ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR
DIVISION of AIR POLLUTION CONTROL
PERMIT SECTION

PROJECT SUMMARY for the
DRAFT CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT

Afton Chemical Corporation
501 Monsanto Avenue
Sauget, Illinois 62201

Illinois EPA ID Number:	163121AAB
Application Number:	95120012
Application Type:	Permit Appeal
Start of Public Comment Period:	February 5, 2009
Close of Public Comment Period:	March 7, 2009
Permit Engineer/Technical Contact:	Michael T. Reed, 217/782-2113
Community Relations/Comments Contact:	Brad Frost, 217/782-7027

I. INTRODUCTION

This source appealed the Initial Clean Air Act Permit Program (CAAPP) operating permit. The CAAPP is the program established in Illinois for operating permits for significant stationary sources as required by Title V of the federal Clean Air Act and Section 39.5 of Illinois' Environmental Protection Act. The Conditions in a CAAPP permit are enforceable by the Illinois Environmental Protection Agency (Illinois EPA), the USEPA, and the public. This document is for informational purposes only and does not shield the Permittee from enforcement actions or its responsibility to comply with applicable regulations. This document shall not constitute a defense to a violation of the Act or any rule or regulation.

A CAAPP permit contains Conditions identifying the applicable state and federal air pollution control requirements that apply to a source. The permit also establishes emission limits, appropriate compliance procedures, and specific operational flexibility. The appropriate compliance procedures may include monitoring, record keeping, and reporting to show compliance with these requirements. The Permittee must carry out these procedures on an on-going basis to demonstrate that the source is operating in accordance with the requirements of the permit. Further explanations of the specific provisions of the CAAPP permit and the changes to the CAAPP that resulted from the appeal are contained in the attachments to this document, which also identify the various emission units at the source.

II. GENERAL SOURCE DESCRIPTION

a. Nature of source

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.

b. Ambient air quality status for the area

This source is located in an area that is designated non-attainment for the National Ambient Air Quality Standards for ozone and PM2.5 and attainment for all other criteria pollutants.

c. Major source status

This permit is issued based on the source requiring a CAAPP permit as a major source of Volatile Organic Material (VOM) and Sulfur Dioxide (SO_2) emissions. This permit is issued based on the source being a synthetic minor source of HAPs. See note in Condition 5.3 of this permit.

d. Source Emissions

The following table lists actual annual emissions (tons per year (tpy)) of criteria pollutants from this source, as reported in the Annual Emission Reports sent to the Illinois EPA.

Pollutant	**2007**	**2006**	**2005**	**2004**	**2003**
VOM	413.5	505.71	409.82	417.5	482
SO_2	72.8	78.01	65.4	84.4	121.26
Particulate Matter (PM)	5.91	5.75	5.67	5.58	5.4
Nitrogen Oxides (NO_x)	25.05	23.75	23.72	24.6	25.3
HAP, not included in VOM or PM (HCl)	1.3	1.42	1.2	1.16	1.03
Totals	518.6	614.6	505.8	533	634.83
Carbon Monoxide (CO)	8.57	8.77	11.23	15.6	16.6
HAP-(total Hexane and Methanol)*	375.7	473.4	359.4	364.6	430

* Note- These HAP's are included in the VOM reported. These are the two largest HAP's emitted over the four years shown above.

Permitted Emissions of Regulated Pollutants

Pollutant	Tons/Year
Volatile Organic Material (VOM)	97.17
Sulfur Dioxide (SO_2)	245.81
Particulate Matter (PM)	15.6
Nitrogen Oxides (NO_x)	45.3
HAP, not included in VOM or PM	2.67
Total	406.55

III. NEW SOURCE REVIEW / TITLE I CONDITIONS

This permit contains terms and Conditions that address the applicability of permit programs for new and modified sources under Title I of the Clean Air Act (CAA) and regulations promulgated thereunder, including 40 CFR 52.21, Prevention of Significant Deterioration (PSD) and 35 IAC Part 203, Major Stationary Sources Construction and Modification. Any such terms and Conditions are identified within the draft permit by T1, T1R, or T1N. Any Conditions established in a construction permit pursuant to Title I and not revised or deleted in this permit, remain in effect pursuant to Title

I provisions until such time that the Illinois EPA revises or deletes them. Where the source has requested that the Illinois EPA establish new Conditions or revise such Conditions in a Title I permit, those Conditions are consistent with the information provided during the appeal process and will remain in effect pursuant to Title I provisions until such time that the Illinois EPA revises or deletes them.

a. ("T1") may be placed next to each condition initially established in a previously issued Title I permit and carried over from such permit without change;

b. ("T1R") will be placed next to each condition initially established in a previously issued Title I permit, but revised in a combined Title 1/Title V permit;

c. ("T1N") will be placed next to each condition established under Title I of the Clean Air Act and set forth for the first time in the combined Title I/Title V permit.

The "T1" indicators, together with the statement,
"For purposes of Title I and corresponding State law, terms and conditions in the combined permit that were established or revised pursuant to Title I, whether previously in a separate Title I permit, or initially in the combined Title I/Title V permit, do not expire."
establish the permanency of the Title I conditions.

IV. COMPLIANCE INFORMATION

The source has certified compliance with all applicable rules and regulations for the following emission units;

- Section 7.1, 7.2, 7.3, 7.4, 7.5 (doesn't exist), 7.6, 7.7, 7.8, 7.9, 7.10, 7.11, 7.12, 7.14, 7.15, 7.16, 7.17, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.24, 7.25, 7.26, 7.27

therefore, a compliance schedule is not required for the emission units in these Sections. Also for the above emission units, the Annual Emission Report and latest inspection report have been reviewed which indicate compliance.

For the emission units in Section 7.13, a compliance schedule is required and this schedule has been incorporated as the result of a consent order. See People v. Afton Chemical, No. 05 CH 1258 (St. Clair County), entered July 20, 2007.

In addition, the draft permit requires the source to certify its compliance status on an annual basis.

V. PROPOSED ILLINOIS EPA ACTION/REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that this source's permit application meets the standards for issuance of a CAAPP permit. The Illinois EPA is therefore proposing to issue a CAAPP permit, subject to the Conditions proposed in the permit.

Comments are requested by the Illinois EPA for the permit, pursuant to 35 IAC Part 252 and Sections 39.5(8) and (9) of the Illinois Environmental Protection Act. A

final decision on the permit will not be made until the public, affected states, and USEPA have had an opportunity to comment. The Illinois EPA is not required to accept recommendations that are not based on applicable requirements. If substantial public interest is shown in this matter, the Illinois EPA will consider holding a public hearing in accordance with 35 IAC Part 166.

ATTACHMENT 1: Summary of Source-Wide Requirements

a. The following table indicates the source-wide emissions control programs and planning requirements that are applicable to this source. These programs are addressed in Sections 5 and 6 of the draft permit.

Program/Plan Applicable
Emissions Reduction Market System (ERMS): Not applicable
Nitrogen Oxides (NO_x) Trading Program: Not applicable
Acid Rain Program: Not applicable
Fugitive Particulate Matter (PM) Operating Program: Not applicable
Risk Management Plan (RMP): Yes
PM10 Contingency Measure Plan: Not applicable
HAP Emissions from Equipment Leaks: Yes
General Operation and Maintenance Requirements: Yes
HAP Emissions from Benzene-Containing Waste: Yes

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].

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)].

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 the Hazardous Organics National Emission Standards for Hazardous Air Pollutants (NESHAP)(HON) affected units that meet the applicability criteria of 40 CFR 63.160(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 lbs/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. 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. In particular, Permit 82120030 was an Alternative Control Strategy (ACS), originally issued on August 10, 1983, providing that in lieu of controlling SO_2 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].

Emissions of Hazardous Air Pollutants (HAP) 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.

The emissions of HAP from the source shall not exceed 0.95 tons/month and 9.5 tons per year of any individual HAP or 2.5 tons/month and 24.5 tons per year of any combination of such HAPs.

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: These limits to less than major source thresholds for HAPs was granted on April 25, 2008 in Construction Permit #06020100 (See section 7.19 of the CAAPP permit for more detail).

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

Pollutant	Emissions (Tons/Mo)	(Tons/Year)	Underlying Rules
CO	4.6	37.0	40 CFR 52.21
NO_x	1.0	8.2	40 CFR 52.21
VOM	1.8	14.0	35 IAC Part 203
SO_2	14.5	114.3	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].

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

Pollutant	Emissions (Tons/Mo)	(Tons/Year)	Underlying Rules
CO	0.5	4.2	40 CFR 52.21
NO_x	0.1	0.72	40 CFR 52.21
VOM	0.1	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].

d. Permit Appeal Modifications

3.1.2 – The list of insignificant activities include the Unit 266 tanks that were reclassified as insignificant sources under 35 IAC 201.210(a)(2) or (a)(3). This is consistent with the changes made to Condition 7.9.

4.0 – The Unit 275 Therminol Furnace was replaced in 2006 with a 3.5 mmBtu/hr unit, as permitted by Construction Permit 05090001. Consistent with this construction, this Unit has been added to this Section, and the date of construction was changed to 2006. Also, the new scrubber identified in construction Permit 05-0509 has been changed to scrubber 33-1300 and new third stage reactor, 27-2303 has been added. This change is reflected in Section 7.10 as well. Air strippers have been removed from the table.

Unit 270 Processes – Therminol Furnace 15-0801 has been added.

5.2.5(a) - Clarified that only Subtitle B of 35 IAC is applicable to this permit; previously only referenced 35 Illinois Administrative Code.

5.2.7(a) & (c) - Revised the last sentence to clarify that the provisions of 40 CFR 63, Subpart H are only applicable to HON affected units that meet the applicability criteria of 40 CFR 63.160(a). The permit previously referenced “benzene-containing hazardous waste” and now merely references “benzene-containing waste.” Benzenesulfonic acid has been changed to alkylbenzene in 5.2.7(c).

5.5.1 - Revised table of emission limits to be consistent with revised Form 292-CAAPP in the renewal application. VOM emissions are now limited to 97.17 tpy rather than 833.09 tpy. Sulfur dioxide emissions are limited to 245.81 tpy, previously 359.04

tpy. Particulate matter emissions are limited to 15.6 tpy, previously 12.82 tpy. Nitrogen oxide emissions are limited to 45.3 tpy, previously 38.77 tpy. HAP emissions not included in VOM or PM is now limited to 2.67 tpy. Total emissions are limited to 406.55 tpy, previously 1247.84 tpy.

5.5.3(a) and (b) - Limits for flare emissions were expressed in tons/yr and lbs/hour for Flare 36-0011/36-0610 (36-0610 has been added). Because Afton has several batch processes venting to the flare, the source did not find the lbs/ hour limit workable. This short-term limit was changed to a monthly limit. The limit for CO is set at 4.6 tons/month and 37.34 tons/year; the short term limit for NOx is 1.0 tons/month and 6.86 tons/year; the VOM limit is 1.8 tons/month and 34.06 tons/year; and the SO2 limit, which has been added, is 14.5 tons/month and 101.05 tons/year. These limits continue to ensure that the construction and/or modification to previously issued Permit 98100080 does not constitute a new major source or major modification.

5.5.3(c) – Annual limits expressed as tons/month and tons/year for flare emissions from Flare 36-0219 have been included in this Condition to ensure emissions are below levels that would trigger PSD.

ATTACHMENT 2: Summary of Requirements for Specific Emission Units

The following tables include information on the requirements that apply to significant emission units at this source. The requirements are found in Section 7 of the draft permit, which is further divided into subsection, i.e., Section 7.1, 7.2, etc., for the different categories of units at the source. A separate table is provided for each subsection in Section 7 of the draft permit. An explanation of acronyms and abbreviations is contained in Section 2 of the draft permit.

Periodic Monitoring Discussion

Periodic monitoring for this permit is generally driven by regulations where monitoring requirements have already been established. For example, 35 IAC 219, Subpart V – Batch Operations where monitoring for flares and other control devices is established. Where monitoring has not been established by regulation, this permit generally relies on recordkeeping and reporting to establish periodic monitoring as the remainder of the emission units are all not likely to violate an emission standard and generally do not use add on controls to maintain compliance. Reference Attachment 4 for a more detailed discussion.

Prompt Reporting

Standard Prompt Reporting has been used for this permit. Reference Attachment 3.

Emission Unit (Section 7.1)

Name Production Lines: Unit 258: Batch Reactor Trains

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.

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	

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.301
- 35 IAC 219.122(b)
- 35 IAC 219.301
- 35 IAC 219.500(d)
- 40 CFR 61, Subpart FF
- 40 CFR 63, Subpart F
- 40 CFR 63, Subpart G
- 40 CFR 63, Subpart H
- Malfunction/Breakdown Authority

Title I Conditions

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

VOM Emissions (Tons/Month)	(Tons/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 Specifically, the short term limit was changed from an hourly basis to a monthly basis [T1R].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.1.4)

- 35 IAC 219, Subpart B
- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR
- 40 CFR 60, Subpart Kb
- 40 CFR 60, Subpart VV
- 40 CFR 60, Subpart NNN
- 40 CFR 60, Subpart RRR
- 40 CFR 61, Subpart J & V
- 40 CFR 61, Subpart Y

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.2)

Name Production Lines: Drum Washing Station

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

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.301
- 35 IAC 212.314
- 35 IAC 212.123(a)

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit;

Emission Unit (Section 7.3)

Name Production Lines: Sulfonator

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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.301
- 35 IAC 214.303
- 35 IAC 219.301
- Startup Provisions

Title I Conditions

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

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

These limits are based on average SO2 concentrations of 50 ppm during normal operating Conditions, and 1900 ppm during scrubber malfunction or breakdown. The above limitations were established in Permit 96050095, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). [T1].

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].

VOM emissions from the affected Unit 258 sulfonation process shall not exceed 1.0 tons 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.

Nonapplicability (reasons are clearly stated in the permit at Condition 7.3.4)

- 35 IAC 219, Subpart V
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.3.3(c)(ii) – The typographical error in this Condition has been corrected to accurately reflect the 45.4 grams per hour limit of 35 IAC 214.303.

7.3.6 – Condition 7.3.6 was reconciled with 7.3.9(b)(iv) so that short-term limits are expressed in tons/month in both Conditions.

7.3.9 - The records relating to the sulfonation process for Unit 258 were changed to lbs/month and lbs/year rather than in batches.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

x Parametric monitoring that provides a reasonable assurance of compliance

Rationale for Periodic Monitoring

x Add-on controls are necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit;

Emission Unit (Section 7.4)

Name Production Lines: Unit 258: ABSA Receiver Tank
Description: The ABSA Receiver tank is used for the storage of alkylbenzene sulfonic acid manufactured in Unit 258.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301

Nonapplicability (reasons are clearly stated in the permit at Condition 7.4.4)

- 35 IAC 219, Subpart B

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Technical and economic considerations associated with the range of possible monitoring methods; and

Emission Unit (Section 7.6)

Name Production Lines: Unit 258: Still
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.301
- 35 IAC 219.301
- 35 IAC 219.500(d)

Nonapplicability (reasons are clearly stated in the permit at Condition 7.6.4)

- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR
- 40 CFR 61, Subpart FF

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.7)

Name Production Lines: Unit 258: Filter Aid Weigh Bins
Description: The weigh bins are used for storage and distribution of filter aid for the calcium sulfonate process.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.322(a)

Permit Appeal Modifications

7.7.9 – The Illinois EPA modified wording to allow Afton to record maximum operating rate/time in lieu of actual. (This change also affected Conditions 7.21.9, 7.23.9, and 7.24.9 of the permit). Afton provided the State with information concerning the source's maximum theoretical emission rates and demonstrated that allowable emissions cannot be exceeded at these maximum theoretical rates; thus, Afton can record its maximum operating time. In the compliance section of the permit, (7.7.12, 7.21.12, 7.23.12, and 7.24.12) the State added a statement that the emissions for the sources will be based on maximum possible operating time (8,760 hours/year) multiplied by the maximum operating rate.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit;

Emission Unit (Section 7.8)

Name Production Lines: Unit 266: Batch Reactor Trains
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.

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	

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.321(a)
- 35 IAC 214.383(a) & (c)-(d)
- 35 IAC 219.301
- 35 IAC 219.302
- 35 IAC 219.500(d)
- Malfunction Breakdown Provisions

Title I Conditions

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

Equipment	VOM Emissions (Tons/Month)	(Tons/Year)
Vacuum Pump Vent	0.7	7.0
Unit 266 Operations	---	5.80

These limits are based on the maximum emission estimates using material balance equations. The annual Unit 266 VOM limit includes emissions from the flare, fugitive emissions, and emissions from storage tanks listed in Section 7.9. The above limitations were established in Permits 95090198 and 98100080, pursuant to 35 IAC Part 203. [T1].

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

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

10.77 107.7

These limits are based on an emission factor of 0.046 lbs 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 lbs/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. The above limitations were established in Permit 98100080, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD) [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.8.4)

- 35 IAC 214.301
- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.8.2 – The Illinois EPA revised the list of emission control equipment to change listing for “Flare 36-0011” to “Flare 36-0011/36-0610”

7.8.5(d) – Compliance shall now 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...” Reference to compliance via “material balance data” has been eliminated.

7.8.5(d)(iii), 7.8.9(f)(iv) – The requirement to maintain temperature records “at the outlet of the secondary scrubber” in Unit 280 was changed to require temperature monitoring of the scrubber hold tank.

7.8.6(a) – Allowable emissions were deleted as the vent no longer exists. The phrase “material balance” was changed to “engineering calculation.”

7.8.6(b) – SO_2 emission limits were reduced to 30.08 tpy and 3.01 tons per month to be consistent with Construction Permit #03080019 and recent testing that demonstrated greater than 99% efficiency.

7.8.9(f)(i) and (ii) – Previous Condition 7.8.9(g)(i) pertaining to records of operation and emissions of the emissions control devices has been modified consistent with 7.8.5(d). 7.8.9(f)(ii) has been revised from gal/hr to gal/min.

7.8.12(b) – The State modified Condition 7.8.12(b) consistent with the discussion of 7.8.5(d), i.e., compliance to be determined based on engineering calculations rather than material balance equations.

7.8.12(c) - The reference to the malfunction and breakdown provision in this Condition was changed to appropriately reference 7.8.3(f) rather than 7.8.3(e).

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.9)

Name Production Lines: Unit 266: Storage Tanks
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301

Title I Conditions

VOM emissions from Tank 35-0300 shall not exceed 0.48 tons 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. The above limitations contain revisions to previously issued Permit 95090198. 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].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.9.4)

- 35 IAC 219, Subpart B

Permit Appeal Modifications

7.9 - Several Unit 266 storage tanks were classified as insignificant activities but were listed as emission units in Condition 7.9. The Illinois EPA reclassified these units as insignificant activities leaving Tank 35-0300 in Condition 7.9. Consistent with this modification, the VOM emission limitation for Tank 35-0300 in Condition 7.9.6 was changed to 0.48 tpy.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

- Monitoring, process, maintenance, or control equipment data already available for the emission unit;
- Technical and economic considerations associated with the range of possible monitoring methods; and

Emission Unit (Section 7.10)

Name Production Lines: Unit 280: Batch Reactor Trains
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.

Emission Unit	Description	Emission Control Equipment
27-0201	First Stage SIB Reactor	HCl Scrubbers, Flare 36-0011/36-0610
27-0301	Second Stage SIB Reactor	Condensers, H_2S Scrubber System (33-2421, 33-2422, and 05-0509), Flare 36-0011/36-0610
27-0302	Second Stage SIB Reactor	
27-2501	Brine Acidifier	H_2S Scrubber System (33-2421, 33-2422, and 05-0509), Flare 36-0011/36-0610

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.383(a) & (c)-(d)
- 35 IAC 219.301
- 35 IAC 219.302
- 35 IAC 219.500(d)
- Malfunction Breakdown Provisions

Title I Conditions

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

Pollutant	Emissions (Tons/Month)	(Tons/Year)
VOM	4.0 lbs/batch	4.8
H_2S	0.35	3.5
PM	0.1	1.0

These limits are based on the maximum emission estimates using material balance equations. The above limitations contain revisions to previously issued Permit 91080008. Specifically, the short term limit was changed from an hourly basis to a batch or monthly basis [T1R].

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

Pollutant	Emissions (Tons/Month)	(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

lbs/batch for periods when Scrubber 05-0509 is not in use and 13.66 lbs/batch for periods when Scrubber 05-0509 is operational. Controlled emissions are calculated based on the efficiency of the scrubber as determined using chemical engineering design principles. The above limitations were established in Permit 03080019, pursuant to PSD [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.8.4)

- 35 IAC 214.301
- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.10.2 – The Illinois EPA revised the list of emission control equipment to change listing for "Flare 36-0011" to "Flare 36-0011/36-0610".

7.10.2 – Control Device 05-0509 has been added to the Emission Control Equipment for emissions units 27-0301, 27-0302, and 27-2501.

7.10.3, 7.10.4 & 7.10.11 – Applicable requirements have been modified to allow for the flexibility of this Unit to operate in a "batch" or "continuous" mode.

7.10.5 – Construction Permit #07040080 limits for VOM have been added.

7.10.5(d) – Additional language was added to this Condition requiring that "[t]he 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".

7.10.5(f) – Construction Permit #07040080 limits for the number of batches has been added that allowed for a 25% increase.

7.10.5(d)(iii) & 7.10.9(f)(iv) – The requirement to maintain temperature records "at the outlet of the secondary scrubber" in Unit 280 was changed to require temperature monitoring of the scrubber hold tank.

7.10.6(a) – Construction Permit #07040080 limits have been added.

Consistent with the modification made in Condition 7.8.5(d), compliance shall now 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..." Reference to compliance via "material balance data" has been eliminated.

7.10.5(e) – Incorporates the requirement that Scrubber 05-0509 be operational for a minimum of 70 percent of the batches Unit 280 produces, on an annual basis, consistent with Permit 03080019.

7.10.5(f) – Consistent with Permit 03080019, annual production for Unit 280 shall not exceed 2,394 batches per year.

7.10.6(a) & 7.10.9(e)(iv) – The lbs/hour limits and the recordkeeping requirements for H2S and PM was changed to tons per month and tons per year.

7.10.6(b) – This Condition was revised to incorporate the new limits set by Construction Permit 03080019, issued on February 6, 2004.

7.10.7 – Reference to 7.10.5(e) was changed to 7.10.5(b).

7.10.8 – This Condition includes additional monitoring requirements for Scrubber 05-0509.

7.10.9(f)(v) and (vi) - Previous Condition 7.10.9(g)(i) pertaining to records of operation and emissions of the emissions control devices has been modified consistent with 7.10.5(d).

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.11)

Name Production Lines: Unit 280: Tanks
Description: The storage tanks are used for the storage of process intermediates in Unit 280.

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)	

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301

Title I Conditions

VOM emissions from adduct storage tank 35-0107 shall not exceed 0.37 tons per year. This limit is based on the maximum emissions estimates using calculation procedures in Condition 7.11.12. The above limitations contain revisions to previously issued Permit 82120030. Specifically, the limit was increased by 0.27 tons per year [T1R].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.11.4)

- 35 IAC 219, Subpart B
- 40 CFR 60, Subpart Kb

Permit Appeal Modifications

7.11 – This Condition was modified to reflect the appropriate volume for Emission Unit 35-0107 at 15,000 gallons.

7.11.2 – The Illinois EPA revised the list of emission control equipment to change listing for “Flare 36-0011” to “Flare 36-0011/36-0610”.

7.11.6(a) - The T1 designation was changed to T1R with limits from the adduct storage tank 35-0107 changing from 0.1 to 0.55 tpy and .055 tpm. This limit continues to ensure that construction and/or modification in the previously issued Permit 82120030 does not constitute a new major source or major modification. Additional language was included to reflect the designation to T1R.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

- There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);
- Add-on controls are not necessary for the unit to meet the emission limit;
- Monitoring, process, maintenance, or control equipment data already available for the emission unit;
- Technical and economic considerations associated with the range of possible monitoring methods; and

Emission Unit (Section 7.12)

Name Production Lines: Unit 290: Tanks
Description: The storage tanks are used for the storage and blending of raw materials or products in Unit 290.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301
- 40 CFR 60, Subpart Kb

Title I Conditions

VOM emissions from the Tanks 35-0840, 35-0845, and 35-0850 shall not exceed 0.3 tons/month and 2.23 tons/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. The above limitations were established in Permit 96070097, pursuant to 35 IAC Part 203 [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.12.4)

- 35 IAC 219, Subpart B

Permit Appeal Modifications

7.12.3(d) – Recent amendments to 40 CFR 60, Subpart Kb were incorporated into this permit.

7.12.5(c) – A production limit that had been established in Permit 96070097 was added to this permit.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.13)

Name Production Lines: Unit 290: Batch Reactor Trains
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.383(a) & (c)-(d)
- 35 IAC 219.301
- 35 IAC 219.302
- 35 IAC 219.500(d)
- Malfunction Breakdown Provisions

Title I Conditions

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. The above limitations were established in Permit 94110112, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD) [T1].

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. The above limitations were established in Permit 94110112, pursuant to 35 IAC Part 203.

HAP and PM emissions from all affected thiadiazole manufacturing operations shall not exceed the following limits:

Pollutant	Emissions (Lbs/Batch)	(Tons/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.

Nonapplicability (reasons are clearly stated in the permit at Condition 7.13.4)

- 35 IAC 214.301

- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.13.2 – The Illinois EPA revised the list of emission control equipment to change listing for “Flare 36-0011” to “Flare 36-0011/36-0610”.

7.13.6(c) – The limit for hydrazine was changed to 2.64 lbs/batch and the limit for PM was changed to 0.26 lbs/batch. The previous emission limit was set in pounds per hour. The revisions do not modify the long-term (tons/year) limits for hydrazine and/or PM.

7.13.13 – Compliance Plan has been updated to reflect resolution of an enforcement action against Afton in People v. Afton Chemical, No. 05-CH-1258 (St. Clair County). A Consent Decree was entered on July 20, 2007. In addition, the Compliance Plan has been updated to reflect the current status of the PSD permitting action and has been modified to include the submittal of additional information as necessary throughout the pendancy of the processing of the application. Progress reports have also been required as well.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.14)

Name Production Lines: Unit 290: Carbon Disulfide Tank
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 CS2 recovery system and the Unit 266 flare. When the Unit 290 processes are not in operation, the tank vents directly to the flare.

Emission Unit	Description	Emission Control Equipment
35-0125	Carbon Disulfide Storage Tank (30,000 Gallons)	CS_2 Recovery System, Flare 36-0011/ 36-0610

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301
- 40 CFR 60, Subpart Kb

Title I Conditions

Emissions from Tank 35-0125 controlled by the recovery system and flare shall not exceed the following limits:

Scenario	VOM Emissions (Carbon Disulfide) (Tons/Month)	(Tons/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. The above limitations were established in Permit 94110112, pursuant to 35 IAC Part 203.

Nonapplicability (reasons are clearly stated in the permit at Condition 7.14.4)

- 35 IAC 219, Subpart B

Permit Appeal Modifications

7.14.2 – The Illinois EPA revised the list of emission control equipment to change listing for “Flare 36-0011” to “Flare 36-0011/36-0610”.

7.14.3(d) - Recent amendments to 40 CFR 60, Subpart Kb were incorporated into this permit.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.15)

Name Production Lines: Unit 290: Wastewater Hold Tank
Description: In the wastewater hold tank, bleach is used to neutralize the thiadiazole wastewater. Carbon drums are used for odor control.

Emission Unit	Description	Emission Control Equipment
35-0300	Wastewater Hold Tank	Carbon Drums

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.301

Title I Conditions

VOM emissions from the affected Unit 290 wastewater tank shall not exceed 0.03 tons/year. This limit is based on the operating limit in Condition 7.15.5 and the calculation procedures in Condition 7.15.12. The above limitations were established in Permit 96020087, pursuant to 35 IAC Part 203 [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.15.4)

- 35 IAC 219, Subpart B
- 35 IAC 219, Subpart V

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit;

x Technical and economic considerations associated with the range of possible monitoring methods; and

Emission Unit (Section 7.16)

Name Production Lines: Unit 267: Batch Reactor Trains
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.383(a) & (c)-(d)
- 35 IAC 219.301
- 35 IAC 219.302
- 35 IAC 219.500(d)
- Malfunction Breakdown Provisions

Title I Conditions

VOM emissions from the affected Unit 267 reactor systems shall each not exceed the following limits:

Equipment	VOM Emissions (Lbs/Batch)	(Tons/Year)
Reactor 27-0125	0.33	0.22

These limits are based on control by a dual carbon adsorption unit and a flare and negligible emission rates. The above limitations contain revisions to previously issued Permit 88100040. Specifically, the short term limit was changed from an hourly basis to a batch basis [T1R].

VOM emissions from Reactors 27-0117, 27-0118, and 27-0119 shall not exceed 23.2 lbs/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. The above limitations contain revisions to previously issued Permit 01100043. Specifically, the annual limit was increased from 0.01 tons/year for one particular product in Reactor 27-0117 to 6.2 tons per year for all products in all three reactors. This does not represent an increase in actual emissions, but the inclusion of previously unlimited emissions [T1R].

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. The above limitations contain revisions to previously issued Permit 01100043. Specifically, the short term limit was changed from an hourly basis to a batch basis [T1R].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.16.4)

- 35 IAC 214.301
- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.16 – This Condition has been restructured so that emissions from three reactors, 27-0117, 27-0118, 27-0119, have one set of emission limits.

7.16.2 – The Illinois EPA revised the list of emission control equipment to change listing for "Flare 36-0011" to "Flare 36-0011/36-0610"

7.16.5(d), 7.16.6(b), 7.16.9(f)(vi) & 7.16.11 - The hours per year operating limit for Reactors 27-0117 and 27-0118 was replaced with a batch per year limit of 1800 for Reactors 27-0117, 27-0118 and 27-0119. VOM emissions from the three reactors were limited to no more than 23.2 lbs/batch (each) and 6.2 tpy (total). Records of operation and emissions of the affected Unit 267 reactor system includes the operating rate for each product manufactured in Reactors 27-0117, 27-0118 and 27-0119 in either hours per year or batches per year. Operational flexibility is provided through the use of a variety of raw materials and finished products so long as the changes do not result in a violation of 7.16.5 and 7.16.6.

7.16.9(f)(i) - tons/month and tons/year have been changed to batches/month and batches/year.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source's compliance with a particular applicable requirement

Emission Unit (Section 7.17)

Name Production Lines: Unit 267: Storage Tanks
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 xylene storage tank.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301

Title I Conditions

Combined VOM emissions from storage tanks 35-0006 and 35-0190 shall not exceed 0.1 tons per month and 0.88 tons per year. This limit is based on the maximum emissions estimates using calculation procedures in Condition 7.17.12. The above limitations contain revisions to previously issued Permit 73021389. Specifically, the short term limit was changed from an hourly basis to a monthly basis [T1R].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.17.4)

- 35 IAC 219, Subpart B
- 40 CFR 60, Subpart Kb

Permit Appeal Modifications

7.17.1 – Carbon drums have been deleted from the xylene tank because they are on the dicyclopentadiene storage tank.

7.17.6(a) – The limits for the Unit 267 storage tank were changed from 1b/hour to tons/month to be consistent with the limits for other storage tanks under the Title V permit. These limits continue to ensure that the construction and/or modification addressed by this Condition does not constitute a major new source or major modification.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

- There is a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);
- Add-on controls are necessary for the unit to meet the emission limit;
- Monitoring, process, maintenance, or control equipment data already available for the emission unit;

Emission Unit (Section 7.18)

Name Production Lines: Unit 268: Batch Reactor Trains
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.301
- 35 IAC 219.500(d)

Title I Conditions

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.

The above limitations were established in Permit 99050081, pursuant to 35 IAC Part 203 [T1].

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.

The above limitations were established in Permit 06060037, pursuant to 35 IAC Part 203 [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.18.4)

- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.18.5(d) – This Condition was added to include the limit established in Permit 06060037 limiting production in specialty blends reactors 27-100, 27-200 and 27-300 in Unit 268B to no more than 50 million lbs/year of product.

7.18.6(b) – This Condition was added to accurately reflect the requirements of Construction Permit 06060037. VOM emissions from Specialty Blends Reactors 27-100, 27-200 and 27-300 shall not exceed 2.25 tpy and ensure compliance with 35 IAC Part 203.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement

Emission Unit (Section 7.19)

Name Production Lines: Unit 270: Batch Reactor Trains
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.

Emission Unit	Description	Emission Control Equipment
27-0401	Metallizer Reactor	Condenser 17-0409, DCC 05-0416
27-0402	Metallizer Reactor	Condenser 17-0410, DCC 05-0417
27-0900	Metallizer Reactor	Condenser 17-0905, DCC 05-0908
501	Methanol Still Column	Condenser 17-0502, Condenser 17-0611
27-0403	Metallizer Reactor	Condenser 17-0411, Scrubber 33-0418
27-0205	Reactor	Condenser, Scrubber, Flare 36-0219
27-0206	Reactor	
21-0522	Air Stripper	None
21-0523	Air Stripper	None

Applicable Rules and Requirements

Emission Standards

- 35 IAC 214.301
- 35 IAC 219.301
- 35 IAC 219.302
- 35 IAC 219.500(d)

Title I Conditions

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.

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.

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
Individual HAP (Other than Methanol or n-Hexane)	0.2	1.0
Total HAPs	2.5	15.0

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

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].

VOM emissions from the reactors shall not exceed the following:

	VOM Emissions	
Equipment	(Lbs/Batch)	(Tons/Year)
Reactors 27-0401, 27-0402, 27-0403, and 27-0900	1,250	750

These limits are based on the maximum emissions estimates using calculation procedures in Condition 7.19.12. The above limitations contain revisions to previously issued Permit 85060020. Specifically, the emission limits for the four reactors were combined and the annual limit was reduced by 193.9 tons per year. In addition, the short term limit was changed from an hourly basis (215.5 lbs/hr total) to a per batch basis [T1R].

HAP emissions from the Reactors 27-0401, 27-0402, 27-0403, and 27-0900 shall not exceed the following:

	HAP Emissions	
Pollutant	(Lbs/batch)	(Tons/Year)
Hexane	625	375
Methanol	625	375

These limits are based on the maximum production rate and a site-specific emission factor developed from a stack test conducted at the source. The above limitations contain revisions to previously issued Permit 72121045. Specifically, the short term limit was changed from an hourly basis (104.2 lbs/hr for each HAP) to a per batch basis. The above limitations were established in Permit 95030095, pursuant to 35 IAC Part 203 [T1].

Emissions of benzene, 2-ethylhexanol, and all other organic materials combined from the air strippers shall not exceed 33.6 lbs/week and 0.8 tons/year. These limits are based on negligible emission rates. The above limitations were established in Permit 95030095, pursuant to 35 IAC Part 203 [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.19.4)

- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

- 40 CFR 61, Subpart FF

Permit Appeal Modifications

7.19.2 – Scrubber 05-0418 is to be replaced with a new DCC, 33-0418. The new equipment number is accurately reflected in this Condition.

7.19.4(a) – Air strippers have been removed from the non-applicability section as they are no longer in existence at the source.

7.19.5(g) – Construction Permit 06020100 language has been added.

7.19.6(a-b) & 7.19.9(f)(iv) – 7.19.6(b) has been deleted. The short-term limits were changed from an hourly basis to a per batch basis. The tons/year limits remained in the permit for PSD purposes. The total VOM limit was reduced to the levels set for the total HAP limit; the annual limit was reduced by 193.9 tons per year. In addition, emissions from Unit 27-0403 were included in the total VOM limit and in the total HAP limit. Records are now required for malfunctions and breakdowns.

7.19.6(c) –Air strippers Title I conditions have been removed as they are no longer in existence at the source.

7.19.8(c) – Added a temperature monitoring requirement to assure compliance with conditions in 7.19.6. There is no need to require control efficiency monitoring as temperature is a good indicator of control efficiency for condensers.

7.19.12(b) - The compliance procedures no longer require a stack test but that compliance “is addressed” by material balance equations and “these calculations shall use actual solvent usage as a basis for the material balance”.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source’s compliance with a particular applicable requirement.

Emission Unit (Section 7.20)

Name Production Lines: Unit 270: Storage Tanks
Description: These storage tanks are used for the storage of hexane and methanol, which are used as reactants in Unit 270. A condenser is used for control of VOM emissions from the storage tanks.

Emission Unit	Description	Emission Control Equipment
35-0608	Recovered Hexane Storage Tank (14,000 Gallons)	Condenser 17-0611
35-0609	Recovered Hexane Storage Tank (3,500 Gallons)	Condenser 17-0611
35-0607	Fresh Hexane Storage Tank (7,070 Gallons)	Condenser 17-0611
35-0612	Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611
35-0116	Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611
35-0503	Methanol Column Surge Tank (735 Gallons)	Condenser 17-0611
35-0631	Recovered Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611
35-0632	Recovered Methanol Storage Tank (7,000 Gallons)	Condenser 17-0611
35-2113	Fresh Methanol Storage Tank (20,000 Gallons)	Condenser 17-0611
35-0610	Recovered Solvents Storage Tank (9,600 Gallons)	Condenser 17-0611

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(b)
- 35 IAC 219.129(f)
- 35 IAC 219.301

Title I Conditions

VOM emissions from the following storage tank vents controlled by Condenser 17-0611 shall not exceed the following limits:

Storage Tanks	VOM Emissions (Tons/Month)	(Tons/Year)
35-0116, 35-0607, 35-0608, 35-0610, 35-0612, 35-0631, 35-0632, and 35-2113	1.5	13.6

These limits are based on the maximum emissions estimates using calculation procedures in Condition 7.20.12. The above limitations contain revisions to previously issued Permits 85060020 and 88020080. Specifically, the annual limit was revised to include Tank 35-0610 from Permit 88020080 without changing the numerical limit in Permit 85060020, which is effectively a reduction in the allowable emissions of 0.7 tons/year [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.20.4)

- 35 IAC 219, Subpart B
- 40 CFR 60, Subpart Kb

Permit Appeal Modifications

7.20.6(a) - The grouping of storage tanks are now limited by a monthly limit of 1.5 tons/month rather than a pound per hour limit. Tank 35-0610 is now included in the

listing of tanks in 7.20.6(a). The tons/year limit for this entire grouping of tanks has not changed.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit.

Emission Unit (Section 7.21)

Name Production Lines: Unit 270: Silos and Weigh Bins
Description: The silos and weigh bins are used for receiving, storage, and distribution of lime and filter aid for the overbased calcium sulfonate process.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.321(a)

Permit Appeal Modifications

7.21.3 (b) – The affected Unit 270 material handling unit is subject to 35 IAC 212.321 rather than 212.322.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Monitoring, process, maintenance, or control equipment data already available for the emission unit.

Emission Unit (Section 7.22)

Name Production Lines: Unit 275: Batch Reactor Trains
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.322(a)
- 35 IAC 219.301
- 35 IAC 219.500(d)

Title I Conditions

VOM emissions from the affected Unit 275 reactor systems (boronated dispersants) shall not exceed the following limits:

	VOM Emissions	
Equipment	(Tons/Month)	(Tons/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 lbs/batch. The above limitations were established in Permit 98090069, pursuant to 35 IAC Part 203 [T1].

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. The above limitation was established in Permit 93040038, pursuant to 35 IAC Part 203 [T1].

VOM emissions from the affected Unit 275 reactor systems (ashless dispersants) shall not exceed the following limits:

	VOM Emissions	
Equipment	(Tons/Month)	(Tons/Year)
Reactors 27-0201, 27-0211, 27-0216, 27-0501, 27-0511	0.3	3.1

The limits are based on the operating limits in Condition 7.22.5(d) and emission factors listed in Condition 7.22.12. The above limitations were established in Permit 05090001, pursuant to 35 IAC Part 203 [T1].

HAP emissions from the ashless dispersants production shall not exceed 0.1 lbs/hr and 0.44 tons per year. These limits are based on negligible emission rates and were established in Permit 05090001. The above limitations were established in Permit 05090001, pursuant to 35 IAC Part 203 [T1].

Nonapplicability (reasons are clearly stated in the permit at Condition 7.22.4)

- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart RR

Permit Appeal Modifications

7.22.5(d) – The production limits were revised to specify 300 batches/month and 4302 batches/year. An emission factor of 1.23 lbs/batch controlled was included in Conditions 7.22.6 and 7.22.12 of the permit.

7.22.6(a) – This Condition was modified to reflect that 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 lbs/batch.

7.22.6(c) and (d) – This Condition was added to reflect the VOM emission limits of 0.6 tons/month and 5.9 tons/year for the ashless dispersant process, Construction Permit 05090001. HAP emissions from the ashless dispersants production shall not exceed 0.1 lbs/hour and 0.44 tpy.

7.22.12 – This Condition clarifies that for compliance purposes, the source may use a controlled VOM emission factor of 1.23 lbs/batch for Reactor 27-0531 and a controlled VOM emission rate of 0.73 lbs/hour for Reactor 27-0216.

Periodic Monitoring

Category of Monitoring

x Already- required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source's compliance with a particular applicable requirement

Emission Unit (Section 7.23)

Name Production Lines: Unit 275: Storage Silos and Weigh Bins
Description: The weigh bins and silos are used for storage and distribution of filter aid and boric acid for the ashless dispersant processes.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.321(a)
- 35 IAC 212.322(a)

Permit Appeal Modifications

7.23.3(c) – This Condition states that the Unit 275 material handling units that process filter aid are subject to 35 IAC 212.322.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit.

Emission Unit (Section 7.24)

Name Production Lines: Cooling Towers
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.

Emission Unit	Description	Emission Control Equipment
39-0955	Unit 270 Cooling Tower	None
39-0227	Unit 280 Cooling Tower	None

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.301

Title I Conditions

VOM emissions from each affected cooling tower shall not exceed 1.1 tons per year. These limits are based on the design flow rate of the affected cooling towers and emission calculation procedures in Condition 7.24.12. The above limitations were established in Permit 93100090, pursuant to 35 IAC Part 203 [T1].

Nonapplicability (reason)

- 35 IAC 219, Subpart Q
- 35 IAC 219, Subpart TT

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit.

Emission Unit (Section 7.25)

Name Production Lines: Steam Boilers
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.123(b)
- 35 IAC 212.124
- 35 IAC 212.301
- 35 IAC 212.314
- 35 IAC 216.121
- 40 CFR 60, Subpart Dc

Title I Conditions

Emissions from the affected boilers shall not exceed the following limits:

	Pollutant Emissions	
Pollutant	(Lbs/Hour)	(Tons/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. The above limitations were established in Permit 98100084, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD) [T1].

Nonapplicability (reason)

- 35 IAC 217.141
- 35 IAC 219.301

Permit Appeal Modifications

7.25.12 – The emission factors for NO_x and CO, previously based on maximum emission limits, were changed to appropriately reflect the results of stack testing performed in 1998. These are 0.06 lbs NO_x per mmBtu and 0.003 lbs CO per mmBtu.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit.

Emission Unit (Section 7.26)

Name Production Lines: Loading Operations
Description: The Unit 290 loading operations include docks for loading wastewater condensate for offsite transport. Organic emissions and odors are controlled by carbon drums.

Emission Unit	Description	Emission Control Equipment
R-100	Unit 290 Truck Loading Docks (wastewater condensate)	Carbon Drums

Applicable Rules and Requirements

Emission Standards

- 35 IAC 219.122(a)
- 35 IAC 219.301
- 35 IAC 219.302(b)

Nonapplicability (reason)

- 35 IAC 219, Subpart TT
- 40 CFR 60, Subpart BB

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Monitoring, process, maintenance, or control equipment data already available for the emission unit;

x Technical and economic considerations associated with the range of possible monitoring methods.

Emission Unit (Section 7.27)

Name Production Lines: Therminol Furnaces
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.

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

Applicable Rules and Requirements

Emission Standards

- 35 IAC 212.321(a)
- 35 IAC 214.301
- 35 IAC 219.301
- 35 IAC 266.125

Title I Conditions

Emissions from Furnace 15-0701 shall not exceed the following limits:

	Pollutant Emissions	
Pollutant	(Tons/Month)	(Tons/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. The above limitations were established in Permit 05090001, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD) [T1].

Nonapplicability (reason)

- 35 IAC 216.121
- 35 IAC 217.121 & 217.141

Permit Appeal Modifications

7.27 – A new section incorporates Construction Permit 05090001 and the Unit 275 and Unit 270B Therminol Furnaces, into the Title V permit.

7.27.2 – This Condition reflects the Unit 275 furnace’s capacity at 3.5 mmBtu/hour.

7.27.3(d) – Because the furnace was replaced with a new unit, it is subject to 35 IAC 212.321 rather than 212.322. Both furnaces have been included in Condition 7.27.3(d).

7.27.6 – Based on Construction Permit 05090001, the NOx and CO emission limits for the new Unit 275 Therminol Furnace were included in the permit.

Periodic Monitoring

Category of Monitoring

x Record keeping and/or a permit limitation

Rationale for Periodic Monitoring

x There is not a likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);

x Add-on controls are not necessary for the unit to meet the emission limit;

x Monitoring, process, maintenance, or control equipment data already available for the emission unit.

ATTACHMENT 3: Prompt Reporting of Deviations

Prompt reporting of deviations is critical in order to have timely notice of deviations and the opportunity to respond, if necessary. The effectiveness of the permit depends upon, among other important elements, timely and accurate reporting. The Illinois EPA, USEPA and the public rely on timely and accurate reports submitted by the Permittee to measure compliance and to direct investigation and follow-up activities. Prompt reporting is evidence of a Permittee's good faith in disclosing deviations and describing the steps taken to return to compliance and prevent similar incidents.

Any occurrence that results in an excursion from any emission limitation, operating Condition, or work practice standard as specified in this CAAPP permit is a deviation subject to prompt reporting. Additionally, any failure to comply with any permit term or Condition is a deviation of that permit term or Condition and must be reported to the Illinois EPA as a permit deviation. The deviation may or may not be a violation of an emission limitation or standard. A permit deviation can exist even though other indicators of compliance suggest that no emissions violation or exceedance has occurred. Reporting permit deviations does not necessarily result in enforcement action. The Illinois EPA has the discretion to take enforcement action for permit deviations that may or may not constitute an emission limitation or standard or the like, as necessary and appropriate.

Section 39.5(7)(f)(ii) of the Illinois Environmental Protection Act, which mirrors 40 CFR 70.6(a)(3)(iii)(B), requires prompt reporting of deviations from the permit requirements. The permitting authority (in this case, Illinois EPA) has the discretion to define "prompt" in relation to the degree and type of deviation likely to occur. Furthermore, Section 39.5(7)(f)(i) of the Illinois Environmental Protection Act, which mirrors 40 CFR 70.6(a)(3)(iii)(A) requires that monitoring reports must be submitted at least every 6 months. Therefore, USEPA generally considers anything less than 6 months to be "prompt" as long as the selected time frame is justified appropriately (60 Fed. Reg. 36083, 36086 (July 13, 1995)).

The USEPA has stated that, for purposes of administrative efficiency and clarity, it is acceptable to define prompt in each individual permit. *Id.* The Illinois EPA has elected to follow this approach and defines prompt reporting on a permit by permit basis. In instances where the underlying applicable requirement contains "prompt" reporting, this frequency or a shorter frequency of reporting is the required timeframe used in this permit. Where the underlying applicable requirement fails to explicitly set forth the timeframe for reporting deviations, the Illinois EPA has developed a structured manner to determine the reporting approach used in this permit. The Illinois EPA generally uses a time frame of 30 days to define prompt reporting of most deviations. Also, for certain permit Conditions in individual permits, the Illinois EPA may require an alternate timeframe that is less than 30 days if the permit requirement justifies a shorter reporting time period. Under certain circumstances, EPA may establish a deviation reporting period longer than 30 days, but, in no event exceeding 6 months. Where it has established a deviation reporting period other than 30 days in an individual permit (specifically Section 7.x.10), the Illinois EPA has explained the reason for the alternative timeframe. (See Attachment 2 of this Project Summary.)

The timing for certain deviation reporting may be different when a source or emission unit at a source warrants reporting to address operation, independent of the occurrence of any deviations. This is the case for a source that is required to perform continuous monitoring for the emission unit, for which quarterly or semi-annual "monitoring" reports are appropriate. Where appropriate, reporting of

deviations has generally been combined in, or coordinated with these quarterly or semi-annual reports, so that the overall performance of the plant can be reviewed in a comprehensive fashion. This will allow a more effective and efficient review of the overall performance of the source by the Illinois EPA and other interested parties, as well as by the source itself. At the same time, there are certain deviations for which quicker reporting is appropriate. These are deviations for which individual attention or concern may be warranted by the Illinois EPA, USEPA, and other interested parties. Under this scenario, emphasis has been placed primarily on deviations that could represent substantial violations of applicable emission standards or lapses in control measures at the source. For these purposes, depending on the deviation, immediate notification may be required and preceded by a follow-up report submitted within 15 days, during which time the source may further assess the deviation and prepare its detailed plan of corrective action.

In determining the timeframe for prompt reporting, the Illinois EPA assesses a variety of criteria such as:

- historical ability to remain in continued compliance,
- level of public interest in a specific pollutant and/or source,
- seriousness of the deviation and potential to cause harm,
- importance of applicable requirement to achieving environmental goals,
- designation of the area (i.e., non-attainment or attainment),
- consistency among industry type and category,
- frequency of required continuous monitoring reports (i.e., quarterly),
- type of monitoring (inspection, emissions, operational, etc.), and
- air pollution control device type and operation

These prompt reporting decisions reflect the Illinois EPA's consideration of the possible nature of deviations by different emission units and the responses that might be required or taken for those different types of deviations. As a consequence, the conditions for different emission units may identify types of deviations which include but are not limited to: 1) Immediate (or very quick) notification; 2) Notification within 30 days as the standard; or 3) Notification with regular quarterly or semi-annual monitoring reports.

The Illinois EPA's decision to use the above stated prompt reporting approach for deviations as it pertains to establishing a shorter timeframe in certain circumstances reflects the criteria discussed as well as USEPA guidance on the topic.

- 40 CFR 71.6(a)(3)(iii)(B) specifies that certain potentially serious deviations must be reported within 24 or 48 hours, but provides for semi-annual reporting of other deviations. (Serious or severe consequences)
- FR Vol. 60, No. 134, July 13, 1995, pg. 36086 states that prompt should generally be defined as requiring reporting within two to ten days of the deviation, but longer time periods may be acceptable for a source with a low level of excess emissions. (intermediate consequences)
- Policy Statement typically referred to as the "Audit Policy" published by the USEPA defines prompt disclosure to be within 21 days of discovery. (Standard for most "pollutant limiting" related conditions)
- Responses to various States by USEPA regarding other States' definition of prompt.

As a result, the Illinois EPA's approach to prompt reporting for deviations as discussed herein is consistent with the requirements of 39.5(7)(f)(ii) of the Act as well as 40 CFR part 70 and the CAA. This reporting arrangement is designed so that the source will appropriately notify the Illinois EPA of those events that might warrant individual attention. The timing for these event specific notifications is

necessary and appropriate as it gives the source enough time to conduct a thorough investigation into the causes of an event, collecting any necessary data, and to develop preventative measures, to reduce the likelihood of similar events, all of which must be addressed in the notification for the deviation.

Attachment 4: Periodic Monitoring Discussion

The Illinois EPA must evaluate whether sufficient monitoring is contained in each facility's air operating permit to assure compliance with regulations developed to meet Clean Air Act requirements. Under EPA's permit program, periodic monitoring is required for each emission point at a source subject to Clean Air Act requirements. No emission points are categorically exempt from this requirement. An operating permit should first include monitoring as required by existing federal and state air pollution control requirements that apply to the facility – examples include monitoring required by new source performance standards (NSPS), national emission standards for hazardous air pollutants (NESHAP), state implementation plan rules, and EPA's compliance assurance monitoring rule. Second, the permit should include monitoring required under EPA's periodic monitoring rules. Permitting authorities must complete a review to determine if the monitoring required by the applicable requirement is "periodic". If it is not, they must use EPA's periodic monitoring rules to fix the problem. In most cases, monitoring in applicable requirements (e.g., NESHAP, NSPS) will be periodic and adequate.

In evaluating periodic monitoring, Illinois EPA determines whether a source's applicable requirements already contain adequate monitoring, and, if not, identify additional necessary monitoring after consideration of factors. Generally, periodic monitoring is needed for the following categories of emission units,

1) non-major units that use control devices,

2) non-major units with environmental justice concerns,

3) non-major units that have significant impacts on air quality or that could pose significant risks,

4) units for which the public raised significant concerns, and

5) units for which proposed permits have no monitoring.

The EPA's title V regulations at §§ 70.6(a)(3)(i)(B) and 71.6(a)(3)(i)(B) require that'

> "[w]here the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), [each permit must contain] periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to [§ 70.6(a)(3)(iii) or § 71.6(a)(3)(iii)]. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of [§ 70.6(a)(3)(i)(B) or § 71.6(a)(3)(i)(B)]."

Furthermore, §§ 70.6(c)(1) and 71.6(c)(1) require that each part 70 and 71 permit contain,

"[c]onsistent with paragraph (a)(3) of this section, compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit."

Periodic monitoring must be adequate to provide a reasonable assurance of compliance with requirements applicable to the source and with all permit terms and conditions over the anticipated range of operation. As described above, periodic monitoring must be evaluated and established as appropriate for each applicable requirement for which the present monitoring is nonexistent. In many cases, this will require a case-by-case, unit-by-unit, pollutant-by-pollutant analysis to devise an adequate monitoring scheme. However, in other cases, it may be appropriate to simply evaluate periodic monitoring for a "like" class of emission units and applicable requirements.

The periodic monitoring process begins by evaluating whether monitoring, including record keeping, reporting, or periodic testing, applies to the emissions unit in question under existing applicable requirements for that unit. If the already-required monitoring is sufficient to yield reliable data from the relevant time period and is representative of the source's compliance with a particular applicable requirement, then no further monitoring for that applicable requirement at that emission unit is required in the permit. If additional monitoring is required, then the Illinois EPA considers all of the relevant factors listed below, as well as other factors that may apply on a case-by-case basis, in order to arrive at the appropriate periodic monitoring methodology.

Those factors include:

- The likelihood of violating the applicable requirement (i.e., margin of compliance with the applicable requirement);
- Whether add-on controls are necessary for the unit to meet the emission limit;
- The variability of emissions from the unit over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic considerations associated with the range of possible monitoring methods; and
- The kind of monitoring found on similar emission units.

The process is informed at each step by the underlying purpose of periodic monitoring, to provide a reasonable assurance of compliance with the applicable requirement for the anticipated range of operations.

In many cases, the effectiveness of the periodic monitoring technique will be obvious as in the case of continuous emissions monitoring and will requires little additional documentation in this administrative record. At other times, a technical justification may be necessary.

"Relevant time period" from 40 CFR section 70.6(a)(3) and 40 CFR section 71.6(a)(3) is clarified to mean "*the averaging period of the applicable requirement.*" The "relevant time period" is not to be confused with the semi-annual reporting and annual compliance certification cycles also found in parts 70 and 71. For example, the relevant time period for many opacity requirements is 6 minutes. If an applicable requirement measures compliance with an SO_2 emission limit pursuant to a rolling 30-day average, then the relevant time period is a rolling 30-day period. In some cases, the applicable requirement may not expressly state an averaging time. For example, 40 CFR part 60, Subpart O limits particulate matter to 0.65 g/kg of dry sludge. However, the standard specifies that Method 5 shall be used and specifies the sampling time and volume for each run. In this example, the relevant time period would be the cumulative sampling time needed to perform the Method 5 test (e.g., 3 hours representing the cumulative sampling time of three 1-hour runs). In some cases the relevant time period is instantaneous. For example, if a work practice standard

requires a lid to be free of holes or cracks, a violation exists if the lid has a hole or crack for any amount of time.

However, it is important to note that the duration of periodic monitoring, in many instances, will not match the relevant time period of the applicable requirement. Instead, the duration of the monitoring simply needs to allow the results of the monitoring to relate to, that is, to provide an assurance of compliance during, the relevant time period. In this way, the requirement that periodic monitoring data be from the "relevant time period" is closely related to the requirement that the data be "representative of compliance." Data are "representative of compliance" if they allow for a reasonably supportable conclusion regarding the compliance status during each relevant time period.

For example, suppose that a boiler is subject to an SO_2 limit with a 1-hour averaging time and the source is using a low sulfur oil that would assure compliance with the limit. The periodic monitoring might consist of testing the oil purchased by the source. In this example, although the "relevant time period" is one-hour, it is obvious that neither the sampling nor analysis of the oil must occur for the full hour. Instead, it is clear that the results of an analysis of the sulfur content of a representative oil sample relate to the 1-hour averaging period of the limit for that fuel shipment, provided that the sulfur content is consistent.

Furthermore, periodic monitoring does not require that every "relevant time period" be monitored. Instead, the frequency of the monitoring would be determined during the periodic monitoring evaluation process. Take the example of a flare that is subject to the requirements of 40 CFR Section 60.18. The design requirements at section 60.18(c)(1) require that the flare 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. Compliance is determined by using Reference Method 22 with an observation period of 2 hours. Performing a Method 22 for every 2-hour period is neither practical nor necessary.

Several Federal rules, including certain NSPS and NESHAP subparts and Acid Deposition Control, already require source operators to install, maintain, operate, and quality assure continuous monitoring devices to directly measure emissions. Similarly, many SIPs and construction permits require such devices. Where the source has already installed a continuous emission monitoring system (CEMS), a predictive emission monitoring system (PEMS), or a continuous opacity monitoring system (COMS), such systems will be the periodic monitoring method except in highly unusual circumstances.

For example, most coal fired utility boilers are required to install, operate, maintain, and quality assure SO_2, NO_x, and CO_2 flow, and opacity monitoring equipment under the acid rain program. These monitoring systems are to be operated during all periods of operation, including periods of startup, shutdown, and malfunction, and during times when alternative fuels may be combusted. In these cases, the existing monitoring systems are to be specified as the periodic monitoring method for applicable requirements under the SIP and other requirements such as the NSPS. In nearly all cases, data from these monitoring systems provide the fundamental building blocks for determining compliance with different emissions limits and averaging times, at little or no additional cost. Further, since the acid rain program requires these monitoring systems to be operated at all times, including periods of time when the unit is combusting alternative fuels, the monitoring systems provide useful information that the source may use to verify compliance with the standards.

While it may be technically possible to craft different monitoring scenarios for each different operating condition, the Illinois EPA strives to minimize confusion where possible. For example, even though opacity and SO_2 emissions will likely never exceed the corresponding emission limitations when a coal-fired utility unit fires natural gas during periods of startup, shutdown, malfunction, or coal curtailment, data on opacity and SO_2 emissions should still be supplied during those periods using the COMS and SO_2 CEMS. The use of a single, standardized monitoring methodology allows the source, Illinois EPA, USEPA, and the general public to evaluate one set of compliance data.

While reference method tests and emission factors all play an important role in the air pollution control program, none of these methods constitutes periodic monitoring unless it provides reliable information at a frequency sufficient to provide a reasonable assurance of compliance with the applicable requirement. For example, a once-a-year stack test is not sufficient to assure compliance with a 3-hour emission limitation unless the source can provide additional parametric data to provide a reasonable assurance of compliance with the standard. Likewise, while AP-42 or other emission factors are helpful for estimating emission levels, they are generally not appropriate for determining compliance with an applicable requirement unless the factor has either been developed directly from the emission unit in question or substitutes for a proven mass-balance relationship. Further, monthly fuel sampling and analysis also may not be adequate for short-term emission limits where the fuel composition varies. In the event the permitting authority determines that shorter-term monitoring is technically infeasible or cost prohibitive, a less frequent sampling frequency may be established as long as the period is sufficiently representative of the source's compliance with the emission limitations. Otherwise, additional monitoring must be used to show compliance between stack tests.

Parametric monitoring that provides a reasonable assurance of compliance is also considered for periodic monitoring. The CAM rule is consulted for guidance on the type of parametric monitoring that might satisfy periodic monitoring. Information on parameter data that the source is already collecting and that could be used to indicate compliance is also considered.

When using parametric data to satisfy the periodic monitoring requirement, the permit specifies a range which will provide a reasonable assurance that the source is in compliance with the underlying requirement. Wherever possible, the proposed range is supported by documentation indicating a site-specific developed relationship between parameter indicator ranges and compliance with the emission limit, although it is not required that the range be set such that an excursion from the range will prove noncompliance with the associated limit. Operational data collected during performance testing is a key element in establishing indicator ranges; however, other relevant information in establishing indicator ranges would be engineering assessments, historical data, and vendor data. The permit includes some means of periodically verifying the continuing validity of the parameter ranges.

For example, the permit may require periodic stack testing to verify direct compliance with the applicable requirement. At the same time, the test data and other engineering information could be used to set the parameter ranges that will be used to determine compliance between tests. The permit specifies what happens when a parameter exceeds the established range. For example, the permit may specify whether excursion from the established range is considered a violation or whether it will instead trigger corrective action and/or additional monitoring or testing requirements to determine the compliance status of the source. Where documentation of a site-specific developed relationship between parametric monitoring and compliance with the emission limit is not possible because data are lacking and

because generation of such data are not feasible prior to issuance of the permit, it may be necessary to include in the permit milestones, including source testing, for establishing such relationship.

The Illinois EPA recognizes that periodic monitoring may take many forms other than the direct measurement of emissions or parametric monitoring, including record keeping and permit limitations. As stated earlier, the conclusion about what is appropriate periodic monitoring is reached by analyzing all relevant factors for each emission unit and each applicable requirement.

The maintenance of records, whether emission calculations, fuel content information, or some other relevant information, may be sufficient periodic monitoring for certain emission units, and applicable requirements. For example, record keeping of required work practices, pollutant content of fuel or raw material, and inspections of design or equipment specifications may satisfy periodic monitoring depending on the applicable requirements and the type of emission units.

As an example, many state rules establish particulate matter limitations based on a process-weight-rate table or formula. In cases where these limits can be met with minimal or no controls, it may be acceptable for the permitting authority to specify record keeping as adequate periodic monitoring because the likelihood that the source will exceed the emission limitation, even while operating at full load, is extremely low. In this case, retaining information on the material inputs to the process would constitute adequate periodic monitoring. Of course, if some level of control is necessary to comply with the standard, then the permit must either specify frequent measurement of particulate matter and/or collection of control equipment parameters to assure proper operation and maintenance of the control device.

Similarly, an enforceable permit limitation may constitute adequate periodic monitoring in the proper circumstances. For example, a permitting authority may conclude that the likelihood of violating an SO_2, particulate matter, or opacity emission standard for gas combustion units firing pipeline grade natural gas is virtually impossible as long as the unit is properly maintained and burns pipeline grade natural gas. Thus, appropriate periodic monitoring for this situation might consist of maintaining adequate records of fuel type and making the fuel type and the proper maintenance of the unit enforceable conditions of the permit. The Illinois EPA believes that there are many other combinations of requirements, emission units, raw materials and fuels, in addition to the two examples above, where record keeping and/or permit restrictions would satisfy the periodic monitoring requirement.

In situations where a particular class of “like” applicable requirements associated with “like” emission units would all require the identical periodic monitoring (e.g., all natural gas fired boilers needing record keeping to provide a reasonable assurance of compliance with a 20 percent opacity standard), the Illinois EPA may, after adequate justification, determine the periodic monitoring for that class of units. Of course, if a particular source is found to differ from such a class due to a history of inconsistent operating conditions or difficulties in providing a reasonable assurance of compliance, for example, then class treatment may not be appropriate.

Although periodic monitoring may consist of record keeping and/or a permit limitation such as a fuel restriction, in no case will Illinois EPA accept a periodic monitoring determination based solely on the size, hours of operation, or the past compliance history of the emission unit. Operational and process flexibility, changes in ownership, fuel flexibility, age of unit, and many other factors can adversely influence a source’s future compliance status, despite its past good performance. Of

course, information on past compliance history is relevant to the likelihood of violating the applicable standard (one of the six factors discussed previously) and will help inform the source and permitting agency on the appropriate monitoring to provide a reasonable assurance of compliance.

The Illinois EPA also acknowledges that there is a small class of Insignificant Emission Units (IEU's) for which no additional monitoring is necessary. Where the establishment of a regular program of monitoring would not significantly enhance the ability of the permit to assure compliance with the general applicable requirement, the Illinois EPA provides that the status quo (e.g., no monitoring) will meet the requirements of section 70.6(a)(3)(i). This is based on the belief that IEU's typically are associated with inconsequential environmental impacts and present little potential for violations of generically applicable requirements.

Of course, where a potential for violation of the applicable requirement exists, the Illinois EPA may consider adding monitoring requirements. For example, a small coal and natural gas-fired boiler (an IEU in some programs) may need monitoring for opacity while the unit is burning coal to provide a reasonable assurance of compliance with the SIP's opacity limit, while a large turbine that is major for NO_x and that can only burn pipeline natural gas, may not need monitoring for the SIP's opacity or SO_2 limit. It should be emphasized that whether a reasonable assurance of compliance is achieved without additional monitoring must be judged in the context of a particular emission unit, or as discussed above, a class thereof. That a unit was approved as an "insignificant activity" by EPA relates to the level of detail necessary to be included in a title V permit application and not whether compliance with any applicable requirement is assured without further monitoring. The fact that a unit is an IEU is not, by itself, a justification for no monitoring.

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