

Section 1. Registration Information

Source Identification

Facility Name:	TENNESSEE OPERATIONS
Parent Company #1 Name:	EASTMAN CHEMICAL COMPANY
Parent Company #2 Name:	

Submission and Acceptance

Submission Type:	Re-submission
Subsequent RMP Submission Reason:	5-year update (40 CFR 68.190(b)(1))
Description:	
Receipt Date:	11-Jun-2014
Postmark Date:	11-Jun-2014
Next Due Date:	11-Jun-2019
Completeness Check Date:	11-Jun-2014
Complete RMP:	Yes
De-Registration / Closed Reason:	
De-Registration / Closed Reason Other Text:	
De-Registered / Closed Date:	
De-Registered / Closed Effective Date:	
Certification Received:	Yes

Facility Identification

EPA Facility Identifier:	1000 0007 2805
Other EPA Systems Facility ID:	37662TNNSSSEASTM

Dun and Bradstreet Numbers (DUNS)

Facility DUNS:	
Parent Company #1 DUNS:	808898381
Parent Company #2 DUNS:	808898381

Facility Location Address

Street 1:	P.O. Box 511
Street 2:	100 North Eastman Road
City:	Kingsport
State:	TENNESSEE
ZIP:	37662
ZIP4:	
County:	SULLIVAN

Facility Latitude and Longitude

Latitude (decimal):	36.522222
Longitude (decimal):	-082.541667
Lat/Long Method:	Interpolation - Digital map source (TIGER)
Lat/Long Description:	Center of Facility
Horizontal Accuracy Measure:	50
Horizontal Reference Datum Name:	North American Datum of 1983
Source Map Scale Number:	

Owner or Operator

Operator Name: EASTMAN CHEMICAL COMPANY
 Operator Phone: (423) 229-2000

Mailing Address

Operator Street 1: P.O. Box 511
 Operator Street 2: 100 North Eastman Road
 Operator City: Kingsport
 Operator State: TENNESSEE
 Operator ZIP: 37662
 Operator ZIP4:
 Operator Foreign State or Province:
 Operator Foreign ZIP:
 Operator Foreign Country:

Name and title of person or position responsible for Part 68 (RMP) Implementation

RMP Name of Person: Linda J. Lewis
 RMP Title of Person or Position: Director, OSSD
 RMP E-mail Address: ljlewis@eastman.com

Emergency Contact

Emergency Contact Name: Telephone Operator
 Emergency Contact Title: Telephone Operator
 Emergency Contact Phone: (423) 229-2000
 Emergency Contact 24-Hour Phone: (423) 229-2000
 Emergency Contact Ext. or PIN:
 Emergency Contact E-mail Address: N/A

Other Points of Contact

Facility or Parent Company E-mail Address:
 Facility Public Contact Phone: (423) 229-2000
 Facility or Parent Company WWW Homepage Address: www.eastman.com

Local Emergency Planning Committee

LEPC: Sullivan County

Full Time Equivalent Employees

Number of Full Time Employees (FTE) on Site: 6800
 FTE Claimed as CBI:

Covered By

OSHA PSM : Yes
 EPCRA 302 : Yes
 CAA Title V: Yes
 Air Operating Permit ID: multiple IDs

OSHA Ranking

OSHA Star or Merit Ranking: Y

Last Safety Inspection

Last Safety Inspection (By an External Agency) 05-Mar-2009
 Date:
 Last Safety Inspection Performed By an External Agency: State occupational safety agency

Predictive Filing

Did this RMP involve predictive filing?:

Preparer Information

Preparer Name:
 Preparer Phone:
 Preparer Street 1:
 Preparer Street 2:
 Preparer City:
 Preparer State:
 Preparer ZIP:
 Preparer ZIP4:
 Preparer Foreign State:
 Preparer Foreign Country:
 Preparer Foreign ZIP:

Confidential Business Information (CBI)

CBI Claimed:
 Substantiation Provided:
 Unsanitized RMP Provided:

Reportable Accidents

Reportable Accidents: See Section 6. Accident History below to determine if there were any accidents reported for this RMP.

Process Chemicals

Process ID: 1000054716
 Description:
 Process Chemical ID: 1000066589
 Program Level: Program Level 3 process
 Chemical Name: Phosphorus trichloride [Phosphorous trichloride]
 CAS Number: 7719-12-2
 Quantity (lbs): 725
 CBI Claimed:
 Flammable/Toxic: Toxic

Process ID: 1000054714
 Description:
 Process Chemical ID: 1000066587
 Program Level: Program Level 3 process
 Chemical Name: Ammonia (anhydrous)
 CAS Number: 7664-41-7
 Quantity (lbs): 320000
 CBI Claimed:
 Flammable/Toxic: Toxic

Process ID: 1000054720
 Description:
 Process Chemical ID: 1000066593
 Program Level: Program Level 3 process
 Chemical Name: Dimethylamine [Methanamine, N-methyl-]
 CAS Number: 124-40-3
 Quantity (lbs): 62000
 CBI Claimed:
 Flammable/Toxic: Flammable

Process ID: 1000054715
 Description:
 Process Chemical ID: 1000066588
 Program Level: Program Level 3 process
 Chemical Name: Phosphorus oxychloride [Phosphoryl chloride]
 CAS Number: 10025-87-3
 Quantity (lbs): 730
 CBI Claimed:
 Flammable/Toxic: Toxic

Process ID: 1000054718
 Description:
 Process Chemical ID: 1000066591
 Program Level: Program Level 3 process
 Chemical Name: 2-Methylpropene [1-Propene, 2-methyl-]
 CAS Number: 115-11-7
 Quantity (lbs): 80000
 CBI Claimed:
 Flammable/Toxic: Flammable

Process ID: 1000054719
 Description:
 Process Chemical ID: 1000066592
 Program Level: Program Level 3 process
 Chemical Name: Propylene [1-Propene]
 CAS Number: 115-07-1
 Quantity (lbs): 40000
 CBI Claimed:

Flammable/Toxic: Flammable

Process ID: 1000054721

Description:

Process Chemical ID: 1000066594

Program Level: Program Level 3 process

Chemical Name: Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]

CAS Number: 7664-39-3

Quantity (lbs): 1300

CBI Claimed:

Flammable/Toxic: Toxic

Process ID: 1000054717

Description:

Process Chemical ID: 1000066590

Program Level: Program Level 3 process

Chemical Name: Acetaldehyde

CAS Number: 75-07-0

Quantity (lbs): 3400000

CBI Claimed:

Flammable/Toxic: Flammable

Process NAICS

Process ID: 1000054721

Process NAICS ID: 1000055526

Program Level: Program Level 3 process

NAICS Code: 32519

NAICS Description: Other Basic Organic Chemical Manufacturing

Process ID: 1000054714

Process NAICS ID: 1000055519

Program Level: Program Level 3 process

NAICS Code: 32518

NAICS Description: Other Basic Inorganic Chemical Manufacturing

Process ID: 1000054715

Process NAICS ID: 1000055520

Program Level: Program Level 3 process

NAICS Code: 325992

NAICS Description: Photographic Film, Paper, Plate, and Chemical Manufacturing

Process ID: 1000054716

Process NAICS ID: 1000055521

Program Level: Program Level 3 process

NAICS Code: 32532

NAICS Description:	Pesticide and Other Agricultural Chemical Manufacturing
Process ID:	1000054717
Process NAICS ID:	1000055522
Program Level:	Program Level 3 process
NAICS Code:	32519
NAICS Description:	Other Basic Organic Chemical Manufacturing
Process ID:	1000054718
Process NAICS ID:	1000055523
Program Level:	Program Level 3 process
NAICS Code:	325992
NAICS Description:	Photographic Film, Paper, Plate, and Chemical Manufacturing
Process ID:	1000054719
Process NAICS ID:	1000055524
Program Level:	Program Level 3 process
NAICS Code:	325992
NAICS Description:	Photographic Film, Paper, Plate, and Chemical Manufacturing
Process ID:	1000054720
Process NAICS ID:	1000055525
Program Level:	Program Level 3 process
NAICS Code:	32551
NAICS Description:	Paint and Coating Manufacturing

Section 2. Toxics: Worst Case

Toxic Worst ID: 1000044546

Percent Weight:	100.0
Physical State:	Gas
Model Used:	EPA's OCA Guidance Reference Tables or Equations
Release Duration (mins):	10
Wind Speed (m/sec):	1.5
Atmospheric Stability Class:	F
Topography:	Urban

Passive Mitigation Considered

Dikes:
Enclosures:
Berms:
Drains:
Sumps:
Other Type:

Section 3. Toxics: Alternative Release

Toxic Alter ID: 1000047358

Percent Weight:	100.0
Physical State:	Liquid
Model Used:	SAFER-Realtime
Wind Speed (m/sec):	2.5
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	
Emergency Shutdown:	
Other Type:	

Toxic Alter ID: 1000047359

Percent Weight:	100.0
Physical State:	Liquid
Model Used:	SAFER-Realtime
Wind Speed (m/sec):	1.5
Atmospheric Stability Class:	D
Topography:	Urban

Passive Mitigation Considered

Dikes:	Yes
Enclosures:	
Berms:	
Drains:	
Sumps:	
Other Type:	

Active Mitigation Considered

Sprinkler System:	
Deluge System:	
Water Curtain:	
Neutralization:	
Excess Flow Valve:	
Flares:	
Scrubbers:	

Emergency Shutdown:
Other Type:

Toxic Alter ID: 1000047360

Percent Weight: 100.0
Physical State: Liquid
Model Used: SAFER-Realtime
Wind Speed (m/sec): 1.5
Atmospheric Stability Class: D
Topography: Urban

Passive Mitigation Considered

Dikes: Yes
Enclosures:
Berms:
Drains:
Sumps:
Other Type:

Active Mitigation Considered

Sprinkler System:
Deluge System:
Water Curtain:
Neutralization:
Excess Flow Valve:
Flares:
Scrubbers:
Emergency Shutdown:
Other Type:

Toxic Alter ID: 1000047361

Percent Weight: 100.0
Physical State: Gas liquified by pressure
Model Used: SAFER Realtime
Wind Speed (m/sec): 1.5
Atmospheric Stability Class: D
Topography: Urban

Passive Mitigation Considered

Dikes: Yes
Enclosures: Yes
Berms:
Drains: Yes
Sumps:
Other Type: Maximum line connection of 0.375 inch diameter

Active Mitigation Considered

Sprinkler System: Yes
Deluge System: Yes
Water Curtain: Yes
Neutralization:
Excess Flow Valve:
Flares:

Scrubbers:

Emergency Shutdown:

Yes

Other Type:

Section 4. Flammables: Worst Case

Flammable Worst ID: 1000031773

Model Used:

EPA's OCA Guidance Reference Tables or
Equations

Endpoint used:

1 PSI

Passive Mitigation Considered

Blast Walls:

Other Type:

Section 5. Flammables: Alternative Release

Flammable Alter ID: 1000029784

Model Used:

EPA's RMP*Comp(TM)

Passive Mitigation Considered

Dikes:

Yes

Fire Walls:

Blast Walls:

Enclosures:

Other Type:

Active Mitigation Considered

Sprinkler System:

Deluge System:

Yes

Water Curtain:

Excess Flow Valve:

Other Type:

Section 6. Accident History

No records found.

Section 7. Program Level 3

Description

Designing For Safety

- The Department of Transportation (DOT) approved shipping container is made of heavy gauge steel.
- A cover at the end of the cylinder protects the cylinder valves. The cylinder valves are recessed to prevent the valves from being damaged.
- The HF cylinders are not equipped with thermal or pressure relief devices.
- The HF cylinder is stored in a concrete cubicle. There is protected access to the HF cylinder, making a break in the cylinder improbable.
- The HF cylinder cubicle is equipped with emergency shutdown systems which will mitigate releases.
- HF detectors at the HF cylinder cubicle and in the production facilities provide notification of leaks in these locations and activate water systems to prevent HF vapors from traveling out of the immediate area.
- Piping used for transferring HF to the process is a special thick walled corrosion resistant material.

Operating Safely

- A fire inside the HF cylinder cubicle is very improbable because no flammable material is stored in the area; therefore, overpressurization of a cylinder to dangerous levels is highly unlikely.
- Only one full cylinder and one partially full cylinder of HF is normally allowed on-site. There is no other on-site or off-site inventory of HF. The HF cylinder is delivered by the vendor directly to the HF storage cubicle.
- Leaks are easily detected visually and by smell.
- The HF transfer supply line between the HF cubicle and the production facilities is purged clear between additions of HF. The HF addition step is a small component of the batch cycle.
- The HF addition is DCS controlled.
- The HF addition is a low pressure addition which is well below the design criteria of the piping system.
- Procedures require two operators to be present when connecting or disconnecting an HF cylinder.
- DSC interlocks and ESD systems (both software and hardwired) are in place to ensure the safe handling and addition of HF and to safely terminate an HF addition should a release occur.
- Operators, mechanics, and contractor personnel who work within the HF system are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations

- Flex hose connectors to the process are routinely inspected to be in good condition as part of the operating procedure.
- The HF cylinder/process piping connection and the HF reactor system are routinely pressure checked for leaks to ensure the integrity of the system.
- HF detection systems are routinely calibrated.
- The HF system is inspected on a routine basis to ensure the mechanical integrity of the piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.

Auditing Our Operations

- HF cylinders undergo a safety inspection by the vendor on a routine schedule. Discrepancies or defects are corrected before further use.
- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055258
Chemical Name:	Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]
Flammable/Toxic:	Toxic
CAS Number:	7664-39-3

Process ID: 1000054721
 Description:
 Prevention Program Level 3 ID: 1000045799
 NAICS Code: 32519

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised): 19-Sep-2012

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 19-Sep-2012

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 01-Mar-2013

Major Hazards Identified

Toxic Release: Yes
 Fire:
 Explosion:
 Runaway Reaction:
 Polymerization:
 Overpressurization:
 Corrosion: Yes
 Overfilling:
 Contamination:
 Equipment Failure:
 Loss of Cooling, Heating, Electricity, Instrument Air:
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers: Yes
 Flares:

Manual Shutoffs:	Yes
Automatic Shutoffs:	Yes
Interlocks:	Yes
Alarms and Procedures:	Yes
Keyed Bypass:	Yes
Emergency Air Supply:	
Emergency Power:	
Backup Pump:	
Grounding Equipment:	
Inhibitor Addition:	
Rupture Disks:	Yes
Excess Flow Device:	
Quench System:	
Purge System:	
None:	
Other Process Control in Use:	

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	Yes
Fire Walls:	Yes
Blast Walls:	Yes
Deluge System:	Yes
Water Curtain:	Yes
Enclosure:	Yes
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	Yes
None:	
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	Yes
None:	
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	17-May-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs): 19-Sep-2012

The Type of Training Provided

Classroom:
 On the Job: Yes
 Other Training: Workshops led by Technical Expert

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:
 Demonstration: Yes
 Observation: Yes
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 09-Mar-2013

Equipment Inspection Date (The date of the most recent equipment inspection or test): 09-Mar-2013

Equipment Tested (Equipment most recently inspected or tested): HF supply line, Unit 48 Reactor

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 08-Jan-2013

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 09-Jan-2013

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 19-Sep-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- The storage tanks are in a containment area designed to safely prevent spills from reaching the public.
- Ammonia detectors at the railcar unloading station and storage tanks provide notification of leaks in these locations.
- The tanks are equipped with pressure relief valves to prevent overpressurization of the tanks.
- The distribution header system is designed with excess flow stations that automatically close if an excess flow is present, preventing a large unwanted release.
- The unloading system consists of closed loop piping to minimize releases to the atmosphere.

Operating Safely

- The railcar is visually inspected before it is unloaded.
- Personnel verify that the storage tanks can hold the entire contents of the railcar before the transfer is started.
- Operating procedures require continual operator attendance during ammonia transfers to the storage tanks so reaction time to leaks is minimized.
- Trained personnel continually monitor the ammonia system; a leak may be found by a detector or by an easily detectable odor.
- The operators, mechanics, and contractor personnel who work within the ammonia system are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations/Auditing Our Operations

- The ammonia system is inspected on a routine basis to ensure the mechanical integrity of the equipment, piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.
- The area leak detection system is routinely checked by Certified Instrument Analysts.
- The fire protection system is inspected, tested, and maintained per NFPA 25.

Auditing Our Operations

- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055251
Chemical Name:	Ammonia (anhydrous)
Flammable/Toxic:	Toxic
CAS Number:	7664-41-7

Process ID:	1000054714
Description:	
Prevention Program Level 3 ID:	1000045800
NAICS Code:	32518

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	21-Dec-2012
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	21-Dec-2012
---	-------------

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 01-Jun-2013

Major Hazards Identified

Toxic Release: Yes
 Fire:
 Explosion:
 Runaway Reaction:
 Polymerization:
 Overpressurization: Yes
 Corrosion:
 Overfilling:
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers: Yes
 Flares:
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass: Yes
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment: Yes
 Inhibitor Addition:
 Rupture Disks:
 Excess Flow Device: Yes
 Quench System:
 Purge System:
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
 Dikes: Yes
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
 Perimeter Monitors:
 None:
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:
 Change Process Parameters:
 Installation of Process Controls: Yes
 Installation of Process Detection Systems:
 Installation of Perimeter Monitoring Systems:
 Installation of Mitigation Systems:
 None Recommended:
 None:
 Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 31-Jan-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 31-Jan-2014

The Type of Training Provided

Classroom:
 On the Job:
 Other Training: interactive media

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:

Demonstration:
 Observation:
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 20-Nov-2013

Equipment Inspection Date (The date of the most recent equipment inspection or test): 08-Jul-2013

Equipment Tested (Equipment most recently inspected or tested): Safety Instrumented System (SIS) test

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 27-Mar-2012

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 14-Mar-2014

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 04-Feb-2009

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 29-Aug-2009

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 21-Dec-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- A dedicated warehouse area has been specified and clearly marked for storage.
- Phosphorus oxychloride is transferred from drums to a feed tank using vacuum, thereby minimizing the chances of a release during transfers to the tank.
- The feed tank is located in an indoor third floor containment area designed to safely prevent spills from reaching the public.
- The feed tank area is protected by a deluge system to minimize the impact of an external fire.
- The feed tank has a rupture disk and a blown disk indicator to prevent rupture of the tank from excessive pressure.

Operating Safely

- Leaks are easily detected visually and by smell. Since operating procedures require continual operator attendance during feed tank charging periods, reaction time to leaks is minimized.
- Administrative controls are in place to make sure there is always room in the tank to transfer the entire drum of phosphorus oxychloride.
- Operators, mechanics, and contractor personnel who work within the process are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations

- The feed tank loading line is visually inspected every time it is used.
- The feed tank system is inspected on a routine basis to ensure the mechanical integrity of the equipment, piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.
- The fire protection system is inspected, tested, and maintained per NFPA 25.

Auditing Our Operations

- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055252
Chemical Name:	Phosphorus oxychloride [Phosphoryl chloride]
Flammable/Toxic:	Toxic
CAS Number:	10025-87-3

Process ID:	1000054715
Description:	
Prevention Program Level 3 ID:	1000045801
NAICS Code:	325992

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	19-Sep-2012
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	19-Sep-2012
---	-------------

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 31-Dec-2012

Major Hazards Identified

Toxic Release: Yes
 Fire:
 Explosion:
 Runaway Reaction: Yes
 Polymerization:
 Overpressurization: Yes
 Corrosion: Yes
 Overfilling: Yes
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves:
 Check Valves: Yes
 Scrubbers: Yes
 Flares:
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment: Yes
 Inhibitor Addition:
 Rupture Disks: Yes
 Excess Flow Device:
 Quench System:
 Purge System: Yes
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
 Dikes: Yes
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors:
 Perimeter Monitors:
 None: Yes
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:
 Change Process Parameters:
 Installation of Process Controls: Yes
 Installation of Process Detection Systems:
 Installation of Perimeter Monitoring Systems:
 Installation of Mitigation Systems:
 None Recommended:
 None:
 Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 31-Jan-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 31-Jan-2014

The Type of Training Provided

Classroom:
 On the Job:
 Other Training: Workshop led by Technical Expert

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:
 Demonstration: Yes

Observation: Yes
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 08-Oct-2009

Equipment Inspection Date (The date of the most recent equipment inspection or test): 08-Oct-2009

Equipment Tested (Equipment most recently inspected or tested): Unit 45 Reactor SIS Check

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 02-Sep-2009

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 11-Sep-2009

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):
 Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 19-Sep-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- A dedicated warehouse area has been specified and clearly marked for storage.
- Phosphorus trichloride is transferred from drums to a weigh tank using vacuum, thereby minimizing the chances of a release during transfers to the tank.
- The weigh tank is located in an indoor third floor containment area designed to safely prevent spills from reaching the public.
- The weigh tank area is protected by a deluge system to minimize the impact of an external fire.
- The weigh tank has a rupture disk with a blown disk indicator to prevent rupture of the tank from excessive pressure.

Operating Safely

- Leaks are easily detected visually and by smell. Since operating procedures require continual operator attendance during weigh tank charging periods, reaction time to leaks is minimized.
- Administrative controls are in place to make sure there is always room in the tank to transfer the entire drum of phosphorus trichloride.
- Operators, mechanics, and contractor personnel who work within the process are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations

- The weigh tank loading line is visually inspected every time it is used.
- The weigh tank system is inspected on a routine basis to ensure the mechanical integrity of the equipment, piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.
- The fire protection system is inspected, tested, and maintained per NFPA 25.

Auditing Our Operations

- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055253
Chemical Name:	Phosphorus trichloride [Phosphorous trichloride]
Flammable/Toxic:	Toxic
CAS Number:	7719-12-2

Process ID:	1000054716
Description:	
Prevention Program Level 3 ID:	1000045802
NAICS Code:	32532

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	17-May-2011
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	17-May-2011
---	-------------

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 31-Dec-2011

Major Hazards Identified

Toxic Release: Yes
 Fire:
 Explosion:
 Runaway Reaction: Yes
 Polymerization:
 Overpressurization: Yes
 Corrosion: Yes
 Overfilling: Yes
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves:
 Check Valves: Yes
 Scrubbers: Yes
 Flares:
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment: Yes
 Inhibitor Addition:
 Rupture Disks: Yes
 Excess Flow Device:
 Quench System:
 Purge System: Yes
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
 Dikes: Yes
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors:
 Perimeter Monitors:
 None: Yes
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:
 Change Process Parameters:
 Installation of Process Controls: Yes
 Installation of Process Detection Systems:
 Installation of Perimeter Monitoring Systems:
 Installation of Mitigation Systems:
 None Recommended:
 None:
 Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 01-Apr-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 01-Apr-2014

The Type of Training Provided

Classroom:
 On the Job:
 Other Training: Workshop conducted by Technical Expert

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:
 Demonstration: Yes

Observation: Yes
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 09-Mar-2013

Equipment Inspection Date (The date of the most recent equipment inspection or test): 09-Mar-2013

Equipment Tested (Equipment most recently inspected or tested): Unit 48 SIS Check

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 09-Mar-2013

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 29-Aug-2013

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):
 Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 19-Sep-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- The storage tank is equipped with duplicate high-level shutoff switches that stop unloading transfers to prevent overfilling the tank. Also, the total inventory in the tank is controlled so there is always room to hold the entire contents of a railcar.
- The storage tank is located in a dike that can hold the contents of the tank should a leak develop.
- The tank, unloading station and distribution pumps are protected by a fixed fire protection system that is automatically activated by heat from a fire, by signals from an automatic leak detection system, or manually if necessary.
- The tank is equipped with a pressure relief valve to prevent overpressurization of the tank.
- The tank is equipped with pressure indicators/alarms and temperature indicators/alarms.
- The unloading system consists of closed loop piping to minimize releases to the atmosphere.

Operating Safely

- The railcar is visually inspected before it is unloaded.
- Personnel verify that the storage tank can hold the entire contents of the railcar before the transfer is started.
- Operating procedures require continual operator attendance during acetaldehyde transfers to the storage tank so reaction time to leaks is minimized.
- The operation of the storage tank system is continuously monitored using a distributed control computer system.
- Operators mechanics, and contractor personnel who work within the process are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations

- The acetaldehyde system is inspected on a routine basis to ensure the mechanical integrity of the equipment, piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.
- The area leak detector system is routinely checked by Certified Instrument Analysts.
- The fire protection system is inspected, tested, and maintained per NFPA 25.

Auditing Our Operations

- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055254
Chemical Name:	Acetaldehyde
Flammable/Toxic:	Flammable
CAS Number:	75-07-0

Process ID:	1000054717
Description:	
Prevention Program Level 3 ID:	1000045803
NAICS Code:	32519

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	13-Nov-2013
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	13-Nov-2013
---	-------------

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 01-Feb-2014

Major Hazards Identified

Toxic Release: Yes
 Fire: Yes
 Explosion: Yes
 Runaway Reaction: Yes
 Polymerization: Yes
 Overpressurization: Yes
 Corrosion: Yes
 Overfilling: Yes
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers:
 Flares:
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment: Yes
 Inhibitor Addition:
 Rupture Disks:
 Excess Flow Device:
 Quench System:
 Purge System: Yes
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
 Dikes: Yes
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
 Perimeter Monitors:
 None:
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:
 Change Process Parameters:
 Installation of Process Controls: Yes
 Installation of Process Detection Systems:
 Installation of Perimeter Monitoring Systems:
 Installation of Mitigation Systems:
 None Recommended:
 None:
 Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 07-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 05-Mar-2014

The Type of Training Provided

Classroom:
 On the Job:
 Other Training: interactive media

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:

Demonstration:
 Observation:
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 06-May-2011

Equipment Inspection Date (The date of the most recent equipment inspection or test): 08-Jul-2013

Equipment Tested (Equipment most recently inspected or tested): Safety Instrumented System (SIS) test

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 10-Dec-2013

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 30-Apr-2014

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):
 Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 13-Nov-2013

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2013

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- Combustible gas analyzers at the railcar unloading station and storage tanks provide notification of leaks in these locations.
- Each storage tank is equipped with a level indicator.
- Each storage tank is equipped with a high-level shutoff switch that stops unloading transfers to prevent overfilling the tanks.
- The tanks and unloading station are protected by a fixed fire protection system that is automatically activated by heat from a fire.
- Each storage tank is equipped with a pressure indicator.
- The tanks are equipped with pressure relief valves to prevent over pressurization of the tanks.
- The storage tank is designed with internal excess flow valves that automatically close if an excess flow is present, preventing a large, unwanted release.
- The unloading system consists of closed loop piping to minimize releases to the atmosphere.

Operating Safely

- The railcar is visually inspected before it is unloaded.
- Operating procedures require continual operator attendance during isobutylene transfers to the storage tank so reaction time to leaks is minimized.
- Operators, mechanics, and contractor personnel who work within the process are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations

- The isobutylene system is inspected on a routine basis to ensure the mechanical integrity of the equipment, piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.
- The area leak detector system is routinely checked by Certified Instrument Analysts.
- The fire protection system is inspected, tested, and maintained per NFPA 25.

Auditing Our Operations

- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055255
Chemical Name:	2-Methylpropene [1-Propene, 2-methyl-]
Flammable/Toxic:	Flammable
CAS Number:	115-11-7

Process ID:	1000054718
Description:	
Prevention Program Level 3 ID:	1000045804
NAICS Code:	325992

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	03-May-2010
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	03-May-2010
---	-------------

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 01-Sep-2010

Major Hazards Identified

Toxic Release:
 Fire: Yes
 Explosion: Yes
 Runaway Reaction: Yes
 Polymerization: Yes
 Overpressurization: Yes
 Corrosion:
 Overfilling: Yes
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers:
 Flares:
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment: Yes
 Inhibitor Addition:
 Rupture Disks:
 Excess Flow Device: Yes
 Quench System:
 Purge System:
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
 Dikes:
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
 Perimeter Monitors:
 None:
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:
 Change Process Parameters:
 Installation of Process Controls: Yes
 Installation of Process Detection Systems:
 Installation of Perimeter Monitoring Systems:
 Installation of Mitigation Systems:
 None Recommended:
 None:
 Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 04-May-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 04-May-2014

The Type of Training Provided

Classroom: Yes
 On the Job:
 Other Training:

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:

Demonstration:
 Observation:
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 04-Sep-2013

Equipment Inspection Date (The date of the most recent equipment inspection or test): 03-Jun-2013

Equipment Tested (Equipment most recently inspected or tested): Safety Instrumented System (SIS) Check

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 22-Apr-2008

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 22-Apr-2008

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):
 Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 04-May-2014

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- Combustible gas analyzers at the unloading station, storage tank, etc., provide notification of leaks in these locations.
- The storage tank is equipped with duplicate high level shutoff switches that stop unloading transfers to prevent overfilling the tank.
- The tank and unloading area are protected by a fixed fire protection system that is automatically activated by heat from a fire, by signals from the automatic leak detection system, or manually if necessary.
- There are local level indicators at the tank and at the unloading station.
- The unloading system consists of closed loop piping to minimize releases to the atmosphere.
- The transfer line is underground, and is contained in monitored, open conduit with signs warning of underground lines.
- The tank is equipped with pressure relief devices that direct any gasses to a flare. It is possible to manually vent vessels in this system to the flare.

Operating Safely

- Operating procedures require continual operator attendance during transfers to the storage tank so reaction time to leaks is minimized.
- The operation of the storage tank system is continuously monitored using a distributed control computer system.
- During transfers, all vehicular traffic near the unloading station is stopped by barriers and gates.
- The storage tank is isolated with redundant manual valves which are only opened when propylene is charged and an operator present.
- Operators, mechanics and contractor personnel who work within the process are trained and qualified in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.
- Any changes to operating procedures or equipment are reviewed for potential impact on health, safety, and the environment using the Management of Change Process.

Maintaining Safe Operations

- A visual inspection of all lines and equipment is periodically completed.
- The propylene system is inspected on a routine basis to ensure the mechanical integrity of the equipment, piping, instrumentation, interlocks, and ESDs (as applicable). Any discrepancies or defects are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.
- Operators are initially trained on the process. Refresher training is completed at least once every three years.
- The area combustible gas leak detector system is routinely checked by Certified Instrument Analysts.
- The fire protection system is inspected, tested, and maintained per NFPA 25.

Auditing Our Operations

- Audits are completed at least once every three years in accordance with PSM/RMP requirements.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055256
Chemical Name:	Propylene [1-Propene]
Flammable/Toxic:	Flammable
CAS Number:	115-07-1

Process ID:	1000054719
Description:	
Prevention Program Level 3 ID:	1000045805
NAICS Code:	325992

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	31-May-2012
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update): 31-May-2012

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 31-Dec-2012

Major Hazards Identified

Toxic Release:
 Fire: Yes
 Explosion: Yes
 Runaway Reaction: Yes
 Polymerization: Yes
 Overpressurization: Yes
 Corrosion:
 Overfilling:
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers:
 Flares: Yes
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment: Yes
 Inhibitor Addition:
 Rupture Disks:
 Excess Flow Device: Yes

Quench System:
 Purge System:
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System: Yes
 Dikes: Yes
 Fire Walls:
 Blast Walls:
 Deluge System: Yes
 Water Curtain:
 Enclosure:
 Neutralization:
 None:
 Other Mitigation System in Use:

Monitoring/Detection Systems in Use

Process Area Detectors: Yes
 Perimeter Monitors:
 None:
 Other Monitoring/Detection System in Use:

Changes Since Last PHA Update

Reduction in Chemical Inventory:
 Increase in Chemical Inventory:
 Change Process Parameters:
 Installation of Process Controls:
 Installation of Process Detection Systems:
 Installation of Perimeter Monitoring Systems:
 Installation of Mitigation Systems:
 None Recommended: Yes
 None:
 Other Changes Since Last PHA or PHA Update:

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures): 31-Jan-2014

Training

Training Revision Date (The date of the most recent review or revision of training programs): 31-Jan-2014

The Type of Training Provided

Classroom:
 On the Job:
 Other Training: interactive media

The Type of Competency Testing Used

Written Tests: Yes
 Oral Tests:
 Demonstration:
 Observation:
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 22-Apr-2013

Equipment Inspection Date (The date of the most recent equipment inspection or test): 18-Feb-2014

Equipment Tested (Equipment most recently inspected or tested): 14K-2A/B, 14K-8 and Chillers

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 22-Apr-2014

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 31-Jan-2014

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)):

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation):

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 31-May-2012

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Description

Designing For Safety

- Dimethylamine is received as 60% dimethylamine and 40% water solution in tank trucks and is transferred into a storage tank.
- The tank is equipped with redundant level indication that is continuously monitored in a control room.
- The storage tank is located in a dike that can hold the contents of the tank should a leak develop.
- The tank and diked areas are protected by a fire sprinkler system that is automatically activated by heat from a fire, or by signals from an automatic leak detection system, or manually if necessary.
- The storage tank is also equipped with pressure relief valves to prevent overpressurization of the tank.

Operating Safely

- The operation of the storage tank is monitored continuously by operators using a distributed control computer system.
- Each operator receives routine refresher training for normal operation and emergency situations.
- New operators must complete an extensive apprenticeship program and be certified prior to operating the process.
- Operators use detailed procedures, checklists, equipment drawings, etc to operate the process. The procedures and checklists are reviewed annually to ensure they are current and accurate.
- Any changes to operating procedures or to equipment are thoroughly reviewed for potential impact on health, safety, and the environment.

Maintaining Safe Operations

- The storage tank and relief valves receive detailed inspections every two years by a State Certified Inspector.
- The Computer Control System continuously monitors the functionality of the instruments and critical instruments (emergency shutdown instruments) are tested annually by certified Instrument Mechanics.
- The area leak detector system is checked monthly by Certified Instrument Analysis.
- The fire protection system is checked monthly by the Emergency Response Dept.

Auditing Our Operations

- The process is subject to many different types of inspections and audits such as weekly Safety and Housekeeping inspections, lock/tag audits and Safe Work Permit audits of maintenance procedures, a company annual Integrated Safety Audit that looks at industrial safety issues and Industrial Hygiene Medical/exposure studies.
- Every five years the process and equipment is examined thoroughly by Process Hazard Analyses and Revalidations.

Program Level 3 Prevention Program Chemicals

Prevention Program Chemical ID:	1000055257
Chemical Name:	Dimethylamine [Methanamine, N-methyl-]
Flammable/Toxic:	Flammable
CAS Number:	124-40-3
Process ID:	1000054720
Description:	
Prevention Program Level 3 ID:	1000045806
NAICS Code:	32551

Safety Information

Safety Review Date (The date on which the safety information was last reviewed or revised):	15-May-2013
---	-------------

Process Hazard Analysis (PHA)

PHA Completion Date (Date of last PHA or PHA update):	15-May-2013
---	-------------

The Technique Used

What If:
 Checklist:
 What If/Checklist:
 HAZOP:
 Failure Mode and Effects Analysis:
 Fault Tree Analysis:
 Other Technique Used: Hybrid What If/Checklist/HAZOP
 PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 24-Mar-2014

Major Hazards Identified

Toxic Release: Yes
 Fire: Yes
 Explosion: Yes
 Runaway Reaction:
 Polymerization:
 Overpressurization: Yes
 Corrosion: Yes
 Overfilling: Yes
 Contamination:
 Equipment Failure: Yes
 Loss of Cooling, Heating, Electricity, Instrument Air: Yes
 Earthquake:
 Floods (Flood Plain):
 Tornado:
 Hurricanes:
 Other Major Hazard Identified:

Process Controls in Use

Vents: Yes
 Relief Valves: Yes
 Check Valves: Yes
 Scrubbers: Yes
 Flares:
 Manual Shutoffs: Yes
 Automatic Shutoffs: Yes
 Interlocks: Yes
 Alarms and Procedures: Yes
 Keyed Bypass:
 Emergency Air Supply:
 Emergency Power:
 Backup Pump:
 Grounding Equipment:
 Inhibitor Addition:
 Rupture Disks:
 Excess Flow Device:
 Quench System:
 Purge System:
 None:
 Other Process Control in Use:

Mitigation Systems in Use

Sprinkler System:	Yes
Dikes:	Yes
Fire Walls:	Yes
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

Monitoring/Detection Systems in Use

Process Area Detectors:	Yes
Perimeter Monitors:	
None:	
Other Monitoring/Detection System in Use:	

Changes Since Last PHA Update

Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	Yes
Other Changes Since Last PHA or PHA Update:	

Review of Operating Procedures

Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	24-Mar-2014
--	-------------

Training

Training Revision Date (The date of the most recent review or revision of training programs):	28-Jan-2010
---	-------------

The Type of Training Provided

Classroom:	
On the Job:	
Other Training:	PowerPoint Presentation

The Type of Competency Testing Used

Written Tests:	Yes
Oral Tests:	

Demonstration:
 Observation:
 Other Type of Competency Testing Used:

Maintenance

Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 11-Mar-2014

Equipment Inspection Date (The date of the most recent equipment inspection or test): 15-Nov-2013

Equipment Tested (Equipment most recently inspected or tested): Flows, levels, temperatures, pressures, safety interlocks

Management of Change

Change Management Date (The date of the most recent change that triggered management of change procedures): 15-Nov-2013

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 07-May-2014

Pre-Startup Review

Pre-Startup Review Date (The date of the most recent pre-startup review): 31-Oct-2013

Compliance Audits

Compliance Audit Date (The date of the most recent compliance audit): 28-Mar-2013

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 31-Mar-2015

Incident Investigation

Incident Investigation Date (The date of the most recent incident investigation (if any)): 07-Aug-2013

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 31-Oct-2014

Employee Participation Plans

Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 07-Mar-2013

Hot Work Permit Procedures

Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 20-May-2014

Contractor Safety Procedures

Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 01-May-2014

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 01-May-2014

Confidential Business Information

CBI Claimed:

Section 8. Program Level 2

No records found.

Section 9. Emergency Response

Written Emergency Response (ER) Plan

Community Plan (Is facility included in written community emergency response plan?): Yes

Facility Plan (Does facility have its own written emergency response plan?): Yes

Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?): Yes

Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?): Yes

Healthcare (Does facility's ER plan include information on emergency health care?):

Emergency Response Review

Review Date (Date of most recent review or update of facility's ER plan): 01-Apr-2014

Emergency Response Training

Training Date (Date of most recent review or update of facility's employees): 18-May-2014

Local Agency

Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): Sullivan County IEPC

Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): (423) 323-6471

Subject to

OSHA Regulations at 29 CFR 1910.38: Yes

OSHA Regulations at 29 CFR 1910.120: Yes

Clean Water Regulations at 40 CFR 112: Yes

RCRA Regulations at CFR 264, 265, and 279.52: Yes

OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254:

State EPCRA Rules or Laws: Yes

Other (Specify):

Executive Summary

Eastman Chemical Company, Tennessee Operations:
2014 Executive Summary

This plan was updated on June 11, 2014, and resubmitted to fulfill the 5-year resubmission requirement of 40 CFR 68.190. Since the last resubmission in 2009, modeling results have been updated, and 2010 Census data has been used to update the affected population numbers. Additionally, two RMP chemicals (bromine and ethyl ether) have been removed from use at the site, and therefore have been removed from the RMPlan.

I. Accidental Release Prevention and Emergency Response Policies

The accidental release prevention and emergency response policies applicable to Eastman Chemical Company Tennessee Operations are summarized in the Eastman Chemical Company Responsible Care Policy which states in part: "Eastman has adopted Responsible Care as the cornerstone of our global HSES policy which states our commitment to conduct our business consistent with all applicable laws, regulations, sound HSES practices and Responsible Care principles." The policy goes on to state that "We pledge [t]o make continual progress toward our goal of no accidents, injuries or harm to human health and the environment from our products and operations and to be transparent in reporting our health, safety, environmental and security performance."

Our safety process consists of 5 main steps:

- Hazard identification, prevention and control
- Safe design and construction
- Safety and health education and training
- Employee involvement, accountability, and responsibility
- Systematic evaluation for continual improvement

Details of our accident prevention efforts are contained in the Eastman Kingsport Site Safe Practices Manual and the PSM/RMP Guidelines Manual, comprehensive documents detailing specific practices, procedures, and expectations to ensure the safety of our employees, our contractors, our community, and the environment.

Tennessee Operation's emergency response plans and strategies are described in the Eastman Kingsport Site Emergency Plan and Fire Department procedures. These documents specify the responsibilities and duties of Eastman personnel during emergencies and potential emergencies. These responsibilities and duties provide for the prompt mobilization of company resources, including both personnel and equipment in an emergency situation.

These documents are regularly reviewed and updated.

II. Description of Stationary Source and Regulated Substances Handled

Primary Activities

Eastman Chemical Company is a leading international chemical company that produces more than 400 chemicals, fibers, and plastics. Eastman does not sell consumer products, but Eastman supplies other producers with materials for products used by consumers. Founded in 1920 in Kingsport, Tennessee, as a unit of Eastman Kodak Company, Eastman Chemical Company was spun off in 1994 and is now an independent, publicly held company traded on the New York Stock Exchange (ticker symbol EMN). Eastman has customers in more than 100 countries worldwide. With corporate headquarters in Kingsport, Eastman employs more than 14,000 people worldwide.

Eastman Chemical Company's Tennessee Operations (TNO), located in Kingsport, TN, is one of the largest chemical manufacturing sites in North America. TNO manufactures over 300 industrial chemicals, 1 basic fiber, and 4 basic types of plastics. TNO includes more than 600 buildings and 6,000 acres of land. The 1,200-acre main plant site includes more than 35 acres of warehouse area under roof and more than 1 million square feet of office space.

Use of Regulated Substances

TNO handles 8 chemicals listed in 40 CFR 68.130 in quantities above the threshold limit. Four (4) are listed as toxic substances, and four (4) are listed as flammable substances. They are:

Toxic Substances (4):

1. Anhydrous ammonia
2. Hydrogen Fluoride (HF)
3. Phosphorous Oxychloride (POCl₃)
4. Phosphorous Trichloride (PCl₃)

Flammable Substances (4):

5. Acetaldehyde
6. Isobutylene
7. Propylene
8. Dimethylamine

Use of Substances:

1. Anhydrous Ammonia

Basic Information

Anhydrous ammonia is a clear, colorless gas with a sharp, intensely irritating odor. The vapors are irritating to the eyes and respiratory tract. Contact with the liquid can cause frostbite. Long term exposure to low concentrations and short-term exposure to high concentrations can result in adverse health effects from inhalation. Ammonia is soluble in water, forming a corrosive liquid. Although ammonia is lighter than air, the vapors from a leak initially hug the ground. In liquid form, it is lighter than water. Ammonia accelerates the burning of combustible material and is corrosive to metals and tissue.

Uses

Anhydrous ammonia is used as a raw material in chemical manufacturing operations and as a source of nitrogen for wastewater treatment.

2. Hydrogen Fluoride (HF)

Basic Information

Hydrogen Fluoride (HF) is a colorless fuming liquid, boiling at 67°F. HF is shipped as a liquid confined under its own vapor pressure and is corrosive to metals and tissue. Very short contact with fumes or small quantities of the liquid can cause severe, painful burns. Vapors are heavier than air. The liquid density is very close to that of water. HF is completely miscible with water but yields significant heat of solution when mixed.

Uses

HF is used as a catalyst and raw material in chemical manufacturing operations.

3. Phosphorous Oxychloride (POCl₃)

Basic Information

Phosphorus oxychloride is a colorless to pale yellow fuming liquid with a pungent odor. It is toxic by inhalation and ingestion and is strongly irritating to skin and tissues. It causes burns to the mucous membranes of the mouth and digestive tract and may be fatal. It reacts with water to form hydrochloric and phosphoric acids with evolution of heat. It is corrosive to metals and tissue.

Uses

Phosphorus oxychloride is used as a raw material in chemical manufacturing operations.

4. Phosphorous Trichloride (PCl₃)

Basic Information

Phosphorus trichloride is a colorless or slightly yellow fuming liquid with a pungent and irritating odor resembling hydrochloric or muriatic acid. Long term exposure to low concentrations or short-term exposure to high concentrations may result in adverse health effects by inhalation. PCl₃ is a strong reducing agent that may ignite combustible organic materials upon contact. It reacts with water to form hydrochloric and phosphoric acids with evolution of heat. It is corrosive to metals and tissue.

Uses

Phosphorus trichloride is used as a raw material in chemical manufacturing operations.

5. Acetaldehyde

Basic Information

Acetaldehyde is a clear, colorless liquid with a pungent odor. However, under normal atmospheric temperature and pressure, liquid acetaldehyde will rapidly evaporate into a gas. Its vapors are irritating to the mucous membranes and especially the eyes. If it becomes contaminated, it may either react with the contaminant or polymerize, both with the evolution of heat. It is lighter than water and soluble in water. Its vapors are heavier than air.

Uses

Acetaldehyde is a base ingredient used to produce other chemicals. It eventually ends up in many products containing fibers and plastics.

6. Isobutylene

Basic Information

Isobutylene is a colorless gas with a faint, petroleum-like odor. It is shipped as a liquefied gas under its own vapor pressure. Contact with the liquid can cause frostbite. Isobutylene is easily ignited; its vapors are heavier than air and a flame can flash back to the source of a leak very easily. The leak can either be a liquid or vapor leak. Vapor is irritating to the eyes, nose, and throat. If inhaled, it can cause dizziness or loss of consciousness.

Uses

Isobutylene is used as a raw material in chemical manufacturing operations.

7. Propylene

Basic Information

Propylene is a liquefied compressed gas. It is colorless and has a mild odor. It floats and boils on water. If inhaled, it can cause dizziness or loss of consciousness.

Uses

Propylene is used as a refrigerant for chemical manufacturing operations.

8. Dimethylamine

Basic Information

Dimethylamine (DMA) is used as an aqueous solution of dimethylamine gas dissolved in water. It is shipped as a 60% dimethylamine and 40% water solution. The solution is lighter than water and soluble in water. It has an odor ranging from fish-like to ammonia-like as the DMA concentration increases. Its vapors are heavier than air. It is corrosive to the skin and eyes.

Uses

Aqueous dimethylamine is used as a raw material in chemical manufacturing operations.

III. Worst Case Release Scenario and Alternative Release Scenarios

Toxic Substance Worst Case Scenario

Anhydrous ammonia constitutes the Kingsport site's toxic worst case scenario. In this scenario, the largest vessel containing ammonia is catastrophically ruptured, resulting in the loss of the entire tank contents over a ten-minute period. This scenario has off-site consequences.

Flammable Substance Worst Case Scenario

Acetaldehyde constitutes the Kingsport site's flammable worst case scenario. In this scenario, the largest vessel containing acetaldehyde is catastrophically ruptured, resulting in the loss of the entire tank contents over a ten-minute period. This scenario has off-site consequences.

Toxic Substance Alternate Release Scenarios

For each of the four toxic substances at the Kingsport site, an alternate release scenario (ARS) was estimated. Of the four, only two have off-site consequences that affected people or a designated receptor.

Flammable Substance Alternate Release Scenario

For each of the four flammable substances at the Kingsport site, an alternate release scenario (ARS) was estimated. Of the four, none had off-site consequences that affected people or a designated receptor. The ARS for each of these was the rupture of a 2-inch connection to the largest vessel containing the substance in question.

IV. General Accidental Release Prevention Program

TNO utilizes layers of controls to protect people and the environment. This approach includes, but is not limited to, the following elements:

Designing For Safety

- Designs are analyzed for safety prior to installation, and periodically thereafter, in accordance with the requirements of the OSHA PSM Regulation. All RMP covered processes are Program 3 processes. All eight of the RMP chemicals at the Kingsport site are covered by the Process Safety Management regulation (29 CFR 1910.119).

Operating Safely

- All operators, mechanics, and contractor personnel who work within the plant are trained and qualified in accordance with applicable federal, state, and local regulations.
- Automated safety systems are used extensively to prevent the accidental release of chemicals due to misoperation or process upset.

Maintaining Safe Operations/Auditing our Operations

- Process systems undergo routine inspections to ensure proper labeling, equipment condition, etc. Discrepancies are corrected before further use or in a safe and timely manner when necessary means are taken to assure safe operation.

Training

- Operators are initially trained on the specifics of the process they will be running and receive refresher training at least every three

years.

In addition to the elements described above, the Eastman Kingsport Site is a State of Tennessee Volunteer Star site. The Volunteer Star program, administered by the State of Tennessee Department of Labor, is Tennessee's version of the federal Voluntary Protection Program (VPP), a cooperative effort between employers and OSHA to improve worker/workplace safety and recognize outstanding safety performance and programs.

V. Five Year Accident History

TNO has had no RMP reportable incidents involving any of the eight listed chemicals within the past five year reporting period (June 2009 - June 2014).

VI. Emergency Response Program

General Emergency Response Practices for All Chemicals:

1. A computerized modeling system is available to Eastman emergency response personnel to predict the concentration and location of any vapor cloud resulting from a release. The system is able to provide real-time monitoring of the weather to enhance the modeling and provide warning to people who may be impacted in the plant and in the community.
2. Emergency response is coordinated with local agencies as needed/appropriate. Eastman maintains good working relationships with local emergency response organizations.
3. Eastman's emergency response crews use a tiered emergency response plan to enhance reaction time and effectiveness. For vapor releases that might impact the community, a direct line to city and county central dispatch services is available. Sirens are activated and local radio and TV stations are notified if appropriate.
4. Emergency response personnel are regularly trained to ensure compliance with applicable federal, state, and local requirements.

VII. Planned Changes to Improve Safety

Improvement plans fall into three primary areas:

1. Hazard Analysis-Routine assessment to identify potential hazards and implement corrective action will be done in accordance with applicable regulations.
2. Incident Investigation-Prompt, thorough investigation of all significant incidents and near-misses will be conducted using root cause failure analysis (RCFA) techniques, and learnings will be shared across the company, as appropriate.
3. Benchmarking-Through our trade association, the American Chemistry Council (ACC), and through other cooperative efforts, such as the Center for Chemical Process Safety (CCPS), Eastman continually evaluates its safety programs and processes against the best in the world, with the goal of continual improvement.