Vic, FKT Steve

Prepared by:_Jim Haney, Stephen Ledoux, Kevin Kelley (CEI)_ Date: 2/22/95
Reviewed by: Audit Team Date: 4/18/95

A=Dow Rule or Regulation
B=Good Practice/Training
C=Hazard Analysis

VII. AUDIT QUESTIONS AND ANALYSIS

Operating Discipline

REFERENCE: Operating Discipline Standard for The Operating Units of Dow U.S.A.

A 1. Yes [x] No [] Have you filled out the plant self-evaluation forms to assess your plants progress on Operating Discipline? Please provide these forms at the pre-audit meeting.

Section II	Process Technology Documentation
Section V	Process Risk Management
Section VI	Operating Procedures
Section VII	Process Control
Section VIII	Operational Reliability
Section IX	Dynamic Process Information
Section XII	Industrial Hygiene

Plans: _____

A/B 2. Who has primary responsibility for the plant's Operating Discipline?
Bruce Miles_____

A/B 3. How is the written portion of the Operating Discipline program maintained? (Have this available at the audit meeting.)
Maintained electronically by the program facilitator_____

A 4. Process Safety Information (OSHA 1910.119, Paragraph d)(Review the Operating Discipline Self-Evaluation on Process Technology Documentation, Process Risk Management, Industrial Hygiene.)

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a. Is information included pertaining to the hazards of the chemicals used or produced by the process, and does the information include at least:

YES	NO	
x		• Toxicity Information
x		• PEL's
x		• Physical Data
x		• Reactivity Data
x		• Corrosivity Data
x		• Thermal and Chemical Stability Data
x		• Hazardous effects of inadvertent mixing of different materials that could forseeably occur?

NOTE: MSDS's meeting the requirements of 29 CFR 1910.1200(g) may be used to the extent they contain the information required.

b. Is information included concerning the technology of the process, and does it include at least:

YES	NO	
x		• A block flow diagram or simplified process flow diagram?
x		• Process Chemistry?
x		• Maximum intended inventory?
x		• Safe Upper and Lower Limits?
x		• An evaluation of the consequences of deviations?

(If the original technical information no longer exists, it may be developed in conjunction with the Process Hazard Analysis.)

c. Is information included pertaining to equipment in the process, and does it include at least:

YES	NO	
x		• Materials of Construction?
x		• Piping and Instrument Diagrams (P&ID's)?
x		• Electrical Classification?
x		• Relief System Design and Design Basis?
x		• Ventilation System Design?
x		• Design Codes and Standards Employed?
x		• Material & Energy Balances for Processes Built after 05/26/92?
x		• Safety Systems (e.g., interlocks, detection or suppression systems)

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A 5. Operating Procedures (OSHA 1910.119, Paragraph f) (Refer to Operating Discipline Self-Evaluation on Operating Procedures)

Yes [x] No [] Do written operating procedures exist for each process?

Yes [x] No [] Do the procedures provide clear instructions for conducting activities safely?

Do the operating instructions address, as a minimum, steps for each operating phase, including?

YES	NO	
x		• Initial Start-up?
x		• Normal Operations?
x		• Temporary Operations?
x		• Emergency Shut Downs?
x		• Conditions Requiring Emergency Shut Down?
x		• Assignment of Shut Down Responsibility to Qualified Operators?
x		• Emergency Operations?
x		• Normal Shut Down?
x		• Start-ups following a turnaround or emergency shut down?

Yes [x] No [] Are operating procedures readily accessible to employees who work in or maintain a process?

Yes [x] No [] Are operating procedures reviewed as often as necessary to assure that they reflect current operating practice?

A/B 6. Yes [x] No [] Does the plant have a training process to keep people current on Operating Discipline?

Plans: _____

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Process Hazard Analysis

Process Hazard Analysis (PHA) is required by the OSHA PSM Standard 1910.119, Paragraph e). This section of the Loss Prevention Audit along with the Reactive Chemicals Review, Chemical Exposure Index Review, Fire and Explosion Index, Hazardous Materials Transportation Review and others, constitutes Process Hazard Analysis for existing Dow facilities. This section of your PS&LP Audit will be retained for the life of the plant.

FLAMMABLE MIXTURES/COMBUSTIBLE DUSTS

C 1. Yes [x] No [] Are flammable/combustible materials stored in your plant?

C 2. Yes [x] No [] Are flammables loaded/unloaded in your plant?

A 3. Yes [x] No [] Partly [] Are flammable materials processed in open, freely ventilated structures? (LPP 2.1.2.)

Plans:_____

B 4. How do you prevent flammable mixtures in the vapor space of process tanks, storage tanks, rail cars, tank trucks, etc.? (LPP 10.2)
Closed dome loading, nitrogen padding of storage tanks, analysis with nitrogen purge on rail cars and tank trucks, and the use of a vent header system._____

Plans:_____

C 5. Yes [x] No [] In process equipment operating under vacuum conditions, has the hazard of air introduction been evaluated?

(Example: Packing leaks on vacuum pumps, vacuum conditions resulting from temperature change associated with shutdowns, normal low pressure operations, etc.)

Plans:_____

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B 6. Yes [x] No [] Do you monitor system pressure and/or oxygen content in low positive pressure applications?
Plans: **We measure oxygen on one of our three PSA units, PSA-1770.**

C 7. Yes [] No [x] a. Do you have a flare system?
Yes [x] No [] b. Do you have a TOX, THROX?

If yes to either of the above, how do you prevent backflashes in the system? **Utilize flame arrestors and differential pressure control of vents.**

Yes [] No [x] Are temperature sensors utilized in conjunction with flame/detonation arrestors?
Plans:

How do you avoid flammable mixture within the header? (LPP14.2.7)
Plans: **Operator discipline, and warning signs.**

Yes [] No [] NA [x] Is your flare tip on a maintenance schedule?

How do you insure that you have a flame? **We use U.V. detectors on the Throx, R-750.**

C 8. Yes [] No [x] Does the plant/process have potential combustible dust flammability concerns? (LPP 11.1)

If yes, answer the following questions:

Yes [] No [] Have reactive chemical tests been run on the possible dust mixtures?
Plans:

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Yes [] No [] Does the plant have static electricity guidelines and programs? (LPP 3.6)

Plans: _____

Yes [] No [] Are regular electrical continuity checks made for solids handling systems? (LPP 11.1.3)

Plans: _____

Yes [] No [] Are there plant procedures and action taken to prevent an accumulation of dust to build on structural beams, surface of equipment, etc.?

Plans: _____

Yes [] No [] Where dusts exist, have alternate methods of handling or isolation been considered?

Plans: _____

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Process Hazard Analysis

FACILITY SITING - DRAINAGE

REFERENCES: LPP 2.4, LPP 7.6.3.

B 1. Yes [] No [x] NA [] If one or more fire protection systems are activated, will flooding occur in the process area?

If so, where? _____
Plans: _____

B 2. Yes [x] No [] Can trenches, ditches, sewers, etc., back-up into the plant?

If so, where? Hydrochlorination
Plans: No plans. Likelihood is very small. We are equipped with five sump pumps for this area.

B 3. Yes [x] No [] Would a fire in trenches, ditches, sewers, etc. expose the plant?

If so, refer to LPP 2.4.4. for cover recommendations.
Plans: _____

A 4. Yes [x] No [] Are all sewers trapped to prevent vapor backup?
Plans: _____

A 5. Yes [x] No [] NA [] Are tanks containing liquid with flash points less than 140°F diked or impounded? (LPP 7.6)

Plans: _____

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B 6. Yes [x] No [] Don't Know [] Are diked walls liquid-tight? (LPP 7.6)
Yes [] No [x] Are they tested?
Plans: _____

A 7. Yes [x] No [] Are tanks located far enough from dike walls so that a leak will not spray over the wall. (LPP 7.6.2.)
Plans: _____

A 8. Yes [x] No [] Is area drainage generally directed away from the process equipment?
Rate your drainage system:
Excellent [x] Fair [] Adequate but Needs Improvement []
Plans: Recent upgrades in runoff systems_____

B 9. Yes [x] No [] Are drainage areas including ditches clean and free of obstruction/debris? (LPP 7.6)

B 10. Yes [x] No [] Does your plant have secondary containment?
Yes [x] No [] If so, are there written procedures covering operation, especially during emergencies?
Plans: _____

A 11. Yes [x] No [] Do you have a written plan for handling spilled materials?
Plans: _____

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Process Hazard Analysis

WAREHOUSE STORAGE

Warehouse - An attached or detached building for storage of raw materials, finished products or maintenance items or equipment.

REFERENCES: Minimum Requirement, LPP 12.4.

C 1. Yes [] No [x] Not Required [] Are warehouse areas protected with fire protection or detection systems?
Plans: **Warehouses are equipped with fire extinguishers.**

What is the warehouse inspection practice?
Material management handles inspection and operation of warehouse.

C 2. Yes [] No [x] Are pallets stored within the warehouse? (LPP 12.4.3)
Plans:

B 3. Yes [] No [x] Are empty pallet stacks less than eight (8) feet in height? (LPP 12.4.3.)
Plans:

B 4. NA [x] Where does sprinkler and fire fighting water drain? (LPP 12.4.4)

Plans:

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C 5. What type fork truck is utilized in the warehouse?
Diesel Powered [x] Gasoline Powered [x] LPG Powered []
List types of fork trucks. Diesel and gasoline fork trucks from the equipment yard._____

C 6. Where is fuel storage for the fork truck located? (LPP 12.4.5) _____
Out of block 46._____
Plans: _____

C 7. Yes [] No [x] Are flammable or combustible liquids dispensed or drummed in the warehouse area? (LPP 12.4.5)
Plans: _____

Process Hazard Analysis

EQUIPMENT/BUILDING LOCATIONS AND FIRE RISK

REFERENCES: Minimum Requirements, LPP 2.2. and 12.2.

A 1. Yes [x] No [] Do buildings and process structures meet the minimum separation distances as calculated by the F&EI (LPP 2.2?)

Yes [] No [] If minimum distance is not met, is the area protected?
Plans for areas of concern: _____

A 2. Yes [x] No [] Has the construction for occupied buildings in high hazard plants been evaluated per LPP 12.2.?
Yes [] No [x] Are there significant areas of concern?
Plans: _____

B 3. Yes [x] No [] Are buildings of non-combustible construction?
Yes [x] No [] Are temporary buildings (trailers) located to avoid exposing other critical facilities? (i.e.: under power line, pipelines, flammable storage)
Plans: _____

B 4. Describe your buildings' air supply system. Review monitoring and emergency procedures regarding flammable and/or toxic releases. (LPP 12.1) **Air supply to building 4601 and 4606 can be shut off during an emergency from the control room.**_____

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Yes [x] No [] Can the air supply be shut down in an emergency?

Yes [] No [x] Do you monitor the air intake for flammable/toxic material?

Plans: _____

A 5. Yes [] No [] NA[x] Are penetrations of fire walls properly protected?
(LPP 3.5.6)

Plans: **The old control room is not well sealed on the cable tray penetration.**

A 6. Yes [] No [] NA[x]

Are fire doors inspected periodically and fusible link systems tested for closing (LPP 10.13)?

Plans: _____

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Process Hazard Analysis

HUMAN FACTORS

(Technical systems and equipment designed so they can be used safely and efficiently by humans.)

A 1. Yes [x] No [] During a Process Hazard Analysis (i.e.; Project Review, Management of Change Review), are human factors considered? (For Example: "What if the operator adds material B instead of material A?")

Plans: _____

B 2. Yes [x] No [] Is adequate information about process conditions (normal and upset) displayed in the control room?

Plans: _____

B 3. Yes [x] No [] Are the displays visible from all normal areas in the control room?

Plans: _____

B 4. Yes [x] No [] Are automatic safety features provided to cope with a process upset when either a rapid response or complex information process is required?

Plans: _____

B 5. Yes [] No [x] Must any instrument, display, or control be disabled or bypassed manually as a normal part of the operation?

Plans: _____

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B 6. Yes [x] No [] Are alarm set points and process computer software protected from unauthorized change?
How: **MOC AP's on critical setpoints.** _____

B 7. Yes [x] No [] Are critical inputs to the process control computer protected from incorrect entries?
Plans: _____

B 8. Yes [] No [x] Are there unnecessary alarms?
Plans: _____

B 9. Yes[x] No [] Is equipment labeling adequate for trained personnel to determine content and flow direction?
Plans: _____

B 10. Yes [x] No [] Do shifts communicate the process status (batch conditions, process abnormalities, equipment out of service, active work permits, etc.) to each other?
How: **Log book. Relief meetings. Control room dry erase board.**_
If not, plans: _____

B 11. Yes [x] No [] Are checklists used for critical procedures?
Plans: _____

B 12. Yes [x] No [] Do the people developing and reviewing procedures analyze the job for hazards and identify the hazards in the procedure?

Plans: _____

B 13. Yes [x] No [] Are operating personnel able to read and understand process control programs?

Plans: _____

B 14. Yes [x] No [] Are operating personnel trained in using the process information computer?

Plans: _____

Process Hazard Analysis

Chemical Exposure Index (C.E.I.) Summary for Consolidated Audit

When was the last C.E.I. Review? (Month/Year) **September 1992**

A 1. What chemicals were discussed and what were their respective C.E.I. values?

CHEMICAL	C.E.I.	CHEMICAL	C.E.I.
Chlorine	288		
Anhydrous HCl	216		
Methyl Chloride	288		

B 2. Please list ALL chemicals in your plant that will be reviewed during this audit.

1. Chlorine	5. Chloroform
2. Anhydrous HCl	6. Carbon Tetrachloride
3. Methyl Chloride	7. Methanol
4. Methylene Chloride	

B 3. Please list all chemicals that have potential spill/release scenarios with an ERPG/EEPG-2 hazard distance that exceeds the distance from your plant to the public.

1. Chlorine	4. Methylene Chloride
2. Anhydrous HCl	5. Chloroform
3. Methyl Chloride	6.

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CHEMICAL EXPOSURE INDEX

B 1. Yes [x] No [] Does the plant have procedures for determining the level of release for emergency communication?

Plans: CMP utilizes the standard division protocol for spill size assessment (catagory A,B,C). The sizes correlate as follows: A- inside block, B- leaving block, inside division, C-Outside division

B 2. Yes [x] No [] Does the plant use an area monitoring system for the chemicals of CEI concern?

If the answer is YES, list:

Chemical	Detector Type	Detection Level
Chlorine	Chlorine Area Monitor	1-10 ppm
Methyl Chloride	Combustible Gas	0-100% LEL
Methanol	Combustible Gas	0-100% LEL
HCl	None	N/A

How often are these monitors checked and calibrated? Quarterly

Yes [x] No [] Are plant personnel trained to respond to the alarms from area monitors?

Plans: Operations personnel monitor the plant continuosly. In the event of a detector alarm, operators will investigate the area. Using proper safety and respiratory protection, they will assess the situation and respond accordingly.

A 3. Have the scenarios for potential chemical spills and gas releases included in this audit been reviewed with:

YES	NO		DATE REVIEWED
X		Plant Operators/Technicians?	Post Audit Review
X		Supervision?	Post Audit Review
X		Other Affected Employees?	Post Audit Review
X		Process Engineering?	4/95 -Audit personnel
X		Safety and Loss Prevention?	4/95 -Audit personnel
	X	Adjacent Plant Supervision?	**

** Adjacent plants are notified via a division wide, all area paging system. Plant security continuously updates the situation for each to ensure that personnel are taking appropriate precautions. Evacuations would be handled through the site emergency network and plant security.

Have you reviewed scenarios from neighboring plants that may affect your area with:

YES	NO		DATE REVIEWED
	X	Plant Operators/Technicians?	**
	X	Supervision?	
	X	Other Affected Employees?	

Plans: See response to question 3. Updates and evacuation needs are handled through Plant Security and updated by an all area paging system.

B 4. Yes [x] No [] Does the plant conduct routine, periodic "what if" emergency drills on the release of toxic chemicals?
When was the last drill? Month/Year: March 1995
Plans: CMP conducts quarterly emergency drills as per OSHA Star requirements. These drills vary on topic covered. A March 1995 drill focused on response to an HCl spill, including formation of sweep teams and opertor response for a simulated plan shutdown.

B 5. Yes [x] No [] Does the plant have written procedures detailing how to mitigate releases of chemicals in the plant?
(Examples: pump to another vessel, apply foam, temporarily plug hole, etc.)

Yes [x] No [] Does the plant periodically train operating personnel on these procedures?
Plans: CMP has a very comprehensive procedure system active within the plant. The procedures for emergency shutdown of the thermalchlorination reactor (Chlorine scenario), HCl Purification (HCl scenario), and M1 release at T-814 (Methyl chloride scenario) are included. Operations procedures are reviewed anually and retrained on upon change. Operations utilizes procedures for all jobs.

B 6. Yes [x] No [] Are there checklists employed for the periodic inspection, maintenance, and testing of equipment used to mitigate spills or releases?

If yes, list:

Equipment	Last Inspection	Last Test
**		

** Plant security is responsible for periodic inspection and maintenance of fire protection equipment. Documentation audited by Steve Ledoux, 4/95

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B 7. Yes [x] No [] Does the plant monitor corrosion/erosion in the piping systems of the facility?

How is monitoring done?

Piping is inspected by operations on routine operator rounds. In addition, CMP is implementing a piping inspection program in accordance with OSHA PSM requirements.

B 8. Yes [] No [x] Does the plant have areas in the piping system that require constant or repetitive repairs?

B 9. Yes [x] No [] Does the plant have a preventative maintenance program in place to monitor the integrity of the piping system?

Consider all elements: i.e., paint, insulation, supports, shoes, etc.

Plans: This preventative maintenance program is the same piping inspection program mentioned in response to question 7.

B 10. Yes [x] No [] Does the plant have procedures that define exactly who has the responsibility for the operation, inspection, and maintenance of adjacent and intra/interplant pipelines and associated equipment?

Plans: The Louisiana division is responsible for inspection of all out of block piping systems. The maintenance of the piping systems is the responsibility of CMP.

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Process Hazard Analysis

HAZOP

C 1. Do any of your unit operations have:
Yes [] No [] an F&EI of 128 higher?
Yes [x] No [] a C.E.I. of 200 or higher or?
Yes [] No [] meet the criteria for conducting a HAZOP as outlined in the Process Risk Management Guidelines for Facilities and Distribution?

Plans: CMP will analyze the results of the Consolidated Audit and complete HAZOP reviews for systems in accordance with auditor recommendations.

B 2. Where a HAZOP Review has been performed (please list areas studied), what is the status of the recommendations from the HAZOP study?

None to date. The consolidated audit process is a very detailed process hazard review. Full HAZOPs will be completed as dictated by auditors and division management.

Process	Process Unit

ADDITIONAL RISK EVALUATION

C 1. Yes [x] No [] Has any additional risk evaluation or quantitative risk assessment been done in your facilities?
Plans: As mentioned in response to question 2 above, CMP has undergone the consolidated audit review process. The first review was in September 1992. Follow up items were well documented and completed within accepted time frames.

B 2. Yes [x] No [] Do you have a system for tracking risk evaluation recommendations until closed out?
Plans: Consolidated Audit follow up items are tracked and monitored for status until completed.

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C. Mechanical Integrity

Mechanical Integrity is a new term used in the OSHA Process Safety Management Regulation (1910.119, Paragraph J). At Dow, Mechanical Integrity includes the items in this section:

Electrical Systems

Fire Protection Systems

Fired Equipment

Critical Instrument Systems

Emergency Block Valves

Storage Tanks

Pressure Vessels/Relief Devices/Glass Devices/Expansion Joints

Critical and Rotating Equipment
(Including Compressors and Pumps)

Management Systems

Piping, Compressors and Pumps

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Mechanical Integrity

ELECTRICAL SYSTEMS

REFERENCES: Minimum Requirements, National Electric Code, LPP 3. Included as part of the Loss Prevention Audit, is an Electrical 5-point inspection by the Electrical Maintenance Department. Contact your area electrical supervision to verify and coordinate this activity.

Following is a list of some Loss Prevention items that will be included in that plant inspection:

1. The Electrical Area Plot Plan drawing should be reviewed and current. Contact Loss Prevention if revisions are required. (L.P.P.) Identify any installations that are in conflict with electrical plot plan.

2. The Safety Electrical One Line Diagram (SEOLD) should be reviewed and current per LAD S&LP S-214.

3. The electrical field audit will include an inspection of existing installations to observe mechanical integrity, maintenance needs, and conformance with L.P.P.-3., the National Electrical Code, and Area Classification practices.

4. The results of this Electrical Department 5-Point inspection audit will be included in the follow-up portions of this audit.

B 1. Does your plant have:
Yes [x] No [] *Redundant Electrical Power Supply?
Yes [x] No [] *Redundant Feeds?
Yes [] No [x] Diesel Generated Power Backup?
Plans: _____
_____
*Some plants have redundant feeds but single transformers.

B 2. Yes [x] No [] Is switch over automatic? (LPP 3.4)
Last Date Exercised: _____
Plans: _____
_____

A 3. Yes [] No [x] Are there major cable trays routed through flammable liquid areas where pooling resulting from spills can occur? (LPP 3.2.5)
Plans: _____

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B 4. Yes [] No [x] Do you have fire protection on any of your major cable trays, (i.e., water spray, drainage, routing, fire retardant materials)? (LPP 3.2.7)

Explain: _____

B 5. Yes [] No [x] Considering possible unit fire exposures, are all cable wall penetrations appropriately sealed with approved fire stops? (Urethane is not an approved fire stop.) (LPP 3.2.6)

Plans: **The old control room penetration is not properly sealed. Some of the cables will be demoed soon.**_____

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Mechanical Integrity

FIRE PROTECTION SYSTEMS

REFERENCES: Minimum Requirements

C 1. Yes [x] No [] Do you have fire monitors and/or fixed sprinkler systems to protect flammable areas?

Plans: _____

A 2. Yes [x] No [] NA [] Do you have a plant program to routinely exercise/test fire monitors and fixed sprinkler systems?

Plans: **Not within the plant. Fire department.**_____

A 3. Yes [x] No [] Is your extinguisher inspection and testing up-to-date?

Plans: **Monthly checks done in block. Annual audit by fire department.**_____

B 4. Yes [x] No [] Are the size and type of extinguishers appropriate to the anticipated fire -- for example, a "C" rated extinguisher where electrical fires could be expected?
Yes [x] No [] Are they properly located (i.e., office, MCC, switchgear rooms)?

Plans: _____

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A 5. Yes [x] No [] NA [] Have your employees participated in annual fire extinguisher training?

Last Training Date: **11/93. Three year training. Annual safety meeting film.**

Plans: _____

B 6. Yes [] No [x] Do you have hose cabinets?
Yes [] No [] If yes, are employees trained on their use?
Yes [] No [] Is there a Preventative Maintenance Program on the hoses?
Yes [] No [] Are the hose cabinets necessary?

Date of last hose test: _____

C 7. Yes [x] No [] Do office areas, MCC's, switchgear, computer rooms and unoccupied buildings have smoke detectors alarming in a 24-hour/day occupied area? (LPP 9.1 and 9.2)

Plans: **Building 4610 has no fire detectors.**

A 8. Yes [x] No [] Are checks of smoke detectors made routinely and documented? (LPP 10.13)

Plans: **Done by fire department.**

C 9. How is your structural steel protected from a spill fire? (LPP 10.10)

Plans: **Areas in the new plant are protected by concrete. Areas in the older plant are protected with Pyrocrete.**

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B 10. Yes [x] No [] NA [] Is fire proofing well maintained? (LPP 10.10.7)

Yes [x] No [] Is there an inspection program?

Date of Last Inspection? **1/94**

Plans: _____

B 11. Yes [x] No [] NA [] Is pipe insulation on hot lines (i.e.: 150# steam or DOWTHERM*) in good condition to prevent a chemical leak from entering the insulation and auto-igniting? (LPP 10.12.4)

Plans: _____

A 12. Yes [x] No [] NA [] Are gas AND spill detectors adequately maintained (LPP 9.9.6) and tested routinely? (LPP 10.13) Provide Documentation.

Plans: **Block 43 is on critical istrument list for gas detectors.**

B 13. Yes [x] No [] Do you maintain foam within your area to fight fires? (LPP 5.8)

If yes, what kind of foam is used and when was the material last tested?
Protien foam
Contact the Fire Department for the above information.

Plans: _____

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B -- DELUGE & SPRINKLER SYSTEMS

REFERENCE: Fire Protection Manual -- The intent of this page is to assure that fire protection systems are properly maintained. Your Loss Prevention contact can assist with filling this out.

	EXAMPLE	1	2	3
Adequate access to valves during an emergency?	Yes			
Explosion or traffic exposure to valve?	No			
Explosion or traffic exposure to piping?	No			
Is the valve freeze protected?	Yes			
Is the system adequately drained of water?	Yes			
Is the pilot system adequately drained of condensate?	Yes			
Is remote dump switch labeled on deluge systems?	Yes			
Date of most recent 2" drain test?	1/18/85			
Static pressure in recent drain test (psig)?	92			
Flowing pressure in recent drain test (psig)?	90			
Design flow (gpm)?	2123			
Design pressure at deluge valve inlet (psig)?	11			
Date of last flow test?	10/12/86			
Were there plugged heads/corrected?	Yes/Yes	/	/	/
Are any pilot heads painted?	No			
Is there any missing or damaged pipe?	No			

Use another page if you have more than three systems.

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Mechanical Integrity

FIRED EQUIPMENT

C Yes [x] No[] NA [] Do you have fired equipment (furnaces, TOX, THROX, kilns, boilers)?

REFERENCES: Minimum Requirements, LPP 13, Technology Center, Burner Management Guidelines

List the type (THROX, TOX, boiler, fired heater, furnace, etc.) and number of each. (LPP 13.1, Appendix B)
One Throx Unit_____

B 1. Yes [] No [x] Has your unit had any Burner Management System (BMS) safety incidents in the last three (3) years?
If Yes, how many?_____
Be prepared to discuss the incidents and corrective actions taken at the time of the audit.

A 2. Yes [x] No [] Is the separation of fired equipment from the process in compliance with LPP 2.2?

If not, what protective features are used to address less than recommended distances? _____
Plans: _____

A 3. Complete the audit checklist in LPP 13.1, Appendix C and be prepared to discuss exceptions at the time of the audit. (Please attach a checklist for each fired heater.)
Plans: _____

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B 4. Provide a copy of your start-up and relight procedures for your fired equipment.

B 5. List the conditions that will result in the auto shutdown of the fired unit.

A 6. Yes [x] No [] Have you had a Burner Management System Audit?

Last Audit Date? **Last consolidated audit. 9/92**
Plans:

What is your plant policy for a Burner Management System Audit Frequency? **Once every three years.**

Frequency of Audit?: **Every three years.**

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Mechanical Integrity

CRITICAL INSTRUMENT SYSTEMS

REFERENCES: Minimum Requirements, LPP 15.4.

A 1. Yes [x] No [] Have your critical and important instrument systems been identified? See definition LPP 15.4.3.
If yes, how many are critical? **70 to 100**
Plans: _____

A 2. Yes [x] No [] Have test procedures been written?
Yes [x] No [] Is your testing up-to-date?
Yes [x] No [] Is testing documented?
Have records available for inspection. (LPP 15.4.4)
Plans: _____

B 3. Yes [x] No [] Do you test from the initiating device through the final control element?
Discuss: **Entire loop is tested from field device to control device.**
Plans: _____

B 4. Yes [x] No[] Do you have a process control computer?
What kind do you have? **Mod5, TDC, PICSVAX, and Modicon**

B 5. What would happen if you lost power to your computer?
Battery backup would maintain power to the control computers (Mod5, TDC). UPS system would maintain power to PICSVAX and Modicon.
What is the amount of operating time available after power failure?
Mod5 - 24 hours, TDC-never been tested, UPS-1 hour at 84 amps/battery

DO A 032756
CONFIDENTIAL

Yes [x] No [] Is it adequate?

When was your battery back-up last "load checked?"
Date Last Checked: **Mod5-9/94, UPS-10/93**

Yes [x] No [] Have there been any computer failures since the last audit?

If Yes, Discuss What Happened: **Modserver shutdowns have caused communication programs to halt.**
Plans:

A 6. What controls do you have in place to prevent bypassing critical instruments?
Management of Change procedures

B 7. Yes [x] No [] Is the fail safe position of automatic valves documented?
Yes [x] No [] Is the rationale for selecting the fail safe position documented?

B 8. Yes [x] No [] Do you have documentation of how control systems are supposed to operate, including set point limits?

B 9. When was your last in-depth review of the English language program?
Date Last Reviewed: **June to August, 1993 as well as periodic**
Plans: **reviews each time a change is made to the control programs (most recent 2/9/95)**

DO A 032757
CONFIDENTIAL

B 10. When was your last in-depth computer hardware and instrument reliability review?
Date Last Checked: **Computer-6-10/93 Instrument-2/95 (Quarterly)**
Plans: _____

A 11. What is department procedure for programming changes involving critical and important instruments?
Discuss: **All changes must be done through the Management of Change process**
Plans: _____

DO A 032758
CONFIDENTIAL

Mechanical Integrity

EMERGENCY BLOCK VALVES

REFERENCES: LPP 17.1.6.

A 1. Yes [x] No [] Are incoming and outgoing headers handling flammable or toxic materials fitted with EBV's at the battery limits?

Yes [x] No [] Are the EBV's remotely operated?
Yes [x] No [] Are the EBV's on a P.M. program and exercised at least annually?
What is the testing frequency? **Annually**
Have documents available at the pre-audit.

Plans: _____

A 2. Yes [] No [x] Are all vessels or processing equipment with greater than 5,000 gallons (2,000 gallons, if expansion joints, hoses or swivel joints are involved) of flammable liquids, flammable/toxic gasses or the equivalent amount of vapor fitted with remotely operated EBV's?

Plans: _____

A 3. Yes [x] No [] Are vessels or processing equipment with greater than 20,000 gallons (8,000 gallons, if expansion joints, hoses, or swivel joints are involved) of liquid at or above its flashpoint fitted with remotely operated EBV's?

Plans: _____

DO A 032759
CONFIDENTIAL

B 4. Yes [x] No [] Are EBV's installed around critical equipment such as reactors, furnaces, etc., in case of emergency shutdown?

Plans: _____

A 5. Yes [x] No [] NA [] Are there remotely operated EBV's on the lines to and from loading and unloading stations when hazardous materials are being handled?

Plans: _____

B 6. Yes [] No [x] Are flexible unloading joints or swivel joints for tank car and truck loading and unloading for flammable or toxic materials protected on both ends by EBV's ?

Plans: _____

A 7. Yes [x] No [] NA [] Are EBV's "fail safe" for all utility interruptions?

Plans: _____

B 8. Yes [x] No [] NA [] If the valve is in a fire exposure area, is it "fire tested?"*

Plans: _____

A/B 9. Yes [] No [x] Are your EBV's identified as per L.P.P. 1.5.5. (painted yellow)?

Plans: _____

* Fire tested means approved by a testing agency for fire service.

DO A 032760
CONFIDENTIAL

Mechanical Integrity

STORAGE TANKS

REFERENCES: LPP 6.11

A 1. Yes [x] No [] Have all tanks been visually inspected within the last year? (LPP 6.11.8) Check Criteria

A 2. Yes [x] No [] Are tanks in a maintenance testing program?

B 3. Yes [x] No [] Are storage tank non-destructive tests (NDT's) up-to-date?

B 4. Yes [x] No [] Is drainage around all tanks adequate to prevent water from getting between the tank foundation and the bottom of the tank?

Plans: _____

_____

B 5. Yes [] No [x] Has soil built up around tanks such that the exterior of the tank is in contact with the soil?

Plans: _____

_____

A 6. Yes [x] No [] Are all storage vessels electrically grounded?

Plans: _____

_____

B 7. Yes [x] No [] NA [] Do tanks have a system to protect against overpressure?

Plans: _____

_____

A 8. Yes [x] No [] NA [] Do tanks have a system to protect against vacuum?

Plans: _____

A 9. Yes [x] No [] Do you have tanks that have pad/depad systems to maintain inert atmospheres or to maintain positive pressures? (LPP 10.2)

Yes [x] No [] If yes, do you prevent the pressure from the pad system from exceeding the design pressure rating of the tank?

How? **Tanks are protected by PVRV's and ERV's**_____

B 10. What type of material is used for inerting? (LPP 10.2.2) **Nitrogen**____

What % oxygen is maintained? **Not continuously measured**_____

B 11. Yes [] No [x] Are your storage tanks in the original service for which they were intended?

Yes [x] No [] If no, do they meet the requirements for the present service?

Plans: _____

B 12. Yes [x] No [] Have your vessels been checked to determine if their protective devices are adequate for the service (i.e., fill/empty rates, fire exposure, etc.)?

Plans: _____

B 13. Yes [x] No [] Are your tanks protected with redundant level indicating devices to prevent spills?

Plans: _____

DO A 032762
CONFIDENTIAL

B 14. Yes [x] No [] Are automatic shut off systems operated from these devices?

Plans: _____

C 15. Yes [] No [] NA [x] For unstable chemicals, is temperature monitored and alarmed?

How would you respond to a temperature rise? _____

Plans: _____

If not, what parameters of storage are monitored?

List: _____

Plans: _____

B 16. What preventive maintenance exists for tank protective systems (i.e., levels, temperatures, pad/depads, PVRV's, ERV, and flame arrestors)?

PVRV's and ERV's are tested annually.

Level indications are tested annually.

Plans: _____

B 17. Yes [] No [x] Does your drain line or any other appendage off the tank extend below the elevation of the bottoms of the tank?

If yes, how do you keep water, soil, etc., from coming in contact with this piping? _____

DO A 032763
CONFIDENTIAL

Mechanical Integrity

PRESSURE VESSELS/RELIEF DEVICES/GLASS DEVICES/ EXPANSION JOINTS

REFERENCES: Minimum Requirements, LPP 6.5., 6.9,
LAD Vessel Program, S-314

A 1. Yes [x] No [] Are all pressure vessels (Pressure Containing Equipment) registered?
If no, how many are not? _____
Plans: _____

Yes [x] No [] Do you have any vendor-supplied tanks in your plant? (i.e., the vendor fills)

How do you assure mechanical integrity for these vessels?
Vendors inspect vessels periodically and replace when necessary.
Plans: _____

B 2. Yes [x] No [] Do file folder(s) on each pressure vessel (Pressure Containing Equipment) have the registration form, calculations, inspection and status change reports, spec sheets, record prints, U-1 forms, mill tests, and visual inspections? (LPP 6.5.4.C)
Plans: _____

B 3. Who is responsible for managing the pressure vessel testing inspection program in your plant? **Todd Hebert**

DO A 032764
CONFIDENTIAL

C 4. List any vessels with suspected mechanical integrity problems.
None_____

_____

_____

Plans: _____

_____

Have current inspection printout on pressure vessel and relief valve status available at the pre-audit.

B 5. Who is responsible for managing the pressure relief devices (i.e., valves and rupture discs, vacuum relief's) program? (LPP 14.3.4)
Name? **Todd Hebert**_____

A 6. Yes [x] No [] Are all pressure relief devices registered? (LPP 14.3.4)
Plans: _____

_____

A 7. Yes [x] No [] Are design calculations on all pressure relief devices done?*(Corporate Relief Design Manual)*
If no, number incomplete? _____
Schedule for completion? _____

B 8. Yes [x] No [] Is there a file folder for each pressure relief device with registration form, design calculations, specifications and piping isometric sketch?

Plans: _____

_____

DO A 032765
CONFIDENTIAL

A 9. Yes [x] No [] Have all glass devices in hazardous service been registered? (Texas Safety Standard O-40)

Plans: _____

B 10. Yes [x] No [] Are glass devices in hazardous service adequately guarded?

Plans: _____

B 11. Yes [x] No [] Are required inspections, maintenance, evaluation and recordkeeping done for glass devices in hazardous service? (Texas Safety Standard O-40)

Plans: _____

C 12. Yes [] No [x] Does the plant utilize expansion joints in hazardous applications? (Texas Safety Standard O-43)

A 13. Yes [] No [x] Are all expansion joints registered?

Plans: _____

B 13 a. Yes [x] No [] Are required inspections, maintenance, evaluation and recordkeeping done?

Plans: _____

B 14. Yes [x] No [] Does your plant have a test/replacement program for flexible hoses?

Plans: _____

DO A 032766
CONFIDENTIAL

Mechanical Integrity

CRITICAL AND ROTATING EQUIPMENT

These questions pertain primarily to large rotating equipment but also apply to equipment critical to the operation of the plant (hard to replace, costly).

REFERENCES: LPP 16.1.

A/C 1. Yes [x] No [] Have you identified your critical equipment? (LPP 16.1.2)

Plans: _____

B 2. Yes [x] No [] Does the critical equipment list include items such as large and/or unusual motors, transformers, foreign and/or domestic equipment requiring long deliveries? (Centrifuges and Blowers)

Plans: _____

B 3. Yes [x] No [] Do you have adequate spare parts to minimize downtime (business interruption)?

Plans: _____

B 4. Yes [x] No [] Are spares/spare parts stored in a controlled environment?

Plans: _____

B 5. Yes [x] No [] Do you have adequate monitoring/protection devices for your identified critical equipment? (LPP 16.1.4)

Plans: _____

DO A 032767
CONFIDENTIAL

B 6. Yes [x] No [] Do you have vibration monitors?
Plans: _____

B 7. Yes [x] No [] Do you have an on-going preventative maintenance program? (LPP 16.1.5)
Please describe: Lube oil lab, MTS, and vibration group routinely test critical rotating equipment.
Plans: _____

A 8. Yes [] No [x] Do you have dead-head protection on all pumps? (LPP 16.4.)
Describe: Dead-head protection via ARC valves on all mag drive pumps.
Plans: _____

B 9. Yes [x] No [] Are stainless steel bolts a problem because of potential process or atmospheric corrosion?
If so, how do you control their use? Piping specifications

DO A 032768
CONFIDENTIAL

Mechanical Integrity

MANAGEMENT SYSTEMS

REFERENCES: OSHA Process Safety Management
(1910.119, Paragraph J)

A 1. Yes [x] No [] Do you have written procedures to assure on-going integrity of process equipment? (i.e., pressure vessels, EBV's, fire protection systems, etc.)

Plans: _____

A 2. Yes [x] No [] Are the employees involved in maintaining the on-going integrity of process equipment given an overview of the process and its hazards, and trained in the procedures applicable to their job.

Plans: _____

A 3. Yes [x] No [] Do inspection and testing procedures follow Dow site or Division guidelines?

Plans: _____

A 4. Yes [x] No [] Do the frequency of inspections and tests of process equipment meet accepted Dow site or Division guidelines?

Plans: _____

A 5. Yes [x] No [] Are all inspections and tests documented as per Dow guidelines?

Plans: _____

DO A 032769
CONFIDENTIAL

A 6. Yes [x] No [] Are suspected deficiencies corrected in a safe and timely manner after necessary means are taken to assure safe operations.

Plans: _____

A 7. Yes [x] No [] In the construction of new plants and equipment, is equipment fabricated according to Dow site or Division standards and suitable for the process application for which they will be used?

Plans: _____

A 8. Yes [x] No [] Are appropriate checks and inspections performed to assure that equipment is installed properly and consistently with design specifications?

Plans: _____

B 9. How do you assure that maintenance materials, spare parts and equipment are suitable for the process application for which they are being used? **Piping specifications are used for all maintenance jobs. Spare parts are individually coded in the MSMS system for each piece of equipment.**

Plans: _____

B 10. How do you assure the proper materials of construction are used in maintenance and new projects?

Plans: **Piping specifications and Management of Change standard**

DO A 032770
CONFIDENTIAL

B 11. Yes [x] No [] Do you have a list of the proper gaskets for each part of your process? (LPP 6.6)

Plans: _____

Yes [x] No [] Is gasketing covered in your piping specification?

DO A 032771
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Mechanical Integrity

PIPING, PUMPS, COMPRESSORS

REFERENCES: **Pipeline Technology Center (Angleton, TX), Dow Pipeline-Texas Operations only (Freeport, TX) Texas Safety Standard M-72**

B 1. Yes [x] No [] Do you have accurate drawings showing the routing of your pipelines?

B 2. How often are your pipelines inspected? **Annually**_____

B 3. Yes [x] No [] Are all your pipelines well identified and maintained?

A 4. Yes [x] No [] Has definite ownership, including predictive, preventative maintenance (PPM) responsibilities, been clearly defined between the origin and termination of your pipelines?

B 5. Yes [x] No [] If more than one owner is involved for outside-block-limits pipelines, does each concur in writing with your interpretation of the extent of ownership?

B 6. Yes [x] No [] Do you have records showing the design criteria for each of your pipelines (material of construction, MAWP, operating pressure, coatings, etc.)?
Where is the information kept? **Pipe specs and P&ID's**_____

DO A 032772
CONFIDENTIAL

B 7. Do you have a scheduled and documented periodic program for maintaining your pipelines for:
Yes [x] No [] N/A [] Painting?
Yes [x] No [] N/A [] Cathodic Protection?
Yes [x] No [] N/A [] Ground Interface Deterioration?
Yes [x] No [] N/A [] Surveillance?

B 8. Yes [] No [x] Are your pipelines in the original service for which they were designed?

B 9. Yes [x] No [] Do you maintain a record of pipeline repairs?

B 10. Where are the repair records kept? **Champs system and equipment files**

B 11. If another owner is responsible for working on/repairing one of your outside-block-limits pipelines, how do they know the hazards (if any) associated with your materials? N/A

B 12. Yes [x] No [] N/A [] When work is performed by others on lines adjacent to yours, do you inspect the repair scene to assure the integrity of your piping has not been compromised?

B 13. Yes [] No [x] N/A [] Within the last 5 years, has your coated buried piping been free of leaks or other problems?

If "NO", what type (material) of coating was involved? **Tar paint, however, the cathodic protection was determined inadequate.**

B 14. Yes [] No [x] Other than visually, can you determine if your pipeline is leaking?

DO A 032773
CONFIDENTIAL

B 15. Yes [x] No [] Do you have written contingency plans for handling leaks from your outside-block-limits pipelines?

B 16. Yes [] No [] N/A [x] If more than one owner is involved, do they concur with your emergency contingency plans?

B 17. Yes [x] No [] In a pipeline emergency, will you, as the owner, normally respond?

B 18. Yes [] No [] N/A [x] If others are expected to respond, have they been included in training/planning necessary to handle a pipeline leak with your materials?

B 19. Yes [] No [x] Is there a list of owner contacts available to those responding to the emergency?

B 20. Yes [] No [x] Is the list of contacts dated and periodically updated?

B 21. Yes [] No [x] Is Distribution E/R included on the "pipeline emergency" call list?

B 22. Yes [x] No [] N/A [] If you handle flammable or combustible materials, are there provisions for grounding containers at the take-off point stations?

B 23. What concerns do you have about your pipeline systems?
Some lines (methanol, M2) are not on shoes. Some lines (M2, M3, and methanol) are underground at road and dike crossings.

DO A 032774
CONFIDENTIAL

Management of Process Change/Project Reviews

MANAGEMENT OF CHANGE

REFERENCES: U.S. Area Standard No. 2, OSHA 1910.119 (l)

A 1. Yes [x] No [] Does your plant's program for Management of Change include a written procedure which complies *with Dow's U.S. Area Standard No. 2?*

A 2. When was your last audit for compliance with the Management of Change Standard? (Date) **11/94**_____

Yes [x] No [] Have all recommendations from your last audit been closed?

Please furnish documentation of your last audit findings.

B 3. What is the involvement of your operation and maintenance personnel in the Management of Change process? **Dow operations and maintenance can originate an MOC. First reviewers can be either be supervisor or engineer level persons.**_____

A 4. Please provide documentation of several completed checklists used for process changes during the pre-audit.

A 5. Yes [x] No [] Are all employees, Dow as well as contractor, informed of and trained for process changes that affect them prior to the initiation of the change?
How? **The MOC sheet is followed and communication is required prior to start-up of the change.**_____

DO A 032775
CONFIDENTIAL

Management of Process Change/Project Reviews

PROJECT REVIEWS

REFERENCES: Minimum Requirements, U.S. Area Standard No. 2

A 1. Yes [x] No [] Does your department have Engineering Project Reviews or other Project Review Processes?

Who is involved? **Superintendent, production supervisors, engineers, and supervisors.**

B 2. Describe your process for handling recommendations from the project reviews. **Changes in projects are made by the project manager or manufacturing representative as discussed in the reviews.**

Please furnish documentation for the follow-up from these recommendations.

B 3. Describe how new projects are integrated into the plant's operating discipline. **Economics on new projects are reviewed in monthly project meetings. The projects are discussed and a decision is made to either carry out, hold, or eliminate the project.**

DO A 032776
CONFIDENTIAL

E. Pre-Startup Safety Review

REFERENCES: Site Specific Standards, Dow Minimum Requirements, June 1989, OSHA 1910.119 (i)

A 1. Yes [x] No [] Do you have a Pre-startup Safety Review for all new facilities or changes to existing facilities?

Plans: _____

A 2. Do the pre-startup reviews address the following:

a. Yes [x] No [] Construction and equipment in accordance with design specifications?

Plans: _____

b. Yes [x] No [] Safety, operating, maintenance and emergency procedures are in place and are adequate?

Plans: _____

c. Yes [x] No [] Have the recommendations from the project review process been completed or considered?

Plans: _____

d. Yes [x] No [] Recommendations from the plant Process Hazard Analysis have been resolved and implemented prior to startup?

Plans: _____

Please provide documentation for 2.a.b.c.d.

DO A 032777
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A 3. Yes [x] No [] Do you verify that training for all employees involved in operating the process has been completed prior to start up?

Plans: _____

_____

Please provide documentation.

DO A 032778
CONFIDENTIAL

F. Emergency Planning and Response

REFERENCES: Minimum Requirements, OSHA 1910.119 (n),
OSHA 1910.38
Texas Operations Emergency Plan and Rough Weather Plan

A 1. Yes [x] No [] Are copies of your Unit Emergency Plan available to all personnel?
Plans: _____

A 2. Yes [x] No [] Are all copies up-to-date?
Last update: 1/94
Plans: _____

B 3. Who updates the plan? Safety Coordinator
Plans: _____

A 4. Does the plan include: (If not, be prepared to discuss why.)

– Yes []	No []	NA []	Emergency Call List?
– Yes []	No []		Procedure for switching to alternate for each utility?
– Yes []	No []		Procedure for total loss for each utility?
– Yes []	No []		Crash shutdown procedures? Time Required: _____
– Yes []	No []		Orderly shutdown procedure? Time Required: _____
– Yes []	No []	NA []	Procedures in case of neighbor plant problems?
– Yes []	No []	NA []	Procedure for loss of raw materials?
– Yes []	No []	NA []	Gas release procedures?
– Yes []	No []	NA []	Scenarios in CAER/MIDAS Program
– Yes []	No []	NA []	Spill procedure?

DO A 032779
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May 28, 1996

Loss Prevention Audit
Section F. - Emergency Planning and Response

These items were originally left blank. Here are the updated responses and explanations.

4. Does the plan include:

Yes ☒ No ☐	Emergency Call List.	The CMP phone list will be put on the Windows Express Procedure System
Yes ☐ No ☐ N/A ☒	Procedure for switching to alternate for each utility.	CMP does not utilize alternate utilities. We do have back-up air from the Division but no action is required. If any utility is lost, that section of plant affected will go to safe shutdown.
Yes ☒ No ☐	Crash shutdown procedures	The MOD5 code for thermal and the Modicon logic for hydro and the Throx will cover any emergency crash shutdown taking everything to its fail safe position It will take 1-2 hours to secure the plant.
Yes ☒ No ☐	Orderly shutdown procedures	All are in place. It will take 1-2 hours to secure the plant.
Yes ☒ No ☐	Procedures in case of neighbor plant problems.	We cocoon in all situations. If the situation gets bad enough, we added a line in Emergency plan which states that we will be directed by security if we ever need to evacuate our block.
Yes ☒ No ☐	Procedures for loss of raw materials.	The MOD5 code for thermal and the Modicon logic for hydro and the Throx will cover any loss of raw materials which will result in an immediate shutdown taking everything to its fail safe position
Yes ☒ No ☐	Gas release procedures.	A statement was added to the spill procedure.
Yes ☒ No ☐	Scenarios in CAER/MIDAS.	These were run and copies filed in our records. However, they were not deemed appropriate to be added to the Division MIDAS system by Buck Bailey and Delaine Rawlings, 6/4/96.
Yes ☒ No ☐	Liquid release spill procedure.	A statement was added to the spill procedure.
Yes ☒ No ☐	Reactive chemicals Incident Procedures.	The Top 10 worse case scenarios have been defined and reactive chemical comments have been added to our critical procedures.
Yes ☒ No ☐	Fire fighting plans for each type of fire.	This is in our Emergency Plan.
Yes ☒ No ☐	Emergency communications plan.	We have emergency radios in addition to plant radios and phones.
Yes ☒ No ☐	Chain of command defined.	This is in our Emergency Plan.
Yes ☒ No ☐	Escape procedures and routes.	This is in our Emergency Plan.
Yes ☒ No ☐	Procedures for post-evacuation employee accounting.	This is in our Emergency Plan.
Yes ☒ No ☐	Preferred means to report emergencies.	This is in our Emergency Plan.
	Duties and procedures of employees who:	
Yes ☒ No ☐	Remain to operate critical equipment.	This is in our Emergency Plan.
Yes ☒ No ☐	Perform rescue and medical duties.	This is in our Emergency Response Procedure..
Yes ☒ No ☐	The names for persons or locations to contact for more action plan information.	This is in our Emergency Plan.

Vic McMurray
CMP

DO A 032780
CONFIDENTIAL

F. Emergency Planning and Response

REFERENCES: Minimum Requirements, OSHA 1910.119 (n),
OSHA 1910.38
Texas Operations Emergency Plan and Rough Weather Plan

A 1. Yes [x] No [] Are copies of your Unit Emergency Plan available to all personnel?
Plans: _____

A 2. Yes [x] No [] Are all copies up-to-date?
Last update: 1/94
Plans: _____

B 3. Who updates the plan? Safety Coordinator
Plans: _____

A 4. Does the plan include: (If not, be prepared to discuss why.)

- Yes [X] No [] NA [] Emergency Call List?
- Yes [] No [] NA [X] Procedure for switching to alternate for each utility?
- Yes [X] No [] Procedure for total loss for each utility?
- Yes [X] No [] Crash shutdown procedures?
  Time Required: 1-2 hours
- Yes [X] No [] Orderly shutdown procedure?
  Time Required: 1-2 hours
- Yes [X] No [] NA [] Procedures in case of neighbor plant problems?
- Yes [X] No [] NA [] Procedure for loss of raw materials?
- Yes [X] No [] NA [] Gas release procedures?
- Yes [X] No [] NA [X] Scenarios in CAER/MIDAS Program – Have been run but not added to Division data banks.
- Yes [X] No [] NA [] Spill procedure?

DO A 032781
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- Yes [X] No [] NA [] Reactive Chemical Incident Procedures?
- Yes [X] No [] NA [] Fire fighting plans for each type of fire?
- Yes [X] No [] NA [] Emergency communications plan?
- Yes [X] No [] NA [] Chain of command defined?
- Yes [X] No [] NA [] Escape procedures and routes?
- Yes [X] No [] NA [] Procedures for post-evacuation employee accounting?
- Yes [X] No [] Preferred means to report emergencies?

- Duties and procedures of employees who:
  Yes [X] No [] NA [] Remain to operate critical equipment?
  Yes [X] No [] NA [] Perform rescue and medical duties?
- Yes [X] No [] NA [] The names for persons or locations to contact for more action plan information?

Field Note Reference(s): _____

B 5. Yes [x] No [] Is there a documented emergency plan training and retraining program?
If yes, please describe: **Annual emergency drills with operations. The drills are reviewed, improvements suggested, and the results are communicated to everyone.**_____

Plans: _____

A 6. Yes [x] No [] Is training up-to-date and documented for all employees?
Plans: _____

B 7. Yes [x] No [] Does each employee participate in at least one hypothetical drill or table top each year? (Suggest a toxic scenario and flammable scenario.)
List the hypothetical emergencies for the past year: _____

Plans: _____

DO A 032782
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- Yes [] No [] NA [] Reactive Chemical Incident Procedures?
- Yes [] No [] NA [] Fire fighting plans for each type of fire?
- Yes [] No [] NA [] Emergency communications plan?
- Yes [] No [] NA [] Chain of command defined?
- Yes [] No [] NA [] Escape procedures and routes?
- Yes [] No [] NA [] Procedures for post-evacuation employee accounting?
- Yes [] No [] Preferred means to report emergencies?

- Duties and procedures of employees who:
  Yes [] No [] NA [] Remain to operate critical equipment?
  Yes [] No [] NA [] Perform rescue and medical duties?
- Yes [] No [] NA [] The names for persons or locations to contact for more action plan information?

Field Note Reference(s): _____

B 5. Yes [x] No [] Is there a documented emergency plan training and retraining program?
If yes, please describe: **Annual emergency drills with operations. The drills are reviewed, improvements suggested, and the results are communicated to everyone.**
Plans: _____

A 6. Yes [x] No [] Is training up-to-date and documented for all employees?
Plans: _____

B 7. Yes [x] No [] Does each employee participate in at least one hypothetical drill or table top each year? (Suggest a toxic scenario and flammable scenario.)
List the hypothetical emergencies for the past year: _____
Plans: _____

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B 8. Yes [x] No [] NA [] Do you meet with Fire Department (Emergency Services) and discuss fire fighting plans and hazards for your plant periodically?

Plans: **During consolidated audit preparation**

B 9. Where are vital records kept and how are they protected?
Equipment files and documentation is maintained in file cabinates in building 4601.

B 10. Yes [] No [x] Do you have emergency drills involving neighboring plants?

Plans: _____

A 11. Yes [x] No [] Are contractors adequately trained in emergency procedures?

Plans: _____

A 12. Are emergency horns:

- Yes [x] No [] Distinctive for each purpose of the alarm?
- Yes [x] No [] Capable of being perceived above ambient noise and light levels by all employees in the affects portions of the workplace?
- Yes [x] No [] Distinctive and recognizable as a signal to evacuate the work area or perform actions designated under the plant?
- Yes [x] No [] Maintained in operating condition?
- Yes [x] No [] Tested appropriately and restored to normal operating condition as soon as possible after test?
- Yes [x] No [] Unobstructed, conspicuous and readily accessible, if they are manual alarm systems?

..ANUFACTURING UNIT RISK ANALYSIS SUMMARY

AREA/COUNTRY	DIVISION	LOCATION
North America	Louisiana Division	Plaquemine, La.
SITE	MANUFACTURING UNIT	TYPE OF OPERATION
Louisiana Divisior	Chlorinated Methanes	Manufacturing
PREPARED BY	TOTAL MFG. UNIT REPLACEMENT VALUE	DATE
Steve Ledoux	$135 MM	4/13/95

Process Unit / Major Material	Material Factor	F&EI	Value of Area of Exposure $MM	Base MPPD (1) $MM	Actual MPPD (1) $MM	Days Outage MPDO (2)	BI (3) Loss $MM
Storage Sphere T-814 Methyl Chloride	21	84	$1.30	$0.86	$0.41	12	$0.29
Storage Tank T-251 Methanol	16	45	$1.00	$0.41	$0.29	10	$0.23
MeCl Distillation C-1500 Methyl Chloride	21	42	$4.00	$1.97	$0.94	20	$0.47
ermal Chlorinator ~~R-250~~ R-1300 Methyl Chloride	21	56	$4.00	$2.21	$1.05	22	$0.51
T/C Load Rack Methyl Chloride	21	92	$4.00	$2.77	$1.48	27	$0.62
MeCl Condensing D-1250 Methyl Chloride	21	53	$1.00	$0.54	$0.26	9	$0.22
THROX R-750 Methane	21	116	$5.00	$3.81	$2.33	35	$1.16
Storage Blk. 43 Methyl Chloride	21	48	$1.50	$0.78	$0.39	12	$0.40
Hydrochlorinator R-250 Methyl Chloride	21	77	$15.00	$9.59	$4.96	55	$1.82

.) Maximum Probable Property Damage
(2) Maximum Probable Days Outage
(3) Business Interruption

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