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Facility Name: **BP Chemicals Inc-Lima Chemicals Complex**

Application Number: **03-1250**

Date: **Draft PTI (date will be entered upon final issuance)**

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 source(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 are inadequate or cannot meet applicable standards.

If the construction of the proposed source(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 Ohio Administrative Code (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

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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 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.

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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.

PERMIT TO OPERATE APPLICATION

A Permit to Operate application must be submitted to the appropriate field office for each air contaminant source in this Permit to Install. In accordance with OAC Rule 3745-35-02, the application shall be filed no later than thirty days after commencement of operation.

SOURCE OPERATION AFTER COMPLETION OF CONSTRUCTION

This facility is permitted to operate each source described by this permit to install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws and regulations.

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<u>Ohio EPA Source Number</u>	<u>Source Identification Number</u>	<u>BAT Determination</u>	<u>Applicable Federal & OAC Rules</u>	<u>Permit Allowable Mass Emissions and/or Control/Usage Requirements</u>
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AIR EMISSION SUMMARY

The air contaminant emissions units listed below comprise the Permit to Install for **BP Chemicals Inc-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

P801
Cont'd

T094
Cont'd

P802

T095

T094

P802
Cont'd

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			T099	T100 Cont'd
		T098		
			T097	
			T096	
			T096 Cont'd	
				T101
			T097 Cont'd	
				T100
		T098 Cont'd		

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T101 Cont'd				
	T102 Cont'd		J002	J003
		T103 Cont'd		
		J001		
	T103		J002 Cont'd	
T102				J003 Cont'd
				N006

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	P076		<p style="text-align: center;"><u>Source Identification Description</u></p> <p>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</p>	
	P905			
N006 Cont'd				Butanediol Manufacturing Plant No. 1: Hydrogen supply section
	P905 Cont'd			

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

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Ohio EPA Source <u>Number</u>	Source Identification <u>Number</u>	<u>BAT Determination</u>	<u>Applicable Federal & OAC Rules</u>	Permit Allowable Mass Emissions and/or Control/Usage <u>Requirements</u>
			Fixed roof storage tank (750,000 gallon Butanediol product storage tank - No. 69)	loading facilities (1 truck and 2 railcar loading racks)
		Fixed roof storage tank (750,000 gallon Butanediol product storage tank - No. 68)		
Fixed roof storage tank with internal floating roof (52,000 gallon Process slop water tank - No. 66)	Fixed roof storage tank (750,000 gallon Butanediol product storage tank - No. 67)			Tetrahydro-furan /water solution loading facilities (1 truck and 1 railcar loading rack)

Butanediol

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			transfers, and catalyst drum handling	
				<u>BAT Determination</u>
	Butanediol manufacturing plant no. 1 scrubber off gas incinerator		Non-contact cooling tower system (Butanediol manufacturing plant no. 1)	Use of scrubber off-gas incinerator (SOGI) with low NO _x burners; use of flare; or maintain total resource effectiveness (TRE) index value >1.0 and compliance with the terms and conditions of this permit
Butane railcar /truck unloading rack operations				
		Maleic anhydride reactor catalyst handling system: catalyst make-up		

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	Use of natural gas and process purge gas as fuel, low NO _x burners, 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	Use of internal floating roof and compliance with the terms and conditions of this permit
		Use of submerged fill and compliance with the terms and conditions of this permit		

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Use of internal floating roof 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	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	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 non-photochemically reactive material as defined by OAC 3745-21-01(C) (5) and compliance with the terms and conditions of this permit

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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	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 flare, loading/unloading 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 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	Compliance with 40 CFR Part 63, Subpart G and compliance with the terms and conditions of this permit

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	with the terms and conditions of this permit			
		Applicable Federal & <u>OAC Rules</u>		
		3745-31-05	40 CFR Part 63, Subpart G	
			40 CFR Part 60, Subpart III*	
			40 CFR Part 60, Subpart NNN*	3745-17-07
			40 CFR Part 60, Subpart RRR* and 3745-21-09 (EE)	
			40 CFR Part 63, Subpart H	3745-17-10
			40 CFR Part 60, Subpart VV	3745-18-06
	Use of high efficiency drift eliminators and compliance with the terms and conditions of this permit		3745-21-09 (DD)	3745-31-05
	Use of particulate filter and catalytic trap and compliance		3745-31-05	
				40 CFR Part 60, Subpart VV

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

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

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		3745-17-07 (A)	3745-17-07 (A)	Permit Allowable Mass Emissions and/or Control/Usage Requirements
40 CFR Part 60, Subpart VV	3745-31-05	40 CFR Part 60, Subpart VV		Emissions from this process vented to the SOGI are accounted for in emission allowables for N006
3745-21-09 (DD)		3745-21-09 (DD)	3745-31-05	Emissions from this process vented to the flare: 0.04 pound PE/hour;*** 0.17 ton PE/year 7.5 pounds VOC/hour; 32.85 tons VOC/year 4.8 pounds CO/hour; 21.02 tons CO/year 0.88 pound NO _x /hour; 3.86 tons NO _x /year 0.47 pound SO ₂ /hour; 2.06 tons
3745-31-05		40 CFR Part 60, Subpart Db	40 CFR Part 63, Subpart F	
		3745-17-09	3745-17-11 (A)	
		3745-18-06	3745-17-07 (A)	
		3745-31-05		

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S0 ₂ /year No visible flare emissions	of Site LDAR Program** Implementation of Site LDAR Program**	six-minute average, except as otherwise provided by rule **** ****	Implementation of Site LDAR Program** Implementation of Site LDAR Program**	Program** Recordkeeping requirements (See Additional Special Terms and Conditions)
Fugitive Process Emissions: 5.37 tons VOC/year Reduce regulated emissions by 98 percent or combustions in a flare or maintain appropriate TRE index value >1.0	Implementation of Site LDAR Program** (See Additional Special Terms and Conditions) 0.33 pound PE/hour;*** 1.44 tons PE/year*** 1.7 pounds VOC/hour; 7.45 tons VOC/year 2.1 pounds CO/hour; 9.20 tons CO/year 6.6 pounds NO _x /hour 28.91 tons NO _x /year 0.07 pound S0 ₂ /hour 0.31 ton S0 ₂ /year	(See Additional Special Terms and Conditions) 0.04 ton VOC/year 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** Recordkeeping requirements (See Additional Special Terms and Conditions) 0.04 ton VOC/year Fugitive emissions associated with regulated components are accounted for in fugitive emission allowables for P801	Recordkeeping requirements (See Additional Special Terms and Conditions) 0.04 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**	0.22 ton VOC/year 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** Recordkeeping requirements (See Additional Special Terms and Conditions) 0.22 ton VOC/year Fugitive

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permitted non-PRM storage units associated with regulated components are accounted for in fugitive emission allowables for P801	ns associated with regulated components are accounted for in fugitive emission allowables for P801	No visible flare emissions associated with regulated components are accounted for in fugitive emission allowables for P801	Conditions) 93.0 pounds VOC/hour 407.4 tons VOC/year 186.0 pounds CO/hour 814.7 tons CO/year 23.0 pounds NO _x /hour 102.0 tons NO _x /year 5.0 pounds SO ₂ /hour 21.90 tons SO ₂ /year 0.51 pound PE/hour*** 2.23 tons PE/year***	provided by rule Implementation of Site LDAR program** Implementation of Site LDAR program** **** **** **** (See Additional Special Terms and Conditions) Stack Emissions: 0.10 pound PE/hour*** 0.44 ton PE/year Fugitive Emissions: 1.20 tons PE/year 20 percent opacity as a three-minute average 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule
Implementation of Site LDAR Program**	Not applicable as long as the permittee is storing non-PRM	Not applicable as long as the loading/unloading non-PRM	Implementation of Site LDAR Program** 0.12 pound VOC/hour; 0.53 ton VOC/year	**** **** **** (See Additional Special Terms and Conditions) Incinerator shall achieve a destruction efficiency \geq 98 percent for gaseous VOC Incinerator shall achieve a reduction efficiency of \geq 99 percent for liquid organics 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule
Recordkeeping Requirements	Implementation of Site LDAR Program**	Implementation of Site LDAR Program** (See Additional Special Terms and Conditions)	Implementation of Site LDAR Program** Emissions from this process vented to the flare: 0.12 pound VOC/hour; 0.53 ton VOC/year	Stack Emissions: 0.10 pound PE/hour*** 0.44 ton PE/year Fugitive Emissions: 1.20 tons PE/year 20 percent opacity as a three-minute average 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule
Additional Special Terms and Conditions)	(See Additional Special Terms and Conditions)	(See Additional Special Terms and Conditions)	Incinerator shall achieve a destruction efficiency \geq 98 percent for gaseous VOC Incinerator shall achieve a reduction efficiency of \geq 99 percent for liquid organics 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule	Stack Emissions: 0.10 pound PE/hour*** 0.44 ton PE/year Fugitive Emissions: 1.20 tons PE/year 20 percent opacity as a three-minute average 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule
0.1 ton VOC/year Fugitive emission	Emissions from this process vented to the flare: 0.16 ton VOC/year	No visible flare emissions Fugitive Emissions: 1.81 tons VOC/year (See Additional Special Terms and	Incinerator shall achieve a destruction efficiency \geq 98 percent for gaseous VOC Incinerator shall achieve a reduction efficiency of \geq 99 percent for liquid organics 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule	Stack Emissions: 0.10 pound PE/hour*** 0.44 ton PE/year Fugitive Emissions: 1.20 tons PE/year 20 percent opacity as a three-minute average 20 percent opacity (stack) as a six-minute average, except as otherwise provided by rule

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(See Additio nal Special Terms and Conditio ons)	ute average (See Additional Special Terms and Conditions)			
1.40 pounds PE/hour ***				
6.13 tons PE/year				
0.21 pound VOC/hou r				
0.92 ton VOC/ year				
Monitor ing require ments				
**				
**				
20 percent opacity as a six-min				

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- * 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).
- *** All particulate emissions (PE) are assumed to be less than 10 microns in size (PM₁₀).
- **** Applicable requirements established by this rule are less stringent than requirements established by OAC rule 3745-31-05.

SUMMARY
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons/Year</u>
Volatile Organic Compound (VOC)	456.06
Carbon Monoxide (CO)	844.92
Nitrogen Oxides (NO _x)	134.77
Sulfur Dioxide (SO ₂)	24.27
Particulate Emissions (PE) less than 10 microns in size	10.41
Particulate Emissions (PE)	11.61*

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* All PE includes PE less than 10 microns in size.

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.

<u>Source Number</u>		<u>Source Description</u>
	T098	
P801	T099	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
	T100	
	T101	
P802	T102	Butanediol manufacturing plant no. 1: hydrogen supply section
T094	T103	Butanediol product rundown tank no. 60
T095	J001	Butanediol product rundown tank no. 61
T096	J002	Butanediol product rerun tank - no. 62
T097		Wastewater holding tank no. 63
	N006	

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	<u>NSPS Regulation (Subpart)</u>
Thermal facilities oxidizer	
wastewater feed tank no. 64	Butanediol manufacturing plant no. 1 scrubber off gas incinerator III, NNN, RRR, VV
Tetrahydrofuran/water solution tank no. 65	
Process slop water tank no. 66	VV
Butanediol product storage tank no. 67	VV, Kb 40 CFR 60.116(a) and (b) VV, Kb 40 CFR 60.116(a) and (b)
Butanediol product storage tank no. 68	VV, Kb 40 CFR 60.116(a) and (b) VV, Kb 40 CFR 60.116(a) and (b)
Butanediol product storage tank no. 69	VV, Kb 40 CFR 60.116(a) and (b) VV, Kb 40 CFR 60.116(a) and (b)
Butanediol loading facilities	VV, Kb 40 CFR 60.116(a) and (b) VV, Kb 40 CFR 60.116(a) and (b)
Tetrahydrofuran/water solution loading	VV, Kb 40 CFR 60.116(a) and (b) VV

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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

NESHAP REQUIREMENTS

The following source(s) are subject to the applicable provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) as promulgated by the United States Environmental Protection Agency under 40 CFR Part 61.

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<u>Source Number</u>	<u>Source Description</u>	<u>NESHAP Regulation (Subpart)</u>
P801	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	40 CFR Part 63, Subpart G
P076	Non-contact cooling water tower (Butanediol manufacturing plant no. 1)	40 CFR Part 63, Subpart F

The application and enforcement of these standards are delegated to Ohio EPA. The requirements of 40 CFR Part 61 are also federally enforceable.

Pursuant to the NESHAP, the source owner/operator is required to report the following milestones:

- a. date of commencement of construction (no later than 30 days after such date);
- b. anticipated date of initial start-up (not more than 60 days or less than 30 days prior to such date);
- c. actual date of initial start-up (within 15 days after such date); and
- d. date of performance testing (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

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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

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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.

<u>Source Number(s)</u>	<u>Tank Size</u>
T094	32,000
T095	32,000
T096	32,000
T097	12,000
T098	12,000
T099	52,000
T100	52,000
T101	750,000
T102	750,000
T103	750,000

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

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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 a hydrogen plant, (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 an incinerator which will be used to control emissions and incinerate liquid waste streams generated by the butanediol chemical process. The incinerator will utilize refinery fuel gas as a supplemental fuel from the adjacently located Clark Refining and Marketing, Inc. facility.

A. Applicable Emission Limitations and/or Control Requirements

1. Emissions from emissions unit P801 (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) shall be vented via a closed process vent system to one or more of the following control devices: vent scrubber, flare, or thermal oxidizer. The permittee shall operate the control equipment to meet the applicable conditions specified in OAC 3745-21-09(DD)(10), 40 CFR 60 Subparts III, NNN, and RRR; and 40 CFR 63 Subpart G. The control requirements are as follows:
 - a. Process Vent Control Requirements

Closed vent system streams shall be required to meet at least one of the following criteria at all times:

 - i. maintain the applicable TRE index values greater than 1.0 without the use of control devices; or,
 - ii. combust closed vent system emissions with a flare; or,

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- iii. reduce closed vent system emissions of regulated compounds by 98 percent utilizing a thermal oxidizer or to a concentration less than 20 ppmv, on a dry basis corrected to 3 percent oxygen.
2. The catalyst transfer operations for emissions unit P905 shall be controlled with a particulate filter and a catalyst trap.
3. 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

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- 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.
4. The permittee shall comply with the following control requirements & emissions limitations for emissions unit N006 (SOGI):
- a. The incinerator shall achieve the following efficiencies:
 - i. \geq 98 percent destruction efficiency for gaseous VOC streams; and,
 - ii. \geq 99 percent reduction efficiency for liquid organic waste streams
 - b. NO_x emissions from the combustion of fuel & waste streams in the incinerator shall not exceed 0.10 lb/MMBtu total heat input.
5. 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

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Synthetic Organic Chemicals Manufacturing Industry), and 40 CFR 63 Subpart H (National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks).

6. The permittee shall not burn any fuel gas that contains hydrogen sulfide (H₂S) in excess of 162 ppm (3 hr average) in emissions unit N006.

B. Operational Restrictions

1. The permittee shall comply with the following process vent 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. Vent Scrubber (Maleic Acid) Operational Restrictions

The permittee shall maintain a TRE index value greater than 4.0 for the maleic anhydride recovery scrubber or route to appropriate control device.

[40 CFR 60.113(e)]

- c. Flare Operational Restrictions [OAC Rule 3745-21-09(DD)(10)]
 - i. 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;
 - ii. 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;
 - iii. the flare shall be steam-assisted;
 - iv. the net heating value of the gas being controlled in the flare, as determined by the method specified in Paragraph (P)(2) of Rule 3745-21-10 of the Administrative Code, shall be 300 Btu/scf or greater;

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- v. the flare shall be designed and operated with an actual exit velocity, as determined by the method specified in Paragraph (P)(3) of Rule 3745-21-10 of the Administrative Code, less that 60 feet per second; and,
- vi. the permittee shall ensure the flare is operated and maintained in conformance with its design; and,

d. Thermal Oxidizer (SOGI) Operational Restrictions

The permittee shall establish a range of operating parameters for the SOGI that meet the requirements of 40 CFR 60 Subparts III, NNN, and RRR, 40 CFR 63.116(c), and 40 CFR 63.114(e).

- 2. The permittee shall burn only natural gas and process purge gas in emissions unit P802.
- 3. 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.
- 4. If the inspection required in Section C.5.a or C.5.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.
- 5. If the inspection required in Section C.5.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.3.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.
- 6. If the inspection required in Section C.5.a or C.5.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).
- 7. The permittee shall not exceed the maximum annual throughputs listed for the following emissions unit:

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- 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)
8. The permittee shall comply with the applicable operational restrictions for emissions unit N006 contained in 40 CFR Part 60, Subpart Db. The thermal oxidizer operational restrictions specified in Section B.1.d apply to emissions unit N006 due to the fact that this incinerator also serves as a control device for emissions unit P801.
9. The permittee shall only burn liquid organic waste streams in emissions unit N006 which meet the following requirements:
- a. 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 incineration requirements in accordance with OAC

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Rule 3745-57-40(C); and,

- b. are not applicable to 40 CFR Part 63, Subpart EEE - National Emission Standards for Hazardous Air Pollutants From Hazardous Waste Combustors in accordance with the comparable fuels exclusion.
10. The permittee shall comply with the LDAR program operational restrictions, see Section A.5.
 11. The permittee shall maintain an average total dissolved solids content of 3,500 mg/l in the cooling water for emissions unit P076.
 12. If a leak is detected by the monitoring required in section C.12, the permittee shall repair the leak as soon as practicable but not later than 45 calendar days after the permittee receives results of monitoring tests that indicate that a leak is present. Repair to a leak can include such activities as repairing a leaking heat exchanger or rerouting the waste from a steam jet ejector.

Once the leak has been repaired, the permittee must test the heat exchange system using the procedures described in section C.12 to ensure that the leak has been repaired.

Delay of repair of heat exchange systems for which leaks have been detected is allowed provided the conditions of 40 CFR 63.104(b)(3)(i) or (b)(3)(ii) are met.

13. 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 P802 and 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 Units: P802 & N006

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Pollutant: Methanol

TLV (ug/m3): 262,000

Maximum Hourly Emission Rate (lbs/hr): P802 - 1.7

N006 - 72

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 5119*

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 6238

Emission Units: N006

Pollutant: Tetrahydrofuran

TLV (ug/m3): 590,000

Maximum Hourly Emission Rate (lbs/hr): 4.16

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 286

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 14,048

Pollutant: Ethanol

TLV (ug/m3): 1,880,000

Maximum Hourly Emission Rate (lbs/hr): 1.5

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 103

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 44,762

Pollutant: Propanol

TLV (ug/m3): 492,000

Maximum Hourly Emission Rate (lbs/hr): 1.33

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 92

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 11,714

Pollutant: Butanol

TLV (ug/m3): 152,000

Maximum Hourly Emission Rate (lbs/hr): 3.33

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 229

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 2,670

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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): 0.13

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 8.95

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

Pollutant: Acetic Acid

TLV (ug/m3): 25,000

Maximum Hourly Emission Rate (lbs/hr): 0.1

Predicted 1 Hour Maximum Ground-Level Concentration at or beyond the Fenceline (ug/m3): 6.88

Maximum Acceptable Ground-Level Concentration (MAGLC) (ug/m3): 595

* In the Screen 3 modeling for emissions unit P802, the conservative assumption was made that all air toxics emitted would be assumed to be methanol which has the lowest TLV of the air toxics emitted.

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;

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- 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)].

C. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall comply with the following monitoring requirements for emissions unit P801:
 - a. Scrubber Vent Monitoring Requirements
 - i. the permittee shall calculate the TRE index value in accordance with 40 CFR 63.115.
 - 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)]; and,
 - ii. the permittee shall maintain and operate a flow indicator which provides a record of the butanediol manufacturing plant recovery and purification section vent stream flow to the flare at least once every hour. The flow indicator shall be installed in the vent stream at a point closest to the flare and before being joined with any other vent stream. [40 CFR 60.663(b)(2)]
 - c. Thermal Oxidizer (SOGI) Monitoring Requirements

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CFR 63.115(e)
[40 CFR 63.118(c)(1)&(2)]

- d. the permittee shall maintain records of all periods when there is no flow rate of the closed vent stream.
[40 CFR 63.118(a)(3)];
- e. the following information shall be recorded for the flare, and thermal oxidizer 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 vent scrubber, flare and thermal oxidizer are operated and maintained in conformance with their design, and an explanation of the reason for selecting such parameter or parameters;
 - iv. periods when the closed vent system and the vent scrubber, flare and thermal oxidizer are not operated as designed; and,
 - v. dates of start-ups and shutdowns of the closed vent system, vent scrubber, flare and thermal oxidizer.
[OAC Rule 3745-21-09(DD)(14)(d)]
- f. the permittee shall collect and record a daily log or record of operating time for the closed vent system, flare and thermal oxidizer, and monitoring equipment. The information shall be maintained in the company's files for a period of five years.
- g. Flare Recordkeeping Requirements

The permittee shall maintain the following records:

- i. flow rate to the flare recorded at least once every hour [40

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CFR 60.665(d);

- ii. records of all periods when the closed vent stream is diverted from the flare or when there is no flow rate [40 CFR 60.665(d)];
- iii. records of all hourly periods when the flare pilot flame is absent. [40 CFR 60.118(a)(1)]; and,
- iv. records of all parameters listed in 40 CFR 60.665(b)(3).

h. Thermal Oxidizer (SOGI) Recordkeeping Requirements

The permittee shall maintain the following records:

- i. continuous records of flow rate to the thermal oxidizer. [40 CFR 60.665(d)];
 - ii. continuous records of thermal oxidizer firebox temperature. [40 CFR 60.665(b)(1)(i)];
 - iii. records of all periods when the closed vent stream is diverted from the incinerator. [40 CFR 60.665(d)];
 - iv. records of all 3-hour periods during which the average combustion temperature was more than 50 degrees Fahrenheit below the average temperature at which compliance with 40 CFR 60 Subpart NNN requirements were demonstrated during a performance test. [40 CFR 60.665(c)(1)]; and,
 - v. records required per 40 CFR 60.665(b)(1)(ii).
3. For each day during which the permittee burns a fuel other than natural gas or process purge gas in emissions unit P802, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

The burning of fuels other than those specified in Section B.2 may be deemed "modifications" to facility emission units and, as such, prior notification to and approval from Ohio EPA, Northwest District Office are required, including the possible issuance of modifications to PTI No. 03-1250 and the operating permit.

4. The permittee shall comply with the LDAR program monitoring and recordkeeping requirements, see Section A.5.

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5. 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

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for at least 2 years in accordance with 40 CFR 60.115b.

6. 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.
7. The permittee shall comply with the applicable monitoring and recordkeeping requirements for emissions unit N006 contained in 40 CFR Part 60, Subpart Db. The monitoring specified in Section C.1.c and the recordkeeping specified in Section C.2.h apply to emissions unit N006 due to the fact that this incinerator also serves as a control device for emissions unit P801.
8. The permittee shall collect and record the number of catalyst drums handled per year (from January to December) for emissions unit P905.
9. The permittee shall collect and record the number of railcar/trucks unloaded per year (from January to December) for emissions unit J003.
10. The permittee shall perform the following monitoring and recordkeeping for emissions unit P076:
 - a. the permittee shall test and record the total dissolved solids content of the cooling water once per week; and,
 - b. the permittee shall calculate an average total dissolved solids content value based on the four most current readings from section C.10.a, above.
11. The permittee shall perform the following monitoring in accordance with 40 CFR 63.104 for emissions unit P076:
 - a. the cooling water shall be monitored monthly for the first 6 months and quarterly thereafter to detect leaks; and,
 - b. the cooling water shall be monitored for total HAP, total VOC, or speciated HAP's in accordance with the provisions specified in 40 CFR 63.104(b)(1).

The above monitoring requirements do not apply to cooling tower systems that qualify for the monitoring exclusions specified 40 CFR 63.104(a)

12. In order to demonstrate compliance with the requirement not to burn any

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fuel gas that contains a H₂S concentration in excess of 230 mg/dscm (0.10 gr/dscf) based on a 3-hr rolling average in emissions unit N006, the permittee shall use the data from the continuous monitoring system currently employed on the Clark Refining and Marketing, Inc.(Premise No. 0302020012) fuel gas system which will serve emission unit N006.

13. In order to demonstrate compliance with the emission limitation of 0.10 lb NO_x/MMBTU heat input for emissions unit N006, the permittee shall comply with the monitoring and recordkeeping contained in section F.2.
14. 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.

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D. Reporting Requirements

1. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
 - a. reports of any required monitoring and/or recordkeeping information shall be submitted to the Ohio EPA, Northwest District Office;
 - b. quarterly written reports of (i) any deviations from emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be promptly made to the Ohio EPA, Northwest District Office.

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter.

The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters;

- c. written reports, which identify any deviations from the monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Ohio EPA, Northwest District Office every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months.

If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period; and,

- d. each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report

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are true, accurate, and complete.

2. The permittee shall comply with the following reporting requirements for emissions unit P801:
 - a. all reporting shall comply with the requirements contained in OAC 3745-21-09, 40 CFR 60 Subparts III, NNN, and RRR, and 40 CFR Part 63, Subpart G.
 - b. the permittee, shall submit the following reports:
 - i. exceedances of all monitored parameters;
 - ii. a log of the operating time for the closed vent system, vent scrubber, flare, and thermal oxidizer;
 - iii. periods of time when the closed vent system stream is diverted from system control devices;
 - iv. all periods of time when the vent scrubber, flare, and/or thermal oxidizer was not operational;
 - v. all periods of time when required monitoring data was not collected;
 - vi. all three-hour periods of operating during which the average combustion temperature in the thermal oxidizer was greater than 50 degrees Fahrenheit below the average combustion temperature established during the most recent stack test; and,
 - vii. all periods of time during which the pilot flame on the flare is not functioning properly.
3. 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

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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.5.a or Section C.5.c. If the inspection required by Section C.5.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.4. 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.5.b reveals any failures as outlined by Section C.5.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.

4. The permittee shall comply with the applicable reporting requirements for emissions unit N006 contained in 40 CFR Part 60, Subpart Db. The reporting requirements specified in Section D.2.b apply to emissions unit N006 due to the fact that this incinerator also serves as a control device for emissions unit P801.
5. The permittee shall submit initial notifications in accordance with the provisions of 40 CFR Part 60, Subparts III, NNN, and RRR, and 40 CFR

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Part 63, Subpart G & H for emissions unit P801.

The permittee shall submit initial notifications in accordance with the provisions of 40 CFR Part 60, Subpart Db for emissions unit N006.

6. The permittee shall submit to the Ohio EPA within 180 days prior to start-up of operations under this permit, a Preventive Maintenance Malfunction Abatement Plan (PMMAP) for emissions unit P905. The PMMAP shall include a description of steps or procedures reasonably available to be taken in order to prevent or minimize the emission of PE during the transfer of catalyst between the maleic anhydride reactor and the catalyst hopper.
7. The permittee shall comply with the LDAR program reporting requirements, see Section A.5.
8. The permittee shall submit quarterly deviation (excursion) reports which identify all exceedances of the following the operational restriction to maintain an average total dissolved solids content of 3,500 mg/l in the cooling water for emissions unit P076.
9. The permittee shall submit annual deviation (excursion) reports which identify all exceedances of the throughput restrictions contained in section B.7 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.
10. If the permittee invokes the delay of repair provisions for emissions unit P076 as outlined in section B.12, the permittee shall submit the information and reports required by 40 CFR 63.104(b)(4).
11. The permittee shall submit copies of the quarterly excess emission reports for the Clark Refining and Marketing, Inc. fuel gas system servicing emissions unit N006.
12. The compliance status of the emissions units P801, P802, 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).
13. The actual annual emissions data for emissions units P801, P802, 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).

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14. The permittee shall comply with the continuous emission monitoring system reporting requirements contained in Section F.2.
15. 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. Short-Term Emissions:

aa. Flare Emissions:

7.5 lbs VOC/hr
4.8 lbs CO/hr
0.88 lb NO_x/hr
0.47 lb SO₂/hr
0.04 lb PE/hr

Applicable Compliance Method:

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.

The flare emission limitations also account for combustion emissions from the natural gas pilot flame. Pilot flame emissions were established by multiplying the following emission factors

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0.068 lb NO_x/MMBtu
0.003 lb PM/MMBtu
0.37 lb CO/MMBtu
0.0006 lb SO₂/MMBtu

by the maximum hourly gas burning capacity (13 MMBtu/hr) of the pilot flame.

Compliance shall be demonstrated 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 & iii.

ii. Long-Term Emissions:

aa. Flare Emissions:

0.17 ton PE/yr
32.85 tons VOC/yr
21.02 tons CO/yr
3.86 tons NO_x/yr
2.06 tons SO₂/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 Process Emissions:

5.37 tons VOC/yr

Applicable Compliance Method:

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

$$PFE = (\sum_{i=1}^n N_i S_i) \times (\text{hrs/yr}) \times (\text{ton}/2000 \text{ lbs})$$

where:

PFE = Process fugitive VOC emissions, tons/yr

N_i = Number of pipe fitting components i

S_i = SOCM 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 approved USEPA protocols

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

b. Emission Limitations for Emissions Unit P802:

i. Short-Term Emissions:

0.33 lb PE/hr
 1.7 lbs VOC/hr
 2.1 lbs CO/hr
 6.6 lbs NO_x/hr
 0.31 lb SO₂/hr

Applicable Compliance Method:

The short-term emission limitations were established by engineering estimates based on the combustion of process purge gas with supplemental natural gas feed (13 MMCF/Day) for a required heat input of 45 MBtu/lb H₂ produced.

The hourly emission limitations are based on the emission unit's potential to emit. Therefore, no hourly recordkeeping or deviation reporting is required to demonstrate compliance with these limits.

Compliance for NO_x shall be determined by emission testing

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as specified in section E.2.b.

ii. Long-Term Emissions:

1.44 tons PE/yr
7.45 tons VOC/yr
9.20 tons CO/yr
28.91 tons NO_x/yr
0.31 ton SO₂/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.

c. Emission Limitation:

20 percent opacity (stack) as a six minute average from emissions units: P802, P905, N006, 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).

d. 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

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recordkeeping specified in Section C.6

e. 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.6

f. 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.6

g. 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.6

h. Emission Limitation for T098:

0.22 ton VOC/yr

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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.6

i. 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.6

j. 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.6

k. 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:

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

and a maximum annual throughput of 22,500,000 gallons. Compliance shall be demonstrated by using the actual annual throughput from recordkeeping specified in Section C.6.

I. 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.6 and by

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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.

m. Emission Limitations for N006:

i. Short-Term Limitations:

93.0 lbs VOC/hr

186.0 lbs CO/hr

23.0 lbs NO_x/hr

5.0 lbs SO₂/hr

0.51 lb PE/hr

Applicable Compliance Method:

The emission limitations for SO₂ and PE were established based on a 99 percent reduction in the liquid organic streams (2100 lbs/hr) fed to the incinerator. A supplemental refinery fuel gas feed is also incorporated into the SO₂ & PE emission limitations. If required, compliance with PE & SO₂ limitations shall be based on stack testing in accordance with 40 CFR Part 60, Appendix A - Test Methods 1 -5, & Method 6 respectively.

Compliance for VOC and CO shall be determined by emission testing as specified in section E.2.c.

Compliance for NO_x shall be determined by continuous emission monitoring requirements contained F.2.a.iii.

ii. Long-Term Limitations:

407.4 tons VOC/yr

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814.7 tons CO/yr
102.0 tons NO_x/yr
21.90 tons SO₂/yr
2.23 tons PE/yr

Applicable Compliance Method:

The TPY limitations were developed by multiplying the lb/hr allowable mass emission rate 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.

iii. Emission Limitation:

0.1 lb NO_x/MMBtu total heat input

Applicable Compliance Method:

Compliance with this emission limitation shall be determined by the continuous emission monitoring system requirements contained in Section F.2.a.ii.

n. Emission Limitations for P905:

i. Short-Term Limitation:

0.10 lb PE/hr

Applicable Compliance Method:

The PE emission limitation was developed by applying a 99 percent removal efficiency for control with a particulate filter and catalyst trap to calculated uncontrolled mass rate of emission based on engineering estimates of 10 lbs/hr.

If required, compliance with PE limitations shall be based on stack testing in accordance with 40 CFR Part 60, Appendix

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A - Test Methods 1-5.

ii. Long-Term Limitation:

0.44 ton/yr

Applicable Compliance Method:

The TPY limitations were developed by multiplying the lb/hr allowable mass emission rate 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.

iii. Fugitive Emissions:

aa. 1.20 tons/yr

Applicable Compliance Method:

The TPY limitation was developed by multiplying a 2.0 lbs/drum emission factor based on engineering estimates by a maximum operational restriction of 1200 drums per year. Compliance shall be demonstrated by calculations of annual emissions using the above emission factor and the actual number of drums handled from recordkeeping specified in Section C.8.

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.

o. Emission Limitation for emissions unit J003:

i. Short-Term Limitation:

aa. Flare Emissions:

0.12 lb VOC/hr

Compliance Method Determination:

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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.9

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p. 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.6

q. 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.6

r. 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.6

s. Emission Limitations for Emissions Unit P076

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i. Short-Term Limitations:

aa. 1.40 lbs PE/hr

Applicable Compliance Method:

The short-term PE emission limitation was developed by applying a maximum average total dissolved solids content of 3,500 mg/l for the cooling water to a maximum drift loss factor of 0.004 percent. Compliance shall be demonstrated through the monitoring and recordkeeping specified in section C.10 and testing specified in section E.4.

ab. 0.21 lb VOC/hr

Applicable Compliance Method:

The short-term VOC emission limitation was developed by multiplying an emission factor of 0.175 lb VOC/1,000,000 gallons times a maximum cooling water throughput capacity of 1,200,000 gallons per hour. Compliance shall be demonstrated through the monitoring and recordkeeping specified in section C.11.

ii. Long-Term Emission Limitations:

aa. 6.13 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 limitations.

ab. 0.92 ton VOC/yr

Applicable Compliance Method:

The tons/yr limitations were developed by multiplying the lb/hr limitations by the maximum operating

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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.

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. The permittee shall conduct, or have conducted, emission testing for emissions unit P801 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 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, 40 CFR Part 60, Appendix A

- 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:

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

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

- 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 P802:

- i. The permittee shall conduct, or have conducted, emission testing for emissions unit P802 in accordance with the following requirements:

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

NO_x - *Method 7 or 7E, 40 CFR Part 60, Appendix A*

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

- ii. The permittee shall within 3 months after the start-up of this emission unit, collect and analyze the process purge gas for the following:
 - aa. percent Hydrogen
 - ab. percent Methanol
 - ac. percent Methane
 - ad. percent CO₂
 - ae. percent Water
 - af. percent Sulfur
 - ag. Heat Content (Btu/cf)

c. Performance Testing Requirements for Emissions Unit N006:

- i. the performance testing requirements specified in Section E.2.a apply to emissions unit N006 due to the fact that this incinerator also serves as a control device for emissions unit P801;
- 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

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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, 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.2.
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

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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.

Note: No term or condition specifying a method for demonstrating compliance with any emission limitation or other requirement of this permit shall preclude the use by any person of any credible evidence to establish compliance with or a violation of this permit, the Clean Air Act, or any implementing regulations or rules promulgated thereunder.

F. Miscellaneous Requirements

1. The catalyst transfers associated with the charging of the maleic anhydride reactor shall be classified as start-up and shutdown activities of process equipment. The permittee shall report these activities in accordance with the provisions of OAC 3745-15-06.
2. 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 (SOGI) 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 SOGI 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 SOGI will be required to meet the NO_x

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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 SOGI. The permittee shall also monitor and record the steam flowrate produced by the waste heat boiler. The above information will be applied to the following equation for calculating lbs NO_x per MMBtu heat input:

$$\frac{\text{Lbs NO}_x}{\text{MMBtu heat input}} = \frac{\text{lbs}_{\text{NO}_x \text{ emitted}}}{\text{MMBtu heat input}}$$

NO_x(outlet) = NO_x emission rate, avg. lb/hr as measured by CEM on SOGI outlet stream

$$\text{MMBtu heat Input} = \frac{\text{Boiler Heat Output, BTU/hr}}{\text{Boiler Efficiency}}$$

$$\text{Boiler Heat Output, MMBTU/hr} = \frac{\text{Steam Flowrate, lbs/hr} \times (\text{Steam Heat Content} - \text{Boiler Feedwater Heat Content, MMBTU/lb})}{1000}$$

- 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 SOGI will be required to meet a NO_x emission limitation of 23.0 lbs/hr as established by OAC 3745-31-05.
- aa. the permittee shall operate and maintain the equipment required in section F.2.a.ii above to continuously monitor and record NO_x from emissions unit NOO6 in units of the applicable standard. Such continuous monitoring and

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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 an instantaneous (one-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

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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 of the effective date of this permit, 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

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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.