# Section 1. Registration Information

## Source Identification

| | |
|---|---|
| Facility Name: | KMCO, LLC |
| Parent Company #1 Name: | |
| Parent Company #2 Name: | |

## Submission and Acceptance

| | |
|---|---|
| Submission Type: | Re-submission |
| Subsequent RMP Submission Reason: | Regulated substance present above TQ in new (or previously not covered) process (40 CFR 68.190(b)(4)) |
| Description: | |
| Receipt Date: | 23-Feb-2018 |
| Postmark Date: | 23-Feb-2018 |
| Next Due Date: | 23-Feb-2023 |
| Completeness Check Date: | 23-Feb-2018 |
| 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 0011 8623 |
| Other EPA Systems Facility ID: | TXD 074198961 |
| Facility Registry System ID: | |

## Dun and Bradstreet Numbers (DUNS)

| | |
|---|---|
| Facility DUNS: | 74198961 |
| Parent Company #1 DUNS: | |
| Parent Company #2 DUNS: | |

## Facility Location Address

| | |
|---|---|
| Street 1: | 16503 Ramsey Road |
| Street 2: | |
| City: | Crosby |
| State: | TEXAS |
| ZIP: | 77532 |
| ZIP4: | |
| County: | HARRIS |

## Facility Latitude and Longitude

| | |
|---|---|
| Latitude (decimal): | 29.921667 |
| Longitude (decimal): | -095.053056 |
| Lat/Long Method: | Interpolation - Satellite |
| Lat/Long Description: | Process Unit Area Centroid |
| Horizontal Accuracy Measure: | 10 |



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| | |
|---|---|
| Horizontal Reference Datum Name: | World Geodetic System of 1984 |
| Source Map Scale Number: | |

## Owner or Operator

| | |
|---|---|
| Operator Name: | ORG Chemical MidCo, LLC |
| Operator Phone: | (281) 328-3501 |

## Mailing Address

| | |
|---|---|
| Operator Street 1: | 16503 Ramsey Road |
| Operator Street 2: | |
| Operator City: | Crosby |
| Operator State: | TEXAS |
| Operator ZIP: | 77532 |
| 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: | Kelly Nidini |
| RMP Title of Person or Position: | HSSE Manager |
| RMP E-mail Address: | kellyn@kmcoinc.com |

## Emergency Contact

| | |
|---|---|
| Emergency Contact Name: | Kelly Nidini |
| Emergency Contact Title: | HSSE Manager |
| Emergency Contact Phone: | (281) 328-0289 |
| Emergency Contact 24-Hour Phone: | (281) 733-6117 |
| Emergency Contact Ext. or PIN: | |
| Emergency Contact E-mail Address: | kellyn@kmcoinc.com |

## Other Points of Contact

| | |
|---|---|
| Facility or Parent Company E-mail Address: | |
| Facility Public Contact Phone: | (281) 328-3501 |
| Facility or Parent Company WWW Homepage Address: | http://kmcollc.com |

## Local Emergency Planning Committee

| | |
|---|---|
| LEPC: | Harris County- |

## Full Time Equivalent Employees

| | |
|---|---|
| Number of Full Time Employees (FTE) on Site: | 164 |
| FTE Claimed as CBI: | |

## Covered By

| | |
|---|---|
| OSHA PSM : | Yes |



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| | |
|---|---|
| EPCRA 302 : | Yes |
| CAA Title V: | Yes |
| Air Operating Permit ID: | O-01441 |

## OSHA Ranking

OSHA Star or Merit Ranking:

## Last Safety Inspection

| | |
|---|---|
| Last Safety Inspection (By an External Agency) Date: | 28-Jan-2015 |
| Last Safety Inspection Performed By an External Agency: | EPA |

## Predictive Filing

| | |
|---|---|
| Did this RMP involve predictive filing?: | Yes |

## Preparer Information

| | |
|---|---|
| Preparer Name: | Rita Hunter |
| Preparer Phone: | (281) 328-0263 |
| Preparer Street 1: | 16503 Ramsey Road |
| Preparer Street 2: | |
| Preparer City: | Crosby |
| Preparer State: | TEXAS |
| Preparer ZIP: | 77532 |
| 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 accidentsreported for this RMP. |

## Process Chemicals

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Process Chemical ID: | 1000106891 |
| Program Level: | Program Level 3 process |
| Chemical Name: | Ethyl chloride [Ethane, chloro-] |
| CAS Number: | 75-00-3 |
| Quantity (lbs): | 150000 |
| CBI Claimed: | |
| Flammable/Toxic: | Flammable |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Process Chemical ID: | 1000106892 |
| Program Level: | Program Level 3 process |
| Chemical Name: | Ethylene oxide [Oxirane] |
| CAS Number: | 75-21-8 |
| Quantity (lbs): | 5000000 |
| CBI Claimed: | |
| Flammable/Toxic: | Toxic |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Process Chemical ID: | 1000106895 |
| Program Level: | Program Level 3 process |
| Chemical Name: | Sulfur dioxide (anhydrous) |
| CAS Number: | 7446-09-5 |
| Quantity (lbs): | 50000 |
| CBI Claimed: | |
| Flammable/Toxic: | Toxic |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Process Chemical ID: | 1000106893 |
| Program Level: | Program Level 3 process |
| Chemical Name: | Formaldehyde (solution) |
| CAS Number: | 50-00-0 |
| Quantity (lbs): | 150000 |
| CBI Claimed: | |
| Flammable/Toxic: | Toxic |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Process Chemical ID: | 1000106896 |
| Program Level: | Program Level 3 process |
| Chemical Name: | Ammonia (anhydrous) |
| CAS Number: | 7664-41-7 |
| Quantity (lbs): | 50000 |
| CBI Claimed: | |
| Flammable/Toxic: | Toxic |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Process Chemical ID: | 1000106894 |
| Program Level: | Program Level 3 process |



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| | |
|---|---|
| Chemical Name: | Propylene oxide [Oxirane, methyl-] |
| CAS Number: | 75-56-9 |
| Quantity (lbs): | 5000000 |
| CBI Claimed: | |
| Flammable/Toxic: | Toxic |

| | |
|---|---|
| Process ID: | 1000085580 |
| Description: | Isobutylene |
| Process Chemical ID: | 1000106897 |
| Program Level: | Program Level 3 process |
| Chemical Name: | 2-Methylpropene [1-Propene, 2-methyl-] |
| CAS Number: | 115-11-7 |
| Quantity (lbs): | 343130 |
| CBI Claimed: | |
| Flammable/Toxic: | Flammable |

## Process NAICS

| | |
|---|---|
| Process ID: | 1000085579 |
| Process NAICS ID: | 1000086800 |
| Program Level: | Program Level 3 process |
| NAICS Code: | 325199 |
| NAICS Description: | All Other Basic Organic Chemical Manufacturing |

| | |
|---|---|
| Process ID: | 1000085579 |
| Process NAICS ID: | 1000086800 |
| Program Level: | Program Level 3 process |
| NAICS Code: | 325199 |
| NAICS Description: | All Other Basic Organic Chemical Manufacturing |

| | |
|---|---|
| Process ID: | 1000085580 |
| Process NAICS ID: | 1000086801 |
| Program Level: | Program Level 3 process |
| NAICS Code: | 32519 |
| NAICS Description: | Other Basic Organic Chemical Manufacturing |



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# Section 2. Toxics: Worst Case

## Toxic Worst ID: 1000068215

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Gas liquified by refrigeration |
| Model Used: | EPA's RMP*Comp(TM) |
| Release Duration (mins): | 1 |
| Wind Speed (m/sec): | 1.5 |
| Atmospheric Stability Class: | F |
| Topography: | Rural |

### Passive Mitigation Considered

| | |
|---|---|
| Dikes: | Yes |
| Enclosures: | |
| Berms: | |
| Drains: | |
| Sumps: | |
| Other Type: | partially-submerged concrete bunker, with above-ground concrete surrounding walls |



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# Section 3. Toxics: Alternative Release

## Toxic Alter ID: 1000072812

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Gas liquified by refrigeration |
| Model Used: | EPA's RMP*Comp(TM) |
| Wind Speed (m/sec): | 1.5 |
| Atmospheric Stability Class: | F |
| Topography: | Rural |

### 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: 1000072813

| | |
|---|---|
| Percent Weight: | 37.0 |
| Physical State: | Liquid |
| Model Used: | EPA's RMP*Comp(TM) |
| Wind Speed (m/sec): | 3.0 |
| Atmospheric Stability Class: | D |
| Topography: | Rural |

### Passive Mitigation Considered

| | |
|---|---|
| Dikes: | |
| 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: 1000072814

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Liquid |
| Model Used: | EPA's RMP*Comp(TM) |
| Wind Speed (m/sec): | 1.5 |
| Atmospheric Stability Class: | A |
| Topography: | Rural |

### Passive Mitigation Considered

Dikes:
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: 1000072815

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Gas |
| Model Used: | EPA's RMP*Comp(TM) |
| Wind Speed (m/sec): | 3.0 |
| Atmospheric Stability Class: | D |
| Topography: | Rural |

### Passive Mitigation Considered

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

### Active Mitigation Considered

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



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Scrubbers:
Emergency Shutdown:
Other Type:

## Toxic Alter ID: 1000072816

| | |
|---|---|
| Percent Weight: | 100.0 |
| Physical State: | Gas liquified by pressure |
| Model Used: | EPA's RMP*Comp(TM) |
| Wind Speed (m/sec): | 3.0 |
| Atmospheric Stability Class: | D |
| Topography: | Rural |

### Passive Mitigation Considered

Dikes:
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:

# Section 4. Flammables: Worst Case

## Flammable Worst ID: 1000050224

| | |
|---|---|
| Model Used: | EPA's RMP*Comp(TM) |
| Endpoint used: | 1 PSI |

### Passive Mitigation Considered

| | |
|---|---|
| Blast Walls: | |
| Other Type: | |

## Flammable Worst ID: 1000050225

| | |
|---|---|
| Model Used: | EPA's RMP Guidance for Chemical Distributors Reference Tables or Equations |
| Endpoint used: | 1 PSI |

### Passive Mitigation Considered

| | |
|---|---|
| Blast Walls: | |
| Other Type: | LEL Detectors |

# Section 5. Flammables: Alternative Release

## Flammable Alter ID: 1000047562

| | |
|---|---|
| Model Used: | EPA's RMP Guidance for Chemical Distributors Reference Tables or Equations |

### Passive Mitigation Considered

| | |
|---|---|
| Dikes: | |
| Fire Walls: | |
| Blast Walls: | |
| Enclosures: | |
| Other Type: | LEL Detectors |

### Active Mitigation Considered

| | |
|---|---|
| Sprinkler System: | |
| Deluge System: | Yes |
| Water Curtain: | |
| Excess Flow Valve: | |
| Other Type: | |

# Section 6. Accident History

No records found.



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# Section 7. Program Level 3

## Description

No description available.

## Program Level 3 Prevention Program Chemicals

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089847 |
| Chemical Name: | Propylene oxide [Oxirane, methyl-] |
| Flammable/Toxic: | Toxic |
| CAS Number: | 75-56-9 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072235 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089849 |
| Chemical Name: | Ammonia (anhydrous) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 7664-41-7 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072235 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089838 |
| Chemical Name: | Ethylene oxide [Oxirane] |
| Flammable/Toxic: | Toxic |
| CAS Number: | 75-21-8 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072235 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089848 |
| Chemical Name: | Sulfur dioxide (anhydrous) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 7446-09-5 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072235 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089846 |
| Chemical Name: | Formaldehyde (solution) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 50-00-0 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072235 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089845 |
| Chemical Name: | Ethyl chloride [Ethane, chloro-] |
| Flammable/Toxic: | Flammable |
| CAS Number: | 75-00-3 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072235 |
| NAICS Code: | 325199 |

## Safety Information

| | |
|---|---|
| Safety Review Date (The date on which the safety information was last reviewed or revised): | 20-Feb-2015 |

## Process Hazard Analysis (PHA)

| | |
|---|---|
| PHA Completion Date (Date of last PHA or PHA update): | 26-Sep-2014 |

## The Technique Used

| | |
|---|---|
| What If: | |
| Checklist: | |
| What If/Checklist: | |
| HAZOP: | Yes |
| Failure Mode and Effects Analysis: | |
| Fault Tree Analysis: | |
| Other Technique Used: | |
| PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): | 30-Jun-2015 |

## Major Hazards Identified

| | |
|---|---|
| Toxic Release: | Yes |
| Fire: | |
| Explosion: | |
| Runaway Reaction: | |
| Polymerization: | |
| Overpressurization: | |

| | |
|---|---|
| Corrosion: | |
| Overfilling: | |
| Contamination: | |
| Equipment Failure: | |
| 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: | |
| Interlocks: | |
| Alarms and Procedures: | Yes |
| Keyed Bypass: | |
| Emergency Air Supply: | Yes |
| Emergency Power: | |
| Backup Pump: | |
| Grounding Equipment: | Yes |
| Inhibitor Addition: | |
| Rupture Disks: | Yes |
| Excess Flow Device: | |
| Quench System: | Yes |
| Purge System: | Yes |
| None: | |
| Other Process Control in Use: | |

## Mitigation Systems in Use

| | |
|---|---|
| Sprinkler System: | |
| Dikes: | Yes |
| Fire Walls: | |
| Blast Walls: | Yes |
| Deluge System: | Yes |
| Water Curtain: | |
| Enclosure: | Yes |
| 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: | EO storage temp and pressure instrumentation (TI, PI) |

## Changes Since Last PHA Update

| | |
|---|---|
| Reduction in Chemical Inventory: | |
| Increase in Chemical Inventory: | Yes |
| Change Process Parameters: | |
| Installation of Process Controls: | |
| 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): | 11-Sep-2017 |

## Training

| | |
|---|---|
| Training Revision Date (The date of the most recent review or revision of training programs): | 12-Oct-2016 |

## The Type of Training Provided

| | |
|---|---|
| Classroom: | |
| On the Job: | Yes |
| Other Training: | Computer Based Training |

## The Type of Competency Testing Used

| | |
|---|---|
| Written Tests: | Yes |
| Oral Tests: | |
| Demonstration: | Yes |
| Observation: | |
| Other Type of Competency Testing Used: | On the Job Training |

## Maintenance

| | |
|---|---|
| Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): | 28-Jan-2015 |
| Equipment Inspection Date (The date of the most recent equipment inspection or test): | 13-Feb-2015 |
| Equipment Tested (Equipment most recently inspected or tested): | PRVs |

## Management of Change

| | |
|---|---|
| Change Management Date (The date of the most recent change that triggered management of change procedures): | 05-Feb-2015 |
| Change Management Revision Date (The date of the most recent review or revision of management of change procedures): | 05-Feb-2015 |

## Pre-Startup Review

| | |
|---|---|
| Pre-Startup Review Date (The date of the most recent pre-startup review): | 28-Apr-2015 |

## Compliance Audits

| | |
|---|---|
| Compliance Audit Date (The date of the most recent compliance audit): | 29-Apr-2016 |
| Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): | 31-Jan-2017 |

## 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): | 28-Jan-2015 |

## Hot Work Permit Procedures

| | |
|---|---|
| Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): | 21-Jun-2016 |

## Contractor Safety Procedures

| | |
|---|---|
| Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): | 28-Jan-2015 |
| Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): | 18-Jul-2016 |

## Confidential Business Information

CBI Claimed:



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## Description

No description available.

## Program Level 3 Prevention Program Chemicals

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089840 |
| Chemical Name: | Ethyl chloride [Ethane, chloro-] |
| Flammable/Toxic: | Flammable |
| CAS Number: | 75-00-3 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072236 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089839 |
| Chemical Name: | Propylene oxide [Oxirane, methyl-] |
| Flammable/Toxic: | Toxic |
| CAS Number: | 75-56-9 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072236 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089841 |
| Chemical Name: | Formaldehyde (solution) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 50-00-0 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072236 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089843 |
| Chemical Name: | Ammonia (anhydrous) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 7664-41-7 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072236 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089844 |
| Chemical Name: | Ethylene oxide [Oxirane] |
| Flammable/Toxic: | Toxic |
| CAS Number: | 75-21-8 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072236 |
| NAICS Code: | 325199 |

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089842 |
| Chemical Name: | Sulfur dioxide (anhydrous) |
| Flammable/Toxic: | Toxic |
| CAS Number: | 7446-09-5 |

| | |
|---|---|
| Process ID: | 1000085579 |
| Description: | Batch Reaction, organic c |
| Prevention Program Level 3 ID: | 1000072236 |
| NAICS Code: | 325199 |

## Safety Information

| | |
|---|---|
| Safety Review Date (The date on which the safety information was last reviewed or revised): | 20-Feb-2015 |

## Process Hazard Analysis (PHA)

| | |
|---|---|
| PHA Completion Date (Date of last PHA or PHA update): | 26-Sep-2014 |

## The Technique Used

| | |
|---|---|
| What If: | |
| Checklist: | |
| What If/Checklist: | |
| HAZOP: | Yes |
| Failure Mode and Effects Analysis: | |
| Fault Tree Analysis: | |
| Other Technique Used: | |
| PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): | 30-Jun-2015 |

## Major Hazards Identified

| | |
|---|---|
| Toxic Release: | Yes |
| Fire: | |
| Explosion: | |
| Runaway Reaction: | |
| Polymerization: | |
| Overpressurization: | |
| Corrosion: | |
| Overfilling: | |

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

## Mitigation Systems in Use

| | |
|---|---|
| Sprinkler System: | |
| Dikes: | Yes |
| Fire Walls: | |
| Blast Walls: | Yes |
| Deluge System: | Yes |
| Water Curtain: | |
| Enclosure: | Yes |
| 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: | EO storage temp and presure instrumentation (TI, PI) |

## Changes Since Last PHA Update

| | |
|---|---|
| Reduction in Chemical Inventory: | |
| Increase in Chemical Inventory: | Yes |
| Change Process Parameters: | |
| Installation of Process Controls: | |
| 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): | 11-Sep-2017 |

## Training

| | |
|---|---|
| Training Revision Date (The date of the most recent review or revision of training programs): | 28-Jan-2015 |

## The Type of Training Provided

| | |
|---|---|
| Classroom: | |
| On the Job: | Yes |
| Other Training: | |

## The Type of Competency Testing Used

| | |
|---|---|
| Written Tests: | Yes |
| Oral Tests: | |
| Demonstration: | Yes |
| Observation: | |
| Other Type of Competency Testing Used: | On Job Training |

## Maintenance

| | |
|---|---|
| Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): | 28-Jan-2015 |
| Equipment Inspection Date (The date of the most recent equipment inspection or test): | 13-Feb-2015 |
| Equipment Tested (Equipment most recently inspected or tested): | PRVs |

## Management of Change

| | |
|---|---|
| Change Management Date (The date of the most recent change that triggered management of change procedures): | 05-Feb-2015 |

| | |
|---|---|
| Change Management Revision Date (The date of the most recent review or revision of management of change procedures): | 28-Jan-2015 |

## Pre-Startup Review

| | |
|---|---|
| Pre-Startup Review Date (The date of the most recent pre-startup review): | 28-Apr-2015 |

## Compliance Audits

| | |
|---|---|
| Compliance Audit Date (The date of the most recent compliance audit): | 25-May-2016 |
| Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): | 28-Oct-2016 |

## 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): | 28-Jan-2015 |

## Hot Work Permit Procedures

| | |
|---|---|
| Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): | 21-Jun-2016 |

## Contractor Safety Procedures

| | |
|---|---|
| Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): | 28-Jan-2015 |
| Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): | 18-Jul-2016 |

## Confidential Business Information

CBI Claimed:



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## Description

No description available.

## Program Level 3 Prevention Program Chemicals

| | |
|---|---|
| Prevention Program Chemical ID: | 1000089850 |
| Chemical Name: | 2-Methylpropene [1-Propene, 2-methyl-] |
| Flammable/Toxic: | Flammable |
| CAS Number: | 115-11-7 |

| | |
|---|---|
| Process ID: | 1000085580 |
| Description: | Isobutylene |
| Prevention Program Level 3 ID: | 1000072239 |
| NAICS Code: | 32519 |

## Safety Information

| | |
|---|---|
| Safety Review Date (The date on which the safety information was last reviewed or revised): | 20-Feb-2015 |

## Process Hazard Analysis (PHA)

| | |
|---|---|
| PHA Completion Date (Date of last PHA or PHA update): | 26-Sep-2014 |

## The Technique Used

| | |
|---|---|
| What If: | |
| Checklist: | |
| What If/Checklist: | |
| HAZOP: | Yes |
| Failure Mode and Effects Analysis: | |
| Fault Tree Analysis: | |
| Other Technique Used: | |
| PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): | 30-Jun-2015 |

## Major Hazards Identified

| | |
|---|---|
| Toxic Release: | |
| Fire: | Yes |
| Explosion: | |
| Runaway Reaction: | |
| Polymerization: | |
| Overpressurization: | |
| Corrosion: | |
| 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: | |
| Relief Valves: | Yes |
| Check Valves: | |
| Scrubbers: | |
| Flares: | |
| Manual Shutoffs: | |
| Automatic Shutoffs: | |
| Interlocks: | |
| Alarms and Procedures: | |
| Keyed Bypass: | |
| Emergency Air Supply: | |
| Emergency Power: | |
| Backup Pump: | |
| Grounding Equipment: | Yes |
| Inhibitor Addition: | |
| Rupture Disks: | |
| Excess Flow Device: | |
| Quench System: | |
| Purge System: | |
| None: | |
| Other Process Control in Use: | |

## Mitigation Systems in Use

| | |
|---|---|
| Sprinkler System: | |
| 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: | LEL Monitors |

## 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): | 11-Sep-2017 |

## Training

| | |
|---|---|
| Training Revision Date (The date of the most recent review or revision of training programs): | 12-Oct-2016 |

## The Type of Training Provided

| | |
|---|---|
| Classroom: | |
| On the Job: | |
| Other Training: | Computer Based Training |

## The Type of Competency Testing Used

| | |
|---|---|
| Written Tests: | Yes |
| Oral Tests: | |
| Demonstration: | |
| Observation: | |
| Other Type of Competency Testing Used: | On the Job Training |

## Maintenance

| | |
|---|---|
| Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): | 28-Jan-2015 |
| Equipment Inspection Date (The date of the most recent equipment inspection or test): | 30-Jun-2016 |
| Equipment Tested (Equipment most recently inspected or tested): | SRVs |

## Management of Change

| | |
|---|---|
| Change Management Date (The date of the most recent change that triggered management of change procedures): | 05-Feb-2015 |
| Change Management Revision Date (The date of the most recent review or revision of management of change procedures): | 02-Jan-2018 |

## Pre-Startup Review

| | |
|---|---|
| Pre-Startup Review Date (The date of the most recent pre-startup review): | 28-Apr-2015 |

## Compliance Audits

| | |
|---|---|
| Compliance Audit Date (The date of the most recent compliance audit): | 25-May-2016 |
| Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): | 28-Oct-2016 |

## 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): | 28-Jan-2015 |

## Hot Work Permit Procedures

| | |
|---|---|
| Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): | 30-Jun-2017 |

## Contractor Safety Procedures

| | |
|---|---|
| Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): | 30-Jun-2017 |
| Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): | 30-Jun-2017 |

## Confidential Business Information

CBI Claimed:



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# 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?): | Yes |

## Emergency Response Review

| | |
|---|---|
| Review Date (Date of most recent review or update of facility's ER plan): | 19-Oct-2016 |

## Emergency Response Training

| | |
|---|---|
| Training Date (Date of most recent review or update of facility's employees): | 18-May-2016 |

## Local Agency

| | |
|---|---|
| Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): | Garner Environmental Services |
| Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): | (281) 930-1200 |

## 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: | Yes |
| State EPCRA Rules or Laws: | Yes |
| Other (Specify): | |

# Executive Summary

KMCO
Risk Management Plan

1. EXECUTIVE SUMMARY

KMCO is committed to operating in a manner that is safe for KMCO workers, the public, and the environment. As part of this commitment, KMCO has established a system to help ensure safe operation of the processes at this facility. One part of this system is a risk management program (RMP) that helps manage the risks at KMCO and that complies with the requirements of the Environmental Protection Agency's (EPA's) regulation 40 CFR part 68, Accidental Release Prevention Requirements; Risk Management Programs (the RMP rule). One of the requirements of the RMP rule is to submit a risk management plan (RMPlan) describing the risk management program at KMCO. This document is intended to satisfy the RMPlan requirements of the RMP rule and to provide the public with a description of the risk management program at KMCO.

1.1 Accidental Release Prevention and Emergency Response Policies

KMCO is committed to the safety of KMCO workers and the public, and to the preservation of the environment, through the prevention of accidental releases of hazardous substances. KMCO implements reasonable controls to prevent foreseeable releases of hazardous substances. In the event of a significant accidental release, our trained Emergency Response personnel will respond to control and contain such releases. KMCO evaluates each situation, evacuates workers as necessary, and contacts the local fire department to control and contain the release and to prevent and/or reduce the consequences of the release. KMCO, the local emergency planning committee (LEPC), and the fire department have established a program to warn the community if an accident occurs that could threaten the community.

1.2 KMCO and Regulated Substances

KMCO handles six listed toxic substances by the RMP rule in sufficient quantities to be covered by the RMP rule:

Ethylene oxide is stored for use in the customer tolling processes. KMCO also handles propylene oxide, formalin, ammonia, ethyl chloride, and sulfur dioxide.

1.3 Offsite Consequence Analysis

KMCO performed an offsite consequence analysis (OCA) to estimate the potential for an accidental release of a regulated substance to affect the public or the environment. The OCA consists of evaluating both worst-case scenarios (WCSs) and alternative release scenarios (ARSs). KMCO does not expect a worst case release scenario to ever occur. An ARS represents a release that might occur during the lifetime of a facility like KMCO. ARSs help the LEPC improve the community emergency response plan. We have shared that information with the LEPC and other organizations involved in emergency response activities. It is also available to the public. If you are interested in this information, please contact our RMP coordinator at (281) 328-3501.

The main objective of performing the OCA is to determine the distance at which certain effects might occur to the public because of an accidental release (called the endpoint distance). The following effects could occur at the endpoint distance. At distances less than the endpoint distance, the effects should be greater; at distances greater than the endpoint distance, the effects would be less.

Worst-case Release Scenarios

The worst-case release scenario for toxic substances is failure of a storage tank containing 246,000 lbs of Ethylene Oxide (EO). KMCO does not believe that a worst case scenario could ever occur. Nevertheless, a computer modeling program, RMP Comp, was used to calculate offsite impact. The scenario is based on the following: the product is liquefied by refrigeration, release is to concrete diked containment, and the release rate due to evaporation is 310 lbs/minute for a duration of 792 minutes in rural surroundings. Although mitigation measures (e.g., deluge system at the storage tanks) are available, none were assumed for the



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modeling. Factors such as city water service interruption and/or low water pressure (firewater pump failure) were also assumed. Calculation resulted in a distance to toxic endpoint of 3.5 miles, and the toxic cloud would affect the surrounding populous.

Alternative Release Scenarios

The ARS for EO is rupture of a 2-inch diameter liquid unloading line (located outside of containment) from the railcar to one of the secondary EO storage tanks. This scenario assumes the EO is liquefied under pressure, release duration is 10 minutes, with no mitigation. (There is containment around the EO storage tank -- specifically, a 26' x 20' x 6' deep concrete "bunker" , with a wall thickness of 12". But, for this scenario, it will not be considered applicable.) Estimated distance to toxic endpoint is 0.3 miles. Other alternate scenarios are available for each of the other substances handled.

1.4 Accidental Release Prevention Program and Chemical-specific Prevention Steps

The following is a summary of the general accident prevention program in place at the KMCO plant. Because processes at the KMCO plant are regulated by the EPA RMP regulation are also subject to the Occupational Safety and Health Administration (OSHA) process safety management (PSM) standard, this summary addresses each of the OSHA PSM elements and describes the management system in place to implement the accident prevention program.

Employee Participation

KMCO encourages employees to participate in all facets of process safety management and accident prevention. Examples of employee participation range from updating and compiling technical documents and chemical information to participating as a member of a process hazard analysis (PHA) team. Employees have access to information created as part of the KMCO plant accident prevention program. In addition, KMCO has a number of initiatives under way that address process safety and employee safety issues. These initiatives include a Safety Committee to promote both process and personal safety. The team has members from various areas of the plant, including operations, maintenance, engineering, administration, and plant management.

Process Safety Information

KMCO keeps a variety of technical documents that are used to help maintain safe operation of the processes. These documents address chemical properties and associated hazards, limits for key process parameters and specific chemical inventories, and equipment design basis/configuration information.

Chemical-specific information, including exposure hazards and emergency response/exposure treatment considerations, is provided in material safety data sheets (MSDSs) and available on the KMCO intranet. This information is supplemented by documents that specifically address known corrosion concerns and any known hazards associated with the inadvertent mixing of chemicals. For specific process areas, KMCO has documented safety-related limits for specific process parameters (e.g., temperature, level, composition) in PHA documentation. KMCO ensures that the process is maintained within these limits by using process controls and monitoring instruments, highly trained personnel, and protective instrument systems (e.g. pressure/temperature indicators and automated shutdown systems).

KMCO also maintains documents that provide information about the design and construction of process equipment. This information includes materials of construction, design pressure and temperature ratings, electrical rating of equipment, etc. This information, in combination with written procedures and trained personnel,, provides a basis for establishing inspection and maintenance activities, as well as for evaluating prop9osed process and facility changes to ensure that safety features in the process are not compromised.

Process Hazard Analysis

KMCO has established programs to help ensure that hazards associated with the various processes are identified and controlled. Within this program, each process is systematically examined to identify hazards and ensure that adequate controls are in place to manage these hazards.

HAZOP analysis is recognized as one of the most systematic and thorough hazard evaluation techniques. The analyses are



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conducted using a team of people who have operating and maintenance experience as well as engineering expertise.

The PHA team findings and/or action items are forwarded to appropriate personnel. All approved mitigation options being implemented in response to PHA team findings are tracked until they are complete. The final resolution of each finding is documented and retained.

These periodic reviews are conducted at least every 5 years and will be conducted at this frequency until the process is no longer operating. The results and findings from these updates are documented and retained. Once again, the team findings are forwarded to appropriate personnel for consideration, and the final resolution of the findings is documented and retained.

Operating Procedures

KMCO maintains written procedures that address various modes of process operations, such as (1) unit startup, (2) normal operations, (3) temporary operations, (4) emergency shutdown, (5) normal shutdown, and (6) initial startup of a new process. These procedures can be used as a reference by experienced operators and provide a basis for consistent graining of new operators. Procedures are periodically reviewed and annually certified as current and accurate. Procedures are maintained current by revising them as necessary to reflect changes made through the management of change process.

Training

To complement the written procedures for process operations, KMCO has implemented a company-training program for employees involved in operating a process. New employees receive basic training in KMCO plant operations if they are not already familiar with such operations. After successfully completing this training, a new operator is paired with a senior operator to learn process-specific duties and tasks. After operators demonstrate (e.g. through test, skill demonstration) they possess adequate knowledge to perform the duties and tasks in a safe manner on their own, they can work independently. In addition, all operators periodically receive refresher training on the operating procedures to ensure that their skills and knowledge are maintained at an acceptable level. This refresher training is conducted at least every 3 years.
All of this training is documented for each operator, including the means used to verify that the operator understood the training.

Contractors

KMCO uses contractors to supplement its work force during periods of increased maintenance or construction activities. Because some contractors work on or near process equipment, KMCO has procedures in place to ensure that contractors (1) perform their work in a safe manner, (2) have the appropriate knowledge and skills, (3) are aware of the hazards in their workplace, (4) understand what they should do in the event of an emergency, (5) understand and follow site safety rules, and (6) inform KMCO plant personnel of any hazards that they find during their work.

Pre-startup Safety Reviews (PSSRs)

KMCO conducts a PSSR for any new facility or facility modification that requires a change in the process safety information. The purpose of the PSSR is to ensure that safety features, procedures, personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. This review provides one additional check to make sure construction is in accordance with the design specifications and that all-supporting systems are operationally ready.

Mechanical Integrity

KMCO has practices and procedures to maintain pressure vessels, piping systems, relief and vent systems, controls, pumps and compressors, and emergency shutdown systems in a safe operating condition. The basic aspects of this program include:
(1) conducting training, (2) developing written procedures, (3) performing inspections and trust, (4) correcting identified deficiencies, and (5) applying quality assurance measures.

Written procedures help ensure that work is performed in a consistent manner and provide a basis for training. Inspections and



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tests are performed to help ensure that equipment functions as intended, and to verify that equipment is within acceptable limits. If a deficiency is identified, employees will correct the deficiency before placing the equipment back into service (if possible), or an MOC will be distributed to appropriate personnel to review the use of equipment and determine what actions are necessary to ensure the safe operation of the equipment.

Safe Work Practices

KMCO has safe work practices in place to help ensure worker and process safety. Examples of these include (1) control of the entry/presence/exit of support personnel, (2) a lockout/tagout procedure to ensure isolation of energy sources for equipment undergoing maintenance, (3) a procedure for safe removal of hazardous materials before process piping or equipment is opened, (4) a permit and procedure to control spark-producing activities (i.e. hot work), and (5) a permit and procedure to ensure that adequate precautions are in place before entry into a confined space. These procedures (and others), along with training of affected personnel, form a system to help ensure that operations and maintenance activities are performed safely.

Management of Change

KMCO has a comprehensive system to manage changes to processes. This system requires that changes to items such as process equipment, chemicals, technology (including process being implemented. Changes are reviewed to (1) ensure that adequate controls are in place to manage any new hazards and (2) verify that existing controls have not been compromised by the change. Affected chemical hazard information, process operating limits, and equipment information, as well as procedures are updated to incorporate these changes. In addition, operating and maintenance personnel are provided with any necessary training on the change.

Incident Investigation

KMCO investigates all incidents that resulted in, or reasonably could have resulted in, a fire/explosion, toxic gas release, major property damage, environmental loss, or personal injury. The goal of each investigation is to determine the facts and develop corrective actions to prevent a recurrence of the incident or a similar incident. The investigation team documents its findings, develops recommendations to prevent a recurrence, and forwards these results to the HSE Department for filing recommendations are tracked until they are complete.

Compliance Audits

Compliance audits are conducted at least every 3 years. Both hourly and management personnel may participate as audit team members and typically a third-party consultant is hired to assist in the audit. The audit team develops findings that are forwarded to KMCO plant management for resolution. Corrective actions taken in response to the audit team's findings are tracked until they are complete. The final resolution of each finding is documented, and the most recent audit report is retained.

Chemical-specific Prevention Steps

The processes at KMCO have hazards that must be managed to ensure continued safe operation. The prevention program summarized previously is applied to all Program 2 and 3 EPA RMP -covered processes at KMCO. Collectively, these prevention program activities help prevent potential accident scenarios that could be caused by (1) equipment failures and (2) human errors.

In addition to the accident prevention program activities, KMCO has safety features on many units to help (1) contain/control a release, (2) quickly detect a release, and (3) reduce the consequences of (mitigate) a release. The following types of safety features are used in various processes:

Release Detection

* Ethylene Oxide detectors
* Process alarms

Release Containment/Control



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* Process relief valves that discharge to a flare to capture and incinerate episodic releases
* Scrubber to neutralize chemical releases
* Valves to permit isolation of the process (manual or automated)
* Automated shutdown systems for specific process parameters (e.g. high level, high temperature)
* Curbing or diking to contain liquid releases
* Redundant equipment and instrumentation (e.g. uninterruptible power supply for process control system, backup firewater pump)
* Atmospheric relief devices

Release Mitigation

* Fire suppression and extinguishing systems
* Deluge system for specific equipment
* Trained emergency response personnel
* Personal protective equipment (e.g., protective clothing, self-contained breathing apparatus)

1.5 Five-Year Accident History

No releases of Ethylene Oxide, Propylene Oxide, Sulfur dioxide, Formaldehyde solution, Ethyl Chloride, or Ammonia have occurred from KMCO in the last five years that have resulted in deaths, injuries, or significant property damage on site, or known deaths, injuries, evacuations, sheltering-in-place, property damage, or environmental damage off site.

1.6 Emergency Response Program

KMCO coordinates emergency response procedures with the local fire department. KMCO emergency response personnel will respond to minor events that do not have the potential for significant effect (e.g., small fires or small leaks). In the event of a larger fire or release, workers and contractors may evacuate the area if necessary and contact the local fire department. KMCO's emergency response team (ERT) is trained to respond to larger fires and releases. Training includes a two-day and four-day annual fire school at Texas A&M (TEEX).

KMCO has established a written emergency response plan that has been communicated to local emergency response officials through the local fire department. Regular dialogue is maintained between KMCO and the Fire Chief and Department. KMCO is a member of the Local Mutual Aid Organization (MAMB).

1.7 Planned Changes to Improve Safety

KMCO strives to improve the safety of KMCO processes through periodic safety reviews, the incident investigation program, and a program soliciting safety suggestions from the workers. KMCO resolves all findings from PHAs,, some of which result in modifications to the process. The following types of changes are planned during the next 5 years:

* Ongoing revisions to personnel training programs

* Revised written operating procedures