State of Ohio Environmental Protection Agency

Street Address: Lazarus Gov. Center **TELE:** (614) 644-3020 **FAX:** (614) 644-2329 Mailing Address: Lazarus Gov. Center

RE: **FINAL PERMIT TO INSTALL MODIFICATION** CERTIFIED MAIL
ALLEN COUNTY
Application No: 03-11250

DATE: 10/28/2004

BP Chemicals Inc
Charles Treloar
1900 Fort Amanda Rd
Lima, OH 45802-0628

Enclosed Please find a modification to the Ohio EPA Permit To Install referenced above which will modify the terms and conditions.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,

Michael W. Ahern

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

cc: USEPA NWDO

OhioEPA

STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

Permit To Install **Issue Date: 10/28/2004**
Terms and Conditions **Effective Date: 10/28/2004**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 03-11250

Application Number: **03-11250**
APS Premise Number: **0302020015**
Permit Fee: **$1750**
Name of Facility: **BP Chemicals Inc Treloar**
Person to Contact: **Charles**
Address: **1900 Fort Amanda Rd**
Lima, OH 45802-0628

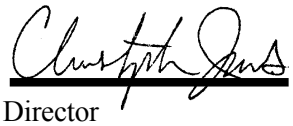
Location of proposed air contaminant source(s) [emissions unit(s)]:
1900 Fort Amanda Rd
Lima, **OHIO**

Description of modification:
Administrative modification of PTI 03-11250 issued on 11/10/98, modified 12/05/02 and 07/10/03. Modification to revise particulate limitations for emission units N006 and P905.

The above named entity is hereby granted a modification to the permit to install described above pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this modification does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source(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 included in the application, the above described source(s) of pollutants will be granted the necessary operating permits.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Director

GENERAL PERMIT CONDITIONS

TERMINATION OF PERMIT TO INSTALL

Substantial construction for installation must take place within 18 months of the effective date of this permit. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

NOTICE OF INSPECTION

The Director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above-named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, or to examine records or reports pertaining to the construction, modification or installation of the source(s) of environmental pollutants identified within this permit.

CONSTRUCTION OF NEW SOURCES

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

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

PERMIT TO INSTALL FEE

In accordance with Ohio Revised Code 3745.11, the specified Permit to Install fee must be remitted within 30 days of the effective date of this permit to install.

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.

APPLICABILITY

This Permit to Install is applicable only to the contaminant sources identified. Separate application must be made to the Director for the installation or modification of any other contaminant sources.

BEST AVAILABLE TECHNOLOGY

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

SOURCE OPERATION AND OPERATING PERMIT REQUIREMENTS AFTER COMPLETION OF CONSTRUCTION

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

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

BP Chemicals Inc Facility ID: **0302020015**
PTI Application: 03-11250
Modification Issued: 10/28/2004

AIR EMISSION SUMMARY

The air contaminant emissions units listed below comprise the Permit to Install for **BP Amoco Chemical Company -Lima Chemicals Complex** located in **Allen** County. The emissions units listed below shall not exceed the emission limits/control requirements contained in the table. This condition in no way limits the applicability of any other state or federal regulations. Additionally, this condition does not limit the applicability of additional special terms and conditions of this permit.

Ohio EPA Source Number	P801 Cont'd			
P801		T094	T096	T097
		T095		T098

BP Chemicals Inc Facility ID: **0302020015**
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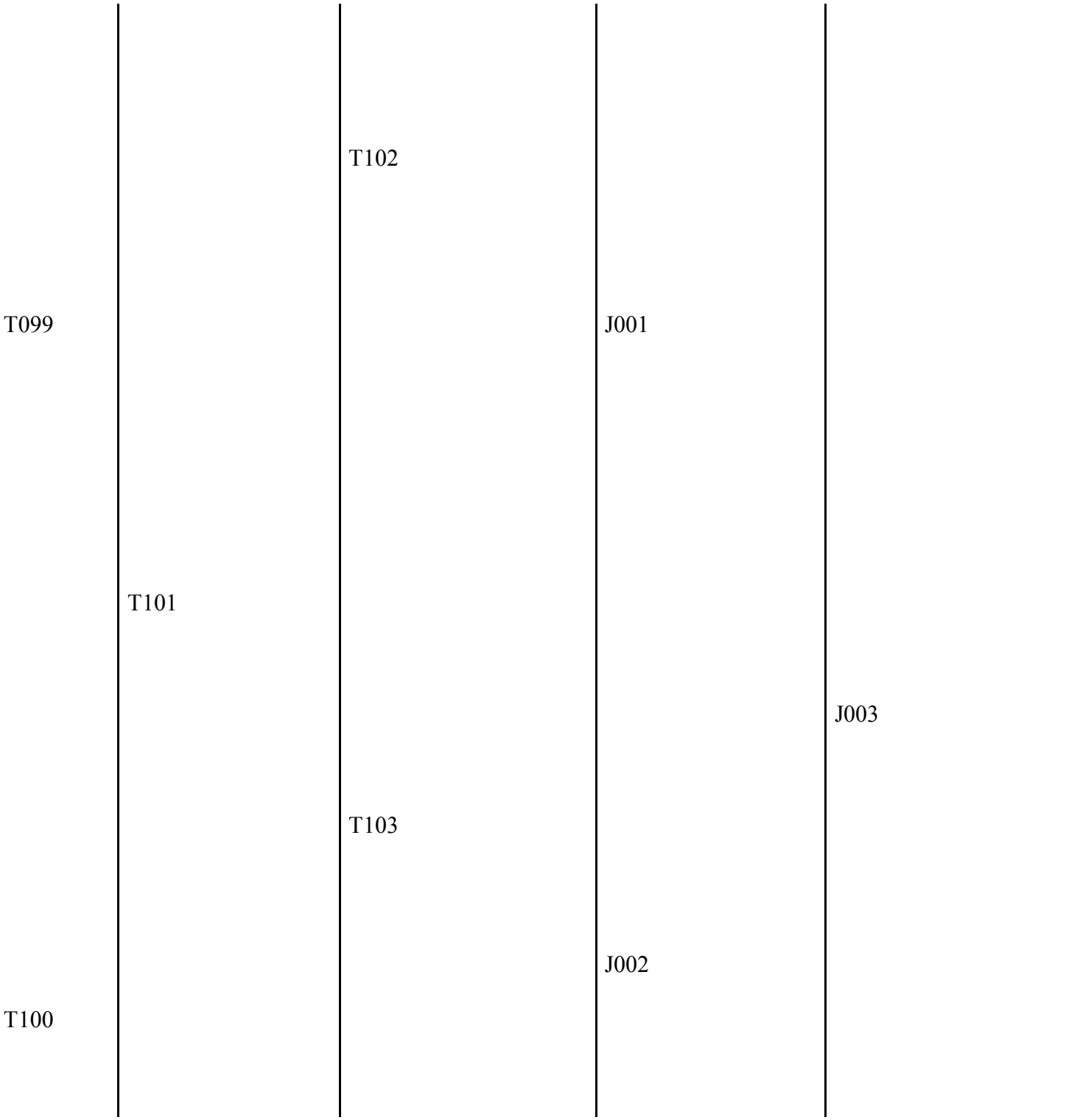

BP Chemicals Inc Facility ID: **0302020015**
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N006		P905 Cont'd		Source Identification Description Butanediol Manufacturing Plant No. 1: Maleic anhydride reactor and recovery section, Maleic acid solution surge tank, Maleic acid hydrogenation section, Butanediol recovery and purification section, Butane feedstock supply section
	P905	P076		

	Butanediol product rundown tank - No. 60)	No. 62)	with internal floating roof (12,000 gallon thermal oxidizer wastewater feed tank - No. 64)	Fixed roof storage tank with internal floating roof (52,000 gallon Process slop water tank - No. 66)
	Fixed roof storage tank (32,000 gallon Butanediol product rundown tank - No. 61)	Fixed roof storage tank with internal floating roof (12,000 gallon wastewater holding tank - No. 63)	Fixed roof storage tank with internal floating roof (52,000 gallon Tetrahydro-furan/water solution tank - No. 65)	Fixed roof storage tank (750,000 gallon Butanediol product storage tank - No. 67)
Fixed roof storage tank (32,000 gallon	Fixed roof storage tank (32,000 gallon Butanediol product rerun tank -	Fixed roof storage tank		

	Fixed roof storage tank (750,000 gallon Butanediol product storage tank - No. 69)	Tetrahydro-furan/water solution loading facilities (1 truck and 1 railcar loading rack)	
Fixed roof storage tank (750,000 gallon Butanediol product storage tank - No. 68)			Butanediol manufacturing plant no. 1 scrubber off gas boiler (SOGB)
	Butanediol loading facilities (1 truck and 2 railcar loading racks)		
		Butane railcar/truck unloading rack operations	

Maleic anhydride reactor catalyst handling system: catalyst make-up transfers, and catalyst drum handling	Non-contact cooling tower system (Butanediol manufacturing plant no. 1)	BAT Determination Use of scrubber off-gas incinerator (SOGB) with low $N0_x$ burners for control of maleic acid scrubber vent emissions; use of flare for all vent streams not routed to SOGBand compliance with the terms and conditions of this permit		Use of submerged fill and compliance with the terms and conditions of this permit
			Use of submerged fill and compliance with the terms and conditions of this permit	Use of submerged fill, storage of nonphotochemically reactive material (PRM) as defined by OAC 3745-21-01(C)(5) and compliance with the terms and conditions of this permit

		Compliance with 40 CFR Part 60, Subpart Kb, storage of non-photochemically reactive material as defined by OAC 3745-21-01(C)(5) and compliance with the terms and conditions of this permit		non-photochemically reactive material as defined by OAC 3745-21-01(C)(5) and compliance with the terms and conditions of this permit
Use of internal floating roof and compliance with the terms and conditions of this permit			Use of submerged fill, storage of non-photochemically reactive material as defined by OAC 3745-21-01(C)(5) and compliance with the terms and conditions of this permit	
	Compliance with 40 CFR Part 60, Subpart Kb, storage of non-photochemically reactive material as defined by OAC 3745-21-01(C)(5) and compliance with the terms and conditions of this permit			Loading of non-photochemically reactive material as defined by OAC 3745-21-01(C)(5), use of submerged fill and compliance with the terms and conditions of this permit
Use of internal floating roof and compliance with the terms and conditions of this permit		Use of submerged fill, storage of non-photochemically reactive material as defined by OAC 3745-21-01(C)(5) and compliance with the terms and conditions of this permit		
			Use of submerged fill, storage of	

Use of flare, loading/unloading of non-photo chemically reactive material as defined by OAC 3745-21-01(C)(5), use of submerged fill, and compliance with the terms and conditions of this permit	Use of flare, unloading of non-photochemically reactive material as defined by OAC 3745-21-01(C)(5), and compliance with the terms and conditions of this permit Achieve a destruction efficiency > 99% for gaseous and liquid waste streams and compliance with the terms and conditions of this permit		Use of particulate filter and compliance with the terms and conditions of this permit	Use of high efficiency drift eliminators and compliance with the terms and conditions of this permit

BP Chemicals Inc Facility ID: **0302020015**
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Applicable Federal & OAC Rules				
40 CFR Part 52.21 OAC rule 3745-31-05	40 CFR Part 63, Subpart G 40 CFR Part 60, Subpart III 40 CFR Part 60, Subpart NNN 40 CFR Part 60, Subpart RRR* OAC rule 3745-21-09(EE) 40 CFR Part 63, Subpart H 40 CFR Part 60, Subpart VV OAC rule 3745-21-09 (DD) OAC rule 3745-21-07(G) 40 CFR, Part 63, Subpart F 40 CFR, Part 63, Subpart A	OAC rule 3745-31-05 40 CFR Part 60, Subpart VV OAC rule 3745-21-09 (DD) OAC rule 3745-31-05 40 CFR Part 60, Subpart VV OAC rule 3745-21-09 (DD)	OAC rule 3745-31-05 OAC rule 3745-21-07 (D) 40 CFR Part 60, Subpart VV OAC rule 3745-21-09 (DD) OAC rule 3745-31-05 40 CFR Part 60, Subpart VV 3745-21-09 (DD)	OAC rule 3745-31-05 40 CFR Part 60, Subpart VV OAC rule 3745-21-09 (DD) OAC rule 3745-31-05 OAC rule 3745-21-07 (D) 40 CFR Part 60, Subpart Kb 40 CFR Part 60, Subpart VV

OAC rule 3745-21-09 (DD)		3745-21-07 (D)		
	OAC rule 3745-31-05			40 CFR Part 60, Subpart VV
		40 CFR Part 60, Subpart VV	OAC rule 3745-21-07 (E)	OAC rule 3745-21-09 (DD)
OAC rule 3745-31-05		OAC rule 3745-21-09 (DD)		
			40 CFR Part 60, Subpart VV	OAC rule 3745-31-05
	OAC rule 3745-21-07 (D)		3745-21-09 (DD)	
		OAC rule 3745-31-05		
	40 CFR Part 60, Subpart VV			
OAC rule 3745-21-07 (D)			OAC rule 3745-31-05	
	OAC rule 3745-21-09 (DD)			
		OAC rule 3745-21-07 (D)		
40 CFR Part 60, Subpart Kb				40 CFR Part 52.21OAC rule 3745-31-05
	OAC rule 3745-31-05	40 CFR Part 60, Subpart VV		
40 CFR Part 60, Subpart VV		3745-21-09 (DD)		
OAC rule 3745-21-09 (DD)		OAC rule 3745-31-05		
	OAC rule		OAC rule 3745-21-07 (E)	

		OAC rule 3745-17-07(B)		
	40 CFR, Part 63, Subpart F		Permit Allowable Mass Emissions and/or Control/Usage Requirements	See A.4
		OAC rule 3745-17-08(B)		
	40 CFR, Part 63, Subpart G			See A.5
		OAC rule 3745-17-11(B)	The emissions from this process that are vented to the scrubber off-gas boiler (SOGB) are accounted for in emission allowables for N006	
	40 CFR, Part 63, Subpart H			See A.6
		40 CFR Part 52.21		
	40 CFR, Part 63, Subpart A	OAC rule 3745-31-05		See A.11
	40 CFR, Part 60, Subpart A			See A.2
OAC rule 3745-17-07(A)	OAC rule 3745-23-06(B)		Emissions from this process vented to the flare: 0.04 pound PE/hour; 0.17 ton PE/year	See A.3
OAC rule 3745-21-07(G)	OAC rule 3745-21-08(B)		7.5 pounds VOC/hour; 32.85 tons VOC/year	See A.3
40 CFR Part 60, Subpart VV	40 CFR Part 52.21	40 CFR Part 63, Subpart F	4.8 pounds CO/hour; 21.02 tons CO/year	See A.1
	OAC rule 3745-31-05	OAC rule 3745-17-11(A)	0.88 pound NOx/hour; 3.86 tons NOx/year	See A.2
OAC rule 3745-21-09 (DD)		OAC rule 3745-17-07(A)	0.47 pound SO2/hour; 2.06 tons SO2/year	See A.2
40 CFR Part 60, Subpart Db			No visible emissions from the flare [See B.1.b.i.(a)]	0.04 ton VOC/year
OAC rule 3745-17-09	OAC rule 3745-17-07 (A)		Fugitive Process Emissions: 5.37 tons VOC/year	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801
			See A.8 and A.10	
OAC rule 3745-18-06			See A.2 and A.7	Implementation of Site LDAR Program**

Implementation of Site LDAR Program**	(See Additional Special Terms and Conditions)	allowables for P801	the permittee is storing non-PRM	Site LDAR Program**
	0.04 ton VOC/year	Implementation of Site LDAR Program**	Internal floating roof	(See Additional Special Terms and Conditions)
(See Additional Special Terms and Conditions)	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801	Implementation of Site LDAR Program**	Implementation of Site LDAR Program**	0.16 ton VOC/year
		(See Additional Special Terms and Conditions)	Implementation of Site LDAR Program**	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801
0.04 ton VOC/year		0.22 ton VOC/year	(See Additional Special Terms and Conditions)	Not applicable as long as the permittee is storing non-PRM
Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801	Not applicable as long as the permittee is storing non-PRM	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801	0.08 ton VOC/year	Implementation of Site LDAR Program**
	Implementation of Site LDAR Program**	Implementation of Site LDAR Program**	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801	Implementation of Site LDAR Program**
	Implementation of Site LDAR Program**	Implementation of Site LDAR Program**		(See Additional Special Terms and Conditions)
	(See Additional Special Terms and Conditions)	(See Additional Special Terms and Conditions)	Not applicable as long as the permittee is storing non-PRM	0.16 ton VOC/year
Implementation of Site LDAR Program**	0.22 ton VOC/year	0.247 ton VOC/year	Internal floating roof	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801
Implementation of Site LDAR Program**	Fugitive emissions associated with regulated components are accounted for in fugitive emission	Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801	Implementation of Site LDAR Program**	
		Not applicable as long as	Implementation of	Not applicable as long as the permittee is storing

non-PRM Implement ation of Site LDAR Program** Implement ation of Site LDAR Program** Implement ation of Site LDAR Program** (See Additional Special Terms and Conditions) 0.16 ton VOC/year Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801 Not applicable as long as the permittee is storing non-PRM	Implementation of Site LDAR Program** Implementation of Site LDAR Program** (See Additional Special Terms and Conditions) 0.1 ton VOC/year Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801 Not applicable as long as the permittee is storing non-PRM Implementation of Site LDAR Program** (See Additional Special Terms and Conditions) Emissions from this process vented to the flare: 0.16 ton VOC/year	No visible flare emissions Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801 Not applicable as long as the permittee is loading/ unloading non-PRM Implementation of Site LDAR Program** Implementation of Site LDAR Program** (See Additional Special Terms and Conditions) Emissions from this process vented to the flare: 0.12 pound VOC/hour; 0.53 ton VOC/year No visible flare emissions Fugitive Emissions: 1.81 tons VOC/year (See Additional Special Terms and Conditions) 57.0 pounds VOC/hour 250.0 tons VOC/year 186.0 pounds CO/hour 814.7 tons CO/year	23.0 pounds NOx/hour, based upon a rolling, 24-hour average 102.0 tons NOx/year 5.8 pounds PE/hour 25.40 tons PE/year 5.0 pounds SO2/hour, based upon a 30-day rolling average 21.90 tons SO2/year Visible PE shall not exceed 10 percent opacity as a six-minute average See A.12 through A.14 See A.11 See A.1 See A.3 See A.3 See A.15. See A.11. See A.11. See A.15. See A.7, A.15. and A.16.	See A.15 See A.15 See A.15 See A.17 See A.17 Stack Emissions: 0.20 pound PE/hour 0.14 ton PE/year Fugitive Emissions: 0.05 tons PE/year Visible emissions of fugitive dust shall not exceed 20 percent opacity as a three-minute average The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A). Visible particulate emissions shall not exceed 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule See A.18 See A.19

See A.11.	a six-minute average, except as otherwise provided by rule
0.184 pound PE/hour 0.81 ton PE/year 0.22 pound VOC/hour 0.96 ton VOC/ year	
The requirements of this rule include compliance with the requirements of OAC rule 3745-17-07(A) and 40 CFR, Part 63, Subpart F.	
See A.21	
****	
20 percent opacity as	

* The applicable control requirements established by this New Source Performance Standard overlaps the control requirements established by 40 CFR Part 63, Subpart G. The overlap of applicable regulations is addressed in 40 CFR 63.110(d).

** The facility implemented LDAR program plan defines and complies with all the requirements of 40 CFR Part 63 - Subpart H, 40 CFR Part 60 - Subpart VV, and OAC rule 3745-21-09(DD). The facility may elect to comply with alternative requirements as provided by these rules (i.e. rule overlap provisions).

*** The PE limitations are inclusive of and assumed to be PM_{10}.

**** Applicable requirements established by this rule are equivalent to or less stringent than requirements established by OAC rule 3745-31-05.

SUMMARY
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant	Tons/Year
Volatile Organic Compound (VOC)	293.12
Carbon Monoxide (CO)	835.72
Nitrogen Oxides ($N0_x$)	105.86
Sulfur Dioxide ($S0_2$)	23.96
Particulate Emissions (PE)	*26.57

* The PE limitations are inclusive of and assumed to be PM_{10}.

NSPS REQUIREMENTS

The following sources are subject to the applicable provisions of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60.

Source Number		
P801	T099	T100 J001 J002 N006

Source Description	plant no. 1 scrubber off gas boiler	**NSPS Regulation (Subpart)**
Butanediol Manufacturing Plant No.1: Maleic anhydride reactor and recovery section, maleic acid solution surge tank,		III, NNN, RRR, VV
maleic acid hydrogenation section,		VV, Kb
Butanediol recovery and purification section,		VV, Kb VV
Butane feedstock supply section		VV
Tetrahydrofuran/water solution tank no. 65		VV, Db
Process slop water tank no. 66		
Butanediol loading facilities		
Tetrahydrofuran/water solution loading facilities		
Butanediol manufacturing		

The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to the NSPS, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

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); and
d. date of performance testing (If required, at least 30 days prior to testing).

Reports are to be sent to:

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

and Ohio EPA, Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402

REPORTING REQUIREMENTS

Unless otherwise specified, reports required by the Permit to Install need only be submitted to **Ohio EPA, Northwest District Office, 347 North Dunbridge Road, Bowling Green, OH 43402**.

WASTE DISPOSAL

The owner/operator shall comply with any applicable state and federal requirements governing the storage, treatment, transport and disposal of any waste material generated by the operation of the sources.

MAINTENANCE OF EQUIPMENT

This source and its associated air pollution control system(s) shall be maintained regularly in accordance with good engineering practices and the recommendations of the respective manufacturers in order to minimize air contaminant emissions.

MALFUNCTION/ABATEMENT

In accordance with OAC RULE 3745-15-06, any malfunction of the source(s) or associated air pollution control system(s) shall be reported immediately to the **Ohio EPA, Northwest District Office, 347 North Dunbridge Road, Bowling Green, OH 43402**.

Except as provided by OAC Rule 3745-15-06(A)(3), scheduled maintenance of air pollution control equipment that requires the shutdown or bypassing of air pollution control system(s) must be accompanied by the shutdown of the associated air pollution sources.

AIR POLLUTION NUISANCES PROHIBITED

The air contaminant source(s) identified in this permit may not cause a public nuisance in violation of OAC Rule 3745-15-07.

NINETY DAY OPERATING PERIOD

The facility will be permitted to operate during a 90-day period in accordance with OAC Rule 3745-35-02(C)(4)(b). The purpose of this period of operation is to fulfill the performance tests conditions used in the determination of compliance with the
provisions of this Permit to Install or other applicable Ohio EPA rules.

NEW SOURCE PERFORMANCE STANDARD SUBPART Kb

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.

In accordance with 40 CFR 60.116b(a) and (b), the owner and operator of the following storage vessel(s) shall

keep readily accessible records showing the dimension of each storage vessel and an analysis showing the capacity of each storage vessel for the life of each source.

Source Number(s)	Tank Size
T099	52,000
T100	52,000

CONSTRUCTION COMPLIANCE CERTIFICATION

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

ADDITIONAL SPECIAL TERMS AND CONDITIONS

Introduction

This PTI allows for the installation of a Butanediol Manufacturing Plant and associated support processes and equipment at the Lima Chemicals Complex. The associated support processes and equipment include (3) truck/railcar loading and unloading facilities, a catalyst handling system, a cooling tower system, and (10) storage tanks. This PTI also allows for the installation of a boiler/incinerator which will be used to control emissions and incinerate liquid waste streams generated by the butanediol chemical process. The boiler/incinerator will utilize refinery fuel gas as a supplemental fuel from the adjacently located Premcor Refining Group facility.

A. Applicable Emission Limitations and/or Control Requirements

1. The permittee does not currently employ and has never before employed any photochemically reactive material, as defined in OAC rule 3745-21-01(C)(5) in this emissions unit. Therefore, this emissions unit is exempt from OAC rule 3745-21-07(G)(2). A process change that would result in using photochemically reactive materials would constitute a modification as defined in OAC rule 3745-31-01, and would require the permittee to obtain a PTI modification.

2. The permittee shall comply with all applicable standards in 40 CFR Part 63 Subpart A, 40 CFR, Part 63, Subpart F, 40 CFR, Part 63, Subpart G and 40 CFR, Part 63, Subpart H for emissions unit P801.

3. 40 CFR, Part 60, Subpart VV regulations overlap with those of 40 CFR, Part 63, Subpart H. 40 CFR 63.160(b) and (c) address this overlap and state that equipment subject to 40 CFR, Part 60, Subpart VV is required to comply only with the provisions of 40 CFR, Part 63, Subpart H.

   The requirements of the applicable standards in OAC rule 3745-21-09(DD) are equivalent to or less stringent than the alternative leak detection and repair (LDAR) monitoring plan submitted by the permittee, pursuant to 40 CFR Part 63, Subpart H.

   The permittee shall include the appropriate process equipment and regulated components for

emissions units P801 and N006 in the current site fugitive leak detection and repair (LDAR) program. The LDAR program shall comply with the appropriate provisions (including operational restrictions, monitoring and record keeping, reporting, and testing) of 40 CFR 63 Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.)

4. 40 CFR, Part 60, Subpart III regulations overlap with those of 40 CFR, Part 63, Subpart G. 40 CFR 63.110(d) addresses this overlap and states that equipment subject to 40 CFR, Part 60, Subpart III is required to comply only with the provisions of 40 CFR, Part 63, Subpart G.

5. 40 CFR, Part 60, Subpart NNN regulations overlap with those of 40 CFR, Part 63, Subpart G. 40 CFR 63.110(d) addresses this overlap and states that equipment subject to 40 CFR, Part 60, Subpart NNN is required to comply only with the provisions of 40 CFR, Part 63, Subpart G.

6. 40 CFR, Part 60, Subpart RRR regulations overlap with those of 40 CFR, Part 63, Subpart G. 40 CFR 63.110(d) addresses this overlap and states that equipment subject to 40 CFR, Part 60, Subpart RRR is required to comply only with the provisions of 40 CFR, Part 63, Subpart G.

7. Pursuant to 40 CFR 63.113(h), the permittee is not required to make a group determination as described in 40 CFR 63.115 because it complies with 40 CFR 63.113(a)(1) or (a)(2).

8. Emissions from this emissions unit (P801) shall be vented to a closed process vent. The closed process vent system shall meet the following control requirements:

   (a) maleic acid scrubber vent emissions shall be reduced by 99% utilizing a thermal oxidizer; and

   (b) all process vent emissions not routed to a thermal oxidizer shall be combusted in a flare.

9. Emissions unit P801 is vented to a thermal oxidizer that also controls the emissions from emissions unit N006. All operational restrictions, monitoring, record keeping, reporting and testing requirements for the thermal oxidizer are established in the terms and conditions for emissions unit N006. Therefore, no additional monitoring, record keeping, reporting and testing requirements are necessary for this emissions unit.

10. The requirements of this rule also include compliance with the requirements of OAC rules 3745-21-07(G) and 3745-21-09(DD) and 40 CFR Part 60 Subpart A, 40 CFR, Part 60, Subpart VV, 40 CFR, Part 60, Subpart III, 40 CFR, Part 60, Subpart NNN, 40 CFR, Part 60, Subpart RRR, 40 CFR Part 63 Subpart A, 40 CFR, Part 63, Subpart F, 40 CFR, Part 63, Subpart G and 40 CFR, Part 63, Subpart H.

11. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05.

12. The requirements of this rule also include compliance with the requirements of OAC rules 3745-

21-07(G), 3745-23-06(B), 3745-21-08(B) and 3745-21-09(DD) and 40 CFR, Part 60, Subpart A, 40 CFR, Part 63, Subpart A 40 CFR, Part 63, Subpart F, 40 CFR, Part 63, Subpart G, 40 CFR, Part 63, Subpart H, 40 CFR, Part 60, Subpart Db, and 40 CFR, Part 60, Subpart VV.

13. The permittee shall comply with the following control requirements for emissions unit N006:

    a. The boiler shall achieve a destruction efficiency greater than or equal to 99% for gaseous VOC.

    b. The boiler shall achieve a reduction efficiency of greater than or equal to 99% for liquid organics.

    c. NOx emissions from the combustion of fuel and waste streams in the SOGB shall not exceed 0.10 lb/mmBtu total heat input.

14. The permittee shall not burn in emissions unit N006 any fuel gas that contains hydrogen sulfide (H2S) in excess of 162 ppm, as a rolling, 3-hour average. This concentration is equivalent to 230 mg H2S/dscm.

15. The permittee shall comply with all applicable standards in 40 CFR, Part 60, Subpart A, 40 CFR, Part 63, Subpart A, 40 CFR, Part 60, Subpart Db, 40 CFR, Part 60, Part 63, Subpart F, 40 CFR, Part 63, Subpart G and 40 CFR, Part 63, Subpart H for emissions unit N006.

16. This emissions unit (N006) is a group 1 process vent as defined in 40 CFR 63.111.

17. The permittee has satisfied the "best available control techniques and operating practices" and "latest available control techniques and operating practices" required pursuant to OAC rules 3745-21-08 and 3745-23-06, respectively 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.

18. This emissions unit is exempt from the visible emissions limitation specified in OAC rule 3745-17-07(B), pursuant to OAC rule 3745-17-07(B)(11)(e).

19. This facility is not located within an "Appendix A" area as identified in OAC rule 3745-17-08 (it is located in Allen County, but outside the city limits of Lima). Therefore, pursuant to OAC rule 3745-17-08(A), this emissions unit is exempt from the requirements of OAC rule 3745-17-08(B).

20. The catalyst transfer operations for emissions unit P905 shall be controlled with a cartridge filter.

21. Emissions unit P076 is exempt from the requirements of this rule pursuant to 40 CFR 63.104(a)(5).

22. The permittee shall properly install and operate control equipment for emission units T097, T098, T099, and T100 to comply with the following control equipment requirements:

    a. a fixed roof in combination with an internal floating roof meeting the following specifications:

        i. the internal floating roof shall be equipped with a mechanical shoe or liquid mounted seal closure device between the wall of the storage tank and the edge of the internal floating roof;

        ii. the internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it). The floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the tank is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible;

        iii. each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents shall provide a projection below the liquid surface;

        iv. each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use;

        v. automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports;

        vi. rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting;

        vii. each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening;

viii. each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover; and,

ix. each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

23. The permittee shall include the appropriate process equipment and regulated components for emission units P801, T094, T095, T096, T097, T098, T099, T100, T101, T102, T103, J001, J002, and N006, in the current site fugitive leak detection and repair (LDAR) program. The LDAR program shall comply with the appropriate provisions (includes operational restrictions, monitoring and recordkeeping, reporting, and testing) of Ohio Administrative Code (OAC) Rule 3745-21-09(DD) Leaks from process units that produce organic chemicals, 40 CFR 60 Subpart VV (Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry), and 40 CFR 63 Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks).

24. Based on the "Prevention of Significant Deterioration" (PSD) analysis conducted to ensure the application of "Best Available Control Technology" (BACT), the permittee shall employ a control system meeting the following requirements for control of NOx, CO and VOC:

a. P801 - use of a thermal oxidizer with a heat recovery steam generator with low NOx burners and staged combustion and use of a flare.

25. Based on the PSD analysis conducted to ensure the application of BACT, the permittee shall employ a control system meeting the following requirements for control of PE:

a. N006- no control technologies were cost effective, good combustion practices is considered BACT;

b. P076 - use of high efficiency drift eliminators designed to meet a drift rate of 0.0005% and maintain a total dissolved solids (TDS) concentration in the cooling water of 3500 mg/l;

c. P801-use of good flare design and practices; and

d. P905- use of catalyst hopper particulate filter with 99.9% removal efficiency;.

B. Operational Restrictions

1. The permittee shall comply with the following operational restrictions for emissions unit P801:

a. The closed vent system shall be operated at all times when emissions may be vented to it;

b. The permittee shall comply with the following operational requirements of 40 CFR 63

Subparts A, F, G, and H:

i. Flare Operational Restrictions [OAC Rule 3745-21-09(DD)(10)]

(a) the flare shall be designed for and operated with no visible emissions as determined by "Method 22, 40 CFR, Part 60, Appendix A," except for periods not to exceed a total of five minutes during any 120 consecutive minutes;

(b) the flare shall be operated with either an electric arc ignition system or a pilot flame. If a pilot flame is employed, the flame shall be present at all times. If an electric arc ignition system is employed, the arcing shall pulse continually;

(c) the flare shall be steam-assisted;

(d) The net heating value of the gas being controlled in the flare shall meet the requirements of 40 CFR 63.11, as determined by the specified analytical methods.

(e). The flare shall be designed and operated to meet the requirements for actual exit velocity, as determined by the method specified in 40CFR 63.11.

(f). The permittee shall ensure the flare is operated and maintained in conformance with its design.

(g). The flare shall be operated at all times when emissions may be vented to it.

c. At all times including periods of startup, shutdown, and malfunction as defined by a plan developed in accordance with 63.6(e)(3), emissions unit P801 shall be operated in accordance with good air pollution control practices.

d. The permittee shall comply with the heat exchanger system requirements by one of the methods specified in 63.104(b) or (c) unless one or more of the exemptions contained in 63.104(a)(1) through (6) are met.

2. The permittee shall only store or load/unload non-photochemically reactive material (as defined in OAC 3745-21-01(C)(5)) in emission units: T096, T099, T100, T101, T102, T103, J001, J002, and J003.

3. If the inspection required in Section C.2.a or C.2.c for storage tanks T097, T098, T099 and T100 reveals holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage tank.

4. If the inspection required in Section C.2.b for storage tanks T097, T098, T099 and T100 detects any failures, the permittee shall repair the items or empty and remove the storage tank from service within 45 days. If a failure cannot be repaired within 45 days and if the storage tank cannot be emptied with 45 days, a 30-day extension may be requested in the inspection report required by Section D.2.b. Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the storage tank will be emptied as soon as possible.

5. If the inspection required in Section C.2.a or C.2.c for storage tanks T097, T098, T099 and T100 detects any failures, the permittee shall repair the items as necessary so that none of the defects exist before refilling the storage tank with volatile organic liquid (VOL).

6. The permittee shall not exceed the maximum annual throughputs listed for the following emissions unit:

   a. T094 - 15,000,000 gallons/yr

   b. T095 - 15,000,000 gallons/yr

   c. T096 - 15,000,000 gallons/yr

   d. T097 - 4,500,000 gallons/yr

   e. T098 - 4,500,000 gallons/yr

   f. T099 - 4,500,000 gallons/yr

   g. T100 - 5,000,000 gallons/yr

   h. T101 - 15,000,000 gallons/yr

   i. T102 - 15,000,000 gallons/yr

   j. T103 - 15,000,000 gallons/yr

   k. J001 - 22,500,000 gallons/yr

   l. J002 - 4,500,000 gallons/yr

m. J003 - 2,190 loads/yr (65,700,000 gallons/yr)

7. The permittee shall comply with the following operational restrictions for emissions unit N006:

   a. The permittee shall only burn liquid organic waste streams that meet the requirements of 40 CFR 261.38, whether or not they are hazardous, in this emissions unit which meet the following requirements for hazardous wastes:

      i. the liquid organic waste streams have been classified as a hazardous waste solely because it possesses the characteristic of ignitability as described by the test for characteristics of hazardous wastes under Chapter 3745-51 of the Administrative Code, or have been exempted by the Director from hazardous waste incineration requirements in accordance with OAC rule 3745-57-40(C); and

      ii. the liquid organic waste streams are not applicable to 40 CFR, Part 63, Subpart EEE - National Emission Standards for Hazardous Waste Combustors in accordance with the comparable fuels exclusion.

   b. The permittee shall establish a range of operating parameters for the SOGB that meet the requirements of 40 CFR Part 63 Subpart G. [40 CFR 63.116(c), and 40 CFR 63.114(e)].

   c. At all times, including periods of startup, shutdown and malfunction as defined by a plan developed in accordance with 63.103(c)(2), the thermal oxidizer shall be operated in accordance with good air pollution practices.

8. The permittee shall maintain a rolling, 4-week average total dissolved solids content of 3,500 mg/l or less in the cooling water for emissions unit P076.

9. In conjunction with the best available technology requirements of OAC rule 3745-31-05, the VOC emission limitations specified in this permit for emission unit N006 were established in accordance with the Ohio EPA's "Air Toxics Policy" and are based on emission calculations and the design parameters of each emissions unit's exhaust system, as specified in the application. Compliance with the Ohio EPA's "Air Toxics Policy" was demonstrated for each pollutant based on Screen 3 modeling and a comparison of the predicted 1 hour maximum ground-level concentration to the MAGLC. The following summarizes the results of the modeling for each emissions unit applicable to Ohio EPA's "Air Toxics Policy".

   Emission Unit: N006

   Pollutant: Methanol

TLV (ug/m3): 262,000
Maximum Hourly Emission Rate (lbs/hr): 0.15
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): *14*
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 6238

Pollutant: Tetrahydrofuran
TLV (ug/m3): 590,000
Maximum Hourly Emission Rate (lbs/hr): 5.20
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 358
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 14,048

Pollutant: Ethanol
TLV (ug/m3): 1,880,000
Maximum Hourly Emission Rate (lbs/hr): 2.2
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 151
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 44,762

Pollutant: Propanol
TLV (ug/m3): 492,000
Maximum Hourly Emission Rate (lbs/hr): 1.90
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 131
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 11,714

Pollutant: Butanol
TLV (ug/m3): 152,000
Maximum Hourly Emission Rate (lbs/hr): 4.35
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 299
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 2,670

Pollutant: Formic Acid
TLV (ug/m3): 9400
Maximum Hourly Emission Rate (lbs/hr): 0.02
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 1.38
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 224

Pollutant: Acrylic Acid
TLV (ug/m3): 5900
Maximum Hourly Emission Rate (lbs/hr): 0.02
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 1.38

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 141

Pollutant: Acetic Acid
TLV (ug/m3): 25,000
Maximum Hourly Emission Rate (lbs/hr): 0.05
Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 3.44
Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 595

Any of the following changes may be deemed "modifications" to facility emission units and, as such, prior notification to and approval from the Ohio EPA, Northwest District Office are required, including the possible issuance of modifications to PTI number 03-1250 and the operating permit:

a. any changes in process materials or the use of new process materials that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the TLV values specified in the above tables;

b. any change to an emissions unit or its exhaust parameters (e.g., increased emission rate, reduction of exhaust gas flow rate, and decreased stack height) that would result in an exceedance of any MAGLC specified in the above tables;

c. any change to an emissions unit or its method of operation that would either require an increase in the emission limitation(s) established by this permit or would otherwise be considered a "modification" as defined in OAC rule 3745-31-01; and,

d. any change in the process materials or use of new process materials that would result in the emission of any of the exempted organic compounds included in the definition of "VOC" [OAC rule 3745-21-01(B)(6)].

10. The permittee shall comply with the following operational restrictions for emissions unit P905:

a. The maximum annual catalyst usage for this emissions unit shall not exceed 1367 tons/year.

b. The permittee shall maintain on site, a Preventive Maintenance Malfunction Abatement Plan (PMMAP) for this emissions unit. The PMMAP shall include a description of steps or procedures reasonably available to be taken order to prevent or minimize the emission of PE during the transfer of catalyst between the maleic anhydride reactor and the catalyst hopper.

c. The pressure drop across the dry filter shall be maintained within a range of values (in inches of water), when the filter system is in service, that shall be established based on testing and other appropriate data, within 11 months after the effective date of the permit, at all times while the emissions unit in operation.

The Ohio EPA shall approve the operational restrictions proposed by the permittee. The permittee may petition to the OEPA for reestablishment, based on emissions testing or the collection of data, of the pressure drop range provided the permittee can demonstrate to the OEPA's satisfaction that the new values will reasonably ensure compliance and the basis upon which the values were previously established is no longer applicable.

The parametric operational restriction is included in this permit to ensure ongoing compliance with the applicable mass emission and visible emission limitations. The operation of the control equipment outside the values established above may or may not indicate a mass emission and/or visible emission violation. If required by the Ohio EPA, Northwest District Office, compliance with the mass emission limitations and visible emission limitations shall be determined by performing concurrent mass emission tests, and visible emissions readings, using USEPA-approved methods and procedures, as well as operational parameter readings. The results of any required emission tests, visible emission readings, and operational parameter readings shall be used in determining whether or not the operation of the control equipment outside the range of values that will be established above is indicative of a possible violation of the mass emission limitation and/or visible emission limitations. In addition, the permittee may provide other relevant credible evidence to the Ohio EPA to demonstrate that a deviation of an operational restriction is not a violation of the applicable mass emission and/or visible emission limitations.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall comply with the following monitoring requirements for emissions unit P801:

   a. The permittee shall comply with the monitoring requirement contained in 40 CFR 63, Subparts A, F, G and H.

   b. Flare Monitoring Requirements

      i. The flare shall be monitored with a thermocouple or any other equivalent device to detect the presence of a pilot flame. If an electric arc ignition system is employed, the arcing shall be monitored to detect any failure. [40 CFR 63.114(a)(2)].

      ii. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit including the flare. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

         (a) the location and color of the emissions;

         (b) whether the emissions are representative of normal operations;

         (c) if the emissions are not representative of normal operations, the cause of the abnormal emissions;

         (d) the total duration of any visible emission incident; and

         (e) any corrective actions taken to eliminate the visible emissions.

         If, during any weekly check, the permittee observes visible emissions from the flare, the permittee shall monitor the visible emissions for a minimum period of 10 minutes in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 22 and record the results in an operations log.

   c. LDAR monitoring requirements:

      i. The permittee shall comply with the LDAR program monitoring requirements in accordance with 40 CFR 63.180. Monitoring shall comply with Method 21 of 40 CFR Part 60, appendix A.

d. The permittee shall maintain records of whether or not the flow indicator specified in 40 CFR Part 63.114(d)(1) was operating and whether or not a diversion was detected [40 CFR 63.118(a)(3)].

e. The following information shall be recorded for the flare and kept in a readily accessible location:

i. detailed schematics, design specifications, and piping and instrumentation diagrams;

ii. the dates and descriptions of any changes in the design specification;

iii. a description of the parameter or parameters monitored to ensure that the flare is operated and maintained in conformance with its design, and an explanation of the reason for selecting such parameter or parameters;

iv. periods when the closed vent system and the flare are not operated as designed; and,

v. dates of start-ups and shutdowns of the closed vent system and flare.

f. The permittee shall maintain records that document operating time for the closed vent system, flare and monitoring equipment. The information shall be maintained in the company's files for a period of five years.

g. Flare record keeping requirements:

i. The permittee shall maintain records of all hourly periods when the flare pilot flame is absent [40 CFR 60.118(a)(1)].

h. The permittee shall comply with all LDAR program record keeping requirements in accordance with 40 CFR 63.181. All records and information required shall be maintained in a manner that can be readily accessed at the plant site.

i. 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 unless otherwise specified in this permit and/or required by either state or federal applicable regulations. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings, if a strip-chart recorder is employed, for continuous monitoring instrumentation, and copies of all reports required by the permit. Such records may be maintained in computerized form.

2. The permittee is subject to the following inspection requirements for storage tanks T097, T098, T099, and T100:

a. the internal floating roof, the primary seal, and the secondary seal shall be visually inspected for holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof prior to filling the storage tank with volatile organic liquid;

b. the internal floating roof, the primary seal, and the secondary seal shall be visually inspected through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. The inspection shall be performed to detect the following failures:

i. the internal floating roof is not resting on the surface of the VOL inside the storage tank;

ii. liquid has accumulated on the roof;

iii. the seal is detached; and,

iv. there are holes or tears in the seal fabric.

c. the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes and sleeve seals shall be visually inspected each time the storage tank is emptied and degassed (in no event shall inspections conducted in accordance with this requirement occur at intervals greater than 10 years). The inspection shall be performed to detect the following failures:

i. internal floating roof defects;

ii. holes, tears, or other openings in the seal or the seal fabric;

iii. gaskets no longer close off the liquid surfaces from the atmosphere; and,

iv. slotted membrane has more than 10 percent open area.

The permittee shall keep copies of all inspection reports required above for at least 2 years in accordance with 40 CFR 60.115b.

3. The permittee shall maintain annual records of the types of material stored/loaded/unloaded and the throughput for emission units T094, T095, T096, T097, T098, T099, T100, T101, T102, T103, J001, J002, and J003.

4. The permittee shall comply with the following:

   a. In order to demonstrate compliance with the requirement not to burn any fuel gas that contains an H2S concentration in excess of 230 mg/dscm (0.1 gr/dscf) (equivalent to 162 ppm) based on a 3-hour, rolling average in this emissions unit, the permittee shall calculate and record the H2S concentration, in ppm, for each rolling, 3-hour average, based on the data generated from the continuous monitoring system currently required for on the Premcor Refining Group (premise #0302020012) fuel gas system which also serves this emissions unit. The monitoring to show ongoing compliance with the H2S limitation will also be adequate to ensure ongoing compliance with the SO2 emission limitation.

      Sulfur monitoring for raw material butane shall be conducted by the appropriate ASTM methods. For butane supplied by Premcor Refining Group, weekly analyses shall be required at a minimum.

   b. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the SOGB stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

      (i). the color of the emissions;

      (ii). whether the emissions are representative of normal operations;

      (iii). if the emissions are not representative of normal operations, the cause of the abnormal emissions;

      (iv). the total duration of any visible emission incident; and

      (v). any corrective actions taken to eliminate the visible emissions.

   c. In order to demonstrate compliance with the NOx emission limitation of 23.0 lbs/hr, based upon a 24-hour rolling average, as established pursuant to OAC rule 3745-31-05 and the NOx emission limitation of 0.10 lb/mmBtu heat input based on a 30-day, rolling average as required by 40 CFR 60.44b, the permittee shall operate and maintain a continuous emission monitor (CEM) on the outlet stream of the SOGB to continuously monitor and record NOx from emissions unit N006 in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and shall be installed and operated in accordance with the applicable portions of 40 CFR 60.48b.

   d. The permittee shall operate the SOGB in order to meet the requirements of 40 CFR 63 Subpart G. The permittee shall operate continuous temperature monitoring and recording devices in the firebox of the thermal oxidizer. This parameter monitoring for temperature

compliance with the requirements of 63.114(a)(1) provides parametric monitoring as an indicator of ongoing compliance with the applicable VOC and CO emission limitations.

e. The following information shall be recorded for this emissions unit and kept in a readily accessible location:

(i). detailed schematics, design specifications, and piping and instrumentation diagrams;

(ii). the dates and descriptions of any changes in the design specification;

(iii). description of the parameter and or parameters monitored to ensure that the thermal oxidizer is operated and maintained in conformance with design, and an explanation of the reason for selecting such a parameter or parameters;

(iv). periods when the SOGB is not operated as designed; and

(v). dates of start-ups and shutdowns of the SOGB. [OAC Rule 3745-21-09(DD)(14)(d)].

f. The permittee shall maintain daily records that document the operating times for the SOGB and the monitoring equipment. The information shall be retained for a period of five years.

g. The permittee shall keep the following up-to-date and readily accessible records for a period of 5 years:

(i). continuous records of SOGB firebox temperature [40 CFR 63.118(a) and 40 CFR 63.152(f)];

(ii). records of all periods when the closed vent stream is diverted from the SOGB [40 CFR 63.118(c)(3))]; and

(iii). records of the daily average SOGB firebox temperature for each operating day [40 CFR 63.118(a) and 40 CFR 63.152(f)].

h. The permittee shall comply with the applicable monitoring and record keeping requirements for emissions unit N006 contained in 40 CFR Part 60 Subpart Db.

i. 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 unless otherwise specified in this permit and/or required by either State or federal applicable regulations in accordance with the general terms and conditions of this permit. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings, if a strip-chart recorder is employed, for continuous monitoring instrumentation, and copies of all reports required by the permit. Such records may be maintained in computerized form.

5. The permittee shall comply with the following monitoring, record keeping and/or reporting requirements for emissions unit P905:

   a. The permittee shall collect and record the amount of catalyst handled per year (from January to December), in tons.

   b. The permittee shall perform weekly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible emissions of fugitive dust from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

      (i). the location and color of the emissions;

      (ii). whether the emissions are representative of normal operations;

      (iii). if the emissions are not representative of normal operations, the cause of the abnormal emissions;

      (iv). the total duration of any visible emission incident; and

      (v). any corrective actions taken to eliminate the visible emissions.

   c. The permittee shall properly install not later than 6 months after the effective date of this permit equipment to monitor the pressure drop across the dry filter while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations,

instructions, and operating manual(s). The permittee shall record the pressure drop across the dry filter on a weekly basis.

6. The permittee shall collect and record the number of railcar/trucks unloaded per year (from January to December) for emissions unit J003.

7. The permittee shall perform the following monitoring and record keeping for emissions unit P076:

   a. The permittee shall test and record the total dissolved solids content (mg/l) of the cooling water on a weekly basis using a conductivity meter or other USEPA-approved test procedures.
   b. Each week, the permittee shall calculate and record the average total dissolved solids content value based on the four most current readings from A.7.a.

D. Reporting Requirements

1. The permittee shall comply with the following reporting requirements for emissions unit P801:

   a. all reporting shall comply with the requirements contained in and 40 CFR, Part 63, Subparts A, F, G and H; and

   b. the permittee, shall submit the following reports for criteria pollutants:
      i. exceedances of all monitored parameters;

      ii. a log of the operating time for the closed vent system and flare;

      iii. all periods of time when the flare was not operational; and

      vi. all periods of time when required monitoring data was not collected.
   c. The permittee shall submit semiannual written reports that (a) identify all days during which any visible particulate emissions were observed from the stacks, including the flare, serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Ohio EPA Southeast

District Office by January 31 and July 31 of each year and shall cover the previous 6-month period.

d. The permittee shall submit quarterly reports which include all visible emission readings conducted pursuant to the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 22 as a result of the presence of visible emissions from the flare. These quarterly reports shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall address the data obtained during the previous calendar quarter.

e. The permittee shall comply with the LDAR program reporting requirements in accordance with 40 CFR 63.182. The time periods or deadlines specified in 40 CFR 63.182 may be changed by mutual agreement between the permittee and the Ohio EPA in accordance with 40 CFR 63.9(i).

2. The permittee shall comply with the follow reporting requirements for emission units T097, T098, T099, and T100:

a. the permittee shall provide written notification for the following:

i. dates modification construction commenced postmarked no later than 30 days after such date;

ii. anticipated date of initial startup postmarked not more than 60 days nor less than 30 days prior to such date; and,

iii. actual date of initial startup postmarked within 15 days after such date.

b. the permittee shall provide written notification at least 30 calendar days prior to the filling or refilling of a storage tank for which an inspection is required by Section C.4.a or Section C.4.c. If the inspection required by Section C.4.c is not planned and the permittee could not have known about the inspection 30 days in advance of refilling the storage tank, the permittee shall notify the Ohio EPA at least 7 days prior to the refilling of the storage tank. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Ohio EPA at least 7 days prior to the refilling.

c. after installing control equipment required by Section A.3.a, the permittee shall submit a report that describes the control equipment and certifies that the control equipment meets the specifications of Section A.3.a and Section B.3. This report shall be an attachment to the notification required by Section D.3.a.; and,

d. if the annual inspection required by Section C.4.b reveals any failures as outlined by Section C.4.b i, ii, iii, and iv, a report shall be submitted within 30 days of the inspection. Each report shall identify the storage tank, the nature of the defects, and the date the

storage tank was emptied or the nature of and date the repair was made.

The permittee shall keep copies of all reports required above for at least 2 years in accordance with 40 CFR 60.115b.

3. The permittee shall comply with the following for emissions unit N006:
   a. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the fuel content restriction of 230 mg H2S/dscm (equivalent to 162 ppm of H2S). These reports shall be submitted in accordance with the General Terms and Conditions of this permit.

   b. The permittee shall submit semiannual written reports that (a) identify all days during which any visible particulate emissions were observed from the SOGB stack serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

   c. The permittee shall submit the following semiannual reports:

      (i) exceedances of all monitored parameters;

      (ii) a log of the operating time for the thermal oxidizer;

      (iii) periods of time when the closed vent system is diverted from the thermal oxidizer;

      (iv) all periods of time when the thermal oxidizer was not operational;

      (v) all periods of time when required monitoring data was not collected; and

      (vi) daily average values of thermal oxidizer firebox temperature for both excused and un-excused excursions when the daily average temperature values were outside the ranges established in the Notification of Compliance or the operating permit. For excursions caused by lack of monitoring data, the duration of periods when monitoring data were not collected shall be specified [40 CFR 63.152(c) and 40 CFR 63.118(f)].

      The time periods or deadlines specified in 40 CFR 63.152(c) may be changed by

mutual agreement between the permittee and the Ohio EPA in accordance with 40 CFR63.9(i).

d. The permittee shall comply with the record keeping and reporting requirements outlined in 40 CFR 60.49b. The reporting requirements include the submission of quarterly excess emission reports to the Ohio EPA NWDO in accordance with the General Terms and Conditions of this permit.

e. The permittee shall maintain records of all data obtained by the continuous NOx monitoring system including but not limited to parts per million of NOx on a six-minute basis, emissions of NOx in units of the applicable standards in the appropriate averaging period (e.g., 3-hour, rolling average and lb/mmBtu as a 30-day, rolling average), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

f. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(H), the permittee shall submit reports within 30 days following the end of each calendar quarter to the Ohio EPA, Northwest District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of NOx values in excess of any applicable limitations specified in the terms and conditions of this permit, in units of the standards. These reports shall also contain the total NOx emissions for the calendar quarter (in tons.)

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Ohio EPA, Northwest District Office documenting any continuous NOx monitoring system downtime while the emissions unit was on line (date, time, duration, and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment functions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous quarter in accordance with the general terms and conditions of this permit.

The time periods or deadlines specified in this provision may be changed by mutual agreement between the permittee and the Ohio EPA in accordance with 40 CFR63.19(f).

g. The quality assurance/quality control plans and logbooks dedicated to the continuous NOx monitoring systems, developed in accordance with 40 CFR Part 60 Appendix F, shall be kept on site and available for inspection during regular hours.

h. The permittee will submit start-up, shutdown, and malfunction reports in accordance with 40 CFR 63.10(d)(5); except that reports shall be submitted at the times specified in 40 CFR 63.152(d) of Subpart G and 40 CFR 63.182(d) of Subpart H.

4. The permittee shall comply with the following reporting requirements for emissions unit P905:

a. The permittee shall submit annual reports that summarize the actual annual catalyst throughput for this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.

b. The permittee shall submit semiannual written reports that (a) identify all days during which any visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit and (b) describe any corrective actions taken to eliminate the visible particulate emissions. These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

c. The permittee shall submit quarterly pressure drop deviation (excursion reports) that identify all periods of time during which the pressure drop across the dry filter did not comply with the allowable range specified above. The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

5. The permittee shall submit quarterly deviation (excursion) reports which identify all exceedances of the total dissolved solids restriction of 3,500 mg/l for emissions unit P076.

6. The permittee shall submit annual deviation (excursion) reports which identify all exceedances of the throughput restrictions contained in section B.6 for emission units, T094, T095, T096, T097, T098, T099, T100, T101, T102, T103, J001, J002, and J003. These reports shall include the corrective actions that were taken to achieve compliance and shall be submitted by January 31 of each year.

7. The compliance status of the emissions units P801, T094, T095, T096, T097, T098, T099, T100, T101, T102, T103, J001, J002, J003, N006, P905, and P076 shall be reported pursuant to the annual certification required by OAC rule 3745-77-07(C)(5).

8. The actual annual emissions data for emissions units P801, T094, T095, T096, T097, T098, T099, T100, T101, T102, T103, J001, J002, J003, N006, P905, and P076 shall be reported pursuant to the fee emissions report required by OAC rule 3745-78-02(A).

9. The permittee shall comply with the continuous emission monitoring system reporting requirements contained in Section F.1.

10. The permittee shall retain on file, copies of all reports required by this PTI for a period of not less than five years unless otherwise specified in this permit and/or required by either state or federal applicable regulations. Copies of all records and reports shall be made available to the Director, or any representative of the Director, for review during normal business hours.

E. Testing Requirements

1. Compliance Methods Requirements:

Compliance with the emission limitations listed in the Air Emission Summary of this PTI shall be determined in accordance with the following method:

a. Emission Limitations for Emissions Unit P801:

i. Flare emissions - 0.04 lb PE/hr, 7.5 lbs VOC/hr, 4.8 lbs CO/hr, 0.88 lb NOx/hr, 0.47 lb SO2/hr

Applicable Compliance Method: Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through the monitoring and record keeping specified in sections C.1.a. and C.1.g.

The flare VOC emission limitation was developed by applying a 98% reduction efficiency for control with a flare to calculated engineering estimates of flare vent streams. The other flare emission limitations account for combustion emissions from the natural gas pilot flame. Pilot flame emissions were established by multiplying the emission factors for NOx, PE, CO and SO2 of 0.068 lb NOx/mmBtu, 0.003 lb PE/mmBtu, 0.37 lb CO/mmBtu and 0.0006 lb SO2/mmBtu by the maximum hourly heat input capacity (13mmBtu/hr) of the pilot flame.

ii. Emission Limitations:
0.17 TPY PE, 32.85 TPY VOC, 21.02 TPY CO, 3.86 TPY NOx, 2.06 TPY SO2

Applicable Compliance Method: The annual emission limitation for each pollutant above was developed by multiplying the hourly emission limitation for each pollutant by 8760, and then dividing by 2000. Therefore, as long as compliance with the hourly allowable emission limitation for each pollutant is maintained,

compliance with the annual emission limitation for the pollutant shall be ensured.

iii. Emission Limitation: No visible flare emissions

Applicable Compliance Method: The test method employed to demonstrate compliance with the emission limitation shall be Method 22, which is located in 40 CFR Part 60, Appendix A.

iv. Emission Limitation: Fugitive Process Emissions - 5.37 TPY VOC

Applicable Compliance Method: The process fugitive emission limitation was developed in accordance with the following equation:

PFE = [summation of NiSi x (hrs/yr) x (ton/2000 lbs)] for i=1 to n

where:

PFE = process fugitive VOC emissions, tons/yr

Ni = number of pipe fitting components i

Si = SOCMI emission factor for pipe fitting component i(EPA-450/3-010, April 1982) for pipe fitting component i and/or site specific emission factors derived in accordance with USEPA approved protocols.

Compliance shall be demonstrated by calculations of annual emissions using the above equation and the actual annual hours of operation.

v. The permittee, shall comply with the performance testing requirements of and 40 CFR 63 Subparts A, F, G and H.

b. Emission Limitation:

i. 20 percent opacity (stack) as a six minute average from emissions units: P905 and P076.

Applicable Compliance Method:

Compliance with the visible emission limitations shall be determined in accordance with the test method and procedures in OAC rule 3745-17-03(B)(1).

ii. 10 percent opacity (stack) as a six minute average from emissions units: N006.

Applicable Compliance Method:

Compliance with the visible emission limitations shall be determined in accordance with 40 CFR 60, Appendix A - Method 9.

c. Emission Limitation for T094:

0.04 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 15,000,000 gallons butanediol. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

d. Emission Limitation for T095:

0.04 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 15,000,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

e. Emission Limitation for T096:

0.04 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 15,000,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

f. Emission Limitation for T097:

0.22 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 4,500,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

g. Emission Limitation for T098:

0.22 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 4,500,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

h. Emission Limitation for T099:

0.247 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 4,500,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

i. Emission Limitation for T100:

0.08 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 5,000,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

j. Emission Limitation for J001:

0.01 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by AP-42 Section 5.2.2.1.1, equation (1):

$$L_L = 12.46 \frac{SPM}{T}$$

where:

L_L = loading loss, pounds per 1000 gallons (lbs/ 1000 gal) of liquid loaded
S = saturation factor = 0.60 (AP-42 Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia)

= 0.000789
M = molecular wt of vapors, pounds per pound-mole (lb/lb-mole) = 90
T = temperature of liquid loaded, R = 573

using a maximum annual throughput of 22,500 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5 and by ensuring the flare operates at the proper efficiency through the monitoring and recordkeeping specified in section C.1.b & C.2.g and testing specified in section E.2.a.ii and iii.

k. Emission Limitation for J002:

0.16 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed by applying a 98 percent reduction efficiency for control with a flare to emissions generated by AP-42 Section 5.2.2.1.1, equation (1):

$$L_L = 12.46 \frac{SPM}{T}$$

where:

L_L = loading loss, pounds per 1000 gallons (lbs/103 gal) of liquid loaded
S = saturation factor = 0.60 (AP-42 Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) = 0.7734
M = molecular wt of vapors, pounds per pound-mole (lb/lb-mole) = 67
T = temperature of liquid loaded, R = 555

using a maximum annual throughput of 4,500,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5 and by ensuring the flare operates at the proper efficiency through the monitoring and recordkeeping specified in section C.1.b & C.2.g and testing specified in section E.2.a.ii and iii.

l. Emission Limitations for N006:

i. Short-Term Limitations:

57.0 lbs VOC/hr
186.0 lbs CO/hr
23.0 lbs NO_x/hr

5.0 lbs SO_2/hr
5.8 lb PE/hr

Applicable Compliance Method:
If required, compliance with the hourly allowable PE limitation shall be based on the results of stack testing conducted in accordance with 40 CFR, Part 60, Appendix A - Test Methods 1 - 5.

If required, compliance with the hourly allowable SO2 emission limitation shall be based on the results of stack testing conducted in accordance with 40 CFR, Part 60, Appendix A - Test Methods 1 - 4 and 6.

[Compliance with the hourly, based upon a 30-day rolling average, SO2 emission limitation shall be based upon H2S monitoring for refinery fuel gas and sulfur monitoring for input butane using ASTM test methods. For butane, supplied by Premcor Refining Group, sulfur monitoring shall be performed weekly at a minimum. For butane purchased form other commercial sources, sulfur monitoring shall be performed on a per shipment basis.]

Compliance with the hourly allowable VOC emission limitation shall be based on the results of stack testing conducted in accordance with 40 CFR, Part 60, Appendix A - Test Methods 1 - 4 and 18, 25, or 25A, as appropriate.

Compliance with the hourly allowable NOx emission limitation shall be based on the continuous NOx emissions monitor and the results of stack testing conducted in accordance with 40 CFR, Part 60, Appendix A - Test Methods 1 - 4 and 7.

Compliance with the hourly allowable CO emission limitation shall be based on the results of stack testing conducted in accordance with 40 CFR, Part 60, Appendix A - Test Methods 1 - 4 and 10.

ii. Long-Term Limitations:

250.0 tons VOC/yr
814.7 tons CO/yr
102.0 tons NO_x/yr
21.90 tons SO_2/yr
25.40 tons PE/yr

Applicable Compliance Method:
The annual emission limitation for each pollutant above was developed by multiplying the hourly emission limitation for each pollutant by 8760, and then dividing by 2000. Therefore, as long as compliance with the hourly allowable

emission limitation for each pollutant is maintained, compliance with the annual emission limitation for the pollutant shall be ensured.

iii. Emission Limitation:
0.1 lb NO_x/MMBtu total heat input

Applicable Compliance Method:
Compliance with the NOx standard of 0.10 lb/mmBtu heat input shall be demonstrated through a 30-day rolling average of all the calculated hourly NOx emission rates for the previous 30 operating days based on the results of the continuous emission monitor (CEM).

The permittee shall also monitor and record fuel gas and off-gas flow rates to the SOGB. The above information will be applied to the following equation for calculating lbs NO_x per mmBtu heat input:

$$\frac{\text{lbs NOx}}{\text{mmBtu heat input}} = \frac{\text{lbs NOx emitted}}{\text{mmBtu heat input}}$$

$$\text{lbs NOx} = \frac{\text{ppmv}}{10\text{^}6} * MW_{corr} \times \text{Stack (lb/hr)} \times \text{Moisture}$$

Where:

ppmv = concentration of NOx measured by CEM on SOGI outlet

MW_{corr} = molecular weight correction factor, NOx (46.01 lb/lb-mole) to stack gas (~29.7 lb/lb-mole)

Stack = stack flow, lb/hr

Moisture = moisture correction factor, dry NOx CEM, wet stack flowmeter

$$\text{mmBtu/hr} = [\text{Fuel} * DH_{cf} / 10\text{^}6] + [\text{Offgas } \underline{\text{lb}} * DH_{co} / 10\text{^}6]$$

Where:

10^6 = conversion to MM

Fuel = Fuel flow rate (natural gas or refinery fuel gas), average lb/hr

Offgas = Scrubber offgas flow rate, average lbs/hr

DH_{cf} = Heat of combustion for fuel, Btu/lb (for natural gas, 23,000 Btu/lb and refinery fuel gas, 20,482 Btu/lb)

DH_{co} = Heat of combustion for off gas
= $\sum_{i=1}^{n} C_i Btu_i$

where:

C_i = offgas concentration of component i, in lb/hr

Btu_i = Btu/lb of component i from published values or measured values of the heats of combustion determined using ASTM D2382-76 or 88 or D4809-95

The permittee shall demonstrate compliance with the 0.10 lb NOx per mmBtu limit through a 30-day, rolling average of all the calculated hourly NOx emission rates for the preceding 30 operating days. The monitoring equipment shall be installed and operated in accordance with the applicable portions of 40 CFR 60.48b.

iv. Emission Limitation: Visible PE shall not exceed 10% opacity as a 6-minute average

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation pursuant to Method 9 of 40 CFR, Part 60, Appendix A.

m. Emission Limitations for P905:

i. Short-Term Limitation:

0.20 lb PE/hr (stack emissions)

Applicable Compliance Method:

The hourly allowable PE limitation was established by applying a 99% removal efficiency for control with a cartridge filter to the calculated uncontrolled mass rate of emissions based on engineering estimates of 20 lbs/hr.

If required, compliance with PE limitations shall be based on stack testing in accordance with 40 CFR Part 60, Appendix A - Test Methods 1-5.

ii. Long-Term Limitation:

0.14 ton/yr

Applicable Compliance Method:

The annual emissions shall be determined by multiplying the total amount of catalyst loaded each year by a site-specific emision factor of 0.20 lb PE/ton of catalyst loaded, and then dividing by 2000 lbs/ton.

iii. Fugitive Emissions:

aa. 0.05 tons/yr

Applicable Compliance Method:

The annual emission limitation was developed by multiplying a 0.08 lb PE/ton of catalyst handled emission factor (based on engineering estimates) by a maximum operational restriction of 1,367 tons per year. Compliance shall be demonstrated by multiplying the above emission factor (0.08 lb PE/ton of catalyst handled) by the total annual amount (in tons) of catalyst handled (from the record keeping requirements) and then dividing by 2000 lbs/ton.

ab. 20 percent opacity as a three minute average.

Applicable Compliance Method:

Compliance with the visible emission limitations shall be determined in accordance with 40 CFR 60, Appendix A - Method 9.

n. Emission Limitation for emissions unit J003:

i. Short-Term Limitation:

aa. Flare Emissions:

0.12 lb VOC/hr

Compliance Method Determination:

The flare emission limitations (short-term) were developed by applying a 98 percent reduction efficiency for control with a flare to calculated engineering estimates of flare vent streams. Compliance shall be demonstrated by ensuring the flare operates at the proper efficiency through the monitoring and recordkeeping specified in section C.1.b and C.2.g and testing specified in section E.2.a.ii & iii.

ii. Long-Term Limitations:

aa. Flare Emissions:

0.53 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/yr, and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance will also be shown with the annual limitations.

ab. Fugitive Emissions:

1.81 tons VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed by multiplying an emission factor of 1.65 lbs per railcar/truck unloaded (based on engineering estimates) by a maximum unloading capacity of 2,190 loads/yr, and dividing by 2000 lbs/ton. Compliance shall be demonstrated by using the actual annual number of loads from recordkeeping specified in Section C.8

o. Emission Limitation for T101:

0.16 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 15,000,000 gallons butanediol. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

p. Emission Limitation for T102:

0.16 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 15,000,000 gallons butanediol. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

q. Emission Limitation for T103:

0.16 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitation was developed using emissions generated by EPA, AP-42 Tanks 3.1 computer program using a maximum annual throughput of 15,000,000 gallons butanediol. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.5

r. Emission Limitations for Emissions Unit P076

i. Short-Term Limitations:

aa. 0.184 lbs PE/hr

Applicable Compliance Method:

Compliance with the hourly allowable PE limitation shall be demonstrated by multiplying the maximum total dissolved solids content of the cooling water (3500 mg/liter) by the maximum water flow rate (gallons/hr) and by a maximum drift loss factor of 0.0005%, and then by a conversion factor of (3.785 liter/gallon x lb/453,592 mg).

The permittee shall maintain documentation from the manufacturer of the cooling tower drift loss eliminators demonstrating that the cooling tower design specifications meet the maximum drift loss of 0.0005%.

In the event of equipment modification to the drift loss eliminators, specifications demonstrating compliance with a maximum drift loss of 0.0005% shall be submitted to the OEPA and maintained by the permittee.

ab. 0.22 lb VOC/hr

Applicable Compliance Method:

Compliance with the hourly allowable VOC emission limitation may be determined by multiplying an emission factor of 0.175 lb VOC/1,000,000 gallons by the maximum cooling water throughput capacity of 1,200,000 gallons per hour.

ii. Long-Term Emission Limitations:

aa. 0.81 tons PE/yr

Applicable Compliance Method:

The tons/yr limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/yr, and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance will also be shown with the annual limitation.

ab. 0.96 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitations were developed by multiplying the lb/hr limitations by the maximum operating schedule of 8760 hrs/yr, and dividing by 2000 lbs/ton. Therefore, provided compliance is shown with the hourly limitations, compliance will also be shown with the annual limitation.

2. The permittee shall comply with the following performance testing requirements:

a. Performance Testing Requirements for P801:

The permittee, shall comply with the performance testing requirements of OAC 3745-21-09, 40 CFR 60 Subparts III, NNN, and RRR, and 40 CFR 63 Subpart F.

i. Refer to E.2.b.i for performance testing requirements associated with emissions unit P801 due to the fact that emissions unit N006 serves as a control device for emissions unit P801:

ii. The permittee shall determine within 3 months after the start-up of this emissions unit, the net heating value of the gas being combusted in the flares controlling emissions unit P801 using the following equation:

$H_T = K \ {}^{n}\sum_{i=1} C_i H_i$

where:

H_T = Net heating value of the sample,
MJ/scm; where the net enthalpy per mole of gas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard

temperature for determining the volume corresponding to one mole is 20 degrees Celsius;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77; and,

H_i = Net heat of combustion of sample component i, kcal/g mole at 25 degrees Celsius and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 if published values are not available or cannot be calculated.

K = Constant, 1.740×10^{-7} (1/ppm)(g mole/scm) (MJ/kcal) where the standard temperature for (g mole/scm) is 20 degrees Celsius

Alternative approved methods may be used with prior approval (from Ohio EPA, Northwest District Office) for determining the net heating value of the gas being combusted in the flares controlling emissions unit P801

iii. The permittee shall determine within 3 months after the start-up of this emissions unit, the actual exit velocity of the flares controlling emission units P801 by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip.

b. Performance Testing Requirements for Emissions Unit N006:

i. The permittee shall conduct, or have conducted, emission testing in accordance with the following requirements (the performance testing requirements specified below apply to emissions unit N006 due to the fact that this incinerator also serves as a control device for emissions unit P801):

:

aa. the emission testing shall be conducted within 3 months after the start-up of this emissions unit.

ab. the emission testing shall be conducted to demonstrate compliance with the control requirement to reduce closed vent system emissions of Total Organic Compounds (TOC) by 98 percent or to a concentration less than 20 ppmv, on a dry basis corrected to 3 percent oxygen; and,

ac. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

TOC - Method 18, 25, or 25A, 40 CFR Part 60, Appendix A

ii. the permittee shall conduct, or have conducted, emission testing in accordance with the following requirements:

aa. the emission testing shall be conducted within 3 months after the start-up of this emissions unit;

ab. the emission testing shall be conducted to demonstrate compliance with the mass emission rate for VOC, CO & NO_x. Performance testing shall also be conducted to demonstrate compliance with a liquid organic reduction efficiency $\geq$ 99 percent; and,

ac. the following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

VOC - Method 18, 25, or 25A, 40 CFR Part 60, Appendix A

CO - Method 10, 40 CFR Part 60, Appendix A

Liquid OC - The permittee shall submit a reduction performance test plan to be approved by the Ohio EPA which will demonstrate compliance with the requirement to reduce liquid organics by 99 percent greater.

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

iii. the permittee shall comply with all continuous emission monitoring test requirements as specified in section F.1.

3. The permittee shall comply with the LDAR program testing requirements, see Section A.5.

4. The permittee shall submit to the Ohio EPA within 90 days prior to start-up of operations for emissions unit P076, a testing proposal for the cooling tower which will demonstrate that the maximum drift loss does not exceed 0.004 percent.

5. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Northwest District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating

parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Northwest District Office's refusal to accept the results of the emission test(s).

6. Personnel from the Ohio EPA, Northwest District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

7. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Northwest District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Northwest District Office.

F. Miscellaneous Requirements

1. 40 CFR 60 (NSPS) Subpart Db (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units) Requirements for Emissions Unit N006.

   Emissions Unit N006 is an scrubber off-gas incinerator (SO) used to control the closed vent system streams from the Butanediol Manufacturing Plant no. 1 (Emissions Unit P801) and also incinerate liquid waste streams generated by the butanediol chemical process. The SOGB also acts as a steam generating unit (waste heat boiler) and is therefore required to comply with the applicable portions of 40 CFR 60 Subpart Db. Emissions Unit N006 is also required to comply with an emission limitation of 23.0 lbs/hr as established by OAC rule 3745-31-05.

   a. Nitrogen Oxide (NO_x) Emission Standard - 40 CFR 60 Subpart Db

      i. Emissions from the SOGB will be required to meet the NO_x standard of 0.10 lb/MMBtu heat input as required by 40 CFR 60.44b.

      ii. Compliance Demonstration and Monitoring Requirements

         aa. the permittee shall demonstrate compliance with the NO_x standard of 0.10 lb/MMBtu heat input by installing a continuous emission monitor (CEM) on the outlet stream of the SOGB. The permittee shall also monitor and record fuel gas and off-gas flow rates to the SOGB. The above information will be applied to the following equation for calculating lbs

NO_x per MMBtu heat input:

$$\frac{\text{Lbs } NO_x}{\text{MMBtu heat input}} = \frac{\text{lbs NOx emitted}}{\text{MMBtu heat imput}}$$

$$\text{Lbs NOx/hr} = \frac{\text{ppmv}}{10\text{^}6} * MW_{corr} * \text{Stack } \frac{\text{lb}}{\text{hr}} * \text{Moisture}$$

Where:

ppmv = concentration of NOx measured by CEM on SOGI outlet

MW_{corr} = molecular weight correction factor, NOx (46.01 lb/lbmol) to stack gas (~29.7 lb/lbmol).

Stack = stack flow, lb/hr

Moisture = moisture correction factor, dry NOx CEM, wet stack flowmeter

$$\frac{\text{MMBtu}}{\text{hr}} = [\text{Fuel } \frac{\text{lb}}{\text{hr}} * DH_{cf} / 10\text{^}6] + [\text{Offgas } \frac{\text{lb}}{\text{hr}} * DH_{co} / 10\text{^}6]$$

Where:

Fuel = Fuel flow rate (natural gas or refinery fuel gas), average lb/hr

Offgas = Scrubber offgas flow rate, average lb/hr

DH_{cf} = Heat of combustion for fuel, Btu/lb. Natural gas 23,000 Btu/lb or Refinery fuel gas 20,482 Btu/lb

DH_{co} = Heat of combustion for off gas

$= {}^{n}\sum_{i=1} C_i BTU_i$

where:

C_i = offgas concentration of component i in lb/hr

BTU_i = BTU/lb of component i from published values or measured values of the heats of combustion determined using ASTM D2382-76 or 88 or D4809-95

10^6 = conversion to MM

ab. the permittee shall demonstrate compliance with the 0.10 lb NO_x per MMBtu limit through a 30 day rolling average of all the calculated hourly NO_x emission rates for the preceding 30 operating days; and,

ac. the monitoring equipment shall be installed and operated in accordance with the applicable portions of 40 CFR 60.48b.

iii. Emissions from the SOGB will be required to meet a NO_x emission limitation of 23.0 lbs/hr, based upon a rolling 24-hour average as established by OAC

3745-31-05.

aa. the permittee shall operate and maintain the equipment required in section F.1.a.ii above to continuously monitor and record NO_x from emissions unit NOO6 in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

iv. Recordkeeping and Reporting Requirements

aa. the permittee shall comply with the recordkeeping and reporting requirements outlined in 40 CFR 60.49b. Reporting requirements include the submission of quarterly excess emission reports to the Ohio EPA NWDO;

ab. the permittee shall maintain records of all data obtained by the continuous NO_x monitoring system including, but not limited to parts per million of NO_x on a six-minute basis, emissions of NO_x in units of the applicable standards in the appropriate averaging period (e.g., hourly, hourly rolling, 3-hour, daily, 30-day rolling, etc.), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments; and,

ac. pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the Ohio EPA, Northwest District Office or local air agency documenting
the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of NO_x values in excess of any applicable limitation(s) specified in the terms and conditions of this permit, in units of the standards. These reports shall also contain the total NO_x emissions for the calendar quarter (in tons).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Ohio EPA, Northwest District Office documenting any continuous NO_x monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during
the reporting period and the date, time, reason and corrective action(s)

taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

v. Testing Requirements

aa. the permittee shall conduct an initial compliance test as outlined in 40 CFR 60.46b(e).

b. Continuous Emission Monitoring Certification

Prior to the installation of the continuous NO_x monitoring system, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 6 for approval by the Ohio EPA, Central Office.

Within 60 days after the startup of the emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 6. Personnel from the Ohio EPA, Northwest District Office shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the Ohio EPA, Northwest District Office within 30 days after the test is completed. Copies of the test results shall be sent to the Ohio EPA, Northwest District Office and the Ohio EPA, Central Office. Certification of the continuous NO_x monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 6.

c. Continuous Emissions Monitoring Quality Assurance/Quality Control Requirements

Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plans for the continuous NO_x monitoring systems

designed to ensure continuous valid and representative readings of NO_x. The plans shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plans and logbooks dedicated to the continuous NO_x monitoring systems must be kept on site and available for inspection during regular office hours.

2. PSD Requirements

1. The source described in this Permit to Install is subject to the applicable provisions of the Prevention of Significant Deterioration (PSD) regulations as promulgated by the United States Environmental Protection Agency 40 CFR 52.21. The authority to apply and enforce the PSD regulations has been delegated to the Ohio Environmental Protection Agency.
In accordance with 40 CFR 124.15, 124.19 and 124.20, the following shall apply: (1) the effective date of the permit shall be 30 days after the service of notice to any public commentors of the final decision to issue, modify, or revoke and re-issue the permit, unless the service of notice is by mail, in which case the effective date of the permit shall be 33 days after the service of notice; and (2) if an appeal is made to the Environmental Appeals Board of the United States Environmental Protection Agency, the effective date of the permit is suspended until such time as the appeal is resolved or denied.

Appeals will be addressed to:

United States Environmental Protection Agency
Environmental Appeals Board
401 M Street, SW (MC-113do)
Washington, DC 21460