



10/3/2014

Todd Jonas
Rolling Hills Generating, LLC
1044 North 115th Street
Suite 400
Omaha, NE 68154

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL

Facility ID: 0682000057
Permit Number: P0110708
Permit Type: Initial Installation
County: Vinton

Certified Mail

Table with 2 columns: Yes/No and various permit categories like TOXIC REVIEW, PSD, SYNTHETIC MINOR TO AVOID MAJOR NSR, etc.

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of 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 permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, Vinton County Courier. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall
Permit Review/Development Section
Ohio EPA, DAPC
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

and Ohio EPA DAPC, Southeast District Office
2195 Front Street
Logan, OH 43138

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Southeast District Office at (740)385-8501.

Sincerely,

[Handwritten signature]

Erica R. Engel-Ishida, Interim Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 -Via E-Mail Notification
Ohio EPA-SEDO; Kentucky; West Virginia
John Williams

**PUBLIC NOTICE - PUBLIC HEARING
ROLLING HILLS GENERATING LLC**

Issuance of Draft Air Pollution Permits-to-Install,
Issuance of Proposed National Pollutant Discharge Elimination
System Permit Modification

Notice is hereby given that on October 3, 2014, the Ohio Environmental Protection Agency (Ohio EPA), 50 West Town Street, Columbus Ohio, Division of Air Pollution Control issued two draft Permits-to-Install (permit numbers P0110152 and P0110708) and Ohio EPA Division of Surface Water issued a proposed National Pollutant Discharge Elimination System (NPDES) permit modification (No. 01B00036*CD) to Rolling Hills Generating LLC, 43111 State Route 160, Wilkesville, OH 45695.

Comment Period and Public Hearing:

Ohio EPA is providing an opportunity for the public to comment on the permits. Comments received shall be considered by the director before a final decision on the permits. To be part of the official record, all comments must be received at Ohio EPA by 5 p.m., December 11, 2014.

A public information session and hearing will be held at 6 p.m. on Thursday, December 4, 2014 at the Wilkesville Community Center, 164 Main Street, Wilkesville, OH 45695. The meeting will end when everyone in attendance has had an opportunity to comment on the permits.

Surface Water Action:

The proposed NPDES modification, if issued as a final action, would authorize the discharge of cooling water blowdown and other power plant discharges via a new 16-mile-long outfall pipe from the existing plant site through Vinton, Gallia and Meigs counties to the Ohio River near Middleport, Ohio. An application for a permit to install for the wastewater treatment systems and the outfall pipe would be submitted to Ohio EPA for review and approval after a final action on the NPDES permit.

The new discharges from the facility, if approved, would result in degradation to, or lowering of, the water quality in the Ohio River; however, the chemical-specific water quality criteria developed to protect aquatic life and human health, as set forth in Ohio Administrative Code (OAC) 3745-1-07 will not be exceeded.

Comments regarding the proposed NPDES permit modification may be presented at the hearing or mailed to: Ohio EPA-DSW, attn.: Permits Processing Unit, P.O. Box 1049, Columbus, Ohio 43216-1049 or dswcomments@epa.ohio.gov. Please include DSW Public Notice No. 14-10-021 with your comments.

Air Pollution Permit:

The draft permits propose to allow the modification of four turbines to combined cycle blocks with heat recovery steam generators and duct burners, and installation of two new cooling towers.

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) and the Ohio EPA permit-to-install requirements (OAC 3745-31). The proposed allowable PSD pollutant air emission rates are listed below, in tons per year.

Pollutant	Tons/yr (Scenario 1)	Tons/yr (Scenario 2)
PM	247	360
PM ₁₀ /PM _{2.5}	234	347
NO _x	435	450
CO	5074	5102
VOC	611	601
H ₂ SO ₄	7.97	8.39
CO ₂ e/GHG	4,901,000	5,177,000

The U.S. EPA allows sources to consume no more than the maximum available ambient PSD increment(s) for each PSD pollutant. The Ohio EPA allows PSD sources to consume less than one half the available increment. This facility has demonstrated that the impact from the source is less than one half the available PM_{2.5} increments, and is less than the PSD significant impact increments for NO₂ (1 ug/m³ annual) and PM₁₀ (1 ug/m³ annual; 5 ug/m³ 24-hour). There are no PSD increments for NO₂ (1-hour) or CO. For these pollutants, Ohio EPA only allows a source to have impacts up to one quarter of the National Ambient Air Quality Standards. Based on this analysis, the project complies with the requirements.

Copies of the draft permits may be reviewed at <http://epa.ohio.gov/dapc/permitonline.aspx> by entering the permit numbers. Additional information, including applications and technical support information, is available by first calling (740) 385-8501.

Comments concerning the draft air ppermits may be presented at the hearing or mailed to: Sarah Harter, Ohio EPA DAPC-SEDO, 2195 Front Street, Logan, OH 43138 or sarah.harter@epa.ohio.gov.



Permit Strategy Write-Up

1. Check all that apply:

Synthetic Minor Determination

Netting Determination

2. Source Description:

Rolling Hills Generating, L.L.C. (RHG) owns the Rolling Hills Generating Station (RHGS), which is comprised of five existing gas-fired simple cycle electric generating units located on State Route 160, in Vinton County (near Wilkesville, Ohio).

RHG proposes to convert four of the five simple cycle peaking units (P001, P002, P004, & P005), SW501F turbines nominally rated at 209 megawatts (MW) each, to combined cycle configuration consisting of two 2x1 combined cycle blocks. The existing fifth unit (P003) will remain in simple cycle operation. Inherent to the proposed conversion involving the four units is the addition of four heat recovery steam generators (HRSGs), each of which will be equipped with a 550 MMBtu duct burners and a steam turbine generator.

There are two alternative ways Rolling Hills is proposing to complete these modifications, hence the need for a permit to address both scenarios (once the final scenario has been chosen, Rolling Hills will submit a permit modification to 'clean-up' the permit language before the Title V permit is processed). Under Scenario 1, the four combustion turbines will not be modified. Under Scenario 2, the four combustion turbines will be modified to increase output and efficiency.

New emission units to be added to the facility as part of this project include cooling towers, a fire pump engine, a diesel fuel tank, and circuit breakers. A separate PTI # P0110708, for 2 new cooling towers (P009, P010), each consisting of 9 multi-cells with mechanical draft will be constructed in conjunction with the modifications to the turbines.

3. Facility Emissions and Attainment Status:

The facility is an existing PSD major and major source for Title V purposes. Vinton County is a non-Appendix A area in Ohio, and is classified by the United States Environmental Protection Agency (U.S. EPA) as "attainment/unclassifiable" for all regulated NSR pollutants.

4. Source Emissions:

This project results in significant increases of CO, NO_x, VOC, H₂SO₄, and PM/PM₁₀/PM_{2.5}. Additionally, emissions of GHGs will be "subject to regulation" under the PSD program given that the emission increase exceeds 75,000 TPY CO₂e. The CCCTs and ancillary equipment are subject to BACT, for each pollutant requiring PSD permitting that is emitted by the particular piece of equipment. RHGS performed a top-down BACT analysis to support the control methods in this permit.

5. Conclusion:

The terms and conditions (emissions limitations, operational restrictions, monitoring, recordkeeping, reporting, and testing requirements) are sufficient to ensure federal enforceability, and that RHGS can comply with current rules and regulations. This permit is a chapter 31 major modification and being processed as Draft/Final PTI.



Permit Strategy Write-Up
Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057

6. Please provide additional notes or comments as necessary: None
 7. Total Permit Allowable Emissions Summary (for informational purposes only): See below.
-



**STAFF DETERMINATION FOR THE APPLICATION TO CONSTRUCT
UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS
FOR ROLLING HILLS GENERATING, LLC
WILKESVILLE, OHIO (VINTON CO.)
PTI NUMBER P0110152 AND P0110708**

September 29, 2014

Ohio Environmental Protection Agency
Division of Air Pollution Control
Lazarus Government Center
50 West Town Street, Suite 700
Columbus, Ohio 43216

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 nonattainment area New Source Review 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 nonattainment 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 OAC 3745-31.

Both PSD and nonattainment 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 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 resulting air quality shows a net air quality benefit. This is more completely described in the Emission Offset Interpretative Ruling as found in Appendix S of 40 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 nonattainment 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 Rolling Hills Generating Station (RHGS) is a Title V/PSD source located in Vinton County (on Route 160, Wilkesville, Ohio vicinity). This area is classified as attainment/unclassifiable for all regulated NSR pollutants.

Facility Description

This facility was first permitted over a decade ago, consisting of five 209 MW gas-fired simple cycle electric generating turbines. The original units have been installed and begun operation in the last two years. The company, Rolling Hills Generating (RHG), is planning to convert four of the existing peaking units (P001, P002, P004 and P005) to combined cycle, consisting of two 2x1 combined cycle blocks, each with a 550 MMBtu duct burner, and each followed by a HRSG (steam turbine).

RHGS has developed the application submitted to identify two scenarios, but only one of these alternatives will be utilized, to be determined prior to making any source modifications. The main difference is that one scenario incorporates modifications to the existing four turbines to increase output (Scenario 2), while the other does not (Scenario 1). New equipment to be added as part of the project will be cooling towers, a fire pump engine, a diesel fuel tank and circuit breakers. Regardless of which scenario is ultimately selected, permit content related to the other option will be addressed through a permit modification request submitted by the applicant, to delete the other alternative.

New Source Review (NSR)/PSD Applicability

The emissions unit modifications will generate criteria pollutant emissions of particulates/PM₁₀/PM_{2.5} (per prior USEPA guidance, PM₁₀ may suffice as the surrogate for PM_{2.5}), CO, NO_x, SO₂, VOC, H₂SO₄ and GHG emissions. A PSD analysis is required for any increase in emissions of a pollutant exceeding the PSD threshold levels. Nonattainment NSR is not applicable, due to the attainment status of the area. Of the pollutants emitted by the proposed source modifications, particulates/PM₁₀/PM_{2.5}, CO, NO_x, VOC, H₂SO₄ and GHGs result in a net increase in annual emissions above PSD levels.

Potential HAP emissions do not exceed the standard levels of 10 tons/year for any single HAP and 25 tons/year for a combination of HAPs.

RHGS has requested restricted operational limits for some emissions units in the project. Table 1 below summarizes pollutant changes and emissions allowed under the draft PTI.

TABLE 1
 PRELIMINARY POLLUTANT EMISSION RATES
 RHGS

Air Pollutant	Total Allowable (tpy) Scenario 1 or 2	Project Net Inc (tpy) Scenario 1 or 2	PSD/NSR Threshold (tpy)
Carbon Monoxide (CO)	5074 or 5102	5035 or 5063	100
Volatile Organic Compounds (VOC/OC)	611 or 601	611 or 601	40
Nitrogen Oxides (NO _x)	435 or 450	421 or 435	40
Particulate (TSP)	247 or 360	244 or 357	25
PM ₁₀ /PM _{2.5}	234 or 347	232 or 344	15/10
Sulfur Dioxide (SO ₂)	29.2 or 30.8	29.1 or 30.8	40 (minor)
H ₂ SO ₄	7.97 or 8.39	7.96 or 8.38	7
GHGs/CO ₂ e	4,901 k or 5,177 k	4,860 k or 5,135 k	75 k

Control Technology Review

As part of the application for any source regulated under the PSD requirements, an analysis must be conducted that



demonstrates that Best Available Control Technology (BACT) will be employed by the source. The facility is subject to PSD regulations which mandate a case-by-case BACT analysis be performed for PSD triggering pollutants. The application uses a "top-down" approach to evaluate the latest demonstrated control techniques and select the appropriate controls.

BACT Evaluation Steps:

- Identify all available potential control options;
- Eliminate technically infeasible options;
- Rank remaining technologies by control effectiveness;
- Evaluate the feasible controls by performance and cost analysis; and
- Select the most effective control based on energy, environmental and economic impacts (generally, the feasible technology that is also considered to be cost effective).

Summary of BACT Analysis

There are a number of gas-fired turbine installations in operation and included in the RBLC. The following tables show the results of the BACT analysis, including technologies found in the RBLC (see application for further details).

CCCTs	Ranked Type of Control, Feasibility, Cost Effectiveness (Y/N)	Description/Issues
PM/PM ₁₀ /PM _{2.5}	Fuel Specifications	Y Use of only natural gas to achieve the rate of 9.5 - 15.9 lbs/hr w/o DB, 15.8 - 22.2 lbs/hr with DB
	Good Combustion	Y Properly operate and maintain equipment.
	Baghouse	N Filtration method not feasible for high flow, low particulate concentrations nor included in the RBLC for these source types.
	ESP	N Charged particle collector not feasible for high flow, low particulate concentrations nor included in the RBLC for these source types.
	Wet Scrubber	N Liquid collection of particles not feasible for high flow, low particulate concentrations nor included in the RBLC for these source types.
	Cyclone	N Particle drop-out not feasible for high flow, low particulate concentrations nor included in the RBLC for these source types.
NO _x	SCR (SNCR)	Y Injection of Nitrogen-based reagent into stream to produce N ₂ and water, within a cat vessel for an SCR unit. This technology is typically utilized in RBLC (SNCR less effective), at the set emissions rate of 2.0 ppmvd @ 15% O ₂ , 3-hr average (plus Startup/Shutdown).
	Good Combustion Control (Dry Low-NO _x Combustors)	Y Multi-stage Low-NO _x Burners ranging from O ₂ deficient to excess O ₂ , it is feasible, used in the RBLC, but is less effective alone.
	Water/Steam Injection	Y Lowers peak temperature, it is feasible, used in the RBLC for large units, but less effective.
	SCONO _x	N Removes NO _x , CO, VOC using oxidation catalyst, but not feasible nor included in RBLC.
	Xonox Cool Combustion	N Turbine integrated catalyst to limit temperature NO _x , CO and VOC, but not feasible nor included in RBLC.
CO	Catalytic (Thermal) Oxidation	Y This is the technology utilized (cost of \$2694 - 3,559/ton), meeting the rate of 2.0 ppmvd @ 15% O ₂ on a 24-hour rolling average basis (plus



CCCTs	Ranked Type of Control, Feasibility, Cost Effectiveness (Y/N)	Description/Issues
		SU/SD).
	Good Combustion Control	Y Operation at an O ₂ range for complete combustion to minimize CO.
	SCONO _x	N Removes NO _x , CO, VOC using oxidation catalyst, but not installed on larger turbines.
VOC	Good Combustion Control	Y Operation at an O ₂ range for complete combustion to minimize VOC. This is the technology utilized, meeting the rates of 1.4 - 0.84 ppmvd @ 15% O ₂ w/o DB, 3.1 - 2.6 ppmvd @ 15% O ₂ with DB use (plus SU/SD).
	Catalytic (Thermal) Oxidation	N Oxidation via increase in temperature (flame) of material stream in the presence of oxygen, but at a higher cost of \$40,902 - 49,596/ton; thermal reported not effective for the type of source.
	SCONO _x	N Removes NO _x , CO, VOC using oxidation catalyst, but not installed on larger turbines.
H ₂ SO ₄	Fuel Specifications	Y Use of only natural gas to achieve the limit of 0.25 gr/100 scf fuel sulfur.
	Flue Gas Desulf	N After contact with alkaline reagent, material is collected in wastewater or by PM control downstream, however not feasible nor included in RBLC for this source type.
	Dry Sorbent Injection	N Injected sorbent forms solids removed by PM control, however not feasible nor included in RBLC for this source type.
GHGs	High Efficiency Design	Y Less fossil fuel use to generate the same electricity output, and meet 7,471 Btu/kW-hr (HHV) and 4,900,878 - 5,176,335 tons/yr CO _{2e} .
	CCS	N CO ₂ capture, transport and injection for geologic storage is not feasible.

The following table summarizes BACT permit requirements for the Emissions Units (EUs) in the project.

Description of Proposed Units	Control Technology Summary
CCCTs	<p><i>SCR:</i> 2.0 ppmvd @ 15% O₂, 3-hr average (plus Startup/Shutdown) for NO_x.</p> <p><i>Catalytic Oxidation:</i> 2.0ppmvd @ 15% O₂ (plus SU/SD) for CO;</p> <p><i>Good combustion control:</i> 1.4 - 0.84 ppmvd @ 15% O₂ w/o DB, 3.1 - 2.6 ppmvd @ 15% O₂ with DB (plus SU/SD) for VOC.</p> <p><i>Fuel Specification (gas) and good combustion:</i> 9.5 - 15.9 lbs/hr w/o DB, 15.8 - 22.2 lbs/hr with DB for PM; 0.25 gr/100 scf fuel sulfur for H₂SO₄.</p> <p><i>High Efficiency:</i> 7,471 Btu/kW-hr (HHV) and 4,900,878 - 5,176,335 tons/yr CO_{2e} for GHGs.</p>
Cooling Towers	<i>Advanced drift eliminators:</i> 0.0005 percent drift.
Fire Pump Engine	<i>Design Controls, Ultra-low S Diesel, Usage Limitations:</i>



Description of Proposed Units	Control Technology Summary
	3.0 g/hp-hrNO _x and NMHC, for NO _x and VOC. 2.6 g/hp-hr CO 0.15 g/hp-hr PM 128.8 tpy GHG
Lube Oil Demister Vents	<i>Design and Work Practices</i> , VOC, PM.
Storage Tanks	<i>Design and Work Practices</i> , VOC.
Flange Leaks	<i>Design and Work Practices</i> , GHGs.
Steam Turbines	<i>Design and Work Practices</i> , GHGs.
Circuit Breakers	<i>Design and Work Practices</i> , GHGs.

Ambient Air Quality Monitoring Requirements

Rolling Hills Generating, LLC conducted ambient air quality modeling to determine the potential impact due to the proposed installation. The proposed modifications trigger PSD permitting requirements for CO, NO_x, PM₁₀, PM_{2.5}, VOC, and sulfuric acid mist. PSD review requirements were not triggered for SO₂, lead and other criteria pollutants. As VOC are photochemically reactive, and at present, U.S. EPA does not have a photochemical model capable of accounting for the smaller scales associated with single-source PSD modeling. CO impact is above its respective PSD monitoring de minimus level. Ohio EPA has identified representative CO data for use by Rolling Hills Generating in this project. Therefore, Rolling Hills Generating would not be required to perform preconstruction or postconstruction monitoring. The following are the projected impacts for both scenarios:

Pollutant	Averaging Period	De Minimus Monitoring Concentration (µg/m3)	Class II PSD Increment (µg/m3)	Modeled Impact Scenario 1 (µg/m3)	Modeled Impact Scenario 2 (µg/m3)
CO	1-hour	--	--	3,036.83	3,082.38
	8-hour	575	--	662.79	664.66
NO ₂	1-hour	--	--	81.64	82.87
	Annual	14	25	0.535	0.511
PM ₁₀	24-hour	10	30	3.41	4.39
	Annual	--	17	0.452	0.568
PM _{2.5}	24-hour	4	9	3.37	4.36
	Annual	--	4	0.434	0.549

Modeling

Air quality dispersion was conducted to assess the effect of this modification on the national ambient air quality standards (NAAQS) and for the consumption of PSD increments. AERMOD (version 12345) was used in the regulatory default, rural mode. Based on recommendations from Ohio EPA, RHG used the Huntington Tri State Airport (HTS, WBAN# 03860) surface NWS observation station as a representative station, and Pittsburgh, Pennsylvania (PIT, WBAN# 94823) upper air observation data. Building downwash was incorporated into the AERMOD estimates. This modeling utilized the newly-release AERMINUTE (version 11325) meteorological data processing module to reduce the number of calm and variable wind conditions encountered and processed by the AERMOD model.

Peak impacts of CO, NO₂, and PM_{2.5} were above their respective PSD significant impact levels for both scenarios proposed by Rolling Hills Generating. Therefore, additional modeling to address PSD increments where increments have been promulgated, and NAAQS were necessary.

For the non-PSD criteria pollutants (SO₂), no state-based modeling was required because the allowable increase associated with the project was less than the SER thresholds. Additionally, no state-based modeling for VOCs is required for fossil-fuel-burning only combustion sources.

PSD Increment



Pollutant	Averaging Period	Modeled Impact Scn. 1 (µg/m3)	Modeled Impact Scn. 2 (µg/m3)	Class II PSD Increment (µg/m3)
PM2.5	24-hour	2.74	3.30	9
	Annual	0.43	0.49	4

Ohio EPA's policy is that no single project should consume more than 50% of the available PSD increment, except in situations where the impact is localized, temporary or as part of a brownfields project. In such cases, the peak constraining concentration can consume up to 83.3% of the PSD increment.

NAAQS

Existing sources at the facility, existing sources above the PSD significant rates within the Rolling Hills Generating, LLC significant impact area (SIA), and sources greater than 100 tons/yr 50km outside of the SIA were modeled to determine the combined impact of existing and proposed sources. A background value was added to account for minor sources not explicitly included in the modeling.

Pollutant	Averaging Period	Modeled Impact Scn. 1 (µg/m3)	Modeled Impact Scn. 2 (µg/m3)	Primary and Secondary NAAQS (µg/m3)	Modeled Impact with Background Scn. 1 (µg/m3)	Modeled Impact with Background Scn. 2 (µg/m3)
CO	1-hour	3,518.64	3,563.15	40,000 (35 ppm)	6,147.21	6,191.72
	8-hour	664.44	666.97	10,000 (9 ppm)	2,775.55	2,778.08
NO2	1-hour	974.82	974.82	188 (100 ppb)	1,020.32	1,020.32
PM2.5	24-hour	2.75	3.52	35	20.48	21.25
	Annual	0.52	0.62	12	9.59	9.69

A cause or contribute analysis for the exceedance of the 1-hour NO₂ NAAQS was conducted for both scenarios. It was determined that the 5-year average 1-hr NO₂ concentrations attributable to Rolling Hills Generating are below the SIL for modeled exceedances under both proposed scenarios. Therefore, Rolling Hills Generating does not cause or contribute to any exceedances of the 1-hr NO₂ NAAQS.

Toxics Analysis

The Ohio Air Toxics Policy requires evaluation of increases in air toxics above the one ton/year threshold. As the units at Rolling Hills Generating will fire only pipeline-quality natural gas, these units are exempt from air toxics modeling. However, Division (F)(4)(f)(ii) of section 3704.03 of the Revised Code, effective August 3, 2006, provides for the director to request additional information from a source for the purposes of air toxic contaminant modeling if there is reason to believe the source will potentially cause an increase in ground level concentration beyond the facility's boundary that exceeds the MAGLC.

Rolling Hills Generating has presented the air toxic modeling analysis of ammonia, acetaldehyde, toluene, and xylenes. Ohio EPA is in agreement with results presented by letter/e-mail dated September 15, 2014 (corrected from 9/12), submitted by Trinity Consultants (RE: Revised – Air Toxic Impacts Analysis for Combined Cycle Conversion Project PSD Permitting, Rolling Hills Generating, LLC -Wilkesville, Ohio). The analyses demonstrated that the combined cycle conversion project will not cause exceedances of any of the applicable MAGLCs for toxic air contaminants.

Secondary Impact Analysis

Rolling Hills Generating has demonstrated that the predicted pollutant concentrations throughout the study area are below the secondary NAAQS thresholds and that the project at Rolling Hills Generating does not cause or contribute to modeled violations of the 1-hour NO₂ NAAQS. The secondary NAAQS are designed to limit the amount of pollutants in the ambient air to levels below those which could have an adverse impact on human welfare, soils and vegetation. The



modeling analyses demonstrate that no significant impacts on human welfare, soils or vegetation will occur from the proposed modification.

EPA Air Quality Criteria documents were reviewed for information on pollutants and adverse effects on the type of vegetation and soils in the area. No adverse impact upon soils or vegetation is expected. The modeled concentrations are below the primary and secondary NAAQS limits.

Pursuant to draft guidance issued by USEPA in March 2013, addressing secondarily formed $PM_{2.5}$ in a NAAQS compliance demonstration under the PSD program, Rolling Hills Generating submitted an analysis of secondary $PM_{2.5}$ formation based on the increase in SO_2 and NO_x emissions from the facility. Although no formal procedure has been promulgated for analysis of secondary $PM_{2.5}$, Ohio EPA reviewed the qualitative/quantitative results submitted by Rolling Hills Generating and is in agreement that secondary $PM_{2.5}$ formation will not consume additional PSD increments nor cause a violation of the 24-hour and Annual $PM_{2.5}$ NAAQS.

Pursuant to USEPA guidance addressing secondarily formed ozone, Rolling Hills Generating submitted an analysis of secondary ozone formation based on the increase of NO_x and VOC emissions from the facility. Ohio EPA reviewed the submitted analysis, which included an analysis of regional meteorology, past USEPA modeling, current ozone monitor values in the area, and an inventory analysis of existing facilities in the region. Ohio EPA agrees, based on these analyses, that the Rolling Hills Generation facility will not cause a substantial increase in ozone concentrations via secondary formation. Furthermore, Ohio EPA agrees with an additional ozone-formation-regime analysis, which indicates that the region is likely NO_x -limited in terms of ozone formation chemistry. Thus, the relatively small increase in VOC from the project is unlikely to impact secondary ozone formation.

Most workers associated with phases of the project/construction already reside in the region and thus would not cause growth in infrastructure/mobile sources, or emission increases and subsequent air quality impacts.

Conclusion

Based upon the review of the permit to install application and supporting documentation provided by the applicant, the Ohio EPA staff has determined the installation 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 permit to install be issued to RHGS for modifications to the turbine installation at their current facility.



DRAFT

Division of Air Pollution Control
Permit-to-Install
for
Rolling Hills Generating, LLC

Facility ID:	0682000057
Permit Number:	P0110708
Permit Type:	Initial Installation
Issued:	10/3/2014
Effective:	To be entered upon final issuance



Division of Air Pollution Control
Permit-to-Install
for
Rolling Hills Generating, LLC

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Draft Permit-to-Install
Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057

Effective Date: To be entered upon final issuance

Authorization

Facility ID: 0682000057
Facility Description: Electrical Services.
Application Number(s): A0044076, A0045568, A0047123, A0048150
Permit Number: P0110708
Permit Description: Installation of two (2), Nine-Cell Mechanical Draft Cooling Towers. (This installation is part of PSD project with turbine modification in PTI P0110152).
Permit Type: Initial Installation
Permit Fee: \$400.00 *DO NOT send payment at this time, subject to change before final issuance*
Issue Date: 10/3/2014
Effective Date: To be entered upon final issuance

This document constitutes issuance to:

Rolling Hills Generating, LLC
43111 State Route 160
Wilkesville, OH 45695

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Southeast District Office
2195 Front Street
Logan, OH 43138
(740)385-8501

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section 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 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

Craig W. Butler
Director



Draft Permit-to-Install
 Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057

Effective Date: To be entered upon final issuance

Authorization (continued)

Permit Number: P0110708
 Permit Description: Installation of two (2), Nine-Cell Mechanical Draft Cooling Towers. (This installation is part of PSD project with turbine modification in PTI P0110152).

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Group Name: Cooling Towers 1 & 2

Emissions Unit ID:	P009
Company Equipment ID:	P009
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P010
Company Equipment ID:	P010
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Draft Permit-to-Install
Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057
Effective Date: To be entered upon final issuance

A. Standard Terms and Conditions



1. Federally Enforceable Standard Terms and Conditions

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
 - (1) Standard Term and Condition A.2.a), Severability Clause
 - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
 - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
 - (4) Standard Term and Condition A.9., Reporting Requirements
 - (5) Standard Term and Condition A.10., Applicability
 - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
 - (7) Standard Term and Condition A.14., Public Disclosure
 - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
 - (9) Standard Term and Condition A.16., Fees
 - (10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

- a) 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.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they 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 and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

- a) 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 re-issuance, or modification.



- 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, 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 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.

4. Monitoring and Related Record Keeping 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:
 - (1) The date, place (as defined in the permit), and time of sampling or measurements.
 - (2) The date(s) analyses were performed.
 - (3) The company or entity that performed the analyses.
 - (4) The analytical techniques or methods used.
 - (5) The results of such analyses.
 - (6) 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:
 - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Southeast District Office.



- (2) 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 Ohio EPA DAPC, Southeast District Office. The written reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
 - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Ohio EPA DAPC, Southeast District Office every six months, 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.
 - (4) This permit is for an emissions unit located at a Title V facility. 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.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. 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 Ohio EPA DAPC, Southeast District Office 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).

6. Compliance Requirements

- a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted



local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

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:
 - (1) 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.
 - (2) 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.
 - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - (4) 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 Ohio EPA DAPC, Southeast District Office 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:
 - (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - (2) 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.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.



8. 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.

9. 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 Ohio EPA DAPC, Southeast District Office.
- 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 Ohio EPA DAPC, Southeast District Office. 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, 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.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s) not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. 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 this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit 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.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual



obligation to undertake and complete within a reasonable time a continuing program of installation. 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 permittee shows good cause for any such extension.

- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).
- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

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



13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services" facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. 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.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

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 by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. 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 any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed. The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. 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.

19. Title IV Provisions



Draft Permit-to-Install
Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057

Effective Date: To be entered upon final issuance

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.

B. Facility-Wide Terms and Conditions



Draft Permit-to-Install
Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057

Effective Date: To be entered upon final issuance

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
 - a) None.



Draft Permit-to-Install
Rolling Hills Generating, LLC
Permit Number: P0110708
Facility ID: 0682000057
Effective Date: To be entered upon final issuance

C. Emissions Unit Terms and Conditions



1. Emissions Unit Group -Cooling Towers 1 & 2: P009,P010,

EU ID	Operations, Property and/or Equipment Description
P009	Cooling Tower 1, Multi-9 cell mechanical draft with a maximum rated flow of 115,037 gpm.
P010	Cooling Tower 2, Multi-9 cell mechanical draft with a maximum rated flow of 115,037 gpm.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective 11/30/01.	The limitations established under OAC rule 3745-31-05(A)(3) are equivalent to that of OAC rules 3745-10 through 3745-31-20. See b)(2)a.
b.	OAC rule 3745-31-05(A)(3)(b), as effective 12/01/06.	See b)(2)b. below.
c.	OAC rules 3745-31-10 through 3745-31-20	Particulate emissions (PM/PM ₁₀) shall not exceed 0.0005 percent drift rate. Particulate emissions (PM/PM ₁₀) shall not exceed 1.48 pounds per hour (lb/hr) as a 24-hour rolling average, and 6.47 tons per rolling 12-month period. See b)(2)f.
d.	OAC rule 3745-17-07(A)	See b)(2)c.
e.	OAC rule 3745-17-11(B)	See b)(2)d.
f.	40 CFR Part 63, Subpart Q (40 CFR 63.400 – 63.407)	See b)(2)e.

(2) Additional Terms and Conditions

a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC rule 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was



revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulation for NAAQS pollutant emissions less than ten tons per year. However, that rule revision has not yet been approved by 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 revision to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limits/control measures no longer apply.

[OAC rule 3745-31-05(A)(3), as effective 11/30/01]

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the SIP.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM/PM₁₀ emissions from this air contaminant source since the calculated annual emission rate for PM/PM₁₀ is less than 10 tons/yr taking into account the federally enforceable rule limit of 0.0005 percent drift under OAC rules 3745-31-10 through 3745-31-20.

- c. This emissions unit is exempt from the visible emissions limitations specified in OAC rule 3745-17-07(A), pursuant to OAC rule 3745-17-07(A)(3)(h), because OAC rule 3745-17-11 is not applicable.
- d. The uncontrolled mass rate of PE from this emissions unit is less than ten pounds per hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. Also, Table 1 does not apply because the facility is located in Vinton County.
- e. The provisions of 40 CFR Part 63, Subpart Q, apply to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals and are either major sources of HAP or are integral parts of facilities that are major sources of HAP as defined in 40 CFR 63.401. Since chromium-based water treatment chemicals will not be used in this emissions unit and since the facility is an area source of HAP, the provisions of this subpart do not apply to this emissions unit.
- f. The permittee shall employ best available control technology (BACT) for PM/PM₁₀ emissions from this emission unit. BACT has been determined to be the use of good combustion practices along with clean fuels, as detailed in the permittees application and compliance with the following emission limitations;
 - i. Use of advanced drift eliminators with a drift rate of less than 0.0005 percent.

c) Operational Restrictions

- (1) The permittee shall operate the drift eliminators at all times when the cooling tower is being operated.



- (2) The permittee shall maintain the total dissolved solids (TDS) content of the circulating cooling water at 5,130 mg/L or less as a 24-hour rolling average.
- d) **Monitoring and/or Recordkeeping Requirements**
 - (1) The permittee shall properly install, operate, and maintain equipment to continuously monitor and record once per hour the conductivity and flow rate of the cooling tower water. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturers' recommendations, instructions, and operating manuals with any adjustments deemed necessary by the permittee.
 - (2) The conductivity shall be used to determine the TDS content of the cooling tower water based on an established correlation between TDS and conductivity of the cooling tower water.
- e) **Reporting Requirements**
 - (1) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
 - (2) The permittee shall submit quarterly deviation (excursion) reports that identify all rolling 24-hour periods when the TDS content of the cooling tower water exceeded 5,130 mg/L. The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
- f) **Testing Requirements**
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. **Emissions Limitation:**

PM/PM₁₀ shall not exceed 1.48 lb/hr as a 24-hour rolling average and 6.47 tons per rolling 12-month period.

Applicable Compliance Method:

The rolling 24-hour average hourly and rolling 12-month period emission limitations are based upon the emissions unit's potential to emit and the maximum operating parameters of the emissions unit as provided by the permittee in the application. The actual hourly emission rate shall be determined using the following calculation:

$$E = Q \times (60 \text{ min/hr}) \times \text{TDS} / (453,592.37 \text{ mg/lb}) \times (3.785412 \text{ L/gal}) \times \text{Drift}$$

where:

E = particulate emissions, pounds per hour;



Q = circulating water flow rate (gallons per minute);

TDS = Total Dissolved Solids content (mg/l);

Drift = BACT limit of 0.0005%

The actual circulating water flow rate and TDS content shall be measured continuously and recorded at least once per hour. If required, the permittee shall submit a testing proposal to demonstrate that the maximum drift loss does not exceed 0.0005%.

Compliance with the rolling 24-hour average hourly emission limitation shall be determined for each operating hour (for which there are valid conductivity and circulating water flow rate readings) by summing the valid individual hourly emission rates calculated above during the previous 24-hr period and dividing by the number of valid hourly emission rates during the period.

- b. Compliance with the tons per rolling 12-month period emission limitation shall be demonstrated according to the equation above using the annual water circulation flow rate (gallons per year) and the annual average TDS content, and dividing by 2,000 pounds per ton.

g) Miscellaneous Requirements

- (1) None.