

217/782-2113

TITLE V - CLEAN AIR ACT PERMIT PROGRAM (CAAPP) PERMIT  
and  
TITLE I PERMIT<sup>1</sup>

PERMITTEE

Equistar Chemicals, LP  
Attn: Jerry Starkey  
8805 North Tabler Road  
Morris, Illinois 60450-9988

Application No.: 96010018                      I.D. No.: 063800AAC  
Applicant's Designation:                      Date Received: January 8, 1996  
Operation of: Plastics and Organic Chemicals Manufacturing Plant  
Date Issued: September 7, 2000                      Expiration Date<sup>2</sup>: September 7, 2005  
Source Location: 8805 North Tabler Road, Morris, Grundy County  
Responsible Official: William F. Thompson, Plant General Manager

This permit is hereby granted to the above-designated Permittee to OPERATE a plastics and organic chemical manufacturing plant, pursuant to the above referenced permit application. This permit is subject to the conditions contained herein.

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

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:DGP:psj

cc: Illinois EPA, FOS, Region 1  
USEPA

<sup>1</sup> This permit may contain terms and conditions which address the applicability, and compliance if determined applicable, of Title I of the CAA and regulations promulgated thereunder, including 40 CFR 52.21 B federal PSD and 35 IAC Part 203 B Major Stationary Sources Construction and Modification. Any such terms and conditions are identified within this permit.

<sup>2</sup> Except as provided in Condition 8.7 of this permit.

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1.0 SOURCE IDENTIFICATION

1.1 Source

Equistar Chemicals, LP  
8805 North Tabler Road  
Morris, Illinois 60450-9988  
815/942-7011

I.D. No.: 063800AAC  
Standard Industrial Classification: 2821,  
2869, (secondary)

1.2 Owner/Parent Company

Equistar Chemicals, LP  
1221 McKinney Street, Suite 1600  
Houston, Texas 77010

Mail: Post Office Box 2583  
Houston, Texas 77252-2583

1.3 Operator

Equistar Chemicals, LP  
8805 North Tabler Road  
Morris, Illinois 60450-9988

Jerry Starkey  
815/942-7285

1.4 General Source Description

The Equistar Chemical manufacturing plant is located at 8805 North Tabler Road, outside Morris in Aux Sable Township, Grundy County. The source primarily manufactures polyethylene and polypropylene. Prior to that ethane, propane and butane are cracked to produce ethylene and propylene. The site also has a process research center and a wastewater treatment plant. Steam is produced by a cogeneration plant which is owned by a separate company located on the same site. A steam super heater is operated by Equistar.

2.0 LIST OF ABBREVIATIONS/ACRONYMS USED IN THIS PERMIT

ACMA	Alternative Compliance Market Account
Act	Illinois Environmental Protection Act [415 ILCS 5/1 et seq.]
AP-42	Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Other Sources (and Supplements A through F), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711
ATU	Allotment Trading Unit
BAT	Best Available Technology
Btu	British thermal unit
CAA	Clean Air Act [42 U.S.C. Section 7401 et seq.]
CAAPP	Clean Air Act Permit Program
CFR	Code of Federal Regulations
ERMS	Emissions Reduction Market System
°F	Degrees Fahrenheit
ft <sup>3</sup>	Cubic Feet
gal	Gallon
HAP	Hazardous Air Pollutant
HDPE	High Density Polyethylene
hr	hour
IAC	Illinois Administrative Code
I.D. No.	Identification Number of Source, assigned by Illinois EPA
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
kW	kilowatts
LAER	Lowest Achievable Emission Rate
lb	pound
LDAR	Leak Detection and Repair
LDPE	Low Density Polyethylene
LEL	Lower Explosive Limit
LLDPE	Linear Low Density Polyethylene
MACT	Maximum Achievable Control Technology
mmBtu	Million British thermal units
mo	month
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub>	Nitrogen Oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 microns as measured by applicable test or monitoring methods
PP	Polypropylene
ppm	parts per million
PRC	Process Research Center
PSD	Prevention of Significant Deterioration
RMP	Risk Management Plan
SOCMI	Synthetic Organic Chemical Manufacturing Industry
SO <sub>2</sub>	Sulfur Dioxide

T1	Title I <b>B</b> identifies Title I conditions that have been carried over from an existing permit
T1N	Title I New <b>B</b> identifies Title I conditions that are being established in this permit
T1R	Title I Revised <b>B</b> identifies Title I conditions that have been carried over from an existing permit and subsequently revised in this permit
TNRCC	Texas Natural Resources Conservation Commission
TOC	Total Organic Compounds
USEPA	United States Environmental Protection Agency
VOL	Volatile Organic Liquid
VOM	Volatile Organic Material
wwtp	wastewater treatment plant
yr	year

### 3.0 INSIGNIFICANT ACTIVITIES

#### 3.1 Identification of Insignificant Activities

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

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

<u>Designation</u>	<u>Description</u>
08TK4215	OSBL Wash Oil Storage Tank
08TK4102	Diesel Fuel Tank
11TK0530	Leak Oil Storage Tank
11TKE202	Wash Oil Tank
11TKP751	CT Inhibitor
11TKP762	Polymer Storage
11TKP764	YMCI Storage
11TKX101	MEA Storage
25TK0004	Waste Oil Storage
25TK0005	Paraffin Oil Storage
25TK7201	Cooling Oil Storage Tank
28TK7112	TNPP Storage
25TK7500	OMS Storage Tank
46TK2021	Ethylene Glycol
46TK2022	Ethylene Glycol Maintenance Activities

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

08TK4201	Sulfuric Acid Storage Tank
11TKP767	Sulfuric Acid Storage Tank
11TKP768	Sulfuric Acid Storage Tank
11VDP751	Sulfuric Acid Storage Tank
38TK0305	Sulfuric Acid Storage Tank
38TK0805	Sulfuric Acid Storage Tank
38TK4428	Sulfuric Acid Storage Tank
08TK4501 and 4502	Caustic Storage Tanks with Traces of VOM
25TK7206	C/T Acid Storage Tank
25TK7502	OMS Feed Tank
25TK7503	Peroxide Day Tank I
25TK7504	Peroxide Day Tank II
25TK7505 A & B	Catalyst Feed Tank(s)
25TK7510	Catalyst Feed Tank(s)
38TK0501 A & B	Secondary Clarifiers
38TK0504	Secondary Clarifier Flow Splitter Box
38TK4412	Phosphoric Acid Storage Tank
38TK4420	Aqueous Ammonia Storage Tank

46TK2004A-2004L	Thirteen Cocatalyst Storage Tanks (Hoppers)
46TK1010	Hydraulic Oil Tank
46TK2019	Acid Storage Tank
46TK2020	Inhibitor Storage Tank
46TK3101, 3102, 3201, 3202, 3301, 3302, 3401, 3402	Powder Storage Silos
46TK3501	Copolymer Storage Tank
46TK4001 and 4002	Hopper Car Loading Silos
46TK4011, 4012, 4021, 4022	Scrap Pellets Storage Silos
46TK4031-35, 4041-45, 4051-55, 4061-65	20 Pellet Storage Silos
46TK4101, 4201,4301	Pellet Blender Silos
47TK8001	Truck Loading Surge Silo
48TK9001, 9002	Packaging Surge Silos
59TK0410 A & B	Catalyst Feed Tank(s)
59TK3000 A & B	Catalyst Loading Stations
80TK4036 and 4037	Catalyst Feeder Silencers
80TK5009	Product Purge Bin
81TK5009	Product Purge Bin
81TK5109	New Product Purge Bin
81TK7010	Pellet Surge Hopper
80TK7205	Master Batch Purge Bin
81TK7205	Master Batch Purge Bin
80TK7222	HDPE Resin Surge Bin
81TK7222	HDPE Resin Surge Bin
81TK7213	Liquid Additive Tank
81TK4010	Tempered Water Expansion Tank

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

Direct combustion units designed and used for comfort heating purposes and fuel combustion emission units as follows: (A) Units with a rated heat input capacity of less than 2.5 mmBtu/hr that fire only natural gas, propane, or liquefied petroleum gas; (B) Units with a rated heat input capacity of less than 1.0 mmBtu/hr that fire only oil or oil in combination with only natural gas, propane, or liquefied petroleum gas; and (C) Units with a rated heat input capacity of less than 200,000 Btu/hr which never burn refuse, or treated or chemically contaminated wood [35 IAC 201.210(a)(4)].

Extruders used for the extrusion of metals, minerals, plastics, rubber, or wood, excluding extruders used in the manufacture of polymers, provided that volatile organic materials or class I or II substances subject to the requirements of Title VI of the CAA are not used as foaming agents or release agents or were not used as foaming agents in the case of extruders processing scrap material [35 IAC 201.210(a)(5)].

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

Equipment used for the mixing and blending of materials at ambient temperature to make water based adhesives, provided each material mixed or blended contains less than 5% organic solvent by weight [35 IAC 201.210(a)(9)].

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

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

Die casting machines where a metal or plastic is formed under pressure in a die [35 IAC 201.210(a)(12)].

Coating operations (excluding powder, architectural and industrial maintenance coating) with aggregate VOM usage that never exceeds 15 lbs/day from all coating lines at the source, including VOM from coating, dilutents, and cleaning materials [35 IAC 201.210(a)(13)].

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

Gas turbines and stationary reciprocating internal combustion engines of between 112 kW and 1,118 kW

(150 and 1,500 horsepower) power output that are emergency or standby units [35 IAC 201.210(a)(16)].

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

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

3.1.4 Activities that are considered insignificant activities pursuant to 35 IAC 201.210(b).

### 3.2 Compliance with Applicable Requirements

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

3.2.1 For each cold cleaning degreaser, the Permittee shall comply with the applicable equipment and operating requirements of 35 IAC 215.182, 218.182, or 219.182.

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

3.2.3 For each organic material emission unit that uses organic material, e.g., a mixer or printing line, the Permittee shall comply with the applicable VOM emission limit of 35 IAC 215.301, 218.301, or 219.301, which requires that organic material emissions not exceed 8.0 pounds per hour or do not qualify as photochemically reactive material as defined in 35 IAC 211.4690.

### 3.3 Addition of Insignificant Activities

- 3.3.1 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type that is identified in Condition 3.1, until the renewal application for this permit is submitted, pursuant to 35 IAC 201.212(a).
- 3.3.2 The Permittee must notify the Illinois EPA of any proposed addition of a new insignificant activity of a type addressed by 35 IAC 201.210(a) and 201.211 other than those identified in Condition 3.1, pursuant to Section 39.5(12)(b) of the Act.
- 3.3.3 The Permittee is not required to notify the Illinois EPA of additional insignificant activities present at the source of a type identified in 35 IAC 201.210(b).

4.0 SIGNIFICANT EMISSION UNITS AT THIS SOURCE

Emission Unit	Description	Date Constructed	Emission Control Equipment
Ethylene Plant			
01	Cracking Furnaces (14) 101-113 114	1970/1989	None None
02	Steam Superheater	1982	None
03	Regeneration Heater, H-301	1970	None
04	Regeneration Heater, H-401	1970	None
05	Ethylene Manufacturing Main Flare System Auxiliary Flare System	1970 1978	
06	Loading Operations	--	None
LDPE Plant (Lines 1-4)			
07	Raw Material Preparation	1970	Flare
08	Polymerization Section	1970	Flare/Recovery
09	Material Recovery	1970	Flare/Recovery
LDPE Product Handling			
10	Finishing	1970	None
11	Product Storage/Loading	1970	Filter
LLDPE Plant (Lines 5 and 6)			
12	Raw Material Preparation	1983/89	Flare
13	Polymerization Section	1983/89	Flare/Recovery
14	Material Recovery	1983/89	Flare/Recovery
LLDPE Product Handling			
15	Finishing	1983/89	None
16	Product Storage/Loading	1983/89	Filter
PP Plant (Lines A-D)			
17	Raw Material Preparation	1977	Flare
18	Polymerization Section	1977	Flare
19	Material Recovery	1977	Flare/Recovery
PP Product Handling			
20	Finishing	1977	None
21	Product Storage/Loading/Packaging	1977	Filters
Process Research Center			
22	Pilot Plant Operations	1989	Flare
23	Product Handling/Miscellaneous Sources	1989	Filter/Atmos.
Wastewater Treatment Plant and Other Emission Units			
24	Oil-Water Separators	1970	Fume Incinerator
25	Wastewater Treatment Tanks (See Section 7.4 and Attachment 1 for a List of Tanks)	1970	See Attachment 1

Emission Unit	Description	Date Constructed	Emission Control Equipment												
26	Cooling Towers (9) as follows: <table border="1" data-bbox="451 394 998 571"> <thead> <tr> <th><u>Equipment No.</u></th> <th><u>Area Served</u></th> </tr> </thead> <tbody> <tr> <td>08CT1201</td> <td>Utilities</td> </tr> <tr> <td>11CTP751-752</td> <td>Ethylene</td> </tr> <tr> <td>25CF7001-7003</td> <td>LDPE/LLDPE</td> </tr> <tr> <td>46CT2001</td> <td>PP</td> </tr> <tr> <td>51CT7000-7001</td> <td>PRC</td> </tr> </tbody> </table>	<u>Equipment No.</u>	<u>Area Served</u>	08CT1201	Utilities	11CTP751-752	Ethylene	25CF7001-7003	LDPE/LLDPE	46CT2001	PP	51CT7000-7001	PRC	1970 1970 1980's 1977 1989	None
<u>Equipment No.</u>	<u>Area Served</u>														
08CT1201	Utilities														
11CTP751-752	Ethylene														
25CF7001-7003	LDPE/LLDPE														
46CT2001	PP														
51CT7000-7001	PRC														
27	Unleaded Gasoline Tank (37 TK 001, 10,000 Gallons)	1991	Vapor Balance												
28	Plastic Pulverizing System	1998	Filter												
29	Storage Tanks	See Attachment 1													

## 5.0 OVERALL SOURCE CONDITIONS

### 5.1 Source Description

- 5.1.1 This permit is issued based on the source requiring a CAAPP permit as a major source of VOM, PM, NO<sub>x</sub>, CO, SO<sub>2</sub> and HAP emissions.
- 5.1.2 For purposes of the CAAPP and Title I of the Clean Air Act, Equistar Chemicals, LPs Morris, Illinois Plant is considered a single source with Calpine Central LPs Co-generation facility, I.D. No. 063800AAJ, located at Morris, Illinois. The source has elected to obtain separate CAAPP permits for these locations.

### 5.2 Applicable Regulations

- 5.2.1 Specific emission units at this source are subject to particular regulations as set forth in Section 7 (Unit-Specific Conditions) of this permit.
- 5.2.2 In addition, emission units at this source are subject to the following regulations of general applicability:

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

Compliance with this requirement is considered to be assured by the inherent nature of operations at this source, as demonstrated by historical operation.

- b. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 IAC 212.122, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.
- c. No person shall use any single or multiple compartment effluent water separator which receives effluent water containing 200 gal/day or more of organic material from any equipment processing, refining, treating, storing, or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the controlled organic material emitted to the atmosphere.

Exception: If no odor nuisance exists the limitations of this subsection shall not apply if the vapor pressure of the organic material is below 2.5 psia (35 IAC 218.141).

- d. No person shall cause or allow the discharge of more than 2 cu. in. of VOL with vapor pressure of 2.5 psia or greater at 70°F into the atmosphere from any pump or compressor in any 15 minute period at standard conditions (35 IAC 218.142). [Also see Condition 7.1.3(f)]
- e. Pursuant to 35 IAC 218.143, no person shall cause or allow the emission of organic material into the atmosphere from any vapor blowdown system or any safety relief valve, except such safety relief valves not capable of causing an excessive release, unless such emission is controlled:
  - i. To 10 ppm equivalent methane (molecular weight 16.0) or less;
  - ii. By combustion in a smokeless flare; or
  - iii. By other air pollution control equipment approved by the Illinois EPA according to the provisions of 35 IAC 201, and further processed consistent with 35 IAC 218.108.

Currently the Illinois EPA has not approved other air pollution control equipment for use in controlling vapor blowdown emissions at this source.

The vast majority of the safety relief valves of the Permittee are vented to one of several flare, each of which has a destruction efficiency of 99%. Most analyzers are also vented to the flare(s).

- f. Pursuant to 35 IAC 218.144, Condition 5.2.3(e) shall not apply to any set of unregulated safety relief valves capable of causing excessive releases, provided the owner or operator thereof, by October 1, 1972, supplied the Illinois EPA with the following:
  - i. A historical record of each such set (or, if such records were unavailable, of similar sets which, by virtue of operation under similar circumstances, may reasonable have been presumed to have the same or greater frequency of excessive releases) for a three-year period immediately preceding October 1, 1972, indicating:

- A. Dates on which excessive releases occurred from each such set;
  - B. Duration in minutes of each such excessive release; and
  - C. Quantities (in pounds) of mercaptans and/or hydrogen sulfide emitted into the atmosphere during each such excessive release.
- ii. Proof, using such three-year historical records, that no excessive release is likely to occur from any such set, either alone or in combination with such excessive releases from other sets owned or operated by the same person and located within a ten-mile radius from the center point of any such set, more frequently than 3 times in any 12 month period; and
  - iii. Accurate maintenance records for such safety relief valves.
- g. This source is subject to 40 CFR 61 Subpart FF, Benzene Waste Operations, because the total annual benzene quantity from benzene waste is greater than 10 megagrams (10 tons) per year.
- i. The caustic stripper for removal of benzene shall meet the treatment standards in 40 CFR 61.348(a)(1)(i), which requires removing benzene to a level less than 10 parts per million by weight on a flow-weighted annual average basis.
  - ii. The lift station (# 23) is exempt from the treatment requirements since the benzene quantity is less than 2.0 megagrams per year. [40 CFR 61.342(c)(3)(ii)(B)]
  - iii. Tank 30 TKS 804 blowdown contains benzene but is not a waste stream since it is returned to the process.
  - iv. The dilution steam generator is exempt from the treatment requirements since the flow-weighted annual benzene concentration is less than 10 ppmv as determined by the procedures specified in 40 CFR 61.355(c)(2) or (3). The Permittee shall make this demonstration annually [40 CFR 61.342(c)(2)].

- v. Prior to treatment the flow shall be enclosed.
- vi. The determination of achieving the 10 ppm treatment standard and less than 2 megagrams per year for the lift station shall follow the procedures in 40 CFR 61 Subpart FF.
- vii. The Permittee shall comply with the recordkeeping and reporting requirements of 40 CFR 61 Subpart FF.
- h. Many processes listed in the unit-specific conditions in Section 7 are subject to 35 IAC 212.321(a). It is written in detail here and reference made to it in Section 7, where appropriate. This rule states that: No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified below and in 35 IAC 212.321 [35 IAC 212.321(a)].

The emissions of particulate matter into the atmosphere in any one hour period from each of the affected process units shall not exceed the allowable emission rates specified in the following equation:

$$E = A(P)^B$$

Where:

P = Process weight rate in metric or English tons per hour; and

E = Allowable emission rates in kilograms or pounds per hour.

and

A = 2.54

<sup>B</sup> = 0.534

- i. The general provisions of 35 IAC 218 Subpart A are incorporated into this permit, where applicable. Subpart A cites specific test methods and incorporation of other test methods by reference.

### 5.2.3 Ozone Depleting Substances

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

- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

### 5.2.4 Risk Management Plan

- a. This stationary source, as defined in 40 CFR Section 68.3, is subject to 40 CFR Part 68, the Accidental Release Prevention regulations [40 CFR 68.215(a)(1)].
- b. The owner or operator of a stationary source shall revise and update the RMP submitted, as specified in 40 CFR 68.190.

### 5.2.5 Future MACT Requirements

- a. Should this stationary source become subject to a regulation under 40 CFR Parts 60, 61, or 63, or 35 IAC after the date issued of this permit, then the owner or operator shall, in accordance with the applicable regulation(s), comply with the applicable requirements by the date(s) specified and shall certify compliance with the applicable requirements of such regulation(s) as part of the annual compliance certification, as required by 40 CFR Part 70 or 71.
- b. No later than upon the submittal for renewal of this permit, the owner or operator shall submit, as part of an application, the necessary information to address either the non-applicability of, or demonstrate compliance with all applicable requirements of any potentially applicable regulation which was promulgated after the date issued of this permit.

5.2.6 Episode Action Plan

- a. If the source is required to have an episode action plan pursuant to 35 IAC 244.142, the Permittee shall maintain at the source and have on file with the Illinois EPA a written episode action plan (plan) for reducing the levels of emissions during yellow alerts, red alerts, and emergencies, consistent with safe operating procedures. The plan shall contain the information specified in 35 IAC 244.144.
- b. The Permittee shall immediately implement the appropriate steps described in this plan should an air pollution alert or emergency be declared.
- c. If a change occurs at the source which requires a revision of the plan (e.g., operational change, change in the source contact person), a copy of the revised plan shall be submitted to the Illinois EPA for review within 30 days of the change. Such plans shall be further revised if disapproved by the Illinois EPA.
- d. For sources required to have a plan pursuant to 35 IAC 244.142, a copy of the original plan and any subsequent revisions shall be sent to:
  - i. Illinois EPA, Compliance Section; and
  - ii. For sources located in Cook County and outside of the city of Chicago: Cook County Department of Environmental Control; or
  - iii. For sources located within the city of Chicago: Chicago Department of Environmental Control.

5.3 Non-Applicability of Regulations of Concern

None

5.4 Source-Wide Operational and Production Limits and Work Practices

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

None

## 5.5 Source-Wide Emission Limitations

### 5.5.1 Permitted Emissions for Fees

Emission limitations are not set for this source for the purpose of permit fees. The Permittee shall be required to pay the maximum fee of \$100,000.00 per year, pursuant to Section 39.5(18)(a)(ii)(A) of the Act.

### 5.5.2 Emissions of Hazardous Air Pollutants

Source-wide emission limitations for HAPs as listed in Section 112(b) of the CAA are not set. This source is considered to be a major source of HAPs.

### 5.5.3 Other Source-Wide Emission Limitations

Other source-wide emission limitations are not set for this source pursuant to either the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21, Illinois EPA rules for Major Stationary Sources Construction and Modification, 35 IAC Part 203, or Section 502(b)(10) of the CAA. However, there may be unit specific emission limitations set forth in Section 7 of this permit pursuant to these rules.

## 5.6 General Recordkeeping Requirements

### 5.6.1 Emission Records

The Permittee shall maintain records of the following items for the source to demonstrate compliance with 35 IAC 218.960(d), pursuant to Section 39.5(7)(b) of the Act:

The Permittee shall keep a record of all units that qualify for the exemption from control specified in 35 IAC 218.960(d). The records must demonstrate that each calendar year the VOM emissions from each unit do not exceed 1.0 tons and emissions from all such units combined do not exceed 5.0 tons.

### 5.6.2 Records for Operating Scenarios

N/A

### 5.6.3 Retention and Availability of Records

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

shall be made available for inspection and copying by the Illinois EPA or USEPA upon request.

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

## 5.7 General Reporting Requirements

### 5.7.1 General Source-Wide Reporting Requirements

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

### 5.7.2 Annual Emissions Report

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

### 5.7.3 Annual Reporting of HAP Emissions

The Permittee shall submit an annual report to the Illinois EPA, Compliance Section, on HAP emissions from the source pursuant to 35 IAC 254. This report shall be submitted with the Annual Emissions Report (Condition 9.7).

## 5.8 General Operational Flexibility/Anticipated Operating Scenarios

N/A

## 5.9 General Compliance Procedures

### 5.9.1 General Procedures for Calculating VOM Emissions

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

- a. For the purpose of estimating VOM emissions from the storage tanks, the current version of AP-42, Section 7.1, Organic Liquid Storage Tanks, is acceptable. The current version as of date of issuance of this permit is dated September, 1997.

- b. For the purpose of estimating fugitive VOM emissions from equipment leaks at the source, the emission factors found in Attachment 2 are acceptable. These factors are from the Texas Natural Resources Conservation Commission.
- c. In general, for emission units vented to a flare,  
$$\text{VOM Emissions (lb/hr)} = \text{Uncontrolled VOM Emissions (lb/hr)} \times 0.01 \text{ (i.e. 99\% destruction efficiency)}$$
- d. For the purpose of estimating HAP emissions from equipment at the source, the vapor weight percent (based on a 1992 USEPA survey) of each HAP for each organic liquid times the VOM emissions contributed by that organic liquid is acceptable.

5.10 Special Permit Shield

N/A

## 6.0 EMISSIONS REDUCTION MARKET SYSTEM (ERMS)

### 6.1 Description of ERMS

The ERMS is a cap and trade market system for major stationary sources located in the Chicago ozone nonattainment area. It is designed to reduce VOM emissions from stationary sources to contribute to reasonable further progress toward attainment, as required by Section 182(c) of the CAA.

The ERMS addresses VOM emissions during a seasonal allotment period from May 1 through September 30. Participating sources must hold allotment trading units (ATUs) for their actual seasonal VOM emissions. Each year participating sources are issued ATUs based on allotments set in the sources' CAAPP permits. These allotments are established from historical VOM emissions or baseline emissions lowered to provide the emissions reductions from stationary sources required for reasonable further progress.

By December 31 of each year, the end of the reconciliation period following the seasonal allotment period, each source shall have sufficient ATUs in its transaction account to cover its actual VOM emissions during the preceding season. A transaction account's balance as of December 31 will include any valid ATU transfer agreements entered into as of December 31 of the given year, provided such agreements are promptly submitted to the Illinois EPA for entry into the transaction account database. The Illinois EPA will then retire ATUs in sources' transaction accounts in amounts equivalent to their seasonal emissions. When a source does not appear to have sufficient ATUs in its transaction account, the Illinois EPA will issue a notice to the source to begin the process for Emissions Excursion Compensation.

In addition to receiving ATUs pursuant to their allotments, participating sources may also obtain ATUs from the market, including ATUs bought from other participating sources and general participants in the ERMS that hold ATUs (35 IAC 205.630) and ATUs issued by the Illinois EPA as a consequence of VOM emissions reductions from an Emissions Reduction Generator or an Intersector Transaction (35 IAC 205.500 and 35 IAC 205.510). During the reconciliation period, sources may also buy ATUs from a secondary reserve of ATUs managed by the Illinois EPA, the Alternative Compliance Market Account (ACMA) (35 IAC 205.710). Sources may also transfer or sell the ATUs that they hold to other sources or participants (35 IAC 205.630).

### 6.2 Applicability

This source is considered a participating source for purposes of the ERMS, 35 IAC Part 205.

### 6.3 Obligation to Hold Allotment Trading Units (ATUs)

- a. Pursuant to 35 IAC 205.150(c)(1) and 35 IAC 205.720, and as further addressed by Condition 6.8, as of December 31 of each year, this source shall hold ATUs in its account in an amount not less than the ATU equivalent of its VOM emissions during the preceding seasonal allotment period (May 1 - September 30), not including VOM emissions from the following, or the source shall be subject to emissions excursion compensation, as described in Condition 6.5.
  - i. VOM emissions from insignificant emission units and activities as identified in Section 3 of this permit, in accordance with 35 IAC 205.220;
  - ii. Excess VOM emissions associated with startup, malfunction, or breakdown of an emission unit as authorized in Section 7.0 of this permit, in accordance with 35 IAC 205.225;
  - iii. Excess VOM emissions to the extent allowed by a Variance, Consent Order, or Compliance Schedule, in accordance with 35 IAC 205.320(e)(3);
  - iv. Excess VOM emissions that are a consequence of an emergency as approved by the Illinois EPA, pursuant to 35 IAC 205.750; and
  - v. VOM emissions from certain new and modified emission units as addressed by Condition 6.8(b), if applicable, in accordance with 35 IAC 205.320(f).
- b. Notwithstanding the above condition, in accordance with 35 IAC 205.150(c)(2), if a source commences operation of a major modification, pursuant to 35 IAC Part 203, the source shall hold ATUs in an amount not less than 1.3 times its seasonal VOM emissions attributable to such major modification during the seasonal allotment period, determined in accordance with the construction permit for such major modification or applicable provisions in Section 7.0 of this permit.

### 6.4 Market Transactions

- a. The source shall apply to the Illinois EPA for and obtain authorization for a Transaction Account prior to conducting any market transactions, as specified at 35 IAC 205.610(a).
- b. The Permittee shall promptly submit to the Illinois EPA any revisions to the information submitted for its Transaction Account, pursuant to 35 IAC 205.610(b).

- c. The source shall have at least one account officer designated for its Transaction Account, pursuant to 35 IAC 205.620(a).
- d. Any transfer of ATUs to or from the source from another source or general participant must be authorized by a qualified Account Officer designated by the source and approved by the Illinois EPA, in accordance with 35 IAC 205.620, and the transfer must be submitted to the Illinois EPA for entry into the Transaction Account database.

#### 6.5 Emissions Excursion Compensation

Pursuant to 35 IAC 205.720, if the source fails to hold ATUs in accordance with Condition 6.3, it shall provide emissions excursion compensation in accordance with the following:

- a. Upon receipt of an Excursion Compensation Notice issued by the Illinois EPA, the source shall purchase ATUs from the ACMA in the amount specified by the notice, as follows:
  - i. The purchase of ATUs shall be in an amount equivalent to 1.2 times the emissions excursion; or
  - ii. If the source had an emissions excursion for the seasonal allotment period immediately before the period for the present emissions excursion, the source shall purchase ATUs in an amount equivalent to 1.5 times the emissions excursion.
- b. If requested in accordance with paragraph (c) below or in the event that the ACMA balance is not adequate to cover the total emissions excursion amount, the Illinois EPA will deduct ATUs equivalent to the specified amount or any remaining portion thereof from the ATUs to be issued to the source for the next seasonal allotment period.
- c. Pursuant to 35 IAC 205.720(c), within 15 days after receipt of an Excursion Compensation Notice, the owner or operator may request that ATUs equivalent to the amount specified be deducted from the source's next seasonal allotment by the Illinois EPA, rather than purchased from the ACMA.

#### 6.6 Quantification of Seasonal VOM Emissions

- a. The methods and procedures specified in Sections 5 and 7 of this permit for determining VOM emissions and compliance with VOM emission limitations shall be used for determining seasonal VOM emissions for purposes of the ERMS, with the following exceptions [35 IAC 205.315(b)]:

No exceptions

- b. The Permittee shall report emergency conditions at the source to the Illinois EPA, Compliance and Systems Monitoring Section, in accordance with 35 IAC 205.750, if the Permittee intends to deduct VOM emissions in excess of the technology-based emission rates normally achieved that are attributable to the emergency from the source's seasonal VOM emissions for purposes of the ERMS. These reports shall include the information specified by 35 IAC 205.750(a), and shall be submitted in accordance with the following:
  - i. An initial emergency conditions report within two days after the time when such excess emissions occurred due to the emergency; and
  - ii. A final emergency conditions report, if needed to supplement the initial report, within 10 days after the conclusion of the emergency. This report may be combined with the report for excess emissions during malfunction or breakdown, if appropriate, that is required pursuant to 35 IAC 201.263 and Section 7 of this permit.

#### 6.7 Annual Account Reporting

- a. For each year in which the source is operational, the Permittee shall submit, as a component of its Annual Emissions Report, seasonal VOM emissions information to the Illinois EPA for the seasonal allotment period. This report shall include the following information [35 IAC 205.300]:
  - i. Actual seasonal emissions of VOM from the source employing the same methodology used in calculating the baseline;
  - ii. A description of the methods and practices used to determine VOM emissions, as required by this permit, including any supporting documentation and calculations;
  - iii. A detailed description of any monitoring methods that differ from the methods specified in this permit, as provided in 35 IAC 205.337;
  - iv. If a source has experienced an emergency, as provided in 35 IAC 205.750, the report shall reference the associated emergency conditions report that has been approved by the Illinois EPA;
  - v. If a source's baseline emissions have been adjusted due to a Variance, Consent Order, or CAAPP permit Compliance Schedule, as provided for in 35 IAC 205.320(e)(3), the report shall provide documentation

quantifying the excess VOM emissions during the season that were allowed by the Variance, Consent Order, or Compliance Schedule, in accordance with 35 IAC 205.320(e)(3); and

vi. If a source is operating a new or modified emission unit for which three years of operational data is not yet available, as specified in 35 IAC 205.320(f), the report shall specify seasonal VOM emissions attributable to the new emission unit or the modification of the emission unit.

b. This report shall be submitted by November 30 of each year, for the preceding seasonal allotment period.

#### 6.8 Allotment of ATUs to the Source

a. i. The allotment of ATUs to this source is 3,699 ATUs per seasonal allotment period.

ii. This allotment of ATUs reflects the Illinois EPA's determination that the source's baseline emissions were 404.8 tons per season.

A. This determination includes the use of 1996 and 1997 as baseline seasons. This determination includes use of the 1997 season as a substitute for the 1995 season due to non-representative conditions in this season, as allowed by 35 IAC 205.320(a)(2).

iii. The source's allotment reflects 88% of the baseline emissions (12% reduction), except for the VOM emissions from specific emission units excluded from such reduction, pursuant to 35 IAC 205.405, including units complying with MACT or using BAT, as identified in Condition 6.11 of this permit.

iv. ATUs will be issued to the source's Transaction Account by the Illinois EPA annually. These ATUs will be valid for the seasonal allotment period during issuance and, if not retired in this season, the next seasonal allotment period.

v. Condition 6.3(a) becomes effective beginning in the seasonal allotment period during the initial issuance of ATUs by the Illinois EPA into the Transaction Account for the source.

b. Contingent Allotments for New or Modified Emission Units

Not applicable.

6.9 Recordkeeping for ERMS

The Permittee shall maintain copies of the following documents as its Compliance Master File for purposes of the ERMS [35 IAC 205.700(a)]:

- a. Seasonal component of the Annual Emissions Report;
- b. Information on actual VOM emissions, as specified in detail in Sections 5 and 7 of this permit and Condition 6.6(a); and
- c. Any transfer agreements for the purchase or sale of ATUs and other documentation associated with the transfer of ATUs.

6.10 Federal Enforceability

Section 6 becomes federally enforceable upon approval of the ERMS by USEPA as part of Illinois' State Implementation Plan.

6.11 Exclusions from Further Reductions

- a. VOM emissions from the following emission units shall be excluded from the VOM emissions reductions requirements specified in 35 IAC 205.400(c) and (e) as long as such emission units continue to satisfy the following [35 IAC 205.405(a)]:
  - i. Emission units that comply with any NESHAP or MACT standard promulgated pursuant to the CAA;
  - ii. Direct combustion emission units designed and used for comfort heating purposes, fuel combustion emission units, and internal combustion engines; and
  - iii. An emission unit for which a LAER demonstration has been approved by the Illinois EPA on or after November 15, 1990.

The source has demonstrated in its ERMS application and the Illinois EPA has determined that the following emission units qualify for exclusion from further reductions because they meet the criteria as indicated above [35 IAC 205.405(a) and (c)]:

Ethylene Plant Process Heaters

- b. VOM emissions from emission units using BAT for controlling VOM emissions shall not be subject to the VOM emissions reductions requirement specified in 35 IAC 205.400(c) or (e) as long as such emission unit continues to use such BAT [35 IAC 205.405(b)].

The source has demonstrated in its ERMS application and the Illinois EPA has determined that the following emission units qualify for exclusion from further reductions because these emission units use BAT for controlling VOM emissions as indicated above [35 IAC 205.405(b) and (c)]:

LDPE, LLDPE and PP Plastic Manufacture Product Handling

7.0 UNIT SPECIFIC CONDITIONS

7.1 Unit Ethylene Plant  
Control Flare for Startups, Shutdowns and Relief Valves

7.1.1 Description

Ethylene and other materials are produced by the cracking of ethane, propane, natural gasoline or butane. The cracking occurs inside the furnace tubes in the cracking furnaces. There are no open vents on the feedstock side of the furnace tubes under normal circumstances. The tubes develop coke deposits in them which is burned off during decoking operations which are conducted when the cracking furnace is taken out of normal service.

The heat for the cracking process is produced by the combustion of natural gas, fuel gas or other low value organic streams. Typical fuel combustion emissions occur. Products other than ethylene are also generated by the cracking process but these are separated by a closed vent distillation process. Most of the chemicals produced in the ethylene plant are used on-site in other processes. Ethylene is reacted to form polyethylene and propylene to form polypropylene. Other chemicals are sold and shipped offsite.

The list of equipment below is for large units with vents. This is a major process line and includes numerous pieces of equipment that are not vented to the atmosphere. Process vents and blowdowns are controlled by the flare. Most of the safety relief valves in organic material service vent to the flare.

7.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Firing Rate mmBtu/Hr	Emission Control Equipment
Ethylene Plant			
01	Cracking Furnaces (14) 101-113 114	98.25 90.6	None Low NO <sub>x</sub> Burner
02	Steam Superheater	141.12	None
03	Regeneration Heater, H-301	15.6	None
04	Regeneration Heater, H-401	6.35	None
05	Ethylene Manufacturing Main Flare System Auxiliary Flare System		
06	Loading Operations	C	None

Note: Storage tanks for this process are in Section 7.5.

### 7.1.3 Applicability Provisions and Applicable Regulations

- a. An affected ethylene plant for the purpose of these unit-specific conditions, is a synthetic organic chemical process in which ethane or various other raw materials are cracked in furnaces to produce ethylene and various other organic materials that are then separated. During production there are no open vents and heat for the process is generated by combustion of various gases.
- b. The affected ethylene plant is subject to 35 IAC 218 Subpart Q. This is a leak detection and repair program (LDAR) and is described in 35 IAC 218.421 through 218.429.
- c. The affected ethylene plant is subject to 40 CFR 61, Subparts J and V (LDAR Program). Subpart J explains that the standard applies to units in benzene service, that is, the fluid is greater than 10% benzene. The details of the LDAR program implementation are in Subpart V (61.240-247).
- d. Although by definition the affected ethylene plant is included in equipment subject to 35 IAC 218.431-436 (Subpart Q), 218.960-968 (Subpart RR), and 35 IAC 218.980-988 (Subpart TT), since there are no open vents to require control, the standards for compliance are not applicable. If the relief valves were considered to be process vent streams regulated by the rule they would comply by meeting the 98% control requirement of 35 IAC 218.432(a)(3). If there were vents applicability of these three rules would interact in a system of prioritization. The potential applicability of Subpart Q would be determined first, but that rule only applies to reactor or distillation units. If a unit is part of the chemical process but is not a reactor or distillation unit it would then be subject to Subpart RR. And finally if it is an auxiliary unit not part of the chemical process and not included in the other exclusions cited in 35 IAC 218.980(a)(1) or (b), the unit would be subject to 35 IAC 218 Subpart TT. Note that different names than used than in the rule may still qualify for the classification. For instance, the term cracking furnace used to describe the equipment is a reactor for applicability of 35 IAC 218 Subpart Q.
- e. No person shall cause or allow the emission of more than 8 lb/hr of organic material into the atmosphere from any emission unit except as specified in 218.301, 218.302, 218.303 and 218.304. If no odor

nuisance the limitations shall only apply to photochemically reactive material as defined in 35 IAC 211.4690. (35 IAC 218.301 and 218.302) The material manufactured in this process is photochemically reactive.

f. Certain individual waste streams within the affected ethylene plant are subject to 40 CFR 61 Subpart FF, Benzene Waste Operations. The affected waste streams comply by meeting the requirements of 40 CFR 61.342.

g. Units 01-04 in Condition 7.1.2 are affected fuel combustion units in which fuel gases are burned to provide process heat or steam. Units 01-03 are affected fuel combustion units and are subject to 35 IAC 216.121 which states that no person shall cause or allow the emission of CO into the atmosphere from any fuel combustion emission source with actual heat input greater than 10 mmBtu/hr to exceed 200 ppm, corrected to 50 percent excess air. (35 IAC 216.121)

h. Startup Provisions

i. During startup or shutdown of any of the process equipment in the ethylene plant (e.g., furnaces, compressors, refrigeration system, and distillation units) process streams may be vented to the flare. Although 35 IAC 218.142 [Condition 5.2.2(d)] does not list an alternative control option for compliance, this venting to the flare is considered an acceptable alternative compliance method.

ii. Coke that has built up in the tubes of the cracking furnaces may be burned off by simple combustion of the material. There are no applicable standards for this coke burn-off and emissions are relatively low due to the small amount of material and intermittent occurrence.

i. Malfunction and Breakdown Provisions

In the event of a malfunction or breakdown of the pilot light system on the flare, the Permittee is authorized to continue operation of the ethylene plant in violation of the applicable requirement of 35 IAC 218.143, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

i. The Permittee shall repair the damaged feature(s) of the flare pilot light system or remove the ethylene plant from service as soon

as practicable. This shall be accomplished within three days or an orderly shutdown begun unless it is known that any parts ordered that will correct the problem can be received and installed within three additional days in which case the shutdown does not have to begin. If beyond the first three day period, the Permittee must inform the Illinois EPA and request an extension. The request for such an extension must document that the parts will be received and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired within six total days or that emissions will be less if the process continues to operate for the scheduled time than if shutdown and restarted.

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

#### 7.1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected 14th furnace not being subject to the New Source Performance Standards (NSPS) for Industrial Steam Generating Units, 40 CFR Part 60, Subpart Db, because the affected unit has a rated heat input of less than 100 mmBtu/hr, the designated applicability level. All other furnaces were constructed before the applicability date of June 19, 1984.
- b. This permit is issued based on the affected ethylene plant not being subject to the New Source Performance Standards (NSPS) for Equipment Leaks for VOM in the Synthetic Organic Chemical Manufacturing Industry, 40 CFR Part 60, Subpart VV, because the two units constructed after the 1981 applicability date (i.e., the 14th furnace and the MEA system) did not result in an increase in emissions and/or were not capital expenditures and therefore not modifications that would make them subject to the standard.
- c. This permit is issued based on the affected ethylene plant not being subject to the New Source Performance Standards (NSPS) for SOCOMI Distillation Processes, 40 CFR Part 60, Subpart NNN, because the only distillation processes that have been installed since December 30, 1983 were replacements and not capital expenditures and therefore were not modifications. There was no increase in emissions and since the units are not vented the standard could not be implemented.

- d. This permit is issued based on the affected transfer of aromatic distillate that contains benzene not being subject to 40 CFR Part 61, Subpart BB (Benzene Transfer Operations), because the affected aromatic distillate does not contain over 50% benzene and pursuant to 40 CFR 61.300(c) the standard only applies if the material handled contains at least 70 weight-percent or more benzene.
- e. This permit is issued based on the affected ethylene plant not being subject to 40 CFR Part 63, Subparts F, G or H (HON Rule), because the affected the affected ethylene manufacturing process is specifically exempted from the HON pursuant to 40 CFR 63.100(j)(3).
- f. This permit is issued based on the affected fuel combustion units not being subject to 35 IAC 217.121, because the affected units all have a firing rate of less than 250 mmBtu/hr.
- g. Unit 04 is not subject to 35 IAC 216.121 because the heat input is less than 10 mmBtu/hr.
- h. This permit is issued based on the affected ethylene plant not being subject to 35 IAC 212.321 or 212.322 (Subpart L), because the affected process involves processing of vapor and liquids only and no PM is emitted, except for fuel gas combustion which is not subject to Subpart L.
- i. The affected ethylene plant is not subject to 35 IAC 218 Subpart V because the process is not a batch operation. The process is in an SIC code that would be subject to the rule if the process included batch operations.

#### 7.1.5 Control Requirements

- a. The main flare shall be operated to oxidize 99% of the VOM vented to it. Operation of the flare in accordance with 40 CFR 60.18 shall be deemed as meeting this requirement.
- b. When the ethylene plant is shut down for maintenance purposes and the main flare is not operating, the auxiliary flare shall be operated to control emissions from the cryogenic storage tanks.

#### 7.1.6 Emission Limitations

In addition to Condition 5.2.2, the affected ethylene plant is subject to the following:

Emissions from the affected 14 cracking furnaces combined shall not exceed the following:

<u>Pollutant</u>	<u>Emissions (Ton/Yr)</u>
NO <sub>x</sub>	527
VOM	30
PM <sub>10</sub>	39
CO	73
SO <sub>2</sub>	24

In addition, NO<sub>x</sub> emissions from cracking furnace No. 14 alone shall not exceed 27.0 tons/year.

Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total) [T1R].

The above limitations contain revisions to previously issued Permit 88110030. 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 this permit does not constitute a new major source or major modification pursuant to these rules. These limits are the primary enforcement mechanism for the equipment and activities permitted in this permit and the information in the CAAPP application contains the most current and accurate information for the source. Specifically, the original construction permit for furnace No. 14 included a condition that only 12 cracking furnaces could operate at any given time excluding startup or shutdown. Since emissions are tracked, and the potential to emit of furnace No. 14 does not classify it as a major modification, the Permittee believes it is less complicated to calculate emissions than to create a special record for number of units operating. The above limitation is equivalent to only 12 furnaces operating. The revised limits also include adjustments to emission factors based on a combination of emission testing in 1995 and the most recent (1998) AP-42 emission factors. Emission factors are discussed in Condition 7.1.12(b) [T1R].

7.1.7 Testing Requirements

- a. The test for equipment leaks required by 35 IAC 218 Subpart Q and 40 CFR 61 Subpart J and V shall be conducted using USEPA Method 21 as specified in 40 CFR 60, Appendix A.
- b. Upon request by the Illinois EPA, the flares shall be tested to verify that they meet the requirements of 40 CFR 60.18. The methods to be used for the determination are described in 40 CFR 60.18(f).

7.1.8 Monitoring Requirements

The main and auxiliary flare shall be monitored to assure a flame.

7.1.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for the affected ethylene plant to demonstrate compliance with Condition 7.1.3, pursuant to Section 39.5(7)(b) of the Act:

- a. Fuel gas usage (mmBtu/mo);
- b. Equipment leaks information required by 35 IAC 218.425 and 40 CFR 61.246;
- c. Flare monitoring data; and
- d. VOM, NO<sub>x</sub>, CO, SO<sub>2</sub> and PM emissions (lb/mo).

7.1.10 Reporting Requirements

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

Reports required by 35 IAC 218.426 and 40 CFR 61.247 (LDAR programs) shall be submitted but these are not related to noncompliance.

7.1.11 Operational Flexibility/Anticipated Operating Scenarios

The Permittee is authorized to make the following physical or operational change with respect to the affected ethylene plant without prior notification to the Illinois EPA or revision of this permit. This condition does not affect the Permittee's obligation to properly obtain a

construction permit in a timely manner for any activity constituting construction or modification of the source, as defined in 35 IAC 201.102:

The various raw materials may be fed in any ratio.

7.1.12 Compliance Procedures

- a. Compliance with Condition 7.1.3(g) is demonstrated under inherent operating conditions of an affected heater, so that no compliance procedures are set in this permit addressing this requirement.
- b. Emissions shall be based on the recordkeeping requirements in Condition 7.1.9 and the emission factors and formulas listed below:
  - i. Emissions from the affected furnaces burning fuel gas shall be calculated based on the following emission factors:

<u>Pollutant</u>	<u>Emission Factor (lb/mmBtu)</u>
CO	0.014
PM	0.0075
NO <sub>x</sub>	0.102
SO <sub>2</sub>	0.0046
VOM	0.0054

These are the emission factors for uncontrolled natural gas combustion in small industrial boilers (0.3 - < 100 mmBtu/hr), Tables 1.4-1 and 1.4-2, AP-42, Volume I, 5th Edition, March, 1998 except the following:

- A. The emission factor for SO<sub>2</sub> is a special factor determined on-site by emission testing for a typical mix of fuel gases used.
- B. Any of these factors may also be superseded by factors determined by emission testing. The CO factor is a selected value between testing and AP-42. The factors also include adjustments from pounds per million cubic feet as stated in AP-42 to pounds per million BTUs, the units upon which the Permittee calculates emissions.
- C. Furnace 114 may use the emission factor for a low NO<sub>x</sub> burner guaranteed by the manufacturer.

D. The emission factor for NO<sub>x</sub> for the other thirteen furnaces is the factor from emission testing in 1995 which is closer to the 1995 edition of AP-42. The Permittee has tested some furnaces and the actual emission rate exceeded the 1998 AP-42 value but was well below the value for a fuel combustion unit over 100 mmBtu/hr (0.28) although very close to that firing rate. The 0.102 factor was used to determine the annual emission limit in Condition 7.1.6(a).

ii. Heater Emissions (lb) = Fuel Gas Consumed (mmBtu/hr) Multiplied by the Appropriate Emission Factor.

c. Emissions from the burning of coke deposited on tubes do not have to be calculated as emissions are low and the emission factors are not known.

d. Emissions of VOM from the flare shall be calculated based on pounds vented to the flare and 99% destruction by the flare.

e. Emissions of NO<sub>x</sub> and CO from the flare shall be calculated using AP-42 emission factors for industrial flares, Table 13.5-1 (September 1991) as follows:

NO<sub>x</sub> 0.068 lb/10<sup>6</sup> Btu

CO 0.37 lb/10<sup>6</sup> Btu

f. The Permittee may elect to perform emission tests to develop equipment specific emission factors. Emission tests must be conducted in accordance with Conditions 8.5 and 8.6. The Permittee must indicate in the routine emission report whenever a new emission factor is being used to report on emissions. VOM emission factors must be in accordance with the ERMS baseline.

7.2 Unit LDPE, LLDPE and PP Polymer Manufacturing Operations  
Control Flares and Filters

7.2.1 Description

Polyethylene is ethylene (called a monomer) that has been polymerized. Depending upon the conditions in the reactors, various types of polyethylene can be produced. The complete manufacturing process from the introduction of the gaseous ethylene to extrusion, blending, and storage is called a line. The Permittee has four lines for manufacturing low density polyethylene (LDPE) and two lines for linear low density polyethylene (LLDPE). The process for converting propylene to polypropylene (PP) has four reaction lines but the handling of product is performed in equipment that receives material from any of the reactors. The reactions take place under very high pressures. The high pressures are achieved by use of multistage compressors. Specialized systems reduce the pressure for removal of product and undesirable byproducts.

The ethylene and propylene primarily come from the ethylene plant on-site (See Section 7.1 of this permit) but either raw material may also be shipped in. Materials called initiators are also introduced. These may or may not be a VOM. The polymer manufacturing operations can process monomers in addition to ethylene or propylene. These are called comonomers but are usually less than 5% of total raw material usage.

The primary emissions are VOM from unreacted raw materials, but the final product for the polyethylene lines is a solid in pellet form and fines can be formed during transfer and be emitted as PM. The final polypropylene product prior to extrusion is a powder that can also be emitted as PM. Some of the VOM released can be captured and reused in the process but most of it is sent to a flare for destruction. VOM emissions also occur during product handling which are not controlled.

There are no routinely used process vents to the atmosphere from the polyethylene reactors but emergency relief valves exist, most of which vent to a header which is ducted to a flare. The polypropylene process does have process vents to the vent flare.

7.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
LDPE Plant (Lines 1-4)		
07	Raw Material Preparation	Flare

Emission Unit	Description	Emission Control Equipment
LDPE Plant (Lines 1-4) (Continued)		
08	Polymerization Section	Flare/Recovery
09	Material Recovery	Flare/Recovery
LDPE Product Handling		
10	Finishing	None
11	Product Storage/Loading	Filter
LLDPE Plant (Lines 5 and 6)		
12	Raw Material Preparation	Flare
13	Polymerization Section	Flare/Recovery
14	Material Recovery	Flare/Recovery
LLDPE Product Handling		
15	Finishing	None
16	Product Storage/Loading	Filter
PP Plant (Lines A-D)		
17	Raw Material Preparation	Flare
18	Polymerization Section	Flare
19	Material Recovery	Flare/Recovery
PP Product Handling		
20	Finishing	None
21	Product Storage/Loading/Packaging	Filters

### 7.2.3 Applicability Provisions and Applicable Regulations

- a. An affected polymer manufacturing operation<sup>6</sup> is a process for polymerizing materials such as ethylene, propylene and other monomers to manufacture polymers that are then blended and shipped in pellet or powder form. The affected operations are listed in Condition 7.2.2.
- b. Emission units 12-16, LLDPE Line 6 only, are subject to the New Source Performance Standard (NSPS) for polymer manufacturing, 40 CFR 60, Subpart A and DDD.
  - i. The standard applies to continuous and intermittent emissions from the raw material preparation section and intermittent emissions from the polymerization reaction section. The standard requires that total organic compounds (TOC) from the affected process sections be combusted in a flare that meets the requirements of 40 CFR 60.18 pursuant to 40 CFR 60.562-1.
  - ii. Equipment in the sections specified in i above are also subject to the equipment leaks provisions of 40 CFR 60.562-2 which in turn references the equipment leak requirements of 40 CFR 60.482 (Subpart VV).

- c. No person shall cause or allow the emission of more than 8 lb/hr of organic material into the atmosphere from any emission unit except as specified in 218.301, 218.302, 218.303 and 218.304. If no odor nuisance the limitations shall only apply to photochemically reactive material as defined in 35 IAC 211.4690. (35 IAC 218.301 and 218.302) The raw materials used in these processes are photochemically reactive.
- d. Each of the polymer manufacturing lines listed in Condition 7.2.2 is subject to 35 IAC 218 Subpart Q. There are two separate sections of this rule.
  - i. 35 IAC 218.421-429 is an LDAR program. It only applies to the synthesis part of the process and not to drying, blending, handling, storage or loading of the pellets or powder product.
  - ii. ' 35 IAC 218.431-436 applies to chemical manufacturing process unit that manufacture products listed in Appendix A of Part 218 and this appendix includes polyethylene and polypropylene. However, 35 IAC 218.431(b)(3) then states that the control requirements do not apply to reactors or distillation units that are part of a polymer manufacturing operation.
- e. The polymer reactors are subject to 35 IAC 218 Subpart RR because they are in Appendix A of 35 IAC Part 218 and not subject to the control requirements of 35 IAC Subpart Q. The control requirements for Subpart RR are described in 35 IAC 218.966 and require emissions capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent. See f to follow for a discussion of Subpart RR for downstream activities. VOM emissions from an auxiliary unit not part of the chemical process and not included in the other exclusions cited in 35 IAC 218.980(a)(1) or (b) would be subject to 35 IAC 218 Subpart TT.
- f. Although the finishing and storage units for all processes are subject to 35 IAC 218 Subpart RR, the Permittee has obtained an adjusted standard from the Illinois Pollution Control Board (No. AS 92-14). The adjusted standard does not require the following units to meet the control requirements of 35 IAC 218.966(a) or (b).

i. LDPE Plant

Spin Driers - Total of 4 spin driers, one for each line.

Blenders - Total of 18 blenders, BL-1 through BL-18 and associated bagfilters.

Storage and Car Loading - Total of 17 Silos, car loading facilities and associated bagfilters.

ii. LLDPE Plant

Pellet Driers - Total of 2 spin driers, one for each line.

Blenders - Total of 12 blenders, 4 for line #5 (BL-13 through BL-16) and 8 for line #6 (BL-30 through BL-37) and associated bagfilters.

Multipass Separators - 4 multipass separators, 2 at the booster blower, 2 at car loading and associated bagfilters.

Scalperators and Hopper Cars - 4 scalperators and 2 bagfilters at car loading.

iii. PP Plant

Pellet Driers - Total of 4 spin driers, one for each line.

Blenders - Total of 7 blenders and associated bagfilters.

Storage and Car Loading - Total of 24 silos, car loading facilities and associated bagfilters.

- g. The raw material preparation part of the PP process is subject to 35 IAC 218 Subpart RR because the potential to emit VOM from all units subject to Subpart RR is greater than 25 tons/yr. However, the uncontrolled VOM emissions from the raw material preparation part of the process qualifies for the exemption from control specified in 35 IAC 218.960(d), that is the VOM emissions from that unit do not exceed 1.0 tons per calendar year and total emissions from such units not complying with 35 IAC 218.966 do not exceed 5.0 tons per calendar year.

h. Each finishing process, beginning from the drying process, is subject to 35 IAC 212.321. This rule is written out in detail in Condition 5.2.2(h).

i. Malfunction and Breakdown Provisions

i. In the event of a malfunction or breakdown of the pilot light system on the flare, the Permittee is authorized to continue operation of the polymer manufacturing lines in violation of the applicable requirement of 35 IAC 218.143 and 218.301, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

The Permittee shall repair the damaged feature(s) of the flare pilot light system or remove the polymer manufacturing lines from service as soon as practicable. This shall be accomplished within three days or an orderly shutdown begun unless it is known that any parts ordered that will correct the problem can be received and installed within three additional days in which case the shutdown does not have to begin. If beyond the first three day period, the Permittee must inform the Illinois EPA and request an extension. The request for such an extension must document that the parts will be received and specify a schedule of actions the Permittee will take that will assure the feature(s) will be repaired within six total days or that emissions will be less if the process continues to operate for the scheduled time than if shutdown and restarted.

ii. In the event of a malfunction or breakdown of process equipment in the raw material preparation sections, the polymerization sections, and/or the material recovery sections of any of the LDPE units, the equipment may be depressurized down to a safe level by venting directly to the atmosphere. The release is in violation of 35 IAC 218.301 and 212.322 but is necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- A. When the pressure is down to a safe level, the vent stream shall be directed to a flare or returned to the process.
- B. Shutdowns for routine maintenance shall be conducted so as to minimize emissions to the atmosphere and preferably performed during the non-ozone season.

iii. The Permittee shall keep a monthly excess emission log. A report is to be submitted to the Illinois EPA, Compliance Section by the 15th day of the month for the previous month's events. This report will fulfill the reporting requirements of Section 39.5 (7)(f)(ii) of the Act. This report will also fulfill the notification and reporting requirements of 35 IAC 205.750.

iv. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.2.9(e) and 7.2.10(b).

7.2.4 Non-Applicability of Regulations of Concern

This permit is issued based on the affected polymer manufacturing lines excluding LLDPE Line 6 not being subject to the New Source Performance Standards (NSPS) for polymer manufacturing, 40 CFR Part 60, Subpart DDD, because the affected polymer lines were constructed before the applicable date of January 10, 1989.

7.2.5 Control Requirements

All of the affected flares (LLDPE and PP main flare) shall be operated to reduce VOM emissions by 99%. Operation to meet the requirements of 40 CFR 60.18 shall be considered sufficient for meeting the reduction-requirement.

7.2.6 Emission Limitations

In addition to Condition 5.2.2 the affected polymer manufacturing operations are subject to the following:

- a. The affected LLDPE Line 6 is subject to the following:

	<u>Ton/Year</u>
Polyethylene Production	210,240
VOM to Flare	1,775

Emissions from the affected Line 6 shall not exceed the following limits:

	VOM Emissions (Ton/Yr)
Analyzer	1.10
Cycle Gas Compressor	0.55
Pellet Dryer	2.10
Product Handling	5.17
Fugitive	2.25
Flare	<u>17.75</u>
	28.92

These limits are based on the maximum operation and 99% destruction of VOM by the flare.

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

The above limitations were established in Permit 94080142 pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned Permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203. [T1]

- b. Annual emissions of hexane from the LLDPE units shall not exceed 10.1 tons per calendar year.

#### 7.2.7 Testing Requirements

- a. The test for equipment leaks required by 35 IAC 218 Subpart Q and 40 CFR 60 Subpart VV shall be conducted using USEPA Method 21 as specified in 40 CFR 60, Appendix A.
- b. Upon request by the Illinois EPA, the flares shall be tested to verify that they meet the requirements of 40 CFR 60.18. The methods to be used for the determinations are described in 40 CFR 60.18(f).

#### 7.2.8 Monitoring Requirements

- a. Pursuant to 40 CFR 60.18(f)(2), the presence of a flare pilot flame shall be monitored in the affected flare systems (LLDPE and PP main flare) using a thermocouple or any other equivalent device (e.g. infrared camera) to detect the presence of a flame.
- b. A second camera operating in the visible range (i.e. a video camera) may also be used by the operator to

make adjustments in flow rates to assure that the flare remains smokeless. This camera is not a requirement.

#### 7.2.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected polymer manufacturing line to demonstrate compliance with Conditions 5.5.1 and 7.2.3, pursuant to Section 39.5(7)(b) of the Act:

- a. Production on each line (lb/mo).
- b. Flare pilot flame monitor readings and periods of absence of flame.
- c. LDAR recordkeeping required by 40 CFR 60.486 (Line 6 only) and 35 IAC 218.425.
- d. VOM and PM emissions (lb/mo).
- e. Records for Malfunctions and Breakdowns.

The Permittee shall maintain records, pursuant to 35 IAC 201.263, of continued operation of the polymer manufacturing lines subject to 35 IAC 218.143 during malfunctions and breakdown of the flare pilot light systems or continued operation of the LDPE reactors subject to 35 IAC 218.301 during malfunction or breakdown of the process equipment in the raw material preparation sections, the polymerization sections, and/or the material recovery sections of any of the LDPE units, which as a minimum, shall include:

- i. Date and duration of malfunction or breakdown;
- ii. A detailed explanation of the malfunction or breakdown;
- iii. An explanation why the damaged feature(s) could not be immediately repaired or the affected process equipment removed from service without risk of injury to personnel or severe damage to equipment;
- iv. The measures used to reduce the quantity of emissions and the duration of the event;
- v. The steps taken to prevent similar malfunctions or breakdowns or reduce their frequency and severity; and

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

#### 7.2.10 Reporting Requirements

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

- a. Production or emissions exceeding the limits in Condition 7.2.6.
- b. Reporting of Malfunctions and Breakdowns for the flare pilot light systems.

The Permittee shall provide the following notification and reports to the Illinois EPA, Compliance Section and Regional Field Office, pursuant to 35 IAC 201.263, concerning continued operation of a the polymer manufacturing lines subject to Condition 5.2.2(e) and 7.2.3(c) during malfunction or breakdown of the flare pilot light systems.

- i. The Permittee shall notify the Illinois EPA's regional office by telephone as soon as possible during normal working hours, but no later than three (3) days, upon the occurrence of noncompliance due to malfunction or breakdown.
- ii. Upon achievement of compliance, the Permittee shall give a written follow-up notice to the Illinois EPA, Compliance Section and Regional Field Office, providing a detailed explanation of the event, an explanation why continued operation of the polymer manufacturing lines was necessary, the length of time during which operation continued under such conditions, the measures taken by the Permittee to minimize and correct deficiencies with chronology, and when the repairs were completed or when the polymer manufacturing lines was taken out of service.
- iii. If compliance is not achieved within 6 working days of the occurrence, the Permittee shall submit interim status reports to the Illinois EPA, Compliance Section and Regional Field Office, within 6 days of the occurrence and every 14 days thereafter, until compliance is achieved. These interim reports shall provide

a brief explanation of the nature of the malfunction or breakdown, corrective actions accomplished to date, actions anticipated to occur with schedule, and the expected date on which repairs will be complete or the polymer manufacturing lines will be taken out of service.

- iv. The excess emissions during the malfunction or breakdown shall be included with the monthly report required by Condition 7.2.3(i)(iii).
- c. The following reports must be submitted but are not related to noncompliance or malfunction.

Reports for LDAR programs submitted pursuant to 40 CFR 60 Subpart DDD (VV) (LLDPE Line 6 only) and 35 IAC 218.426 for LLDPE Lines 5 and 6, LDPE, and PP.

7.2.11 Operational Flexibility/Anticipated Operating Scenarios

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

Use of different comonomers or initiators provided that emission do not increase.

7.2.12 Compliance Procedures

- a. See 5.9.1 b and c for VOM emissions calculation from flares and equipment leaks.
- b. VOM emissions from the polymer finishing area shall be calculated as follows:

$$\text{VOM Emissions (lb/mo)} = \text{Production (million lb/mo)} \times \text{AY@ (lb/million lb)}$$

<u>"Y"</u>	<u>Specific Finishing Process</u>
135.4	LDPE Spin Dryers
765.4	LDPE Blenders
0.3	LDPE Car Loading
3.9	PP Spin Dryers
25.1	PP Blenders
3.4	PP Car Loading
10.0	LLDPE Spin Dryers
17.5	LLDPE Blenders

<u>"Y"</u>	<u>Specific Finishing Process</u>
2.44	LLDPE Multipass
4.58	LLDPE Car Loading

- c. Emissions of NO<sub>x</sub> and CO from the flare shall be calculated using AP-42 emission factors for industrial flares, Table 13.5-1 (September 1991) as follows:

NO <sub>x</sub>	0.068	lb/10 <sup>6</sup>	Btu
CO	0.37	lb/10 <sup>6</sup>	Btu

7.3 Unit Process Research Center  
Control Flare

7.3.1 Description

The Process Research Center (PRC) consists of pilot scale polymer manufacturing operation. The synthesis part of the operation results in VOM emissions which are controlled by a flare. The product handling part of the operations has uncontrolled VOM emissions which are considered insignificant. PM from product handling is insignificant but is controlled by filters.

7.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Process Research Center		
22	Pilot Plant Operations	Flare
23	Product Handling/Miscellaneous Sources	Filter/Atmos.

7.3.3 Applicability Provisions and Applicable Regulations

An Affected Process Research Center® is a process for pilot testing polymerizing materials such as ethylene, propylene and other monomers to manufacture polymers that are then blended and produced in pellet or powder form. The affected operations are listed in Condition 7.3.2.

7.3.4 Non-Applicability of Regulations of Concern

- a. The PRC is not subject to 40 CFR 60 Subpart DDD because the operation is a research facility and is exempted under 40 CFR 60.560(f).
- b. The PRC is not subject to 35 IAC 218 Subpart Q because it produces less than 4,033 tons per year of product.

7.3.5 Control Requirements

The flare shall be operated to reduce VOM emissions by 99%.

7.3.6 Emission Limitations

In addition to Condition 5.2.2, the affected a PRC is subject to the following:

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

Area/Emission Source	VOM Emissions (Ton/Year)
Gas Phase 1, 2, 3 Pilot Plant	14.9
Loop 1, 2 Pilot Plant	21.4
Polypropylene Pilot Plant	0.8
Feed Preparation Plant	0.4
Catalyst Activation/Preparation	0.10
Total Annual VOM Emissions	37.60

These limits are based on the maximum operation and 99% control of VOM units vented to the flare.

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

The above limitations were established in Permit 89010032, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. All of Grundy County was an attainment area when the PRC was installed. The emission unit names have been revised since the construction permit was issued but since the VOM emission limit was not changed the limit is called [T1].

7.3.7 Operating Requirements

Not applicable.

7.3.8 Inspection Requirements

Not applicable.

7.3.9 Recordkeeping Requirements

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

- a. VOM, NO<sub>x</sub>, CO, SO<sub>2</sub> and PM emissions (lbs/mo).

#### 7.3.10 Reporting Requirements

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

Exceedance of the limits in Condition 7.3.6.

#### 7.3.11 Operational Flexibility/Anticipated Operating Scenarios

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

- a. The various raw materials may be fed in any ratio.
- b. Reactor groups may be configured in various modes as long as the corresponding permitted VOM emission limit is not exceeded.

#### 7.3.12 Compliance Procedures

- a. See 5.9.1 b and c for VOM emissions calculation from flares.
- b. Emissions of NO<sub>x</sub> and CO from the flare shall be calculated using AP-42 emission factors for industrial flares, Table 13.5-1 (September 1991) as follows:

NO <sub>x</sub>	0.068	lb/10 <sup>6</sup>	Btu
CO	0.37	lb/10 <sup>6</sup>	Btu

7.4 Unit: Wastewater Treatment Plant and Other Emission Units  
Control: Fume Incinerator

7.4.1 Description

The wastewater treatment plant (WWTP) treats wastes from all operations at the plant. The equipment is primarily tanks that are listed in Section 7.4 of this permit but applicable rules are discussed in this Section.

Cooling towers provide cooling water for various processes.

The gasoline dispensing tank provides gasoline for in-plant vehicles.

The Wedco Unit is a plastic pulverizing system.

7.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Wastewater Treatment Plant and Other Emission Units		
24	Oil-Water Separators	Fume Incinerator
25	Wastewater Treatment Tanks (See Section 7.4 and Attachment 1 for a list of tanks)	See Attachment 1
26	Cooling Towers (9) as follows: <u>Equipment No.</u> <u>Area Served</u> 08CT1201              Utilities 11CTP751-752        Ethylene 25CF7001-7003       LDPE/LLDPE 46CT2001              PP 51CT7000-7001       PRC	None
27	Unleaded Gasoline Tank (37 TK 0001, 10,000 Gallons)	Vapor Balance
28	Plastic Pulverizing System (Wedco Unit)	Filters

7.4.3 Applicability Provisions and Applicable Regulations

- a. An affected wastewater treatment plant (WWTP)@ for the purpose of these unit-specific conditions, is a WWTP identified in Condition 7.4.2 and subject to Condition 5.2.2(c). The oil water separators comply by being vented to a fume incinerator which reduces VOM emissions by 85%.
- b. An affected cooling tower@, for the purpose of these unit specific conditions, in a cooling tower identified in Condition 7.4.2. All of the cooling towers are subject to 35 IAC 218 Subpart TT. The

control requirements which consist of an inspection and monitoring program, prompt repair of leaks and recordkeeping are described in 35 IAC 218.986(d).

- c. An affected gasoline dispensing tank, for the purpose of these unit-specific conditions, is a tank identified in Condition 7.4.2 and subject to 35 IAC 218.583.
- d. 35 IAC 218.583 states that no person shall cause or allow the transfer of gasoline from any delivery vessel into any stationary storage tank at a gasoline dispensing operation unless:
  - i. The tank is equipped with submerged loading pipe; and
  - ii. The vapors displaced from the storage tank during filling are processed by a vapor control system that includes one or more of the following:
    - A. A vapor collection system that meets the requirements of Condition 7.4.3(d)(iv)(D) below;
    - B. The delivery vessel displays the appropriate sticker pursuant to the requirements of Section 218.584(b) or (d) of this Part; and
    - C. All tank vent pipes are equipped with pressure/vacuum relief valves with the following design:
      - 1. The pressure/vacuum relief valve shall be set to resist a pressure of at least 3.5 inches water column and to resist a vacuum of no less than 6.0 inches water column; or
      - 2. The pressure/vacuum relief valve shall meet the requirements of Section 218.586(c) of this Part.
  - iii. Each owner of gasoline dispensing operation shall:
    - A. Install all control systems and make all process modifications required above;
    - B. Provide instructions to the operator of the gasoline dispensing operation describing necessary maintenance

operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system; and

- C. Repair, replace, or modify any worn out or malfunctioning component or element of design.
- iv. Each operator of a gasoline dispensing operation shall:
- A. Maintain and operate each vapor control system in accordance with the owner's instruction;
  - B. Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system;
  - C. Maintain gauges, meters or other specified testing devices in proper working order;
  - D. Operating the vapor collection system and delivery vessel unloading points in a manner that prevents:
    - 1. A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in EPA 450/2-78-051 Appendix B incorporated by reference in Section 218.112 of this Part; and
    - 2. Avoidable leaks of liquid during the filling of storage tanks.
  - E. Within 15 business days after discovery of the leak by the owner, operator, or the Illinois EPA, repair and retest a vapor collection system which exceeds the limits of Condition 7.4.3(d)(iv)(D)(1).
- e. Each individual unit within the plastic pulverizing system is subject to 35 IAC 212.321. This rule is written out in detail in Condition 5.2.2(h). However, Condition 7.4.6 has much more stringent limits than 35 IAC 212.321 in order to make the

system not subject to PSD. Compliance with Condition 7.4.6 shall be deemed compliance with 35 IAC 212.321.

7.4.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected WWTP not being subject to the New Source Performance Standards (NSPS) for SOCOMI Wastewater, 40 CFR Part 60, Subpart YYY, because the affected WWTP has not been modified, constructed, or reconstructed since the applicability date of September 12, 1994.
- b. This permit is issued based on the affected WWTP not being subject to 40 CFR Part 63, Subpart G (HON Rule), because the affected WWTP does not handle wastewater from processes listed in Subpart F.
- c. This permit is issued based on the affected gasoline dispensing tank not being subject to 35 IAC 218.586, because the affected gasoline dispensing operation dispenses less than 10,000 gallons of motor fuel per month and thus is exempt pursuant to 35 IAC 218.586(b).
- d. The cooling towers are not subject to 35 IAC 212.321 because a meaningful process weight rate can not be determined that would result in calculation of an allowable emission rate.

7.4.5 Control Requirements

- a. The fume incinerator on the WWTP shall be operated to reduce emissions by 85% in order to comply with the requirements of Condition 5.2.2(c).
- b. The filters in the plastic pulverizing system shall be operated to reduce PM emissions by 99%.

7.4.6 Emission Limitations

In addition to Condition 5.2.2 the affected emission units in the plastic pulverizing system are subject to the following:

Emissions from the affected individual units shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Process Rate (Lb/Hr)</u>	<u>PM Emissions (Lb/Hr) (Ton/Yr)</u>	
Feed Bin 1	4,000	0.03	0.12
Feed Bin 2	4,000	0.03	0.12
Feed Bin 3	4,000	0.03	0.12
Feed Bin 4	4,000	0.03	0.12

<u>Item of Equipment</u>	<u>Process Rate (Lb/Hr)</u>	<u>PM Emissions (Lb/Hr) (Ton/Yr)</u>	
Feed Hopper 1	4,000	0.03	0.12
Feed Hopper 2	4,000	0.03	0.12
Feed Hopper 3	4,000	0.03	0.12
Feed Hopper 4	4,000	0.03	0.12
Pulverizer Skid 1	4,000	0.4	1.76
Pulverizer Skid 2	4,000	0.4	1.76
Pulverizer Skid 3	4,000	0.4	1.76
Pulverizer Skid 4	4,000	0.4	1.76
Boxing Bin	4,000	0.4	1.76
Rail Car Bin	4,000	0.4	1.76
Truck Vacuum	42,000	0.63	2.76
Central Vacuum Cleaning System	100	0.1	<u>0.44</u>
			14.72

The above limitations were established in Permit 98010014, pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21 [T1].

#### 7.4.7 Testing Requirements

Upon request by the Illinois EPA the fume incinerator shall be tested to verify compliance with the 85% destruction requirement of Condition 5.2.2(c).

#### 7.4.8 Monitoring Requirements

The fume incinerator shall be equipped with a monitor for measuring the firebox temperature.

#### 7.4.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected WWTP, cooling towers, and gasoline dispensing tank to demonstrate compliance with Conditions 5.5.1 and 7.4.3, pursuant to Section 39.5(7)(b) of the Act:

- a. Fume incinerator firebox temperature (EF);
- b. Cooling tower inspection and monitoring for VOM leaks;
- c. WWTP throughput (gal/mo);

- d. Gasoline dispensing tank throughput (gal/mo); and
- e. Since emissions of PM from each individual unit in the plastic pulverizing system are low, a record of PM emissions may be kept as a monthly aggregate total.

7.4.10 Reporting Requirements

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

- a. Operation of the WWTP without the use of the fume incinerator;
- b. Not repairing in a timely manner a leak of VOM into one of the cooling towers; and
- c. Gasoline dispensed exceeding 10,000 gallons in any month.

7.4.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

7.4.12 Compliance Procedures

- a. Emissions of VOM and HAPs from the WWTP shall be calculated using the WATER8 program or any updated version of that program.
- b. Emissions of VOM from the gasoline dispensing tank shall be calculated using an emission factor of 12 lb VOM per 1,000 gallons per gasoline loaded.

$$\text{VOM Emitted (Ton/Yr) = Gallons Loaded Per Year } \left( \frac{12 \text{ lb VOM}}{1,000 \text{ gal}} \right) \left( \frac{2,000 \text{ Lb/Ton}}{2,000 \text{ Lb/Ton}} \right)$$

- c. Emissions of PM10 from the cooling towers shall be calculated using an emission factor of 0.0035 lb per 100 gal of water circulated. This is lower than the AP-42 emission factor of 0.019 because the total dissolved solids is much lower (2,000 - 3,000 ppm) than the 12,000 ppm upon which the AP-42 emission factor was based (Table 13.4-1), July, 1994.

- d. Emissions of PM, which is also considered to be PM<sub>10</sub>, shall be calculated from the filter manufacturer's estimated grain loading from the filters, the air flow rate of the equipment, and actual hours of operation.

7.5 Unit Storage Tanks  
Control Mostly None but See Attachment 1

7.5.1 Description

Almost all processes have storage tanks. They range from small to very large, from very low vapor pressure materials to gases stored in pressurized tanks. The ones that are vented to flares or fume incinerators generally do so due to potential odor problems rather than required controls. Some pressurized tanks vent to a flare if the pressure relief valve opens.

7.5.2 List of Emission Units and Air Pollution Control Equipment  
See Attachment 1

7.5.3 Applicability Provisions and Applicable Regulations

- a. An affected storage tank for the purpose of these unit-specific conditions, is a tank identified in Attachment 1.
- b. Each affected tank contains a VOL and all but two of the tanks, which are identified in Condition 7.5.3(c), meet the exemptions in 35 IAC 218.119 for not having to comply with 35 IAC 218.120. One or more of the following exemptions are met: Capacity less than 40,000 gallons, vapor pressure of the material stored is less than 0.5 psia, or the material is stored in a pressure vessel designed to operate in excess of 29.4 psia and without emissions to the atmosphere.
- c. Tank Nos. 11TKS804 and 36TK9150 are subject to the control requirements of 35 IAC 218.120. Only the requirements for an internal floating roof, the compliance option the Permittee has chosen, are listed. These are:
  - i. Each fixed roof tank shall be equipped with an internal floating roof that meets the following specifications or that is equipped with a vapor control system that meets the specifications contained in subsection (a)(4) below:
    - A. The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage

vessel is completely emptied and shall be continuous and shall be accomplished as rapidly as possible.

- B. Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:
  - 1. A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank;
  - 2. Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous; or
  - 3. A mechanical shoe seal, which is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.
- C. Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.
- D. Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be

equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

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

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

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

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

ii. During the next scheduled tank cleaning or before March 15, 2004, whichever comes first, each internal floating roof tank shall meet the specifications set forth in subsections (a)(1)(A) through (H) above.

#### 7.5.4 Non-Applicability of Regulations of Concern

a. This permit is issued based on the affected storage tanks not being subject to the New Source Performance Standards (NSPS) for Storage Tanks, 40 CFR Part 60, Subpart Kb, because the affected storage tanks that were constructed after July 23, 1984, the applicability date for Subpart Kb, all contain materials with a vapor pressure below the vapor pressure at which the rule would apply and/or the capacity of the tank is below the capacity at which the rule would apply.

b. This permit is issued based on storage tanks 36TK9150 and 39TK802B not being subject to NSPS for storage tanks, 40 CFR 60 Subpart K because they do not contain volatile petroleum liquids.

7.5.5 Control Requirements

No tank listed as vented to control equipment in Attachment 1 shall be filled during malfunction or breakdown of the control equipment. Material may be removed from the tank.

7.5.6 Emission Limitations

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

Emissions from some affected storage tanks receiving material from the railroad unloading rack shall not exceed the following limits:

VOM Emissions	
(Ton/Month)	(Ton/Year)
0.8	6.39

These limits are based on the following maximum number of railcars unloaded and 99% destruction efficiency for the LLDPE flare.

<u>Material</u>	<u>Railcars Unloaded Per Year</u>
Butene	395
1-Hexene	338
n-Hexene	50

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

The above limitations were established in Permit 88120019, pursuant to 35 IAC Part 203. These limits ensure that the construction and/or modification addressed in the aforementioned permit does not constitute a new major source or major modification pursuant to Title I of the CAA, specifically 35 IAC Part 203 [T1].

7.5.7 Operating Requirements

- a. Tanks Nos. 39TKS801 and 39TKS805 shall be operated at a cryogenic temperature range, that is, not to exceed -140°F.
- b. The cryogenic tanks shall be operated with a vapor collection system and compression system for cooling

and condensing the vapors for return to the tank with vapors not returned vented to the flare system.

7.5.8 Monitoring Requirements

N/A

7.5.9 Recordkeeping Requirements

In addition to the records required by Condition 5.6, the Permittee shall maintain records of the following items for each affected storage tank to demonstrate compliance with Conditions 7.5.3 and 7.5.6, pursuant to Section 39.5(7)(b) of the Act:

- a. Material throughputs (lb/yr);
- b. Vapor pressures of materials stored (psia);
- c. Temperature in tanks 39TKS801 and 39TKS805 (°F);
- d. VOM emissions from each tank (lb/yr); and
- e. Number of railcars unloaded for materials listed in Condition 7.5.6.

7.5.10 Reporting Requirements

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

- a. Number of railcars unloaded exceeds the limit in Condition 7.5.6.

7.5.11 Operational Flexibility/Anticipated Operating Scenarios

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

Contents of the materials may be changed provided the tanks remain in compliance with Condition 7.5.3.

7.5.12 Compliance Procedures

VOM emissions shall be calculated using the USEPA TANKS program.

## 8.0 GENERAL PERMIT CONDITIONS

### 8.1 Permit Shield

Pursuant to Section 39.5(7)(j) of the Act, the Permittee has requested and has been granted a permit shield. This permit shield provides that compliance with the conditions of this permit shall be deemed compliance with applicable requirements which were applicable as of the date the proposed permit for this source was issued, provided that either the applicable requirements are specifically identified within this permit, or the Illinois EPA, in acting on this permit application, has determined that other requirements specifically identified are not applicable to this source and this determination (or a concise summary thereof) is included in this permit.

This permit shield does not extend to applicable requirements which are promulgated after April 5, 2000 (the date of issuance of the draft permit) unless this permit has been modified to reflect such new requirements.

### 8.2 Applicability of Title IV Requirements (Acid Deposition Control)

This source is not an affected source under Title IV of the CAA and is not subject to requirements pursuant to Title IV of the CAA.

### 8.3 Emissions Trading Programs

No permit revision shall be required for increases in emissions allowed under any USEPA approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for elsewhere in this permit and that are authorized by the applicable requirement [Section 39.5(7)(o)(vii) of the Act].

### 8.4 Operational Flexibility/Anticipated Operating Scenarios

#### 8.4.1 Changes Specifically Addressed by Permit

Physical or operational changes specifically addressed by the Conditions of this permit that have been identified as not requiring Illinois EPA notification may be implemented without prior notice to the Illinois EPA.

#### 8.4.2 Changes Requiring Prior Notification

The Permittee is authorized to make physical or operational changes that contravene express permit terms without applying for or obtaining an amendment to this permit, provided that [Section 39.5(12)(a)(i) of the Act]:

- a. The changes do not violate applicable requirements;

- b. The changes do not contravene federally enforceable permit terms or conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;
- c. The changes do not constitute a modification under Title I of the CAA;
- d. Emissions will not exceed the emissions allowed under this permit following implementation of the physical or operational change; and
- e. The Permittee provides written notice to the Illinois EPA, Division of Air Pollution Control, Permit Section, at least 7 days before commencement of the change. This notice shall:
  - i. Describe the physical or operational change;
  - ii. Identify the schedule for implementing the physical or operational change;
  - iii. Provide a statement of whether or not any New Source Performance Standard (NSPS) is applicable to the physical or operational change and the reason why the NSPS does or does not apply;
  - iv. Provide emission calculations which demonstrate that the physical or operational change will not result in a modification; and
  - v. Provide a certification that the physical or operational change will not result in emissions greater than authorized under the Conditions of this permit.

#### 8.5 Testing Procedures

Tests conducted to measure composition of materials, efficiency of pollution control devices, emissions from process or control equipment, or other parameters shall be conducted using standard test methods. Documentation of the test date, conditions, methodologies, calculations, and test results shall be retained pursuant to the recordkeeping procedures of this permit. Reports of any tests conducted as required by this permit or as the result of a request by the Illinois EPA shall be submitted as specified in Condition 8.6.

## 8.6 Reporting Requirements

### 8.6.1 Monitoring Reports

If monitoring is required by any applicable requirements or conditions of this permit, a report summarizing the required monitoring results, as specified in the conditions of this permit, shall be submitted to the Air Compliance Section of the Illinois EPA every six months as follows [Section 39.5(7)(f) of the Act]:

<u>Monitoring Period</u>	<u>Report Due Date</u>
January - June	September 1
July - December	March 1

All instances of deviations from permit requirements must be clearly identified in such reports. All such reports shall be certified in accordance with Condition 9.9.

### 8.6.2 Test Notifications

Unless otherwise specified elsewhere in this permit, a written test plan for any test required by this permit shall be submitted to the Illinois EPA for review at least 60 days prior to the testing pursuant to Section 39.5(7)(a) of the Act. The notification shall include at a minimum:

- a. The name and identification of the affected unit(s);
- b. The person(s) who will be performing sampling and analysis and their experience with similar tests;
- c. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the source and any control equipment will be determined;
- d. The specific determination of emissions and operation which are intended to be made, including sampling and monitoring locations;
- e. The test method(s) which will be used, with the specific analysis method, if the method can be used with different analysis methods;
- f. Any minor changes in standard methodology proposed to accommodate the specific circumstances of testing, with justification; and

- g. Any proposed use of an alternative test method, with detailed justification.

#### 8.6.3 Test Reports

Unless otherwise specified elsewhere in this permit, the results of any test required by this permit shall be submitted to the Illinois EPA within 60 days of completion of the testing. The test report shall include at a minimum [Section 39.5(7)(e)(i) of the Act]:

- a. The name and identification of the affected unit(s);
- b. The date and time of the sampling or measurements;
- c. The date any analyses were performed;
- d. The name of the company that performed the tests and/or analyses;
- e. The test and analytical methodologies used;
- f. The results of the tests including raw data, and/or analyses including sample calculations;
- g. The operating conditions at the time of the sampling or measurements; and
- h. The name of any relevant observers present including the testing company's representatives, any Illinois EPA or USEPA representatives, and the representatives of the source.

#### 8.6.4 Reporting Addresses

- a. The following addresses should be utilized for the submittal of reports, notifications, and renewals:

- i. Illinois EPA - Air Compliance Section

Illinois Environmental Protection Agency  
Bureau of Air  
Compliance Section (MC 40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276

- ii. Illinois EPA - Air Regional Field Office

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
9511 West Harrison  
Des Plaines, Illinois 60016

iii. Illinois EPA - Air Permit Section (MC 11)

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Permit Section  
P.O. Box 19506  
Springfield, Illinois 62794-9506

iv. USEPA Region 5 - Air Branch

USEPA (AR - 17J)  
Air & Radiation Division  
77 West Jackson Boulevard  
Chicago, Illinois 60604

- b. Unless otherwise specified in the particular provision of this permit, reports shall be sent to the Illinois EPA - Air Compliance Section with a copy sent to the Illinois EPA - Air Regional Field Office.

8.7 Obligation to Comply with Title I Requirements

Any term, condition, or requirement identified in this permit by T1, T1R, or T1N is established or revised pursuant to 35 IAC Part 203 or 40 CFR 52.21 (Title I provisions) and incorporated into this permit pursuant to both Section 39.5 and Title I provisions. Notwithstanding the expiration date on the first page of this permit, the Title I conditions remain in effect pursuant to Title I provisions until the Illinois EPA deletes or revises them in accordance with Title I procedures.

## 9.0 STANDARD PERMIT CONDITIONS

### 9.1 Effect of Permit

9.1.1 The issuance of this permit does not release the Permittee from compliance with State and Federal regulations which are part of the Illinois State Implementation Plan, as well as with other applicable statutes and regulations of the United States or the State of Illinois or applicable ordinances, except as specifically stated in this permit and as allowed by law and rule [Section 39.5(7)(j)(iv) of the Act].

9.1.2 In particular, this permit does not alter or affect the following:

- a. The provisions of Section 303 (emergency powers) of the CAA, including USEPA's authority under that Section;
- b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
- c. The applicable requirements of the acid rain program consistent with Section 408(a) of the CAA; and
- d. The ability of USEPA to obtain information from a source pursuant to Section 114 (inspections, monitoring, and entry) of the CAA.

9.1.3 Notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

### 9.2 General Obligations of Permittee

#### 9.2.1 Duty to Comply

The Permittee must comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the CAA and the Act, and is grounds for any or all of the following: enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application [Section 39.5(7)(o)(i) of the Act].

The Permittee shall meet applicable requirements that become effective during the permit term in a timely manner unless an alternate schedule for compliance with the applicable requirement is established.

9.2.2 Duty to Maintain Equipment

The Permittee shall maintain all equipment covered under this permit in such a manner that the performance or operation of such equipment shall not cause a violation of applicable requirements.

9.2.3 Duty to Cease Operation

No person shall cause, threaten or allow the continued operation of any emission unit during malfunction or breakdown of the emission unit or related air pollution control equipment if such operation would cause a violation of an applicable emission standard, regulatory requirement, ambient air quality standard or permit limitation unless such malfunction or breakdown is allowed by a permit condition [Section 39.5(6)(c) of the Act].

9.2.4 Disposal Operations

The source shall be operated in such a manner that the disposal of air contaminants collected by the equipment operations, or activities shall not cause a violation of the Act or regulations promulgated thereunder.

9.2.5 Duty to Pay Fees

The Permittee must pay fees to the Illinois EPA consistent with the fee schedule approved pursuant to Section 39.5(18) of the Act, and submit any information relevant thereto [Section 39.5(7)(o)(vi) of the Act]. The check should be payable to "Treasurer, State of Illinois" and sent to: Fiscal Services Section, Illinois Environmental Protection Agency, P.O. Box 19276, Springfield, Illinois 62794-9276.

9.3 Obligation to Allow Illinois EPA Surveillance

Upon presentation of proper credentials and other documents, the Permittee shall allow the Illinois EPA, or an authorized representative to perform the following [Section 39.5(7)(p)(ii) of the Act]:

- a. Enter upon the Permittee's premises where an actual or potential emission unit is located; where any regulated equipment, operation, or activity is located or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect during hours of operation any sources, equipment (including monitoring and air pollution control

equipment), practices, or operations regulated or required under this permit;

- d. Sample or monitor any substances or parameters at any location:
  - i. At reasonable times, for the purposes of assuring permit compliance; or
  - ii. As otherwise authorized by the CAA, or the Act.
- e. Obtain and remove samples of any discharge or emission of pollutants; and
- f. Enter and utilize any photographic, recording, testing, monitoring, or other equipment for the purposes of preserving, testing, monitoring, or recording any activity, discharge or emission at the source.

#### 9.4 Obligation to Comply With Other Requirements

The issuance of this permit does not release the Permittee from applicable State and Federal laws and regulations, and applicable local ordinances addressing subjects other than air pollution control.

#### 9.5 Liability

##### 9.5.1 Title

This permit shall not be considered as in any manner affecting the title of the premises upon which the permitted source is located.

##### 9.5.2 Liability of Permittee

This permit does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the sources.

##### 9.5.3 Structural Stability

This permit does not take into consideration or attest to the structural stability of any unit or part of the source.

##### 9.5.4 Illinois EPA Liability

This permit in no manner implies or suggests that the Illinois EPA (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the source.

#### 9.5.5 Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege [Section 39.5(7)(o)(iv) of the Act].

### 9.6 Recordkeeping

#### 9.6.1 Control Equipment Maintenance Records

A maintenance record shall be kept on the premises for each item of air pollution control equipment. As a minimum, this record shall show the dates of performance and nature of preventative maintenance activities.

#### 9.6.2 Records of Changes in Operation

A record shall be kept describing changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes [Section 39.5(12)(b)(iv) of the Act].

#### 9.6.3 Retention of Records

- a. Records of all monitoring data and support information shall be retained for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit [Section 39.5(7)(e)(ii) of the Act].
- b. Other records required by this permit shall be retained for a period of at least 5 years from the date of entry unless a longer period is specified by a particular permit provision.

### 9.7 Annual Emissions Report

The Permittee shall submit an annual emissions report to the Illinois EPA, Compliance Section no later than May 1 of the following year, as required by 35 IAC Part 254.

### 9.8 Requirements for Compliance Certification

Pursuant to Section 39.5(7)(p)(v) of the Act, the Permittee shall submit annual compliance certifications. The compliance certifications shall be submitted no later than May 1 or more frequently as specified in the applicable requirements or by

permit condition. The compliance certifications shall be submitted to the Air Compliance Section, Air Regional Field Office, and USEPA Region 5 B Air Branch. The addresses for the submittal of the compliance certifications are provided in Condition 8.6.4 of this permit.

- a. The certification shall include the identification of each term or condition of this permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, both currently and over the reporting period consistent with the conditions of this permit.
- b. All compliance certifications shall be submitted to USEPA Region 5 in Chicago as well as to the Illinois EPA.
- c. All compliance reports required to be submitted shall include a certification in accordance with Condition 9.9.

#### 9.9 Certification

Any document (including reports) required to be submitted by this permit shall contain a certification by a responsible official of the Permittee that meets the requirements of Section 39.5(5) of the Act [Section 39.5(7)(p)(i) of the Act]. An example Certification by a Responsible Official is included as an attachment to this permit.

#### 9.10 Defense to Enforcement Actions

##### 9.10.1 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit [Section 39.5(7)(o)(ii) of the Act].

##### 9.10.2 Emergency Provision

- a. An emergency shall be an affirmative defense to an action brought for noncompliance with the technology-based emission limitations under this permit if the following conditions are met through properly signed, contemporaneous operating logs, or other relevant evidence:
  - i. An emergency occurred as provided in Section 39.5(7)(k) of the Act and the Permittee can identify the cause(s) of the emergency. Normally, an act of God such as lightning or flood is considered an emergency;

- ii. The permitted source was at the time being properly operated;
  - iii. The Permittee submitted notice of the emergency to the Illinois EPA within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken; and
  - iv. During the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission limitations, standards, or regulations in this permit.
- b. This provision is in addition to any emergency or upset provision contained in any applicable requirement. This provision does not relieve a Permittee of any reporting obligations under existing federal or state laws or regulations.

#### 9.11 Permanent Shutdown

This permit only covers emission units and control equipment while physically present at the indicated source location(s). Unless this permit specifically provides for equipment relocation, this permit is void for the operation or activity of any item of equipment on the date it is removed from the permitted location(s) or permanently shut down. This permit expires if all equipment is removed from the permitted location(s), notwithstanding the expiration date specified on this permit.

#### 9.12 Reopening and Reissuing Permit for Cause

##### 9.12.1 Permit Actions

This permit may be modified, reopened, and reissued, for cause pursuant to Section 39.5(15) of the Act. The filing of a request by the Permittee for a permit modification, revocation, and reissuance, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition [Section 39.5(7)(o)(iii) of the Act].

##### 9.12.2 Reopening and Revision

This permit must be reopened and revised if any of the following occur [Section 39.5(15)(a) of the Act]:

- a. Additional requirements become applicable to the equipment covered by this permit and three or more years remain before expiration of this permit;
- b. Additional requirements become applicable to an affected source for acid deposition under the acid rain program;
- c. The Illinois EPA or USEPA determines that this permit contains a material mistake or inaccurate statement when establishing the emission standards or limitations, or other terms or conditions of this permit; and
- d. The Illinois EPA or USEPA determines that this permit must be revised to ensure compliance with the applicable requirements of the Act.

#### 9.12.3 Inaccurate Application

The Illinois EPA has issued this permit based upon the information submitted by the Permittee in the permit application. Any misinformation, false statement or misrepresentation in the application shall be grounds for revocation under Section 39.5(15)(b) of the Act.

#### 9.12.4 Duty to Provide Information

The Permittee shall furnish to the Illinois EPA, within a reasonable time specified by the Illinois EPA any information that the Illinois EPA may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to the Illinois EPA copies of records required to be kept by this permit, or for information claimed to be confidential, the Permittee may furnish such records directly to USEPA along with a claim of confidentiality [Section 39.5(7)(o)(v) of the Act].

#### 9.13 Severability Clause

The provisions of this permit are severable, and should any one or more be determined to be illegal or unenforceable, the validity of the other provisions shall not be affected. The rights and obligations of the Permittee shall be construed and enforced as if this permit did not contain the particular provisions held to be invalid and the applicable requirements underlying these provisions shall remain in force [Section 39.5(7)(i) of the Act].

#### 9.14 Permit Expiration and Renewal

The right to operate terminates on the expiration date unless the Permittee has submitted a timely and complete renewal application. For a renewal to be timely it must be submitted no later than 9 and no sooner than 12 months prior to expiration. The equipment may continue to operate during the renewal period until final action is taken by the Illinois EPA, in accordance with the original permit conditions [Section 39.5(5)(1), (n), and (o) of the Act].

10.0 ATTACHMENTS

10.1 Attachment 1 Table of Storage Tanks

TABLE 1-1

Tank No.	Capacity Gal.	Vapor Pressure (psia)	Type <sup>a</sup>	Vented To <sup>b</sup> Control Equipment	Material Stored	Year Built
Process: Ethylene Plant						
11TKA103	30,000	1.7	P	Flare	Dimethyl Sulfide	1976
11TKA104	500	1.7	P	Flare	Dimethyl Sulfide	1976
11TKL420	50,000	>11	P	--	Propylene Product	1983
11TKS109	80,000	1.6	P	--	Methanol	1970
11TKS401	5,000	1.6	P	--	Methanol	1970
11TKS804	798,000	2.4	IFR	--	Aromatic Distillate	1970
11TKX101	5,870	<0.01	P	--	Amine	1970
36TK9150	798,000	2.4	IFR	--	Aromatic Distillate	1970
39TKS801	2,100,000	>11	FR, Cryo	Flare	Ethylene	1970
39TKS802A	840,000	>11	P	Flare	Propylene	1970
39TKS802B	215,000	>11	P	Flare	Propylene	1978
39TKS803A	1,075,000	>11	P	Flare	C3 Product	1970
39TKS803B	840,000	>11	P	Flare	C4 Product	1970
39TKS805	4,200,000	>11	FR, Cryo	Flare	Ethylene	1974
39TKS806	57,000	>11	P	Flare	Propylene	1970
39TKS810A	30,000	>11	P	Flare	Propylene	1984
39TKS810B	30,000	>11	P	Flare	Propylene	1984
Process: LDPE						
25TK7203	34,000	5.03	FR	--	Liquid Modifier	1971
25TK7305	32,000	1.7	FR	Flare	Vinyl Acetate	1971
25TK7500	10,600	1.2	FR	--	OMS	1982
25TK7112	8,000	0.1	FR	--	INDOPOL	1971

Tank No.	Capacity Gal.	Vapor Pressure (psia)	Type <sup>a</sup>	Vented To <sup>b</sup> Control Equipment	Material Stored	Year Built
Process: LLDPE						
85V2100	50,000	5.9	P	Flare	Hexene	1989
85V2150	50,000	5.9	P	Flare	Hexene	1989
85V2200	50,000	>11	P	Flare	Butene	1989
85V2250	50,000	>11	P	Flare	Butene	1989
85V2300	50,000	5.9	P	Flare	Hexane	1989
Process: Polypropylene						
46TK1006	15,200	1.22	FR	Flare	Solvent	1976
46TK1007	4,200	1.22	FR	Flare	Methanol	1976
46TK2021	66	<0.1	FR	Flare	Cold Glycol	1976
46TK2022	74	<0.1	FR	Flare	Hot Glycol	1976
46V-1001	5,000	8.51	FR	Flare	PO	1976
Process: Wastewater Treatment Plant						
38TK0700	18,280	<1.0	FR	Fume Incinerator	Spent Caustic Oil	1993
38TK0701	18,280	<1.0	FR	Fume Incinerator	Spent Caustic Oil	1993
38TK0705A	860	<0.1	FR	Fume Incinerator	Neutralization	1990
38TK0705B	860	<0.1	FR	Fume Incinerator	Neutralization	1990
38TK0707	880	<0.1	FR	Fume Incinerator	PH Control	1990
38TK0801	10,200	<0.1	FR	Fume Incinerator	Oil Decant	1990
38TK0802	20,700	<0.1	FR	Fume Incinerator	Slop Oil	1990
38TK0803	10,200	<0.1	FR	Fume Incinerator	Aromatic Oil	1990
38TK0804	20,700	<0.1	FR	Fume Incinerator	Sludge	1990
38TK4214	8,000,000	<0.1	FR	--	Wastewater	1976

Tank No.	Capacity Gal.	Vapor Pressure (psia)	Type <sup>a</sup>	Vented To <sup>b</sup> Control Equipment	Material Stored	Year Built
Process: Process Research Center						
59TK2301	40	<0.1	FR	--	Ethylene Glycol	1980
59V-9117	10,000	>11	P	Flare	Isobutane	1989
59V-9118	8,000	>11	P	Flare	Butene	1989
59V-9119	8,000	5.9	FR	Flare	Hexene	1989

<sup>a</sup>

IFR = Internal Floating Roof  
FR = Fixed Roof  
FR,Cryo = Fixed Roof but Stored at Cryogenic Temperature, approx. -150°F  
P = Pressure Tank

<sup>b</sup> All tanks have submerged loading pipes so not listed, except the following:

Pressure Tanks

10.2 Attachment 2 Fugitive Leak Emission Factors

Factors for fugitive emission calculations were taken from TNRCC 28MID<sup>a</sup> Leak Detection and Repair Program

Component	Service	AP-42 Factor lbs/hr	Leak Threshold	TNRCC 28MID <sup>a</sup> Reduction Credit, %
Valves	Light Liquid	0.0035	10,000	75
Valves	Vapor	0.0089	10,000	75
Pumps	Light Liquid	0.0386	10,000	75
Pressure Relief Valves	Vapor	0.2293	10,000	75
Compressors	Vapor	0.5027	10,000	75
Valves	Light Liquid	0.0035	500	97
Valves	Vapor	0.0089	500	97
Pumps	Light Liquid	0.0386	500	93
Pressure Relief Valves	Vapor	0.2293	500	97
Compressors	Vapor	0.5027	500	93

<sup>a</sup> Texas Natural Resources Conservation Commission, Maintenance Incentive Directed Program

10.3 Attachment 3 Example Certification by a Responsible Official

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Official Title: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Date Signed: \_\_\_\_\_

DGP:psj