217/782-2113

"REVISED"
CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT

PERMITTEE

Afton Chemical Corporation
Attn: Environmental Manager
501 Monsanto Avenue
Sauget, Illinois 62201

Application No.: 95120012 I.D. No.: 163121AAB
Applicant's Designation: ETHYL SAUGET Date Received: January 8, 2008
Operation of: Miscellaneous Organic Chemical Manufacturing
Date Issued: December 17, 2009 Expiration Date[1]: December 17, 2014
Source Location: 501 Monsanto Avenue, Sauget, St. Clair County
Responsible Official: Joe Campbell, Plant Manager

This permit is hereby granted to the above-designated Permittee to OPERATE a miscellaneous organic chemicals manufacturing facility, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

Revision Date Received: August 6, 2010
Revision Date Issued: October 20, 2011
Purpose of Revision: Significant Modification

This Permit has been revised for more accurate description of the source's operations, clarification of rule avoidance and establishing more accurate allowable emission limits. Specifically, the following conditions have been revised/clarified: 7.3.3(d); 7.3.5(a); 7.3.8(a); 7.3.9(a); 7.3.9(c); 7.16.6(b); 7.24.6; 7.24.6; 7.26.4(a); and 7.26.6.

If you have any questions concerning this permit, please contact Anatoly Belogorsky at 217/782-2113.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

ECB:MTR:psj

cc: Illinois EPA, FOS, Region 3

[1] Except as provided in Conditions 1.5 and 8.7 of this permit.

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1.0 ITRODUCTION

1.1 Source Identification

Afton Chemical Corporation
501 Monsanto Avenue
Sauget, Illinois 62201
616/583-1311

I.D. No.: 163121AAB
Standard Industrial Classification: 2869, Industrial Organic Chemicals

1.2 Owner/Parent Company

Afton Chemical Corporation
500 Spring Street
Richmond, Virginia 23219

1.3 Operator

Afton Chemical Corporation
501 Monsanto Avenue
Sauget, Illinois 62201

Donna Parks Ratkowski
618/583-1323

1.4 Source Description

Afton Chemical Corporation is located at 501 Monsanto Avenue in Sauget, Illinois. The source manufactures various miscellaneous organic chemicals, including lubricant additives, for the petroleum industry. In addition, the source packages these materials for transportation off-site for further processing.

1.5 Title I Conditions

As generally identified below, this CAAPP permit contains certain conditions for emission units at this source that address the applicability of permitting programs for the construction and modification of sources, which programs were established pursuant to Title I of the Clean Air Act (CAA) and regulations thereunder. These programs include PSD and MSSCAM, and are implemented by the Illinois EPA pursuant to Sections 9, 9.1, 39(a) and 39.5(7)(a) of the Illinois Environmental Protection Act (Act). These conditions continue in effect, notwithstanding the expiration date specified on the first page of this permit, as their authority derives from Titles I and V of the CAA, as well as Titles II and X of the Act. (See also Condition 8.7.)

a. This permit contains Title I conditions that reflect Title I requirements established in permits previously issued for this source, which conditions are specifically designated as “T1”.

b. This permit contains Title I conditions that revise Title I requirements established in permits previously issued for this source, which conditions are specifically designated as “T1R”.

c. This permit contains Title I conditions that are newly established in this CAAPP permit, which conditions are specifically designated as “T1N”.

2.0 LIST OF ABBREVIATIONS/ACRONYMS USED IN THIS PERMIT

AB	Alkylbenzene
ABSA	Alkylbenzene Sulfonic Acid
ACS	Alternative Control Strategy (35 IAC 202)
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AlCl3	Aluminum Chloride
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
°C	degrees Celsius
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CS_2	Carbon Disulfide
DCC	Direct Contact Condenser
DFA	Diesel Fuel Additive
dscf	dry standard cubic feet
ERMS	Emissions Reduction Market System
ESP	Electrostatic Precipitator
°F	degrees Fahrenheit
ft	feet
ft^3	cubic feet
g-mole	gram-mole
gal	gallon
gr	grain (7000 grains = 1 pound)
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
HCl	Hydrochloric Acid
HON	Hazardous Organic NESHAP
hr	hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
°K	degrees Kelvin
kcal	kilocalorie
kg	kilogram
kPa	kilopascal
kW	kilowatts
lb	pound
lb-mole	pound-mole
m	meter
m^3	cubic meter
Mg	megagram

min	minute
MJ	megajoule
mmBtu	Million British thermal units
mmHg	millimeters of mercury
mo	month
MSSCAM	Major Stationary Sources Construction and Modification (35 IAC 203, New Source Review for non-attainment areas)
MW	megawatt
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standards
ORP	oxidation reduction potential
PBSA	Polybutenyl Succinic Anhydride
pH	a measure of the acidity or alkalinity of a solution
PM	Particulate Matter
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods
ppm	parts per million
ppmv	parts per million by volume
PSD	Prevention of Significant Deterioration (40 CFR 52.21, New Source Review for attainment areas)
psia	pounds per square inch absolute
°R	degrees Rankin
RMP	Risk Management Plan
scf	standard cubic feet
scfm	standard cubic feet per minute
scm	standard cubic meter
sec	second
SIB	Sulfurized Isobutylene
SO_2	Sulfur Dioxide
SOCMI	Synthetic Organic Chemical Manufacturing Industry
T1	Title I – identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New – identifies Title I conditions that are being established in this permit
T1R	Title I Revised – identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
TOC	Total Organic Compounds
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
VOL	Volatile Organic Liquid
VOM	Volatile Organic Material
yr	year
ZDDP	Zinc Dialkyldithiophosphate

3.0 CONDITIONS FOR INSIGNIFICANT ACTIVITIES

3.1 Identification of Insignificant Activities

The following activities at the source constitute insignificant activities as specified in 35 IAC 201.210:

3.1.1 Activities determined by the Illinois EPA to be insignificant activities, pursuant to 35 IAC 201.210(a)(1) and 201.211, as follows:

Emission Unit Designation	Description of Emission Unit
Unit 258 Processes	
21-0510	Air Strippers
35-2782 and 35-3073	Alkylbenzene or Olefin Storage Tanks
35-0540	Alkylbenzene Containment Tank
35-0134, 35-0135, 34-0340, 34-0590	Alkylbenzene Storage Tanks
35-0180, 35-0190 and 35-0763	Ethylene Glycol Storage Tanks
35-0510 and 35-0515	Wastewater Storage Tank
35-1539	Flare Seal Pot
35-0505	Benzene Containment Tank
Unit 280 Processes	
35-0104 and 35-2203	Hydrochloric Acid Storage Tanks with Water Jet Scrubbers
Unit 290 Processes	
35-0275	Hydrazine Storage Tank
Unit 267 Processes	
35-0107	Quench Tank with Carbon Drums
14-0162	Hydrochloric Acid Scrubber Outlet Stream Filter
Unit 268 Processes	
35-0818	Ethylene Glycol Storage Tanks
35-0903, 35-0904, and 35-0905	High Flash Aromatic Solvent
Unit 270B Processes	
35-0803	Therminol HC
Unit 275 Processes	
35-0702	Therminol Tank
35-0110	Maleic Anhydride Storage Tank

3.1.2 Activities that are insignificant activities based upon maximum emissions, pursuant to 35 IAC 201.210(a)(2) or (a)(3), as follows:

Emission Unit Designation	Description of Emission Unit
General Emission Units	
Washing	Railroad Tank Car Washing
Cleaning	Filter Cleaning
Blenders A and B	Two (2) 10-Gallon Blend Pots
Filter	Lube Oil Filter

Emission Unit Designation	Description of Emission Unit
Unit 258 Processes	
14-0530	Lube Oil Polishing Filter
14-0755	Polishing Filter
14-0816 and 14-0817	Lube Oil Filters
35-0122 and 35-0575	Olefin Storage Tanks
35-0565	Sulfuric Acid Storage Tank
35-0570	Sulfur Storage Tank
35-4031 and 35-4032	Sulfonator Digester Tanks
05-8033	Oxidation Tower
Unit 266 Processes	
35-0135, 35-0184, 35-0310, 35-0315, 35-0320, 35-0340	Raw Material Storage Tanks
35-0205	Product Storage Tank
Unit 266 Unloading	Phosphorus Pentasulfide Unloading System
Unit 266 Loading	Tank Car Loading (Mode 2 Product)
Unit 266 Loading	Truck Loading (Condensate)
Unit 266 Unloading	Raw Material Unloading
Unit 266 Filtering	Intermediate and Final Product Filtering
Unit 280 Processes	
35-0625	Kerosene Tank
35-0105	Chilled Kerosene Tank
35-0106	n-Propanol Tank with Condenser
35-0117 and 35-0118	Alcohol Tanks, Vent to flare
35-0120	Sulfur Monochloride Tank with Scrubber
35-0114 and 35-0307	Brine Storage Tanks, Vent to Scrubber System
41-0300	Sulfur Weigh Bin
35-0112 and 35-0113	Isobutylene Storage Tanks, Vent to Flare
Unit 290 Processes	
35-0530	Mercaptan Storage Tank with Carbon Drums
35-0800	Chilled Glycol Storage Tank
35-0225	Peroxide Storage Tank
14-0200 and 14-0615	Product Filters
35-0850	Raw Material Storage Tank
Unit 267 Processes	
35-0002, 35-0003, 35-0107, 35-0300, 35-0420, 35-0670, 35-1112, 35-1121, and 35-2287	Raw Material Storage Tanks
14-0111	Lubricating Oil Polishing Filter
Unit 267 Drumming	By-product Drumming

Emission Unit Designation	Description of Emission Unit
Unit 268 Processes	
35-0313, 35-0400, 35-0402, 35-0406, 35-0510 and 35-0600	Raw Material Storage Tanks
Unit 268 Loading	Railcar Loading Docks
Unit 268 Loading	Tank Truck Loading Docks
Unit 268 Drumming	Drumming Stations
Unit 270A Processes	
35-2124, 35-0701, 35-0717, 35-0100, and 35-0118	Raw Material Storage Tanks
43-0120	Separator
14-0431, 14-0707, 14-0930, 14-0931, 14-0715, 14-0438, 14-0936, 14-0223, 14-0233, and 14-0557	Lubricating Oil Filters
35-0520	Air Stripper Feed Tank
Unit 270B Processes	
35-0308	Lubricating Oil Storage Tank
35-0151	Polybutene Storage Tank
14-0722 and 14-0723	Product Filters
14-0716	Filter
Unit 275 Processes	
14-0301	PBSA Filter
14-0611	Product Filter
35-0101, 35-0114, and 35-0191	Polybutene Storage Tanks
35-0141	Polyamine Storage Tank
35-0700	TEPA Storage Tank
35-0209	Maleic Anhydride Receiver
35-0275	Hotwell
35-0302	PBSA Precoat Tank
35-0303	PBSA Filter Feed Tank
35-0401	Amine Weigh Tank
35-0612	Condensate Catch Tank
35-0815	Chlorine Scrubber Hold Tank
Unit 283 Processes	
35-125, 35-0819, 35-1915, 35-1916, 35-1974, 35-2052, 35-2576, and 35-2577	Storage Tanks
35-595	Kerosene Storage Tank
35-0209, 35-0210 and north diesel storage tank	Diesel Fuel Storage Tanks

3.1.3 Activities that are insignificant activities based upon their type or character, pursuant to 35 IAC 201.210(a)(4) through (18), as follows:

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0

mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Equipment used for filling drums, pails, or other packaging containers, excluding aerosol cans, with soaps, detergents, surfactants, lubricating oils, waxes, vegetable oils, greases, animal fats, glycerin, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions [35 IAC 201.210(a)(8)].

Storage tanks of organic liquids with a capacity of less than 10,000 gallons and an annual throughput of less than 100,000 gallons per year, provided the storage tank is not used for the storage of gasoline or any material listed as a HAP pursuant to Section 112(b) of the CAA [35 IAC 201.210(a)(10)].

Storage tanks of any size containing virgin or re-refined distillate oil, hydrocarbon condensate from natural gas pipeline or storage systems, lubricating oil, or residual fuel oils [35 IAC 201.210(a)(11)].

Gas turbines and stationary reciprocating internal combustion engines of less than 112 kW (150 horsepower) power output [35 IAC 201.210(a)(15)].

Gas turbines and stationary reciprocating internal combustion engines of between 112 kW and 1,118 kW (150 and 1,500 horsepower) power output that are emergency or standby units [35 IAC 201.210(a)(16)].

Storage tanks of any size containing exclusively soaps, detergents, surfactants, glycerin, waxes, vegetable oils, greases, animal fats, sweeteners, corn syrup, aqueous salt solutions, or aqueous caustic solutions, provided an organic solvent has not been mixed with such materials [35 IAC 201.210(a)(17)].

Loading and unloading systems for railcars, tank trucks, or watercraft that handle only the following liquid materials, provided an organic solvent has not been mixed with such materials: soaps, detergents, surfactants, lubricating oils, waxes, glycerin, vegetable oils, greases, animal fats, sweetener, corn syrup, aqueous salt solutions, or aqueous caustic solutions [35 IAC 201.210(a)(18)].

3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b). Note: These activities are not required to be individually listed.

3.2 Compliance with Applicable Requirements

Insignificant activities are subject to applicable requirements notwithstanding status as insignificant activities. In particular, in addition to regulations of general applicability, such as 35 IAC 212.301 and 212.123 (Condition 5.2.2), the Permittee shall comply with the following requirements, as applicable:

3.2.1 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 219.182.

3.2.2 For each particulate matter process emission unit, the Permittee shall comply with the applicable particulate matter emission limit of 35 IAC 212.321 or 212.322. For example, the particulate matter emissions from a process emission unit shall not exceed 0.55 pounds per hour if the emission unit's process weight rate is 100 pounds per hour or less, pursuant to 35 IAC 266.110.

3.2.3 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.

3.2.4 For each organic material emission unit that is part of a batch manufacturing process and exempt from the control requirements of 35 IAC 219 Subpart V (e.g., pilot plant equipment), the Permittee shall maintain uncontrolled total annual mass emissions of VOM less than or equal to 30,000 pounds per year from each batch process train. The recordkeeping and reporting requirements of 35 IAC 219.505 shall apply to such emission units.

3.3 Addition of Insignificant Activities

3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).

3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.

3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Emission Unit	Description	Date Constructed	Emission Control Equipment
General Emission Units			
500-15-0110	99.7 mmBtu/hr Boiler	10/1997	None
500-15-0210	99.7 mmBtu/hr Boiler	10/1997	None
500-15-0310	99.7 mmBtu/hr Boiler	10/1997	None
39-0955	Unit 270 Cooling Tower	1985	None
39-0227	Unit 280 Cooling Tower	Prior to 1971	None
R-100	Unit 290 Truck Loading Docks (wastewater condensate)	Unknown	Carbon Drums
Unit 258 Processes			
27-0105	AB Reactor	6/1976	Condensers, Scrubber 33-0549, Flare 36-0219
27-0106	AB Reactor	9/1977	
27-0550	AB Reactor	11/1980	
35-0580	Benzene Storage Tank T-580 (35,000 gallons)	1980	Scrubber 33-0549, Flare 36-0219
35-0589	Benzene/Water Separator Feed Tank T-589	10/1980	
35-0588	Benzene/Water Separator Tank T-588	1/1981	
35-0141	Recovered Benzene Feed Tank	1964	
35-0608/0201	Wastewater Hold Tank	10/1980	Condenser 17-0202, Scrubber 33-0549, Flare 36-0219
35-0501	Steam Sparge Tank	1998	
Unit 258 Washing	Drum Washing Station	Unknown	Venturi Scrubber 10-AlCl3
15-3011	Sulfur Burner	1987	Acid Scrubber 33-7011, ESP 21-8021, Caustic Scrubber 33-8031
27-3012	Converter	1987	
43-3021	Oleum Separator	1987	
27-4011	Sulfonator	1/1987	Feed Scrubber 33-9011, ESP 21-8021, Caustic Scrubber 33-8031
35-0553	ABSA Receiver Tank (12,000 gallons)	10/1978	None
27-0620	Neutralizer	6/1980	None
27-0607	Still	Prior to 1971	Condenser 17-0637
41-0205	South Filter Aid Weigh Bin	Unknown	Baghouse 09-0205
41-0206	North Filter Aid Weigh Bin	Unknown	Baghouse 09-0206

Emission Unit	Description	Date Constructed	Emission Control Equipment
Unit 266 Processes			
27-0142	Thio Acid Reactor	1/1981	Condensers, H_2S Scrubber System (33-2421 and 33-2422), Flare 36-0011/36-0610
27-1244	Thio Acid Reactor	11/1985	
27-0143	Degasser/Hold Tank	6/1977	H_2S Scrubber System (33-2421 and 33-2422), Flare 36-0011/ 36-0610
27-0195	Degasser/Hold Tank	3/1978	
27-2425	Neutralizer	1985	Condensers, Scrubbers, Flare 36-0011/36-0610, Baghouse 09-1425
27-1426	Neutralizer	1985	
35-0300	Isopropanol Storage Tank (35,000 gallons)	1981	None
Unit 280 Processes			
27-0201	First Stage SIB Reactor	10/1975	HCl Scrubbers, Flare 36-0011/36-0610
27-0301	Second Stage SIB Reactor	3/1982	Condensers, H_2S Scrubbers (33-2421, 33-2422, and 33-1300), Flare 36-0011/36-0610
27-0302	Second Stage SIB Reactor	3/1982	
27-2303	Third Stage Reactor	6/2008	Condensers, H_2S Scrubber System (33-2421, 33-2422, and 33-1300), Flare 36-0011/ 36-0610
27-2501	Brine Acidifier	1969	H_2S Scrubbers (33-2421, 33-2422, and 33-1300), Flare 36-0011/36-0610
35-0102	Adduct Tank (7,000 gallons)	1982	Scrubber 10-2236, Flare 36-0011/36-0610
35-0103	Adduct Tank (7,000 gallons)	1975	
35-0107	Adduct Tank (15,000 gallons)	1975	
Unit 290 Processes			
35-0840	Raw Material Storage Tank (60,270 gallons)	1992	None
35-0845	DFA/Generic Blend Storage Tank (150,000 gallons)	1992	None

Emission Unit	Description	Date Constructed	Emission Control Equipment
35-0850	Solvent Storage Tank (60,000 gallons)	1993	None
35-0125	Carbon Disulfide Storage Tank (30,000 gallons)	1995	CS_2 Recovery System, Flare 36-0011/36-0610
27-0200	First Stage Thiadiazole Reactor	1989	Condensers, Scrubbers, CS_2 Recovery System, Flare 36-0011/36-0610
27-0100	Second Stage Thiadiazole Reactor	1989	Condensers, Scrubber 05-0600, Carbon Drums
35-0300	Wastewater Hold Tank	1996	Carbon Drums
Unit 267 Processes			
27-0119	Reactor	1949	Condensers, Scrubbers, Flare 36-0011/36-0610
27-0117	Reactor	8/1976	
27-0118	Reactor	9/1972	
35-0006	Xylene Storage Tank (8,800 gallons)	1976	None
35-0190	Dicyclopentadiene Storage Tank (10,000 gallons)	1987	Carbon Drums
27-0121	Antioxidant Reactor	2/1979	Scrubbers, Flare 36-0011/36-0610
27-0125	Gear Lube Blend Reactor	8/1988	Carbon Adsorbers 33-0125-1 and 33-0125-2
Unit 268 Processes			
27-0100	Specialty Blend Reactor	1/1976	None
27-0200	Specialty Blend Reactor	1976	None
27-0300	Specialty Blend Reactor	1/1976	None
27-0450	Preblend Reactor	1986	Condensers
Unit 270 Processes			
27-0401	Metallizer Reactor	Prior to 1971	Condenser 17-0409, DCC 05-0416, Flare 36-0090
27-0402	Metallizer Reactor	Prior to 1971	Condenser 17-0410, DCC 05-0417, Flare 36-0090
27-0900	Metallizer Reactor	8/1985	Condenser 17-0905, DCC 05-0908, Flare 36-0090
501	Methanol Still Column	Prior to 1971	Condenser 17-0502, Condenser 17-0611, Flare 36-0090

Emission Unit	Description	Date Constructed	Emission Control Equipment
27-0403	Metallizer Reactor	Prior to 1971	Condenser 17-0411, Scrubber 33-0418, Flare 36-0090
35-0608	Recovered Hexane Storage Tank (14,000 gallons)	Prior to 1984	Condenser 17-0611, Flare 36-0090
35-0609	Recovered Hexane Storage Tank (3,500 gallons)	1986	Condenser 17-0611, Flare 36-0090
35-0607	Fresh Hexane Storage Tank (7,070 gallons)	1961	Condenser 17-0611, Flare 36-0090
35-0612	Methanol Storage Tank (7,000 gallons)	1961	Condenser 17-0611, Flare 36-0090
35-0116	Methanol Storage Tank (7,000 gallons)	Prior to 1971	Condenser 17-0611, Flare 36-0090
35-0503	Methanol Column Surge Tank (735 gallons)	Prior to 1971	Condenser 17-0611, Flare 36-0090
35-0631	Recovered Methanol Storage Tank (7,000 gallons)	Prior to 1971	Condenser 17-0611, Flare 36-0090
35-0632	Recovered Methanol Storage Tank (7,000 gallons)	Prior to 1971	Condenser 17-0611, Flare 36-0090
35-2113	Fresh Methanol Storage Tank (20,000 gallons)	Prior to 1984	Condenser 17-0611, Flare 36-0090
35-0610	Recovered Solvents Storage Tank (9,600 Gallons)	1988	Condenser 17-0611, Flare 36-0090
41-0137	Lime Storage Silo	1986	Baghouse 09-0136
41-0920	Lime Storage Silo	1986	Baghouse 09-0920
41-0142	Lime Weigh Bin	1981	Baghouse 09-0139
41-0924	Lime Weigh Bin	1985	Baghouse 09-0924
41-0146	Filter Aid Weigh Bin	Unknown	Baghouse 09-0147
41-0311	Filter Aid Weigh Bin	1985	Baghouse 09-0311
27-0205	Reactor	1961	Condenser, Scrubber, Flare 36-0219
27-0206	Reactor	1961	
15-0801	Unit 270B Therminol Furnace (2.77 mmBtu/hr)	4/1998	None
Unit 275 Processes			
27-0201	PBSA Reactor	1965	Condenser 17-0214
27-0211	PBSA Reactor	1965	Condenser 17-0214
27-0216	Chlorinator Reactor	4/1973	Condenser 17-0218, Scrubber 33-0220
27-0501	Neutralizer Reactor	1965	Condenser 17-0502, Condenser 17-0512
27-0511	Neutralizer Reactor	1965	
27-0531	Reactor	1965	Condenser 17-0535, Condenser 17-0532

Emission Unit	Description	Date Constructed	Emission Control Equipment
41-0171	Filter Aid Storage Silo	11/1964	Baghouse 09-0171
41-0172	Filter Aid Storage Silo	11/1964	Baghouse 09-0172
41-0173	Filter Aid Weigh Bin	11/1964	Baghouse 09-0173
41-0174	Filter Aid Weigh Bin	11/1964	Baghouse 09-0174
41-0184	Boric Acid Storage Silo	12/1985	Baghouse 09-0184
41-0187	Boric Acid Vacuum Receiver	12/1985	Filter S-6
41-0176	Boric Acid Weigh Bin	12/1985	Baghouse 09-0176
15-0701	Unit 275 Therminol Furnace (3.5 mmBtu/hr)	2006	None
Gasoline Storage Tank			
Tank	560-gallons storage capacity	2007	None

5.0 OVERALL SOURCE CONDITIONS

5.1 Applicability of Clean Air Act Permit Program (CAAPP)

5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of VOM and SO_2 emissions.

5.1.2 This permit is issued based on the source being a synthetic minor source of HAPs. See note in Condition 5.3 of this permit.

5.2 Source-Wide Applicable Provisions and Regulations

5.2.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions) of this permit.

5.2.2 In addition, emission units at this source are subject to the following regulations of general applicability:

a. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 IAC 212.301 and 212.314.

Proper operation and maintenance, as required by this permit, assures compliance with this requirement (for example, operation and maintenance requirements in Condition 5.4.2).

b. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.

5.2.3 Ozone Depleting Substances

The Permittee shall comply with the standards for recycling and emissions reduction of ozone depleting substances pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioners in Subpart B of 40 CFR Part 82:

a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

5.2.4 Risk Management Plan

a. This stationary source, as defined in 40 CFR Section 68.3, is subject to 40 CFR Part 68, the Accidental Release Prevention regulations [40 CFR 68.215(a)(1)].

b. The owner or operator of a stationary source shall revise and update the RMP submitted, as specified in 40 CFR 68.190.

5.2.5 a. Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, or 63, or 35 IAC Subtitle B after the date issued of this permit, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by 40 CFR Part 70 or 71.

b. No later than upon the submittal for renewal of this permit, the owner or operator shall submit, as part of an application, the necessary information to address either the non-applicability of, or demonstrate compliance with all applicable requirements of any potentially applicable regulation which was promulgated after the date issued of this permit.

5.2.6 Episode Action Plan

a. Pursuant to 35 IAC 244.142, the Permittee shall maintain at the source and have on file with the Illinois EPA a written episode action plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures. The plan shall contain the information specified in 35 IAC 244.144.

b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared.

c. If a change occurs at the source which requires a revision of the plan (e.g., operational change, change in the source contact person), a copy of the revised plan shall be submitted to the Illinois EPA for review within 30 days of the change. Such plans shall be further revised if disapproved by the Illinois EPA.

d. For sources required to have a plan pursuant to 35 IAC 244.142, a copy of the original plan and any subsequent revisions shall be sent to the Illinois EPA, Compliance Section.

5.2.7 HAP Emissions

a. This source is subject to 40 CFR 61, Subpart FF, National Emission Standards for Benzene Waste Operations, because this source is a chemical manufacturing plant with benzene-containing waste. The provisions of Subpart FF apply to the benzene-containing waste from this source, except for waste in the form of gases or vapors that is emitted from process fluids and waste that is contained in a segregated stormwater sewer system [40 CFR 61.340].

b. This source is subject to 40 CFR 63, Subparts F and G, National Emission Standards for Organic Hazardous Air Pollutants, because this source operates a chemical manufacturing unit which manufactures alkylbenzene as a primary product. The provisions of Subpart G apply to all process vents, storage vessels, transfer racks, and wastewater streams within the affected process [40 CFR 63.110(a)].

c. This source is subject to 40 CFR 63, Subpart H, National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, because this source operates a chemical manufacturing unit which manufactures alkylbenzene as a primary product. The provisions of Subpart H apply to all equipment (i.e., each pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, and connector, surge control vessels, bottoms receiver, instrumentation system, and control device or system) that is intended to operate organic HAP service 300 hours or more during the calendar year within a source subject to 40 CFR 63, Subpart F [40 CFR 63.160(a)]. The provisions of Subpart H are only applicable to HON affected units that meet the applicability criteria of 40 CFR 63.160(a).

5.2.8 CAM Plan

This stationary source has a pollutant-specific emissions unit that is subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The source must submit a CAM plan for each affected pollutant-specific emissions unit upon application for renewal of the initial CAAPP permit, or upon a significant modification to the CAAPP permit for the construction or modification of a large pollutant-specific emissions unit which has the potential post-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

5.3 Source-Wide Non-Applicability of Regulations of Concern

a. The source is not subject to the requirements of 40 CFR 63, Subpart FFFF (the MON rule), National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing, because the source's HAP emissions have been limited to less than 10 tons per year of any single HAP and 25 tons per year of all HAPs combined due to the installation of a Flare Control System for Unit 270.

Note: This limit to less than major source thresholds for HAPs was granted on April 25, 2008 in Construction Permit #06020100.

b. The source is not subject to the requirements of Section 112(j) of the Clean Air Act, Boiler Maximum Achievable Control Technology (MACT), because the source has taken on limits to ensure that the source is a synthetic minor for HAPs as established by Condition 5.5.2.

5.4 Source-Wide Control Requirements and Work Practices

In addition to the source-wide requirements in the Standard Permit Conditions in Section 9, the Permittee shall fulfill the following source-wide operational and production limitations and/or work practice requirements:

5.4.1 HAP Emissions from Equipment Leaks

These conditions apply to all emission units in organic HAP service identified in 40 CFR 63.100(e) through (i) which are associated with the Alkylbenzene Process in Unit 258.

a. The Permittee shall comply with the applicable design and equipment standards, and marking, inspection, monitoring, repair and testing requirements in 40 CFR 63 Subpart H for the following sources that are intended to operate in organic HAP service 300 hours or more during the calendar year, and which are not in vacuum service:

i. Pumps (40 CFR 63.163 and 63.176);

ii. Compressors (40 CFR 63.164);

iii. Pressure relief devices in gas/vapor service (40 CFR 63.165);

iv. Sampling connection systems (40 CFR 63.166);

v. Open-ended valves or lines (40 CFR 63.167);

vi. Valves in gas/vapor service and in light liquid service (40 CFR 63.168 and 63.175);

vii. Pumps, valves, connectors, and agitators in heavy liquid service; instrument systems; and pressure relief devices in liquid service (40 CFR 63.169);

viii. Surge control vessels and bottoms receivers (40 CFR 63.170);

ix. Closed-vent systems and control devices (40 CFR 63.172);

x. Agitators in gas/vapor service and in light liquid service (40 CFR 63.173); and

xi. Connectors in gas/vapor service and in light liquid service (40 CFR 63.174).

b. Delayed repair of leaks is allowed as provided in 40 CFR 63.171.

c. The Permittee shall follow the procedures specified in 40 CFR 63.180 for inspections and compliance tests.

5.4.2 General Operation and Maintenance Requirements

The Permittee shall maintain and operate each emission unit or group of emission units at this source that is regulated by relevant standards or requirements pursuant to 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories, in accordance with “Operation and Maintenance Requirements” in 40 CFR 63.6(e). The emission units at this source that are subject to these requirements include Group 1 units and tanks used for synthetic organic chemical manufacturing, as addressed in Section 7 of this permit.

5.4.3 HAP Emissions from Benzene-Containing Waste

a. The owner or operator of a facility at which the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr (11 ton/yr) as determined in 40 CFR 61.342(a) shall be in compliance with the requirements of 40 CFR 61.342(c) through (h).

b. The Permittee shall comply with the applicable design and equipment standards, inspection, and testing requirements, and emission limits in 40 CFR 61 Subpart FF for the following sources that include benzene-containing hazardous waste:

i. Tanks (40 CFR 61.343);

ii. Surface impoundments (40 CFR 61.344);

iii. Containers (40 CFR 61.345);

iv. Individual drain systems (40 CFR 61.346);

v. Oil-water separators (40 CFR 61.347);

vi. Treatment processes (40 CFR 61.348);

vii. Closed-vent systems and control devices (40 CFR 61.349);

c. Delayed repair of leaks is allowed as provided in 40 CFR 61.350.

d. The Permittee shall follow the procedures specified in 40 CFR 61.355 for evaluation of waste streams, performance tests, compliance determinations and leak detection monitoring.

5.4.4 The following standards apply to flares used to meet applicable requirements in 40 CFR Part 60, 40 CFR Part 63, and 35 IAC 219, Subpart V.

a. Flares shall be designed for and operated with no visible emissions as determined by the methods specified in Method 22 of 40 CFR 60, Appendix A, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours [40 CFR 60.18(c)(1) and 63.11(b)(4)].

b. Flares shall be operated with a flame present at all times, as determined by the methods specified in 40 CFR 60.18(f) [40 CFR 60.18(c)(2) and 63.11(b)(5)].

c. The Permittee has the choice of adhering to either the heat content specifications in 40 CFR 60.18(c)(3)(ii) (also 40 CFR 63.11(b)(6)(ii)) and the maximum tip velocity specifications in 40 CFR 60.18(c)(4) (also 40 CFR 63.11(b)(7) or (b)(8)), or adhering to the requirements in 40 CFR 60.18(c)(3)(i) (also 40 CFR 63.11(b)(6)(i)) [40 CFR 60.18(c)(3) and 63.11(b)(6)].

d. Flares used to comply with 40 CFR 60 shall be steam-assisted, air-assisted, or nonassisted and shall be operated at all times when emissions may be vented to them [40 CFR 60.18(c)(6) and (e) and 63.11(b)(2) and (3)].

5.5 Source-Wide Production and Emission Limitations

5.5.1 Permitted Emissions for Fees

The annual emissions from the source, not considering insignificant activities as addressed by Section 3.0 of this permit, shall not exceed the following limitations. The overall source emissions shall be determined by adding emissions from all emission units. Compliance with these limits shall be determined on a calendar year basis. These limitations

(Condition 5.5.1) are set for the purpose of establishing fees and are not federally enforceable.

Permitted Emissions of Regulated Pollutants

Pollutant	Tons/Year
Volatile Organic Material (VOM)	110.9
Sulfur Dioxide (SO_2)	245.81
Particulate Matter (PM)	17.43
Nitrogen Oxides (NO_x)	45.3
HAP, not included in VOM or PM	2.95
Total	422.39

5.5.2 Emissions of Hazardous Air Pollutants

a. i. Emissions of HAPs from emission units at the source other than Unit 270 shall not exceed 0.2 tons/month and 2.0 tons/year, each, for both n-hexane and methanol, 1.0 tons/month and 8.0 tons/year for any individual HAP other than n-hexane and methanol, and 1.0 tons/month and 9.5 tons/year of any combination of HAPs [T1].

ii. Total emissions of Hazardous Air Pollutants (HAP) from the source shall not exceed 1.2 tons/month of any individual HAP, 3.5 tons/month of total HAPs, 9.5 tons/year of any individual HAP and 24.5 tons/year of any combination of all such HAPs [T1R].

The above limitations contain revisions to previously issued Permit 06020100. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM and/or PSD. These limits continue to ensure that the construction and/or modification addressed in this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, these changes address arithmetical errors of the monthly HAP limits established in Permit 06020100.

b. For emission units subject to 40 CFR 63 Subpart G (e.g., emission units within the Alkylbenzene Process in Unit 258), the Permittee shall control emissions of organic HAPs to the level represented by the following equation:

$E_A = 0.02 * EEPV_1 + EEPV_2 + 0.05 * EES_1 + EES_2 + 0.02 * EETR_1 + EETR_2 + EEWW_{1C} + EEWW_2$

Where:

E_A = Emission rate, Mg/yr, allowed for the source.

$0.02EEPV_1$ = Sum of the residual emissions, Mg/yr, from all Group 1 process vents, as defined in 40 CFR 63.111.

$EEPV_2$ = Sum of the emissions, Mg/yr, from all Group 2 process vents as defined in 40 CFR 63.111.

$0.05EES_1$ = Sum of the residual emissions, Mg/yr, from all Group 1 storage vessels, as defined in 40 CFR 63.111.

EES_2 = Sum of the emissions, Mg/yr, from all Group 2 storage vessels, as defined in 40 CFR 63.111.

$0.02EETR_1$ = Sum of the residual emissions, Mg/yr, from all Group 1 transfer racks, as defined in 40 CFR 63.111.

$EETR_2$ = Sum of the emissions, Mg/yr, from all Group 2 transfer racks, as defined in 40 CFR 63.111.

$EEWW_{1C}$ = Sum of the residual emissions from all Group 1 wastewater streams, as defined in 40 CFR 63.111. This term is calculated for each Group 1 stream according to the equation for EWW_{1C} in 40 CFR 63.150(g)(5)(i).

$EEWW_2$ = Sum of emissions from all Group 2 wastewater streams, as defined in 40 CFR 63.111.

The emissions level represented by this equation is dependent on the collection of emission points in the source (including emission points in other sections of this permit). The level is not fixed and can change as the emissions from each emission point change or as the number of emission points in the source changes [40 CFR 63.112(a) and (b)].

The owner or operator may comply with the process vent provisions in 40 CFR 63.113 through 63.118, the storage vessel provisions in 40 CFR 63.119 through 63.123, the leak inspection provisions in 40 CFR 63.148, and the requirements of 40 CFR 63.151 and 63.152, as applicable. Because the owner or operator is using this compliance approach, the owner or operator is not required to calculate the annual emission rate specified in this

condition [40 CFR 63.112(e)]. The emission points included in this equation are further described in Section 7 of this permit.

5.5.3 Other Source-Wide Production and Emission Limitations

a. The annual emissions from the source shall not exceed the following limitations:

Emission Units	SO_2 Emissions	Underlying Rules
Unit 258A ABSA Production and Unit 266 ZDDP Production	132.1 tons/year	35 IAC 202, Permit 82120030
Flare 36-0011/36-0610	100 lb/hour	40 CFR 52.21, Permit 94110112

The limits on SO_2 emissions are limitations established in Permits 82120030 and 94110112. The limit from Permit 94110112 ensures that the affected emission units are not subject to the control requirements of 40 CFR 52.21 [T1].

The limit from Permit 82120030 was revised from 274.7 tons per year to reflect more stringent limits established in other permits (see Conditions 7.3.6 and 7.8.6). This emission limit is in lieu of the requirements of 35 IAC 214.301. Permit 82120030 was an Alternative Control Strategy (ACS), originally issued on August 10, 1983, to provide that in lieu of controlling SO2 emissions from the ABSA Process (Unit 258) to comply with 35 IAC 214.301, SO_2 emissions from the ZDDP process (Unit 266) would be reduced by routing the off gases through the scrubber on the SIB process (Unit 280). ACS Permits are governed by regulations at 35 IAC Part 202. See Attachment 4 [T1R].

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

b. The annual emissions from Flare 36-0011/36-0610 shall not exceed the following limitations:

Pollutant	Emissions (Tons/Mo)	Emissions (Tons/Year)	Underlying Rules
CO	4.6	37.34	40 CFR 52.21
NO_x	1.0	6.86	40 CFR 52.21
VOM	1.8	34.06	35 IAC Part 203
SO_2	14.5	101.05	40 CFR 52.21, 35 IAC Part 202, and 35 IAC Part 214

These limits are based on the annual heat input to the flare from Units 266, 267, 280 and 290 and supplementary fuel (averages approximately 22.9 mmBtu/hr), and standard AP-42 emission factors for industrial flares. The SO_2 limit is also based on conversion of certain exhaust gas constituents (for example, hydrogen sulfide and carbon disulfide) to SO_2.

The limits contain revisions to previously issued Permit 98100080. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically 35 IAC Part 203, Major Stationary Sources Construction and Modification and/or 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits continue to ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the short term limits were changed from an hourly basis to a monthly basis and the annual limits were increased by 5.4 tons per year for CO, 2.4 tons per year for NO_x, and 2.04 tons per year for VOM. In addition, limits for SO_2 emissions were added, since other limits included in this permit do not address all SO_2 emissions from this flare [T1R].

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

c. The annual emissions from Flare 36-0219 shall not exceed the following limitations:

Pollutant	Emissions (Tons/Mo)	Emissions (Tons/Year)	Underlying Rules
CO	0.5	4.2	40 CFR 52.21
NO_x	0.1	0.77	40 CFR 52.21
VOM	0.073	0.73	35 IAC Part 203
SO_2	15.0	119.5	40 CFR 52.21, 35 IAC Part 202, and 35 IAC Part 214

These limits are based on the annual heat input to the flare from Units 258 and 270B and supplementary fuel (averages approximately 2.6 mmBtu/hr), and standard AP-42

emission factors for industrial flares. The SO_2 limit is also based on conversion of certain exhaust gas constituents (for example, hydrogen sulfide and carbon disulfide) to SO_2.

The above limits are being established in this permit pursuant to Title I of the CAA, specifically 35 IAC Part 203, Major Stationary Sources Construction and Modification and/or 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The source has requested that the Illinois EPA establish emission limitations and other appropriate terms and conditions in this permit that limit the emissions from the flare below the levels that would trigger the applicability of these rules, consistent with the information provided in the CAAPP application [T1N].

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

d. There may also be source-wide emission limitations imposed as a result of future actions as a part of this source's compliance plan (see Conditions 5.9.3 and 7.13.13).

5.6 General Recordkeeping Requirements

5.6.1 Emission Records

The Permittee shall maintain records of the following items for the source to demonstrate compliance with Condition 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

Total annual emissions on a calendar year basis for the emission units covered by Section 7 (Unit Specific Conditions) of this permit.

5.6.2 Records for VOM and HAP Emissions

The Permittee shall maintain records of the following items for the source to quantify annual VOM and HAP emissions, so as to demonstrate compliance with the monthly and annual emission limits in Condition 5.5 or requirements in Condition 5.4:

a. Aggregate monthly VOM emissions from emission units included in Section 7 of this permit; and

b. Aggregate monthly HAP emissions from emission units included in Sections 3 and 7 of this permit, calculated as a fraction of VOM emissions according to vapor weight percent. HAP emissions from insignificant emission units listed in Section 3 are only required if the emission unit is subject to a National Emissions Standard for Hazardous Air Pollutants (NESHAP) or maximum achievable control

technology (MACT). For purposes of this condition, emission units that are not required to control or limit emissions but are required to monitor, keep records, or undertake other specific activities are considered subject to such regulation or requirement.

c. For HAP emissions from equipment leaks, the Permittee shall maintain records as required by 40 CFR 63 Subpart H, including, but not limited to, the following requirements in 40 CFR 63.181:

   i. Records on the detection, identity, and repair of leaks;

   ii. Records on the operation of each closed-vent system and control device; and

   iii. Records identifying all sources subject to 40 CFR 63, Subpart H.

d. For HAP emissions from benzene waste operations, the Permittee shall maintain records as required by 40 CFR 61 Subpart FF, including, but not limited to, the following requirements in 40 CFR 61.356:

   i. Records indicating whether or not waste streams are controlled;

   ii. Records of engineering design documentation with any engineering calculations, performance test data, and equipment certifications;

   iii. Records of the operation of each control device;

   iv. Records of the operation of each waste processing unit; and

   v. Records of the detection, identity and repair of leaks.

e. The Permittee shall maintain a current list of all emission units to which it is applying the 5.0 ton/year exclusions of 35 IAC 219.960(c) and 219.980(c) (see Sections 7.3, 7.24, and 7.26), that includes:

   i. Name and identification of unit;

   ii. Annual volatile organic material emissions, ton/yr; and

   iii. Calculations and other support for the annual emissions.

f. The Permittee shall maintain records of composition of raw materials, operations, and HAP emissions from other emission units at the source sufficient to document compliance with Condition 5.5.2(a)(i) and (ii) and the source's status as a minor source of HAPs.

5.6.3 Records for Operating Scenarios

N/A

5.6.4 Retention and Availability of Records

a. All records and logs required by this permit shall be retained for at least five years from the date of entry (unless a longer retention period is specified by the particular recordkeeping provision herein), shall be kept at a location at the source that is readily accessible to the Illinois EPA or USEPA, and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.

b. The Permittee shall retrieve and print, on paper during normal source office hours, any records retained in an electronic format (e.g., computer) in response to an Illinois EPA or USEPA request for records during the course of a source inspection.

5.7 General Reporting Requirements

5.7.1 General Source-Wide Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the source with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

5.7.2 Annual Emissions Report

The annual emissions report required pursuant to Condition 9.7 shall contain emissions information for the previous calendar year.

5.7.3 Annual Reporting of HAP Emissions

The Permittee shall submit an annual report to the Illinois EPA, Compliance Section, on HAP emissions from the source, including the information required by Condition 5.6.2(b). This may be included in the annual emissions report required pursuant to Condition 9.7.

5.7.4 Other Source Wide Reporting Requirements

a. For HAP emissions from equipment leaks subject to the requirements of 40 CFR 63, Subpart H, the Permittee shall submit Periodic Reports as described in the reporting requirements of 40 CFR 63.182, including, but not limited to, semi-annual reports of monthly data on leaks and repairs.

b. If the Permittee chooses to comply with alternative standards for batch processes in 40 CFR 63.178, the Illinois EPA shall be notified in writing at least 90 days before implementing such provisions.

c. For HAP emissions from benzene waste operations, reports shall be submitted as required by 40 CFR 61.357, including, but not limited to:

i. Annual reports on benzene waste streams and benzene emissions, including a table identifying each waste stream chosen for exemption and the total annual benzene quantity in these exempted streams; and

ii. Quarterly reports on equipment inspections and operation of treatment processes, wastewater treatment systems, and control devices.

d. If the Permittee chooses to comply with alternative standards for tanks and oil-water separators, in 40 CFR 61.351 and 61.652, respectively, the Illinois EPA shall be notified in writing at least 30 days before implementing such provision.

5.8 General Operational Flexibility/Anticipated Operating Scenarios

5.8.1 The Permittee is authorized to make the following physical or operational change with respect to the affected processes without notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Use of various raw materials is allowed, as long as such changes do not cause a violation of any operational, control, or emission limit.

b. The facility may replace the contents of any storage tank classified as an insignificant activity pursuant to 35 IAC 201.210(a)(11) with any other material that meets the definition of "lubricating oil".

c. Batch cycle times are not fixed and may vary according to production scheduling so long as short term and annual production and emission limits are not exceeded.

5.9 Source-Wide Compliance Procedures

5.9.1 Procedures for Calculating Emissions

Compliance with the source-wide emission limits specified in Condition 5.5 shall be based on the recordkeeping and reporting requirements of Conditions 5.6 and 5.7, and compliance procedures in Section 7 (Unit Specific Conditions) of this permit.

a. For the purpose of estimating VOM emissions from the organic chemical manufacturing processes, the following methods, in addition to AP-42 emission factors, are acceptable:

   i. For the purpose of estimating VOM emissions from the storage tanks, the current version of the USEPA's TANKS program is acceptable.

   ii. For the purpose of estimating fugitive and non-fugitive VOM emissions from chemical manufacturing processes at the source, engineering estimates based on stack tests, process simulations, or mass balance is acceptable.

   iii. For the purpose of estimating fugitive VOM from leaking components at the facility, the average emissions factor approach found in USEPA's document "Protocol for Equipment Leak Emission Estimates" (EPA-453/R-93-026, June 1993), is acceptable.

b. For the purpose of estimating HAP emissions from equipment at the source, the vapor weight percent of each HAP for each organic liquid times the VOM emissions contributed by that organic liquid is acceptable.

c. For the purpose of estimating emissions from fuel combustion, the emission factors in the current version of AP-42, Section 1.4, are acceptable.

5.9.2 Compliance with the hazardous air pollutant regulations in Condition 5.2.7 shall be determined by the recordkeeping and reporting requirements in Conditions 5.6.2, 5.6.4, and 5.7.4.

5.9.3 Compliance Plan/Schedule of Compliance

To achieve compliance with applicable limitations of this permit, the Permittee shall follow a schedule of compliance consistent with the compliance plan required by Section 39.5(5)(d) of the Act. Such compliance plan shall describe how

each emission unit will comply with all applicable requirements. The schedule of compliance as required by Section 39.5(7)(p)(iii) of the Act is in Condition 7.13.13 of this permit.

6.0 NOT APPLICABLE TO THIS PERMIT

7.0 UNIT SPECIFIC CONDITIONS FOR SPECIFIC EMISSION UNITS

7.1 Unit 258: Batch Reactor Trains
Control: Condensers, Scrubber, Flare

7.1.1 Description

In the Unit 258 AB Process, alkylbenzene, which is an intermediate for the production of alkylbenzene sulfonic acid, is manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers, scrubbers, and a flare.

7.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0105	AB Reactor	Condensers, Scrubber 33-0549, Flare 36-0219
27-0106	AB Reactor	
27-0550	AB Reactor	
35-0580	Benzene Storage Tank T-580 (35,000 gallons)	Scrubber 33-0549, Flare 36-0219
35-0589	Benzene/Water Separator Feed Tank T-589	
35-0588	Benzene/Water Separator Tank T-588	
35-0141	Recovered Benzene Feed Tank	
35-0608/0201	Wastewater Hold Tank	Condenser 17-0202, Scrubber 33-0549, Flare 36-0219
35-0501	Steam Sparge Tank	

7.1.3 Applicable Provisions and Regulations

a. The “affected Unit 258 reactor systems” for the purpose of these unit-specific conditions, are batch emission units used in the production of synthetic organic chemicals, as listed in Condition 7.1.2. The “affected Unit 258 benzene storage tank” for the purpose of these unit-specific conditions, is the benzene storage tank listed in Condition 7.1.2.

b. The affected Unit 258 reactor systems shall comply with 35 IAC 219, Subpart G: Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 (see Condition 7.1.3(b)(ii) below) and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall

apply only to photochemically reactive material [35 IAC 219.301].

ii. Emissions of organic material in excess of those permitted by 35 IAC 219.301 (see Condition 7.1.3(b)(i) above) are allowable if such emissions are controlled by one of the methods listed in 35 IAC 219.302(a) or (b) [35 IAC 219.302].

c. The affected Unit 258 reactor systems are subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidation Processes, because this source has a SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below:

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. Except as provided in Condition 5.5.3, the affected Unit 258 reactor systems are subject to 35 IAC 214 Subpart K, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm [35 IAC 214.301].

e. The affected Unit 258 reactor systems are subject to 40 CFR 63 Subpart F, National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry. The Illinois EPA is administering the NESHAP in Illinois under a delegation agreement.

f. The affected Unit 258 reactor systems are subject to 40 CFR 63 Subpart G, National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Waste Water. The Illinois EPA is administering the NESHAP in Illinois under a delegation agreement.

g. The affected Unit 258 reactor systems are subject to 40 CFR 63 Subpart H, National Emission Standard for Organic Hazardous Air Pollutants for Equipment Leaks (see Conditions 5.4.1, 5.6.2, and 5.7.4). The Illinois EPA is administering the NESHAP in Illinois under a delegation agreement.

h. The affected Unit 258 reactor systems are subject to 40 CFR 61 Subpart FF, National Emission Standard for Benzene Waste Operations (see Conditions 5.4.3, 5.6.2, and 5.7.4).

i. The affected Unit 258 benzene storage tank is subject to the requirements of 35 IAC 219.122(b) because the storage tank has a storage capacity greater than 946 liters (250 gallons).

j. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of the flare, the Permittee is authorized to continue operation of the affected Unit 258 reactor systems in violation of the applicable requirement of 35 IAC 219.501, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

i. The Permittee shall repair the damaged feature(s) of the flare or remove the affected Unit 258 reactor systems from service as soon as practicable.

ii. The Permittee may not initiate any new batches during malfunction or breakdown of the flare.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.1.9(a) and 7.1.10(a).

iv. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in which discrete quantities of raw materials are added to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.1.4 <u>Non-Applicability of Regulations of Concern</u>

a. This permit is issued based on the affected Unit 258 reactor systems not being subject to the Standards of Performance for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations, 40 CFR Part 60, Subpart NNN. A Group 1 process vent that is also subject to the

provisions of 40 CFR 60 Subpart NNN is required to comply only with the provisions of 40 CFR 63 Subpart G [40 CFR 63.110(d)(4)].

b. This permit is issued based on the affected Unit 258 reactor systems not being subject to the Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes, 40 CFR Part 60, Subpart RRR. A Group 1 process vent that is also subject to the provisions of 40 CFR 60 Subpart RRR is required to comply only with the provisions of 40 CFR 63 Subpart G [40 CFR 63.110(d)(7)].

c. This permit is issued based on the affected Unit 258 reactor systems units not being subject to the Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, 40 CFR Part 60, Subpart VV. Equipment to which 40 CFR 63 Subpart H applies that are also subject to the provisions of 40 CFR Part 60 will be required to comply only with the provisions of 40 CFR 63 Subpart H [40 CFR 63.160(b)(1)].

d. This permit is issued based on the affected Unit 258 reactor systems not being subject to the National Emission Standards for Equipment Leaks (Fugitive Emission Sources) of Benzene, 40 CFR Part 61, Subparts J and V. Equipment to which 40 CFR 63 Subpart H applies that are also subject to the provisions of 40 CFR Part 61 will be required to comply only with the provisions of 40 CFR 63 Subpart H [40 CFR 63.160(b)(2)].

e. This permit is issued based on the affected Unit 258 benzene storage tank not being subject to the Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984, 40 CFR 60, Subpart Kb. A Group 1 or Group 2 storage vessel that is also subject to the provisions of 40 CFR 60 Subpart Kb is required to comply only with the provisions of 40 CFR 63 Subpart G [40 CFR 63.110(b)(1)].

f. This permit is issued based on the storage tanks for the affected Unit 258 reactor systems not being subject to 40 CFR 61, Subpart Y. A Group 1 or Group 2 storage vessel that is also subject to the provisions of 40 CFR 61 Subpart Y is required to comply only with the provisions of 40 CFR 63 Subpart G [40 CFR 63.110(b)(2)].

g. This permit is issued based on the affected Unit 258 reactor systems not being subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that

is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

h. This permit is issued based on the affected Unit 258 reactor systems units not being subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

i. The affected Unit 258 benzene storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because the storage tank has a capacity of less than 40,000 gallons.

j. This permit is issued based on the affected Unit 258 reactor systems not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 258 reactor systems are subject to a NESHAP proposed after November 15, 1990, pursuant to 40 CFR 64.2(b)(1)(i).

7.1.5 Control Requirements and Work Practices

a. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

b. The flare shall comply with the requirements of 40 CFR 60.18 (see also Condition 5.4.4). The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to 35 IAC 219, Subpart V, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to 35 IAC 219, Subpart V to not comply with one or more of the provisions of 40 CFR 60.18 [35 IAC 219.501(e)].

c. The owner or operator shall demonstrate compliance with the emission standard in Condition 5.5.2 by complying with the process vent provisions in 40 CFR 63.113 through 63.118, the storage vessel provisions in 40 CFR 63.119 through 63.123, the leak inspection provisions in 40 CFR 63.148, and the requirements of 40 CFR 63.151 and 63.152, as applicable [40 CFR 63.112(e)]. The process vent provisions include a requirement to reduce emissions of total organic hazardous

air pollutants by 98 weight-percent or to a concentration of 20 ppmv, whichever is less stringent.

d. The Permittee of a Group 1 process vent or Group 1 storage vessel as defined in 40 CFR 63 Subpart G shall reduce emissions of organic HAP using a flare [40 CFR 63.113(a)(1) and 63.119(e)].

   i. The flare shall comply with the requirements in Condition 7.1.5(e) [40 CFR 63.113(a)(1)(i) and 63.119(e)(1)].

   ii. Halogenated vent streams, as defined in 40 CFR 63.111, shall not be vented to a flare [40 CFR 63.113(a)(1)(ii)].

   iii. Except as provided in Condition 7.1.5(d)(v), the flare shall be designed and operated to reduce inlet emissions of total organic HAP by 95 percent or greater [40 CFR 63.113(e)(1)].

   iv. Periods of planned routine maintenance of the flare, during which the flare does not meet the specifications of Condition 7.1.5(d)(iii), shall not exceed 240 hours per year [40 CFR 63.113(e)(3)].

   v. The specifications and requirements in Condition 7.1.5(d)(iii) do not apply during periods of planned routine maintenance or during a control system malfunction [40 CFR 63.113(e)(4) and (5)].

e. i. Flares shall be steam-assisted, air-assisted, or non-assisted [40 CFR 63.11(b)(2)].

   ii. Flares shall be operated at all times when emissions may be vented to them [40 CFR 63.11(b)(3)].

   iii. Flares shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. Test Method 22 in 40 CFR Appendix A shall be used to determine the compliance of flares with the visible emission provisions in 40 CFR 63. The observation period is 2 hours and shall be used according to Method 22 [40 CFR 63.11(b)(4)].

   iv. The Permittee has the choice of adhering to the heat content specifications in Condition 7.1.5(e)(vi), and the maximum tip velocity specifications in Condition 7.1.5(e)(vii) and (viii), or adhering to the requirements in Condition 7.1.5(e)(v) [40 CFR 63.11(b)(6)].

v. A. Flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume) or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity V_{max}, as determined by the following equation:

$$V_{max}=(X_{H2}-K_1)* K_2$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

K_1 = Constant, 6.0 volume-percent hydrogen.

K_2 = Constant, 3.9 (m/sec)/volume-percent hydrogen.

X_{H2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77.

[40 CFR 63.11(b)(6)(i)(A)].

B. The actual exit velocity of a flare shall be determined by the method specified in Condition 7.1.5(e)(vii)(A) [40 CFR 63.11(b)(6)(i)(B)].

vi. Flares shall be used only with the net heating value of the gas being combusted at 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted at 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

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

Where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mmHg, but the standard temperature for determining the volume corresponding to one mole is 20°C.

K = Constant =

$$1.740 * 10^{-7}\left(\frac{1}{\text{ppmv}}\right)\left(\frac{\text{g} - \text{mole}}{\text{scm}}\right)\left(\frac{\text{MJ}}{\text{kcal}}\right)$$

where the standard temperature for (g-mole/scm) is 20°C.

C_i = Concentration of sample component i in ppmv on a wet basis, as measured for organics by Test Method 18 and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946-77 (incorporated by reference as specified in 40 CFR 63.14).

H_i = Net heat of combustion of sample component i, kcal/g-mole at 25°C and 760 mmHg. The heats of combustion may be determined using ASTM D2382-76 (incorporated by reference as specified in 40 CFR 63.14) if published values are not available or cannot be calculated.

n = Number of sample components

[40 CFR 63.11(b)(6)(ii)].

vii. A. Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity less than 18.3 m/sec (60 ft/sec), except as provided in Condition 7.1.5(e)(vii)(B) and (C). The actual exit velocity of a flare shall be determined by dividing by the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Methods 2, 2A, 2C, or 2D in 40 CFR 60 Appendix A, as appropriate, by the unobstructed (free) cross-sectional area of the flare tip [40 CFR 63.11(b)(7)(i)].

B. Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in Condition 7.1.5(e)(vii)(A), equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec), are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf) [40 CFR 63.11(b)(7)(ii)].

C. Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in Condition 7.1.5(e)(vii)(A), less than the velocity V_{max}, as

determined by the method specified in Condition 7.1.5(e)(vii)(C), but less than 122 m/sec (400 ft/sec) are allowed. The maximum permitted velocity, V_{max}, for flares complying with Condition 7.1.5(e)(vii)(C) shall be determined by the following equation:

$$\text{Log}_{10} (V_{max}) = (H_T + 28.8)/31.7$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

28.8 = Constant.

31.7 = Constant.

H_T = The net heating value as determined in Condition 7.1.5(e)(vi).

[40 CFR 63.11(b)(7)(iii)].

viii. Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max}. The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation:

$$V_{max} = 8.71 + 0.708(H_T)$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

8.71 = Constant.

0.708 = Constant.

H_T = The net heating value as determined in Condition 7.1.5(e)(vi).

[40 CFR 63.11(b)(8)].

f. For each Group 1 storage vessel (as defined in table 5 of 40 CFR 63 Subpart G) storing a liquid for which the maximum true vapor pressure of the total organic hazardous air pollutants in the liquid is less than 76.6 kilopascals, the owner or operator shall reduce hazardous air pollutants emissions to the atmosphere by operating and maintaining a closed vent system and control device in accordance with the requirements in Condition 7.1.5(c) [40 CFR 63.119(a)(1)].

g. The affected Unit 258 benzene storage tank shall be equipped with a permanent submerged loading pipe unless such tank is a

fitted with a recovery system as described in 35 IAC 219.121(b)(2). If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)]. For the purpose of this condition, Flare 36-0219 operating in compliance with the requirements above meets the specifications of a recovery system as described in 35 IAC 219.121(b)(2).

h. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

7.1.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 258 reactor systems are subject to the following:

a. Emissions from the flare attributable to the affected Unit 258 reactor systems shall not exceed the following limits:

VOM Emissions	
(Ton/Month)	(Ton/Year)
0.25	1.8

These limits are based on the maximum operation and maximum emission estimates using material balance equations and 98% VOM destruction efficiency for the Flare 36-0219.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 91070103. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically 35 IAC Part 203, Major Stationary Sources Construction and Modification. These limits continue to ensure that the construction and/or modification addressed in this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and

activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the short term limit was changed from an hourly basis to a monthly basis [T1R].

7.1.7 Testing Requirements

a. Notwithstanding 35 IAC 219.503(a), a flare used to comply with control requirements of 35 IAC 219.501 shall be exempt from performance testing requirements in 35 IAC 219.503. The flare shall comply with the requirements of 40 CFR 60.18, as required by Condition 7.1.5(b) [35 IAC 219.503(b) and (c)].

b. When a flare is used to comply with 40 CFR 63.113(a)(1), the Permittee shall comply with the flare provisions in Condition 7.1.5(e) and 7.1.8(b).

   i. The compliance determination shall be conducted using Method 22 in Appendix A of 40 CFR 60, to determine visible emissions [40 CFR 63.116(a)(1)].

   ii. The Permittee is not required to conduct a performance test to determine percent emission reduction or outlet organic HAP or TOC concentration when a flare is used [40 CFR 63.116(a)(2)].

c. Where the provisions of 40 CFR 63, Subpart G require a performance test, waiver of that requirement shall be addressed only as provided in 40 CFR 63.103(b)(5) [40 CFR 63.112(h)].

7.1.8 Monitoring Requirements

a. Every owner or operator using an flare to comply with 35 IAC 219.501 or 40 CFR 63.113(a), shall install, calibrate, maintain, and operate, according to manufacturer's specifications, a heat sensing device, such as an ultra-violet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame [35 IAC 219.504(b) and 40 CFR 63.114(a)(2)].

b. i. The Permittee using flares to comply with Condition 7.1.5(c) shall monitor these control devices to assure that they are operated and maintained in conformance with their designs [40 CFR 63.11(b)(1)].

   ii. Flares shall be operated with a pilot flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame [40 CFR 63.11(b)(5)].

c. The owner or operator of a process vent shall comply with paragraph (i) or (ii) below for any bypass line between the origin of the gas stream and the point where the gas stream reaches the process vent, as described in 40 CFR 63.107, that could divert the gas stream directly to the atmosphere. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to this paragraph:

i. Properly install, maintain, and operate a flow indicator that takes a reading at least once every 15 minutes. Records shall be generated as specified in 40 CFR 63.118(a)(3). The flow indicator shall be installed at the entrance to any bypass line that could divert the gas stream to the atmosphere [40 CFR 63.114(d)(1)]; or

ii. Secure the bypass line valve in the non-diverting position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the non-diverting position and the gas stream is not diverted through the bypass line [40 CFR 63.114(d)(2)].

d. Compliance Assurance Monitoring (CAM) Requirements

The affected Unit 258 Reactor Systems are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee's CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.1.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected Unit 258 reactor system to demonstrate compliance with Conditions 5.5.1 and 7.1.5 through 7.1.8, pursuant to Section 39.5(7)(b) of the Act:

a. Records for Malfunctions and Breakdowns of Flare

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 258 reactor systems subject to 35 IAC 219.501 during

malfunctions and breakdown of the control features of the flare, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the damaged feature(s) could not be immediately repaired or the affected Unit 258 reactor systems removed from service without risk of injury to personnel or severe damage to equipment;

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

b. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under Section 7.1.8 (see 35 IAC 219.504).

i. Continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent [35 IAC 219.505(c)(2)].

c. Records addressing use of good operating practices for the emissions control devices:

i. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit;

ii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

iii. Records for periodic inspection of the flare with date, individual performing the inspection, and nature of inspection; and

iv. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

d. The Permittee subject to the control provision for Group 1 process vents in 40 CFR 63.113(a) shall:

i. Keep an up-to-date, readily accessible record of the data specified in Condition 7.1.9(d)(iii) [40 CFR 63.117(a)(1)].

ii. If any subsequent performance tests are conducted after the Notification of Compliance Status has been submitted, report the data in Conditions 7.1.9(d)(iii) in the next Periodic Report as specified in 40 CFR 63.152(c) [40 CFR 63.117(a)(3)].

iii. Record and report the following when using a flare to comply with 40 CFR 63.113(a)(1):

A. Flare design (i.e., steam-assisted, air-assisted, or non-assisted) [40 CFR 63.117(a)(5)(i)];

B. All visible emission reading, heat content determination, flow rate measurements, and exit velocity determinations made during the compliance determination required by Condition 7.1.7(b) [40 CFR 63.117(a)(5)(ii)]; and

C. All periods during the compliance determination when the pilot flame is absent [40 CFR 63.117(a)(5)(iii)].

e. The Permittee using a flare to comply with 40 CFR 63.113(a)(1) shall keep the following records up-to-date and readily accessible:

i. The hourly records and records of pilot flame outages specified in table 3 of 40 CFR 63 Subpart G shall be maintained [40 CFR 63.118(a)(1)].

ii. Records of the times and duration of all periods during which all pilot flames are absent shall be kept [40 CFR 63.118(a)(2) and (a)(2)(v)].

iii. Hourly records of whether the flow indicator specified under Condition 7.1.8(c)(i) was operating and whether flow was detected at any time under the hour, as well as records of the times and durations of all periods when the vent stream is diverted from the control device or the monitor is not operating [40 CFR 63.118(a)(3)].

iv. Where a seal mechanism is used to comply with Condition 7.1.8(c)(ii), hourly records of flow are not required. In such cases, the owner or operator shall record that the monthly visual inspection of

the seals or closure mechanism has been done, and shall record the duration of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out, and records of any car-seal that has broken [40 CFR 63.118(a)(4)].

f. Records of operation and emissions of the affected Unit 258 reactor systems:

i. Quantity of batches produced (batches/month and batches/year);

ii. The identification of each organic liquid and throughput of each organic liquid through the storage tank, Tank 35-0580 (gallons/month and gallons/year);

iii. All the detailed data necessary to determine VOM and SO_2 emissions using the procedures specified in Section 7.1.12;

iv. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor;

v. VOM emissions in units specified by the emission limits in Condition 7.1.6 (tons/month and tons/year); and

vi. The aggregate annual VOM, PM, NO_x, and SO_2 emissions from the affected unit 258 reactor systems, with supporting calculations.

g. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.1.8(d), as required by 40 CFR 64.9(b)(1).

7.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 258 reactor systems with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. Reporting of Malfunctions and Breakdowns for Flare

The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 258 reactor systems subject to Condition 7.1.3(i) during malfunction or breakdown of the control features of the flare.

i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected Unit 258 reactor systems was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the affected Unit 258 reactor systems were taken out of service.

iii. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the affected Unit 258 reactor systems will be taken out of service.

b. The Permittee shall comply with the applicable initial notification requirements specified in 40 CFR 63.151 and the applicable reporting requirements in 40 CFR 63.152.

c. The Permittee who elects to comply with the requirements of 40 CFR 63.113 shall submit to the Illinois EPA Periodic Reports of the following recorded information according to the schedule in 40 CFR 63.152.

i. For Group 1 points, reports of the duration of periods when monitoring data is not collected for each excursion caused by insufficient monitoring data as defined in 40 CFR 63.152(c)(2)(ii)(A) [40 CFR 63.118(f)(2)].

ii. Reports of times and durations of all periods recorded under Condition 7.1.9(c)(ii) in which all pilot flames of a flare were absent [40 CFR 63.118(f)(5)].

d. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 258 benzene storage tank without usage of a permanent submerged loading pipe or vapor recovery system. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

e. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM in excess of the limits specified in Condition 7.1.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

f. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected Unit 258 reactor systems without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Notwithstanding Condition 7.1.5(c), the owner or operator may elect to control some of the emission points within the source to different levels than specified under 40 CFR 63.113 through 63.148 by using an emissions averaging compliance approach as long as the overall emissions for the source do not exceed the emission level specified in Condition 5.5.2.

The owner or operator using emissions averaging must meet the requirements below:

i. Calculate emission debits and credits for those emission points involved in the emissions average as specified in 40 CFR 63.150 [40 CFR 63.112(f)(1)]; and

ii. Comply with the requirements of 40 CFR 63.151 and 63.152, as applicable [40 CFR 63.112(f)(2)].

7.1.12 Compliance Procedures

a. The Permittee of the affected Unit 258 reactor systems shall demonstrate compliance with the emission standard in Condition 5.5.2(b) by following the procedures specified in Condition 7.1.5(c) for all emission points [40 CFR 63.112(c)].

b. Compliance with the control requirements of Condition 7.1.5 and the testing requirements of Condition 7.1.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.1.8, 7.1.9, and 7.1.10.

c. Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.1.9(f). These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.1.8.

d. Emissions from the affected Unit 258 benzene storage tank shall be determined by the recordkeeping requirements in Condition 7.1.9. Calculations may be based on the current version of the TANKS program or AP-42 emission factors.

7.2 Unit 258: Drum Washing Station
Control: Venturi Scrubber

7.2.1 Description

Empty aluminum chloride drums are washed with water. Hydrogen chloride vapors are controlled by a Venturi scrubber.

7.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Unit 258 Washing	Drum Washing Station	Venturi Scrubber 10-AlCl3

7.2.3 Applicable Provisions and Regulations

a. The “affected drum washing station” for the purpose of these unit-specific conditions, is an emission unit used to wash drums with water.

b. The affected drum washing station is subject to the general emission limits identified in Condition 5.2.2. There are no other regulations applicable to this emission unit.

7.2.4 Non-Applicability of Regulations of Concern

This permit is issued based on the affected drum washing station not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected drum washing station does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.2.5 Control Requirements and Work Practices

None

7.2.6 Production and Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.2.7 Testing Requirements

None

7.2.8 Monitoring Requirements

None

7.2.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected drum washing station to demonstrate compliance with Conditions 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

a. Amount of aluminum chloride used and/or purchased (lb/year); and

b. Hydrogen chloride emissions (lb/year).

7.2.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the affected drum washing station with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.2.12 Compliance Procedures

Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.2.9. These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation.

7.3 Unit 258: Sulfonator
Control: Scrubbers, Electrostatic Precipitator

7.3.1 Description

In the Unit 258 ABSA Process, the alkylbenzene manufactured in the AB reactors is further processed in a sulfonator to produce alkylbenzene sulfonic acid, a lubricating oil intermediate, in a continuous process. VOM and SO_2 emissions from the sulfonator and associated tanks are controlled by various scrubbers.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
15-3011	Sulfur Burner	Acid Scrubber 33-7011 (Startup Only), ESP 21-8021, Caustic Scrubber 33-8031
27-3012	Converter	
43-3021	Oleum Separator	
27-4011	Sulfonator	Feed Scrubber 33-9011, ESP 21-8021, Caustic Scrubber 33-8031

7.3.3 Applicable Provisions and Regulations

a. The “affected Unit 258 sulfonation process” for the purpose of these unit-specific conditions, are emission units used in the production of alkylbenzene sulfonic acid, as listed in Condition 7.3.2.

b. The affected Unit 258 sulfonation process is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. Except as provided in Condition 5.5.3, the affected Unit 258 sulfonation process is subject to 35 IAC 214 Subpart K, which provides that:

i. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm [35 IAC 214.301]; and

ii. No person using sulfuric acid shall cause or allow the emission of sulfuric acid and/or sulfur trioxide from all similar emission sources to exceed 45.4 grams in any one hour period for sulfuric acid usage less than 1180 Mg/yr (100% acid basis) (0.1 lb/hr up to 1300 ton/year) or 250 grams per metric ton of acid used for sulfuric acid usage greater than or equal to

1180 Mg/yr (100% acid basis) (0.50 lb/ton over 1300 ton/year) [35 IAC 214.303].

d. Startup Provisions

The Permittee is authorized to operate the sulfur burner (15-3011) in violation of the applicable limit of 35 IAC 214.301 or 214.381 during cold startup pursuant to 35 IAC 201.262, as the Permittee has affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual starts, and frequency of startups. This authorization is subject to the following:

i. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:

Implementation of established startup procedures, including burning of sulfur residue by keeping the sulfur burner hot prior to shutdown (unless an emergency, malfunction, or breakdown occurs);

ii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.3.9(a); and

iii. For the purpose of this condition, a cold startup includes those occasions when the sulfur burner is heated from ambient temperature to operating temperature after the burner is turned off, typically due to equipment malfunction or process turnaround.

7.3.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Unit 258 sulfonation process not being subject to 35 IAC 219 Subpart V: Batch Operations and Air Oxidation Processes, because these emission units do not perform batch operations or air oxidation processes.

b. This permit is issued based on the affected Unit 258 sulfonation process not being subject to 35 IAC 219 Subpart RR: Miscellaneous Organic Chemical Manufacturing Processes, because no limits under 35 IAC 219 Subpart RR shall apply to emission units with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such emission units not complying with 35 IAC 219.966 does not exceed 4.5 Mg (5.0 tons) per calendar year [35 IAC 219.960(c)].

7.3.5 Control Requirements and Work Practices

a. The caustic scrubber (33-8031) shall be operated and maintained to provide a minimum of 98% removal of SO_2,

except during malfunction/breakdown of the scrubber or during cold startup as allowed by Condition 7.3.3(d) when gases are not vented to the scrubber. During malfunction/breakdown of the scrubber or cold startup of the burner, the sulfur burn rate shall be maintained at less than 7.5 pounds per minute. These limits were established in Permit 96050095. A sulfur burn rate of 7.5 pounds per minute ensures that uncontrolled SO_2 emissions remain below the regulatory standard of 2,000 ppm (see Condition 7.3.3(c)(i)).

b. The scrubbant solution for the caustic scrubber (33-8031) shall be recharged when the pH of the solution drops below 9.5, as measured by the monitoring system required by Condition 7.3.8.

7.3.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 258 sulfonation process is subject to the following:

a. Emissions from the affected Unit 258 sulfonation process shall not exceed the following limits:

SO_2 Emissions	
(Tons/Month)	(Tons/Year)
8.0	24.4

These limits are based on average SO_2 concentrations of 50 ppm during normal operating conditions, and 1900 ppm during scrubber malfunction or breakdown.

Compliance with the short term limit is required during startup. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 96050095, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

b. Emissions of sulfuric acid mist, including sulfur trioxide, from the affected Unit 258 sulfonation process unit shall not exceed 2.7 tons/year. This limit was established in Permit 82120030 [T1].

c. VOM emissions from the affected Unit 258 sulfonation process shall not exceed 1.0 ton per year. The above limitations are being established in this permit. These limits ensure that the affected Unit 258 sulfonation process is not subject to the control requirements of 35 IAC Part 219, Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes.

7.3.7 Testing Requirements

Upon request by the Illinois EPA, any measurements of sulfur dioxide or sulfuric acid mist emissions from the affected Unit 258 sulfonation process unit shall be measured by the Permittee. These initial measurements shall be conducted, documented and reported in accordance with USEPA methods in 40 CFR Part 60, Appendix A, or as otherwise approved by the Illinois EPA.

7.3.8 Monitoring Requirements

a. The Permittee shall operate a continuous monitoring system for scrubbant pH of the caustic scrubber (33-8031) when the scrubber is in service. The Permittee may change to a manual measurement during malfunction of the monitor.

b. If the scrubbant flow rate of the caustic scrubber (33-8031) is not continuously monitored, the flow rate shall be entered on a log sheet at least once per 8 hour shift. This requirement was established in Permit 96050095.

c. The Permittee shall analytically verify the conversion of sodium sulfite to sodium sulfate in the discharged scrubbant on a weekly basis. The Permittee may request the testing frequency be reduced if the tests demonstrate a consistently high conversion. This requirement was established in Permit 96050095. For the purpose of this condition, a consistently high conversion is at least 85 percent conversion for at least ten consecutive samplings.

d. Compliance Assurance Monitoring (CAM) Requirements

The affected Unit 258 Sulfonation Process are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee’s CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.3.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 258 sulfonation process to demonstrate compliance with Conditions 5.5.1 and 7.3.3 through 7.3.8, pursuant to Section 39.5(7)(b) of the Act:

a. Records for Startup

The Permittee shall maintain the following records, pursuant to Section 39.5(7)(b) of the Act, for each affected Unit 258 sulfonation process subject to Condition 7.3.3(d), which at a minimum shall include:

i. The following information for each cold startup of the sulfur burner (15-3011):

A. Date and duration of the startup, i.e., start time and time normal operation achieved;

B. A detailed description of the startup, including reason for operation and whether preheating occurred at the normal rate;

C. An explanation why established startup procedures could not be performed, if not performed;

D. The nature of SO_2 emissions, i.e., severity and duration, during the startup and the nature of SO_2 emissions at the conclusion of startup, if above normal; and

E. Whether exceedance of Condition 7.3.3(c) may have occurred during startup, with explanation and estimated duration (minutes).

ii. A maintenance and repair log for the sulfur burner (15-3011), listing each activity performed with date.

b. Records of operation and emissions of the affected Unit 258 sulfonation process:

i. Quantity of material produced (pounds/month and pounds/year);

ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.3.12;

iii. The detailed record of material balance calculations or specific emission factor development including the

stack test and process information for that specific emission factor;

iv. SO_2, sulfuric acid, and VOM emissions in units specified by the emission limits in Condition 7.3.6 (tons/month and tons/year); and

v. The aggregate annual VOM and SO_2 emissions from the affected unit 258 sulfonation process, with supporting calculations. This information for annual VOM emissions shall be included with the records required by Condition 5.6.2(e).

c. Records of operation and emissions of the emissions control devices:

i. Scrubbant pH, when the scrubber is in service;

ii. Flow rate of scrubbant through the caustic scrubber (gal/hr), when the scrubber is in service;

iii. Operating log showing the time and duration of operation while the caustic scrubber is not operating due to malfunction or breakdown; and

iv. Sulfur burn rate during malfunction or breakdown periods.

d. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.3.8(d), as required by 40 CFR 64.9(b)(1).

7.3.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 258 sulfonation process with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. The Permittee shall notify the Illinois EPA Compliance Section of emissions or operation in excess of the limits specified in Condition 7.3.5 or 7.3.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

b. Prior to carrying out these emission measurements in Condition 7.3.7, the Illinois EPA’s regional office and the

Illinois EPA's Source Emission Test Specialist shall be notified a minimum of thirty (30) days prior to the expected date of these initial measurements and further notified a minimum of five (5) working days prior to the measurement of the exact date and time to enable the Illinois EPA to witness these measurements. Three (3) copies of the Final Report(s) for emission measurements shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized.

c. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.3.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected Unit 258 sulfonation process without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Use of various raw materials is allowed, as long as such changes do not cause a violation of Conditions 7.3.5 and 7.3.6.

7.3.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.3.5 and the testing requirements of Condition 7.3.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.3.8, 7.3.9, and 7.3.10.

b. Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.3.9(b). These calculations shall use a control efficiency for the control equipment as

determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.3.10.

7.4 Unit 258: ABSA Receiver Tank

7.4.1 Description

The ABSA Receiver tank is used for the storage of alkylbenzene sulfonic acid manufactured in Unit 258.

7.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0553	ABSA Receiver Tank (12,000 Gallons)	None

7.4.3 Applicable Provisions and Regulations

a. The "affected Unit 258 storage tank" for the purpose of these unit-specific conditions, is a storage tank used in Unit 258 with a storage capacity of less than 40,000 gallons, as listed in Condition 7.4.2.

b. The affected Unit 258 storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 258 storage tank is subject to the requirements of 35 IAC 219.122(b) because the affected Unit 258 storage tank has a storage capacity greater than 946 liters (250 gallons).

7.4.4 Non-Applicability of Regulations of Concern

a. The affected Unit 258 storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because the tank has a capacity of less than 40,000 gallons.

b. This permit is issued based on the affected Unit 258 storage tank not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 258 storage tank does not use an add-on control device to achieve compliance with an emission limitation or standard.

7.4.5 Control Requirements and Work Practices

The affected Unit 258 storage tank shall be equipped with a permanent submerged loading pipe or an equivalent device

approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

7.4.6 Production and Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.4.7 Testing Requirements

None

7.4.8 Monitoring Requirements

None

7.4.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 258 storage tank to demonstrate compliance with Conditions 5.5.1 and 7.4.5, pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the following items for the affected Unit 258 storage tank. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f)].

b. The Permittee shall maintain the identification and properties of each organic liquid stored at the source, as related to emissions, i.e., vapor pressure and molecular weight.

c. The Permittee shall maintain records of the following items on an annual basis:

   i. The throughput of each organic liquid through the tank, gallons; and

   ii. The VOM emissions attributable to each organic liquid stored at the source, tons/year, with supporting

calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

7.4.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 258 storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 258 storage tank without usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

7.4.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.4.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.4.5 shall be determined by the recordkeeping and reporting requirements in Condition 7.4.9 and 7.4.10.

b. Emissions from the affected Unit 258 storage tank shall be determined by the recordkeeping requirements in Condition 7.4.9. Calculations may be based on the current version of the TANKS program or AP-42 emission factors.

7.5 RESERVED

7.6 Unit 258: Still
Control: Condenser

7.6.1 Description

In the Unit 258 Neutral Calcium Sulfonate Process, alkylbenzene sulfonic acid is neutralized to manufacture the final lubricating oil product. Residual water is removed from the product using a still, with VOM emissions controlled by a condenser.

7.6.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0620	Neutralizer	None
27-0607	Still	Condenser 17-0637

7.6.3 Applicable Provisions and Regulations

a. The "affected Unit 258 neutralizer and still" for the purpose of these unit-specific conditions, are emission units used in the production of lubricating oil, as listed in Condition 7.6.2.

b. The affected Unit 258 neutralizer and still are subject to 35 IAC 219, Subpart G, Use of Organic Material, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 258 neutralizer and still are subject to the control requirements of 35 IAC 219 Subpart V: Batch Operations, because this source has SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below.

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled

total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 258 neutralizer and still are subject to 35 IAC 214 Subpart K, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm [35 IAC 214.301].

7.6.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Unit 258 neutralizer and still not being subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. This permit is issued based on the affected Unit 258 neutralizer and still not being subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

c. This permit is issued based on the affected Unit 258 neutralizer and still not being subject to 40 CFR Part 61, Subpart FF, National Emission Standard for Benzene Waste Operations, because affected Unit 258 neutralizer and still is included in the exemption in 40 CFR 61.342(c)(3)(ii). The total annual benzene quantity in all waste streams chosen for exemption does not exceed 2.0 Mg/yr (2.2 tons/yr) as determined in the procedures in 40 CFR 61.355(j). The source-wide reporting requirement for this exemption is in Condition 5.7.4(c)(i) of this permit.

7.6.5 Control Requirements and Work Practices

a. The Permittee shall follow good operating practices for the affected Unit 258 neutralizer and still, including periodic inspection, routine maintenance and prompt repair of defects. Good operating practices may include equipment manufacturer recommendations or practices common to the batch chemical manufacturing industry. At all times the Permittee shall, to the extent practicable, maintain and operate the equipment, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

b. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

c. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, change in raw material or installation of controls, in order to eliminate the nuisance.

7.6.6 Production and Emission Limitations

There are no specific emission limitations for these units, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.6.7 Testing Requirements

a. Upon the Illinois EPA's request, the owner or operator of a batch operation shall conduct testing to demonstrate compliance with 35 IAC 219.501, in accordance with the applicable test methods and procedures specified in 35 IAC 219.503(d), (e), and (f) [35 IAC 219.503(a)].

b. For the purpose of demonstrating compliance with the control requirements of 35 IAC 219.501, the batch operation shall be run at representative operating conditions and flow rates during any performance test [35 IAC 219.503(e)].

c. The following methods in 40 CFR 60, Appendix A, shall be used to demonstrate compliance with the reduction efficiency requirement set forth in 35 IAC 219.501 [35 IAC 219.503(f)]:

i. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotometer. The control device inlet sampling site for determination of vent stream VOM composition reduction efficiency shall be prior to the control device and after the control device [35 IAC 219.503(f)(1)];

ii. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe [35 IAC 219.503(f)(2)]; and

iii. Method 25A or Method 18, if applicable, to determine the concentration of VOM in the control device inlet and outlet [35 IAC 219.503(f)(3)];

A. The sampling time for each run shall be as follows:

1. For batch cycles less than eight hours in length, readings shall be taken continuously over the entire length of the batch cycle with a maximum of 15-minute intervals between measurements if using Method 25A. If using Method 18, readings shall be taken continuously with a maximum of 15-minute intervals between measurements throughout the batch cycle unless it becomes necessary to change the impinger train, in which case a 30-minute interval shall not be exceeded.

2. For batch cycles of eight hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in 35 IAC 219.503(f)(3)(A)(i) (see also subsection (d)(iii)(A)(1) of this Condition) or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which define the emission profile of each emission event occurring within the batch cycle. For each emission event of less than four hours in duration, the owner or operator shall test continuously over the entire emission event as set forth in subsection (d)(iii)(A)(1) of this Condition. For each emission event of greater than four hours in duration, the owner or operator shall elect either to perform a minimum of three one hour test runs during the emission event or shall test continuously over the entire emission event within each single unit operation in the batch process train. To demonstrate that the portion of the emission event to be tested defines the emission profile for the emission event, the owner or operator electing to rely on this option shall develop an emission profile for the entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances and

process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions.

3. For purposes of subsection (d)(iii) of this Condition, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOM will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, in accordance with 35 IAC 219.503(f)(2) (see also subsection (d)(ii) of this Condition), then such event is not an emission event for purposes of this Condition;

B. The mass emission rate from the process vent or inlet to the control device shall be determined by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle;

C. The mass emission rate from the control device outlet shall be obtained by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle; and

D. The efficiency of the control device shall be determined by integrating the mass emission rates obtained in 35 IAC 219.503(f)(3)(B) and (f)(3)(C) (see also subsections (d)(iii)(B) and (d)(iii)(C) of this Condition), over the time of the batch cycle and dividing the difference in inlet and outlet mass flow totals by the inlet mass flow total.

d. The owner or operator of a batch operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements set forth in 35 IAC 219.501. Such method or procedures shall be approved by the Illinois EPA and USEPA as evidenced by federally enforceable permit conditions [35 IAC 219.503(h)].

e. In the absence of a request by the Illinois EPA to conduct performance testing in accordance with the provisions of this 35 IAC 219.503, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry [35 IAC 219.503(i)].

7.6.8 Monitoring Requirements

a. Every owner or operator using a condenser to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer's specifications, the following:

i. A condenser exit temperature monitoring device equipped with a continuous recorder and having an accuracy of ± 1 percent of the temperature being monitored expressed in degrees Celsius [35 IAC 219.504(d)(1)]; or

ii. A VOM monitoring device used to indicate the concentration of VOM exiting the control device based on a detection principle such as infra-red photoionization, or thermal conductivity, each equipped with a continuous recorder [35 IAC 219.504(d)(2)].

7.6.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 258 neutralizer and still to demonstrate compliance with Conditions 5.5.1 and 7.6.5 through 7.6.8, pursuant to Section 39.5(7)(b) of the Act:

a. Records of the testing of the efficiency of each capture system and control device pursuant to Condition 7.6.7, which include the following [Section 39.5(7)(e) of the Act]:

i. The date, place and time of sampling or measurements;

ii. The date(s) analyses were performed;

iii. The company or entity that performed the analyses;

iv. The analytical techniques or methods used;

v. The results of such analyses; and

vi. The operating conditions as existing at the time of sampling or measurement.

b. The Permittee shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(a)].

c. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under 35 IAC 219.504 (see also Condition 7.6.8).

i. For a condenser, the average exit (product side) temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally [35 IAC 219.505(c)(3)(B)]; or

ii. As an alternative to Condition 7.6.9(c)(i), at a minimum, records indicating the concentration level or reading indicated by the VOM monitoring device at the outlet of the scrubber, condenser, or carbon absorber, measured continuously and averaged over the same time period as the performance test (while the vent stream is routed normally) [35 IAC 219.505(c)(3)(D)].

d. Records addressing use of good operating practices for the Condenser (17-0637):

i. Records for periodic inspection of the condensers with date, individual performing the inspection, and nature of inspection; and

ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

e. Records of operation and emissions of the affected Unit 258 neutralizer and still:

i. Quantity of batches produced (batches/month and batches/year);

ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.6.12;

iii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor; and

iv. The aggregate annual VOM emissions from the affected Unit 258 neutralizer and still, with supporting calculations.

7.6.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the affected Unit 258 neutralizer and still with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

7.6.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.6.12 Compliance Procedures

Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.6.9. These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation.

7.7 Unit 258: Filter Aid Weigh Bins
Control: Baghouses

7.7.1 Description

The weigh bins are used for storage and distribution of filter aid for the calcium sulfonate process.

7.7.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
41-0205	South Filter Aid Weigh Bin	Baghouse 09-0205
41-0206	North Filter Aid Weigh Bin	Baghouse 09-0206

7.7.3 Applicable Provisions and Regulations

a. The "affected Unit 258 weigh bins" for the purpose of these unit-specific conditions, are emission units used for material handling operations in Unit 258, as listed in Condition 7.7.2.

b. The affected Unit 258 weigh bins are subject to 35 IAC 212.322, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (See also Attachment 2) [35 IAC 212.322(a)].

7.7.4 Non-Applicability of Regulations of Concern

This permit is issued based on the affected Unit 258 weigh bins not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 258 weigh bins do not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.7.5 Control Requirements and Work Practices

The Permittee shall maintain and operate the associated control equipment (baghouses and filters), including periodic inspections, routine maintenance, repair of defects, and visual emission checks, to demonstrate compliance with Condition 7.7.3(b).

7.7.6 Production and Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.7.7 Testing Requirements

None

7.7.8 Monitoring Requirements

None

7.7.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 258 weigh bins to demonstrate compliance with Condition 5.5.1, pursuant to Section 39.5(7)(b) of the Act:

a. Maximum operating rate of the baghouses (dscf per minute);

b. Maximum and typical process weight rates for the weigh bins (tons/hr);

c. Records of maintenance of the baghouses, including periodic inspections, routine maintenance, repair of defects, and visual emission checks; and

d. PM emissions, with supporting calculations (tons/year).

7.7.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 258 weigh bin with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

7.7.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.7.12 Compliance Procedures

Compliance with the emission limits of this permit shall be determined by using the records required by Condition 7.7.9, a controlled emission factor of 0.04 gr/dscf, and assuming constant operation (for example, 8,760 hours per year).

7.8 Unit 266: Batch Reactor Trains
Control: Scrubbers, Condensers, Flare, Baghouse

7.8.1 Description

In the Unit 266 Process, zinc dialkyldithiophosphate (ZDDP) products (lubricating oils) are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers, scrubbers, and a flare. In addition, PM emissions from the neutralizers are controlled by a baghouse.

Note: This narrative description is for informational purposes only and is not enforceable.

7.8.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0142	Thio Acid Reactor	Condensers, H_2S Scrubber System (33-2421 and 33-2422), Flare 36-0011/36-0610
27-1244	Thio Acid Reactor	
27-0143	Degasser/Hold Tank	H_2S Scrubber System (33-2421 and 33-2422), Flare 36-0011/36-0610
27-0195	Degasser/Hold Tank	
27-2425	Neutralizer	Condensers, Scrubbers, Flare 36-0011/36-0610, Baghouse 09-1425
27-1426	Neutralizer	

7.8.3 Applicable Provisions and Regulations

a. The “affected Unit 266 reactor systems” for the purpose of these unit-specific conditions, are batch emission units used in the production of zinc dialkyldithiophosphate products, as listed in Condition 7.8.2.

b. The affected Unit 266 reactor systems shall comply with 35 IAC 219, Subpart G, Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 (see Condition 7.8.3(b)(ii) below) and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

ii. Emissions of organic material in excess of those permitted by 35 IAC 219.301 (see Condition 7.8.3(b)(i) above) are allowable if such emissions

are controlled by one of the methods listed in 35 IAC 219.302(a) or (b) [35 IAC 219.302].

c. The affected Unit 266 reactor systems are subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidation Processes, because this source has a SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below:

   i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

   ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 266 reactor systems are subject to 35 IAC 212.321, which provides that:

   No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (See also Attachment 2) [35 IAC 212.321(a)].

e. The affected Unit 266 reactor systems are subject to 35 IAC 214 Subpart O, which provides that 35 IAC 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant provided:

   i. Said flares are operative on existing batch type processes [35 IAC 214.383(a)]; and

   ii. The emission of sulfur dioxide into the atmosphere from said flares does not exceed 500 pounds per hour and 3500 pounds per eight-hour period (230 kg/hr and 1590 kg/8 hrs) [35 IAC 214.383(c)]; and

iii. Provided, however, that if emission controls for said flares become economically reasonable and technically feasible the owner/operator of such hydrogen sulfide flares shall install such controls [35 IAC 214.383(d)].

f. Malfunction and Breakdown Provisions

Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected Unit 266 reactor systems in violation of the applicable standards of Condition 7.8.5(a) and (b) in the event of a malfunction or breakdown of the flare or H_2S scrubber system. This authorization is provided pursuant to 35 IAC 201.149, 201.161 and 201.262, as the Permittee has applied for such authorization in its application, generally explaining why such continued operation would be required to provide essential service or to prevent risk of injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns. This authorization supersedes the general prohibition in Condition 9.2.3 against continued operation in such circumstances:

i. This authorization only allows such continued operation as necessary to provide essential service or prevent risk of injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practical repair the damaged feature(s) of the flare or H_2S scrubber or remove the affected Unit 266 reactor systems from service.

A. The Permittee may not initiate any new batches during malfunction or breakdown of the flare or H_2S scrubber system.

B. The Permittee shall take reasonable measures to reduce SO_2 emissions of the ZDDP Process during malfunction or breakdown of the scrubber system or flare. At a minimum, these measures shall include stoppage of the ZDDP Process by ceasing the addition of raw materials if the process has passed the point where such a stoppage would not interfere with product quality.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.8.9(g) and 7.8.10(d). For these

purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume. In such circumstances, the incident shall be considered to continue until corrective actions are taken so that excess emissions cease or the Permittee takes the affected Unit 266 reactor systems out of service.

iv. Following notification to the Illinois EPA of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

vi. A. For the purpose of this condition, a malfunction or breakdown of the H_2S scrubber system includes those occasions when the H_2S scrubber system fails to operate in a normal and usual manner and is unable to reduce total SO_2 emission to the atmosphere (following flaring) attributable to the ZDDP Process.

B. For the purpose of this condition, a malfunction or breakdown of the flare includes those occasions when the flame is out or when there is a lower flame temperature than designed. The processes that exhaust to the flare may be operated for a maximum of 9 hours during malfunction or breakdown of the flare.

C. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in which discrete quantities of raw materials are added to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.8.4 Non-Applicability of Regulations of Concern

a. The affected Unit 266 reactor systems are not subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. The affected Unit 266 reactor systems are not subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

c. The affected Unit 266 reactor systems are not subject to 35 IAC 214.301 because 35 IAC 214.383 provides that 35 IAC 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant that meets the specifications in Condition 7.8.3(e).

7.8.5 Control Requirements and Work Practices

a. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

b. The flare shall comply with the requirements of 40 CFR 60.18 (see also Condition 5.4.4). The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to 35 IAC 219, Subpart V, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to 35 IAC 219, Subpart V to not comply with one or more of the provisions of 40 CFR 60.18 [35 IAC 219.501(e)].

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

d. The H_2S scrubber system (combination primary and secondary scrubbers) shall operate at a minimum efficiency of 98.0% for removal of H_2S. Compliance shall be determined monthly from a running total of monthly engineering calculations

(using flow rate data) and by operating the scrubber according to the following requirements established in Permits 95090198 and 98100080:

i. The scrubber system shall operate as a two-stage system, that is, a primary stage and secondary stage, except when the primary scrubber is being drained and recharged with fresh scrubbant. After recharge, the former primary scrubber will become the secondary scrubber.

ii. The scrubber system shall operate at the following levels, at which compliance with the hourly SO_2 emission limit has been demonstrated.

A. Minimum flow rate of scrubbant in an operating scrubber: 50 gal/min (hourly average).

B. Maximum duration of operation with secondary scrubber following breakthrough of primary scrubber (i.e., when primary scrubber is off-line for recharging): 6 hours.

iii. For the purpose of the above conditions, breakthrough of the primary scrubber shall be deemed to occur when the scrubbant temperature at the scrubbant hold tank increases by 10°C in one hour or exceeds 75°C, whichever occurs first. The temperature measurements shall be taken at 15 minute intervals. If the 10°C increase is exceeded in a one-hour period, a warning message should be conveyed to the operator, who must log the information.

e. Production of ZDDP Products (including the process oil added during filtration) shall not exceed 683 batches per month and 6,827 batches per year. These limits contain revisions to previously issued Permit 98100080. Specifically, the limits were changed from a weight basis to a batch basis.

7.8.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 266 reactor systems are subject to the following:

a. VOM emissions from the affected Unit 266 reactor systems shall not exceed the following limits:

Equipment	VOM Emissions (Tons/Month)	VOM Emissions (Tons/Year)
Unit 266 Operations	---	5.80

These limits are based on the maximum emission estimates using engineering calculations equations. The annual Unit 266 VOM limit includes emissions from the flare, fugitive emissions, and emissions from storage tanks listed in Section 7.9.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permits 95090198 and 98100080, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

b. Emissions from the affected Unit 266 reactor systems shall not exceed the following limits:

SO_2 Emissions	
(Tons/Month)	(Tons/Year)
3.01	30.08

These limits are based on an emission factor of 0.046 lb H_2S/lb product, a 98% scrubber removal efficiency for hydrogen sulfide (H_2S), and a 100% conversion of H_2S to SO_2 in the flare. This limit includes 4.8 tons of SO_2 per year from H_2S that is vented directly to the flare at a rate of 0.086 lb/ton product. A conversion factor of 1.88 was used for the conversion of H_2S to SO_2. ZDDP Production rates include the process oils added during filtration.

Compliance with the short term limit is required during startup. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 98100080, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 (see also Attachment 3) [T1].

7.8.7 Testing Requirements

Notwithstanding 35 IAC 219.503(a), a flare used to comply with control requirements of 35 IAC 219.501 shall be exempt from performance testing requirements in 35 IAC 219.503. The flare shall comply with the requirements of 40 CFR 60.18, as required by Condition 7.8.5(e) [35 IAC 219.503(b) and (c)].

7.8.8 Monitoring Requirements

a. Every owner or operator using an flare to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer's specifications, a heat sensing device, such as an ultra-violet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame [35 IAC 219.504(b)].

b. Compliance Assurance Monitoring (CAM) Requirements

The affected Unit 266 Reactor Systems are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee's CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.8.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected Unit 266 reactor system to demonstrate compliance with Conditions 5.5.1 and 7.8.5 through 7.8.8, pursuant to Section 39.5(7)(b) of the Act:

a. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under Section 7.8.8 (see 35 IAC 219.504).

i. Continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent [35 IAC 219.505(c)(2)].

b. Records addressing use of good operating practices for the emissions control devices:

i. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit;

ii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

iii. Records for periodic inspection of the flare with date, individual performing the inspection, and nature of inspection; and

iv. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

c. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source’s operating permit [35 IAC 219.505(a)].

d. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

e. Records of operation and emissions of the affected Unit 266 reactor systems:

i. Quantity of batches produced (batches/month and batches/year).

ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.8.12.

iii. The detailed record of material balance calculations or specific emission factor development including the

stack test and process information for that specific emission factor.

iv. VOM and SO_2 emissions in units specified by the emission limits in Condition 7.8.6 (tons/month and tons/year).

v. The aggregate annual VOM, SO_2, and PM emissions from the affected unit 266 reactor systems, with supporting calculations.

f. Records of operation and emissions of the emissions control devices:

i. Monthly engineering calculations for H_2S recovered by the H_2S scrubber system (percent recovery);

ii. Flow rate of scrubbant through the H_2S scrubber system (gal/min);

iii. Operating log showing the time and duration of operation while the primary scrubber is off-line for recharging; and

iv. Operating log showing the temperature (°C) at the scrubbant hold tank, measured every 15 minutes during operation.

g. Records for Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 266 reactor systems subject to Condition 7.8.3(f) during malfunctions and breakdown of the control features of the flare or H_2S scrubber system, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the affected Unit 266 reactor systems continued to operate in accordance with Condition 7.8.3(f);

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

h. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.8.8(b), as required by 40 CFR 64.9(b)(1).

7.8.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected Unit 266 reactor system with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. The Permittee shall notify the Illinois EPA Air Compliance Unit of emissions or operation in excess of the limits specified in Condition 7.8.5 or 7.8.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

b. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.8.3(c)(i)), shall notify the Illinois EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

c. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.8.5(a)), shall submit

records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

d. Reporting of Malfunctions and Breakdowns

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 266 reactor systems subject to Condition 7.8.3(f) during malfunction or breakdown of the control features of the flare or H_2S scrubber system.

i. A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

B. Upon achievement of compliance, the Permittee shall give a written follow-up notice within 15 days to the Illinois EPA, Air Compliance Unit and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected unit 266 reactor systems was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the Unit 266 reactor systems were taken out of service.

C. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions

accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the Unit 266 reactor systems will be taken out of service.

ii. In accordance with the due dates in Condition 8.6.1, the Permittee shall submit semi-annual malfunction and breakdown reports to the Illinois EPA pursuant to Sections 39.5(7)(a) and (f) of the Act. These reports may be submitted along with other semi-annual reports and shall include the following information for malfunctions and breakdowns of the control features of the flare or H_2S scrubber system during the reporting period:

A. A listing of malfunctions and breakdowns, in chronological order, that includes:

1. The date, time, and duration of each incident.

2. The identity of the affected operation(s) involved in the incident.

B. Dates of the notices and reports of Conditions 7.8.10(d)(i).

C. Any supplement information the Permittee wishes to provide to the notices and reports of Conditions 7.1.10(d)(i).

D. The aggregate duration of all incidents during the quarter.

E. If there have been no such incidents during the calendar quarter, this shall be stated in the report.

e. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.8.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected unit 266 reactor system without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Modes of operation of the affected Unit 266 reactor systems without the control required by Condition 7.8.5(a) is allowed, provided that the emissions during such modes of operation do not exceed the de minimis emission levels listed in Condition 7.8.3(c) (e.g., triethylamine salt product). However, the recordkeeping and reporting requirements in Section 7.8.9(c) (see also 35 IAC 219.505) shall apply to such de minimis single unit operations and batch process trains [35 IAC 219.500(c)].

7.8.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.8.5 and the testing requirements of Condition 7.8.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.8.8, 7.8.9, and 7.8.12.

b. Compliance with the emission limits of this permit is addressed by engineering calculations using the records required by Condition 7.8.9(e). These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.8.10.

c. The operation of the ZDDP Process (Unit 266) without the scrubber system in operation or with the scrubber system out of compliance with the operational limits in Condition 7.8.5(d) shall be considered to be a violation of the SO_2 emission limits in Condition 7.8.6, except as allowed by Condition 7.8.3(f).

7.9 Unit 266: Storage Tanks

7.9.1 Description

Storage tanks are used for the storage and blending of raw materials or products for the Unit 266 processes. Most of these storage and blending tanks are classified as insignificant activities in Section 3 of this permit.

Note: This narrative description is for informational purposes only and is not enforceable.

7.9.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0300	Isopropanol Storage Tank (35,000 gallons)	None

7.9.3 Applicable Provisions and Regulations

a. The “affected Unit 266 storage tank” for the purpose of these unit-specific conditions, is a storage tank used for materials in Unit 266, as listed in Conditions 7.9.1 and 7.9.2.

b. The affected Unit 266 storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 266 storage tank is subject to the requirements of 35 IAC 219.122(b) because the affected Unit 266 storage tank has a storage capacity greater than 946 liters (250 gallons).

7.9.4 Non-Applicability of Regulations of Concern

a. The affected Unit 266 storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because the tank either has a capacity of less than 40,000 gallons or stores a liquid with a maximum true vapor pressure of less than 0.5 psia.

b. The affected Unit 266 storage tank is not subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 266 storage tank does not use an add-on control device to achieve compliance with an emission limitation or standard.

7.9.5 Control Requirements and Work Practices

a. The affected Unit 266 storage tank shall be equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

7.9.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 266 storage tanks are subject to the following:

a. VOM emissions from Tank 35-0300 shall not exceed 0.48 ton per year. This limit is based on the maximum emissions estimates using calculation procedures in Condition 7.9.12. This limit is a subset of the VOM limit in Condition 7.8.6.

   Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

   The above limitations contain revisions to previously issued Permit 95090198. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this construction permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the limit was reduced from 1.87 tons per year to reflect emissions from only one tank. The original limit of 1.87 tons per year was for Tank 35-0300 plus tanks which are now considered insignificant activities (see Section 3) [T1R].

7.9.7 Testing Requirements

Testing requirements are not set for the affected Unit 266 storage tank. However, there are source-wide testing requirements in Condition 5.7 and general testing requirements in Condition 8.5.

7.9.8 Monitoring Requirements

Monitoring requirements are not set for the affected Unit 266 storage tank.

7.9.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 266 storage tank to demonstrate compliance with Conditions 5.5.1, 7.9.5, and 7.9.6, pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the following items for the affected Unit 266 storage tank. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f)].

b. The Permittee shall maintain the identification and properties of each organic liquid stored at the source, as related to emissions, i.e., vapor pressure and molecular weight.

c. The Permittee shall maintain records of the following items on an annual basis:

   i. The throughput of each organic liquid through the tank, gallons; and

   ii. The VOM emissions attributable to each organic liquid stored at the source, tons/year, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

7.9.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected Unit 266

storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 266 storage tank without usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

ii. The Permittee shall notify the Illinois EPA Air Compliance Unit of emissions of VOM or operation in excess of the limits specified in Condition 7.9.5 or 7.9.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.9.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected Unit 266 storage tank. However, there are provisions for source-wide operational flexibility set forth in Condition 5.8 of this permit.

7.9.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.9.5 is addressed by the recordkeeping and reporting requirements in Condition 7.9.9 and 7.9.10.

b. Compliance with the emission limits for the affected Unit 266 storage tank is addressed by the recordkeeping requirements in Condition 7.9.9. Calculations of emissions may be based on the current version of the TANKS program or AP-42 emission factors.

7.10 Unit 280: Batch Reactor Trains
Control: Scrubbers, Condensers, Flare

7.10.1 Description

In the Unit 280 Process, sulfurized isobutylene (SIB) products (lubricating oil additive) are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers, scrubbers, and a flare.

Note: This narrative description is for informational purposes only and is not enforceable.

7.10.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0201	First Stage SIB Reactor – (Batch or Continuous)	HCl Scrubbers, Flare 36-0011/36-0610
27-0301	Second Stage SIB Reactor – (Batch Only)	Condensers, H_2S Scrubber System (33-2421, 33-2422, and 33-1300), Flare 36-0011/36-0610
27-0302	Second Stage SIB Reactor – (Batch Only)	
27-2303	Third Stage Reactor – (Batch Only)	Condensers, H_2S Scrubber System (33-2421, 33-2422, and 33-1300), Flare 36-0011/36-0610
27-2501	Brine Acidifier	H_2S Scrubber System (33-2421, 33-2422, and 33-1300), Flare 36-0011/36-0610

7.10.3 Applicable Provisions and Regulations

a. The “affected Unit 280 reactor systems” for the purpose of these unit-specific conditions, are batch emission units used in the production of lubricating oil additive, as listed in Condition 7.10.2.

b. The affected Unit 280 reactor systems shall comply with 35 IAC 219, Subpart G, Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 (see Condition 7.10.3(b)(ii) below) and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall

apply only to photochemically reactive material [35 IAC 219.301].

ii. Emissions of organic material in excess of those permitted by 35 IAC 219.301 (see Condition 7.10.3(b)(i) above) are allowable if such emissions are controlled by one of the methods listed in 35 IAC 219.302(a) or (b) [35 IAC 219.302].

c. The affected Unit 280 reactor systems are subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidation Processes, because this source has a SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, in addition, the affected Emission Unit 27-0201 has dual modes of operation as allowed by Condition 7.10.11, and each emission unit is included in category (i) or (ii) below:

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 280 reactor systems are subject to 35 IAC 214 Subpart O, which provides that 35 IAC 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant provided:

i. Said flares are operative on existing batch type processes [35 IAC 214.383(a)]; and

ii. The emission of sulfur dioxide into the atmosphere from said flares does not exceed 500 pounds per hour and 3500 pounds per eight-hour period (230 kg/hr and 1590 kg/8 hrs) [35 IAC 214.383(c)]; and

iii. Provided, however, that if emission controls for said flares become economically reasonable and technically feasible the owner/operator of such hydrogen sulfide flares shall install such controls [35 IAC 214.383(d)].

e. The affected Emission Unit 27-0201 has dual modes of operation as allowed by Condition 7.10.11. When operating in continuous mode, the affected Emission Unit 27-0201 is subject to 35 IAC 219, Subpart RR Miscellaneous Organic Chemical Manufacturing:

i. The Permittee shall achieve an overall reduction in uncontrolled VOM emissions of at least 81% from each emission unit. Uncontrolled VOM emissions for purposes of this subpart are the emissions of VOM which would result if no air pollution control equipment were used.

ii. Any leaks from components subject to Condition 7.10.3(e)(i) above shall be subject to the following control measures:

A. Repair any component from which a leak of VOL can be observed. The repair shall be completed as soon as practicable but no later than 15 days after the leak is found, unless the leaking component cannot be repaired until the next process shutdown, in which case the leaking component must be repaired before the unit is restarted.

B. For any leak which cannot be readily repaired within one hour after detection, the records required in Condition 7.10.9(h) shall be kept. These records shall be kept for the specified time period in Condition 5.6.4 after the date on which they are made.

f. Malfunction and Breakdown Provisions

Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected Unit 280 reactor systems in violation of the applicable standards of Condition 7.10.5(a) and (b) in the event of a malfunction or breakdown of the flare or H_2S scrubber system. This authorization is provided pursuant to 35 IAC 201.149, 201.161 and 201.262, as the Permittee has applied for such authorization in its application, generally explaining why such continued operation would be required to provide essential service or to prevent risk of injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns. This authorization supersedes the general prohibition in Condition 9.2.3 against continued operation in such circumstances:

i. This authorization only allows such continued operation as necessary to provide essential service

or prevent risk of injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable repair the damaged feature(s) of the flare or H_2S scrubber or remove the affected Unit 280 reactor systems from service.

A. The Permittee may not initiate any new batches during malfunction or breakdown of the flare or H_2S scrubber system.

B. The Permittee shall take reasonable measures to reduce SO_2 emissions of the SIB Process during malfunction or breakdown of the scrubber system or flare. At a minimum, these measures shall include stoppage of the SIB Process by ceasing the addition of raw materials if the process has passed the point where such a stoppage would not interfere with product quality.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.10.9(g) and 7.10.10(d). For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume. In such circumstances, the incident shall be considered to continue until corrective actions are taken so that excess emissions cease or the Permittee takes the affected Unit 280 reactor systems out of service.

iv. Following notification to the Illinois EPA of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

vi. A. For the purpose of this condition, a malfunction or breakdown of the H_2S scrubber system includes those occasions when the H_2S scrubber system fails to operate in a normal and usual manner and is unable to reduce total SO_2 emission to the atmosphere (following flaring) attributable to the SIB Process.

B. For the purpose of this condition, a malfunction or breakdown of the flare includes those occasions when the flame is out or when there is a lower flame temperature than designed. The processes that exhaust to the flare may be operated for a maximum of 9 hours during malfunction or breakdown of the flare.

C. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in which discrete quantities of raw materials are added to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.10.4 Non-Applicability of Regulations of Concern

a. Except for Emission Unit 27-0201, the affected Unit 280 reactor systems are not subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing. Emission Unit 27-0201 is also not subject to 35 IAC 219, Subpart RR when it is operating in batch mode. (Condition 7.10.3(e) does not apply during batch mode operation) [35 IAC 219.960(a)].

b. The affected Unit 280 reactor systems are not subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Processes, because the source does not manufacture a listed chemical in Appendix A of 35 IAC Part 219 [35 IAC 219.431(a)].

c. The affected Unit 280 reactor systems are not subject to 35 IAC 214.301 because of the exemption in 35 IAC 214.383 [see also Condition 7.10.3(d)].

d. The affected Emission Unit 27-0201 is not subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidization Processes, when it is operating in continuous mode (Condition 7.10.3(c) does not apply during continuous mode operation) [35 IAC 219.500(a)].

7.10.5 Control Requirements and Work Practices

a. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

b. The flare shall comply with the requirements of 40 CFR 60.18 (see also Condition 5.4.4). The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to 35 IAC 219, Subpart V, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to 35 IAC 219, Subpart V to not comply with one or more of the provisions of 40 CFR 60.18 [35 IAC 219.501(e)].

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

d. The H_2S scrubber system (combination primary and secondary scrubbers) shall operate at a minimum efficiency of 98.0% for removal of H_2S. The H_2S scrubber system (consisting of a bleach scrubber in combination with primary and secondary caustic scrubbers) shall attain an overall efficiency of 99.5% for removal of H_2S when the bleach scrubber is in operation. Compliance shall be determined monthly from a running total of monthly engineering calculations (using flow rate data) and by operating the scrubber according to the following requirements established in Permits 95090198, 98100080, and 03080019:

   i. The scrubber system shall operate as a two-stage system, that is, a primary stage and secondary stage, except when the primary scrubber is being drained and recharged with fresh scrubbant. After recharge, the former primary scrubber will become the secondary scrubber.

   ii. The scrubber system shall operate at the following levels, at which compliance with the hourly SO_2 emission limit has been demonstrated.

      A. Minimum flow rate of scrubbant in an operating scrubber: 50 gal/min (hourly average).

B. Maximum duration of operation with secondary scrubber following breakthrough of primary scrubber (i.e., when primary scrubber is off-line for recharging): 6 hours.

iii. For the purpose of the above conditions, breakthrough of the primary scrubber shall be deemed to occur when the scrubbant temperature at the scrubbant hold tank increases by 10°C in one hour or exceeds 75°C, whichever occurs first. The temperature measurements shall be taken at 15 minute intervals. If the 10°C increase is exceeded in a one-hour period, a warning message should be conveyed to the operator, who must log the information.

e. Scrubber 33-1300 shall be operational for a minimum of 70% of the batches Unit 280 produces, on an annual basis. This requirement was established in Permit 03080019.

f. Annual production for Unit 280 shall not exceed 2,992 batches per year and the use of VOM shall not exceed 33,900 tons/yr. These requirements were established in Permit 07040080.

7.10.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 280 reactor systems are subject to the following:

a. Emissions from the reactors 27-201, 27-301, and 21-302 shall not exceed the following limits:

Pollutant	Emissions (Tons/Month)	(Tons/Year)
VOM	1.92	19.2
H_2S	0.35	3.5
PM	0.1	1.0

These limits are based on the maximum emission estimates using engineering calculation equations.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 91080008. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has

requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the short term limit was changed from an hourly basis to a batch or monthly basis [T1R].

b. Emissions from the reactors 27-201, 27-301, and 21-302 shall not exceed the following limits:

Pollutant	Emissions (Tons/Month)	Emissions (Tons/Year)
SO_2	8.2	36

These limits are based on the maximum emission estimates using material balance equations. The SO_2 emission limits are based on emission rates of 68.3 lb/batch for periods when Scrubber 33-1300 is not in use and 13.66 lb/batch for periods when Scrubber 33-1300 is operational. Controlled emissions are calculated based on the efficiency of the scrubber as determined using chemical engineering design principles.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 03080019, pursuant to PSD. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for PSD [T1].

7.10.7 Testing Requirements

a. Notwithstanding 35 IAC 219.503(a), a flare used to comply with control requirements of 35 IAC 219.501 shall be exempt from performance testing requirements in 35 IAC 219.503. The flare shall comply with the requirements of 40 CFR 60.18, as required by Condition 7.10.5(b) [35 IAC 219.503(b) and (c)].

7.10.8 Monitoring Requirements

a. Every owner or operator using an flare to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer's specifications, a heat sensing device, such as an ultra-violet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame [35 IAC 219.504(b)].

b. The Permittee shall monitor the following operating parameters for Scrubber 33-1300 at least every 15 minutes when the scrubber is in operation:

   i. Scrubbant pH; and

   ii. Scrubbant flow rate.

c. The Permittee shall continuously monitor oxidation reduction potential, ORP, or residual chlorine concentration.

d. Compliance Assurance Monitoring (CAM) Requirements

   The affected Unit 280 Reactor Systems are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee's CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.10.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 280 reactor systems to demonstrate compliance with Conditions 5.5.1 and 7.10.5 through 7.10.8, pursuant to Section 39.5(7)(b) of the Act:

a. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under Section 7.10.8 (see 35 IAC 219.504).

   i. Continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent [35 IAC 219.505(c)(2)].

b. Records addressing use of good operating practices for the emissions control devices:

i. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit;

ii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

iii. Records for periodic inspection of the flare with date, individual performing the inspection, and nature of inspection; and

iv. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

c. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(a)].

d. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

e. Records of operation and emissions of the affected Unit 280 reactor systems:

i. Quantity of batches produced (batches/month and batches/year);

ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.10.12;

iii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor;

iv. VOM, SO_2, H_2S, and PM emissions in units specified by the emission limits in Condition 7.10.6 (lb/batch or tons/month and tons/year);

v. The aggregate annual VOM emissions from the affected unit 280 reactor systems, with supporting calculations;

vi. The maximum uncontrolled emissions of SO_2, H_2S, and other reduced sulfur compounds per batch, based on process design, with supporting calculations;

vii. The theoretical emissions of the affected unit if only controlled by the Scrubbers 33-2421 and 33-2422; and

viii. The additional reduction in SO_2 emissions achieved by Scrubber 33-1300, including supporting calculations and documentation used to establish operating parameters (e.g., minimum flow, minimum residual chlorine/ORP levels).

f. Records of operation and emissions of the emissions control devices:

i. Monthly engineering calculations for H_2S recovered by the H_2S scrubber system (percent recovery);

ii. Flow rate of scrubbant through the H_2S scrubber system (gal/min);

iii. Operating log showing the time and duration of operation while the primary scrubber is off-line for recharging;

iv. Operating log showing the temperature (°C) at the scrubbant hold tank, measured every 15 minutes during operation;

v. For Scrubber 33-1300, scrubbant pH, scrubbant flow rate, and scrubbant ORP/residual chlorine concentration; and

vi. A record of each batch or portion of a batch when Scrubber 33-1300 is bypassed.

g. Records for Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 280 reactor systems subject to Condition 7.10.3(e) during malfunctions and breakdown of the control features of the flare or H_2S scrubber system, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the affected Unit 280 reactor systems continued to operate in accordance with Condition 7.10.3(e);

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

h. The following additional recordkeeping requirements apply during periods of continuous operation for any leaking components that cannot be repaired within one hour after detection. The Permittee shall:

i. Maintain the name and identification of the leaking component;

ii. Maintain the date and time the leak is detected;

iii. Maintain the action taken to repair the leak; and

iv. Maintain the date and time the leak is repaired.

i. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.10.8(e), as required by 40 CFR 64.9(b)(1).

7.10.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected Unit 280 reactor system with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. The Permittee shall notify the Illinois EPA Air Compliance Unit of emissions in excess of the limits specified in Condition 7.10.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

b. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.10.3(c)(i)), shall notify the Illinois EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

c. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.10.5(a)), shall submit records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

d. Reporting of Malfunctions and Breakdowns

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 280 reactor systems subject to Condition 7.10.3(e) during malfunction or breakdown of the control features of the flare or H_2S scrubber system.

i. A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

B. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Air Compliance Unit and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected unit 280 reactor systems was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the Unit 280 reactor systems were taken out of service.

C. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the Unit 280 reactor systems will be taken out of service.

ii. In accordance with the due dates in Condition 8.6.1, the Permittee shall submit semi-annual malfunction and breakdown reports to the Illinois EPA pursuant to Sections 39.5(7)(a) and (f) of the Act. These reports may be submitted along with other semi-annual reports and shall include the following information

for malfunctions and breakdowns of the control features of the flare or H_2S scrubber system during the reporting period:

A. A listing of malfunctions and breakdowns, in chronological order, that includes:

1. The date, time, and duration of each incident.

2. The identity of the affected operation(s) involved in the incident.

B. Dates of the notices and reports of Conditions 7.10.10(d)(i).

C. Any supplement information the Permittee wishes to provide to the notices and reports of Conditions 7.10.10(d)(i).

D. The aggregate duration of all incidents during the quarter.

E. If there have been no such incidents during the calendar quarter, this shall be stated in the report.

e. Whenever the affected Emission Unit 27-0201 switches from a batch mode of operation to a continuous mode of operation or vice versa, the Permittee shall report the change in the mode of operation to the Illinois EPA within 15 days following the switch and keep a record of the switch as required in Condition 7.10.9(h)(vi).

f. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.10.11 Operational Flexibility/Anticipated Operating Scenarios

Emission Unit 27-0201 is allowed to operate in a continuous or batch mode of operation. While operating in a continuous mode the reactor 27-0201 shall comply with 35 IAC Part 219, Subpart RR. While operating in a batch mode the reactor 27-0201 shall comply with 35 IAC Part 219, Subpart V.

7.10.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.10.5 and the testing requirements of Condition 7.10.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.10.8, 7.10.9, and 7.10.10.

b. Compliance with the emission limits of this permit is addressed by material balance equations using the records required by Condition 7.10.9(e). These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.10.8.

c. The operation of the SIB Process (Unit 280) without the scrubber system in operation or with the scrubber system out of compliance with the operational limits in Condition 7.10.5(d) shall be considered to be a violation of the SO_2 emission limits in Condition 7.10.6, except as allowed by Condition 7.10.3(e).

d. For the purpose of determining compliance with SO_2 emissions limits for Unit 280, all sulfur contained in the exhaust gas entering the flare, other than carbon disulfide (CS_2) generated by Unit 290, shall be assumed to be emitted as SO_2.

7.11 Unit 280: Tanks
Control: Scrubber, Flare

7.11.1 Description

The storage tanks are used for the storage of process intermediates in Unit 280.

Note: This narrative description is for informational purposes only and is not enforceable.

7.11.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0102	Adduct Tank (7,000 Gallons)	Scrubber 10-2236, Flare 36-0011/ 36-0610
35-0103	Adduct Tank (7,000 Gallons)	
35-0107	Adduct Tank (15,000 Gallons)	

7.11.3 Applicable Provisions and Regulations

a. The “affected Unit 280 storage tanks” for the purpose of these unit-specific conditions, are storage tanks used in Unit 280 with a storage capacity of less than 40,000 gallons, as listed in Condition 7.11.2.

b. Each affected Unit 280 storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. Each affected Unit 280 storage tank is subject to the requirements of 35 IAC 219.122(b) because each affected Unit 280 storage tank has a storage capacity greater than 946 liters (250 gallons).

d. Malfunction and Breakdown Provisions

Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected Unit 280 storage tanks in violation of the applicable standards of Condition 7.11.3(b) in the event of a malfunction or breakdown of the flare. This authorization is provided pursuant to 35 IAC 201.149, 201.161 and 201.262, as the Permittee has applied for such authorization in its application, generally explaining why such continued operation would be required to provide

essential service or to prevent risk of injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns. This authorization supersedes the general prohibition in Condition 9.2.3 against continued operation in such circumstances:

i. This authorization only allows such continued operation as necessary to provide essential service or prevent risk of injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable repair the damaged feature(s) of the flare or remove the affected Unit 280 storage tanks from service. The Permittee may not initiate any new batches during malfunction or breakdown of the flare.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.11.9(d) and 7.11.10(b). For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume. In such circumstances, the incident shall be considered to continue until corrective actions are taken so that excess emissions cease or the Permittee takes the affected Unit 280 storage tanks out of service.

iv. Following notification to the Illinois EPA of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

vi. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in which discrete quantities of raw materials are added

to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.11.4 Non-Applicability of Regulations of Concern

a. Each affected Unit 280 storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because each storage tank has a capacity of less than 40,000 gallons.

b. Each affected Unit 280 storage tank is not subject to the requirements of 40 CFR 60, Subpart Kb, because each storage tank has a storage capacity less than 75 m^3 (approximately 19,813 gallons).

c. Each affected Unit 280 storage tank is not subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because each affected Unit 280 storage tank does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.11.5 Control Requirements and Work Practices

Each affected Unit 280 storage tank shall be equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

7.11.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 280 storage tanks are subject to the following:

a. VOM emissions from each of the three adduct storage tanks shall not exceed 0.055 tons/month and 0.55 tons per year. This limit is based on the maximum emissions estimates using calculation procedures in Condition 7.11.12.

   Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 82120030. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this construction permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the limit was increased by 0.27 ton per year [T1R].

7.11.7 Testing Requirements

Testing requirements are not set for the affected Unit 280 storage tanks. However, there are source-wide testing requirements in Condition 5.7 and general testing requirements in Condition 8.5.

7.11.8 Monitoring Requirements

Monitoring requirements are not set for the affected Unit 280 storage tanks.

7.11.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected Unit 280 storage tank to demonstrate compliance with Conditions 5.5.1, 7.11.5, and 7.11.6, pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the following items for each affected Unit 280 storage tank. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f)].

b. The Permittee shall maintain the identification and properties of each organic liquid stored at the source, as related to emissions, i.e., vapor pressure and molecular weight.

c. The Permittee shall maintain records of the following items on an annual basis:

i. The throughput of each organic liquid through the tank, gallons; and

ii. The VOM emissions attributable to each organic liquid stored at the source, tons/year, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

d. Records for Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 280 storage tanks subject to Condition 7.11.3(d) during malfunctions and breakdown of the control features of the flare, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the affected Unit 280 storage tanks continued to operate in accordance with Condition 7.11.3(d);

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

7.11.10 <u>Reporting Requirements</u>

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected Unit 280 storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in an affected Unit 280 storage tank without

usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

ii. The Permittee shall notify the Illinois EPA Air Compliance Unit of emissions of VOM in excess of the limits specified in Condition 7.11.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

b. Reporting of Malfunctions and Breakdowns

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 280 storage tanks subject to Condition 7.11.3(d) during malfunction or breakdown of the control features of the flare.

i. A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

B. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Air Compliance Unit and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected unit 280 storage tanks was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the Unit 280 storage tanks were taken out of service.

C. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions

accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the Unit 280 storage tanks will be taken out of service.

ii. In accordance with the due dates in Condition 8.6.1, the Permittee shall submit semi-annual malfunction and breakdown reports to the Illinois EPA pursuant to Sections 39.5(7)(a) and (f) of the Act. These reports may be submitted along with other semi-annual reports and shall include the following information for malfunctions and breakdowns of the control features of the flare during the reporting period:

A. A listing of malfunctions and breakdowns, in chronological order, that includes:

1. The date, time, and duration of each incident.

2. The identity of the affected operation(s) involved in the incident.

B. Dates of the notices and reports of Conditions 7.11.10(b)(i).

C. Any supplement information the Permittee wishes to provide to the notices and reports of Conditions 7.11.10(b)(i).

D. The aggregate duration of all incidents during the quarter.

E. If there have been no such incidents during the calendar quarter, this shall be stated in the report.

7.11.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected Unit 280 storage tanks. However, there are provisions for source-wide operational flexibility set forth in Condition 5.8 of this permit.

7.11.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.11.5 is addressed by the recordkeeping and reporting requirements in Condition 7.11.9 and 7.11.10.

b. Compliance with the emission limits for the affected Unit 280 storage tanks is addressed by the recordkeeping requirements in Condition 7.11.9. Calculations of

emissions may be based on the current version of the TANKS program or AP-42 emission factors.

7.12 Unit 290: Tanks

7.12.1 Description

The storage tanks are used for the storage and blending of raw materials or products in Unit 290.

7.12.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0840	Raw Material Storage Tank (60,270 Gallons)	None
35-0845	DFA/Generic Blend Storage Tank (150,000 Gallons)	None
35-0850	Solvent Storage Tank (60,000 Gallons)	None

7.12.3 Applicable Provisions and Regulations

a. The “affected Unit 290 large storage tanks” for the purpose of these unit-specific conditions, are storage tanks used in Unit 290 with a storage capacity of greater than or equal to 40,000 gallons, as listed in Condition 7.12.2.

b. Each affected Unit 290 large storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. Each affected Unit 290 large storage tank is subject to the requirements of 35 IAC 219.122(b) because each storage tank has a storage capacity greater than 946 liters (250 gallons).

d. Each affected Unit 290 large storage tank is subject to 40 CFR 60 Subpart Kb because construction date of these tanks is after the applicability date of July 23, 1984 and the capacity of each tank is greater than 75 m^3 (approximately 19,813 gallons). The Illinois EPA is administering these standards in Illinois on behalf of the USEPA under a delegation agreement. Except for the recordkeeping in Condition 7.12.9 (see also 40 CFR 60.116b), these tanks are exempt from the provisions of 40 CFR 60, Subpart Kb.

7.12.4 Non-Applicability of Regulations of Concern

a. Each affected Unit 290 large storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC

219.129(f)), because each storage tank stores a liquid with a maximum true pressure of less than 0.5 psia.

b. This permit is issued based on each affected Unit 290 large storage tank not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because each affected Unit 290 large storage tank either does not use an add-on control device to achieve compliance with an emission limitation or standard or does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.12.5 Control Requirements and Work Practices

a. Each affected Unit 290 storage tank shall be equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

b. Vapor pressure of any materials stored in this storage tank shall not exceed 0.15 psia, except Tank 35-0840 may store material with a vapor pressure up to 0.5 psia at a storage temperature of 250°F. These limit was established in Permits 87070056 and 96070097.

c. Production of DFA Products or generic blends (including the process oil added during filtration) shall not exceed 20 million pounds year. This limitation was established in Permit 96070097.

7.12.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 290 large storage tanks are subject to the following:

a. VOM emissions from the Tanks 35-0840, 35-0845, and 35-0850 shall not exceed 0.3 ton/month and 2.23 ton/year. These limits are based on the vapor pressure limit in Condition 7.12.5 and maximum emissions estimates using calculation procedures in Condition 7.12.12.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 96070097, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.12.7 Testing Requirements

None

7.12.8 Monitoring Requirements

None

7.12.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected Unit 290 large storage tank to demonstrate compliance with Conditions 5.5.1, 7.12.5, and 7.12.6, pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the following items for each affected Unit 290 large storage tank. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f) and 40 CFR 60.116b(b)].

b. The Permittee shall maintain the identification and properties of each organic liquid stored at the source, as related to emissions, i.e., vapor pressure and molecular weight.

c. The Permittee shall maintain records of the following items on an annual basis:

   i. The throughput of each organic liquid through the tank, gallons; and

   ii. The VOM emissions attributable to each organic liquid stored at the source, tons/year, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

7.12.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 290 large storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. The owner or operator of each storage vessel with a design capacity greater than or equal to 151 m^3 (approximately 39,890 gal) storing a liquid with a maximum true vapor pressure that is normally less than 5.2 kPa (approximately 0.75 psia) shall notify the Illinois EPA within 30 days when the maximum true vapor pressure of the liquid exceeds 5.2 kPa (approximately 0.75 psia) [40 CFR 60.116b(d)].

b. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 290 large storage tank without usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

c. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM in excess of the limits specified in Condition 7.12.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.12.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.12.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.12.5 shall be determined by the recordkeeping and reporting requirements in Condition 7.12.9 and 7.12.10.

b. Available data on the storage temperature may be used to determine the maximum true vapor pressure as specified in 40 CFR 60.116b(e).

c. Emissions from each affected Unit 290 large storage tank shall be determined by the recordkeeping requirements in Condition 7.12.9. Calculations may be based on the current version of the TANKS program or AP-42 emission factors.

7.13 Unit 290: Batch Reactor Trains
Control: Condensers, Scrubbers, Flare

7.13.1 Description

In the Unit 290 Process, thiadiazole products (lubricating oils) are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers, scrubbers, and a flare. In addition, carbon drums are used for odor control.

7.13.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0200	First Stage Thiadiazole Reactor	Condensers, Scrubbers, CS_2 Recovery System, Flare 36-0011/36-0610
27-0100	Second Stage Thiadiazole Reactor	Condensers, Scrubber 05-0600, Carbon Drums

7.13.3 Applicable Provisions and Regulations

a. The “affected Unit 290 reactor systems” for the purpose of these unit-specific conditions, are batch emission units used in the production of thiadiazole products, as listed in Condition 7.13.2.

b. The affected Unit 290 reactor systems shall comply with 35 IAC 219, Subpart G, Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 (see Condition 7.13.3(b)(ii) below) and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

ii. Emissions of organic material in excess of those permitted by 35 IAC 219.301 (see Condition 7.13.3(b)(i) above) are allowable if such emissions are controlled by one of the methods listed in 35 IAC 219.302(a) or (b) [35 IAC 219.302].

c. The affected Unit 290 reactor systems are subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidation Processes, because this source has a SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below:

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 290 reactor systems are subject to 35 IAC 214 Subpart O, which provides that 35 IAC 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant provided:

i. Said flares are operative on existing batch type processes [35 IAC 214.383(a)]; and

ii. The emission of sulfur dioxide into the atmosphere from said flares does not exceed 500 pounds per hour and 3500 pounds per eight-hour period (230 kg/hr and 1590 kg/8 hrs) [35 IAC 214.383(c)]; and

iii. Provided, however, that if emission controls for said flares become economically reasonable and technically feasible the owner/operator of such hydrogen sulfide flares shall install such controls [35 IAC 214.383(d)].

e. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of the flare, the Permittee is authorized to continue operation of the affected Unit 290 reactor systems in violation of the applicable requirement of 35 IAC 219.501, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

i. The Permittee shall repair the damaged feature(s) of the flare or remove the affected Unit 290 reactor systems from service as soon as practicable.

ii. The Permittee may not initiate any new batches during malfunction or breakdown of the flare.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.13.9(a) and 7.13.10(a).

iv. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in which discrete quantities of raw materials are added to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.13.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Unit 290 reactor systems not being subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. This permit is issued based on the affected Unit 290 reactor systems not being subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

c. This permit is issued based on the affected Unit 290 reactor systems not being subject to 35 IAC 214.301 because of the exemption in 35 IAC 214.383 [see also Condition 7.13.3(d)].

7.13.5 Control Requirements and Work Practices

a. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

b. The flare shall comply with the requirements of 40 CFR 60.18 (see also Condition 5.4.4). The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to 35 IAC 219, Subpart V, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to 35 IAC 219, Subpart V to not comply with one or more of the provisions of 40 CFR 60.18 [35 IAC 219.501(e)].

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

d. The carbon disulfide recovery system shall consist of two condensers in series. The first condenser, No. 17-220, shall use glycol or chilled water as a coolant with a maximum inlet temperature of 40°F. The second condenser, No. 17-735, shall use a coolant with a maximum shell temperature of –35°F. The discharge from this condenser shall be vented to an existing scrubber/flare to provide an overall efficiency greater than 95% removal and destruction of carbon disulfide. If the Unit 290 process is not operating, the tanks may bypass the condensers and vent directly to the flare. This condition was established in Permit 94110112.

e. The Permittee shall continue to maintain and operate the modifications made to Unit 290, that being the addition of the Freon separator to the piping in the refrigeration system, for proper control of emissions. Changes to the modification shall follow approval by Illinois EPA, Bureau of Air, Permits Section, as required by the Act or regulations thereunder.

7.13.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 290 reactor systems are subject to the following:

a. SO_2 emissions from Flare 36-0011/36-0610 attributable to thiadiazole manufacturing operations shall not exceed 34.9 tons/year. This limit is based on the operating limit in Condition 7.13.5 and conversion of carbon disulfide to SO_2 in the flare, assuming no absorption by the scrubber.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 94110112, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the

CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

b. Fugitive VOM emissions from all thiadiazole manufacturing operations shall not exceed 4.8 tons/year. These limits are based on the number of components and a site-specific emission factor.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 94110112, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

c. HAP and PM emissions from the affected all thiadiazole manufacturing operations shall not exceed the following limits:

	Emissions	
Pollutant	(Lb/Batch)	(Ton/Year)
Hydrazine (HAP)	2.64	0.44
PM	0.26	0.044

These limits are based on negligible emission rates of hydrazine and PM and were established in Permit 94110112.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.13.7 Testing Requirements

a. Upon the Illinois EPA’s request, the owner or operator of a batch operation shall conduct testing to demonstrate compliance with 35 IAC 219.501, in accordance with the applicable test methods and procedures specified in 35 IAC 219.503(d), (e), and (f) [35 IAC 219.503(a)].

b. For the purpose of demonstrating compliance with the control requirements of 35 IAC 219.501, the batch operation shall be run at representative operating conditions and flow rates during any performance test [35 IAC 219.503(e)].

c. The following methods in 40 CFR 60, Appendix A, shall be used to demonstrate compliance with the reduction

efficiency requirement set forth in 35 IAC 219.501 [35 IAC 219.503(f)]:

i. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotometer. The control device inlet sampling site for determination of vent stream VOM composition reduction efficiency shall be prior to the control device and after the control device [35 IAC 219.503(f)(1)];

ii. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe [35 IAC 219.503(f)(2)]; and

iii. Method 25A or Method 18, if applicable, to determine the concentration of VOM in the control device inlet and outlet [35 IAC 219.503(f)(3)];

A. The sampling time for each run shall be as follows:

1. For batch cycles less than eight hours in length, readings shall be taken continuously over the entire length of the batch cycle with a maximum of 15-minute intervals between measurements if using Method 25A. If using Method 18, readings shall be taken continuously with a maximum of 15-minute intervals between measurements throughout the batch cycle unless it becomes necessary to change the impinger train, in which case a 30-minute interval shall not be exceeded.

2. For batch cycles of eight hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in 35 IAC 219.503(f)(3)(A)(i) (see also subsection (d)(iii)(A)(1) of this Condition) or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which define the emission profile of each emission event occurring within the batch cycle. For each emission event of less than four hours in duration, the owner or operator shall test continuously over the entire emission event as set forth in subsection (d)(iii)(A)(1) of this Condition. For each emission event of greater than four

hours in duration, the owner or operator shall elect either to perform a minimum of three one hour test runs during the emission event or shall test continuously over the entire emission event within each single unit operation in the batch process train. To demonstrate that the portion of the emission event to be tested defines the emission profile for the emission event, the owner or operator electing to rely on this option shall develop an emission profile for the entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances and process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions.

3. For purposes of subsection (d)(iii) of this Condition, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOM will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, in accordance with 35 IAC 219.503(f)(2) (see also subsection (d)(ii) of this Condition), then such event is not an emission event for purposes of this Condition;

B. The mass emission rate from the process vent or inlet to the control device shall be determined by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle;

C. The mass emission rate from the control device outlet shall be obtained by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle; and

D. The efficiency of the control device shall be determined by integrating the mass emission rates obtained in 35 IAC 219.503(f)(3)(B) and (f)(3)(C) (see also subsections (d)(iii)(B) and (d)(iii)(C) of this Condition), over the time of the batch cycle and dividing the difference in inlet and outlet mass flow totals by the inlet mass flow total.

d. The owner or operator of a batch operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements set forth in 35 IAC 219.501. Such method or procedures shall be approved by the Illinois EPA and USEPA as evidenced by federally enforceable permit conditions [35 IAC 219.503(h)].

e. In the absence of a request by the Illinois EPA to conduct performance testing in accordance with the provisions of this 35 IAC 219.503, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry [35 IAC 219.503(i)].

f. Notwithstanding 35 IAC 219.503(a), a flare used to comply with control requirements of 35 IAC 219.501 shall be exempt from performance testing requirements in 35 IAC 219.503 (see also Conditions 7.13.7(a) through (e)). The flare shall comply with the requirements of 40 CFR 60.18, as required by Condition 7.13.5(d) [35 IAC 219.503(b) and (c)].

7.13.8 Monitoring Requirements

a. Every owner or operator using an flare to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer’s specifications, a heat sensing device, such as an ultra-violet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame [35 IAC 219.504(b)].

b. Every owner or operator using a condenser to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer’s specifications, the following:

i. A condenser exit temperature monitoring device equipped with a continuous recorder and having an accuracy of ± 1 percent of the temperature being monitored expressed in degrees Celsius [35 IAC 219.504(d)(1)]; or

ii. A VOM monitoring device used to indicate the concentration of VOM exiting the control device based on a detection principle such as infra-red photoionization, or thermal conductivity, each equipped with a continuous recorder [35 IAC 219.504(d)(2)].

c. Compliance Assurance Monitoring (CAM) Requirements

The first stage thiadiazole reactor, 27-0200is subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee's CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.13.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 290 reactor systems to demonstrate compliance with Conditions 5.5.1 and 7.13.5 through 7.13.8, pursuant to Section 39.5(7)(b) of the Act:

a. Records for Malfunctions and Breakdowns of Flare

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 290 reactor systems subject to 35 IAC 219.501 during malfunctions and breakdown of the control features of the flare, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the damaged feature(s) could not be immediately repaired or the affected Unit 290 reactor systems removed from service without risk of injury to personnel or severe damage to equipment;

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

b. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under Section 7.13.8 (see 35 IAC 219.504).

i. If using any of the following as a control device, the following records:

A. Where a flare is used, continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent [35 IAC 219.505(c)(2)].

B. Where a condenser is used, the average exit (product side) temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally [35 IAC 219.505(c)(3)(B)]; or

C. As an alternative to Condition 7.13.9(b)(i)(B), at a minimum, records indicating the concentration level or reading indicated by the VOM monitoring device at the outlet of the scrubber, condenser, or carbon absorber, measured continuously and averaged over the same time period as the performance test (while the vent stream is routed normally) [35 IAC 219.505(c)(3)(D)].

c. Records addressing use of good operating practices for the emissions control devices:

i. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit;

ii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

iii. Records for periodic inspection of the flare with date, individual performing the inspection, and nature of inspection; and

iv. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

d. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(a)].

e. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

f. Records of operation and emissions of the affected Unit 290 reactor systems:

i. Quantity of batches produced (batches/month and batches/year).

ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.13.12.

iii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor.

iv. VOM emissions in units specified by the emission limits in Condition 7.13.6 (tons/year).

v. The aggregate annual VOM emissions from the affected unit 290 reactor systems, with supporting calculations.

g. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.13.8(c), as required by 40 CFR 64.9(b)(1).

7.13.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 290 reactor system with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. Reporting of Malfunctions and Breakdowns for Flare

The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 290 reactor systems subject to Condition 7.13.3(e) during malfunction or breakdown of the control features of the flare.

i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected unit 290 reactor systems was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the Unit 290 reactor systems were taken out of service.

iii. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the

malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the Unit 290 reactor systems will be taken out of service.

b. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.13.3(c)(i)), shall notify the Illinois EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

c. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.13.5(a)), shall submit records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

d. The Permittee shall notify the Illinois EPA Compliance Section of emissions or operation in excess of the limits specified in Conditions 7.13.5 or 7.13.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

e. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall

include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.13.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected unit 266 reactor system without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Use of various raw materials is allowed, as long as such changes do not cause a violation of Conditions 7.13.5 and 7.13.6.

7.13.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.13.5 and the testing requirements of Condition 7.13.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.13.8, 7.13.9, and 7.13.10.

b. Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.13.9(f). These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.13.8.

7.13.13 Compliance Plan/Schedule of Compliance

a. The Permittee was sent Violation Notice A-2003-00066 by the Illinois EPA for allegedly failing to comply with the SO_2 emission limit in Condition 7.13.6 and 40 CFR 52.21, Prevention of Significant Deterioration (PSD), for the affected Unit 290 reactor system. Permittee has entered into a Consent Order with the State of Illinois regarding this issue. See People v. Afton Chemical, 05-CH-1258 (St. Clair County), entered July 20, 2007. Permittee filed a

PSD permit application on April 4, 2006, which is currently under review. Permittee has proposed to install controls downstream from the outlet of reactor 27-0020. Once the PSD permit is issued and effective, the Permittee will comply with the requirements of the PSD permit.

b. The Permittee shall comply with the following schedule of compliance:

Milestone	Timing
Submit a formal PSD application, including, but not limited to, BACT analysis and a schedule for the construction and implementation of BACT	Completed.
Submit additional information to supplement the PSD application already on file as necessary and in a timely fashion as requested by the Agency	Within 30 days of receipt of such request for additional information.
Complete construction of the equipment to be required by the PSD permit that is currently under review.	Within 18 months after the PSD permit is issued or any appeals thereof are resolved, whichever occurs later.

c. Submittal of Progress Reports

A Progress Report shall be submitted every six months, beginning on July 1, 2010 and ending upon the achievement of compliance with the requirements of the PSD permit. The Progress Report shall contain at least the following information:

i. The required timeframe for completing the milestones in the schedule for compliance, and actual dates when such milestones were completed as well as completion of the requirements of the PSD permit.

ii. An explanation of why a required timeframe in the schedule of compliance or the PSD permit was not met, and any preventive or corrective measures adopted.

d. The Permittee shall, if needed, apply for revision of this permit to address the resolution of any such outstanding issue (e.g., include a new compliance schedule, identify appropriate applicable requirements, establish new requirements).

7.14 Unit 290: Carbon Disulfide Tank
Control: CS_2 Recovery System, Flare

7.14.1 Description

This storage tank is used for the storage of carbon disulfide (a HAP), which is used as a reactant in the Unit 290 processes. Carbon disulfide emissions are controlled by a CS_2 recovery system and the Unit 266 flare. When the Unit 290 processes are not in operation, the tank vents directly to the flare.

7.14.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0125	Carbon Disulfide Storage Tank (30,000 Gallons)	CS_2 Recovery System, Flare 36-0011/36-0610

7.14.3 Applicable Provisions and Regulations

a. The "affected Unit 290 carbon disulfide storage tank" for the purpose of these unit-specific conditions, are storage tanks used in Unit 290 with a storage capacity of less than 40,000 gallons, as listed in Condition 7.14.2.

b. The affected Unit 290 carbon disulfide storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 290 carbon disulfide storage tank is subject to the requirements of 35 IAC 219.122(b) because the storage tank has a storage capacity greater than 946 liters (250 gallons).

d. The affected Unit 290 carbon disulfide storage tank is subject to 40 CFR 60 Subpart Kb because construction date of this tank is after the applicability date of July 23, 1984 and the capacity of each tank is greater than 75 m^3 (approximately 19,813 gallons). The Illinois EPA is administering these standards in Illinois on behalf of the USEPA under a delegation agreement.

e. The affected Unit 290 carbon disulfide storage tank is subject to 35 IAC 214 Subpart O, which provides that 35 IAC 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant provided:

i. Said flares are operative on existing batch type processes [35 IAC 214.383(a)]; and

ii. The emission of sulfur dioxide into the atmosphere from said flares does not exceed 500 pounds per hour and 3500 pounds per eight-hour period (230 kg/hr and 1590 kg/8 hrs) [35 IAC 214.383(c)]; and

iii. Provided, however, that if emission controls for said flares become economically reasonable and technically feasible the owner/operator of such hydrogen sulfide flares shall install such controls [35 IAC 214.383(d)].

f. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of a flare, the Permittee is authorized to continue operation of the affected Unit 290 carbon disulfide storage tank in violation of the applicable requirements of 35 IAC 219.301, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

i. The Permittee shall repair the damaged feature(s) of the flare or remove the affected Unit 290 carbon disulfide storage tank from service as soon as practicable.

ii. Material may not be transferred in or out of the affected Unit 290 carbon disulfide storage tank for the purpose of new manufacturing batches during malfunction or breakdown of the flare.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.14.9(b) and 7.14.10(a).

7.14.4 Non-Applicability of Regulations of Concern

a. The affected Unit 290 carbon disulfide storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because the storage tank either has a capacity of less than 40,000 gallons or stores a liquid with a maximum true pressure of less than 0.5 psia.

b. This permit is issued based on the affected Unit 290 carbon disulfide storage tank not being subject to 35 IAC 214.301 because of the exemption in 35 IAC 214.383 (see also Condition 7.14.3(e)).

c. This permit is issued based on each affected Unit 290 carbon disulfide storage tank not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because each affected Unit 290 carbon

disulfide storage tank either does not use an add-on control device to achieve compliance with an emission limitation or standard or does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.14.5 Control Requirements and Work Practices

a. Tank 35-0125 shall be equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

b. Tank 35-0125 shall be equipped with a closed vent system and control device meeting the following specifications:

   i. The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in 40 CFR 60.485(b) [40 CFR 60.112b(a)(3)(i)].

   ii. The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements of the General Provisions (40 CFR 60.18, see also Condition 5.4.4) [40 CFR 60.112b(a)(3)(ii) and 61.113b(d)].

   iii. The carbon disulfide recovery system shall consist of two condensers in series. The first condenser, No. 17-220, shall use glycol or chilled water as a coolant with a maximum inlet temperature of 40°F. The second condenser, No. 17-735, shall use a coolant with a maximum shell temperature of –35°F. The discharge from this condenser shall be vented to an existing scrubber/flare to provide an overall efficiency greater than 95% removal and destruction of carbon disulfide. If the Unit 290 process is not operating, the tanks may bypass the condensers and vent directly to the flare. This condition was established in Permit 94110112.

c. At all times, the Permittee shall, to the extent practicable, maintain and operate Tank 35-0125 and associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions [40 CFR 60.11(d)].

d. Vapor pressure of any materials stored in this storage tank shall not exceed 9.0 psia. This limit was established in Permit 94110112.

7.14.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 290 carbon disulfide storage tank is subject to the following:

a. Emissions from Tank 35-0125 controlled by the recovery system and flare shall not exceed the following limits:

	VOM Emissions (Carbon Disulfide)	
Scenario	(Ton/Month)	(Ton/Year)
Controlled	---	0.001
Uncontrolled	0.1	0.7

These limits are based on the vapor pressure limit in Condition 7.14.5, maximum emissions estimates using calculation procedures in Condition 7.14.12, and control device requirements in Condition 7.14.5.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 94110112, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.14.7 Testing Requirements

None

7.14.8 Monitoring Requirements

The owner or operator shall operate the closed vent system and control device and monitor the parameters of the closed vent system and control device in accordance with the operating plan submitted to the Illinois EPA in accordance with 40 CFR 60.113(c)(1), unless the plan was modified by the Illinois EPA

during the review process. In this case, the modified plan applies [40 CFR 60.113(c)(2)].

7.14.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected Unit 290 carbon disulfide storage tank to demonstrate compliance with Conditions 5.5.1, 7.14.5, and 7.14.6, pursuant to Section 39.5(7)(b) of the Act:

a. Records for Malfunctions and Breakdowns of Flare

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 290 carbon disulfide storage tank subject to 35 IAC 219.301 during malfunctions and breakdown of the control features of the flare, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the damaged feature(s) could not be immediately repaired or the affected Unit 290 carbon disulfide storage tank removed from service without risk of injury to personnel or severe damage to equipment;

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

b. The owner or operator shall keep the following records:

i. A copy of the operating plan [40 CFR 60.115b(c)(1)]; and

ii. A record of the measured values of the parameters monitored in accordance with 60.113b(c)(2) (see also Condition 7.14.8) [40 CFR 60.115b(c)(2)].

c. The owner or operator shall keep records of all periods during which the pilot flame for the flare controlling Tank 35-0125 is absent [40 CFR 60.115b(d)(2)].

d. The Permittee shall maintain records of the following items for each affected Unit 290 carbon disulfide storage tank. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f) and 40 CFR 60.116b(b)].

e. The Permittee shall maintain the identification and properties of each organic liquid stored at the source, as related to emissions, i.e., vapor pressure and molecular weight.

f. The Permittee shall maintain records of the following items on an annual basis:

   i. The throughput of each organic liquid through the tank, gallons; and

   ii. The VOM emissions attributable to each organic liquid stored, tons/year, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

7.14.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 290 carbon disulfide storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. Reporting of Malfunctions and Breakdowns for Flare

   The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 290 carbon disulfide storage tank subject to Condition 7.14.3(f) during malfunction or breakdown of the control features of the flare.

   i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected Unit 290 carbon disulfide storage tank was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the affected Unit 290 carbon disulfide storage tank was taken out of service.

iii. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the affected Unit 290 carbon disulfide storage tank will be taken out of service.

b. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 290 carbon disulfide storage tank without usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

c. Semiannual reports of all periods recorded under 40 CFR 60.115b(d)(2) (see also Condition 7.14.9(c)) in which the pilot flame was absent shall be furnished to the Illinois EPA [40 CFR 60.115b(d)(3)].

d. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM in excess of the limits specified in Condition 7.14.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.14.11 <u>Operational Flexibility/Anticipated Operating Scenarios</u>

N/A

7.14.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.14.5 shall be determined by the recordkeeping and reporting requirements in Condition 7.14.9 and 7.14.10.

b. Available data on the storage temperature may be used to determine the maximum true vapor pressure as specified in 40 CFR 60.116b(e).

c. Emissions from the affected Unit 290 carbon disulfide storage tank shall be determined by the recordkeeping requirements in Condition 7.14.9. Calculations may be based on the current version of the TANKS program or AP-42 emission factors.

7.15 Unit 290: Wastewater Hold Tank
Control: Carbon Drums

7.15.1 Description

In the wastewater hold tank, bleach is used to neutralize the thiadiazole wastewater. Carbon drums are used for odor control.

7.15.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0300	Wastewater Hold Tank	Carbon Drums

7.15.3 Applicable Provisions and Regulations

a. The "affected Unit 290 wastewater tank" for the purpose of these unit-specific conditions, is an emission unit used to treat wastewater, as listed in Condition 7.15.2.

b. The affected Unit 290 wastewater tank is subject to 35 IAC 219, Subpart G, Use of Organic Material, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

7.15.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Unit 290 wastewater tank not being subject to 35 IAC Part 219, Subpart V: Batch Operations, because the affected Unit 290 wastewater tank is not a chemical manufacturing batch operation.

b. This permit is issued based on the affected Unit 290 wastewater tank not being subject to 35 IAC Part 219, Subpart B: Storage and Loading Operations, because the affected Unit 290 wastewater tank is not a storage tank.

c. This permit is issued based on the affected 290 wastewater tank not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected 290 wastewater tank does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.15.5 Control Requirements and Work Practices

The number of batches shall not exceed 400 per year. This limit was established in Permit 96020087.

7.15.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 290 wastewater tank is subject to the following:

a. VOM emissions from the affected Unit 290 wastewater tank shall not exceed 0.03 ton/year. This limit is based on the operating limit in Condition 7.15.5 and the calculation procedures in Condition 7.15.12.

   Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

   The above limitations were established in Permit 96020087, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.15.7 Testing Requirements

None

7.15.8 Monitoring Requirements

None

7.15.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 290 wastewater tank to demonstrate compliance with Conditions 5.5.1 and 7.15.6, pursuant to Section 39.5(7)(b) of the Act:

a. Number of batches;

b. Carbon drum changes; and

c. The VOM emissions attributable to each organic liquid, tons/year, with supporting calculations.

7.15.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the affected Unit 290 wastewater tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM or operation in excess of the limits specified in Conditions 7.15.5 or 7.15.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.15.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.15.12 Compliance Procedures

Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.15.9 and a controlled emission factor of 0.15 lb/batch.

7.16 Unit 267: Batch Reactor Trains
Control: Condensers, Scrubbers, Flare, Carbon Adsorbers

7.16.1 Description

In the Unit 267 Process, various lubricating oil products (including rust inhibitors, wear inhibitors, friction reducing additives, pour point depressants, antioxidants, and gear blends) or their intermediates are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers, scrubbers, and a flare. In addition, carbon adsorbers are used for odor control.

Note: This narrative description is for informational purposes only and is not enforceable.

7.16.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0119	Reactor	Condensers, Scrubbers, Flare 36-0011/ 36-0610
27-0117	Reactor	
27-0118	Reactor	
27-0121	Antioxidant Reactor	Scrubbers, Flare 36-0011/ 36-0610
27-0125	Gear Lube Blend Reactor	Carbon Adsorbers 33-0125-1 and 33-0125-2

7.16.3 Applicable Provisions and Regulations

a. The “affected Unit 267 reactor systems” for the purpose of these unit-specific conditions, are batch emission units used in the production of lubricating oil products and intermediates, as listed in Condition 7.16.2.

b. The affected Unit 267 reactor systems shall comply with 35 IAC 219, Subpart G, Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 (see Condition 7.16.3(b)(ii) below) and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

ii. Emissions of organic material in excess of those permitted by 35 IAC 219.301 (see Condition 7.16.3(b)(i) above) are allowable if such emissions are controlled by one of the methods listed in 35 IAC 219.302(a) or (b) [35 IAC 219.302].

c. The affected Unit 267 reactor systems are subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidation Processes, because this source has a SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below:

   i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

   ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 267 reactor systems are subject to 35 IAC 214 Subpart O, which provides that 35 IAC 214.301 shall not apply to existing hydrogen sulfide flares at a chemical manufacturing plant provided:

   i. Said flares are operative on existing batch type processes [35 IAC 214.383(a)]; and

   ii. The emission of sulfur dioxide into the atmosphere from said flares does not exceed 500 pounds per hour and 3500 pounds per eight-hour period (230 kg/hr and 1590 kg/8 hrs) [35 IAC 214.383(c)]; and

   iii. Provided, however, that if emission controls for said flares become economically reasonable and technically feasible the owner/operator of such hydrogen sulfide flares shall install such controls [35 IAC 214.383(d)].

e. Malfunction and Breakdown Provisions

   Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected Unit 267 reactor systems in violation of the applicable standards of Condition 7.16.5(a) and (b) in the event of a malfunction or breakdown of the flare. This authorization is provided pursuant to 35 IAC 201.149, 201.161 and 201.262, as the Permittee has applied for such authorization in its application, generally explaining why

such continued operation would be required to provide essential service or to prevent risk of injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns. This authorization supersedes the general prohibition in Condition 9.2.3 against continued operation in such circumstances:

i. This authorization only allows such continued operation as necessary to provide essential service or prevent risk of injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable repair the damaged feature(s) of the flare or remove the affected Unit 267 reactor systems from service. The Permittee may not initiate any new batches during malfunction or breakdown of the flare.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.16.9(g) and 7.16.10(d). For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume. In such circumstances, the incident shall be considered to continue until corrective actions are taken so that excess emissions cease or the Permittee takes the affected Unit 267 reactor systems out of service.

iv. Following notification to the Illinois EPA of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

vi. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in

which discrete quantities of raw materials are added to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.16.4 Non-Applicability of Regulations of Concern

a. The affected Unit 267 reactor systems are not subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. The affected Unit 267 reactor systems are not subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

c. The affected Unit 267 reactor systems are not subject to 35 IAC 214.301 because of the exemption in 35 IAC 214.383 (see also Condition 7.16.3(d)).

7.16.5 Control Requirements and Work Practices

a. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

b. The flare shall comply with the requirements of 40 CFR 60.18 (see also Condition 5.4.4). The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to 35 IAC 219, Subpart V, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to 35 IAC 219, Subpart V to not comply with one or more of the provisions of 40 CFR 60.18 [35 IAC 219.501(e)].

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

d. Operation of Reactors 27-0117, 27-0118, and 27-0119 shall not exceed 1800 batches per year.

This limit is a revision to previously established limits in Permits 73021389, 95110127, and 01100043. Specifically, the hourly limits for specific products manufactured in two reactors were replaced with a single batch limit for a group of three reactors [T1].

e. The Permittee shall replace the primary drum of the carbon adsorption unit with either a secondary drum or a new carbon drum every three months. This requirement was established in Permit 72100243.

7.16.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 267 reactor systems are subject to the following:

a. VOM emissions from the affected Unit 267 reactor systems shall not exceed the following limits:

	VOM Emissions	
Equipment	(Lb/Batch)	(Ton/Year)
Reactor 27-0125	0.33	0.22

These limits are based on control by a dual carbon adsorption unit and negligible emission rates.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 88100040. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the short term limit was changed from an hourly basis to a batch basis [T1R].

b. VOM emissions from Reactors 27-0117, 27-0118, and 27-0119 shall not exceed 500 lb/batch (each) and 6.2 tons per year (total). These limits are based on the operating limits in Condition 7.16.5, the maximum emission estimates using material balance equations, and control by a flare.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 01100043. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this construction permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the VOM emission limit in lb/batch was increased without any increase of allowable VOM emissions equal to 6.2 tons per year for all products in all three reactors. This change does not represent an increase in actual emissions, but simply corrects in emission calculation [T1R].

c. NO_x emissions from Reactor 27-0117 shall each not exceed 127.5 pounds per batch and 1.44 tons per year when producing HiTEC 7134 (or equivalent oil). These limits are based on the maximum emissions estimates using calculation procedures in Condition 7.16.12

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 01100043. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA,

specifically PSD. These limits continue to ensure that the construction and/or modification addressed in this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the short term limit was changed from an hourly basis to a batch basis [T1R].

d. VOM emissions increases from the reactors due to increased Gear Oil Additives production in Unit 267 shall not exceed the following:

Equipment	VOM Emissions (Ton/Hr, Batch Average)	(Ton/Year)
Unit 267	0.25	1.2

These limits are based on the maximum emissions estimates using calculation procedures in Condition 7.16.12.

Compliance with the hourly limit shall be determined per batch, by averaging the VOM emissions over the entire batch. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 08100024, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.16.7 Testing Requirements

a. Upon the Illinois EPA’s request, the owner or operator of a batch operation shall conduct testing to demonstrate compliance with 35 IAC 219.501, in accordance with the applicable test methods and procedures specified in 35 IAC 219.503(d), (e), and (f) [35 IAC 219.503(a)].

b. For the purpose of demonstrating compliance with the control requirements of 35 IAC 219.501, the batch operation shall be run at representative operating conditions and flow rates during any performance test [35 IAC 219.503(e)].

c. The following methods in 40 CFR 60, Appendix A, shall be used to demonstrate compliance with the reduction

efficiency requirement set forth in 35 IAC 219.501 [35 IAC 219.503(f)]:

i. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotometer. The control device inlet sampling site for determination of vent stream VOM composition reduction efficiency shall be prior to the control device and after the control device [35 IAC 219.503(f)(1)];

ii. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe [35 IAC 219.503(f)(2)]; and

iii. Method 25A or Method 18, if applicable, to determine the concentration of VOM in the control device inlet and outlet [35 IAC 219.503(f)(3)];

A. The sampling time for each run shall be as follows:

1. For batch cycles less than eight hours in length, readings shall be taken continuously over the entire length of the batch cycle with a maximum of 15-minute intervals between measurements if using Method 25A. If using Method 18, readings shall be taken continuously with a maximum of 15-minute intervals between measurements throughout the batch cycle unless it becomes necessary to change the impinger train, in which case a 30-minute interval shall not be exceeded.

2. For batch cycles of eight hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in 35 IAC 219.503(f)(3)(A)(i) (see also subsection (d)(iii)(A)(1) of this Condition) or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which define the emission profile of each emission event occurring within the batch cycle. For each emission event of less than four hours in duration, the owner or operator shall test continuously over the entire emission event as set forth in subsection (d)(iii)(A)(1) of this Condition. For

each emission event of greater than four hours in duration, the owner or operator shall elect either to perform a minimum of three one hour test runs during the emission event or shall test continuously over the entire emission event within each single unit operation in the batch process train. To demonstrate that the portion of the emission event to be tested defines the emission profile for the emission event, the owner or operator electing to rely on this option shall develop an emission profile for the entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances and process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions.

3. For purposes of subsection (d)(iii) of this Condition, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOM will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, in accordance with 35 IAC 219.503(f)(2) (see also subsection (d)(ii) of this Condition), then such event is not an emission event for purposes of this Condition;

B. The mass emission rate from the process vent or inlet to the control device shall be determined by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC

219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle;

C. The mass emission rate from the control device outlet shall be obtained by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle; and

D. The efficiency of the control device shall be determined by integrating the mass emission rates obtained in 35 IAC 219.503(f)(3)(B) and (f)(3)(C) (see also subsections (d)(iii)(B) and (d)(iii)(C) of this Condition), over the time of the batch cycle and dividing the difference in inlet and outlet mass flow totals by the inlet mass flow total.

d. The owner or operator of a batch operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements set forth in 35 IAC 219.501. Such method or procedures shall be approved by the Illinois EPA and USEPA as evidenced by federally enforceable permit conditions [35 IAC 219.503(h)].

e. In the absence of a request by the Illinois EPA to conduct performance testing in accordance with the provisions of this 35 IAC 219.503, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry [35 IAC 219.503(i)].

f. Notwithstanding 35 IAC 219.503(a), a flare used to comply with control requirements of 35 IAC 219.501 shall be exempt from performance testing requirements in 35 IAC 219.503 (see also Conditions 7.16.7(a) through (e)). The flare shall comply with the requirements of 40 CFR 60.18, as required by Condition 7.16.5(e) [35 IAC 219.503(b) and (c)].

7.16.8 <u>Monitoring Requirements</u>

a. Every owner or operator using an flare to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer’s specifications, a heat sensing device, such as an ultra-violet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame [35 IAC 219.504(b)].

b. Compliance Assurance Monitoring (CAM) Requirements

The reactors 27-0117, 27-0118 and 27-0121 are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for

Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee's CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.16.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 267 reactor systems to demonstrate compliance with Conditions 5.5.1 and 7.16.5 through 7.16.8, pursuant to Section 39.5(7)(b) of the Act:

a. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under Section 7.16.8 (see 35 IAC 219.504).

   i. Continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent [35 IAC 219.505(c)(2)].

b. Records addressing use of good operating practices for the emissions control devices:

   i. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit;

   ii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

   iii. Records for periodic inspection of the flare with date, individual performing the inspection, and nature of inspection; and

   iv. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

c. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2) (for example, Reactor 27-0125), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the

engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(a)].

d. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

   i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

   ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

e. Records of operation of the carbon adsorption drums, including:

   i. Date of replacement of carbon drums;

   ii. Reason for replacement of carbon drums; and

   iii. Quantity of carbon replaced.

f. Records of operation and emissions of the affected Unit 267 reactor systems:

   i. Quantity of batches produced (batches/month and batches/year);

   ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.16.12;

   iii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor;

   iv. VOM emissions in units specified by the emission limits in Condition 7.16.6 (lb/month and ton/year);

   v. The aggregate annual VOM and NO_x emissions from the affected unit 267 reactor systems, with supporting calculations; and

vi. Operating rate for each product manufactured in Reactors 27-0117, 27-0118 and 27-0119 (hour/year or batches/year).

g. Records for Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 267 reactor systems subject to Condition 7.16.3(e) during malfunctions and breakdown of the control features of the flare, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the affected Unit 267 reactor systems continued to operate in accordance with Condition 7.16.3(e);

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

h. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.16.8(b), as required by 40 CFR 64.9(b)(1).

7.16.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected Unit 267 reactor system with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. The Permittee shall notify the Illinois EPA Air Compliance Unit of emissions or operation in excess of the limits specified in Conditions 7.16.5 or

7.16.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

b. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.16.3(c)(i)), shall notify the Illinois EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

c. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.16.5(a)), shall submit records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

d. Reporting of Malfunctions and Breakdowns

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 267 reactor systems subject to Condition 7.16.3(e) during malfunction or breakdown of the control features of the flare.

i. A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as

possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

B. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Air Compliance Unit and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected unit 267 reactor systems was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the Unit 267 reactor systems were taken out of service.

C. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the Unit 267 reactor systems will be taken out of service.

ii. In accordance with the due dates in Condition 8.6.1, the Permittee shall submit semi-annual malfunction and breakdown reports to the Illinois EPA pursuant to Sections 39.5(7)(a) and (f) of the Act. These reports may be submitted along with other semi-annual reports and shall include the following information for malfunctions and breakdowns of the control features of the flare during the reporting period:

A. A listing of malfunctions and breakdowns, in chronological order, that includes:

1. The date, time, and duration of each incident.

2. The identity of the affected operation(s) involved in the incident.

B. Dates of the notices and reports of Conditions 7.16.10(d)(i).

C. Any supplement information the Permittee wishes to provide to the notices and reports of Conditions 7.16.10(d)(i).

D. The aggregate duration of all incidents during the quarter.

E. If there have been no such incidents during the calendar quarter, this shall be stated in the report.

e. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.16.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected unit 267 reactor system without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Allow a variety of raw materials and finished products, as long as such changes do not cause a violation of Conditions 7.16.5 and 7.16.6.

7.16.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.16.5 and the testing requirements of Condition 7.16.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.16.8, 7.16.9, and 7.16.10.

b. Compliance with the emission limits of this permit is addressed by material balance equations using the records required by Condition 7.16.9(f) and a NO_x emission factor of 2.4 lb NO_x/lb ammonia. These calculations shall use a

control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.16.8.

7.17 Unit 267: Storage Tanks
Control: Carbon Drums

7.17.1 Description

These storage tanks are used for the storage of xylene and dicyclopentadiene, which are used as reactants in Unit 267. Carbon drums are used for odor control on the Dicyclopentadiene storage tank.

7.17.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0006	Xylene Storage Tank (8,800 Gallons)	None
35-0190	Dicyclopentadiene Storage Tank (10,000 Gallons)	Carbon Drums

7.17.3 Applicable Provisions and Regulations

a. The "affected Unit 267 storage tank" for the purpose of these unit-specific conditions, is a storage tank used in Unit 267 with a storage capacity of less than 40,000 gallons, as listed in Conditions 7.17.1 and 7.17.2.

b. The affected Unit 267 storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 267 storage tank is subject to the requirements of 35 IAC 219.122(b) because the affected Unit 267 storage tank has a storage capacity greater than 946 liters (250 gallons).

7.17.4 Non-Applicability of Regulations of Concern

a. Each affected Unit 267 storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because each storage tank has a capacity of less than 40,000 gallons.

b. Each affected Unit 267 storage tank is not subject to the requirements of 40 CFR 60, Subpart Kb because each storage tank has a storage capacity less than 75 m^3 (approximately 19,813 gallons).

c. This permit is issued based on the affected Unit 267 storage tanks not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 267 storage tanks either do not use an add-on control device to achieve compliance with an emission limitation or standard or does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.17.5 Control Requirements and Work Practices

The affected Unit 267 storage tanks shall be equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

7.17.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 267 storage tank is subject to the following:

a. Combined VOM emissions from storage tanks 35-0006 and 35-0190 shall not exceed 0.1 ton per month and 0.88 ton per year. This limit is based on the maximum emissions estimates using calculation procedures in Condition 7.17.12.

   Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

   The above limitations contain revisions to previously issued Permit 73021389. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most

current and accurate information for the source. Specifically, the short term limit was changed from an hourly basis to a monthly basis [T1R].

7.17.7 Testing Requirements

None

7.17.8 Monitoring Requirements

None

7.17.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 267 storage tank to demonstrate compliance with Conditions 5.5.1, 7.17.5, and 7.17.6, pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the following items for the affected Unit 267 storage tanks. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f)].

b. The Permittee shall maintain the identification and properties of each organic liquid stored as related to emissions, i.e., vapor pressure and molecular weight.

c. The Permittee shall maintain records of the following items on an annual basis:

   i. The throughput of each organic liquid through the tank, gallons; and

   ii. The VOM emissions attributable to each organic liquid, tons/year, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

7.17.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 267 storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 267 storage tank without usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

b. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM in excess of the limits specified in Condition 7.17.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.17.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.17.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.17.5 shall be determined by the recordkeeping and reporting requirements in Condition 7.17.9 and 7.17.12.

b. Emissions from the affected Unit 267 storage tank shall be determined by the recordkeeping requirements in Condition 7.17.11. Calculations may be based on the current version of the TANKS program or AP-42 emission factors.

7.18 Unit 268: Batch Reactor Trains
Control: Condensers

7.18.1 Description

In the Unit 268 Process, various specialty lubricating oil blends, automatic transmission fluids, or intermediate reaction products are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers.

7.18.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0100	Specialty Blend Reactor	None
27-0200	Specialty Blend Reactor	None
27-0300	Specialty Blend Reactor	None
27-0450	Preblend Reactor	Condensers

7.18.3 Applicable Provisions and Regulations

a. The “affected Unit 268 reactor systems” for the purpose of these unit-specific conditions, are an emission unit used in the production of lubricating oil products and intermediates, as listed in Condition 7.18.2.

b. The affected Unit 268 reactor systems are subject to 35 IAC 219, Subpart G, Use of Organic Material, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 268 reactor systems are subject to 35 IAC 219 Subpart V: Batch Operations, because this source has SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below.

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process

train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

7.18.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Unit 268 reactor systems not being subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. This permit is issued based on the affected Unit 268 reactor systems not being subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

7.18.5 Control Requirements and Work Practices

a. The Permittee shall follow good operating practices for the affected Unit 268 reactor systems, including periodic inspection, routine maintenance and prompt repair of defects. Good operating practices may include equipment manufacturer recommendations or practices common to the batch chemical manufacturing industry. At all times the Permittee shall, to the extent practicable, maintain and operate the equipment, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

b. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

c. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, change in raw material or installation of controls, in order to eliminate the nuisance.

d. Production in Specialty Blends Reactors 27-100, 27-200, and 27-300 in Unit 268B shall not exceed 50 million lbs/year of

product (lubricating oils). This limitation was established in Permit 06060037.

7.18.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 268 reactor systems are subject to the following:

a. VOM emissions from the ATF process (Reactor 27-0450) shall not exceed 1.2 tons per month and 4.0 tons per year. These limits are based on material balance calculations.

   Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

   The above limitations were established in Permit 99050081, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

b. VOM emissions from Specialty Blends Reactors 27-100, 27-200, and 27-300 shall not exceed 2.25 tons per year. These limits are based on material balance calculations.

   Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

   The above limitations were established in Permit 06060037, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.18.7 Testing Requirements

a. Upon the Illinois EPA’s request, the owner or operator of a batch operation shall conduct testing to demonstrate compliance with 35 IAC 219.501, in accordance with the applicable test methods and procedures specified in 35 IAC 219.503(d), (e), and (f) [35 IAC 219.503(a)].

b. For the purpose of demonstrating compliance with the control requirements of 35 IAC 219.501, the batch operation shall be run at representative operating conditions and flow rates during any performance test [35 IAC 219.503(e)].

c. The following methods in 40 CFR 60, Appendix A, shall be used to demonstrate compliance with the reduction efficiency requirement set forth in 35 IAC 219.501 [35 IAC 219.503(f)]:

i. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotometer. The control device inlet sampling site for determination of vent stream VOM composition reduction efficiency shall be prior to the control device and after the control device [35 IAC 219.503(f)(1)];

ii. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe [35 IAC 219.503(f)(2)]; and

iii. Method 25A or Method 18, if applicable, to determine the concentration of VOM in the control device inlet and outlet [35 IAC 219.503(f)(3)];

A. The sampling time for each run shall be as follows:

1. For batch cycles less than eight hours in length, readings shall be taken continuously over the entire length of the batch cycle with a maximum of 15-minute intervals between measurements if using Method 25A. If using Method 18, readings shall be taken continuously with a maximum of 15-minute intervals between measurements throughout the batch cycle unless it becomes necessary to change the impinger train, in which case a 30-minute interval shall not be exceeded.

2. For batch cycles of eight hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in 35 IAC 219.503(f)(3)(A)(i) (see also subsection (d)(iii)(A)(1) of this Condition) or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which define the emission profile of each emission event occurring within the batch cycle. For each emission event of less than four hours in duration, the owner or operator

shall test continuously over the entire emission event as set forth in subsection (d)(iii)(A)(1) of this Condition. For each emission event of greater than four hours in duration, the owner or operator shall elect either to perform a minimum of three one hour test runs during the emission event or shall test continuously over the entire emission event within each single unit operation in the batch process train. To demonstrate that the portion of the emission event to be tested defines the emission profile for the emission event, the owner or operator electing to rely on this option shall develop an emission profile for the entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances and process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions.

3. For purposes of subsection (d)(iii) of this Condition, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOM will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, in accordance with 35 IAC 219.503(f)(2) (see also subsection (d)(ii) of this Condition), then such event is not an emission event for purposes of this Condition;

B. The mass emission rate from the process vent or inlet to the control device shall be determined

by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle;

C. The mass emission rate from the control device outlet shall be obtained by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle; and

D. The efficiency of the control device shall be determined by integrating the mass emission rates obtained in 35 IAC 219.503(f)(3)(B) and (f)(3)(C) (see also subsections (d)(iii)(B) and (d)(iii)(C) of this Condition), over the time of the batch cycle and dividing the difference in inlet and outlet mass flow totals by the inlet mass flow total.

d. The owner or operator of a batch operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements set forth in 35 IAC 219.501. Such method or procedures shall be approved by the Illinois EPA and USEPA as evidenced by federally enforceable permit conditions [35 IAC 219.503(h)].

e. In the absence of a request by the Illinois EPA to conduct performance testing in accordance with the provisions of this 35 IAC 219.503, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry [35 IAC 219.503(i)].

7.18.8 Monitoring Requirements

a. Every owner or operator using a condenser to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer's specifications, the following:

i. A condenser exit temperature monitoring device equipped with a continuous recorder and having an accuracy of ± 1 percent of the temperature being monitored expressed in degrees Celsius [35 IAC 219.504(d)(1)]; or

ii. A VOM monitoring device used to indicate the concentration of VOM exiting the control device based on a detection principle such as infra-red photoionization, or thermal conductivity, each equipped with a continuous recorder [35 IAC 219.504(d)(2)].

7.18.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 268 reactor systems to demonstrate compliance with Conditions 5.5.1 and 7.18.5 through 7.18.8, pursuant to Section 39.5(7)(b) of the Act:

a. Records of the testing of the efficiency of each capture system and control device pursuant to Condition 7.18.7, which include the following [Section 39.5(7)(e) of the Act]:

   i. The date, place and time of sampling or measurements;

   ii. The date(s) analyses were performed;

   iii. The company or entity that performed the analyses;

   iv. The analytical techniques or methods used;

   v. The results of such analyses; and

   vi. The operating conditions as existing at the time of sampling or measurement.

b. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under 35 IAC 219.504 (see also Condition 7.18.8).

   i. For a condenser, the average exit (product side) temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally [35 IAC 219.505(c)(3)(B)]; or

   ii. As an alternative to Condition 7.18.9(c)(i), at a minimum, records indicating the concentration level or reading indicated by the VOM monitoring device at the outlet of the scrubber, condenser, or carbon absorber, measured continuously and averaged over the same time period as the performance test (while the vent stream is routed normally) [35 IAC 219.505(c)(3)(D)].

c. Records addressing use of good operating practices for the Condenser (17-0637):

   i. Records for periodic inspection of the condensers with date, individual performing the inspection, and nature of inspection; and

ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

d. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(a)].

e. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

f. Records of operation and emissions of the affected Unit 268 reactor systems:

i. Quantity of batches produced (batches/month and batches/year);

ii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor;

iii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.18.12;

iv. VOM emissions in units specified by the emission limits in Condition 7.18.6 (ton/month and ton/year); and

v. The aggregate annual VOM emissions from the affected unit 268 reactor systems, with supporting calculations.

7.18.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the affected Unit 268 reactor systems with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.18.3(c)(i)), shall notify the Illinois EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

b. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.18.5(a)), shall submit records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

c. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM or operation in excess of the limits specified in Conditions 7.18.5 or 7.18.6 by sending

a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.18.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected unit 268 reactor system without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Use of various raw materials is allowed, as long as such changes do not cause a violation of Conditions 7.18.5 and 7.18.6.

7.18.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.18.5 and the testing requirements of Condition 7.18.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.18.8, 7.18.9, and 7.18.10.

b. Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.18.9(f). These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.18.8.

7.19 Unit 270: Batch Reactor Trains
Control: Condensers, Scrubbers, Flare

7.19.1 Description

In the Unit 270 Process, various lubricating oil products (including calcium sulfonates, barium sulfonates, and antioxidants) or their intermediates are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers, scrubbers, direct contact condensers (DCC), and a flare.

Note: This narrative description is for informational purposes only and is not enforceable.

7.19.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0401	Metallizer Reactor	Condenser 17-0409, DCC 05-0416, Flare 36-0090
27-0402	Metallizer Reactor	Condenser 17-0410, DCC 05-0417, Flare 36-0090
27-0900	Metallizer Reactor	Condenser 17-0905, DCC 05-0908, Flare 36-0090
501	Methanol Still Column	Condenser 17-0502, Condenser 17-0611, Flare 36-0090
27-0403	Metallizer Reactor	Condenser 17-0411, Scrubber 33-0418, Flare 36-0090
27-0205	Reactor	Condenser, Scrubber, Flare 36-0219
27-0206	Reactor	

7.19.3 Applicable Provisions and Regulations

a. The “affected Unit 270 reactor systems” for the purpose of these unit-specific conditions, are batch emission units used in the production of lubricating oil products and intermediates, as listed in Condition 7.19.2.

b. The affected Unit 270 reactor systems shall comply with 35 IAC 219, Subpart G, Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 (see Condition 7.19.3(b)(ii) below) and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

ii. Emissions of organic material in excess of those permitted by 35 IAC 219.301 (see Condition 7.19.3(b)(i) above) are allowable if such emissions are controlled by one of the methods listed in 35 IAC 219.302(a) or (b) [35 IAC 219.302].

c. The affected Unit 270 reactor systems are subject to 35 IAC 219 Subpart V, Batch Operations and Air Oxidation Processes, because this source has a SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below:

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 270 reactor systems are subject to 35 IAC 214 Subpart K, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm [35 IAC 214.301].

e. Malfunction and Breakdown Provisions

Subject to the following terms and conditions, the Permittee is authorized to continue operation of the affected Unit 270 reactor systems in violation of the applicable standards of Condition 7.19.5(a) and (b) in the event of a malfunction or breakdown of the flare. This authorization is provided pursuant to 35 IAC 201.149, 201.161 and 201.262, as the Permittee has applied for such authorization in its application, generally explaining why such continued operation would be required to provide essential service or to prevent risk of injury to personnel or severe damage to equipment, and describing the measures that will be taken to minimize emissions from any malfunctions and breakdowns. This authorization supersedes the general prohibition in Condition 9.2.3 against continued operation in such circumstances:

i. This authorization only allows such continued operation as necessary to provide essential service or prevent risk of injury to personnel or severe damage to equipment and does not extend to continued operation solely for the economic benefit of the Permittee.

ii. Upon occurrence of excess emissions due to malfunction or breakdown, the Permittee shall as soon as practicable repair the damaged feature(s) of the flare or remove the affected Unit 270 reactor systems from service. The Permittee may not initiate any new batches during malfunction or breakdown of the flare.

iii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.19.9(f) and 7.19.10(d). For these purposes, time shall be measured from the start of a particular incident. The absence of excess emissions for a short period shall not be considered to end the incident if excess emissions resume. In such circumstances, the incident shall be considered to continue until corrective actions are taken so that excess emissions cease or the Permittee takes the affected Unit 270 reactor systems out of service.

iv. Following notification to the Illinois EPA of a malfunction or breakdown with excess emissions, the Permittee shall comply with all reasonable directives of the Illinois EPA with respect to such incident, pursuant to 35 IAC 201.263.

v. This authorization does not relieve the Permittee from the continuing obligation to minimize excess emissions during malfunction or breakdown. As provided by 35 IAC 201.265, an authorization in a permit for continued operation with excess emissions during malfunction and breakdown does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such an enforcement action provided that the Permittee has fully complied with all terms and conditions connected with such authorization.

vi. For the purpose of this condition, a batch is defined as a complete cycle of a non-continuous operation, in which discrete quantities of raw materials are added to a reactor or vessel and undergo one or more reactions or separations to produce an intermediate or final product. A batch is completed when the product is removed from the reactor or vessel.

7.19.4 Non-Applicability of Regulations of Concern

a. The affected Unit 270 reactor systems are not subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. The affected Unit 270 reactor systems are not subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source's miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

7.19.5 Control Requirements and Work Practices

a. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

b. The flare shall comply with the requirements of 40 CFR 60.18 (see also Condition 5.4.4). The flare operation requirements of 40 CFR 60.18 do not apply if a process, not subject to 35 IAC 219, Subpart V, vents an emergency relief discharge into a common flare header and causes the flare servicing the process subject to 35 IAC 219, Subpart V to not comply with one or more of the provisions of 40 CFR 60.18 [35 IAC 219.501(e)].

c. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.

d. At all times, the Permittee shall maintain and operate Unit 270, including the new flare system, in a manner consistent with good air pollution control practices for minimizing emissions.

e. Reactor 27-0403, shall be ducted through condenser (33-0418) and vented to the flare when used for products that generate more than minimal emissions of VOM, e.g., overbased calcium sulfonates.

f. The flare shall be operated in accordance with the relevant provisions of 40 CFR 63 Subpart FFFF as if subject to the requirements of the NESHAP.

g. The Permittee shall maintain and operate the following equipment within the specific ranges as identified below:

i. Condenser 17-0611: Maximum outlet temperature of 45°F;

ii. Condenser 17-0611: Minimum control efficiency of 88 percent.

Note: (1) The outlet temperature and efficiency requirements apply only when condensable gas is being vented to this condenser; and (2) these requirements do not apply unless the condenser is not vented to the new flare or the flare is not operating.

7.19.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 270 reactor systems are subject to the following:

a. i. The total amount of n-hexane ducted to the flare, as determined by records of hexane usage in Unit 270, shall not exceed 35 tons/month and 350 tons/year.

ii. The total amount of methanol ducted to the flare, as determined by records of methanol usage in Unit 270, shall not exceed 35 tons/month and 350 tons/year.

The above limitations contain revisions to previously issued Permit 72121045. Specifically, the short term limit was changed from a batch basis to a per month basis and limits reduced for VOM to match the limits in Permit 06020100 for HAPs since all VOM is a HAP.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

b. Emissions of HAPs from Unit 270 shall not exceed the following limits. For purposes of determining compliance with these limits, the Permittee shall not rely upon a destruction efficiency for organic compounds that is greater than 98%.

	Tons/Month	Tons/Year
n-Hexane	1.0	7.0
Methanol	1.0	7.0

	Tons/Month	Tons/Year
Individual HAP (Other than Methanol or n-Hexane)	0.2	1.0
Total HAPs	2.5	15.0

c. i. Emissions of NO_x and CO from the flare shall not exceed the following limits.

Pollutant	Emissions	
	(Lbs/Hour)	(Tons/Year)
CO	2.20	9.6
NO_x	0.43	1.9

ii. This permit is issued based on negligible emissions of particulate matter (PM) and sulfur dioxide (SO_2) from the new flare. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lbs/hour and 0.44 tons/year.

Compliance with the above annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 06020100, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.19.7 Testing Requirements

a. Upon the Illinois EPA's request, the owner or operator of a batch operation shall conduct testing to demonstrate compliance with 35 IAC 219.501, in accordance with the applicable test methods and procedures specified in 35 IAC 219.503(d), (e), and (f) [35 IAC 219.503(a)].

b. For the purpose of demonstrating compliance with the control requirements of 35 IAC 219.501, the batch operation shall be run at representative operating conditions and flow rates during any performance test [35 IAC 219.503(e)].

c. The following methods in 40 CFR 60, Appendix A, shall be used to demonstrate compliance with the reduction efficiency requirement set forth in 35 IAC 219.501 [35 IAC 219.503(f)]:

i. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotometer. The control device inlet sampling site

for determination of vent stream VOM composition reduction efficiency shall be prior to the control device and after the control device [35 IAC 219.503(f)(1)];

ii. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe [35 IAC 219.503(f)(2)]; and

iii. Method 25A or Method 18, if applicable, to determine the concentration of VOM in the control device inlet and outlet [35 IAC 219.503(f)(3)];

A. The sampling time for each run shall be as follows:

1. For batch cycles less than eight hours in length, readings shall be taken continuously over the entire length of the batch cycle with a maximum of 15-minute intervals between measurements if using Method 25A. If using Method 18, readings shall be taken continuously with a maximum of 15-minute intervals between measurements throughout the batch cycle unless it becomes necessary to change the impinger train, in which case a 30-minute interval shall not be exceeded.

2. For batch cycles of eight hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in 35 IAC 219.503(f)(3)(A)(i) (see also subsection (d)(iii)(A)(1) of this Condition) or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which define the emission profile of each emission event occurring within the batch cycle. For each emission event of less than four hours in duration, the owner or operator shall test continuously over the entire emission event as set forth in subsection (d)(iii)(A)(1) of this Condition. For each emission event of greater than four hours in duration, the owner or operator shall elect either to perform a minimum of three one hour test runs during the emission event or shall test continuously over the entire emission event within

each single unit operation in the batch process train. To demonstrate that the portion of the emission event to be tested defines the emission profile for the emission event, the owner or operator electing to rely on this option shall develop an emission profile for the entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances and process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions.

3. For purposes of subsection (d)(iii) of this Condition, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOM will result in a discrete emission event that will last through the duration of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, in accordance with 35 IAC 219.503(f)(2) (see also subsection (d)(ii) of this Condition), then such event is not an emission event for purposes of this Condition;

B. The mass emission rate from the process vent or inlet to the control device shall be determined by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle;

C. The mass emission rate from the control device outlet shall be obtained by combining concentration and flow rate measurements taken

simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle; and

D. The efficiency of the control device shall be determined by integrating the mass emission rates obtained in 35 IAC 219.503(f)(3)(B) and (f)(3)(C) (see also subsections (d)(iii)(B) and (d)(iii)(C) of this Condition), over the time of the batch cycle and dividing the difference in inlet and outlet mass flow totals by the inlet mass flow total.

d. The owner or operator of a batch operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements set forth in 35 IAC 219.501. Such method or procedures shall be approved by the Illinois EPA and USEPA as evidenced by federally enforceable permit conditions [35 IAC 219.503(h)].

e. In the absence of a request by the Illinois EPA to conduct performance testing in accordance with the provisions of this 35 IAC 219.503, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry [35 IAC 219.503(i)].

f. Notwithstanding 35 IAC 219.503(a), a flare used to comply with control requirements of 35 IAC 219.501 shall be exempt from performance testing requirements in 35 IAC 219.503 (see also Conditions 7.19.7(a) through (e)). The flare shall comply with the requirements of 40 CFR 60.18, as required by Condition 7.19.5(e) [35 IAC 219.503(b) and (c)].

7.19.8 Monitoring Requirements

a. Every owner or operator using an flare to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer’s specifications, a heat sensing device, such as an ultra-violet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame [35 IAC 219.504(b)].

b. Every owner or operator using a condenser to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer’s specifications, the following:

i. A condenser exit temperature monitoring device equipped with a continuous recorder and having an accuracy of ± 1 percent of the temperature being monitored expressed in degrees Celsius [35 IAC 219.504(d)(1)]; or

ii. A VOM monitoring device used to indicate the concentration of VOM exiting the control device based on a detection principle such as infra-red photoionization, or thermal conductivity, each equipped with a continuous recorder [35 IAC 219.504(d)(2)].

c. The Permittee shall monitor Condenser 17-0611 for the maximum outlet temperature as required by Condition 7.19.5(g).

d. Compliance Assurance Monitoring (CAM) Requirements

The affected Unit 270 Reactor Systems (not including reactor 27-0205) are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee's CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.19.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 270 reactor systems to demonstrate compliance with Conditions 5.5.1 and 7.19.5 through 7.19.8, pursuant to Section 39.5(7)(b) of the Act:

a. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under Section 7.19.8 (see 35 IAC 219.504).

i. If using any of the following as a control device, the following records:

A. Where a flare is used, continuous records of the flare pilot flame monitoring and records of all periods of operations during which the pilot flame is absent [35 IAC 219.505(c)(2)];

B. Where a condenser is used, the average exit (product side) temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally [35 IAC 219.505(c)(3)(B)]; or

C. As an alternative to Condition 7.19.9(a)(i)(B), at a minimum, records indicating the

concentration level or reading indicated by the VOM monitoring device at the outlet of the scrubber, condenser, or carbon absorber, measured continuously and averaged over the same time period as the performance test (while the vent stream is routed normally) [35 IAC 219.505(c)(3)(D)].

b. Records addressing use of good operating practices for the emissions control devices:

   i. A log of operating time for the capture system, control device, monitoring equipment and the associated emission unit;

   ii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

   iii. Records for periodic inspection of the flare with date, individual performing the inspection, and nature of inspection; and

   iv. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

c. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source’s operating permit [35 IAC 219.505(a)].

d. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

   i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

e. Records of operation and emissions of the affected Unit 270 reactor systems:

i. Quantity of batches produced (batches/month and batches/year);

ii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor;

iii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.19.12;

iv. VOM emissions in units specified by the emission limits in Condition 7.19.6 (lb/batch, ton/month, and ton/year); and

v. The aggregate annual VOM emissions from the affected unit 270 reactor systems, with supporting calculations.

vi. The Permittee shall keep records of n-hexane and methanol usage in unit 270.

vii. The Permittee shall keep an operating log for Reactor 27-0403 that, at a minimum includes:

A. Information identifying the product being made at anytime;

B. Information confirming the appropriate control configuration for the type of product; and

C. Detailed information for any event when the appropriate control configuration was not present, including information addressing any additional emissions due to the event, with supporting documentation.

f. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.19.8(d), as required by 40 CFR 64.9(b)(1).

g. Records for Malfunctions and Breakdowns

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the affected Unit 270 reactor systems subject to Condition 7.19.3(e) during malfunctions and breakdown of the control features of the flare, which as a minimum, shall include:

i. Date and duration of malfunction or breakdown;

ii. A detailed explanation of the malfunction or breakdown;

iii. An explanation why the affected Unit 270 reactor systems continued to operate in accordance with Condition 7.19.3(e);

iv. The measures used to reduce the quantity of emissions and the duration of the event;

v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

vi. The amount of release above typical emissions during malfunction/breakdown.

h. Records for the flare

i. The Permittee shall keep a file that contains the manufacturer's specifications for the capacity of the flare and calculations for the maximum emissions of CO and NO_x from the flare, with supporting documentation.

ii. An operating log, which shall contain at a minimum the following information:

A. Each startup and shutdown of the flare.

B. Incidents during which the flare failed to operate properly with description and discussion of the likely cause(s), what corrective actions were taken, and any preventive measures that will be taken to reduce these incidents.

C. Incidents during the operation of the flare which may indicate the need for inspection and maintenance of the flare, along with a description of the incident.

D. Other information that the Permittee would use to address proper operation of the flare to control emissions.

iii. Emissions from the flare.

7.19.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Air Compliance Unit, of deviations of an affected Unit 270 reactor system with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. The Permittee shall notify the Illinois EPA Air Compliance Unit of emissions of VOM or operation in excess of the limits specified in Conditions 7.19.5 or 7.19.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

b. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.19.3(c)(i)), shall notify the Illinois EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

c. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.19.5(a)), shall submit records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with

35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

d. Reporting of Malfunctions and Breakdowns

The Permittee shall provide the following notification and reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of the affected Unit 270 reactor systems subject to Condition 7.19.3(e) during malfunction or breakdown of the control features of the flare.

i. A. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.

B. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Air Compliance Unit and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the affected unit 270 reactor systems was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the Unit 270 reactor systems were taken out of service.

C. If compliance is not achieved within 5 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Air Compliance Unit and Regional Field Office, within 5 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the Unit 270 reactor systems will be taken out of service.

ii. In accordance with the due dates in Condition 8.6.1, the Permittee shall submit semi-annual malfunction and breakdown reports to the Illinois EPA pursuant to

Sections 39.5(7)(a) and (f) of the Act. These reports may be submitted along with other semi-annual reports and shall include the following information for malfunctions and breakdowns of the control features of the flare during the reporting period:

A. A listing of malfunctions and breakdowns, in chronological order, that includes:

1. The date, time, and duration of each incident.

2. The identity of the affected operation(s) involved in the incident.

B. Dates of the notices and reports of Conditions 7.19.10(d)(i).

C. Any supplement information the Permittee wishes to provide to the notices and reports of Conditions 7.19.10(d)(i).

D. The aggregate duration of all incidents during the quarter.

E. If there have been no such incidents during the calendar quarter, this shall be stated in the report.

e. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.19.11 <u>Operational Flexibility/Anticipated Operating Scenarios</u>

The Permittee is authorized to make the following physical or operational change with respect to an affected unit 266 reactor system without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee’s obligation to properly obtain a construction permit

in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Use of various raw materials is allowed, as long as such changes do not cause a violation of Conditions 7.19.5 and 7.19.6.

7.19.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.19.5 and the testing requirements of Condition 7.19.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.19.8, 7.19.9, and 7.19.10.

b. Compliance with the emission limits of this permit is addressed by material balance equations using the records required by Condition 7.19.9(e). These calculations shall use actual solvent usage as a basis for the material balance.

7.20 Unit 270: Storage Tanks
Control: Condenser

7.20.1 Description

These storage tanks are used for the storage of hexane and methanol, which are used as solvents in Unit 270. A condenser and flare are used for control of VOM emissions from the storage tanks.

7.20.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
35-0608	Recovered Hexane Storage Tank (14,000 Gallons)	Condenser 17-0611 and Flare
35-0609	Recovered Hexane Storage Tank (3,500 Gallons)	Condenser 17-0611 and Flare
35-0607	Fresh Hexane Storage Tank (7,070 Gallons)	Condenser 17-0611 and Flare
35-0612	Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611 and Flare
35-0116	Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611 and Flare
35-0503	Methanol Column Surge Tank (735 Gallons)	Condenser 17-0611 and Flare
35-0631	Recovered Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611 and Flare
35-0632	Recovered Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611 and Flare
35-2113	Fresh Methanol Storage Tank (20,000 Gallons)	Condenser 17-0611 and Flare
35-0610	Recovered Solvents Storage Tank (9,600 Gallons)	Condenser 17-0611 and Flare

7.20.3 Applicable Provisions and Regulations

a. The “affected Unit 270 storage tank” for the purpose of these unit-specific conditions, is a storage tank used in Unit 270 with a storage capacity of less than 40,000 gallons, as listed in Conditions 7.20.1 and 7.20.2.

b. The affected Unit 270 storage tank is subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 270 storage tank is subject to the requirements of 35 IAC 219.122(b) because the affected Unit

270 storage tank has a storage capacity greater than 946 liters (250 gallons).

7.20.4 Non-Applicability of Regulations of Concern

a. Each affected Unit 270 storage tank is not subject to 35 IAC 219 Subpart B: Organic Emissions from Storage and Loading Operations (except 35 IAC 219.122(b) and 35 IAC 219.129(f)), because each storage tank has a capacity of less than 40,000 gallons.

b. Tanks 35-0116, 0503, 0607, 0609, 0610, 0612, 0631, and 0632 are not subject to the requirements of 40 CFR 60, Subpart Kb because these storage tanks have a storage capacity less than 75 m^3 (approximately 19,813 gallons).

c. This permit is issued based on the affected Unit 270 storage tanks not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 270 storage tanks does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.20.5 Control Requirements and Work Practices

a. The affected Unit 270 storage tanks shall be equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108, or unless such tank is a fitted with a recovery system as described in 35 IAC 219.121. If no odor nuisance exists the limitations of this condition shall only apply to the loading of VOL with a vapor pressure of 17.21 kPa (2.5 psia) or greater at 294.3°K (70°F) [35 IAC 219.122(b) and (c)].

b. Condenser 17-0611 shall operate with a maximum outlet temperature of 45°F and a minimum control efficiency of 88%. These requirements were established in Permit 88020080.

   Note: (1) The outlet temperature and efficiency requirements apply only when condensable gas is being vented to this condenser; and (2) these requirements do not apply unless the condenser is not vented to the new flare or the flare is not operating.

c. The throughput of Tank 35-0610 shall not exceed 16.5 million gallons per year and the vapor pressure of materials stored in Tank 35-0610 shall not exceed 1.5 psia. These requirements were established in Permit 88020080.

7.20.6 Production and Emission Limitations

None

7.20.7 Testing Requirements

None

7.20.8 Monitoring Requirements

None

7.20.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 270 storage tanks to demonstrate compliance with Conditions 5.5.1, 7.20.5, and 7.20.6, pursuant to Section 39.5(7)(b) of the Act:

a. The Permittee shall maintain records of the following items for the affected Unit 270 storage tanks. These records shall be kept up to date for each tank at the source and be retained until the tank is removed from the source.

   i. Records indicating compliance with 35 IAC 219.122 (e.g., the presence of a submerged loading pipe); and

   ii. The dimensions of the tank and an analysis of capacity [35 IAC 219.129(f)].

b. The Permittee shall maintain the identification and properties of each organic liquid as related to emissions, i.e., vapor pressure and molecular weight.

c. The Permittee shall maintain records of the following items on an annual basis:

   i. The throughput of each organic liquid through the tank, gallons; and

   ii. The VOM emissions attributable to each organic liquid, tons/year, with supporting calculations, calculated utilizing an approved USEPA methodology, such as the current version of the TANKS program.

7.20.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 270 storage tank with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. Any loading of organic liquid with a true vapor pressure greater than or equal to 17.21 kPa (2.5 psia) in the affected Unit 270 storage tank without usage of a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA. This notification shall include a description of the event, the cause for the non-compliance, actions taken to correct the non-compliance, and the steps taken to avoid future non-compliance.

b. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM in excess of the limits specified in Condition 7.20.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

7.20.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.20.12 Compliance Procedures

a. Compliance with the requirements in Condition 7.20.5 shall be determined by the recordkeeping and reporting requirements in Condition 7.20.9 and 7.20.10.

b. Emissions from the affected Unit 270 storage tank shall be determined by the recordkeeping requirements in Condition 7.20.9. Calculations may be based on the current version of the TANKS program or AP-42 emission factors.

7.21 Unit 270: Silos and Weigh Bins
Control: Baghouses

7.21.1 Description

The silos and weigh bins are used for receiving, storage, and distribution of lime and filter aid for the overbased calcium sulfonate process.

7.21.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
41-0137	Lime Storage Silo	Baghouse 09-0136
41-0920	Lime Storage Silo	Baghouse 09-0920
41-0142	Lime Weigh Bin	Baghouse 09-0139
41-0924	Lime Weigh Bin	Baghouse 09-0924
41-0146	Filter Aid Weigh Bin	Baghouse 09-0147
41-0311	Filter Aid Weigh Bin	Baghouse 09-0311

7.21.3 Applicable Provisions and Regulations

a. The “affected Unit 270 material handling units” for the purpose of these unit-specific conditions, are emission units used for material handling operations in Unit 270, as listed in Conditions 7.21.1 and 7.21.2.

b. The affected Unit 270 material handling units are subject to 35 IAC 212.321, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (See also Attachment 2) [35 IAC 212.321(a)].

7.21.4 Non-Applicability of Regulations of Concern

This permit is issued based on the affected Unit 270 material handling units not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 270 material handling units do not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.21.5 Control Requirements and Work Practices

The Permittee shall maintain and operate the associated control equipment (baghouses and filters), including periodic

inspections, routine maintenance, repair of defects, and visual emission checks, to demonstrate compliance with Condition 7.21.3(b).

7.21.6 Production and Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.21.7 Testing Requirements

None

7.21.8 Monitoring Requirements

None

7.21.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 270 material handling units to demonstrate compliance with Conditions 5.5.1 and 7.21.5, pursuant to Section 39.5(7)(b) of the Act:

a. Maximum operating rate of the baghouses (dscf per minute);

b. Maximum and typical process weight rates for the silos and weigh bins (ton/hr);

c. Records of maintenance of the baghouses, including periodic inspections, routine maintenance, repair of defects, and visual emission checks; and

d. PM emissions, with supporting calculations (lb/year).

7.21.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 270 material handling unit with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

7.21.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.21.12 Compliance Procedures

Compliance with the emission limits of this permit shall be determined by using the records required by Condition 7.21.9, a

controlled emission factor of 0.04 gr/dscf, and assuming constant operation (for example, 8,760 hours per year).

7.22 Unit 275: Batch Reactor Trains
Control: Condensers, Scrubbers

7.22.1 Description

In the Unit 275 Process, various lubricating oil products (including ashless dispersants and boronated dispersants) or their intermediates are manufactured in reactors in a batch process. VOM and HAP emissions from the reactors and associated tanks are controlled by various condensers and scrubbers.

7.22.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
27-0201	PBSA Reactor	Condenser 17-0214
27-0211	PBSA Reactor	Condenser 17-0214
27-0216	Chlorinator Reactor	Condenser 17-0218, Scrubber 33-0220
27-0501	Neutralizer Reactor	Condenser 17-0502, Condenser 17-0512
27-0511	Neutralizer Reactor	
27-0531	Reactor	Condenser 17-0535, Condenser 17-0532

7.22.3 Applicable Provisions and Regulations

a. The “affected Unit 275 reactor systems” for the purpose of these unit-specific conditions, are an emission unit used in the production of lubricating oil products and intermediates, as listed in Condition 7.22.2.

b. The affected Unit 275 reactor systems are subject to 35 IAC 219, Subpart G, Use of Organic Material, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

c. The affected Unit 275 reactor systems are subject to the control requirements of 35 IAC 219 Subpart V: Batch Operations, because this source has SIC of 2821, 2833, 2834, 2861, 2865, 2869, or 2879, and each emission unit is included in category (i) or (ii) below.

i. Any single unit operation with uncontrolled total annual mass emissions that exceed 500 lb/yr and with a VOM concentration greater than 500 ppmv. In this individual determination, no applicability analysis shall be performed for any single unit operation with a VOM concentration of less than or equal to 500 ppmv [35 IAC 219.500(d)(1)]; and

ii. Any batch process train containing process vents which, in the aggregate, have uncontrolled total annual mass emissions of 30,000 lb/yr or more of VOM from all products manufactured in the batch process train. Any single unit operation with uncontrolled total annual mass emissions exceeding 500 lb/yr, regardless of VOM concentration, shall be included in the aggregate applicability analysis [35 IAC 219.500(d)(2)].

d. The affected Unit 275 reactor systems are subject to 35 IAC 212.322, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.322 (See also Attachment 2) [35 IAC 212.322(a)].

7.22.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Unit 275 reactor systems not being subject to 35 IAC 219 Subpart Q, Synthetic Organic Chemical and Polymer Manufacturing Plant, because these regulations do not apply to any reactor that is designed and operated as a batch operation [35 IAC 219.431(b)(2)].

b. This permit is issued based on the affected Unit 275 reactor systems not being subject to 35 IAC 219 Subpart RR, Miscellaneous Organic Chemical Manufacturing Processes, because the requirements of Subpart RR do not apply to a source’s miscellaneous organic chemical manufacturing process emission units which are included within the categories specified in 35 IAC 219 Subparts Q or V [35 IAC 219.960(a)].

7.22.5 Control Requirements and Work Practices

a. The Permittee shall follow good operating practices for the affected Unit 275 reactor systems, including periodic inspection, routine maintenance and prompt repair of defects. Good operating practices may include equipment manufacturer recommendations or practices common to the batch chemical manufacturing industry. At all times the Permittee shall, to the extent practicable, maintain and operate the equipment, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

b. Except as provided for in 35 IAC 219.500(c), every owner or operator of a single unit operation with an average flow rate, as determined in accordance with 35 IAC 219.502(b), below the flow rate value calculated by the applicability equations contained in 35 IAC 219.500(e), shall reduce uncontrolled VOM emissions from such single unit operation by an overall efficiency, on average, of at least 90 percent, or 20 ppmv, per batch cycle [35 IAC 219.501(a)].

c. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, change in raw material or installation of controls, in order to eliminate the nuisance.

d. Operation of the Unit 275 reactor systems shall not exceed the following limits:

Equipment	Production Rate (Batch/Month)	Production Rate (Batch/Year)
Boronated Dispersants (Reactor 27-0531)	300	2,835
Ashless Dispersants (other reactors)	---	4,302

These limits were established in Permits 98090069 and 05090001 [T1].

7.22.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected Unit 275 reactor systems are subject to the following:

a. VOM emissions from the affected Unit 275 reactor systems (boronated dispersants) shall not exceed the following limits:

Equipment	VOM Emissions (Ton/Month)	VOM Emissions (Ton/Year)
Reactor 27-0531	0.18	1.75

The limits on Reactor 27-0531 are based on the operating limits in Condition 7.22.5(d) and a controlled emission factor of 1.23 lb/batch.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 98090069, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

b. Fugitive VOM emissions from the Superborate process shall not exceed 0.34 ton per year. This limit is based on the number of components for the Superborate process and a site-specific emission factor.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitation was established in Permit 93040038, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

c. VOM emissions from the affected Unit 275 reactor systems (ashless dispersants) shall not exceed the following limits:

Equipment	VOM Emissions (Ton/Month)	VOM Emissions (Ton/Year)
Reactors 27-0201, 27-0211, 27-0216, 27-0501, 27-0511	0.6	5.9

The limits are based on the operating limits in Condition 7.22.5(d) and emission factors listed in Condition 7.22.12.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 05090001, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

d. HAP emissions from the ashless dispersants production shall not exceed 0.1 lb/hr and 0.44 ton per year. These limits are based on negligible emission rates and were established in Permit 05090001.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

7.22.7 Testing Requirements

a. Upon the Illinois EPA's request, the owner or operator of a batch operation shall conduct testing to demonstrate compliance with 35 IAC 219.501, in accordance with the applicable test methods and procedures specified in 35 IAC 219.503(d), (e), and (f) [35 IAC 219.503(a)].

b. For the purpose of demonstrating compliance with the control requirements of 35 IAC 219.501, the batch operation shall be run at representative operating conditions and flow rates during any performance test [35 IAC 219.503(e)].

c. The following methods in 40 CFR 60, Appendix A, shall be used to demonstrate compliance with the reduction efficiency requirement set forth in 35 IAC 219.501 [35 IAC 219.503(f)]:

i. Method 1 or 1A, as appropriate, for selection of the sampling sites if the flow measuring device is not a rotometer. The control device inlet sampling site for determination of vent stream VOM composition reduction efficiency shall be prior to the control device and after the control device [35 IAC 219.503(f)(1)];

ii. Method 2, 2A, 2C, or 2D, as appropriate, for determination of gas stream volumetric flow rate flow measurements, which shall be taken continuously. No traverse is necessary when the flow measuring device is an ultrasonic probe [35 IAC 219.503(f)(2)]; and

iii. Method 25A or Method 18, if applicable, to determine the concentration of VOM in the control device inlet and outlet [35 IAC 219.503(f)(3)];

A. The sampling time for each run shall be as follows:

1. For batch cycles less than eight hours in length, readings shall be taken continuously over the entire length of the batch cycle with a maximum of 15-minute intervals between measurements if using Method 25A. If using Method 18, readings shall be taken continuously with a maximum of 15-minute intervals between measurements throughout the batch cycle

unless it becomes necessary to change the impinger train, in which case a 30-minute interval shall not be exceeded.

2. For batch cycles of eight hours and greater in length, the owner or operator may either test in accordance with the test procedures defined in 35 IAC 219.503(f)(3)(A)(i) (see also subsection (d)(iii)(A)(1) of this Condition) or the owner or operator may elect to perform tests, pursuant to either Method 25A or Method 18, only during those portions of each emission event which define the emission profile of each emission event occurring within the batch cycle. For each emission event of less than four hours in duration, the owner or operator shall test continuously over the entire emission event as set forth in subsection (d)(iii)(A)(1) of this Condition. For each emission event of greater than four hours in duration, the owner or operator shall elect either to perform a minimum of three one hour test runs during the emission event or shall test continuously over the entire emission event within each single unit operation in the batch process train. To demonstrate that the portion of the emission event to be tested defines the emission profile for the emission event, the owner or operator electing to rely on this option shall develop an emission profile for the entire emission event. Such emission profile shall be based upon either process knowledge or test data collected. Examples of information that could constitute process knowledge include, but are not limited to, calculations based on material balances and process stoichiometry. Previous test results may be used provided such results are still relevant to the current process vent stream conditions.

3. For purposes of subsection (d)(iii) of this Condition, the term “emission event” shall be defined as a discrete period of venting that is associated with a single unit operation. For example, a displacement of vapor resulting from the charging of a single unit operation with VOM will result in a discrete emission event that will last through the duration

of the charge and will have an average flow rate equal to the rate of the charge. The expulsion of expanded single unit operation vapor space when the vessel is heated is also an emission event. Both of these examples of emission events and others may occur in the same single unit operation during the course of the batch cycle. If the flow rate measurement for any emission event is zero, in accordance with 35 IAC 219.503(f)(2) (see also subsection (d)(ii) of this Condition), then such event is not an emission event for purposes of this Condition;

B. The mass emission rate from the process vent or inlet to the control device shall be determined by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle;

C. The mass emission rate from the control device outlet shall be obtained by combining concentration and flow rate measurements taken simultaneously at sampling sites selected in accordance with 35 IAC 219.503(f)(1) (see also subsection (d)(i) of this Condition) throughout the batch cycle; and

D. The efficiency of the control device shall be determined by integrating the mass emission rates obtained in 35 IAC 219.503(f)(3)(B) and (f)(3)(C) (see also subsections (d)(iii)(B) and (d)(iii)(C) of this Condition), over the time of the batch cycle and dividing the difference in inlet and outlet mass flow totals by the inlet mass flow total.

d. The owner or operator of a batch operation may propose an alternative test method or procedures to demonstrate compliance with the control requirements set forth in 35 IAC 219.501. Such method or procedures shall be approved by the Illinois EPA and USEPA as evidenced by federally enforceable permit conditions [35 IAC 219.503(h)].

e. In the absence of a request by the Illinois EPA to conduct performance testing in accordance with the provisions of this 35 IAC 219.503, a source may demonstrate compliance by the use of engineering estimates or process stoichiometry [35 IAC 219.503(i)].

7.22.8 Monitoring Requirements

a. Every owner or operator using a condenser to comply with 35 IAC 219.501 shall install, calibrate, maintain, and operate, according to manufacturer's specifications, the following:

i. A condenser exit temperature monitoring device equipped with a continuous recorder and having an accuracy of ± 1 percent of the temperature being monitored expressed in degrees Celsius [35 IAC 219.504(d)(1)]; or

ii. A VOM monitoring device used to indicate the concentration of VOM exiting the control device based on a detection principle such as infra-red photoionization, or thermal conductivity, each equipped with a continuous recorder [35 IAC 219.504(d)(2)].

b. Compliance Assurance Monitoring (CAM) Requirements

The reactors 27-0201, 27-0211 and 27-0216 are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee’s CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.22.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 275 reactor systems to demonstrate compliance with Conditions 5.5.1 and 7.22.5 through 7.22.8, pursuant to Section 39.5(7)(b) of the Act:

a. Records of the testing of the efficiency of each capture system and control device pursuant to Condition 7.22.7, which include the following [Section 39.5(7)(e) of the Act]:

i. The date, place and time of sampling or measurements;

ii. The date(s) analyses were performed;

iii. The company or entity that performed the analyses;

iv. The analytical techniques or methods used;

v. The results of such analyses; and

vi. The operating conditions as existing at the time of sampling or measurement.

b. Every owner or operator of a batch operation subject to the control requirements of 35 IAC 219.501 shall keep records of the following parameters required to be monitored under 35 IAC 219.504 (see also Condition 7.22.8).

i. For a condenser, the average exit (product side) temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally [35 IAC 219.505(c)(3)(B)]; or

ii. As an alternative to Condition 7.22.9(c)(i), at a minimum, records indicating the concentration level or reading indicated by the VOM monitoring device at the outlet of the scrubber, condenser, or carbon absorber, measured continuously and averaged over the same time period as the performance test (while the vent stream is routed normally) [35 IAC 219.505(c)(3)(D)].

c. Records addressing use of good operating practices for the emissions control devices:

i. Records for periodic inspection of the condensers with date, individual performing the inspection, and nature of inspection; and

ii. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.

d. Every owner or operator of a de minimis single unit operation or batch process train exempt under 35 IAC 219.500(c)(1) or (c)(2), shall keep records of the uncontrolled total annual mass emissions for any de minimis single unit operation or batch process train, as applicable, and documentation verifying these values or measurements. The documentation shall include the engineering calculations, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source’s operating permit [35 IAC 219.505(a)].

e. Every owner or operator of a single unit operation exempt under 35 IAC 219.500(b)(3) or (d) shall keep the following records:

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering

calculation, any measurements made in accordance with 35 IAC 219.503, and the potential or permitted number of batch cycles per year, or, in the alternative, total production as represented in the source's operating permit [35 IAC 219.505(b)(1)].

ii. The average flow rate in scfm and documentation verifying this value [35 IAC 219.505(b)(2)].

f. Records of operation and emissions of the affected Unit 275 reactor systems:

i. Quantity of batches produced (batches/month and batches/year);

ii. All the detailed data necessary to determine VOM emissions using the procedures specified in Section 7.22.12;

iii. The detailed record of material balance calculations or specific emission factor development including the stack test and process information for that specific emission factor;

iv. VOM emissions in units specified by the emission limits in Condition 7.22.6 (ton/month and ton/year); and

v. The aggregate annual VOM and PM emissions from the affected unit 275 reactor systems, with supporting calculations.

g. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.22.8(b), as required by 40 CFR 64.9(b)(1).

7.22.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of the affected Unit 275 reactor systems with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. i. The owner or operator of a single unit operation claiming vent stream concentration exemption level, as set forth in 35 IAC 219.500(d)(1) (see also Condition 7.22.3(c)(i)), shall notify the Illinois

EPA in writing if the vent stream concentration at any time reaches or exceeds 500 ppmv, within 60 days after such event. Such notification shall include a copy of all records of such event [35 IAC 219.505(d)].

ii. The owner or operator of a de minimis single unit operation or batch process train exempt from the control requirements due to 35 IAC 219.500(c) shall notify the Illinois EPA in writing if the uncontrolled total annual mass emissions from such de minimis single unit operation or batch process train exceed the threshold of 500 lb/yr or 30,000 lb/yr, respectively, within 60 days after the event occurs. Such notification shall include a copy of all records of such event [35 IAC 219.505(g)].

b. Upon request by the Illinois EPA, the owner or operator of a batch operation which is exempt from the control requirements of 35 IAC 219.501 (see Condition 7.22.5(a)), shall submit records including the following to the Illinois EPA which will document that the batch operation is exempt from the control requirements.

i. The uncontrolled total annual mass emissions and documentation verifying these values or measurements. The documentation shall include any engineering calculation, any measurements made in accordance with 35 IAC 219.503 and the total production as represented in this permit.

ii. The average flow rate in scfm and documentation verifying this value.

c. The Permittee shall notify the Illinois EPA Compliance Section of emissions of VOM or operation in excess of the limits specified in Conditions 7.22.5 or 7.22.6 by sending a copy of any record showing a violation to the Illinois EPA within 30 days following the occurrence of the violation.

d. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.22.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to an affected unit 275 reactor system without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

a. Use of various raw materials is allowed, as long as such changes do not cause a violation of Conditions 7.22.5 and 7.22.6.

7.22.12 Compliance Procedures

a. Compliance with the control requirements of Condition 7.22.5 and the testing requirements of Condition 7.22.7 is addressed through the inspection, monitoring, recordkeeping and reporting requirements of Conditions 7.22.8, 7.22.9, and 7.22.10.

b. Compliance with the emission limits of this permit shall be determined by material balance equations using the records required by Condition 7.22.9(f). In addition, the Permittee may use and a controlled VOM emission factor of 1.23 lb/batch for Reactor 27-0531 and a controlled VOM emission rate of 0.73 lb/hour for Reactor 27-0216. These calculations shall use a control efficiency for the control equipment as determined by the most recent stack test during periods when the control equipment is in proper operation, according to the monitoring requirements in Condition 7.22.8.

VOM emissions = Number of Batches * Emission Factor * (1 – Control Efficiency)

7.23 Unit 275: Storage Silos and Weigh Bins
Control: Baghouses, Filter

7.23.1 Description

The weigh bins and silos are used for storage and distribution of filter aid and boric acid for the ashless dispersant processes.

7.23.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
41-0171	Filter Aid Storage Silo	Baghouse 09-0171
41-0172	Filter Aid Storage Silo	Baghouse 09-0172
41-0173	Filter Aid Weigh Bin	Baghouse 09-0173
41-0174	Filter Aid Weigh Bin	Baghouse 09-0174
41-0184	Boric Acid Storage Silo	Baghouse 09-0184
41-0187	Boric Acid Vacuum Receiver	Filter S-6
41-0176	Boric Acid Weigh Bin	Baghouse 09-0176

7.23.3 Applicable Provisions and Regulations

a. The “affected Unit 275 material handling units” for the purpose of these unit-specific conditions, are emission units used for material handling operations in Unit 275, as listed in Conditions 7.23.1 and 7.23.2.

b. The affected Unit 275 material handling units which process boric acid are subject to 35 IAC 212.321, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 (See also Attachment 2) [35 IAC 212.321(a)].

c. The affected Unit 275 material handling units which process filter aid are subject to 35 IAC 212.322, which provides that:

No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14, 1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable

emission rates specified in subsection (c) of 35 IAC 212.322 (See also Attachment 2) [35 IAC 212.322(a)].

7.23.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected Filter Aid Handling Units not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected Unit 275 material handling units do not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.23.5 Control Requirements and Work Practices

The Permittee shall maintain and operate the associated control equipment (baghouses and filters), including periodic inspections, routine maintenance, repair of defects, and visual emission checks, to demonstrate compliance with Conditions 7.23.3(b) and (c).

7.23.6 Production and Emission Limitations

There are no specific emission limitations for this unit, however, there are source wide emission limitations in Condition 5.5 that include this unit.

7.23.7 Testing Requirements

None

7.23.8 Monitoring Requirements

a. Compliance Assurance Monitoring (CAM) Requirements

The affected Boric Acid Handling Units are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources. The Permittee shall comply with the monitoring requirements of the CAM Plan described in Attachment 4, pursuant to 40 CFR Part 64 as submitted in the Permittee’s CAM plan application. At all times, the owner or operator shall maintain the monitoring, including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment [40 CFR 64.7(a) and (b)].

7.23.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected Unit 275 material handling units to demonstrate compliance with Conditions 5.5.1 and 7.23.5, pursuant to Section 39.5(7)(b) of the Act:

a. Maximum operating rate of the baghouses (dscf per minute);

b. Maximum and typical process weight rates for the silos, receivers, and weigh bins (ton/hr);

c. Records of maintenance of the baghouses, including periodic inspections, routine maintenance, repair of defects, and visual emission checks;

d. PM emissions, with supporting calculations (lb/year); and

e. Records for Compliance Assurance Monitoring (CAM) Requirements

The Permittee shall maintain records of the monitoring data, monitor performance data, corrective actions taken, monitoring equipment maintenance, and other supporting information related to the monitoring requirements in Condition 7.23.8(a), as required by 40 CFR 64.9(b)(1).

7.23.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected Unit 275 material handling unit with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

b. Reporting of Compliance Assurance Monitoring (CAM)

The Permittee shall submit monitoring reports to the Illinois EPA in accordance with Condition 8.6.1 and shall include, at a minimum, the information required under Condition 8.6.1 and the following information:

i. Summary information on the number, duration, and cause of excursions or exceedances, and the corrective actions taken [40 CFR 64.6(c)(3) and 64.9(a)(2)(i)]; and

ii. Summary information on the number, duration, and cause for monitoring equipment downtime incidents, other than downtime associated with calibration checks [40 CFR 64.6(c)(3) and 64.9(a)(2)(ii)].

7.23.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.23.12 Compliance Procedures

Compliance with the emission limits of this permit shall be determined by using the records required by Condition 7.23.9, a

controlled emission factor of 0.04 gr/dscf, and assuming constant operation (for example, 8,760 hours per year).

7.24 Cooling Towers

7.24.1 Description

The cooling towers are used to cool water for use in the manufacturing processes. The water used does not have a measurable amount of VOM.

7.24.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
39-0955	Unit 270 Cooling Tower	None
39-0227	Unit 280 Cooling Tower	None

7.24.3 Applicable Provisions and Regulations

a. The “affected cooling towers” for the purpose of these unit-specific conditions, are emission units used for cooling process water, as listed in Condition 7.24.2.

b. The affected cooling towers are subject to 35 IAC 219, Subpart G, Use of Organic Material, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

7.24.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected cooling towers not being subject to 35 IAC 219 Subpart TT, because no limits of Subpart TT shall apply to emission units with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year, if the total emissions from such emission units not complying with 35 IAC 219.986 does not exceed 4.5 Mg (5.0 tons) per calendar year [35 IAC 219.980(c)].

b. This permit is issued based on the affected cooling towers not being subject to 40 CFR Part 63, Subpart Q, Industrial Cooling Towers, because the cooling towers are not operated with chromium-based water treatment chemicals.

c. This permit is issued based on the affected cooling towers not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected cooling towers do not use an add-on control device to achieve compliance with an emission limitation or standard.

7.24.5 Control Requirements and Work Practices

None

7.24.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected cooling towers are subject to the following:

VOM emissions from each affected cooling tower shall not exceed 2.4 tons per year. For purposes of exemption from control requirements of 35 IAC Part 219, Subpart TT, total VOM emissions from the affected cooling towers and the loading operations addressed in Condition 7.26.6 shall not exceed 4.9 ton/yr of total VOM emissions. These limits are based on the design flow rate of the affected cooling towers and emission calculation procedures in Condition 7.24.12.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations contain revisions to previously issued Permit 93100090. The source has requested that the Illinois EPA establish conditions in this permit that allow various refinements from the conditions of this aforementioned permit, consistent with the information provided in the CAAPP application. The source has requested these revisions and has addressed the applicability and compliance of Title I of the CAA, specifically MSSCAM. These limits continue to ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this construction permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, annual VOM emission limit for cooling towers was increased and the total annual VOM emission limit from the affected cooling towers and loading operations has been established for purposes of exemption from control requirements of 35 IAC Part 219, Subpart TT [T1R].

7.24.7 Testing Requirements

The Permittee shall sample and analyze annually the water flow to each of the cooling towers for concentrations of VOM. This requirement was established in Permit 93100090.

7.24.8 Monitoring Requirements

None

7.24.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected cooling tower to demonstrate compliance with Conditions 5.5.1, 7.24.6, and 7.24.7, pursuant to Section 39.5(7)(b) of the Act:

a. Records indicating the maximum pumping rate (gallons per minute) for each affected cooling tower;

b. Records of the sampling and analysis required by Condition 7.24.7; and

c. Emissions of VOM from the affected cooling towers (tons/month and tons/year). This information for annual VOM emissions shall be included with the records required by Condition 5.6.2(e).

7.24.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected cooling tower with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

a. If there is an exceedance of the requirements of Condition 7.24.6 as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois, within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.

7.24.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.24.12 Compliance Procedures

Compliance with the emission limits in Condition 7.24.6 shall be determined by the testing and recordkeeping required by Conditions 7.24.7 and 7.24.9 and the following equation:

VOM Emissions = (Maximum Flow Rate, gal) * (0.7 lb/10^6 gal).

Where 0.7 lb/10^6 gal is the emission factor for controlled cooling towers from Table 5.1-2, AP-42, Volume I, Fifth Edition, January 1995. "Controlled" means that leaks into the cooling

water system are minimized and the cooling water is monitored for hydrocarbons.

Monthly and annual emissions shall be determined assuming constant operation (for example, 8,760 hours per year).

7.25 Steam Boilers

7.25.1 Description

These natural gas fired boilers are used to produce steam for heat generation and process heating at the source. These boilers each have a maximum design heat input capacity of 99.7 mmBtu/hr and were constructed, modified, or reconstructed after June 9, 1989.

7.25.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
500-15-0110	99.7 mmBtu/hr Boiler	None
500-15-0210	99.7 mmBtu/hr Boiler	None
500-15-0310	99.7 mmBtu/hr Boiler	None

7.25.3 Applicable Provisions and Regulations

a. An “affected boiler” for the purpose of these unit-specific conditions, is a boiler that is listed in Condition 7.25.2.

b. Each affected boiler is subject to 35 IAC 216.121, which states that the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hr) shall not exceed 200 ppm, corrected to 50 percent excess air [35 IAC 216.121].

c. Each affected boiler is subject to NSPS, 40 CFR 60 Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units because each boiler was constructed after the applicable date of June 9, 1989, and each boiler has a design heat input greater than 10 mmBtu/hr. The Illinois EPA is administering these standards in Illinois on behalf of the USEPA under a delegation agreement.

d. Each affected boiler is also subject to the opacity limits identified in Condition 5.2 of this permit.

7.25.4 Non-Applicability of Regulations of Concern

a. Each affected boiler is not subject to 35 IAC 217.141, because the actual heat input of the each affected boiler is less than 73.2 MW (250 mmBtu/hr).

b. Pursuant to 35 IAC 219.303, each affected boiler, i.e., fuel combustion emission unit, is not subject to 35 IAC 219.301, Use of Organic Material.

c. There are no applicable requirements for particulate matter or sulfur dioxide for affected boilers firing natural gas.

d. This permit is issued based on the affected boilers not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected boilers do not use an add-on control device to achieve compliance with an emission limitation or standard.

7.25.5 Control Requirements and Work Practices

a. At all times, the Permittee shall, to the extent practicable, maintain and operate each affected boiler in a manner consistent with good air pollution control practice for minimizing emissions.

b. Operation of the affected boilers is allowed with natural gas or another gaseous fuel provided the emission limits of Condition 5.5.1 are not exceeded.

c. Total annual consumption of natural gas by all affected boilers combined shall not exceed 970 million standard cubic feet.

7.25.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected boilers are subject to the following:

a. Emissions from the affected boilers shall not exceed the following limits:

	Pollutant Emissions	
Pollutant	(Lb/Hr)	(Ton/Year)
NO_x	19.77	32.85
CO	14.69	24.38
PM	2.22	3.69
VOM	1.61	2.67

These limits are based on the annual fuel consumption as limited in Condition 7.25.5 and the emission rates and factors listed in Condition 7.25.12.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 98100084, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the

CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

7.25.7 Testing Requirements

None

7.25.8 Monitoring Requirements

None

7.25.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected boilers to demonstrate compliance with Conditions 5.5.1, 7.25.5, and 7.25.6, pursuant to Section 39.5(7)(b) of the Act:

a. Monthly and annual natural gas usage in the affected boilers (million ft^3/month and million ft^3/year);

b. Heat capacity of the natural gas combusted (Btu/scf);

c. Annual aggregate NO_x, CO, PM, SO_2, and VOM emissions from the affected boilers, based on fuel consumption and the applicable emission factors, with supporting calculations; and

d. All the records required pursuant to 40 CFR 60.7 and 60.48c for the affected boilers, including the amount of natural gas combusted during each day (ft^3/day) [40 CFR 60.48c(g)].

7.25.10 Reporting Requirements

a. The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected boiler with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. Notification within 60 days of operation of an affected boiler that may not have been compliance with the opacity limitations in Condition 5.2.2(b), with a copy of such record for each incident.

ii. Emissions of NO_x, CO, PM, and VOM from the affected boilers in excess of the limits specified in Condition 7.25.6, based on the current month’s records plus the preceding 11 months, within 30 days of such an occurrence.

7.25.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.25.12 Compliance Procedures

a. Compliance with Condition 7.25.3(b) is addressed by the fuel records required in Condition 7.25.9(a) and emission calculations using the emission factor in USEPA's Compilation of Air Pollutant Emission Factors, AP-42, for uncontrolled CO emissions from a gas-fired boiler.

b. Compliance with the emission limits in Condition 5.5.1 shall be based on the recordkeeping requirements in Condition 7.25.9 and the emission factors and formulas listed below:

Pollutant	Emission Factor ($lb/10^6\ ft^3$)	Emission Factor (lb/mmBtu)
PM	7.6	
SO_2	0.6	
VOM	5.5	
NO_x		0.06
CO		0.003

These are the emission factors for uncontrolled natural gas combustion in small boilers (<100 mmBtu/hr), Tables 1.4-1 and 1.4-2, AP-42, Volume I, Supplement D, March 1998. NO_x and CO emission factors are based on results of stack testing performed in 1998.

Boiler Emissions = (natural gas consumed, ft^3) * (the appropriate emission factor, $lb/10^6\ ft^3$) / 10^6, or

Boiler Emissions = (heat capacity, Btu/scf) * (natural gas consumed, ft^3) * (the appropriate emission factor, lb/mmBtu)/10^6.

7.26 Loading Operations
Control: Carbon Drums

7.26.1 Description

The Unit 290 loading operations include docks for loading wastewater condensate for offsite transport. Organic emissions and odors are controlled by carbon drums.

7.26.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
R-100	Unit 290 Truck Loading Docks (wastewater condensate)	Carbon Drums

7.26.3 Applicable Provisions and Regulations

a. Loading operations listed in Condition 7.26.2 are "affected loading operations" for the purpose of these unit-specific conditions.

b. The affected loading operations are subject to 35 IAC 219.122, which states that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lbs/hr) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading area having through-put of greater than 151 cubic meters per day (40,000 gal/day) into any railroad tank car, tank truck or trailer unless such loading area is equipped with submerged loading pipes or a device that is equally effective in controlling emissions and is approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 219.108 [35 IAC 219.122(a)].

c. The affected loading operations are subject to 35 IAC 219 Subpart G, Use of Organic Material, which provides that:

i. No person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in Condition 7.26.3(d)(ii) (see also 35 IAC 219.302), 219.303, 219.304 and the following exception: If no odor nuisance exists the limitation of 35 IAC 219 Subpart G shall apply only to photochemically reactive material [35 IAC 219.301].

ii. Pursuant to 35 IAC 219.302, emissions of organic material in excess of those permitted by Condition 7.26.3(d)(i) (see also 35 IAC 219.301) are allowable if such emissions are controlled by a vapor recovery system which adsorbs and/or condenses at least 85 percent of the total uncontrolled organic material

that would otherwise be emitted to the atmosphere [35 IAC 219.302(b)].

7.26.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected loading operations not being subject to control requirements of 35 IAC 219, Subpart TT, pursuant to total VOM emission limits of Condition 7.26.6 and 35 IAC 219.980(c).

b. This permit is issued based on the affected loading operations not being subject to the Standards of Performance for Benzene Emissions from Benzene Transfer Operations, 40 CFR 60, Subpart BB because this source is not a benzene production facility or bulk terminal [40 CFR 61.300(a)].

c. This permit is issued based on the affected loading operations not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected loading operations do not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

7.26.5 Control Requirements and Work Practices

a. In the event that the operation of this source results in an odor nuisance the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance. This requirement was established in Permit 99070018.

b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the pollution control equipment covered under this permit such that the pollution control equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein. This requirement was established in Permit 99070018.

7.26.6 Production and Emission Limitations

Total annual VOM emissions from the affected loading operations and cooling towers (addressed in Condition 7.24.6) shall not exceed 4.9 tons per year. This limit has been established for purposes of exemption from control requirements of 35 IAC Part 219, Subpart TT [T1N].

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1N].

7.26.7 Testing Requirements

None

7.26.8 Monitoring Requirements

The Permittee shall monitor the primary carbon drum for breakthrough and replace the primary carbon drum when breakthrough is detected.

7.26.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected loading operations to demonstrate compliance with Conditions 5.5.1, 7.26.3, and 7.26.5, pursuant to Section 39.5(7)(b) of the Act:

a. Records of operation of the carbon adsorption drums, including:

   i. Monitoring of primary carbon drum breakthrough;

   ii. Date of replacement of carbon drums;

   iii. Reason for replacement of carbon drums; and

   iv. Quantity of carbon replaced.

b. Records of operation and emissions, including:

   i. Identification of the material transferred in the affected loading operations;

   ii. The vapor pressure of the material transferred in the affected loading operations, psia;

   iii. The throughput of the affected loading operations, gal/mo and gal/yr; and

   iv. The monthly and aggregate annual VOM and HAP emissions from the affected loading operations based on the material transferred, the throughput, and the applicable emission factors and formulas with supporting calculations. This information for annual VOM emissions shall be included with the records required by Condition 5.6.2(e).

7.26.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected loading operation with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the

Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

7.26.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.26.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Condition 7.26.9 and the emission factors and formulas listed below:

a. Compliance with Condition 7.26.3(b) and (c)(i) is addressed by the proper operation of the carbon drums as required by Conditions 7.26.5 and 7.26.8.

b. For the purpose of estimating VOM emissions from the affected loading operations to determine compliance with Conditions 5.5.1 and 7.26.3(d)(i), an emission factor calculated using the following equation is acceptable:

$$EF = 12.46 * (S*P*M/T)$$

Where:

EF = Total VOM loading emission factor (lb/1000 gallons);

S = Saturation factor, 0.6 for submerged loading and 1.0 for splash loading (dimensionless; see Table 5.2-1 of AP-42, Volume I, Fifth Edition, January, 1995);

P = Vapor pressure of the material loaded at temperature T (psia);

M = Vapor molecular weight (lb/lb-mole)

T = Temperature (°R)

7.27 Therminol Furnaces

7.27.1 Description

Units 270B and 275 include therminol furnaces, which heats a fluid used to control the temperatures of Reactors 27-0206, 27-0201, and 27-0211. In certain modes of operation, the reactors are heated by circulating heat transfer fluid through the reactor coils. The process is initiated when the reactor reaches a certain temperature.

Note: This narrative description is for informational purposes only and is not enforceable.

7.27.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
15-0801	Unit 270B Therminol Furnace (2.77 mmBtu/hr)	None
15-0701	Unit 275 Therminol Furnace (3.5 mmBtu/hr)	None

7.27.3 Applicable Provisions and Regulations

a. The “affected furnaces” for the purpose of these unit-specific conditions, are furnaces which use heat transfer fluid to control the temperature of reactors, as listed in Condition 7.27.2.

b. The affected furnaces are subject to 35 IAC 214 Subpart K, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2,000 ppm [35 IAC 214.301].

c. The affected furnaces are subject to 35 IAC 219.301, which specifies that no person shall cause or allow the discharge of more than 3.6 kg/hr (8 lb/hr) of organic material into the atmosphere from any emission unit, except as provided in 35 IAC 219.302 and the following exception: if no odor nuisance exists this limitation shall apply only to photochemically reactive material [35 IAC 219.301].

d. The affected furnaces are subject to 35 IAC 212.321 and 266.125, which provides that:

   No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates

specified in subsection (c) of 35 IAC 212.321 (See also Attachment 2). The process weight rate for heating is calculated by using the weight of the material to be heated [35 IAC 212.321(a) and 266.125].

7.27.4 Non-Applicability of Regulations of Concern

a. The affected furnaces are not subject to 35 IAC 216.121 for emissions of CO from fuel combustion emission sources, because the actual heat input of each unit is less than 2.9 MW (10 mmBtu/hr) and the affected furnaces are not by definition fuel combustion emission units.

b. The affected furnaces are not subject to 35 IAC 217.121 or 217.141 for emissions of NO_x from fuel combustion emission sources, because the actual heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the affected furnaces are not by definition fuel combustion emission units.

c. The affected furnaces are not subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because the affected furnaces do not use an add-on control device to achieve compliance with an emission limitation or standard.

7.27.5 Control Requirements and Work Practices

Natural gas shall be the only fuel fired in Furnace 15-0701. This requirement was established in Permit 05090001.

7.27.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected furnaces are subject to the following:

a. Emissions from Furnace 15-0701 shall not exceed the following limits:

	Pollutant Emissions	
Pollutant	(Ton/Month)	(Ton/Year)
NO_x	0.2	1.6
CO	0.1	1.0

These limits are based on natural gas as the only fuel and the emission factors listed in Condition 7.27.12.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1].

The above limitations were established in Permit 05090001, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

7.27.7 Testing Requirements

Testing requirements are not set for the affected furnaces. However, there are source-wide testing requirements in Condition 5.7 and general testing requirements in Condition 8.5.

7.27.8 Monitoring Requirements

Monitoring requirements are not set for the affected furnaces.

7.27.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected furnaces to demonstrate compliance with Conditions 5.5.1 and 7.27.3, pursuant to Section 39.5(7)(b) of the Act:

a. Annual natural gas usage for the affected furnaces (million ft^3/year);

b. Maximum and typical amounts of therminol heated (lb/hr); and

c. The aggregate annual NO_x, PM, VOM and SO_2 emissions from the affected furnaces (ton/year).

7.27.10 Reporting Requirements

a. Reporting of Deviations

The Permittee shall promptly notify the Illinois EPA, Compliance Section, of deviations of an affected furnace with the permit requirements as follows, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

i. Notification within 60 days of operation of an affected furnace that may not have been compliance with the opacity limitations in Condition 5.2.2(b), with a copy of such record for each incident.

7.27.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected furnaces.

7.27.12 Compliance Procedures

a. Compliance with Conditions 7.27.3(b) through (e) is addressed by the records required in Condition 7.27.9 and emission calculations using the emission factor in USEPA's Compilation of Air Pollutant Emission Factors, AP-42, for uncontrolled emissions from a gas-fired boiler.

b. Compliance with the emission limits in Condition 5.5.1 is addressed by the recordkeeping requirements in Condition 7.27.9 and the emission factors and formulas listed below:

Pollutant	Emission Factor ($lb/10^6\ ft^3$)
PM	7.6
SO_2	0.6
VOM	5.5
NO_x	100
CO	84

These are the emission factors for uncontrolled natural gas combustion in small boilers (<100 mmBtu/hr), Tables 1.4-1 and 1.4-2, AP-42, Volume I, Supplement D, March 1998.

Boiler Emissions = (natural gas consumed, ft^3) * (the appropriate emission factor, $lb/10^6\ ft^3$) / 10^6

7.28 Gasoline Storage Tank

7.28.1 Description

Gasoline storage tank is used to support various activities at the source.

Note: This narrative description is for informational purposes only and is not enforceable.

7.28.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Gasoline Storage Tank	560-gallons storage capacity	Control Practices: Submerged Loading Pipe

7.28.3 Applicable Provisions and Regulations

a. The “affected gasoline storage tank” for the purpose of these unit-specific conditions, is the emission unit and operations described in Conditions 7.28.1 and 7.28.2 above.

b. The affected gasoline storage tank is subject to the following:

No person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 l (250 gal), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 IAC 201, or unless such tank is a pressure tank as described in 35 IAC 219.121(a) or is fitted with a recovery system as described in 35 IAC 219.121(b)(2) [35 IAC 219.122(b)].

c. Applicable requirements of 40 CFR 63.11116 are discussed further in this subsection.

7.28.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected gasoline storage tank not being subject to the New Source Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels), 40 CFR Part 60, Subpart Kb, because pursuant to 40 CFR 60.110b(d)(6) a gasoline storage tank located at gasoline service stations is not subject to Subpart Kb.

b. This permit is issued based on the affected gasoline storage tank not being subject to 35 IAC 219.120, 219.121,

219.122(a) and 212.123 because the volume of the affected gasoline storage tank is less than 40,000 gallons.

c. The affected gasoline storage and dispensing operations are not part of bulk gasoline plant (35 IAC 219.581) and bulk gasoline terminals (35 IAC 219.582) pursuant to appropriate definitions placed in 35 IAC Part 211.

d. This permit is issued based on the affected gasoline storage tank is not subject to 35 IAC 219.583(a)(2) and (a)(3) pursuant to 35 IAC 219.583(b)(3).

e. This permit is issued based on the affected gasoline storage tank is not subject to 35 IAC Part 219 Subpart G "Use of Organic Material". This non-applicability is based on the operation of the affected gasoline storage tank used as storage of organic materials for further source's needs but not use them at a storage tank by itself.

f. This permit is issued based on the affected gasoline storage tank not being subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM) for Major Stationary Sources, because each affected tank does not have potential pre-control device emissions of the applicable regulated air pollutant that equals or exceeds major source threshold levels.

g. The requirements of 40 CFR Part 63 Subpart CCCCCC, other than those of 40 CFR 63.11116 discussed below, are not applicable to the affected gasoline storage tank and based on the monthly gasoline throughput limit established in Condition 7.28.6.

7.28.5 Control Requirements and Work Practices

The Permittee shall fulfill the following requirements of 40 CFR 63.11116(a) and not allowing gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended period of time. Measures to be taken include, but are not limited to, the following:

a. Minimize gasoline spills;

b. Clean up spills as expeditiously as practicable;

c. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use; and

d. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

7.28.6 Production and Emission Limitations

In addition to Condition 5.2.2 and the source wide emission limitations in Condition 5.5, the affected gasoline storage tank is subject to the following:

a. Monthly gasoline throughput of the affected gasoline storage tank shall not exceed 10,000 gallons.

b. Annual gasoline throughput of the affected gasoline storage tank shall not exceed 20,000 gallons.

c. Emissions from the affected gasoline storage tank shall not exceed the following limits:

VOM Emissions	
(Lbs/Month)	(Tons/Year)
111.0	0.11

The source has requested that the Illinois EPA establish emission limitations and other appropriate terms and conditions in this permit that limit the gasoline throughput and VOM emissions from the affected gasoline storage tank below the levels that would trigger the applicability of the MACT for Gasoline Dispensing Facilities (40 CFR Part 63 Subpart CCCCCC), consistent with the information provided in the CAAPP application [T1N].

7.28.7 Testing Requirements

Testing requirements are not set for the affected gasoline storage tank.

7.28.8 Monitoring Requirements

Monitoring requirements are not set for the affected gasoline storage tank.

7.28.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected gasoline storage tank to demonstrate compliance with Conditions 5.5.1 and 7.28.3, pursuant to Section 39.5(7)(b) of the Act:

a. Records of gasoline throughput in gallons per month and gallons per year.

b. Records of VOM and HAP emissions in pounds per month and tons per year using the methods in Condition 7.28.12.

c. Documentation that supports presence of the submerged loading pipe for the tank's operations and the records of capacity/dimensions of the affected gasoline storage tank as required by 35 IAC 219.129(f).

7.28.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Air Compliance Section, of deviations of the affected gasoline storage tank with the permit requirements, pursuant to Section 39.5(7)(f)(ii) of the Act. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

The Permittee shall report whether operations of the affected gasoline storage tank deviated from the requirements specified in Condition 7.28.3 and the limits specified in Condition 7.28.6 within 30 days of such occurrence.

7.28.11 Operational Flexibility/Anticipated Operating Scenarios

Operational flexibility is not set for the affected gasoline storage tank.

7.28.12 Compliance Procedures

a. Compliance with Conditions 7.28.3(b)(ii) is considered to be assured by the use of submerged loading pipe as required in Condition 7.28.3(b)(i), control practices/requirements of Condition 7.28.5 and by the recordkeeping requirement of Condition 7.28.9.

b. Emissions of VOM and HAP's shall be calculated in accordance with the most current version of the TANKS program or AP-42 emission factors.

8.0 GENERAL PERMIT CONDITIONS

8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield extends to all applicable requirements specifically identified within this permit. This permit shield does not extend to applicable requirements which are promulgated after February 5, 2009 (the date of issuance of the draft permit) unless this permit has been modified to reflect such new requirements.

8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

As of the date of issuance of this permit, there are no such economic incentive, marketable permit or emission trading programs that have been approved by USEPA.

8.4 Operational Flexibility/Anticipated Operating Scenarios

8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the Conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

a. The changes do not violate applicable requirements;

b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

c. The changes do not constitute a modification under Title I of the CAA;

d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and

e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:

   i. Describe the physical or operational change;

   ii. Identify the schedule for implementing the physical or operational change;

   iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;

   iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and

   v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the Conditions of this permit.

8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Condition 8.6.

8.6 Reporting Requirements

8.6.1 Monitoring Reports

If monitoring is required by any applicable requirements or conditions of this permit, a report summarizing the required monitoring results, as specified in the conditions of this permit, shall be submitted to the Air Compliance Section of the Illinois EPA every six months as follows [Section 39.5(7)(f) of the Act]:

Monitoring Period	Report Due Date
January - June	September 1
July - December	March 1

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

a. The name and identification of the affected unit(s);

b. The person(s) who will be performing sampling and analysis and their experience with similar tests;

c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the source and any control equipment will be determined;

d. The specific determination of emissions and operation which are intended to be made, including sampling and monitoring locations;

e. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods;

f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and

g. Any proposed use of an alternative test method, with detailed justification.

8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

a. The name and identification of the affected unit(s);

b. The date and time of the sampling or measurements;

c. The date any analyses were performed;

d. The name of the company that performed the tests and/or analyses;

e. The test and analytical methodologies used;

f. The results of the tests including raw data, and/or analyses including sample calculations;

g. The operating conditions at the time of the sampling or measurements; and

h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

8.6.4 Reporting Addresses

a. The following addresses should be utilized for the submittal of reports, notifications, and renewals:

i. Illinois EPA - Air Compliance Section

Illinois Environmental Protection Agency
Bureau of Air
Compliance Section (MC 40)
P.O. Box 19276
Springfield, Illinois 62794-9276

ii. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

iii. Illinois EPA - Air Permit Section

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

iv. USEPA Region 5 - Air Branch

USEPA (AE - 17J)
Air & Radiation Division
77 West Jackson Boulevard
Chicago, Illinois 60604

b. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

8.7 Title I Conditions

Notwithstanding the expiration date on the first page of this CAAPP permit, Title I conditions in this permit, which are identified by a T1, T1N, or T1R designation, remain in effect until such time as the Illinois EPA takes action to revise or terminate them in accordance with applicable procedures for action on Title I conditions. This is because these conditions either: (a) incorporate conditions of earlier permits that were issued by the Illinois EPA pursuant to authority that includes authority found in Title I of the CAA (T1 conditions), (b) were newly established in this CAAPP permit pursuant to authority that includes such Title I authority (T1N conditions), or (c) reflect a revision or combination of conditions established in this CAAPP permit (T1R conditions). (See also Condition 1.5.)

9.0 STANDARD PERMIT CONDITIONS

9.1 Effect of Permit

9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule [Section 39.5(7)(j)(iv) of the Act].

9.1.2 In particular, this permit does not alter or affect the following:

a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;

b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and

d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.

9.1.3 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

9.2 General Obligations of Permittee

9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless such malfunction or breakdown is allowed by a permit condition [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated thereunder.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Section 39.5(7)(a) and (p)(ii) of the Act and 415 ILCS 5/4]:

a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

d. Sample or monitor any substances or parameters at any location:

i. At reasonable times, for the purposes of assuring permit compliance; or

ii. As otherwise authorized by the CAA, or the Act.

e. Obtain and remove samples of any discharge or emission of pollutants authorized by this permit; and

f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source authorized by this permit.

9.4 Obligation to Comply with Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

9.5 Liability

9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the source.

9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

9.6 Recordkeeping

9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

9.6.3 Retention of Records

a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].

b. Other records required by this permit shall be retained for a period of at least 5 years from the date of entry unless a longer period is specified by a particular permit provision.

9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Compliance Section no later than May 1 of the following year, as required by 35 IAC Part 254.

9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by permit condition. The compliance certifications shall be submitted to the Air Compliance Section, Air Regional Field Office, and USEPA Region 5 – Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining

the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.

b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.

c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as an attachment to this permit.

9.10 Defense to Enforcement Actions

9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

9.10.2 Emergency Provision

a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence:

i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency. For purposes of this subsection, “emergency” means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, such as an act of God, that requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operation error.;

ii. The permitted source was at the time being properly operated;

iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and

iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.

b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations.

9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

9.12 Reopening and Reissuing Permit for Cause

9.12.1 Permit Actions

This permit may be modified, reopened, and reissued, for cause pursuant to Section 39.5(15) of the Act. The filing of a request by the Permittee for a permit modification, revocation, and reissuance, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit;

b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program;

c. The Illinois EPA or USEPA determines that this permit contains a material mistake or inaccurate statement when establishing

the emission standards or limitations, or other terms or conditions of this permit; and

d. The Illinois EPA or USEPA determines that this permit must be revised to ensure compliance with the applicable requirements of the Act.

9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation under Section 39.5(15)(b) of the Act.

9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

9.13 Severability Clause

The provisions of this permit are severable, and should any one or more be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected. The rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

9.14 Permit Expiration and Renewal

The right to operate terminates on the expiration date unless the Permittee has submitted a timely and complete renewal application. For a renewal to be timely it must be submitted no later than 9 and no sooner than 12 months prior to expiration. The equipment may continue to operate during the renewal period until final action is taken by the Illinois EPA, in accordance with the original permit conditions [Section 39.5(5)(l), (n), and (o) of the Act].

10.0 ATTACHMENTS

Attachment 1 Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Official Title: _____

Telephone No.: _____

Date Signed: _____

10.2 Attachment 2 Particulate Matter Emissions from Process Emission Units

10.2.1 Section 212.321 - Process Emission Units For Which Construction or Modification Commenced On or After April 14, 1972.

a. Except as further provided in 35 IAC Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of this Section.

b. Interpolated and extrapolated values of the data in subsection (c) of this Section shall be determined by using the equation:

$$E = A(P)^B$$

Where:

P = Process weight rate; and

E = Allowable emission rate; and,

i. Up to process weight rates of 408 Mg/hr (450 Ton/hr):

	Metric	English
P	Mg/hr	Ton/hr
E	kg/hr	lbs/hr
A	1.214	2.54
B	0.534	0.534

ii. For process weight rate greater than or equal to 408 Mg/hr (450 Ton/hr):

	Metric	English
P	Mg/hr	Ton/hr
E	kg/hr	lbs/hr
A	11.42	24.8
B	0.16	0.16

c. Limits for Process Emission Units For Which Construction of Modification Commenced On or After April 14,1972

Metric		English	
P Mg/hr	E kg/hr	P Ton/hr	E lbs/hr
0.05	0.25	0.05	0.55
0.1	0.29	0.10	0.77
0.2	0.42	0.20	1.10
0.3	0.64	0.30	1.35
0.4	0.74	0.40	1.58
0.5	0.84	0.50	1.75
0.7	1.00	0.75	2.40
0.9	1.15	1.00	2.60
1.8	1.66	2.00	3.70
2.7	2.1	3.00	4.60
3.6	2.4	4.00	5.35
4.5	2.7	5.00	6.00
9.	3.9	10.00	8.70
13.	4.8	15.00	10.80
18.	5.7	20.00	12.50
23.	6.5	25.00	14.00
27.	7.1	30.00	15.60
32.	7.7	35.00	17.00
36.	8.2	40.00	18.20
41.	8.8	45.00	19.20
45.	9.3	50.00	20.50
90.	13.4	100.00	29.50
140.	17.0	150.00	37.00
180.	19.4	200.00	43.00
230.	22.	250.00	48.50
270.	24.	300.00	53.00
320.	26.	350.00	58.00
360.	28.	400.00	62.00
408.	30.1	450.00	66.00
454.	30.4	500.00	67.00

Where:

P = Process weight rate in Mg/hr or Ton/hr, and

E = Allowable emission rate in kg/hr or lbs/hr.

10.2.2 Section 212.322 - Process Emission Units For Which Construction or Modification Commenced Prior to April 14, 1972

a. Except as further provided in 35 IAC Part 212, no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any process emission unit for which construction or modification commenced prior to April 14,1972, which, either alone or in combination with the emission of particulate matter from all other similar process emission units at a source or premises, exceeds the allowable emission rates specified in subsection (c) of this Section.

b. Interpolated and extrapolated values of the data in subsection (c) of this Section shall be determined by using the equation:

$$E = C + A(P)^B$$

Where:

P = Process weight rate; and,

E = Allowable emission rate; and,

i. For process weight rates up to 27.2 Mg/hr (30 Ton/hr):

	Metric	English
P	Mg/hr	Ton/hr
E	kg/hr	lbs/hr
A	1.985	4.10
B	0.67	0.67
C	0	0

ii. For process weight rates in excess of 27.2 Mg/hr (30 Ton/hr):

	Metric	English
P	Mg/hr	Ton/hr
E	kg/hr	lbs/hr
A	25.21	55.0
B	0.11	0.11
C	-18.4	-40.0

c. Limits for Process Emission Units For Which Construction or Modification Commenced Prior to April 14, 1972

Metric		English	
P Mg/hr	E kg/hr	P Ton/hr	E lbs/hr
0.05	0.27	0.05	0.55
0.1	0.42	0.10	0.87
0.2	0.68	0.20	1.40
0.3	0.89	0.30	1.83
0.4	1.07	0.40	2.22
0.5	1.25	0.50	2.58
0.7	1.56	0.75	3.38
0.9	1.85	1.00	4.10
1.8	2.9	2.00	6.52
2.7	3.9	3.00	8.56
3.6	4.7	4.00	10.40
4.5	5.4	5.00	12.00
9.	8.7	10.00	19.20
13.	11.1	15.00	25.20
18.	13.8	20.00	30.50
23.	16.2	25.00	35.40
27.2	18.15	30.00	40.00
32.0	18.8	35.00	41.30
36.0	19.3	40.00	42.50
41.0	19.8	45.00	43.60
45.0	20.2	50.00	44.60
90.0	23.2	100.00	51.20
140.0	25.3	150.00	55.40
180.0	26.5	200.00	58.60
230.0	27.7	250.00	61.00
270.0	28.5	300.00	63.10
320.0	29.4	350.00	64.90
360.0	30.0	400.00	66.20
400.0	30.6	450.00	67.70
454.0	31.3	500.00	69.00

Where:

P = Process weight rate in Mg/hr or Ton/hr, and

E = Allowable emission rate in kg/hr or lbs/hr.

10.3 Attachment 3 Tables indicating contemporaneous increases and decreases

10.3.1 Net SO_2 emissions increase determination from Unit 266 Production Increase, Construction Permit 98100080 (originally issued on 4/26/1999).

Table 1 – SO_2 Emissions from This Project

Total SO_2 emissions increase from the debottlenecking of Unit 266 (ZDDP manufacturing).

Description	Permit Number	Date Issued	SO_2 Emissions (Tons/Year)
Previous operation	95090198	12/22/1995	58.7
Proposed operation	98100080	4/26/1999	107.70
Difference			49.0

Emissions from previous operation are based on the permitted emission limit, rather than the previous actual emissions, so that emissions are not counted twice (see Unit 266 increase in Table 2 below). Since the total difference is greater than 40 tons per year, this project by itself was a significant increase in SO_2 emissions.

Table 2 – SO_2 Emissions Increases

Total combined SO_2 emissions increases from this source during the contemporaneous time period.

Description	Permit Number	Date Issued	SO_2 Emissions (Tons/Year)
Unit 290 Startup	94110112	1/30/1995	34.9
Unit 266 Expansion	95090198	12/22/1995	36.0
Total			70.9

Table 2 – SO_2 Emissions Decreases

Total combined SO_2 emissions decreases from this source during the contemporaneous time period.

Description	Permit Number	Date Issued	SO_2 Emissions (Tons/Year)
Unit 258 Continuous Scrubber	96050095	7/8/1998	84.1

This decrease is based on the current limit of 24.4 tons per year and the average annual emissions calculated using the 24 month period of October 1995 to September 1997, before startup of the continuous scrubber. The average annual emissions were 110.7 tons, which is decreased by 2% to account for emissions which exceed 2000 ppm (35 IAC 214.301):

110.7 ton/year * 98% - 24.4 ton/year = 84.1 ton/year

Table 4 – Net SO_2 Emission Increase Determination

Description	SO_2 Emissions (Tons/Year)
Proposed Project Increase	+ 49.0
Contemporaneous Increase	+ 70.9
Contemporaneous Decrease	- 84.1
Net Increase	+ 35.8

10.4 Attachment 4 - ACS Permit Findings

Permit 82120030 was issued to Ethyl Petroleum Additives (previous name of this source) based upon and subject to the following findings. They are provided here for informational purposes only. For this Title V permit, Finding 3(c) was revised and Finding 3(d) was added to reflect the current operating scenario.

1. The Permittee, Ethyl Petroleum Additives was issued a permit to operate an expanded ABSA process under an Alternative Control Strategy (ACS) on August 10, 1983. The ACS provides that in lieu of controlling sulfur dioxide (SO_2) emissions from the ABSA process to comply with 35 IAC 214.301, SO_2 emissions from the ZDDP process will be reduced by routing the off gases through the scrubber on the sulfurized isobutylene (SIB) operation. Following scrubbing the off gases “return” to the ZDDP process, along with the SIB off gases, to be flared. ACSs are governed by the Illinois Pollution Control Board's Rules and Regulations, 35 IAC Part 202, Alternative Control Strategies.

2. Ethyl Petroleum Additives replaced the sulfonation unit in the ABSA operation. The Illinois EPA has determined that the new sulfonation unit would constitute a minor change to the ACS permit because it further reduces the emissions of the ZDDP operation, at which emission credits are generated, greatly reduces both total actual and excess emissions of the ABSA operation, and is accompanied by an improved vent configuration at the ABSA operation.

3. The SO_2 emissions involved in the ACS are as follows:

   a. Emissions Baseline, prior to expansion of ABSA Operation:

      (Baseline determined using actual emissions of SO_2, which were within the requirements of 35 IAC 214.301)

	Average Hourly (Lb/Hr)	Maximum Hourly Allowable (Lb/Hr)	Annual (T/Yr)
ABSA Operation	23.3	29.1	101
ZDDP Operation	230.0	360.0	1,055
	253.3	389.1	1,106

   b. Emission under the Revised ACS Permits issued in 1987 and 1992 were as follows:

	Maximum Hourly Allowable (Lb/Hr)	Annual Allowable (Tons/Yr)
ABSA Operation	49.4	216
ZDDP Operation	100.0	440
	149.4	656

c. Emissions under the Revised ACS Permits issued on January 8, 1996, as a result of incorporating the conditions from Construction Permit 95090198 were as follows:

	Maximum Hourly Allowable (Lb/Hr)	Maximum Weekly Allowable (Lb/Hr)	Annual Allowable (T/Yr)
ABSA Operation	49.4		216.0
ZDDP Operation		2,300[a]	58.7
			274.7

[a] Emissions determined weekly but allowable is running average of four weeks of data.

d. Emissions under this permit, as a result of incorporating the emission limits from Construction Permit 96050095, as issued on July 8, 1998, and Joint Construction and Operating Permit 98100080, as issued on April 26, 1999, are as follows:

	Short Term Limit	Annual Allowable (Tons/Yr)
ABSA Operation	8.00 Tons/4-Week Period	24.4
ZDDP Operation	10.77 Tons/Month	107.7
		132.1

4. The Illinois EPA's review of the application and its accompanying analyses demonstrate that a) the reduction in sulfur dioxide emissions is substantially greater than that required to comply with 35 IAC 214.301, b) the impact of the ACS is environmentally equivalent to or better than that which would otherwise be achieved and maintained under existing requirements, and c) the methods for assuring compliance with the terms of the ACS are equivalent to or better than those that are associated with otherwise applicable requirements. The Illinois EPA's review also indicates that emission sources which are not part of the "trade" comply with applicable limits. Accordingly, the Illinois EPA has determined that the ACS is consistent with all applicable Illinois Rules and Regulations, Title 35, Subtitle B: Air Pollution, and the Illinois Environmental Protection Act.

5. The Illinois EPA is issuing a permit subject to the following conditions and consistent with the specifications and data included in the permit application. Any departure from the conditions of this permit or terms expressed in the application would need to receive prior written authorization of Illinois EPA.

6. The issuance of this permit does not indicate that further reductions in SO_2 emissions will not be required of the Permittee to demonstrate attainment of the SO_2 air quality standards in the Sauget area. Further reductions could be required, either directly as a result of the Illinois EPA's evaluation, in certain circumstances, or as a consequence of a proceeding by the Illinois Pollution Control Board revising SO_2 emission limits.

7. In the issuance of this permit the Illinois EPA has considered requirements of Illinois law and regulation. In particular, the Illinois EPA has not addressed in depth whether this permit would be approvable under USEPA’s Emissions Trading Policy (51 FR 43814).

10.5 Attachment 5 - Guidance on Revising This Permit

The Permittee must submit an application to the Illinois EPA using the appropriate revision classification in accordance with Sections 39.5(13) and (14) of the Act and 35 IAC 270.302. Specifically, there are currently three classifications for revisions to a CAAPP permit. These are:

1. Administrative Permit Amendment;

2. Minor Permit Modification; and

3. Significant Permit Modification.

The Permittee must determine, request, and submit the necessary information to allow the Illinois EPA to use the appropriate procedure to revise the CAAPP permit. A brief explanation of each of these classifications follows.

1. Administrative Permit Amendment

- Corrects typographical errors;
- Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;
- Requires more frequent monitoring or reporting by the Permittee;
- Allows for a change in ownership or operational control of the source where no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittees has been submitted to the Illinois EPA. This shall be handled by completing form 272-CAAPP, REQUEST FOR OWNERSHIP CHANGE FOR CAAPP PERMIT; or
- Incorporates into the CAAPP permit a construction permit, provided the conditions of the construction permit meet the requirements for the issuance of CAAPP permits.

2. Minor Permit Modification

- Do not violate any applicable requirement;
- Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;
- Do not require a case-by-case determination of an emission limitation or other standard, or a source-specific determination of ambient impacts, or a visibility or increment analysis;

- Do not seek to establish or change a permit term or condition for which there is no corresponding underlying requirement and which avoids an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:

    - A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the CAA; and

    - An alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the CAA.

- Are not modifications under any provision of Title I of the CAA;

- Are not required to be processed as a significant permit modification; and

- Modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches.

An application for a minor permit modification shall include the following:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;

- The source’s suggested draft permit/conditions;

- Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and

- Information as contained on form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT for the Illinois EPA to use to notify USEPA and affected States.

3. <u>Significant Permit Modification</u>

- Applications that do not qualify as either minor permit modifications or as administrative permit amendments;

- Applications requesting a significant change in existing monitoring permit terms or conditions;

- Applications requesting a relaxation of reporting or recordkeeping requirements; and

- Cases in which, in the judgment of the Illinois EPA, action on an application for modification would require decisions to be made on technically complex issues.

An application for a significant permit modification shall include the following:

- A detailed description of the proposed change(s), including all physical changes to equipment, changes in the method of operation, changes in emissions of each pollutant, and any new applicable requirements which will apply as a result of the proposed change. Note that the Permittee need only submit revised forms for equipment and operations that will be modified.

The Illinois EPA requires the information on the following appropriate forms to be submitted in accordance with the proper classification:

- Form 273-CAAPP, REQUEST FOR ADMINISTRATIVE PERMIT AMENDMENT FOR CAAPP PERMIT; or

- Form 271-CAAPP, MINOR PERMIT MODIFICATION FOR CAAPP PERMIT; or

- Form 200-CAAPP, APPLICATION FOR CAAPP PERMIT (for significant modification).

Application forms can be obtained from the Illinois EPA website at http://www.epa.state.il.us/air/forms.

Note that the request to revise the permit must be certified for truth, accuracy, and completeness by a responsible official.

Note that failure to submit the required information may require the Illinois EPA to deny the application. The Illinois EPA reserves the right to require that additional information be submitted as needed to evaluate or take final action on applications pursuant to Section 39.5(5)(g) of the Act and 35 IAC 270.305.

10.6 Attachment 6 - Guidance on Renewing This Permit

Timeliness - Pursuant to Section 39.5(5)(n) of the Act and 35 IAC 270.301(d), a source must submit to the Illinois EPA a complete CAAPP application for the renewal of a CAAPP permit not later than 9 months before the date of permit expiration of the existing CAAPP permit in order for the submittal to be deemed timely. Note that the Illinois EPA typically sends out renewal notices approximately 18 months prior to the expiration of the CAAPP permit.

The CAAPP application must provide all of the following information in order for the renewal CAAPP application to be deemed complete by the Illinois EPA:

1. A completed renewal application form 200-CAAPP, APPLICATION FOR CAAPP PERMIT.

2. A completed compliance plan form 293-CAAPP, COMPLIANCE PLAN/SCHEDULE OF COMPLIANCE FOR CAAPP PERMIT.

3. A completed compliance certification form 296-CAAPP, COMPLIANCE CERTIFICATION, signed by the responsible official.

4. Any applicable requirements that became effective during the term of the permit and that were not included in the permit as a reopening or permit revision.

5. If this is the first time this permit is being renewed and this source has not yet addressed CAM, the application should contain the information on form 464-CAAPP, COMPLIANCE ASSURANCE MONITORING (CAM) PLAN.

6. Information addressing any outstanding transfer agreement pursuant to the ERMS.

7. a. If operations of an emission unit or group of emission units remain unchanged and are accurately depicted in previous submittals, the application may contain a letter signed by a responsible official that requests incorporation by reference of existing information previously submitted and on file with the Illinois EPA. This letter must also include a statement that information incorporated by reference is also being certified for truth and accuracy by the responsible official’s signing of the form 200-CAAPP, APPLICATION FOR CAAPP PERMIT and the form 296-CAAPP, COMPLIANCE CERTIFICATION. The boxes should be marked yes on form 200-CAAPP, APPLICATION FOR CAAPP PERMIT, as existing information is being incorporated by reference.

   b. If portions of current operations are not as described in previous submittals, then in addition to the information above for operations that remain unchanged, the application must contain the necessary information on all changes, e.g., discussion of changes, new or revised CAAPP forms,

and a revised fee form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT, if necessary.

8. Information about all off-permit changes that were not prohibited or addressed by the permit to occur without a permit revision and the information must be sufficient to identify all applicable requirements, including monitoring, recordkeeping, and reporting requirements, for such changes.

9. Information about all changes made under 40 CFR 70.4(b)(12)(i) and (ii) that require a 7-day notification prior to the change without requiring a permit revision.

The Illinois EPA will review all applications for completeness and timeliness. If the renewal application is deemed both timely and complete, the source shall continue to operate in accordance with the terms and conditions of its CAAPP permit until final action is taken on the renewal application.

Notwithstanding the completeness determination, the Illinois EPA may request additional information necessary to evaluate or take final action on the CAAPP renewal application. If such additional information affects your allowable emission limits, a revised form 292-CAAPP, FEE DETERMINATION FOR CAAPP PERMIT must be submitted with the requested information. The failure to submit to the Illinois EPA the requested information within the time frame specified by the Illinois EPA, may force the Illinois EPA to deny your CAAPP renewal application pursuant to Section 39.5 of the Act.

Application forms may be obtained from the Illinois EPA website at http://www.epa.state.il.us/air/forms.html.

If you have any questions regarding this matter, please contact a permit analyst at 217/782-2113.

Mail renewal applications to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section (MC 11)
P.O. Box 19506
Springfield, Illinois 62794-9506

MTR:psj

10.7 Attachment 7 – Compliance Assurance Monitoring Plan

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: Unit 258C Alkylbenzene Process: 258-27-0105, 258-27-0106, 257-27-0550, Benzene wastewater collection and recovery tanks	**7b) POLLUTANT:** VOM / Benzene		**7c) INDICATOR NO. 1:** Flame presence on U258 flare 36-0219	
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flame presence is continuously monitored using a "pilot eye" camera and is recorded by our process computer.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA				
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Camera is located on the roof of the unit and pointed at the flare tip.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Signal from the pilot eye is set to "fail low" so it will trigger a "flame out" alarm if it fails. If "flame out" alarm is received, operators perform visual observation to determine whether flame is present.	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Signal from the pilot eye is set to "fail low" so it will trigger a "flame out" alarm if it fails. If "flame out" alarm is received, operators perform visual observation to determine whether flame is present.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: Unit 258C Alkylbenzene Process: 258-27-0105, 258-27-0106, 257-27-0550	**7b) POLLUTANT:** HCl		**7c) INDICATOR NO. 1:** water flow to vent scrubber 33-0549	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Continuous monitoring of water flow to scrubber.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Efficiency calculations indicate that a flow of at least 1.8 gal/min will achieve >99% control of HCl. Flow is required to be greater than 1.8 gal/min	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA				
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Flow meter is located in the water line leading to the scrubber.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Flow is monitored continuously and recorded by our process computer. Failure of the meter would result in a "low flow" alarm.	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:			PM is scheduled on an annual basis. During PM, the instrument is checked to see that electronics are functioning properly, checks coil frequency, and verifies parameters and range of output.	

PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Measurement is continuous. No averaging is applied.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U258A Sulfonation / ABSA Process: Sulfur burner 258-15-3011, Catalytic Converter, Oleum Separator, Sulfonator 258-27-4011	**7b) POLLUTANT:** SO_2		**7c) INDICATOR NO. 1:** Scrubber pH	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Scrubber pH is monitored continuously and recorded by our process computer.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Scrubber is recharged with fresh caustic solution when the pH of the scrubbant drops below 9.5.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			Emission limits of 24.4 tons/year allow for operation without scrubber (during malfunction or breakdown of scrubber) for about 28 days per year, as long as sulfur burn rate is maintained below 7.5 lb/minute. Therefore QIP would be triggered only if downtime exceeds 28 days per year.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			pH measurements are made in the scrubber hold tank.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			pH meter is set to "fail low" so instrument failure would trigger a low pH alarm	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Annual PM is performed on pH meter. PM on pH meter includes recalibration of meter using pH buffers.	
PROVIDE THE MONITORING FREQUENCY:		Continuous.	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		pH data is continuously recorded by our process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		None. Scrubber downtime is tracked. Excursion occurs if the scrubber is off line for more than 28 days per year.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: Unit 266 - ZDDP Process: 266-27-0142, 266-27-0413, 266-27-1244, 266-27-0195	**7b) POLLUTANT:** H2S		**7c) INDICATOR NO. 1:** Scrubber recirculation flow and scrubber hold tank temperature	**7d) INDICATOR NO. 2:** Flame presence on Flare 36-0011
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flow is measured by use of a flow meter on the scrubber recirculation line. Temperature is measured using a thermocouple on the scrubber hold tank.	Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			(1) Recirculating flow is required to be greater than 50 gal/min on an hourly average. An hourly flow less than 50 gal/min would be considered to be an excursion. (2) Breakthrough of the primary scrubber is deemed to have occurred if the temperature of the secondary scrubber increases more than 10°C in an hour, or if the temperature exceeds 75°C. Breakthrough is not an excursion, but triggers changeout of the primary scrubber. An excursion occurs if this changeout takes more than 6 hours (while process is running) or if the remaining scrubber becomes spent while the first scrubber is off line.	Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	The QIP Threshold is two excursions in a six month period.
8b) PERFORMANCE CRITERIA				
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			(1) Flow meter is located in the recirculating line downstream of the pump. There is also a load meter on the pump. (2) Thermocouples are located in the hold tank of the secondary scrubber.	Thermocouples are located at the flare tip. Camera is located on the roof of the unit.

PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:		(1) Low flow alarm is triggered if flow drops below 50 gal/min (hourly average). Operator would check load meter to see if it confirms low flow. (2) Failure of a thermocouple triggers a "fail alarm".	System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to "fail low" so it will trigger a "low temp" alarm if 3 of the 4 thermocouples fail. If "low temp" alarm is received, operator can check camera to visually verify flame presence.
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		PM is scheduled on an annual basis. During PM, the flow instrument is checked to see that electronics are functioning properly, checks coil frequency, and verify parameters and range of output. Thermocouples are calibrated on installation and calibration is checked during PM.	Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an "on/off" indicator, redundancy of thermocouples is adequate to ensure proper operation.
PROVIDE THE MONITORING FREQUENCY:		Continuous	Continuous
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	Continuous signal is recorded by process computer.
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		(1) Recirculation flow is continuously monitored as a 1-hour average. (permit requirement) (2) Temperature readings are continuous. No averaging is applied.	Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U266 ZDDP Process: Neutralizer reactors 266-27-1426 and 266-27-2425	**7b) POLLUTANT:** VOM		**7c) INDICATOR NO. 1:** Flame presence on Flare 36-0011	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouples are located at the flare tip. Camera is located on the roof of the unit.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to "fail low" so it will trigger a "low temp" alarm if 3 of the 4 thermocouples fail. If "low temp" alarm is received, operator can check camera to visually verify flame	

		presence.	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an "on/off" indicator, redundancy of thermocouples is adequate to ensure proper operation.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U280 SIB Process: First Stage Reactor 280-27-0201	**7b) POLLUTANT:** VOM		**7c) INDICATOR NO. 1:** Flame presence on Flare 36-0011	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouples are located at the flare tip. Camera is located on the roof of the unit.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to "fail low" so it will trigger a "low temp" alarm if 3 of the 4 thermocouples fail. If "low temp" alarm is received, operator can check camera to visually verify flame presence.	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an "on/off" indicator, redundancy of thermocouples is adequate to ensure proper operation.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U280 SIB Process: First Stage Reactor 280-27-0201	**7b) POLLUTANT:** HCl		**7c) INDICATOR NO. 1:** water flow to HCl scrubber 33-2216	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Continuous monitoring of water flow to scrubber.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Efficiency calculations indicate that a flow of at least 5.5 gal/min will achieve >99% control of HCl. Flow is required to be greater than 5.5 gal/min	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			At the time this Plan was prepared, the recirculation pump for the scrubber was equipped only with a horsepower meter. A flow meter will be installed during implementation of this Plan. The flow meter will be located in the scrubber's recirculation line.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Failure of the existing horsepower meter would trigger an alarm. The proposed flow meter will also be equipped with an alarm indicating loss of signal. In addition, it will also be set to "fail low", resulting in a "low flow" alarm if signal is lost.	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		There is currently no PM on the horsepower meter. PM of the proposed flow meter will be scheduled on an annual basis. During PM, the instrument will be checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range of output.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Measurement is continuous. No averaging is applied.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U280 SIB Process: Second stage SIB reactors 280-27-0301, 280-27-0302, Third stage separator 280-27-2303	**7b) POLLUTANT:** VOM		**7c) INDICATOR NO. 1:** Flame presence on Flare 36-0011	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA				
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouples are located at the flare tip. Camera is located on the roof of the unit.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to “fail low” so it will trigger a “low temp” alarm if 3 of the 4 thermocouples fail. If “low temp” alarm is received, operator can check camera to visually verify flame presence.	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:	Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an “on/off” indicator, redundancy of thermocouples is adequate to ensure proper operation.	
PROVIDE THE MONITORING FREQUENCY:	Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:	Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:	Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U280 SIB Process: Second stage SIB reactors 280-27-0301, 280-27-0302, Third stage separator 280-27-2303, Brine acidifier 280-27-2501	**7b) POLLUTANT:** H2S		**7c) INDICATOR NO. 1:** Scrubber recirculation flow; scrubber hold tank temperature	**7d) INDICATOR NO. 2:** Flame presence on Flare 36-0011
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flow is measured by use of a flow meter on the scrubber recirculation line. Temperature is measured using a thermocouple on the scrubber hold tank.	Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			(1) Recirculating flow is required to be greater than 50 gal/min on an hourly average. An hourly flow less than 50 gal/min would be considered to be an excursion. (2) Breakthrough of the primary scrubber is deemed to have occurred if the temperature of the secondary scrubber increases more than 10°C in an hour, or if the temperature exceeds 75°C. Breakthrough is not an excursion, but triggers changeout of the primary scrubber. An excursion occurs if this changeout takes more than 6 hours (while process is running) or if the remaining scrubber becomes spent while the first scrubber is off line.	Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	The QIP Threshold is two excursions in a six month period.

8b) PERFORMANCE CRITERIA			
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:		(1) Flow meter is located in the recirculating line downstream of the pump. There is also a load meter on the pump. (2) Thermocouples are located in the hold tank of the secondary scrubber.	Thermocouples are located at the flare tip. Camera is located on the roof of the unit.
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:		(1) Low flow alarm is triggered if flow drops below 50 gal/min (hourly average). Operator would check load meter to see if it confirms low flow. (2) Failure of a thermocouple triggers a “fail alarm“.	System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to “fail low” so it will trigger a “low temp” alarm if 3 of the 4 thermocouples fail. If “low temp” alarm is received, operator can check camera to visually verify flame presence.
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flow meters are scheduled for annual PM. During PM, the instruments are checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range of output. Thermocouples are calibrated on installation and this calibration is checked during annual PM.	Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an “on/off” indicator, redundancy of thermocouples is adequate to ensure proper operation.
PROVIDE THE MONITORING FREQUENCY:		Continuous	Continuous
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	Continuous signal is recorded by process computer.
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		(1) Recirculation flow is continuously monitored and recorded as a 1-hour average. (permit requirement) (2) Temperature readings are continuous. No averaging is applied.	Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.

CAM MONITORING APPROACH CRITERIA (TO BE CONTINUED ON FOLLOWING PAGE)				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U290 Thiadiazole Process: First stage reactor 290-27-0200	**7b) POLLUTANT:** VOM / CS2		**7c) INDICATOR NO. 1:** Coolant temperature for condenser 17-0220	**7d) INDICATOR NO. 2:** Inlet and Outlet temperatures of condenser 17-0735
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Temperature of the coolant liquid is measured continuously and recorded by our process computer	Temperature of both the coolant liquid and the condensed vapors is measured continuously (while vapors are being vented to the condenser) and recorded by our process computer
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			As required by the permit, inlet temperature of the coolant (glycol) cannot exceed 40°F.	As required by the permit, inlet temperature of the coolant (Freon) cannot exceed -35°F. Outlet (condensate) temperature does not have a specific set point; it is used to estimate emissions for each batch produced (based on previous stack test data), and therefore to assure continuous compliance with emission limits on a batch-by-batch basis.
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP threshold would be two or more excursions in a six-month period.	The QIP threshold would be two or more excursions in a six-month period.
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouples are located at the inlet (coolant side) and outlet (condensed liquid side) of condenser 17-0220.	Thermocouples are located at the inlet (coolant side) and outlet (condensed liquid side) of condenser 17-0735.

PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:		Failure of either of these temperature indicators would trigger an alarm.	Failure of either of these temperature indicators would trigger an alarm.
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Thermocouples are calibrated on installation and calibration is checked during annual PM.	Thermocouples are calibrated on installation and calibration is checked during annual PM.
PROVIDE THE MONITORING FREQUENCY:		Continuous	Continuous
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	Continuous signal is recorded by process computer.
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Temperature is recorded continuously. There is no averaging performed.	Temperature is recorded continuously and averaged over each batch (during the period when CS2 is vented to the condenser only). Emission data for the batch is then calculated and used to calculate the monthly and 12-month total emissions for the process.

EXHIBIT 464-8 - CAM MONITORING APPROACH CRITERIA (CONTINUED FROM PREVIOUS PAGE)				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U290 Thiadiazole Process: First stage reactor 290-27-0200	**7b) POLLUTANT:** H2S		**7c) INDICATOR NO. 3:** Scrubber recirculation flow; scrubber hold tank temperature	**7d) INDICATOR NO. 4:** Flame presence on Flare 36-0011
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flow is measured by use of a flow meter on the scrubber recirculation line. Temperature is measured using a thermocouple on the scrubber hold tank.	Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			(1) Recirculating flow is required to be greater than 50 gal/min on an hourly average. An hourly flow less than 50 gal/min would be considered to be an excursion. (2) Breakthrough of the primary scrubber is deemed to have occurred if the temperature of the secondary scrubber increases more than 10°C in an hour, or if the temperature exceeds 75°C. Breakthrough is not an excursion, but triggers changeout of the primary scrubber. An excursion occurs if this changeout takes more than 6 hours (while process is running) or if the remaining scrubber becomes spent while the first scrubber is off line.	Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	The QIP Threshold is two excursions in a six month period.
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			(1) Flow meter is located in the recirculating line downstream of the pump. There is also a load meter on the pump. (2) Thermocouples are located in the hold tank of the	Thermocouples are located at the flare tip. Camera is located on the roof of the unit.

		secondary scrubber.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:		(1) Low flow alarm is triggered if flow drops below 50 gal/min (hourly average). Operator would check load meter to see if it confirms low flow. (2) Failure of a thermocouple triggers a “fail alarm”.	System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to “fail low” so it will trigger a “low temp” alarm if 3 of the 4 thermocouples fail. If “low temp” alarm is received, operator can check camera to visually verify flame presence.
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flow meters are scheduled for annual PM. During PM, the instruments are checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range of output. Thermocouples are calibrated on installation and this calibration is checked during annual PM.	Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an “on/off” indicator, redundancy of thermocouples is adequate to ensure proper operation.
PROVIDE THE MONITORING FREQUENCY:		Continuous	Continuous
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	Continuous signal is recorded by process computer.
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		(1) Recirculation flow is continuously monitored as a 1-hour average. (permit requirement) (2) Temperature readings are continuous. No averaging is applied.	Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.

EXHIBIT 464-8 - CAM MONITORING APPROACH CRITERIA (CONTINUED FROM PREVIOUS PAGE)				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U290 Thiadiazole Process: First stage reactor 290-27-0200	**7b) POLLUTANT:** VOM / CS2		**7c) INDICATOR NO. 3:** Flame presence on Flare 36-0011	**7d) INDICATOR NO. 4:**
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA				
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouples are located at the flare tip. Camera is located on the roof of the unit.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to “fail low” so it will trigger a “low temp” alarm if 3 of the 4 thermocouples fail. If “low temp” alarm is received, operator can check camera to visually verify flame presence.	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an “on/off“ indicator, redundancy of thermocouples is adequate to ensure proper operation.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U290 Thiadiazole Process: First stage reactor 290-27-0200	**7b) POLLUTANT:** H2S		**7c) INDICATOR NO. 1:** Scrubber recirculation flow; scrubber hold tank temperature	**7d) INDICATOR NO. 2:** Flame presence on Flare 36-0011
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flow is measured by use of a flow meter on the scrubber recirculation line. Temperature is measured using a thermocouple on the scrubber hold tank.	Flame presence is measured by use of four thermocouples. A camera also provides visual indication of flame presence.
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			(1) Recirculating flow is required to be greater than 50 gal/min on an hourly average. An hourly flow less than 50 gal/min would be considered to be an excursion. (2) Breakthrough of the primary scrubber is deemed to have occurred if the temperature of the secondary scrubber increases more than 10°C in an hour, or if the temperature exceeds 75°C. Breakthrough is not an excursion, but triggers changeout of the primary scrubber. An excursion occurs if this changeout takes more than 6 hours (while process is running) or if the remaining scrubber becomes spent while the first scrubber is off line.	Excursion would be indicated if flare is out for more than 15 minutes while processes are running. NOTE: Completion of batch is allowed by Malfunction and Breakdown provisions of the CAAPP permit.
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	The QIP Threshold is two excursions in a six month period.

8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:		(1) Flow meter is located in the recirculating line downstream of the pump. There is also a load meter on the pump. (2) Thermocouples are located in the hold tank of the secondary scrubber.	Thermocouples are located at the flare tip. Camera is located on the roof of the unit.
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:		(1) Low flow alarm is triggered if flow drops below 50 gal/min (hourly average). Operator would check load meter to see if it confirms low flow. (2) Failure of a thermocouple triggers a “fail alarm”.	System is equipped with four thermocouples to ensure redundancy of equipment. Signal from the thermocouples is set to “fail low” so it will trigger a “low temp” alarm if 3 of the 4 thermocouples fail. If “low temp” alarm is received, operator can check camera to visually verify flame presence.
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flow meters are scheduled for annual PM. During PM, the instruments are checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range of output. Thermocouples are calibrated on installation and this calibration is checked during annual PM.	Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an “on/off” indicator, redundancy of thermocouples is adequate to ensure proper operation.
PROVIDE THE MONITORING FREQUENCY:		Continuous	Continuous
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	Continuous signal is recorded by process computer.
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		(1) Recirculation flow is continuously monitored as a 1-hour average. (permit requirement) (2) Temperature readings are continuous. No averaging is applied.	Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U267 Specialty Reactors: 267-27-0117, 267-27-0118	**7b) POLLUTANT:** VOM / Xylene		**7c) INDICATOR NO. 1:** Condenser temp	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Condenser outlet temperature is measured continuously and recorded by our process computer	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Condenser is determined to be in compliance with IEPA's "batch rule" if outlet temperature is less than 60°C.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouple is located at the outlet of the condenser.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			If temperature transmitter fails, it triggers a "fail" alarm in the process computer.	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S			Thermocouples are calibrated on installation and calibration is checked during annual PM.	

RECOMMENDATIONS:			
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Temperature is recorded continuously and averaged over each batch (during the period when vapors are vented to the condenser).	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U267 NPS Reactor 267-27-0121	**7b) POLLUTANT:** HCl		**7c) INDICATOR NO. 1:** water flow to scrubber 33-0622	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Continuous monitoring of water flow to scrubber.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Efficiency calculations indicate that a flow of at least 6 gal/min will achieve >99% control of HCl. Flow is required to be greater than 6 gal/min	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			A flow meter will be installed during implementation of this Plan. The flow meter will be located in the water line leading to this scrubber.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			The proposed flow meter will also be equipped with an alarm indicating loss of signal. In addition, it will also be set to “fail low”, resulting in a “low flow” alarm if signal is lost.	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:			PM of the proposed flow meter will be scheduled on an annual basis. During PM, the instrument will be checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range	

		of output.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Measurement is continuous. It is recorded as both an instantaneous flow and as a batch average. Alarm is triggered if the average flow drops below 10 gal/minute.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U270 Calcium Sulfonate Process: Reactors 280-27-0401, 270-27-0402, 270-27-0403, 270-27-0900, Methanol distillation column 501	**7b) POLLUTANT:** VOM / Hexane / Methanol		**7c) INDICATOR NO. 1:** Flame presence on new flare (in service May 2008)	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA				
DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Flame presence is measured by use of thermocouples.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Excursion would be indicated if flare is out for more than 15 minutes while processes are running.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA				
PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouples are located at the flare tip.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Signal from the thermocouples is set to “fail low” so it will trigger a “low temp” alarm if thermocouples fail. If “low temp” alarm is received, operator can check camera to	

		verify flame presence.	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Flare thermocouples are not recalibrated due to their location. Since flare thermocouples are primarily an “on/off” indicator, redundancy of thermocouples is adequate to ensure proper operation.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Excursion is defined as flare being out for more than 15 minutes while process is running. There is no averaging period.	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U270B Specialty Reactor 270-27-0206	**7b) POLLUTANT:** VOM		**7c) INDICATOR NO. 1:** Outlet temperature of condenser 17-0324	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Condenser outlet temperature is measured and recorded continuously. At the present time, it is recorded on a local memory card. This signal is being moved to our process computer and appropriate alarms are to be programmed.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Condenser is determined to be in compliance with IEPA's "batch rule" if outlet temperature is less than 52°C.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouple is located at the outlet of the condenser.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			If temperature transmitter fails, it triggers a "fail" alarm in the process computer.	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Thermocouples are calibrated on installation and calibration is checked during annual PM.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is currently recorded on a local memory card; this signal is being moved to our process computer where it will be continuously recorded.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Temperature is recorded continuously. When signal is moved to the process computer, it will be averaged over each batch (during the period when vapors are vented to the condenser).	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U275 Dispersants Process: Reactors 275-27-0201, 275-27-0211	**7b) POLLUTANT:** VOM		**7c) INDICATOR NO. 1:** Condenser 17-0214 outlet temperature	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Condenser outlet temperature is measured continuously and recorded by our process computer	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Condenser is in compliance with IEPA's "batch rule" if condenser outlet temperature is less than 200°C. Typical temperature is less than 80°C.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouple is located at the outlet of the condenser.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Failure of the thermocouple would result in a "high temp" alarm.	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S			Thermocouples are calibrated on installation and calibration is checked during annual PM.	

RECOMMENDATIONS:			
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Temperature is recorded continuously and averaged over each batch (during the period when vapors are vented to the condenser).	

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U275 Dispersants Process: Reactor 275-27-0216	**7b) POLLUTANT:** VOM / maleic anhydride		**7c) INDICATOR NO. 1 (VOM / MAH only):** Condenser 17-0218 outlet temperature	**7d) INDICATOR NO. 2 (MAH):** Water flow to scrubber 33-0220
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Condenser outlet temperature is measured continuously and recorded by our process computer	Continuous monitoring of water flow to scrubber.
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Condenser is in compliance with IEPA's "batch rule" if condenser outlet temperature is less than 110°C. Typical temperature is less than 80°C.	Efficiency calculations indicate that a flow of at least 10 gal/min will achieve >99% control of HCl. Average flow of less than 10 gal/min triggers an alarm. (Normal flow to this scrubber is 15 gal/min.)
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	The QIP Threshold is two excursions in a six month period.
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Thermocouple is located at the outlet of the condenser.	Flow meter is located in the water line leading to the scrubber.
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Failure of the thermocouple would result in a "high temp" alarm.	Failure of the flow meter would result in a "low flow" alarm and a "fail" alarm. Process is interlocked so that it cannot enter the chlorination step unless there is water flow to the scrubber (and indication of water flow).

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Thermocouples are calibrated on installation and calibration is checked during annual PM.	PM is scheduled on an annual basis. During PM, the instrument is checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range of output.
PROVIDE THE MONITORING FREQUENCY:		Continuous	Continuous
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	Continuous signal is recorded by process computer.
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Temperature is recorded continuously and averaged over each batch (during the period when vapors are vented to the condenser).	Temperature is recorded continuously and averaged over each batch (during the period when vapors are vented to the condenser).

CAM MONITORING APPROACH CRITERIA				
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.				
7a) PSEU DESIGNATION: U275 Dispersants Process: Reactor 275-27-0216	**7b) POLLUTANT:** HCl		**7c) INDICATOR NO. 1:** Water flow to scrubber 33-0220	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:			Continuous monitoring of water flow to scrubber.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:			Efficiency calculations indicate that a flow of at least 10 gal/min will achieve >99% control of HCl. Average flow of less than 10 gal/min triggers an alarm. (Normal flow to this scrubber is 15 gal/min.)	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:			The QIP Threshold is two excursions in a six month period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:			Flow meter is located in the water line leading to the scrubber.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			Failure of the flow meter would result in a "low flow" alarm and a "fail" alarm. Process is interlocked so that it cannot enter the chlorination step unless there is water flow to the scrubber (and indication of water flow).	

PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		PM is scheduled on an annual basis. During PM, the instrument is checked to see that electronics are functioning properly, check coil frequency, and verify parameters and range of output.	
PROVIDE THE MONITORING FREQUENCY:		Continuous	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		Continuous signal is recorded by process computer.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:		Temperature is recorded continuously and averaged over each batch (during the period when vapors are vented to the condenser).	

CAM MONITORING APPROACH CRITERIA			
COMPLETE THIS SECTION FOR **EACH** PSEU THAT IS SUBJECT TO CAM. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL AS EXHIBIT 464-8 WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOS.			
7a) PSEU DESIGNATION: U275 Boric acid storage	**7b) POLLUTANT:** PM	**7c) INDICATOR NO. 1:** Visible emissions	**7d) INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATOR:		The baghouse will be observed for indication of visible emissions.	
ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OFCOMPLIANCE:		The indicator range is no visible emissions.	
PROVIDE QUALITY IMPROVEMENT PLAN (QIP) THRESHOLD LEVELS:		The QIP threshold is four excursions in a six-month reporting period.	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION AND INSTALLATION SPECIFICATIONS:		Visual measurements are made from the street, at a location which has best visibility of the emission point.	
PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:		Not applicable	
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, CONSIDERING MANUFACTURER'S RECOMMENDATIONS:		Not applicable; failure of the baghouse would be clearly evident to all observers.	

PROVIDE THE MONITORING FREQUENCY:	Ongoing; part of normal daily duties. Formal observation will be performed and documented on a monthly basis.	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:	Record of monthly observations will be maintained. No other data will be collected unless failure of the baghouse is identified; if this happens, a work order will be submitted for repair	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OF EXCEEDANCE HAS OCCURRED:	not applicable	

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