coal Preparation Plant," 40 CFR 60 Subpart Y. The requirement is that fugitive emissions from these operations are limited to 20% opacity.

5.1.3 Compliance Assurance Monitoring

Coking emissions will be controlled by an FGD system that requires a CAM Plan as discussed in 40 CFR 64. Accordingly, a CAM Plan for the FGD system based on EPA guidance is included in Appendix C.

5.1.4 Applicability of Rules for Steam Generating Units

EPA evaluated whether a heat recovery (also referred to as nonrecovery) coke plant would be considered a steam generating unit and subject to regulations (e.g., for boilers) under 40 CFR 60, 60.40(b), and 41(b). An applicability determination, Control Number 9900003, was issued that the facility was not subject to these rules. Full text of the determination is available on the EPA web site at http://cfpub.epa.gov/adi/index.cfm.

5.2 Ohio Rules

The MACT standards listed in Section 5.1.1 were promulgated by EPA specifically for the nonrecovery (heat recovery) coke making technology. By contrast, Ohio Air Pollution Control rules for coke ovens were written specifically for the byproduct coke making technology. For example, heat recovery ovens are charged by a horizontal flight conveyor rather than through charging ports and do not have charging hole lids. Heat recovery coke ovens do not collect partially combusted oven gases and consequently do not have off-takes or off-take piping. Therefore, rules that limit emissions from off-take piping and charging hole lids do not apply to heat recovery ovens. Other differences in the technologies are discussed in Section 2.0. For this reason, the MACT standards establish more appropriate requirements and limitations for operations specific to heat recovery coke making. General Ohio Air Pollution Control Rules that are applicable to the MCC facility are listed in Table 5-2.

Table 5-2

Applicable State Rules and Compliance Demonstration

Emission Unit	Rule Citation	Rule Summary	Compliance Demonstration Activities
All emission units	3745-15-06	Air pollution control equipment shall be maintained and malfunctions shall be reported	Ongoing maintenance of control equipment and submit necessary reports as needed
	3745-15-07	No public nuisance (i.e., the emission of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors, or any other substances or combination of substances, in such manner or amounts to endanger the health, safety or welfare of the public, or cause unreasonable injury or damage to property)	Unless otherwise specified for a specific source, compliance is achieved by good operating practices and investigation of any complaints
	3745-16-02	Stack height requirements	Compliance is achieved by good engineering practice
Coke screening, charging, pushing, waste gases, and quenching	3745-17-11	Allowable particulate matter from operation, process, activity, and stacks except fugitive emissions	Compliance is achieved by use of control equipment to capture and control emissions
Charging	3745-17-07 (A)(1)	Stack: VE ≤20% (6 min average) VE ≤60% (6 min in each 60 min)	Use of a traveling hood with baghouse
Pushing	3745-31-05	BAT applied to each activity or operation that emits more than 10 tons/year of air contaminants	Compliance is achieved by use of BAT
	3745-17-07 (A)(1) and (B)(1)	Stack: VE ≤20% (6 min average) VE ≤60% (6 min in each 60 min) Fugitives: VE ≤20% (3 min)	Compliance will be achieved by the use of flat car pushing with traveling hood and multiclone.
Waste gas	3745-31-05	BAT applied to each activity or operation that emits more than 10 tons/year of air contaminants	Compliance is achieved by use of BAT
	3745-17-07 (A)(1)	Stack: VE ≤20% (6 min average) VE ≤60% (6 min in each 60 min)	Compliance by initial stack test
	3745-18-06	SO_2	Compliance using spray dryer/baghouse; CEMS monitoring of main stack SO_2 concentration and process data
Quenching	3745-31-05	BAT applied to each activity or operation that emits more than 10 tons/year of air contaminants	Compliance is achieved by use of BAT
	3745-17-07 (A)(1) and (B)(1)	Stack: VE ≤20% (6 min average) VE ≤60% (6 min in each 60 min) Fugitives: VE ≤ 20% (3 min)	Compliance will be achieved by the use of a baffled quench tower and control of total dissolved solids in quench water

Table 5-2

(Continued)

Emission Unit	Rule Citation	Rule Summary	Compliance Demonstration Activities
Coal piles and coke pile	3745-17-07 (B)(6)	VE ≤13 min/hour	Compliance will be achieved by the use of control equipment to capture and control emissions
	3745-17-08	RACM	Compliance will be achieved by control measures minimizing particulate emissions
Coal unloading, coal and coke handling, lime and flue gas desulfurization dust silo	3745-17-07 (B)(1)	VE ≤20% (3 min)	Compliance will be achieved by the use of control equipment to capture and control emissions
	3745-17-08	RACM	Compliance will be achieved by control measures minimizing particulate emissions
Coke screening	3745-31-05	BAT applied to each activity or operation that emits more than 10 tons/year of air contaminants	Compliance is achieved by use of BAT
	3745-17-07 (A)(1) and (B)(1)	Stack: VE ≤20% (6 min average) VE ≤60% (6 min in each 60 min) Fugitives: VE ≤20% (3 min)	Compliance will be achieved by the use of good operating practices
Paved roads	3745-17-07 (B)(4)	VE ≤6 min/hour	Compliance is achieved by road watering and good housekeeping
	3745-17-08	RACM	Compliance will be achieved by control measures minimizing particulate emissions

BAT = Best Available Technology
CEMS = Continuous Emission Monitoring System
MACT = Maximum Achievable Control Technology
RACM = Reasonably Available Control Measures
SO_2 = Sulfur Dioxide
VE = Visible Emissions