



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

7/22/2008

MICHAEL KOVACS
UNIVERSITY OF TOLEDO - MAIN CAMPUS
2801 W BANCROFT ST
MS405
TOLEDO, OH 43606

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 0448010805
Permit Number: 04-01507
Permit Type: Initial installation
County: Lucas

Certified Mail

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR
No	CEMS
No	MACT
Yes	NSPS
No	NESHAPS
Yes	NETTING
No	MAJOR NON-ATTAINMENT
Yes	MODELING SUBMITTED

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install and Operate 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 comments on the permit. A public notice will appear in the Ohio EPA Weekly Review and the local newspaper, Toledo Blade. A copy of the public notice and the draft permit are enclosed. This permit has been posted to the Division of Air Pollution Control Web page <http://www.epa.state.oh.us/dapc> in Microsoft Word and Adobe Acrobat format. 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
122 South Front Street
Columbus, Ohio 43215

and Toledo Department of Environmental Services
348 South Erie Street
Toledo, OH 43604

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 and operate 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 and Operate is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Toledo Department of Environmental Services at (419)936-3015.

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA Region 5 *Via E-Mail Notification*
TDES; Michigan; Indiana; Canada

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

PUBLIC NOTICE
Issuance of Draft Air Pollution Permit-To-Install and Operate
UNIVERSITY OF TOLEDO - MAIN CAMPUS

Issue Date: 7/22/2008
Permit Number: 04-01507
Permit Type: Initial installation
Permit Description: six 600 hp steam generators.
Facility ID: 0448010805
Facility Location: UNIVERSITY OF TOLEDO - MAIN CAMPUS
2801 W BANCROFT ST,
TOLEDO, OH 43606

Facility Description: Colleges, Universities, and Professional Schools

Chris Korleski, Director of the Ohio Environmental Protection Agency, 50 West Town Street, Columbus Ohio has issued a draft action of an air pollution control, federally enforceable permit-to-install and operate (PTIO) for the facility at the location identified above on the date indicated. Comments concerning this draft action, or a request for a public meeting, must be sent in writing no later than thirty (30) days from the date this notice is published. All comments, questions, requests for permit applications or other pertinent documentation, and correspondence concerning this action must be directed to Mary Lehman-Schmidt at Toledo Department of Environmental Services, 348 South Erie Street or (419)936-3015. The permit can be downloaded from the Web page: www.epa.state.oh.us/dapc



Permit Strategy Write-Up

X Synthetic Minor Determination and/or 9 Netting Determination

Permit To Install: 04-01507

A. Source Description

The University of Toledo (UT), located at 2801 W. Bancroft in Toledo, Ohio, has submitted an application for six identical 600 hp steam generators (25.8 mmBtu/hr) to be installed in the new central steam plant in Savage Hall. The new steam generators will be natural gas fired, with No. 2 fuel oil back-up firing capabilities.

B. Facility Emissions and Attainment Status

The facility is currently considered a major source for SO₂ and a minor source for CO, NO_x, PM₁₀, and VOC. Lucas County has the following attainment status:

Pollutants	Air Quality Description
Particulate Matter	Unclassified
PM ₁₀	Attainment
Sulfur Dioxide	Attainment
Organic Compounds	Attainment
Nitrogen Oxides	Attainment
Carbon Monoxide	Attainment
Lead	Unclassified

C. Source Emissions

Individual emissions units will be restricted by a fuel oil limitation to 35.03 tons per year (tpy) of SO₂. The combined emissions from all six boilers (i.e., federally enforceable PTE) will not exceed 47.56 tpy CO, 54.10 tpy NO_x, 8.12 tpy PE, 4.30 tpy PM₁₀, 35.30 tpy SO₂ and 6.38 tpy VOC.

D. Conclusion

To avoid triggering a major emissions increase for NO_x and SO₂ by the addition of these six emissions units, the UT requested a rolling 12-month restriction of 1.0 million gallons of distillate fuel oil #2 and 1.0 billion cubic feet of natural gas (1,000,000 Mcft). With these synthetic minor restrictions and after netting calculations performed for the actual usage of the existing boilers, the installation of these emissions units will not require PSD review. This permit will establish

Federally enforceable emissions limitation for the facility which will allow UT to remain unaffected by Title V.



PLEASE PROVIDE ADDITIONAL NOTES OR COMMENTS AS NECESSARY:

Source Description

The University of Toledo (UT), located at 2801 W. Bancroft in Toledo, Ohio, has submitted an application to install six identical 600 hp (25.8 mmBtu/hr) steam coil generators in the new central steam plant. This facility currently has eight permitted boilers. The new emissions units are intended to replace four existing boilers: B001 (37.5 mmBtu/hr), B002 (56.3 mmBtu/hr), B003 (37.5 mmBtu/hr) and B010 (65.9 mmBtu/hr). They will be installed in a new central steam plant located in Savage Hall. The remaining existing boilers are located in Carter Hall West (B006), the Health & Education building (B007), Parks Tower (B008), and the Bio-Chemistry building (B009).

The facility is currently considered a Title V minor source for CO, NOx, PM10, SO2 and VOC, although no permit conditions exist to restrict the total fuel usage. With no restrictions, the facility may be considered an existing major source for SO2 for PSD purposes. The new steam generators will be natural gas fired, with No. 2 fuel oil back-up firing capabilities. To avoid a PSD review for SO2 and NOx, UT requested a rolling 12-month restriction of 1.0 million gallons of distillate fuel oil #2 and 1.0 million Mcuft (= 1 billion cubic feet) of natural gas.

The Division of Air Pollution Control (DAPC) has developed model general permits to install (GPTI) and model general permits to operate (GPTO) for select sources in Ohio. The regulations for general permits can be found in OAC rule 3745-31-29 (GPTI) and OAC rule 3745-35-08 (GPTO). A general permit is the same as any permit to install or State permit to operate that DAPC issues except all the terms and conditions of the permit have been developed in advance. We will base the permit terms on the recently issued general permit, however UT will not be able to utilize the general permit system because the permit will have to be issued draft/final to formalize the facility-wide restrictions to avoid undergoing a PSD review.

Note: The permit application included a 30,000 gallon underground storage tank which will qualify for a de minimis permit exemption under OAC rule 3745-15-05(B).

Applicable Regulations

- OAC rule 3745-31-05(A)(3) Best available technology.
- OAC rule 3745-31-05(A)(3)(b) Exemption from BAT for pollutants <10 tpy.
- OAC rule 3745-31-05(C) The permittee has requested federally enforceable restrictions on this emissions unit to avoid major new source review.
- OAC rule 3745-17-07(A)(1) 20% opacity as a 6-minute average, unless otherwise specified by the rule
- OAC rule 3745-17-10(B)(1) 0.020 lb PE/mmBtu actual heat input
- OAC rule 3745-18-06(A) exemption from OAC rule 3745-18-06(D) on days when only natural gas is fired
- OAC rule 3745-18-06(D) 1.6 lbs SO2/mmBtu actual heat input on days when No. 2 fuel oil is fired
- OAC rule 3745-21-07(B) Rescinded
- OAC rule 3745-21-08(B) Rescinded
- OAC rule 3745-23-06(B) Rescinded
- 40 CFR Part 60, Subpart Dc

- § 60.40c Applicability and delegation of authority.
 - (a) the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that



has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).

- § 60.40c (d) no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/MMBtu) heat input; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur.
- (h) For (distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr)), compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.
- § 60.40d imposes no additional particulate restrictions on oil fired steam generating units of less than 8.7 MW (30 mmBtu/hr).

PSD PSD review would apply if any criteria pollutant were currently permitted at greater than 250 tpy. Based on the 197.2 mmBtu/hr total of the equipment to be removed and allowing 10 mmBtu/hr for each of the four remaining boilers, we estimate that the total existing capacity of the facility is less than 240 mmBtu/hr. Using emissions levels established as BAT in the general permit: 0.082 lb CO/mmBtu, 0.14 lb NO_x/mmBtu, 0.014 lb PE/mmBtu, 0.50 lb SO₂/mmBtu and 0.011 lb VOC/mmBtu, the existing facility-wide emissions may be estimated as follows:

$$240 \text{ mmBtu/hr (0.082 lb CO/mmBtu)(8,760 hrs/yr)} \div (2,000 \text{ lbs/ton}) = 86$$

$$240 \text{ mmBtu/hr (0.14 lb NO}_x\text{/mmBtu)(8,760 hrs/yr)} \div (2,000 \text{ lbs/ton}) = 147$$

$$240 \text{ mmBtu/hr (0.014 lb PE/mmBtu)(8,760 hrs/yr)} \div (2,000 \text{ lbs/ton}) = 15$$

$$240 \text{ mmBtu/hr (0.50 lb SO}_2\text{/mmBtu)(8,760 hrs/yr)} \div (2,000 \text{ lbs/ton}) = 526$$

$$240 \text{ mmBtu/hr (0.011 lb VOC/mmBtu)(8,760 hrs/yr)} \div (2,000 \text{ lbs/ton}) = 12$$

Therefore, without additional restrictions, UT will be considered to be a major for SO₂, and PSD review will apply.

Source Emissions

BAT was established in the general permit as 0.082 lb CO/mmBtu, 0.14 lb NO_x/mmBtu, 0.014 lb PE/mmBtu, 0.50 lb SO₂/mmBtu and 0.011 lb VOC/mmBtu with a VE of 10% opacity, as a six-minute average, except for one 6-minute period per hour of not more than 27% opacity.

First estimate PTE for each boiler for the regulated pollutants:

CO: (25.8 mmBtu/hr)(0.082 lb CO/mmBTU) = 2.12 lb/hr
(2.12 lb/hr)(8,760 hrs/yr) ÷ (2,000 lbs/ton) = 9.29 tpy

NO_x: (25.8 mmBtu/hr)(0.14 lb NO_x/mmBtu) = 3.61 lb/hr
(3.61 lb/hr)(8,760 hrs/yr) ÷ (2,000 lbs/ton) = 15.82 tpy

PE: (25.8 mmBtu/hr)(0.014 lb PE/mmBtu) = 0.36 lb/hr
(0.36 lb/hr)*(8,760 hrs/yr) ÷ (2,000 lbs/ton) = 1.58 tpy



$$\text{SO}_2: (25.8 \text{ mmBtu/hr})(0.50 \text{ lb SO}_2/\text{mmBtu}) = 12.90 \text{ lb/hr}$$

$$(12.90 \text{ lb/hr})(8,760 \text{ hrs/yr}) \div (2,000 \text{ lbs/ton}) = 56.50 \text{ tpy}$$

$$\text{VOC: } (25.8 \text{ mmBtu/hr})(0.011 \text{ lb VOC/mmBtu}) = 0.28 \text{ lbs/hr}$$

$$(0.28 \text{ lbs/hr})(8,760 \text{ hrs/yr}) \div (2,000 \text{ lbs/ton}) = 1.23 \text{ tpy}$$

At these levels SB-265 allows an exemption from the establishment of a BAT limitation for CO, PE and VOC.

The company submitted manufacturer's test data indicating an emission factor of 0.08 pound of NOx per mmBtu for natural gas while utilizing flue gas recirculation for control and 0.19 pound of NOx per mmBtu for the uncontrolled combustion of #2 distillate fuel oil. Compared to the general permit limitation of 0.14 pound per mmBtu, the oil emissions factor appears high. The company has stated that fuel oil is to be used as standby only and usage will be limited. Additionally they added that the compact nature of a steam coil generator (when compared to a fire-tube boiler) may render the AP-42 emissions factors inapplicable for oil. Fuel gas recirculation during oil combustion is not an available option on this boiler. We will accept the manufacturer's emissions as BAT.

revised PTE for for NOx each boiler without restrictions

$$\text{NOx oil } (25.8 \text{ mmBtu/hr})(0.19 \text{ lb NOx/mmBtu}) = 4.90 \text{ lb/hr}$$

$$(4.90 \text{ lbs/hr})(8,760 \text{ hrs/yr}) \div (2,000 \text{ lbs/ton}) = 21.46 \text{ tpy}$$

$$\text{gas } (25.8 \text{ mmBtu/hr})(0.08 \text{ lb NOx/mmBtu}) = 2.06 \text{ lb/hr}$$

$$(4.90 \text{ lbs/hr})(8,760 \text{ hrs/yr}) \div (2,000 \text{ lbs/ton}) = 9.02 \text{ tpy}$$

unrestricted TPY emissions evaluation

pollutant	CO	NOx	PE	PM10	SO2	VOC
each emissions unit	9.29	21.46	1.58	-	56.50	1.23
6 emissions units	55.74	128.76 ¹	9.48	-	339.00 ¹	7.38
PSD significant increase	100	40	25	15	40	40

¹ additional restrictions will be necessary to avoid PSD review

NOTE: A 30,000 gallon underground storage tank will be installed with the new boilers. AP-42 table 5.2-7, EVAPORATIVE EMISSIONS FROM GASOLINE SERVICE STATION OPERATIONS, lists emissions from the filling of an underground storage tank with gasoline as 7.3 lb/1000 gal for submerged filling and 1.0 lb/1000 gal for breathing losses (8.3 lb/1000 gal total). In Table 5.2-5, TOTAL UNCONTROLLED ORGANIC EMISSION FACTORS FOR PETROLEUM LIQUID RAIL TANK CARS AND TANK TRUCKS, losses for the submerged filling of cargo tanks as 5 lb/1000 gal and 0.014 lb/1000 gal for #2 fuel oil. Assuming that the ratios of 0.014:5 is valid for the filling of a similar underground tank, and allowing for the even delivery of fuel to the storage tank over a 365 day year:

$$1,000,000 \text{ gal/yr } (1 \text{ yr}/365 \text{ d})(8.3 \text{ lb VOC}/1000 \text{ gal})(0.014/5) = 0.06 \text{ lb VOC/d}$$

This level of emissions qualifies for a permit exemption under OAC rule 3745-15-05(B).



Permit Allowable Emissions

The University of Toledo has volunteered fuel restrictions of 1.0 million gallon per year fuel oil and 1.0 million Mcuft per year of natural gas to avoid a significant increase status for SO2 and NOx.

where,

$(25.8 \text{ mmBtu/hr})(6 \text{ emissions units})(8760 \text{ hours/yr}) = 1,356,000 \text{ mmBtu/yr}$ is the unrestricted total heat input

$(1,000,000 \text{ gal/yr})(0.14 \text{ mmBtu/gal}) = 140,000 \text{ mmBtu/yr}$ utilizing oil

$(1,000,000 \text{ Mcuft/yr})(1,020 \text{ Btu/cuft}) = 1,020,000 \text{ mmBtu/yr}$ utilizing natural gas

$140,000 \text{ mmBtu/yr} + 1,020,000 \text{ mmBtu/yr} = 1,160,000 \text{ mmBtu/yr}$ is the restricted total heat input

CO: $(1,160,000 \text{ mmBtu/yr})(0.082 \text{ lb CO/mmBTU})(1 \text{ t}/2000 \text{ lb}) = 47.56 \text{ tpy}$

NOx: $0.08 \text{ lb NOx/mmBtu} (1,020,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 40.80 \text{ ton NOx/yr}$ from gas

$0.19 \text{ lb NOx/mmBtu} (140,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 13.30 \text{ ton NOx/yr}$ from oil

total NOx = 54.10 tpy

PE: $(1,160,000 \text{ mmBtu/yr})(0.014 \text{ lb PE/mmBtu})(1 \text{ t}/2000 \text{ lb}) = 8.12 \text{ tpy}$

PM10 $7.6 \text{ lb/mmscft} (1,000,000 \text{ Mcft/yr})(1 \text{ t}/2000 \text{ lb}) = 3.80 \text{ ton/yr}$ from gas

$1.00 \text{ lb}/1000 \text{ gal} (1,000,000 \text{ gal/yr})(1 \text{ t}/2000 \text{ lb}) = 0.50 \text{ ton/yr}$ from oil

total PM10 = 4.30 tpy

SO2: $0.6 \text{ lb SO}_2/\text{mmscft} (1,000,000 \text{ Mcft/yr})(1 \text{ t}/2000 \text{ lb}) = 0.30 \text{ ton SO}_2/\text{yr}$ from gas

$0.50 \text{ lb SO}_2/\text{mmBtu} (140,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 35.00 \text{ ton SO}_2/\text{yr}$ from oil

total SO2 = 35.30 tpy

VOC: $(1,160,000 \text{ mmBtu/yr})(0.011 \text{ lb VOC/mmBtu})(1 \text{ t}/2000 \text{ lb}) = 6.38 \text{ tpy}$

Where the SO2 emission factor for natural gas fired steam generators was found in AP-42 Section 1.4, Natural

Gas Combustion dated 7/98, Tables 1.4-2. and PM10 was evaluated for PSD significance using AP-42 Tables 1.3-6 and 1.4-2 for natural gas combustion (7.6 lb/mmscft) and #2 fuel oil (1.0 lb/1000 gal).

Facility-wide restricted PTE, tpy

	CO	NOx	PE	PM10	SO2	VOC
PTE 6 emissions units	47.56	54.10	8.12	4.30	35.30	6.38
PSD significant increase	100	40	-	15	40	40

At these levels the emissions of NOx exceed the significant increase levels. UT submitted a two year average gas usage of 336548 Mcuft of gas for the four boilers to be removed. These boilers had no oil usage during the most recent two year period. Utilizing AP-42, Section 1.4 values for netting purposes:

$336548 \text{ Mcuft} (100 \text{ lb CO/mmscuft}) \div (2,000 \text{ lbs/ton}) = 16.83 \text{ tpy}$

$336548 \text{ Mcuft} (84 \text{ lb NOx/mmscuft}) \div (2,000 \text{ lbs/ton}) = 14.13 \text{ tpy}$



336548 Mcuft (1.9 lb PE/mmcuft) ÷(2,000 lbs/ton) = 0.32 tpy
 336548 Mcuft (7.6 lb PM10/mmcuft) ÷(2,000 lbs/ton) = 1.28 tpy
 336548 Mcuft (0.6 lb SO2/mmcuft) ÷(2,000 lbs/ton) = 0.10 tpy
 336548 Mcuft (5.5 lb VOC/mmcuft) ÷(2,000 lbs/ton) = 0.93 tpy

Facility-wide emissions increases (tpy) based on the required removal of six existing boilers

	CO	NOx	PE	PM10	SO2	VOC
PTE 6 emissions units	47.56	54.10	8.12	4.30	35.30	6.38
existing actual decrease	16.83	14.13	0.32	1.28	0.10	0.93
increase after netting	30.73	39.97	7.80	3.02	35.20	5.45
PSD significant increase	100	40	-	15	40	40
state modeling levels	100	25	15	10	25	-

At these emissions levels Title V and PSD will not apply. Since UT can not utilize the capacity of the existing units after the new units come on line, there is no need to remove the units before start-up of the new boilers and we will allow up to a year for the existing boilers to be removed from service. Modeling will have to be considered for State purposes for NOx and SO2. Note that since the unrestricted SO2 emissions rate for each emissions unit (56.50 tpy) is greater than the facility-wide restricted PTE for SO2 (35.26 tpy) Ohio EPA will require an additional restriction to the tpy SO2 to be established as a maximum allowable for each emissions unit which is equal to or less than 35.26 tpy:

Where,

$$(1,000,000 \text{ gal/yr})(0.14 \text{ mmBtu/gal}) = 140,000 \text{ mmBtu/yr utilizing oil}$$

PTE operation of one 25.8 mmBtu/hr boiler (8760 hr/yr) = 226,000 mmBtu/yr
 for a potential operation of 226,000 - 140,000 mmBtu/yr = 86,000 mmBtu utilizing natural gas.

$$\text{SO}_2: (86,000 \text{ mmBtu})(0.6 \text{ lb SO}_2/\text{mmscf})(1 \text{ scf}/1020 \text{ Btu}) \div (2,000 \text{ lbs/ton}) = 0.03 \text{ tpy}$$

$$(140,000 \text{ mmBtu/yr})(0.50 \text{ lb SO}_2/\text{mmBtu}) \div (2,000 \text{ lbs/ton}) = 35.00 \text{ tpy}$$

Therefore each emissions unit will be restricted to 35.03 tpy SO2 based on a "worst case" maximum of 1 million gallons of fuel oil being utilized in that emissions unit.

Similarly for NOx individual emissions unit PTE becomes;

$$\text{NO}_x: (86,000 \text{ mmBtu})(0.08 \text{ lb SO}_2/\text{mmBtu}) \div (2,000 \text{ lbs/ton}) = 3.44 \text{ tpy}$$

$$(140,000 \text{ mmBtu/yr})(0.19 \text{ lb SO}_2/\text{mmBtu}) \div (2,000 \text{ lbs/ton}) = 13.30 \text{ tpy}$$

Therefore each emissions unit will be restricted to 16.74 tpy NOx based on a "worst case" maximum of 1 million gallons of fuel oil being utilized in that emissions unit. At this level (PTE < 25 tpy NOx for a boiler) we will not require an initial demonstration of compliance by stack testing.



Modeling

State policy requires modeling of significant emissions increases. For this PTI, NOx and SO2 have significant state modeling increases (based on actual past to future allowables).

increase in allowable = 39.97 tpy NOx (1.15 g/s) and 35.20 tpy SO2 (1.01 g/s).

Hourly mglc from Screens3 = 70.6 ug/g/s or 81.2 ug NOx/m3 & 71.3 ug SO2/m3

Ohio acceptable incremental impact: NOx = 12.5 ug/m3 annual, SO2 = 10 ug/m3 annual, 45.5 ug/m3 24hr and 256 ug/m3 3-hr

ug/m3	NOx		SO2			
	1 hr	annual	1 hr	3 hr	24 hr	annual
state incremental impact	-	12.5	-	256	45.5	10
modeling TDOES	70.6	5.6	71.3	64.2	28.5	5.7

Therefore, with restrictions, this installation passes state modeling requirements.

05/06/08
 16:53:47

*** SCREEN3 MODEL RUN ***
 *** VERSION DATED 96043 ***

UT PTI 04-01507

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
 EMISSION RATE (G/S) = 1.00000
 STACK HEIGHT (M) = 22.5600
 STK INSIDE DIAM (M) = 1.2700
 STK EXIT VELOCITY (M/S)= 19.1868
 STK GAS EXIT TEMP (K) = 456.5000
 AMBIENT AIR TEMP (K) = 293.0000
 RECEPTOR HEIGHT (M) = .0000
 URBAN/RURAL OPTION = URBAN
 BUILDING HEIGHT (M) = 16.4600
 MIN HORIZ BLDG DIM (M) = 61.5700
 MAX HORIZ BLDG DIM (M) = 105.2000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
 VOLUME FLOW RATE = 51500.000 (ACFM)

BUOY. FLUX = 27.172 M**4/S**3; MOM. FLUX = 95.276 M**4/S**2.

*** FULL METEOROLOGY ***



*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	U10M STAB	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH	
1.	.0000	1	1.0	1.1	320.0	248.25	3.25	3.25	NO
100.	59.18	3	4.0	4.7	1280.0	27.91	21.57	20.00	SS
200.	26.85	4	5.0	6.1	1600.0	35.20	30.79	27.20	SS
300.	16.18	4	4.5	5.5	1440.0	46.59	45.36	40.23	SS
400.	11.04	4	4.0	4.9	1280.0	59.21	59.42	52.92	SS
500.	9.643	6	4.0	5.1	10000.0	51.47	50.21	30.24	SS
600.	10.20	6	3.5	4.5	10000.0	54.37	59.27	34.82	SS
700.	11.31	6	1.5	1.9	10000.0	72.31	68.06	39.11	SS
800.	12.35	6	1.5	1.9	10000.0	72.31	76.59	43.15	SS
900.	12.75	6	1.5	1.9	10000.0	72.31	84.89	46.97	SS
1000.	12.73	6	1.5	1.9	10000.0	72.31	92.97	50.60	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

66.	70.55	1	3.0	3.4	960.0	27.11	21.16	16.61	SS
-----	-------	---	-----	-----	-------	-------	-------	-------	----

DWASH= MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** REGULATORY (Default) ***

PERFORMING CAVITY CALCULATIONS
 WITH ORIGINAL SCREEN CAVITY MODEL
 (BRODE, 1988)

*** CAVITY CALCULATION - 1 *** *** CAVITY CALCULATION - 2 ***

CONC (UG/M**3) = .0000	CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99	CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99	CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99	DILUTION WS (M/S) = 99.99

CAVITY HT (M) = 16.66	CAVITY HT (M) = 16.46
CAVITY LENGTH (M) = 70.87	CAVITY LENGTH (M) = 55.68
ALONGWIND DIM (M) = 61.57	ALONGWIND DIM (M) = 105.20

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

END OF CAVITY CALCULATIONS



*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	70.55	66.	0.

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

Please complete:

SUMMARY (for informational purposes only)
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
------------------	----------------------

CO	47.56 (30.73 increase)
NOx	54.10 (39.97 increase)
PE	8.12 (7.80 increase)
PM10	4.30 (3.02 increase)
SO2	35.30 (35.20 increase)
VOC	6.38 (5.45 increase)



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

DRAFT

**Air Pollution Permit-to-Install and Operate
for
UNIVERSITY OF TOLEDO - MAIN CAMPUS**

Facility ID: 0448010805
Permit Number: 04-01507
Permit Type: Initial installation
Issued: 7/22/2008
Effective: To be entered upon final issuance
Expiration: To be entered upon final issuance



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Air Pollution Permit-to-Install and Operate
for
UNIVERSITY OF TOLEDO - MAIN CAMPUS

Table of Contents

- Authorization 1
- A. Standard Terms and Conditions 3
 - 1. What does this permit-to-install and operate ("PTIO") allow me to do?..... 4
 - 2. Who is responsible for complying with this permit? 4
 - 3. What records must I keep under this permit? 4
 - 4. What are my permit fees and when do I pay them?..... 4
 - 5. When does my PTIO expire, and when do I need to submit my renewal application? 4
 - 6. What happens to this permit if my project is delayed or I do not install or modify my source? 5
 - 7. What reports must I submit under this permit? 5
 - 8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit? 5
 - 9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?... 5
 - 10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report? 6
 - 11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located? 6
 - 12. What happens if one or more emissions units operated under this permit is/are shut down permanently? 6
 - 13. Can I transfer this permit to a new owner or operator? 6
 - 14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"? 7
 - 15. What happens if a portion of this permit is determined to be invalid? 7
- B. Facility-Wide Terms and Conditions 8
- C. Emissions Unit Terms and Conditions 10
 - 1. Emissions Unit Group-600 hp Steam Coil Generators: B011, B012, B013, B014, B015, B016, 11



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

Authorization

Facility ID: 0448010805
Application Number(s): A0005475
Permit Number: 04-01507
Permit Description: six 600 hp steam generators.
Permit Type: Initial installation
Permit Fee: \$2,400.00 *DO NOT send payment at this time - subject to change before final issuance*
Issue Date: 7/22/2008
Effective Date: To be entered upon final issuance
Expiration Date: To be entered upon final issuance
Permit Evaluation Report (PER) Annual Date: To be entered upon final issuance

This document constitutes issuance to:

UNIVERSITY OF TOLEDO - MAIN CAMPUS
2801 W BANCROFT ST
TOLEDO, OH 43606

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

Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Toledo Department of Environmental Services
348 South Erie Street
Toledo, OH 43604
(419)936-3015

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (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 described emissions unit(s) will operate in compliance with applicable State and Federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Chris Korleski
Director



Authorization (continued)

Permit Number: 04-01507
Permit Description: six 600 hp steam generators.

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

Group Name: 600 hp Steam Coil Generators

Emissions Unit ID:	B011
Company Equipment ID:	Steam Coil Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B012
Company Equipment ID:	600 hp Steam Coil Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B013
Company Equipment ID:	600 hp Steam Coil Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B014
Company Equipment ID:	600 hp Steam Coil Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B015
Company Equipment ID:	600 hp Steam Coil Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B016
Company Equipment ID:	600 hp Steam Coil Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

A. Standard Terms and Conditions



1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

- PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the Toledo Department of Environmental Services in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means 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.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

B. Facility-Wide Terms and Conditions



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) None.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

C. Emissions Unit Terms and Conditions



1. Emissions Unit Group - 600 hp Steam Coil Generators: B011, B012, B013, B014, B015, B016,

EU ID	Operations, Property and/or Equipment Description
B011	600 Hp (25.8 mmBtu/hr) Steam Generator natural gas fired with flue gas re-circulation, and standby distillate fuel oil
B012	600 Hp (25.8 mmBtu/hr) Steam Generator natural gas fired with flue gas re-circulation, and standby distillate fuel oil
B013	600 Hp (25.8 mmBtu/hr) Steam Generator natural gas fired with flue gas re-circulation, and standby distillate fuel oil
B014	600 Hp (25.8 mmBtu/hr) Steam Generator natural gas fired with flue gas re-circulation, and standby distillate fuel oil
B015	600 Hp (25.8 mmBtu/hr) Steam Generator natural gas fired with flue gas re-circulation, and standby distillate fuel oil
B016	600 Hp (25.8 mmBtu/hr) Steam Generator natural gas fired with flue gas re-circulation, and standby distillate fuel oil

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. a) through f)

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(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. 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(C)	The combined emissions of nitrogen oxides (NOx) from emissions units B011 through B016 shall not exceed 54.10 tons per rolling, 12-month period.
		The combined emissions of sulfur dioxide (SO2) from emissions units B011 through B016 shall not exceed 35.30 tons per rolling, 12-month period.
		See b)(2)a., b)(2)b. and b)(2)c.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
b.	OAC rule 3745-31-05(A)(3)	<p>The emissions of NO_x from this emissions unit when combusting natural gas shall not exceed 0.08 pound per mmBtu of heat input.</p> <p>The emissions of NO_x from this emissions unit when combusting distillate fuel oil shall not exceed 0.19 pound per mmBtu of heat input.</p> <p>The emissions of nitrogen oxides (NO_x) from this emissions unit shall not exceed 16.74 tons per year.</p> <p>The emissions of SO₂ from this emissions unit when combusting natural gas shall not exceed 0.6 pound per million cubic feet.</p> <p>The emissions of SO₂ from this emissions unit shall not exceed 35.03 tons per year.</p> <p>See b)(2)d. and b)(2)e.</p>
c.	OAC rule 3745-31-05(A)(3)(b)	<p>The best available technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the uncontrolled carbon monoxide (CO) emissions, particulate emissions (PE) and volatile organic compound (VOC) emissions from this air contaminant source since the potential to emit for CO, PE and VOC is less than 10 tons per year.</p>
d.	OAC rule 3745-17-07(A)(1)	<p>Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average, except as provided by rule.</p> <p>See b)(2)f.</p>
e.	OAC rule 3745-17-10(B)(1)	<p>PE shall not exceed 0.020 pound per million Btu of actual heat input.</p> <p>See b)(2)f.</p>
f.	OAC rule 3745-18-06(D)	<p>Exempt, by the provisions of OAC rule 3745-18-06(A) during any calendar day in which natural gas is the only fuel burned.</p> <p>See b)(2)g.</p>
g.	OAC rule 3745-21-08(B)	See b)(2)h.
h.	40 CFR Part 60, Subpart Dc	<p>During any calendar day in which fuel oil is burned, the emissions of SO₂ from this emissions unit shall not exceed 215 nanograms per Joule (0.50 pound SO₂ per million Btu) heat input;</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>or, as an alternative</p> <p>the permittee shall combust no oil that contains greater than 0.5 weight percent sulfur.</p> <p>See b)(2)i.</p>

(2) Additional Terms and Conditions

- a. The facility-wide usage of distillate fuel oil shall not exceed 1.0 million gallons as a rolling, 12-month summation of oil received.
- b. The facility-wide usage of natural gas shall not exceed 1.0 billion standard cubic feet (1.0 million Mscf) as a rolling, 12-month summation of natural gas received.
- c. The permittee shall permanently shutdown the existing emissions units B001, B002, B003 and B010 within one calendar year of the start-up of this emissions unit.
- d. The hourly and annual emissions limitations were established for PTI purposes to reflect the potential to emit for this inherently clean emissions unit at the maximum firing rate. Therefore, a fuel restriction to the combustion of natural gas and 1.0 million gallons per year of distillate fuel oil will ensure compliance with these limitations.
- e. The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart Dc.
- f. This emission limitation reflects the potential to emit for this inherently clean emissions unit at the maximum firing rate. Therefore, a fuel restriction to natural gas and distillate fuel oil will ensure compliance with this limitation.
- g. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- h. The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

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



- i. The application and enforcement of the provisions of the New Source Performance Standards (NSPS), as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60, are delegated to the Ohio Environmental Protection Agency. The requirements of 40 CFR Part 60 are also federally enforceable.

c) Operational Restrictions

- (1) The permittee shall only burn natural gas or distillate fuel oil with $\leq 0.5\%$ sulfur by weight in this emissions unit,

or

the quality of the oil burned in this emissions unit shall meet a sulfur content that is sufficient to comply with the allowable sulfur dioxide emission limitation specified in this permit (0.50 pound SO₂ per million Btu of heat input).

- (2) To ensure enforceability during the first 12 calendar months of operation, the permittee shall not exceed the facility-wide usage rates (on an as received basis) specified in the following table:

Month(s)	Maximum Allowable Cumulative	
	Natural Gas Usage Rate, Mscf	Fuel Oil Usage Rate, gallons
1	110,000	250,000
1-2	220,000	500,000
1-3	330,000	750,000
1-4	440,000	1,000,000
1-5	550,000	1,000,000
1-6	660,000	1,000,000
1-7	770,000	1,000,000
1-8	880,000	1,000,000
1-9	990,000	1,000,000
1-10	1,000,000	1,000,000
1-11	1,000,000	1,000,000
1-12	1,000,000	1,000,000

After the first 12 calendar months of operation, compliance with the fuel usage limitation(s) shall be based upon a rolling, 12-month summation of the monthly quantities of fuel(s) received.



d) Monitoring and/or Recordkeeping Requirements

- (1) For each day during which the permittee burns a fuel other than natural gas or distillate fuel oil with $\leq 0.5\%$ sulfur by weight, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (2) For each shipment of oil received for burning at this facility, the permittee shall maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in pounds per million Btu). The sulfur dioxide emission rate shall be calculated in accordance with the formula(s) specified in OAC rule 3745-18-04(F) and 40 CFR 60.44c. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter and D4294, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, or equivalent methods as approved by the director.

- (3) The permittee shall maintain monthly records of the following information:
 - a. the facility-wide natural gas usage rate (in Mscf, on an as received basis) for each month; and
 - b. beginning after the first 12 calendar months of operation following the issuance of this permit, the rolling, 12-month summation of the facility-wide natural gas usage rates (in Mscf).
 - c. the facility-wide distillate fuel oil usage rate (in gallons, on an as received basis) for each month; and
 - d. beginning after the first 12 calendar months of operation following the issuance of this permit, the rolling, 12-month summation of the facility-wide distillate fuel oil usage rates (in gallons).

Also, during the first 12 calendar months of operation following the issuance of this permit, the permittee shall record:

- a. the cumulative distillate facility-wide fuel usage rate(s) for each calendar month (on an as received basis).
- b. the cumulative facility-wide natural gas usage rate(s) for each calendar month on an as-received basis.

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas or distillate fuel oil with 0.5% sulfur by weight was burned in



this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

- (2) The permittee shall notify the director (the Toledo Division of Environmental Services) in writing of any record which shows a deviation from the allowable sulfur dioxide emission limitation contained in this permit, based upon the sulfur dioxide emission rates calculated in accordance with the formula(s) specified in OAC rule 3745-18-04(F) and 40 CFR 60.44c. The notification shall include a copy of such record and shall be sent to the director (the Toledo Division of Environmental Services) within 45 days after the deviation occurs.
- (3) The permittee shall submit semi-annual deviation (excursion) reports summarize the content of the deviation reports above, and that identify all exceedances of the rolling, 12-month facility-wide fuel usage limitation(s) and, for the first 12 calendar months of operation, all exceedances of the maximum allowable cumulative facility-wide fuel usage limitations. The deviation reports shall be submitted by January 31 and July 31 of each year and shall cover the previous 6 calendar months. If no deviations occurred during a semi-annual period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period. These reports shall be submitted to the Toledo Division of Environmental Services, 348 South Erie Street, Toledo, Ohio 43604.
- (4) Pursuant to the NSPS, the permittee is required to report the following information at the appropriate times (if the information has not already been reported):
 - a. construction date (no later than 30 days after such date);
 - b. anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
 - c. actual start-up date (within 15 days after such date);
 - d. date of performance testing (if required, at least 30 days prior to testing); and
 - e. the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

Reports are to be sent to the Toledo Division of Environmental Services and to:

Ohio Environmental Protection Agency

DAPC - Permit Management Unit

P.O. Box 163669

Columbus, Ohio 43216-3669

- (5) The permittee shall submit a summary report identifying the actual date of permanent shutdown for the existing emissions units B001, B002, B003 and B010 no later than 13 calendar months following the start-up of this emissions unit.



f) Testing Requirements

(1) Compliance with the emissions limitation(s) in b) shall be determined in accordance with the following method(s):

a. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average.

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation:

0.08 pound NO_x per mmBtu of heat input when combusting gas

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit using flue gas recirculation based upon manufacturer's emissions factors.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1-4 and Method 7 of 40 CFR, Part 60 Appendix A. Alternate, equivalent methods may be used upon approval by the Toledo Division of Environmental Services.

c. Emission Limitation:

0.19 pound NO_x per mmBtu of heat input when combusting fuel oil

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit based upon manufacturer's emissions factors.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1-4 and Method 7 of 40 CFR, Part 60 Appendix A. Alternate, equivalent methods may be used upon approval by the Toledo Division of Environmental Services.

d. Emissions Limitation:

16.74 tons NO_x per year

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit operating at maximum capacity (25.8 mmBtu per hour) for 8760



hours per year (226,000 mmBtu per year), while utilizing the maximum allowable quantity of fuel oil (1 million gallons per year). At 140 mmBtu per 1000 gallons, fuel oil usage accounts for 140,000 mmBtu of heat input per year. The balance of the heat input from the combustion of natural gas (226,000 - 140,000) equals 86,000 mmBtu per year.

The annual emissions of NOx may be calculated as the sum of the emissions from fuel oil combustion added to the emissions from natural gas combustion. Fuel oil emissions may be calculated by multiplying the technical emissions limitation (0.19 pound of NOx per mmBtu of heat input) by the distillate fuel oil heat input (140,000 mmBtu per year) and dividing by 2000 pounds per ton. Natural gas emissions may be calculated by multiplying the technical emissions limitation (0.08 pound of NOx per mmBtu) by the maximum gas heat input (86,000 mmBtu per year) and dividing by 2000 pounds per ton.

$$(0.19 \text{ lb/mmBtu})(140,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 13.30 \text{ tpy}$$

$$(0.08 \text{ lb/mmBtu})(86,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 3.44 \text{ tpy}$$

e. Emission Limitation:

The combined emissions of NOx from emissions units B011 through B016 shall not exceed 54.10 tons per rolling, 12-month period.

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for six emissions units utilizing the allowable quantity of fuel oil (1 million gallons per year) and the allowable quantity of natural gas (1 million Mscf per year). At 140 mmBtu per 1000 gallons, fuel oil usage accounts for 140,000 mmBtu of heat input per year. At 1020 Btu per scf, natural gas oil usage accounts for 1,020,000 mmBtu of heat input per year.

The annual emissions of NOx may be calculated as the sum of the emissions from fuel oil combustion added to the emissions from natural gas combustion. Fuel oil emissions may be calculated by multiplying the technical emissions limitation (0.19 pound of NOx per mmBtu of heat input) by the distillate fuel oil heat input (140,000 million Btu per year) and dividing by 2000 pounds per ton. Natural gas emissions may be calculated by multiplying the technical emissions limitation (0.08 pound of NOx per mmBtu of heat input) by the natural gas heat input (1,020,000 million Btu per year) and dividing by 2000 pounds per ton.

$$(0.19 \text{ lb/mmBtu})(140,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 13.30 \text{ tpy}$$

$$(0.08 \text{ lb/mmBtu})(1,020,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 40.80 \text{ tpy}$$

f. Emission Limitation:

0.020 pound PE per mmBtu of heat input

Applicable Compliance Method:



Compliance with this emission limitation may be determined by dividing the distillate fuel oil emission factor (2 pounds of PE per 1000 gallons) from AP-42, "Compilation of Air Pollutant Emission Factors", 5th Edition, Section 1.3, Table 1.3-1 (9/98), by the distillate fuel oil heat content (140 mmBtu per per 1000 gallons).

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1-5 of 40 CFR, Part 60 Appendix A. Alternate, equivalent methods may be used upon approval by the Toledo Division of Environmental Services.

g. Emission Limitation:

0.50 pound of SO₂ per mmBtu (215 nanograms per Joule) of heat input

Applicable Compliance Method:

Compliance with the allowable sulfur dioxide emission limitation may be demonstrated by emission rate calculations performed in accordance with the specifications of 40 CFR 60.44c.

If required, the permittee shall demonstrate compliance with this emission limitation through emission tests performed in accordance with Method 19 or Methods 1 through 4 and 6 of 40 CFR, Part 60 Appendix A. Alternate, equivalent methods may be used upon approval by the Toledo Division of Environmental Services.

h. Emission Limitation:

combust no oil that contains greater than 0.5 weight percent sulfur

Applicable Compliance Method:

Compliance may be demonstrated by the methods and procedures of 40 CFR 60.44c. Alternate, equivalent methods may be used upon approval by the Toledo Division of Environmental Services.

i. Emission Limitation:

0.6 pound SO₂ per million cubic feet of heat input when combusting natural gas.

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit based upon the natural gas emission factor (0.6 pound of SO₂ per million cubic feet of natural gas) from AP-42, "Compilation of Air Pollutant Emission Factors", 5th Edition, Section 1.4, Table 1.4-2 (7/98).

If required, the permittee shall demonstrate compliance with this emission limitation through the methods and procedures of OAC rule 3745-18-04(E)(3). Alternate, equivalent methods may be used upon approval by the Toledo Division of Environmental Services.



j. Emission Limitation:

35.03 tons SO2 per year

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit operating at maximum capacity (25.8 mmBtu per hour) for 8760 hours per year (226,000 mmBtu per year), while utilizing the maximum allowable quantity of fuel oil (1 million gallons per year). At 140 mmBtu per 1000 gallons, fuel oil usage accounts for 140,000 mmBtu of heat input per year. The balance of the heat input from the combustion of natural gas (226,000 - 140,000) equals 86,000 mmBtu per year. At 1,020 Btu per cubic foot of natural gas this usage equates to 84.3 million cubic feet of natural gas combusted per year.

The annual emissions of SO2 may be calculated as the sum of the emissions from fuel oil combustion added to the emissions from natural gas combustion. Fuel oil emissions may be calculated by multiplying the technical emissions limitation (0.50 pound of SO2 per mmBtu of heat input) by the distillate fuel oil heat input (140,000 million Btu per year) and dividing by 2000 pounds per ton. Natural gas emissions may be calculated by multiplying the technical emissions limitation (0.6 pound of SO2 per million cubic feet of natural gas) by the maximum fuel oil usage rate (84.3 million cubic feet of natural gas per year) and dividing by 2000 pounds per ton.

$$(0.50 \text{ lb/mmBtu})(140,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 35.00 \text{ tpy}$$

$$(0.6 \text{ lb/mmcf})(84.3 \text{ mmcf/yr})(1 \text{ t}/2000 \text{ lb}) = 0.03 \text{ tpy}$$

k. Emission Limitation:

The combined emissions of sulfur dioxide (SO2) from emissions units B011 through B016 shall not exceed 35.30 tons per rolling, 12-month period.

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for six emissions units utilizing the allowable quantity of fuel oil (1 million gallons per year) and the allowable quantity of natural gas (1 million Mscft per year). At 140 mmBtu per 1000 gallons, fuel oil usage accounts for 140,000 mmBtu of heat input per year.

The annual emissions of SO2 may be calculated as the sum of the emissions from fuel oil combustion added to the emissions from natural gas combustion. Fuel oil emissions may be calculated by multiplying the technical emissions limitation (0.50 pound of SO2 per mmBtu of heat input) by the distillate fuel oil heat input (140,000 million Btu per year) and dividing by 2000 pounds per ton. Natural gas emissions may be calculated by multiplying the technical emissions limitation (0.6 pound of SO2 per million cubic feet of natural gas) by the maximum natural gas usage rate (1,000 million cubic feet of natural gas per year) and dividing by 2000 pounds per ton.



State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Draft Permit-to-Install and Operate

Permit Number: 04-01507

Facility ID: 0448010805

Effective Date: To be entered upon final issuance

$$(0.50 \text{ lb/mmBtu})(140,000 \text{ mmBtu/yr})(1 \text{ t}/2000 \text{ lb}) = 35.00 \text{ tpy}$$

$$(0.6 \text{ lb/mmcuft})(1,000 \text{ mmcuft/yr})(1 \text{ t}/2000 \text{ lb}) = 0.30 \text{ tpy}$$

g) Miscellaneous Requirements

(1) None.