



Dow U.S.A.

The Dow Chemical Company

P.O. Box 150

Plaquemine, Louisiana 70765-0150

**DOW U.S. AREA
CONSOLIDATED AUDIT PROGRAM
VINYL II PLANT
NOVEMBER 18, 1993**

Date of Report: November 30, 1993

Superintendent: Sharon Cole, Bldg. 6601, LAD

cc: Terry Leigh, Bldg. 1601, LAD
Gary Meier, Bldg. 3502W, LAD
Chris Messelt, Bldg. 3502W, LAD
John Gallamore, Bldg. 101, Freeport, TX

Tom Morris, OC1120, Texas
Roddey Peebles, Bldg. 1601, LAD
Buck Bailey, Bldg. 3301W, LAD

Enclosed are the recommendations from the various audits for your response. According to the Dow U.S. Area Consolidated Audit Program Guidelines and the OSHA Process Safety Management (PSM) standard 1910.119, you must develop an implementation plan as a response to the recommendations. The plan must include the name(s) of the employee(s) assigned to each action item along with an estimate of time required to complete each item. Your plan must be reviewed and approved by the area Major Manager (or Section Manager) by January 31, 1994.

Please note that efforts have been made by the Functional Audit Teams to help prioritize each recommendation. They will be identified as: M = Must Do, (based on compliance issues, government regulations, Dow policies or S&LP) and HR = Highly Recommended, (necessary to mitigate an anticipated or potential hazard).

It is the responsibility of the plant/department supervision to communicate the results of the consolidated audit to all employees. Communication must include the results of the Process Hazard Analysis. PHA's include the Reactive Chemicals, Chemical Exposure Index (CEI), Process Safety and Loss Prevention/Fire/Burner Management audits. This must be completed within 90 days after the audit and documented.

Please send your approved implementation plans to me by January 31, 1994. I will forward a copy to members of the Core Audit Team and the appropriate section to the Functional Team Leaders.

Enclosed Audit Recommendations:

1. Occupational Health Audit
2. Safety Audit
3. Loss Prevention/Fire Audit
4. Hazardous Material Transportation Review (HMTR)
5. Reactive Chemicals Audit
6. Laboratory Audit
7. Security Audit
8. Electrical Reliability Audit
9. Computer Network Audit


Howard Wilkinson, Administrator
LAD Consolidated Audit Program

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R&S153653

OCCUPATIONAL HEALTH AUDIT

(Thursday, Nov. 18, 1993)

Audit Team:

Plant I.H.
Contact:

Attending:

Writer:

GENERAL INDUSTRIAL HYGIENE/MEDICAL

The IH manual is complete and most written industrial hygiene programs are current (Hazard Communication, Hearing Conservation, and Respiratory Protection). Overall housekeeping in the plant is very good.

Recommendations:

- HR 1. The lunch room microwaves located in the Contractor and Instrument shop need cleaning.
- M 2. The CPAI and/or HAZCOM Chemical list needs to be updated to add maintenance chemicals and a more thorough listing of lab chemicals.

HAZCOM - TRAINING PROGRAM

The Hazcom training is current. The HAZCOM/MSDS notebook is readily available in the Control Room and a second copy is in the IH Contact's Office. MSD Sheets are current. There was very good labeling on the analyzer houses within the plant.

Recommendations:

- M 1. Labeling of portable containers needs some attention. There were several containers in the process area with inadequate labels.

M= Must Do

HR= Highly Recommended

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- M 2. The block entrances need to be posted with signs stating there are vessels containing Vinyl Chloride with required OSHA 1910.1017 wording.
- M 3. Need to add benzene statement to the Vessel Cross Reference ID Table in the HAZCOM Manuals.

HEARING CONSERVATION

The OSHA Standard 29 CFR 1910.95 is posted in the Lunch Room. To be consistent, you may want to put an additional noise standard posting in the instrument lunch room. The written Hearing Conservation program is current. The entire block is posted with signs requiring hearing protection. Hearing protection was being worn by all personnel in the process plant. There was a sign in the maintenance shop requiring hearing protection when all power actuated tools are being used.

Recommendations:

- M 1. Hearing conservation training needs to be conducted and documented for 1993.

RESPIRATORY PROTECTION

The written respiratory program is very thorough and training is current. Respirator cleaning stations were in good shape. Fit-test documentation is complete.

Recommendations:

- M 1. The escape packs (2 ELSA, 1 Survivair in the warehouse) need to be maintained and included in your written program or discarded.
- HR 2. The sample dumping job needs to be evaluated to determine the proper respirator for the short duration task. Proper wording on the sign at the job site needs to be verified to designate the correct type of respirator.

M= Must Do

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HR= Highly Recommended

- M 3. Respiratory Protection training needs to emphasize the proper pairing of Scott adapters and regulators (emphasize that a mismatch is against manufacturers instructions). In addition, caution should be used with the adjustable continuous flow regulator, it *should not be* adjusted down so that air is used in the demand mode. It *should be used* in the positive pressure mode at all times.

PERSONNEL PROTECTIVE EQUIPMENT

Block personnel wear Nomex clothing which is washed at home.

Recommendations:

- HR 1. The list of PPE in the block needs to be converted to the new IH written program format.

ERGONOMICS

Recommendations:

1. None at this time.

THERMAL STRESS

Recommendations:

1. None at this time.

VENTILATION

Hood surveys are complete and weekly lab hood audits including air flow checks are being performed. Housekeeping in the labs was very good.

Recommendations:

1. None at this time.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

WELDING

There is adequate ventilation in the shop for welding with the use of the wall fans and the open doors. The Welding Health Hazard sign was posted in the maintenance shop.

Recommendations:

- M 1. Since the welding rods are not being stored in the original containers (which have the required warnings printed on the box), warning signs need to be posted on the ovens in the shop and in the tent. Warning signs stating the health hazards associated with welding need to be posted in the tent. (Ordering information is provided in Section 10 Appendix H of the I.H. Plant Manual).

ASBESTOS

Block entrance signs were posted. Labeling was posted in the Motor Control Center, lab hoods, and on the cooling tower. The block inventory was current and the inspection records were adequate. Training was documented for 1993.

Recommendations:

- M 1. The gasket storage area needs to be isolated, organized, and properly labeled. A periodic inspection (storage area, vacuuming, and disposal cabinet) should be added to the E-9 Checklist.

REACTIVE CHEMICAL AUDIT

(Pre-Review Meeting - Monday, November 15, 1993)

(Audit wrap-up - Thursday, November 18, 1993)

Audit Team:

M= Must Do

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HR= Highly Recommended

**Plant
Contact:**

Attending:

Writer:

Recommendations:

- M 1. Review the potential for HCL/propylene addition reaction within the propylene refrigeration system with _____ and identify any potential reactive chemicals hazards. If any exist, appropriate lines of defense should be implemented.
- M 2. A comment was made that K-330 propylene compressor wheel contains aluminum parts. A worst case scenario involving an exchanger leak of EDC into the compressor system should be evaluated. Are adequate lines of defense in place to avoid compressor damage from an aluminum-EDC reaction?
- M 3. Make sure procedures are in place to avoid a build-up of concentrations of vinyl acetylene and chloroprene in distillation columns due to total reflux conditions. This could perhaps be accomplished by running an ASPEN simulation.
- M 4. Document where titanium is being used in the process and consider field labeling. Make sure safeguards are in place to prevent hot work on titanium by anyone not trained specifically in the explosion hazards of welding titanium. Procedures pertaining to demolition and repair of titanium equipment should be revised.
- HR 5. Concerning the PSA units: Consider flooding the carbon beds with water before disposal. This will minimize risk of a fire from spontaneous ignition.
- M 6. Concerning the "wild mice" waste tanks: Document the compatibility of all current and potential waste sources. If an incompatible situation is identified, revise procedures to make sure the material is emptied from the tank before another waste is added.

M= Must Do

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HR= Highly Recommended

- HR 7. Implementation of dual flow meters on all feeds to OXYNEDC is still recommended.
- HR 8. Concerning the deliveries of Betz additives: Since Vinyl 2 is relying on COA's for positive ID, it is imperative that all paperwork provided by Betz is properly reviewed by appropriate Dow personnel to avoid offloading the wrong material. Procedures should be revised to address this issue.
- HR 9. Identify all applications where clay adsorbent is being used for waste and spills and obtain reactive chemicals test data regarding compatibility. Joe Schell send Sharon Cole a list of adsorbents that have been tested and the plant should decide and prioritize any further testing needs.
- HR 10. Obtain or perform deflagration sizing calculations for the OXYNEDC reactor rupture discs and re-size if appropriate.
- HR 11. Calculate the total energy that could be released from an over-addition of chlorine in the chloroprene column. Make sure appropriate lines of defense exist. A worst case scenario would be a wide-open chlorine valve position when the plant is running at low rates.

LOSS PREVENTION/FIRE/CEI AUDIT

(Thursday, November 18, 1993)

AUDIT TEAM:

**PLANT
CONTACTS:**

ATTENDING:

WRITER:

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

OPERATING DISCIPLINE

Vinyl is not included in the list of plants that will be actively developing the Operating Discipline documentation package. But there are plans to proceed with an effort to revise the plant procedures program that will comply with the program.

Recommendations:

None at this time.

DRAINAGE

Recommendations:

HR 1. Calculate the volume / time of water storage available if the furnace area sprinkler is tripped. What water rate will the existing trenches carry without overflowing to the east ditch?

CHEMICAL EXPOSURE INDEX

The Dow CEI Guidelines have recently been reissued in a totally new format with a new calculation procedure. Considering the timing of this audit and the recent issue of the CEI, I have decided to go ahead with the use of the new guideline. Chlorine, HCl, Vinyl chloride, and EDC were selected as chemicals to evaluate.

A calculated CEI value of >200 is defined by the new guideline as a level requiring further risk evaluation following recommendations outlined in another new Dow publication, the "Corporate Risk Assessment Guideline". This is currently scheduled to be published before the end of the year.

For now the recommendations are tentative, pending publication of the new Risk Assessment Guideline. Loss Prevention will be fully involved in the future development of any necessary risk assessment studies.

Recommendations:

None at this time.

M= Must Do

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HR= Highly Recommended

ELECTRICAL SYSTEMS

Recommendations here are those compiled by the LAD Electrical Maintenance Department audit. Generally those are maintenance items that need attention that were detected during their observation audit of the electrical hardware. They should be prioritized on the same basis as other plant electrical maintenance items.

FIRE PROTECTION SYSTEMS

Recommendations:

HR 1. Get the fire protection testing information from the Fire Protection Department to complete the form on page 27 of the questionnaire.

FIRED EQUIPMENT

Recommendations:

M 1. I have deferred any detailed system audits for the furnaces and other fired equipment at this time. My recommendation is to include these detailed audits with the Tech Center and include Loss Prevention in the reviews. The TOX / THROX Tech Center has been contacted and has definite plans to visit LAD early in 1994 to conduct audits at several plants. Contact the Vinyl Tech Center to see when this could be scheduled for the cracking furnaces.

CRITICAL INSTRUMENT SYSTEMS

Recommendations:

HR 1. The critical instrument documentation and scheduling program is being changed from the LAD mainframe computer to the CHAMPS system. This does not provide the same type of management feedback reporting that is built into the mainframe computer system. I recommend having a Critical Instrument program with a plant supervisor directing the efforts of the plant instrument people.

HR 2. Many of the instrument procedures are general and do not include specific process conditions to be checked. Where applicable, these should specify specific process condition calibrations to be checked.

M= Must Do

HR= Highly Recommended

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HR 3. Where possible the testing procedures should include a loop check from the field element through the control device.

STORAGE TANKS

Recommendations:

M 1. Add the new octene storage tank operation to the plant Emergency Plan.

PRESSURE VESSELS / RELIEF DEVICES

Recommendations:

HR 1. The Pressure Vessel Committee representatives from Engineering have audited the files at Vinyl 2 to identify unregistered and undocumented vessels. Develop a schedule with the pressure vessel group to follow up to get the PV program current. A similar effort is in progress with the relief devices. Review this also to assure that the program is continuing. Both of these may be limited by the support level from the Engineering group.

MANAGEMENT OF CHANGE

Recommendations:

HR 1. The plant has not yet had the annual MOC audit of the program. When this is due, please include Loss Prevention or send me a copy of the results.

Recommendations:

None at this time.

EMERGENCY PLANNING (HR)

Recommendations:

HR 1. Review the potential spill / fire scenario with the Fire Protection Department and Loss Prevention and document the detailed scenario plan in the plant Emergency Plan book.

M= Must Do

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HR= Highly Recommended

HR 2. Review the applicable emergency plans to see if they could / should be more specific with regard to the on site involvement of the Fire Protection / Security people.

HAZARDOUS MATERIAL TRANSPORTATION REVIEW

(October 26, 1993)

AUDIT TEAM:

PLANT
CONTACT:

WRITER:

On October 8, 1993 a Hazardous Materials Transportation Review (HMTR) was conducted at the Vinyl II plant as part of the Louisiana Division Consolidated Audit Process (CAP). An additional part of the HMTR - the Distribution Facilities Assessment (DFA) - was also conducted at that time. Please note the following comments and recommendations; those comments initialed with an "M" are regulatory requirements and Dow policy.

HMTR Questionnaire:			
Chemicals Reviewed -	DRI#	Transportation Mode: Tank Car	Product (P) Feed (F)
Vinyl Chloride	4	yes	P
Chloroethene (a-tri)	3	yes	F P

(Temporarily)

All responses to the HMTR questionnaire were answered satisfactorily.

M= Must Do

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HR= Highly Recommended

DFA:
RAIL AREA - Safety

Recommendations:

Setting of Tank Car Brakes - No.14

- M 1. Brakes must be set on all tank cars that are being loaded or unloaded. This requirement may be accomplished by either the railroad personnel or the block personnel.

RAIL AREA - Loss Prevention

As a result of the last HMTR/DFA a second remote emergency shutdown has been installed at the loading rack. Good job!

Recommendations:

Loss Prevention - No. 2

- M 1. Fire water is available in the immediate area, however, no deluge system is currently in place. The Vinyl Tech Center has requested that a shower curtain system be installed in the loading rack area.

Loss Prevention - No.4

RAIL AREA - DOT/DOW Compliance

Recommendations:

Checklists Legibly Signed - No.11

- M 1. All checklists associated with the loading and/or unloading of tankcars must be legibly signed by the person performing the operation. Initials are not acceptable.

Summary: The Vinyl II plant has always maintained a very pro-active program for their operations. This is evident each time a review/audit has been conducted at this facility. Thanks to Bud Balentine for the excellent job maintaining this area and for the time spent on this process.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

PROCESS CONTROL NETWORK AUDIT

(September, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

Recommendations:

- HR 1. The following procedures should be incorporated into the plant Operating Discipline system.

PROCEDURE FOR PROGRAM LOADING OF PROCESS CONTROL COMPUTERS

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for program loading of process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. Complete the Management of Change process before a program load if the program was changed.
2. For systems without any simulations capabilities, review the program changes with plant engineers and operations. The size of the review will be dependent on the complexity of the change.
3. Notify operations before the program load is to be performed. Discuss any special precautions that may be needed.
4. Two persons should be available for program loading with systems with semi-automatic loading systems (debug panel on Mod5, PLC's when typing in changes). One person should be doing the typing while the other person checks the entries.

M= Must Do

HR= Highly Recommended

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**PROCEDURE FOR ABORT PROGRAMING
OF
PROCESS CONTROL COMPUTERS**

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for abort programing of process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. Review abort code by plant technical personnel, operations, outside control expert, and if necessary, Tech Center.
2. Simulate abort code and test for correct operation prior to startup.

**PROCEDURE FOR USE OF CONTROL TERMINALS
OF
PROCESS CONTROL COMPUTERS**

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for control terminals of process control computers as described by the Process Control Network Minimum Security Practices.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

Procedure:

1. Terminals connected to a process control computer capable of writing to field outputs should be located in the control room or in locations known to plant operations. The terminal located outside of the control room should be used for program development. Operations can then check with these locations if an upset of unknown origin occurs while development is being done to determine if the development was the source of the upset.
2. The control terminal outside of the control room should not be used to change field outputs. Changes to field outputs should be done from control terminals in the control room with the notification of operations.
3. Notify operations when development is being done on the terminal outside of the control room that involves starting or stopping programs or loading of new programs. Refer to procedure for program loading of process control computers.

**PROCEDURE FOR DEVELOPMENT SYSTEMS
FOR
PROCESS CONTROL COMPUTERS**

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for development systems for process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. If a process control computer does not have an integrated development system, backup should be performed regularly to insure loss of critical files or programs.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

2. Keep written documentation of files and dates of files to insure old programs and files are not loaded into the process control computer.
3. Keep written documentation of changes that are made to the process control programs.

PROCEDURE FOR ACCOUNT MAINTENANCE FOR PROCESS CONTROL COMPUTERS

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for account maintenance for process control computers as described by the Process Control Network Minimum Security Practices.

1. Keep a log of the users who have an account on a process control computer.
2. Review this log at least once a year and delete access to persons not actively working for the plant.
3. Plant superintendent should review this list at least once a year.

ELECTRICAL RELIABILITY AUDIT SUMMARY

(August, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

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R&S153668

The electrical reliability audit for the Vinyl II plant was conducted in August, 1993 as per the Five Point Electrical Reliability Program.

Condition of electrical assets in Vinyl II reflect a commitment to improvement and the audit team finds the overall electrical health of the Vinyl II plant to be good to excellent.

Those items identified with an index of 4 in the Electrical Reliability report need some attention. Please refer to the report.

Recommendations:

- M 1. Most junction boxes are fiberglass with metal back panels and rigid conduit. Back panel should be grounded and conduits bonded and grounded. (L7C-0101 par 5.3.1). Ground all block junction boxes properly.
- M 2. Cables out of tray on vertical risers. (NEC 318.8 B). Fasten cable transverse members of the cable trays.
- HR 3. Conduit system throughout Vinyl II has moderate to severe corrosion. 20 - 30%. Sand blast and paint or replace as needed.
- M 4. Building 6601 - Control Room - Instrument panel "A" had open slots. Exposing bus. Order and install proper blanks.

SECURITY AUDIT

(Thursday, November 18, 1993)

AUDIT TEAM:

PLANT
CONTACT:

WRITER:

All Dow and contract employees are required to wear ID badges. Employees challenge strangers in their work area. A sign-in/out log book is available for visitors to control room/plant area.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

Emergency communications and alert systems are in place and working well.

Security awareness seems to be working well at Vinyl II.

All action items from the previous audit have been completed. Outstanding effort in this area. Keep up the good work.

Recommendations:

None at this time.

LABORATORY AUDIT SUMMARY

(November 10, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

Overall the Vinyl II plant laboratory seem to be running smoothly. The lab was inspected on November 10, 1993.

The lab inspection found the lab housekeeping in very good shape.

Employees have access to all equipment operations manuals and procedures.

All action items from the previous consolidated audit have been completed.

Recommendations:

None at this time.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

SAFETY AUDIT SUMMARY

(November 18, 1993)

Audit Team:

(PRE-AUDIT -- Tuesday, October 26, 1993 --12:30 p.m. - .
3:30 p.m. and Tuesday, November 2, 1993 -- 12:30 p.m. -
3:30 p.m.)

Plant Contact:

Writer:

SAFETY QUESTIONNAIRE

A. Program Structure and Planning

No Recommendation

B. Employee Participation

No Recommendation

C. Contractor Safety

No Recommendation

D. Accident/Incident Investigation and Reporting

No Recommendation

E. Audits

No Recommendation

F. Safe Work Practices

No Recommendation

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

G. Emergency Planning and Means of Egress

No Recommendation

H. Employee Training

No Recommendation

I. Safe Operation of Motor Vehicles and Motorized Handling Equipment

No Recommendation

J. Off-The-Job Safety

No Recommendation

EMPLOYEE SURVEY

Recommendations:

HR 1. Review employee survey summary listed below and take appropriate action.

Fifty one surveys were handed out with twenty two of the surveys returned.

Eighteen people indicated that their supervision views on safety were good or that their supervision was concerned about safety. Four surveys indicated that their supervision views on safety depended on plant conditions or was second to production.

Eighteen people indicated that safety had been adequately discussed on their last Performance Review and these eighteen indicated they had set personal safety goals.

Twenty good responses on what safety means to you - required a lot of good thinking. Two people did not respond to this question.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

Seventeen people rated their job training for "starting something new", from O.K., to good, to extremely well. Four people indicated training was not so good and one person did not respond.

Nine people did not respond to the question of what part(s) of their job they needed additional training. It would be important to know if they thought they didn't need any additional training or if they just didn't know what training they needed. The other thirteen responses were varied but training on computer and environmental training both showed up more than once.

Seventeen of those surveyed indicated there were procedures covering their jobs. All indicated that these procedures were reviewed on some periodic basis. Their response on how well they were kept ranged from O.K. to good.

There was no clear cut answer to the question on what part of your job requires you to think the most about safety, or requires the most caution but everyone did respond to this question indicating that people are thinking about hazards of their jobs.

Twenty-one people indicated they would do some type of intervention if they saw someone performing work in an unsafe manner.

All twenty-two respondents indicated they attended at least monthly safety meetings. The response to "were the meetings helpful", ranged from yes to some of the time.

One hundred percent knew the hazards of the chemicals they were working with, the location of the material safety data sheets, and that they were readily available.

No problem indicated from survey on personal protective equipment.

All but one of those surveyed felt that safety suggestions were handled properly and all but one indicated prompt feedback.

All twenty-two respondents indicated written Emergency Procedures. Only one employee indicated no participation in an emergency drill.

There was no clear cut opinion as to what would cause the next serious accident in Vinyl II. All but four did respond to the question and I would suggest that Vinyl II supervision look at these concerns.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

Four people felt that accidents could be prevented "all of the time", seventeen people felt that accidents could be prevented "most of the time", and one person felt they could be prevented "some of the time". No clear cut reason to the "why" part of the question.

Eight people either said "no" or did not respond to the question of "have they reviewed a summary of the process hazard analysis in their plant within the last year".

All twenty people knew that the Louisiana Division was OSHA STAR site.

Two of the twenty-two did not know their rights under the OSHA VPP/STAR Program.

DOCUMENTATION REVIEW

A. Audits

- M 1. Close-out all recommendations from the 1991 Vinyl II Safety Consolidated Audit. Closure must include the following:
- * A statement of what action was taken to address the recommendation. There may be instances where no action is necessary and this is a valid response to an audit finding. All actions taken, including an explanation where no action is taken on a finding, needs to be documented as to what was done and why.
 - * The person responsible
 - * When the action was taken

B. Basic Safety

No Recommendation

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

C. Unit Emergency Plans

- M 1. Deficiencies identified in drill critiques must be documented and corrective actions tracked to completion. Documentation must show:
- * What corrective action was taken
 - * Who completed corrective action
 - * When corrective action was completed

D. Job Safety Analysis

- M 1. Deficiencies identified in pre-startup reviews must be documented and corrective actions tracked to completion. Documentation must show:
- * What corrective action was taken
 - * Who completed corrective action
 - * When corrective action was completed

E. Accident/Incident Investigations

No Recommendation

F. Safety and Health Suggestions

No Recommendation

G. Safety Equipment Inspections & Checks

- M 1. Perform checks on C-9 checklist and sign off on master on or before the due dates.
- M 2. Deficiencies identified during C-9 inspections are currently documented and corrective actions are entered in the Champs System. Assure that corrective actions are tracked to completion and documentation shows:
- * What corrective action was
 - * Who completed corrective action
 - * When corrective action was taken

The Safety Department will assist with Champs work on this recommendation.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

H. Hazard Identification Inspections

No Recommendation

I. Predictive Preventive Maintenance

No Recommendation

J. Variances

No Recommendation

K. Contractors/Vendor/Visitor Orientation

M 1. Document person responsible for conducting indoctrination's.

L. Safety and Operations Training

No Recommendation

M. Safety Committee Activities

No Recommendation

N. Safe Work Practices

No Recommendation

FIELD INSPECTION #1

A. Lockout/Tagout System

M 1. Train/retrain people on completing lockout/tagout paperwork on importance of filling-out completely.

Some deficiencies noted are listed as follows:

a. Addendum used but not checked on master

M= Must Do

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HR= Highly Recommended

- b. Roster checked as used but not attached to master
- c. Tag verification date not filled out on master
- d. Tag location listing with no date

B. Safe Work Permits

- * Safe Work Permits were filled out completely. The workers in the field had their copy of the permit, acknowledged that an on site inspection had been done prior to being issued the permit and did know the hazards associated with the job.
- * The fire extinguisher used by the fire watch on a hot work job was located too close to the point of welding and away from the fire watch. Recommended that the fire watch keep extinguishers close to them. Corrected on the spot. No further action is required.

C. Control Board Area

- HR 1. One of the better behind the control board plants inspected. However, some housekeeping would be in order though, especially behind the north control board.
- HR 2. Emergency lights in control room not on any routine inspection. Highly recommend that these emergency lights be checked on a periodic schedule to assure that they will work when needed.

D. Office Area

- HR 1. Emergency lighting needs to be routinely checked.

E. Lab Facilities

See Lab Audit portion of Consolidated Audit.

M= Must Do

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HR= Highly Recommended

F. Motor Control Centers

See Loss Prevention and Electrical portions of Consolidated Audit.

G. Maintenance Shop and I&E areas

1. Pedestal Grinder

- M a. Top guard not within 1/4" of the wheel
- M b. Tool rest not 1/8" from the wheel
- M c. Tool rest not at or above centerline of the wheel
- M d. Wheel grooved - need replacing

2. Pipe Threading Machine

- HR a. No warning/instruction signs posted
- HR b. Area around machine needs housekeeping

3. Drill Press

- HR a. Area needs housekeeping - lots of shavings on floor

4. Horizontal Band Saw

- HR a. No warning/instructions posted
- HR b. Area needs housekeeping - lots of cuttings on the floor

5. Welding and Cutting Area

No Recommendation

6. Other Equipment

No Recommendation

M= Must Do

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HR= Highly Recommended

7. Hand held power tools

No Recommendation

8. Hand Tools

No Recommendation

9. Lifting Tools

- HR a. Need to remove manually operated overhead crane that is no longer in use. Replaced by electric crane but on same beam as manually operated crane.

10. Safety Equipment

- HR a. Safety harnesses thrown on the bottom of the storage locker - need to be stored properly.

11. Housekeeping

- HR a. Needs general housekeeping.

H. Warehouses

- HR 1. Material stacked in warehouse needs attention: Too much equipment/stuff on the floor. Lots of empty storage shelves available.

- HR 2. Material stored on storage shelves needs attention-rearranging to make neater.

I. Spare Parts Storage

- HR 1. Walkways need cleaning of material/items.

- M 2. Flammables need to be stored in flammable storage cabinet-paint, WD-40, etc.

- HR 3. Upstairs storage need housekeeping - lots of material cluttering floor.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

J. Motorized Vehicles

No Recommendation

FIELD INSPECTION #2

A. Process Area

- M 1. Some nitrogen lines are painted but not labeled - need to label.

B. Emergency Equipment

No Recommendation

C. Plant Health

No Recommendation

D. Enclosures

- M 1. Nitrogen purged/padded vessels not labeled-EDC storage.

E. Access Systems

- HR 1. Stepladder warning of top two steps not to be used barely visible. Need to audit all portable ladders for warning.

F. Observing People Working in the Area

No Recommendation

G. Electrical

- HR 1. The "Start", "Stop" stenciling on some switches are painted over. Need to remove paint so position can be readily seen.

H. Overhead Hoists

No Recommendation

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

I. Housekeeping

HR

1. Generally good but in areas where maintenance work going on there was clutter.

J. Block Entrances

No Recommendation

EMPLOYEE/CONTRACTOR INTERVIEWS

No employee/contractor interviews where conducted by the Major Manager.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

LOUISIANA DIVISION

**CONSOLIDATED AUDIT
PROGRAM**

RECOMMENDATIONS

&

ACTION PLANS

VINYL II

DOW CONFIDENTIAL

CONFIDENTIAL

R&S153682

*****PLANT RESPONSES ARE NOTED. RESPONSIBLE PARTIES AND
EXPECTED COMPLETION DATES ARE INCLUDED FOR ACTIONS AS
STATED UNLESS OTHERWISE NOTED

****1/24/94 S. R. Cole*****

DOW U.S. AREA
CONSOLIDATED AUDIT PROGRAM
VINYL II PLANT
NOVEMBER 18, 1993

Date of Report: November 30, 1993

Superintendent: , Bldg. 6601, LAD

Enclosed are the recommendations from the various audits for your response. According to the Dow U.S. Area Consolidated Audit Program Guidelines and the OSHA Process Safety Management (PSM) standard 1910.119, you must develop an implementation plan as a response to the recommendations. The plan must include the name(s) of the employee(s) assigned to each action item along with an estimate of time required to complete each item. Your plan must be reviewed and approved by the area Major Manager (or Section Manager) by January 31, 1994.

Please note that efforts have been made by the Functional Audit Teams to help prioritize each recommendation. They will be identified as: M = Must Do, (based on compliance issues, government regulations, Dow policies or S&LP) and HR = Highly Recommended, (necessary to mitigate an anticipated or potential hazard).

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

R&S153683

It is the responsibility of the plant/department supervision to communicate the results of the consolidated audit to all employees. Communication must include the results of the Process Hazard Analysis. PHA's include the Reactive Chemicals, Chemical Exposure Index (CEI), Process Safety and Loss Prevention/Fire/Burner Management audits. This must be completed within 90 days after the audit and documented.

Please send your approved implementation plans to me by January 31, 1994. I will forward a copy to members of the Core Audit Team and the appropriate section to the Functional Team Leaders.

Enclosed Audit Recommendations:

1. Occupational Health Audit
2. Safety Audit
3. Loss Prevention/Fire Audit
4. Hazardous Material Transportation Review (HMTR)
5. Reactive Chemicals Audit
6. Laboratory Audit
7. Security Audit
8. Electrical Reliability Audit
9. Computer Network Audit

Howard Wilkinson, Administrator
LAD Consolidated Audit Program

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

OCCUPATIONAL HEALTH AUDIT
(Thursday, Nov. 18, 1993)

Audit Team:

Plant I.H. Contact:

Attending:

Writer:

GENERAL INDUSTRIAL HYGIENE/MEDICAL

The IH manual is complete and most written industrial hygiene programs are current (Hazard Communication, Hearing Conservation, and Respiratory Protection). Overall housekeeping in the plant is very good.

Recommendations:

- HR 1. The lunch room microwaves located in the Contractor and Instrument shop need cleaning. (1QTR94)
- M 2. The CPAI and/or HAZCOM Chemical list needs to be updated to add maintenance chemicals and a more thorough listing of lab chemicals. (1QTR94)

HAZCOM - TRAINING PROGRAM

The Hazcom training is current. The HAZCOM/MSDS notebook is readily available in the Control Room and a second copy is in the IH Contact's Office. MSD Sheets are current. There was very good labeling on the analyzer houses within the plant.

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

Recommendations:

- M 1. Labeling of portable containers needs some attention. There were several containers in the process area with inadequate labels.(1QTR94)
- M 2. The block entrances need to be posted with signs stating there are vessels containing Vinyl Chloride with required OSHA 1910.1017 wording.(1QTR94)
- M 3. Need to add benzene statement to the Vessel Cross Reference ID Table in the HAZCOM Manuals.(1QTR94)

HEARING CONSERVATION

The OSHA Standard 29 CFR 1910.95 is posted in the Lunch Room. To be consistent, you may want to put an additional noise standard posting in the instrument lunch room. The written Hearing Conservation program is current. The entire block is posted with signs requiring hearing protection. Hearing protection was being worn by all personnel in the process plant. There was a sign in the maintenance shop requiring hearing protection when all power actuated tools are being used.

Recommendations:

- M 1. Hearing conservation training needs to be conducted and documented for 1993.(Completed 12/93)

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

RESPIRATORY PROTECTION

The written respiratory program is very thorough and training is current. Respirator cleaning stations were in good shape. Fit-test documentation is complete.

Recommendations:

- M 1. The escape packs (2 ELSA, 1 Survivair in the warehouse) need to be maintained and included in your written program or discarded. (1QTR94)
- HR 2. The sample dumping job needs to be evaluated to determine the proper respirator for the short duration task. Proper wording on the sign at the job site needs to be verified to designate the correct type of respirator. (1QTR94)
- M 3. Respiratory Protection training needs to emphasize the proper pairing of Scott adapters and regulators (emphasize that a mismatch is against manufacturers instructions). In addition, caution should be used with the adjustable continuous flow regulator, it should not be adjusted down so that air is used in the demand mode. It should be used in the positive pressure mode at all times. (2QTR94)

PERSONNEL PROTECTIVE EQUIPMENT

Block personnel wear Nomex clothing which is washed at home.

Recommendations:

- HR 1. The list of PPE in the block needs to be converted to the new IH written program format. (1QTR94)

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

REDACTED

CONFIDENTIAL

ERGONOMICS

Recommendations:

1. None at this time.

THERMAL STRESS

Recommendations:

1. None at this time.

VENTILATION

Hood surveys are complete and weekly lab hood audits including air flow checks are being performed. Housekeeping in the labs was very good.

Recommendations:

1. None at this time.

WELDING

There is adequate ventilation in the shop for welding with the use of the wall fans and the open doors. The Welding Health Hazard sign was posted in the maintenance shop.

Recommendations:

- M 1. Since the welding rods are not being stored in the original containers (which have the required warnings printed on the box), warning signs need to be posted on the ovens in the shop and in the tent. Warning signs stating the health hazards associated with welding need to be posted in the tent. (Ordering information is provided in Section 10 Appendix H of the I.H. Plant Manual).(1QTR94)

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

REDACTED

CONFIDENTIAL

R&S 153689

- M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REACTIVE CHEMICAL AUDIT

(Pre-Review Meeting - Monday, November 15, 1993)

(Audit wrap-up - Thursday, November 18, 1993)

Audit Team:

Plant Contact:

Attending:

Writer:

Recommendations:

- M 1. Review the potential for HCL/propylene addition reaction within the propylene refrigeration system with Bryan Adams and identify any potential reactive chemicals hazards. If any exist, appropriate lines of defense should be implemented. by 7/1/94.
- M 2. A comment was made that K-330 propylene compressor wheel contains aluminum parts. A worst case scenario involving an exchanger leak of EDC into the compressor system should be evaluated. Are adequate lines of defense in place to avoid compressor damage from an aluminum-EDC reaction? by 7/1/94.
- M 3. Make sure procedures are in place to avoid a build-up of concentrations of vinyl acetylene and chloroprene in distillation columns due to total reflux conditions. This could perhaps be accomplished by running an ASPEN simulation. by 7/1/94

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

- M 4. Document where titanium is being used in the process and consider field labeling. Make sure safeguards are in place to prevent hot work on titanium by anyone not trained specifically in the explosion hazards of welding titanium. Procedures pertaining to demolition and repair of titanium equipment should be revised. by 8/1/94.
- HR 5. Concerning the PSA units: Consider flooding the carbon beds with water before disposal. This will minimize risk of a fire from spontaneous ignition. by 4/1/94
- M 6. Concerning the "wild mice" waste tanks: Document the compatibility of all current and potential waste sources. If an incompatible situation is identified, revise procedures to make sure the material is emptied from the tank before another waste is added. by 7/1/94.
- HR 7. Implementation of dual flow meters on all feeds to OXY\EDC is still recommended. by 4/1/95.
- HR 8. Concerning the deliveries of Betz additives: Since Vinyl 2 is relying on COA's for positive ID, it is imperative that all paperwork provided by Betz is properly reviewed by appropriate Dow personnel to avoid offloading the wrong material. Procedures should be revised to address this issue. by 4/1/94.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

- HR 9. Identify all applications where clay adsorbent is being used for waste and spills and obtain reactive chemicals test data regarding compatibility. Joe Schell send Sharon Cole a list of adsorbents that have been tested and the plant should decide and prioritize any further testing needs. by 8/1/94
- HR 10. Obtain or perform deflagration sizing calculations for the OXY\EDC reactor rupture discs and re-size if appropriate. by 8/1/94.

REDACTED

CONFIDENTIAL

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

- HR 11. Calculate the total energy that could be released from an over-addition of chlorine in the chloroprene column. Make sure appropriate lines of defense exist. A worst case scenario would be a wide-open chlorine valve position when the plant is running at low rates. by 7/1/94

REDACTED

CONFIDENTIAL

R&S153693

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

LOSS PREVENTION/ FIRE/ CEI AUDIT
(Thursday, November 18, 1993)

AUDIT TEAM:

PLANT
CONTACTS:

ATTENDING:

WRITER:

OPERATING DISCIPLINE

Vinyl is not included in the list of plants that will be actively developing the Operating Discipline documentation package. But there are plans to proceed with an effort to revise the plant procedures program that will comply with the program.

Recommendations:

None at this time.

DRAINAGE

Recommendations:

- HR 1. Calculate the volume / time of water storage available if the furnace area sprinkler is tripped. What water rate will the existing trenches carry without overflowing to the east ditch? (3Q94)

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

R&S153694

CHEMICAL EXPOSURE INDEX

The Dow CEI Guidelines have recently been reissued in a totally new format with a new calculation procedure. Considering the timing of this audit and the recent issue of the CEI, I have decided to go ahead with the use of the new guideline. Chlorine, HCl, Vinyl chloride, and EDC were selected as chemicals to evaluate.

A calculated CEI value of >200 is defined by the new guideline as a level requiring further risk evaluation following recommendations outlined in another new Dow publication, the "Corporate Risk Assessment Guideline". This is currently scheduled to be published before the end of the year.

For now the recommendations are tentative, pending publication of the new Risk Assessment Guideline. Loss Prevention will be fully involved in the future development of any necessary risk assessment studies.

Recommendations:

None at this time.

ELECTRICAL SYSTEMS

Recommendations here are those compiled by the LAD Electrical Maintenance Department audit. Generally those are maintenance items that need attention that were detected during their observation audit of the electrical hardware. They should be prioritized on the same basis as other plant electrical maintenance items.

FIRE PROTECTION SYSTEMS

Recommendations:

- HR 1. Get the fire protection testing information from the Fire Protection Department to complete the form on page 27 of the questionnaire. completed and sent to on 12/17/93.

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

R&S153695

FIRED EQUIPMENT

Recommendations:

- M 1. I have deferred any detailed system audits for the furnaces and other fired equipment at this time. My recommendation is to include these detailed audits with the Tech Center and include Loss Prevention in the reviews. The TOX / THROX Tech Center has been contacted and has definite plans to visit LAD early in 1994 to conduct audits at several plants. Contact the Vinyl Tech Center to see when this could be scheduled for the cracking furnaces. by 12/31/94.

CRITICAL INSTRUMENT SYSTEMS

Recommendations:

- HR 1. The critical instrument documentation and scheduling program is being changed from the LAD mainframe computer to the CHAMPS system. This does not provide the same type of management feedback reporting that is build into the mainframe computer system. I recommend having a Critical Instrument program with a plant supervisor directing the efforts of the plant instrument people.
- HR 2. Many of the instrument procedures are general and do not include specific process conditions to be checked. Where applicable, these should specify specific process condition calibrations to be checked.
- HR 3. Where possible the testing procedures should include a loop check from the field element through the control device.

Response to items 1,2,3: A review of our critical instrument program is currently underway. Recommendations will be implemented as resources allow starting with highest priority instrumentation. - 7/1/94

STORAGE TANKS

Recommendations:

- M 1. Add the new octene storage tank operation to the plant Emergency Plan. - 5/1/94

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

PRESSURE VESSELS / RELIEF DEVICES

Recommendations:

HR 1. The Pressure Vessel Committee representatives from Engineering have audited the files at Vinyl 2 to identify unregistered and undocumented vessels. Develop a schedule with the pressure vessel group to follow up to get the PV program current. A similar effort is in progress with the relief devices. Review this also to assure that the program is continuing. Both of these may be limited by the support level from the Engineering group. Vinyl II has registered all vessels and relief devices deemed appropriate. The unregistered vessel noted were primarily associated with lube oil skids. Registration of lube oil site ports is currently underway. - 3/31/94 Use of the MOC checksheet should minimize future oversights.

MANAGEMENT OF CHANGE

Recommendations:

HR 1. The plant has not yet had the annual MOC audit of the program. When this is due, please include Loss Prevention or send me a copy of the results. conducted this audit on 1/20/94. Audit results have been forwarded to Complete

Recommendations:

None at this time.

REDACTED

CONFIDENTIAL

R&S153697

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

EMERGENCY PLANNING (HR)

Recommendations:

- HR 1. Review the potential spill / fire scenario with the Fire Protection Department and Loss Prevention and document the detailed scenario plan in the plant Emergency Plan book.
by 4/1/94.
- HR 2. Review the applicable emergency plans to see if they could / should be more specific with regard to the on site involvement of the Fire Protection / Security people.
by 4/1/94.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

REDACTED
CONFIDENTIAL

R&S153698

HAZARDOUS MATERIAL TRANSPORTATION REVIEW
(October 26, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

On October 8, 1993 a Hazardous Materials Transportation Review (HMTR) was conducted at the Vinyl II plant as part of the Louisiana Division Consolidated Audit Process (CAP). An additional part of the HMTR - the Distribution Facilities Assessment (DFA) - was also conducted at that time. Please note the following comments and recommendations; those comments initialed with an "M" are regulatory requirements and Dow policy.

HMTR Questionnaire:

Chemicals Reviewed Tank CarFeed	-DRI#	Transportation	Product (P)Mode: (F)
Vinyl Chloride	4	yes	P
Chloroethene (a-tri)	3	yes	F P

(Temporarily)

All responses to the HMTR questionnaire were answered satisfactorily.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

REDACTED

CONFIDENTIAL

R&S153699

DFA:
RAIL AREA - Safety

Recommendations:

Setting of Tank Car Brakes - No.14

- M 1. Brakes must be set on all tank cars that are being loaded or unloaded. This requirement may be accomplished by either the railroad personnel or the block personnel. LISTED ON VINYL II AND RAIL DEPT CHECK LIST COMPLETE 11/10/93

RAIL AREA - Loss Prevention

As a result of the last HMTR/DFA a second remote emergency shutdown has been installed at the loading rack. Good job!

Recommendations:

Loss Prevention - No. 2

- M 1. Fire water is available in the immediate area, however, no deluge system is currently in place. The Vinyl Tech Center has requested that a shower curtain system be installed in the loading rack area. PRESENTED AT PROJECT REVIEW 12/1/93
COMPLETE NOTE: THIS PROJECT HAS BEEN ADDED TO THE VINYL II PROJECT LIST AS A LOW PRIORITY ITEM. AS SUCH IT IS UNLIKELY THIS PROJECT WILL BE DONE IN 1994.
DELUGE GUN SYSTEMS CAN COVER ALL LOADING POSITIONS ADEQUATELY.

Loss Prevention - No.4

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

RAIL AREA - DOT/DOW Compliance

Recommendations:

Checklists Legibly Signed - No.11

- M 1. All checklists associated with the loading and/or unloading of tankcars must be legibly signed by the person performing the operation. Initials are not acceptable. COMPLETE 11/10/93

Summary: The Vinyl II plant has always maintained a very pro-active program for their operations. This is evident each time a review/audit has been conducted at this facility. Thanks to for the excellent job maintaining this area and for the time spent on this process.

REDACTED

CONFIDENTIAL

R&S153701

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

PROCESS CONTROL NETWORK AUDIT
(September, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

Recommendations:

- HR 1. The following procedures should be incorporated into the plant Operating Discipline system. by 4/1/94.

PROCEDURE FOR PROGRAM LOADING
OF
PROCESS CONTROL COMPUTERS

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for program loading of process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. Complete the Management of Change process before a program load if the program was changed.
2. For systems without any simulations capabilities, review the program changes with plant engineers and operations. The size of the review will be dependent on the complexity of the change.
3. Notify operations before the program load is to be performed. Discuss any special precautions that may be needed.

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

R&S153702

4. Two persons should be available for program loading with systems with semi-automatic loading systems (debug panel on Mod5, PLC's when typing in changes). One person should be doing the typing while the other person checks the entries.

PROCEDURE FOR ABORT PROGRAMING
OF
PROCESS CONTROL COMPUTERS

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for abort programing of process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. Review abort code by plant technical personnel, operations, outside control expert, and if necessary, Tech Center.
2. Simulate abort code and test for correct operation prior to startup.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

PROCEDURE FOR USE OF CONTROL TERMINALS
OF
PROCESS CONTROL COMPUTERS

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for control terminals of process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. Terminals connected to a process control computer capable of writing to field outputs should be located in the controlroom or in locations known to plant operations. The terminallocated outside of the control room should be used for program development. Operations can then check with these locations if an upset of unknown origin occurs while development isbeing done to determine if the development was the source of the upset.
2. The control terminal outside of the control room should not be used to change field outputs. Changes to field outputs should be done from control terminals in the control room with the notification of operations.
3. Notify operations when development is being done on the terminal outside of the control room that involves starting or stopping programs or loading of new progams. Refer to procedure for program loading of process control computers.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

PROCEDURE FOR DEVELOPMENT SYSTEMS
FOR
PROCESS CONTROL COMPUTERS

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for development systems for process control computers as described by the Process Control Network Minimum Security Practices.

Procedure:

1. If a process control computer does not have an integrated development system, backup should be performed regularly to insure loss of critical files or programs.
2. Keep written documentation of files and dates of files to insure old programs and files are not loaded into the process control computer.
3. Keep written documentation of changes that are made to the process control programs.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

**PROCEDURE FOR ACCOUNT MAINTENANCE
FOR
PROCESS CONTROL COMPUTERS**

OCTOBER, 1993

Purpose:

The purpose of this procedure is to insure proper security for account maintenance for process control computers as described by the Process Control Network Minimum Security Practices.

1. Keep a log of the users who have an account on a process control computer.
2. Review this log a least once a year and delete access to persons not actively working for the plant.
3. Plant superintendent should review this list a least once a year.

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

ELECTRICAL RELIABILITY AUDIT SUMMARY
(August, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

The electrical reliability audit for the Vinyl II plant was conducted in August, 1993 as per the Five Point Electrical Reliability Program.

Condition of electrical assets in Vinyl II reflect a commitment to improvement and the audit team finds the overall electrical health of the Vinyl II plant to be good to excellent.

Those items identified with an index of 4 in the Electrical Reliability report need some attention. Please refer to the report.

Recommendations:

- | | | |
|----|----|---|
| M | 1. | Most junction boxes are fiberglass with metal back panels and rigid conduit. Back panel should be grounded and conduits bonded and grounded. (L7C-0101 par 5.3.1). Ground all block junction boxes properly. Tom Normand 6/1/94 |
| M | 2. | Cables out of tray on vertical risers. (NEC 318.8 B). Fasten cable transverse members of the cable trays. Tom Normand 6/1/94 |
| HR | 3. | Conduit system throughout Vinyl II has moderate to severe corrosion. 20 - 30%. Sand blast and paint or replace as needed. Mike Guillot 12/31/94 |
| M | 4. | Building 6601 - Control Room - Instrument panel "A" had open slots. Exposing bus. Order and install proper blanks. Tom Normand 3/31/94 |

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

R&S153707

SECURITY AUDIT
(Thursday, November 18, 1993)

AUDIT TEAM:

PLANT CONTACT: Mike Cutrer

WRITER:

All Dow and contract employees are required to wear ID badges. Employees challenge strangers in their work area. A sign-in/out log book is available for visitors to control room/plant area.

Emergency communications and alert systems are in place and working well.

Security awareness seems to be working well at Vinyl II.

All action items from the previous audit have been completed. Outstanding effort in this area. Keep up the good work.

Recommendations:

None at this time.

REDACTED

CONFIDENTIAL

R&S 153708

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

LABORATORY AUDIT SUMMARY
(November 10, 1993)

AUDIT TEAM:

PLANT CONTACT:

WRITER:

Overall the Vinyl II plant laboratory seem to be running smoothly. The lab was inspected on November 10, 1993.

The lab inspection found the lab housekeeping in very good shape.

Employees have access to all equipment operations manuals and procedures.

All action items from the previous consolidated audit have been completed.

Recommendations:

None at this time.

REDACTED

CONFIDENTIAL

M= Must Do

DOW CONFIDENTIAL

HR= Highly Recommended

SAFETY AUDIT SUMMARY
(November 18, 1993)

Audit Team:

(PRE-AUDIT -- Tuesday, October 26, 1993 -- 12:30 p.m. - 3:30 p.m. and
Tuesday, November 2, 1993 -- 12:30 p.m. - 3:30 p.m.)

Plant Contact:

Writer:

SAFETY QUESTIONNAIRE

- A. Program Structure and Planning
 - No Recommendation
- B. Employee Participation
 - No Recommendation
- C. Contractor Safety
 - No Recommendation
- D. Accident/Incident Investigation and Reporting
 - No Recommendation
- E. Audits
 - No Recommendation
- F. Safe Work Practices
 - No Recommendation
- G. Emergency Planning and Means of Egress
 - No Recommendation
- H. Employee Training

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED
CONFIDENTIAL

R&S153710

No Recommendation

- I. Safe Operation of Motor Vehicles and Motorized Handling Equipment

No Recommendation

- J. Off-The-Job Safety

No Recommendation

EMPLOYEE SURVEY

Recommendations:

- HR 1. Review employee survey summary listed below and take appropriate action. - 2Q94

Fifty one surveys were handed out with twenty two of the surveys returned.

Eighteen people indicated that their supervision views on safety were good or that their supervision was concerned about safety. Four surveys indicated that their supervision views on safety depended on plant conditions or was second to production.

Eighteen people indicated that safety had been adequately discussed on their last Performance Review and these eighteen indicated they had set personal safety goals.

Twenty good responses on what safety means to you - required a lot of good thinking. Two people did not respond to this question.

Seventeen people rated their job training for "starting something new", from O.K., to good, to extremely well. Four people indicated training was not so good and one person did not respond.

Nine people did not respond to the question of what part(s) of their job they needed additional training. It would be important to know if they thought they didn't need any additional training or if they just didn't know what training they needed. The other thirteen responses were varied but training on computer and environmental training both showed up more than once.

Seventeen of those surveyed indicated there were procedures covering their jobs. All indicated that these procedures were reviewed on some periodic basis. Their response on how well they were kept ranged from O.K. to good.

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

REDACTED

CONFIDENTIAL

RS153711

There was no clear cut answer to the question on what part of your job requires you to think the most about safety, or requires the most caution but everyone did respond to this question indicating that people are thinking about hazards of their jobs.

Twenty-one people indicated they would do some type of intervention if they saw someone performing work in an unsafe manner.

All twenty-two respondents indicated they attended at least monthly safety meetings. The response to "were the meetings helpful", ranged from yes to some of the time.

One hundred percent knew the hazards of the chemicals they were working with, the location of the material safety data sheets, and that they were readily available.

No problem indicated from survey on personal protective equipment.

All but one of those surveyed felt that safety suggestions were handled properly and all but one indicated prompt feedback.

All twenty-two respondents indicated written Emergency Procedures. Only one employee indicated no participation in an emergency drill.

There was no clear cut opinion as to what would cause the next serious accident in Vinyl II. All but four did respond to the question and I would suggest that Vinyl II supervision look at these concerns.

Four people felt that accidents could be prevented "all of the time", seventeen people felt that accidents could be prevented "most of the time", and one person felt they could be prevented "some of the time". No clear cut reason to the "why" part of the question.

Eight people either said "no" or did not respond to the question of "have they reviewed a summary of the process hazard analysis in their plant within the last year".

All twenty people knew that the Louisiana Division was OSHA STAR site.

Two of the twenty-two did not know their rights under the OSHA VPP/STAR Program.

M= Must Do

HR= Highly Recommended

DOW CONFIDENTIAL

DOCUMENTATION REVIEW

A. Audits

- M 1. Close-out all recommendations from the 1991 Vinyl II Safety Consoli-dated Audit. Closure must include the following:
- * A statement of what action was taken to address the recommendation. There may be instances where no action is necessary and this is a valid response to an audit finding. All actions taken, including an explanation where no action is taken on a finding, needs to be documented as to what was done and why.
 - * The person responsible
 - * When the action was taken
- The closeout documentation was submitted to _____ in December, 1993 by _____

B. Basic Safety

No Recommendation

C. Unit Emergency Plans

- M 1. Deficiencies identified in drill critiques must be documented and corrective actions tracked to completion. Documentation must show:
- * What corrective action was taken
 - * Who completed corrective action
 - * When corrective action was completed
- Safety Co-ordinator , _____ by 12/31/94.

D. Job Safety Analysis

- M 1. Deficiencies identified in pre-startup reviews must be documented and corrective actions tracked to completion. Documentation must show:
- * What corrective action was taken
 - * Who completed corrective action
 - * When corrective action was completed
- Safety Co-ordinator , _____ by 12/31/94.

E. Accident/Incident Investigations

No Recommendation

F. Safety and Health Suggestions

M= Must Do

HR= Highly Recommended

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No Recommendation

G. Safety Equipment Inspections & Checks

- M 1. Perform checks on C-9 checklist and sign off on master on or before the due dates. Safety Co-ordinator , by 12/31/94.
- M 2. Deficiencies identified during C-9 inspections are currently documented and corrective actions are entered in the Champs System. Assure that corrective actions are tracked to completion and documentation shows:
- * What corrective action was
 - * Who completed corrective action
 - * When corrective action was taken
- Safety Co-ordinator , by 12/31/94.

The Safety Department will assist with Champs work on this recommendation.

H. Hazard Identification Inspections

No Recommendation

I. Predictive Preventive Maintenance

No Recommendation

J. Variances

No Recommendation

K. Contractors/Vendor/Visitor Orientation

- M 1. Document person responsible for conducting indoctrination's. Safety Co-ordinator , by 3/1/94.

L. Safety and Operations Training

No Recommendation

M. Safety Committee Activities

No Recommendation

M= Must Do

HR= Highly Recommended

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- N. Safe Work Practices
No Recommendation

FIELD INSPECTION #1

A. Lockout/Tagout System

- M 1. Train/retrain people on completing lockout/tagout paperwork on importance of filling-out completely.

Some deficiencies noted are listed as follows:

- a. Addendum used but not checked on master
- b. Roster checked as used but not attached to master
- c. Tag verification date not filled out on master
- d. Tag location listing with no date Training Co-ordinator, by 6/1/94.

B. Safe Work Permits

Safe Work Permits were filled out completely. The workers in the field had their copy of the permit, acknowledged that an on site inspection had been done prior to being issued the permit and did know the hazards associated with the job.

- * The fire extinguisher used by the fire watch on a hot work job was located too close to the point of welding and away from the fire watch. Recommended that the fire watch keep extinguishers close to them. Corrected on the spot. No further action is required.

C. Control Board Area

- HR 1. One of the better behind the control board plants inspected. However, some housekeeping would be in order though, especially behind the north control board. by 2/1/94.
- HR 2. Emergency lights in control room not on any routine inspection. Highly recommend that these emergency lights be checked on a

M= Must Do

HR= Highly Recommended

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periodic schedule to assure that they will work when needed.
Safety Co-ordinator , by 6/1/94.

D. Office Area

- HR 1. Emergency lighting needs to be routinely checked. Safety Co-ordinator , by 6/1/94.

E. Lab Facilities

See Lab Audit portion of Consolidated Audit.

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M= Must Do

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HR= Highly Recommended

F. Motor Control Centers

See Loss Prevention and Electrical portions of Consolidated Audit.

G. Maintenance Shop and I&E areas

1. Pedestal Grinder

- M a. Top guard not within 1/4" of the wheel
- M b. Tool rest not 1/8" from the wheel
- M c. Tool rest not at or above centerline of the wheel
- M d. Wheel grooved - need replacing

All items under 1. are complete 1/18/94 -

2. Pipe Threading Machine

- HR a. No warning/instruction signs posted 2Q94
- HR b. Area around machine needs housekeeping Complete 1/18/94 Tom Normand

3. Drill Press

- HR a. Area needs housekeeping - lots of shavings on floor Complete 1/18/94

4. Horizontal Band Saw

- HR a. No warning/instructions posted 2Q94
- HR b. Area needs housekeeping - lots of cuttings on the floor Complete 1/18/94

5. Welding and Cutting Area

No Recommendation

6. Other Equipment

No Recommendation

M= Must Do

HR= Highly Recommended

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7. Hand held power tools

No Recommendation

8. Hand Tools

No Recommendation

9. Lifting Tools

- HR a. Need to remove manually operated overhead crane that is no longer in use. Replaced by electric crane but on same beam as manually operated crane.
2Q94

10. Safety Equipment

- HR a. Safety harnesses thrown on the bottom of the storage locker - need to be stored properly. 1Q94

11. Housekeeping

- HR a. Needs general housekeeping. 1Q94

H. Warehouses

- HR 1. Material stacked in warehouse needs attention: Too much equipment/stuff on the floor. Lots of empty storage shelves available. 1Q94

- HR 2. Material stored on storage shelves needs attention-rearranging to make neater. 1Q94

I. Spare Parts Storage

- HR 1. Walkways need cleaning of material/items. 1Q94

- M 2. Flammables need to be stored in flammable storage cabinet- paint, WD-40, etc. 2Q94

- HR 3. Upstairs storage need housekeeping - lots of material cluttering floor. 2Q94

M= Must Do

HR= Highly Recommended

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- J. Motorized Vehicles
No Recommendation

FIELD INSPECTION #2

A. Process Area

- M 1. Some nitrogen lines are painted but not labeled - need to label.
by 6/1/94

- B. Emergency Equipment
No Recommendation

- C. Plant Health
No Recommendation

D. Enclosures

- M 1. Nitrogen purged/padded vessels not labeled-EDC storage.
by 3/31/94

E. Access Systems

- HR 1. Stepladder warning of top two steps not to be used barely visible.
Need to audit all portable ladders for warning.
by 3/31/94

- F. Observing People Working in the Area
No Recommendation

G. Electrical

- HR 1. The "Start", "Stop" stenciling on some switches are painted over.
Need to remove paint so position can be readily seen.
by 6/1/94

- H. Overhead Hoists
No Recommendation

M= Must Do

HR= Highly Recommended

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I. Housekeeping

HR 1. Generally good but in areas where maintenance work going on
there was clutter. by 2/28/94

J. Block Entrances

No Recommendation

EMPLOYEE/CONTRACTOR INTERVIEWS

No employee/contractor interviews where conducted by the Major Manager.

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M= Must Do

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HR= Highly Recommended

SAFETY AUDIT

DIVISION:

LAD _____

PLANT/DEPARTMENT:

VINYL _____

BUILDING: 6601

REVIEW DATE/TIME:

SAFETY AUDIT TEAM

Safety Superintendent/Director/Engineer: _____

Safety Functional Team Leader: _____

Process S&LP (Audit) Specialist: _____

Technology Center Representative: _____

Other Audit Team Members: _____

SAFETY AUDITEES

Superintendent/Department Head:

Plant/Department Personnel:

Major Manager:

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SAFETY AUDIT APPENDICES

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SAFETY AUDIT APPENDICES

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APPENDIX A. SAFETY QUESTIONNAIRE

A-1. PROGRAM STRUCTURE AND PLANNING

- B 1. Describe your plant/department safety organization. Include its relationship with the overall organization. (List teams and committees.)

Team/ Committee	Composition	Freq. of meetings	Minutes Published	Pre-pub. Agenda	Pre-Est. Charter

- B 2. Does the Superintendent/Department Head show visible support/ involvement for safety (policy, communications, letters to employees, intervention, MBWA, etc.)? Yes ☐ No ☐
If yes, provide several examples.

- B •Are safety expectations defined? Yes ☐ No ☐

- A •Are there consequences for non-compliance with safety rules and procedures? Yes ☒ No ☐

If yes, provide several examples. Yes, These are delt with on an individual basis with supervision. Letters in files, termination, etc.

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APPENDIX A. SAFETY QUESTIONNAIRE

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APPENDIX A. SAFETY QUESTIONNAIRE

- B 3. Do the safety committee and/or natural work teams have mission statements? Yes ☐ No ☐
If yes, please attach.
- A 4. Do employees attend safety meetings on a regular basis? Yes ☒ No ☐
- B •Are meetings held at least monthly? Yes ☐ No ☐
- B quarterly? Yes ☐ No ☐
- A •Is there documentation of the meeting showing content of the meeting, name of the instructor, and who attended? Yes ☒ No ☐
- B •Is there a mechanism to insure 100% participation or follow-up on safety meetings? Yes ☐ No ☐
- B •Is documentation being kept for 3 years? Yes ☐ No ☐
- A 5. Do safety objectives, goals, plans exist in written form for your plant/department? Yes ☒ No ☐
- B •Who developed the OGP's? _____
- B •How are they measured? _____
- B •How often is the status reviewed? _____
- B •Is your reward/recognition tied to the achievement of your OGP's? Yes ☐ No ☐
- B 6. Do you use SPIP (Safety Performance Improvement Process) or DSIS (Dow Safety Improvement System) to evaluate your safety program? Yes ☐ No ☐
If no, then describe what you are using.

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APPENDIX A. SAFETY QUESTIONNAIRE

- C 7. Is there a written suggestion system in effect for safety suggestions?
Yes [x] No []
- C If yes, how are suggestions followed up? These suggestions are written by the employee and reviewed by supervision then presented to the staff at the project suggestion review meeting weekly. If approved then it is given a priority number and put on the project list for completion. _____

- B •What is the normal response time? _____
- B •What percent of employees participate in your suggestion program?

- B 8. Do you have a safety recognition system? Yes [] No []
- B 9. Do you communicate safety information? Yes [] No []
If yes, what methods do you use?

A-2. EMPLOYEE PARTICIPATION

Reference: "Dow Minimum Requirements", OSHA 1910.119 (C)

- A 1. Do you have a process to assure that each individual clearly understands his/her responsibility for safety (new employee orientation, safety meetings, annual one-on-one performance reviews, etc.)?
Yes [x] No []
- B 2. Are annual personal safety goals required for employees?
Yes [] No []

APPENDIX A. SAFETY QUESTIONNAIRE

- A 3. Have employees been informed of their responsibility to report hazards and injuries to their immediate supervisor in a timely manner? Yes ☒ No ☐
- A 4. Do employees participate in plant/department safety programs or activities as outlined in List 2 on page 19 of this questionnaire? Yes ☒ No ☐
- A A. Are employees consulted with on conducting and developing process hazard analyzes such as outlined in List 1 page 19 of this questionnaire? Yes ☒ No ☐
- A B. Are employees consulted with on the development of other PSM as outlined in List 3 on page 20 of this questionnaire? Yes ☒ No ☐

A-3. CONTRACTOR SAFETY

REFERENCE: "Dow Guidelines for a Contractor Safety and Loss Prevention Program",
OSHA 1910.119 (H)

- A 1. Are contractors given plant specific safety orientation covering known potential for fire, explosion, or toxic release hazards? Yes ☒ No ☐
- B 2. Do contractor supervisors attend and conduct contractor safety investigations? Yes ☐ No ☐
- B • Does a Dow representative attend also? Yes ☐ No ☐
- B • Are contractor incidents documented and tracked to completion? Yes ☐ No ☐
- A 3. Is contractor safety performance audited during jobs in your plant? yes ☒ No ☐
- B If yes, how is it audited?
-

APPENDIX A. SAFETY QUESTIONNAIRE

- A 4. Are pre-job safety meetings prior to on-site contractor activity? Yes ☒ No ☐
- B 5. Do "service" contractors (i.e., computer, telephone, copier, air conditioning, etc.) receive a safety indoctrination? Yes ☐ No ☐
- A 6. Is safety information and process changes shared with affected contractors? Yes ☒ No ☐
- A 7. Are contract employees informed of the plant/department emergency plan? Yes ☒ No ☐
- A 8. Do you assure that contract maintenance people are adequately trained? Yes ☒ No ☐

A-4. ACCIDENT/INCIDENT INVESTIGATION AND REPORTING

Accidents and incidents involving or having significant potential for causing personal injury, property damage or loss, business interruption and all crimes or fraud against the Company shall be promptly investigated. Each incident shall be thoroughly analyzed and a corrective action plan implemented. Appropriate communications shall be made to Management and to all involved parties.

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APPENDIX A. SAFETY QUESTIONNAIRE

REFERENCES: "Dow Guidelines for Accident Investigation" and "Dow Guidelines for S/LP/S Reporting", Division Safety Standard, OSHA 1910.119 (M)

	1991__		1992__		1993__ YTD	
Type Incident	Dow	Contractor	Dow	Contractor	Dow	Contractor
DAWCs	0	0	1	0	0	0
RWCs	0	1	4	0	0	0
RMTCs	0	1	1	0	2	0
Total OSHA recordables	0	2	6	0	2	0
OSHA Incident Rate	0	2.15	11.06	0	5.03	0
Total Injuries (first aid included)	3	30	12	29	2	
Near-Misses - PSA	5	0	2	1	3	0
Others (Define)						
Spills & Leaks						
Process Safety Incidents						
Env. Incidents	14	0	4	0		
Motor Vehicle						

A 1. Do you have a notification procedure for accidents or incidents within your facility?
Yes [x] No []

A 2. Do you have a process for investigating accidents/incidents?
Yes [x] No []

B •Who participates? _____

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APPENDIX A. SAFETY QUESTIONNAIRE

- A •Are contractor employees included in the investigation team if the incident involved the work of the contractor? Yes [x] No []
- B •Does your process include root cause or ice link analysis? Yes [] No []
- A •Are all incident investigations initiated within 48 hours following the incident? Yes [x] No []
- A 3. Do you have a system in place to track corrective actions to resolution? Yes [x] No []
- B •What is the percent completion of corrective actions by the commit date? _____ %
- A 4. Are incident findings and corrective actions communicated to affected workers? Yes [x] No []
- A •Are communications documented? Yes [x] No []
- B 5. Do you encourage the reporting of near-miss type incidents? Yes [] No []

A-5. AUDITS

REFERENCE: "Dow Guidelines for Safety, Loss Prevention and Security Audits", "North American Consolidated Audit Process", OSHA 1910.119 (O)

- C 1. Are internal audits or inspections conducted (sight glasses, expansion joints, housekeeping, guarding, mock OSHA, emergency signals, eye showers, etc.) ? Yes [x] No []
- B •If yes, who conducts audits? _____
- A 2. Do you have a process in place to assure compliance with Safety Standards and Minimum Requirements (TX - SR #14, LA - C9, MI - S-005)? Yes [x] No []

APPENDIX A. SAFETY QUESTIONNAIRE

If yes, please describe. C9 safety checklist which is updated and followed by the safety coordinator _____

A •Are there any exceptions/variances? Yes ☐ No ☒

B If yes, please describe. _____

A 3. Has your plant had an audit for compliance with Process Safety Management (PSM) Standards in the last 3 years? (Consolidated Audit) Yes ☒ No ☐

Date of last Consolidated Audit: _Sept, 1991 _____

A 4. Are audit findings documented? Yes ☒ No ☐

A •Are corrective actions accomplished, documented and communicated? Yes ☒ No ☐

B 5. Is management informed of appropriate audit findings? Yes ☐ No ☐

6. Do programs exist for inspecting the following:

B •The use of quick opening valves on "end of the line service"? Yes ☐ No ☐

B •Open ended lines capped and plugged? Yes ☐ No ☐

B •Cross connections between utility lines (i.e., N₂ to air)? Yes ☐ No ☐

B •Cross connections between process and service or utility lines (i.e., service water and caustic)? Yes ☐ No ☐

B •Backflow preventers tested and maintained? Yes ☐ No ☐

APPENDIX A. SAFETY QUESTIONNAIRE

- A •Are pipelines audited for identification? Yes [x] No []
- C •Field hazard identification? Yes [x] No []

A-6. SAFE WORK PRACTICES

Safe Work Permits

REFERENCE: "U.S. Area Standard #4"

- A 1. Are safe work permits used for all jobs in the process area? Yes [x] No []

B If no, please explain. _____

- A 2. Are on-site inspections done for each permit? Yes [] No [x]

B If no, please explain. A list of certain simple jobs that do not require on site inspections has been generated and approved by supervision

- A 3. Is training provided for the use of safe work permits? Yes [x] No []

B 4. Do you monitor safe work permits for accuracy and completeness? Yes [] No []

- A 5. Are annual performance audits conducted? Yes [x] No []

B •How are deviations handled? _____

APPENDIX A. SAFETY QUESTIONNAIRE

Hot Work Permits

REFERENCE: "U.S. Area Standard #4", OSHA 1910.119 (K) and OSHA 1910.252(A)

- A 1. Do you have a plant procedure for hot work? Yes [x] No []
- B •Who can perform hot work in the plant? _____

- A 2. Are hot work permits issued for all hot work operations in or near the process? Yes [x] No []

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APPENDIX A. SAFETY QUESTIONNAIRE

- A 3. Is authorization of hot work preceded by site inspection and designation of appropriate precautions? Yes ☒ No ☐
- B •Who can authorize hot work? _____

- B •What training is necessary? _____

- A 4. Are areas requiring a hot work permit identified? Yes ☒ No ☐
- A •Has management established areas and procedures for safe welding and cutting based on fire potential? Yes ☒ No ☐
- B 5. Are employees trained to identify sources of ignition? Yes ☐ No ☐
- B 6. Do you require a fire watch on all hot work jobs? Yes ☐ No ☐
- A •Have fire watch personnel completed fire extinguisher training? Yes ☒ No ☐
- B 7. Do you have a procedure for hot work if the fire protection system is down? Yes ☐ No ☐
- B 8. Do you have procedures and training for powder activated devices (Hilti guns, etc.)? Yes ☐ No ☐

Line and Equipment Opening

- B 1. Have you categorized your line openings and addressed the minimum protective equipment for each? Yes ☐ No ☐
- B 2. Are line opening tie points initialed by operations and maintenance? Yes ☐ No ☐
- B 3. For routine line openings, do written procedures exist in lieu of writing permits. Yes ☐ No ☐

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APPENDIX A. SAFETY QUESTIONNAIRE

B 4. Is training provided on line and equipment opening? Yes ☐ No ☐

A •Is training documented? Yes ☒ No ☐
Documented as part of safe work permit training

Confined Space Entry

REFERENCE: "U.S. Area Standard #5"

A 1. Do you have a plant procedure for confined space entry?
Yes ☒ No ☐

B 2. Who can authorize a confined entry permit? _____

A •What training is required to authorize a permit? Complete the training
modules on USA standard of safe work permits, lockout/tagout and
confined space entry permit _____

A 3. Is basic and plant training given to employees who use the
explosimeter/oxygen analyzer? Yes ☒ No ☐

A 4. Do confined space rescue procedures exist in written form for designated
confined spaces? Yes ☒ No ☐
The plant has one generic procedure available. On an as need basis
for specific jobs the procedures are developed.

B •Are employees trained in rescue techniques? Yes ☐ No ☐

A 5. Are there any variances to the confined space standard? Yes ☐ No ☒
If yes, please describe.

A 6. Is training provided for safety observers? Yes ☒ No ☐

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APPENDIX A. SAFETY QUESTIONNAIRE

A 7. Are annual performance audits conducted? Yes ☒ No ☐

B •How are deviations handled? _____

Lockout and Tagout Procedures

REFERENCE: "U.S. Area Standard #3"

C 1. Are there any areas where the concept of exclusive control is used? Yes ☒ No ☐

B If yes, please describe them. _____

A 2. Are plant employees trained and is the training documented? Yes ☒ No ☐

B 3. Who is responsible for locking and tagging equipment? _____

A 4. Are annual performance audits conducted? Yes ☒ No ☐

B •How are deviations handled? _____

A 5. Are there any variances to this standard? Yes ☐ No ☒
If yes, please describe.

APPENDIX A. SAFETY QUESTIONNAIRE

B 6. Is there a central location for communication of lockout/tagout?
Yes ☐ No ☐

B 7. Have there been any incidents due to improper lockout/tagout?
Yes ☐ No ☐

B If yes, please describe. _____

A 8. Do you have lockout/tagout procedures for all major pieces of equipment?
Yes ☒ No ☐

A •Are they kept up to date? Yes ☒ No ☐

Guarding and Interlocking

REFERENCE: Dow "Minimum Requirements"

A 1. Do you have a program in place to assure that all guards are replaced before equipment is started?
Yes ☒ No ☐

B 2. Do interlocks play an important role in protecting employees?
Yes ☐ No ☐

Fall Protection

REFERENCE: U.S. Area Standard #6

A 1. Have employees been trained in fall prevention equipment use?
Yes ☒ No ☐

A 2. Have you identified areas where fall prevention is necessary and required?
Yes ☒ No ☐

APPENDIX A. SAFETY QUESTIONNAIRE

- A 3. Are there any variances to this Standard. Yes ☐ No ☒
If yes, please describe.

- A 4. Do you have a policy regarding roof access? Yes ☒ No ☐

- A 5. Are annual performance audits conducted? Yes ☐ No ☒
Standard is not in affect at this time.

- B •How are deviations handled? _____

A-7. EMERGENCY PLANNING AND MEANS OF EGRESS

REFERENCE: "Dow Guidelines for Emergency Planning", OSHA 1910.119 (N)

- A 1. Do you have a plant/department emergency plan? Yes ☒ No ☐

- B •Does the plan include in-place sheltering? Yes ☐ No ☐

- A 2. Are plant/department emergency plan drills conducted? Yes ☒ No ☐

- B •Have local emergency crews participated in drills? (See page on fire fighting in Loss Prevention section.) Yes ☐ No ☐

- B •Does each employee participate in at least one hypothetical emergency each year? Yes ☐ No ☐

- A •Are deficiencies corrected and communicated? Yes ☒ No ☐

- A •Are changes made and communicated? Yes ☒ No ☐

- A 3. Do new employees receive emergency plan information? Yes ☒ No ☐

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APPENDIX A. SAFETY QUESTIONNAIRE

- B 4. Is the emergency plan information communicated to visitors? Yes ☐ No ☐
- B 5. Are there at least two ways out from all process areas? Yes ☐ No ☐
- A 6. Do exit doors open in the direction of travel from more hazardous to less hazardous areas? Yes ☒ No ☐
- A 7. Are bump bars provided on exit doors for areas which could have more than 50 people? Yes ☒ No ☐

A-8. EMPLOYEE TRAINING

Reference: "Dow U.S.A. Operating Training Standard", OSHA 1910.119 (G)

- A 1. Is training provided for supervision? Yes ☒ No ☐
- A 2. Is training provided for maintenance staff? Yes ☐ No ☒
We have no Dow maintenance people.
- A 3. Is training provided for operating personnel? Yes ☒ No ☐
- A Initial ? Yes ☒ No ☐
- A Refresher ? Yes ☒ No ☐
- A •Do you have a list of skills and knowledge required for each operating job? Yes ☒ No ☐
- Does training for operatoring personnel include:
- B -Use of check-off lists? Yes ☐ No ☐
- B -Supervisory involvement? Yes ☐ No ☐
- B -Experienced operator involvement? Yes ☐ No ☐
- B -Written testing? Yes ☐ No ☐
- A -Up-to-date operating procedures? Yes ☒ No ☐
- A -Emergency procedures? Yes ☒ No ☐
- A -Reactive chemicals training? Yes ☒ No ☐

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APPENDIX A. SAFETY QUESTIONNAIRE

- A -Safety Standards? Yes [x] No []
- A -Step for each operating phase? Yes [x] No []
Initial startup, normal operations, temporary operations,
emergency shutdown, emergency operations, normal shutdown,
and startup following a turnaround or emergency shutdown
- A -Operating limits? Yes [x] No []
- A Consequences of deviations and steps required to avoid
deviations.
- A -Safety and health considerations? Yes [x] No []
- A Properties and hazards of chemicals used and precautions for
preventing exposure.
- A -Safety systems and their functions? Yes [x] No []
- A •Is there Written certification in lieu of documentation for employee
involved in operation the process before 5/26/92? Yes [x] No []
- A 4. Is refresher training given? Yes [x] No []
B If yes, how often?

- A •Have the employees operating the process been
consulted? Yes [x] No []
- A 5. Do you have a post-indoctrination evaluation for new employees?
Yes [x] No []
- A 6. Do temporary employees receive training? Yes [x] No []
- A 7. Are plant superintendents and technical employees new to a plant trained in
details of the process? Yes [x] No []

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R8S153741

APPENDIX A. SAFETY QUESTIONNAIRE

A-9. SAFE OPERATION OF MOTOR VEHICLES AND MOTORIZED HANDLING EQUIPMENT

B 1. Is driver's training provided? Yes ☐ No ☐

A 2. Is powered industrial truck training conducted? Yes ☒ No ☐

B •What types of powered industrial trucks do you use? _____

B •Where is fuel stored? _____

A 3. Is documentation of training kept? Yes ☒ No ☐

A 4. Is Daily Inspection documentation maintained?
Yes ☐ No ☒ Documentation is maintained on a weekly basis.

A If yes is it current (daily)? Yes ☐ No ☒

A 5. Are employees trained in the plant rules and regulations? Yes ☒ No ☐

B 6. Is truck tractor training provided? Yes ☐ No ☐

B •Do you have vehicles which require the operator to have a
commercial driver's license? Yes ☐ No ☐

B If yes, please describe. _____

B 7. Do you use manlifts, baskets or beam extenders on your fork truck?
Yes ☐ No ☐

B •Have you considered the reduced capacity of the unit when using
these items? Yes ☐ No ☐

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R8S 153742

APPENDIX A. SAFETY QUESTIONNAIRE

A-10. OFF-THE-JOB SAFETY

- B 1. Is there a formal program for reporting of off-the-job injuries to Dow personnel? Yes ☐ No ☐
- B 2. Are the results of Dow employee off-the-job injuries collected and published for learning value? Yes ☐ No ☐
- B 3. Are off-the-job statistics and learning situations utilized in plant safety meetings or discussions? Yes ☐ No ☐
- B 4. Are off-the-job programs made available to employees' families (e.g., defensive driving)? Yes ☐ No ☐
- B 5. Are safety communications mailed to employees' homes? Yes ☐ No ☐
- B 6. Are off-the-job, home activity topics, etc., covered in safety meetings? List some of your most successful "off-the-job" oriented safety meeting topics. Yes ☐ No ☐

A-11. PROCESS SAFETY MANAGEMENT LISTS

LIST 1

*Fire and Explosion Index and Risk Analysis

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SECURITY/EMERGENCY SERVICES

SOURCE: Corporate Security Minimum Requirements

POLICY: The control of Dow assets, process technology, manufacturing know-how and other proprietary information is a fundamental responsibility of all Dow employees. Supervision is responsible to develop a line driven Security Program to control these assets, and provide a secure working environment.

A. Access Control:

*Compliance Level
(1,2,3,4 or 5)*

Previous/Current

1. Do all Dow employees wear badges?	4	5
2. Do all Contractor employees wear badges?	5	5
3. Are all visitors (Government, consultants, joint ventures, plant tours) escorted, and do they have a pass?	5	5
Explain your process. Visitors must sign in and be escorted.		-
4. Do control room personnel challenge "strangers"?	5	5
5. Do you use the sign-in/out procedure?	5	5
6. Do truck drivers wait/deliver in a non-sensitive area?	5	5
7. Do you have any restricted areas in your block/unit/plant?	5	5
1. If yes, identify. Burner Area		
2. How many people have access to these areas?	5	5
3. Are your procedures adequate?	5	5
8. Do you have adequate locks/locking devices on doors, gates and storage?	5	5
Are these locks part of the site's access control systems?	5	5

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Previous/Current

9. Do you have adequate after hours access control?

4 | 4

Explain your process. All visitors must check in with the control room. _____

B. Computer Security:

Previous/Current

1. Do you have policies in place to insure data integrity by determining who can access information and change programs?

5 | 5

2. Do you control who has access to your computer systems?

5 | 5

3. Do you have provisions in place to recover data in the event of a disaster which could include physical damage or loss of memory?

5 | 5

4. Is your computer data backed up routinely and do you have remote storage?

5 | 5

5. Are your computer systems password protected?

5 | 5

6. Are passwords deleted as soon as employees terminate or transfer from the department?

5 | 5

Explain your process. Passwords are deleted when employee leaves the block. _____

7. Is the hard disk free of data before the computer is sent out for repairs?

4 | 5

Explain your process. _____

8. Do you have adequate administrative controls for accessing your computer:

- Passwords?
- Virus protection?
- Maintenance protocol?
- Remote access policy?
- Subsidiaries access?
- Use by non-Dow personnel?

5 | 5

5 | 5

5 | 5

5 | 5

5 | 5

5 | 5

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Explain your process. _____

Previous/Current

- | | | |
|--|---|---|
| 9. Are any terminals left on line in non-secured areas? | 4 | 4 |
| 10. Are security breaches reported? | 5 | 5 |
| 11. Does your electronic data meet the records retention policy? | 5 | 5 |

Explain your process. _____

C. Crime and Fraud:

- | | | |
|--|---|---|
| 1. Are employees aware of their responsibilities to report any loss or potential loss of Dow assets? | 5 | 5 |
| 2. Do you have a tool and equipment identification policy? | 5 | 5 |

Explain your process. _____

- | | | |
|--|---|---|
| 3. Are serial numbers recorded for high profile equipment (computers, analytical balances, VCR's, TV's, radios, projectors)? | 5 | 5 |
| 4. Is this equipment adequately secured when not in use? | 4 | 4 |
| 5. Are employees aware of the consequences of being involved in crime and fraud against Dow? | 5 | 5 |
| 6. Are potential conflicts of interest known and adequately covered? | 4 | 5 |

D. Data and Informational Transmission Systems

- | | | |
|---|---|---|
| 1. Have you considered the sensitivity of TELEX, facsimile and mail information, and are adequate control measures taken? | 5 | 5 |
|---|---|---|

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E. Material Control:

Previous/Current

- | | | |
|--|---|---|
| 1. Is there adequate separation of authority to deter fraud
(i.e., separate individuals to order, receive and authorize payment)? | 5 | 5 |
| 2. Is there an inventory and material control system
in place for inventory, materials, equipment and
scrap? | 5 | 5 |
| 3. Are measurement systems adequate to control
inbound and outbound materials, supplies and
products? | 5 | 5 |

F. Proprietary Information Control:

1. Classification

- Have all employees been indoctrinated into the program classifying proprietary information as "Dow Restricted", "Dow Confidential" and "Dow Controlled?"

YES

- Are all pages of documents classified "Dow Confidential" so marked?

YES

- Are proper auditing systems established for documents classified "Dow Confidential," covering generation, handling, storage and disposal?

YES

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F. Proprietary Information Control, cont.:

2. Use & Control of Proprietary Information on Paper or Film Within Departments. Please answer either Reasonable(R), Needs Attention(NA), or Doesn't Apply(DA).

Dept.	Access	Handling	Storage	Disposal	Back-up Copies	Off-Site Storage
Finance	R	R	R	R	DA	DA
Admin	R	R	R	R	DA	DA
Medical	DA	DA	DA	DA	DA	DA
Engr	R	R	R	R	R	DA
I H	R	R	R	R	DA	DA
Payroll	R	R	R	R	DA	DA
Legal	DA	DA	DA	DA	DA	DA
Person.	R	R	R	R	DA	DA
Purch.	DA	DA	DA	DA	DA	DA
HR	DA	DA	DA	DA	DA	DA
Receive	R	R	R	R	DA	DA
Plant						
Plant						
Plant						
Plant						

3. Employee Agreements

- Have all employees signed a site employee agreement?
Yes [X] No []

If No: How many haven't? _____

- Do employee termination procedures require that Dow's personnel file copy of employee agreement be returned to employee?
Yes [X] No []
- Do employee termination procedures require instructions to the employee concerning his/her trade secret obligations?
Yes [X] No []

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F. Proprietary Information Control, cont.:

		Previous/Current	
4.	Do you have written procedures for:		
	• Indoctrinating all employees as to the proper generation, handling, storage, and disposal of Dow Confidential documents by Plant management?	5	5
	• Have all employees been indoctrinated?	5	5
	• Control of filming and taking photographs within your plant?	5	5
	• Release of proprietary information outside of Dow and to Government agencies?	5	5
5.	Are your control diagrams or programs kept and disposed of in a secure fashion?	5	5
6.	Area Piping and Instrument Diagrams:		
	• Released only through the manufacturing Rep. and returned for disposal when no longer needed?	5	5
	• Are P&ID's stamped "Dow Confidential - Do Not Copy"?	5	5
	• Are all copies of P&ID's released traceable through a document release numbering system?	5	5
	• Do you control to whom these documents are released and who they are?	4	4
7	What procedures do you have regarding terminating employees including temporary and co-ops:		
	• Audit for reports checked out of CRI?	5	5
	• Return of all Dow proprietary information and property?	5	5
	• Obligations to hold Dow information confidential?	5	5
	• Instructions to the employee concerning his/her trade secret obligations?	5	5
	• Who is responsible to ensure passwords are deleted?	5	5

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F. Proprietary Information Control, cont.:

	<u>Previous/Current</u>	
8. Do you have any Government classified contracts/information and property? Is it stored and handled to meet Government requirements?	N/A	
9. Are any of your operations subject to the export/import controls? Movement of information, materials and people across transnational borders. Are controls adequate?	5	5
10. Are any employees involved in competitive intelligence gathering? If yes, are they aware of the Dow publication, "Guideline for Gathering Competitive Information", Appendix F in the Guideline for Handling Dow Proprietary Information?	N/A	
11. Have the requirements of the Dow Secrecy Agreement been reviewed with each employee in the past two years?	4	4

G. Travel

1. Are department members engaged in international travel aware of security related information which is available to them from their local Security Department?	5	5
--	---	---

H. What are the three major security concerns of your department/area? Proprietary information equipment/material thief and tank farm area

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- I. Do you feel the security program at the site, and in your area in particular, is reasonable and appropriate? Why or why not?
Yes, because of past records
-
-

J. Computer Security Checklist for Data Processing Centers.

1. Is the enforcement of security procedure within the data processing department a specific function of the Security Department? Yes ☐ No ☐
2. Are there internal security procedures enforced by supervisory personnel within the data processing department? Yes ☐ No ☐
3. Are all employees working in, or having access to, the data processing department given security clearances commensurate with the work that they perform? Yes ☐ No ☐
4. Are security investigations used to determine the security clearances to be assigned to data processing employees? Yes ☐ No ☐
5. Are these investigations conducted by Security Department personnel? Yes ☐ No ☐
6. Once security clearances have been given, are they regularly reviewed and updated? Yes ☐ No ☐
7. Are specific employees given the responsibility for the control and maintenance of data processing disks, tapes, programs and manuals? Yes ☐ No ☐
8. Is access to tape and disk storage facilities restricted? Yes ☐ No ☐
9. Is a log kept showing identification, time issued and returned, and the person receiving the property for all computer data files, program tapes, disks and manuals? Yes ☐ No ☐

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10. Are computer operators/programmers given access to programs, data files, disks, tapes and manuals not required for their current operation? Yes ☐ No ☐
11. Are operational computer programs kept in secured restricted storage areas? Yes ☐ No ☐
12. Who has authorized access to storage areas for the operational computer programs? _____
13. Are duplicate copies of operational computer programs made? Yes ☐ No ☐
14. Are safes or vaults used to store computer programs, tapes, disks and manuals? Yes ☐ No ☐
15. Are storage areas for computer programs, tapes, disks and manuals rated for fire resistance of at least two hours? Yes ☐ No ☐
- Are they kept in the fire retardant filing cabinets having at least a "C" or "D" rating from UL? Yes ☐ No ☐
16. Are regular inventories made of stored programs, tapes, disks and manuals? Yes ☐ No ☐
- If yes, how often and by whom are inventories made? _____
17. Is there a specific route used to transport duplicate computer programs to offsite storage? Yes ☐ No ☐
- If yes, who transports the data and how are they transported? _____
- How often is the route changed? _____

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18. Are security measures taken to safeguard data placed in the offsite storage facility? Yes ☐ No ☐

•If yes, explain measures in detail. _____

19. Are confidential or sensitive computer programs, tapes, disks and manuals disposed of by burning or shredding? Yes ☐ No ☐

20. Is the process conducted under the supervision of Security Personnel? Yes ☐ No ☐

21. Are all carbon paper copies and other duplicate copies of sensitive or confidential data disposed of in a similar fashion? Yes ☐ No ☐

•If yes, explain measures in detail. _____

22. Are all outside doors and windows to the Data Processing Center locked and secured after normal working hours? Yes ☐ No ☐

23. Are all data processing or computer programs tapes, disks and manuals logged in and out of the data processing center? Yes ☐ No ☐

24. Is there a daily review of computer console printouts made by supervisory personnel to check for:
- a. Improper operating procedures? Yes ☐ No ☐
 - b. Suspicious or unauthorized runs? Yes ☐ No ☐
 - c. Suspicious or unapproved returns? Yes ☐ No ☐

25. Are all console typewriters controlled by a central operating system that requires a specific time and program code to activate and log on the system? Yes ☐ No ☐

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26. Do all data processing consoles have time meters that accurately record the time logged on the computer system? Yes ☐ No ☐
- Are the meters safeguarded against tampering? Yes ☐ No ☐
- If yes, how often and by whom? _____
27. Is a register of program operating times maintained and then examined regularly for accuracy? Yes ☐ No ☐
28. Are written procedures provided to instruct console operators about which activities are authorized and/or approved and which are not? Yes ☐ No ☐
29. Are computer operators prohibited from making any program modifications without a supervisor's authorization? Yes ☐ No ☐
30. Are there audit trail procedures for handling error rejects, accounting errors and entering corrections and adjustments? Yes ☐ No ☐
31. Are there procedures for posting credits or adjustments in customer accounts? Yes ☐ No ☐
- If yes, explain the procedure. _____
- _____
32. Are there classification procedures for handling uncollectable accounts? Yes ☐ No ☐
- If yes, explain the procedure. _____
- _____
33. Are there formalized systems of security measures in effect to see that data processing processes are properly adhered to? Yes ☐ No ☐
- If yes, explain. _____
- _____

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34. Are credit authorizations checked regularly by an internal audit section to see that the authorizations are legitimate? Yes ☐ No ☐

•If yes, who conducts the audits, and when are they done? _____

35. Are balances and transactions monitored by an internal audit section before they are sent to data processing and again after they have been programmed? Yes ☐ No ☐

•If yes, who conducts the audits, and when are they done? _____

36. If a data processing/computer system is used on a time-share basis, are there any security safeguards in force to insure the integrity of your system element? Yes ☐ No ☐

•If yes, explain the security safeguards. _____

37. Are mailing lists and customer names and addresses kept in a secure location to prevent unauthorized access or use? Yes ☐ No ☐

•If yes, explain where they are kept and who has access to them. _____

38. Are formal steps taken to educate data processing and computer personnel on the security regulations and procedures that govern their work in the data processing/computer center? Yes ☐ No ☐

•If yes, explain the type and duration of training. _____

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REFERENCES

- Minimum Requirements for SLP&S (*Corporate S/LP/S*)
- Guidelines for Handling of Dow Proprietary Information (*Corporate S/LP/S*)
- Computer Security Policies and Procedures (*Corporate S/LP/S*)
- Guidelines for Gathering Competitive Information (*Patent Dept.*)
- Security ... in Office and Data Handling Areas (*Corporate S/LP/S*)
- The Dow Chemical Company CRI Guidelines (*Technical Inform. Service*)
- Guidelines for Emergency Planning (*Corporate S/LP/S*)
- Trade Secrets and Other Confidential Information at Dow (*Patent Dept.*)
- Records Management Program Handbook (*Records Management*)
- Comptrollers -- Accounting Policy and Procedures (*Corporate Controllers Department*)
- Industrial Security Manual for Safeguarding Classified Information (*U.S. Government Department of Defense*)
- Faxing Guidelines for Propriety Information
- Export/Import Reference Manual (*Patent Dept.*)
- Guidelines for Safety, Loss Prevention and Security Reporting (*Corporate S/LP/S*)
- Office Procedures Manual (*Dow USA Headquarters -- Bulk Literature Form Number 16600115*)
- Local Publications: Common Sense Security for Michigan Division Employees (*Michigan Division Security*)
- Document Creation

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OCCUPATIONAL HEALTH
PLANT/DEPARTMENT PROGRAM REVIEW
CONSOLIDATED AUDIT
LOUISIANA DIVISION

PLANT/DEPT. Vinyl II

BUILDING 6601

REVIEW DATE & TIME 1/21/12

OCCUPATIONAL HEALTH AUDIT TEAM:

SUPERINTENDENT _____

AUDIT FACILITATOR _____

SAFETY SUPERINTENDENT _____

TECH CENTER REPRESENTATIVE _____

INDUSTRIAL HYGIENIST(S) _____

I.H. PLANT/DEPT. CONTACT _____

I.H. MANAGER _____

PHYSICIAN _____

OTHER _____

GENERAL PROGRAM REVIEW

1. PREVIOUS AUDIT STATUS

1. When was the Occupational Health Program previously audited?

1992

7/91

2. What is the status of the recommendations made in the previous audit summary report?

All done.

3. Have there been any major changes or additions to the plant/unit since the last evaluation?

No

(new Sample system - closed)

4. Are there any specific concerns that you feel should be addressed in this audit?

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2. INDUSTRIAL HYGIENE- MEDICAL SURVEILLANCE

Hazard Identification

Question	Response
1. Is the plant I.H. manual current (i.e., program updates less than two years old)?	[Y] N NA
2. Are all plant chemicals (raw materials, intermediates, products, water treatment chemicals, etc.) included on a chemical listing (either CPAI on Hazard Communication list)? Date of most current CPAI <u>06/92</u>	[Y] N NA
3. Are all maintenance chemicals (solvents, lubricants, paints, welding rods, etc.) on either the CPAI on Hazard Communication list?	Y [N] NA
4. Are all laboratory chemicals on the CPAI or the Hazard Communication list?	Y [N] NA

5. List any chemical stresses controlled by specific OSHA or state health standards (benzene 29 CFR 1910.1028, ethylene oxide 29 CFR 1910.1047 vinyl chloride 29 CFR 1910.1017 etc.) or EPA TSCA 5(e) consent orders.

29 CFR 1910.1017

Monitoring

Question	Response
6. Have all chemical and physical stresses with a Priority Rating of 1, 2, or 3 been evaluated (monitoring or other appropriate control measure)? What are the chemical/physical stresses? <u>EDC, VCM and noise</u>	[Y] N NA
7. Has all monitoring been documented in an industrial hygiene report (i.e., annual I.H. report)?	[Y] N NA
8. Were the results of the recommendation of the previous year's report shown as conclusions (or a status update) in the following year's report?	[Y] N NA
9. Was the documentation including raw data sent to Industrial Hygiene Department?	[Y] N NA

Continued on next page

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Monitoring
(cont'd.)

Question	Response
10. Is industrial hygiene monitoring of non-Dow personnel performed?	[Y] N NA
11. How are non-Dow employees appraised of their monitoring data in a timely manner? <u>Results were below the PEL, not formal communication. If VCM results are above the PEL or STEL, written notification must be sent to person within 10 working days.</u>	

12. What are the future industrial hygiene monitoring plans for this facility?
Reduced monitoring in 1993 based on extensive 1992 monitoring
-
-

CAMs
CLDs

13. If a continuous air monitor (CAM)/continuous leak detector (CLD) in use, complete the CAM/CLD description below: otherwise, go to the next question.

CAM/CLD Description
Chemicals Monitored: VCM, EDC
Analytical System (GC, IR, etc.): GC/FID
Purpose (leak detection, area monitor, etc.): Area Monitor/NESHAP
Alarm Set Points (Concentration): 5 ppm (both EDC and VCM)
Written Maintenance Procedures (Yes/No): No
Written Calibration Procedures (Yes/No): No
What is done with data generated? <u>Retained for 7 years and available for agency inspection.</u>

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Contamination Control

Question	Response
14. Are Dow employees provided eating facilities with proper food storage space?	[Y] N NA
15. Are non-Dow employees provided eating facilities with proper food storage space?	[Y] N NA
16. Is there a written policy concerning the washing of face and hands before eating or smoking?	[Y] N NA
17. Is food or tobacco carried into process areas, laboratories, or other areas where chemicals are present? <i>Yes in lab area</i>	[Y] N NA
18. Are employees required to shower before leaving work?	Y [N] NA
19. Are non-Dow employees required to shower before leaving work?	Y [N] NA
20. Are change/shower rooms supplied for non-Dow employees?	Y [N] NA
21. Are laundry services provided?	[Y] N NA
22. Is there evidence of "tracking" of chemicals from one area to another?	Y [N] NA

Medical Assessment

23. Identify and list any records for OSHA recordables/injuries and illnesses and first aid reports, etc. during the past two years pertaining to chemical exposures, thermal stress or ergonomics. For example:

- a. Skin Rash/Dermatitis
- b. Chemical Exposure Injury
- c. Cumulative Trauma Disorder
- d. Thermal Stress
- e. Musculoskeletal Injuries
- f. Standard Threshold Shifts(STS) Approvals

06/92--Chemical exposure to left knee

08/92--Rubbed eye and got chem.

05/93--C3H6 frostbite to right knee.

07/93--Audiogram showed STS in V2 employee

Continued on next page

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Medical Assessment
(cont'd.)

24. What Medical Surveillance Requirements (MSRs) Dow or OSHA are applicable to this plant/unit? Chemical Specific.

VCM/Noise

Question	Response
25. Are the content and rationale for the medical surveillance program communicated to the employees?	[Y] N NA
26. Is the Medical Department asked to review an employee's medical history and any restrictions when he/she transfers into the plant/department?	[Y] N NA
27. Are contractor medical surveillance programs in compliance with applicable OSHA standards for this plant? How is this verified? <u>Don't Know.</u>	Y N NA
28. Have you received a health status report from Medical? If yes, the date of the latest report was <u> </u>	[Y] N NA
29. Do you have any questions regarding the health status report?	No

3. HAZCOM - TRAINING PROGRAMS
(Ref. OSHA 29 CFR 1910.1200)

**New People
and Chemicals**

Question	Response
1. Is there a plant/unit specific Industrial Hygiene orientation program for:	
a. Employees new to the plant/unit?	[Y] N NA
b. Long-term contractors?	[Y] N NA
c. Short-term contractors?	[Y] N NA

Continued on next page

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**New People
and Chemicals**
(cont'd.)

Question	Response
2. Are technical, supervisory, clerical, laboratory and maintenance personnel included in the new employee orientation?	[Y] N NA
3. Are the following elements included in the orientation program?	
a. Overview of the HAZCOM standard.	[Y] N NA
b. Location, availability of information sources (written programs MSDS, TIME, etc.).	[Y] N NA
c. Major chemical and physical stresses for the job/task.	[Y] N NA
d. Stationary container labeling systems.	Yes
e. Protective equipment programs.	[Y] N NA
f. Written documentation of training?	[Y] N NA
4. What is the review procedure for bringing a new chemical/physical agent into the area? <u>No formal procedure. If I'm aware will request MSDS.</u> <u>also the info put in the MSDS</u>	
a. Are employees trained on potential health effects?	[Y] N NA
b. Is there written documentation of training; including records retention?	[Y] N NA
5. Was training documentation in questions 3f and 4b put in the annual report backup data package and sent to I.H. Department for 75 year record retention?	[Y] N NA

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**On-Going
Health Hazard Training**

Question	Response
6. Is the written Hazard Communication Program available to all employees throughout each work shift?	[Y] N NA
7. Is a current copy of OSHA HAZCOM standard in the Industrial Hygiene Manual?	[Y] N NA
8. Regarding the Chemical and Physical Agent Inventory (CPAI) Last updated (date) <u>06/92</u> a. Does a CPAI exist for each job classification? b. Is the CPAI updated annually?	[Y] N NA [Y] N NA
9. Are up-to-date information sources (MSDS, TIME, etc.) available for all chemicals listed on the CPAI? <u>in Industrial Hygiene Manual</u>	(Y) [N] NA
10. Are MSDSs available to Dow and non-Dow employees at all times?	[Y] N NA
11. Is annual health hazard training conducted on all chemicals or physical stresses with a Priority Rating of 2 or 3 on CPAI? How is this information communicated? <u>Monthly safety meetings.</u>	[Y] N NA
12. How are the results of exposure monitoring/control methods communicated to Dow and contract employees in a timely manner? <u>If above PEL communication immediately and formal investigation.</u>	
13. How is new health effects information communicated to employees? <u>N/A has not been any.</u> <u>Would be from a investigation</u>	
14. Is the documentation in questions #11, #12 and #13 appropriately retained?	[Y] N NA

Container Labels

Question	Response
15. Are all stationary containers marked to identify the contents in the manner specified in the plant/unit's written Hazard Communication Program?	[Y] N NA
16. Are all portable containers labeled in accordance with the Dow Internal Sample Label Guide?	[Y] N NA

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4. HEARING CONSERVATION

(Ref: LAD S&LP S-103 & OSHA 29 CFR 1910.95)

Action Level

Question	Response
1. Are all job classifications exposed to noise levels less than 85 dBA as an 8-hour time-weighted (TWA) or 82 dBA as a 12-hour TWA?	Y [N] NA
2. Are all plant/unit sources less than 90 dBA?	Y [N] NA

If the answer to 1 or 2 is no, complete the following questions; otherwise, go to the next section, Respiratory Protection.

Program Details

Question	Response
3. Is there a copy of the OSHA Occupational Noise Exposure Standard readily available to employees?	[Y] N NA
a. Is a copy posted?	[Y] N NA
4. If employees are exposed to equal to or greater than 85 dBA as an 8-hour TWA or 82 dBA as a 12-hour TWA, are they provided the following?	
a. Annual training	[Y] N NA
b. Annual audiograms	[Y] N NA
c. Hearing protectors	[Y] N NA
5. If employees are exposed to area noise levels equal to or in excess of 90 dBA, have they been trained in the proper use of hearing protectors?	[Y] N NA
6. Do you supply hearing protection to non-Dow employees?	[Y] N NA
7. Has an area monitoring survey been conducted annually and a personal dosimetry monitoring survey been conducted within the past 3 years?	[Y] N NA

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Program Details

Question	Response
8. Have all plant/unit areas in excess of 90 dBA been posted with noise warning signs?	[Y] N NA
9. Have all plant/department areas in excess of 105 dBA been posted with "Danger Noise" signs (double hearing protectors required)?	Y N [NA]
10. Are there any areas in the plant where employees receive exposures to greater than 115 dBA for any length of time? If yes, what job assignment? _____	Y [N] NA
11a. Have any employees experienced a "standard threshold shift" within the last two years?	[Y] N NA
b. Have they been retrained on hearing protection requirements?	[Y] N NA

12. What future plans do you have to reduce noise levels throughout the plant?
Timetable? Not defined.

A comprehensive noise survey was conducted in 1993 and
recommendations made to reduce noise levels. Engineering solutions
will be implemented as capital spending priorities allow.

13. Do purchased specifications for equipment include limits on noise level when appropriate?	[Y] N NA
---	----------

5. RESPIRATORY PROTECTION

(Ref: LAD S&LP S-102 and OSHA 29 CFR 1910.134)

General

If respirators (including escape-only respirators) are used in this plant/unit, complete the following questions; otherwise, go to the next section, Personal Protective Equipment.

1. What types of respirators are issued for the following uses?

Escape Only: Contractors--mouthbit/Dow--none required.

Routine Use: Scott O Vista F.F Ovag w/supplied air
Adaptor and Scott O Ramic on Scott air
packs and air line

Emergency Use: Scott 5 minute egress and air line in control
room.

DOW CONFIDENTIAL

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Non-Routine:

Continued on next page

CONFIDENTIAL

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DOW CONFIDENTIAL

General (cont.)

Question	Response
2. Is there a written respiratory program? Last update (date) <u>1992</u>	[Y] N NA
3. Does the written program include visitors and non-Dow employees?	Y (N) NA
4. Are there jobs that require the routine use of respirators? If yes, what are they? _____ _____	Y [N] NA
5. Have exposure levels been assessed during these jobs?	Y N [NA]
6. What steps have been taken to engineer the above out? _____ _____	Y N [NA]
7. In accordance with Division respirator training requirements, has annual training been conducted for all users?	[Y] N A
8. Has fit testing been conducted within the past 2 years for all routine users? What provisions are made for those employees wearing glasses in full-face respirators? <u>MSA spectacle kits available.</u>	[Y] N NA
9. Is the medical approval for all routine respirator users current (within the last two years)?	[Y] N NA
10. Is there a regular documented inspection and evaluation to determine the continued effectiveness of this program?	[Y] N NA
11. Are respirators used by non-Dow employees?	[Y] N NA
12. Do you supply respirators for non-Dow employees?	[Y] N NA
13. Is it verified that non-Dow employees are fit tested, medically approved and trained for respirator use? How is this done? _____ _____	Y [N] NA
14. Has a respirator cleaning station been identified in the written respirator program?	[Y] N NA
a. Is the cleaning station posted?	[Y] N NA
b. Is the cleaning procedure posted?	[Y] N NA

Continued on next page

DOW CONFIDENTIAL

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R8S153770

General
(cont.)

**Air Purifying
Respirators**

If this plant/unit uses air-purifying (cartridge/canister) respirators, answer the following questions; otherwise, go to the next topic, Air-Supply Respirators.

Question	Response
15. Are air-purifying respirators being used with materials having poor warning properties? If yes, list chemical. _____ EDC _____	[Y] N NA
16. If yes, have cartridge types (i.e., OV, AG, ammonia, etc.) been tested for breakthrough?	[Y] N NA
17. Are respirators individually assigned?	[Y] N
18a. Do individually assigned respirators have the owner's name on the body of the respirator?	[Y] N
18b. Does the cartridge have the date it was put into service recorded on it?	[Y] N
19. Are respirators stored properly as to not cause distortion and placed in a clean environment when not in use?	[Y] N NA

Continued on next page

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DOW CONFIDENTIAL

General
(cont.)

**Air-Supply
Respirators**

If this plant/unit uses air-supply respirators, answer the following questions; otherwise, go to the next topic, Personal Protective Equipment.

Question	Response
19. Are SCBAs (5, 10, 30 & 60 minute) inspected:	
a. Monthly by the owner?	[Y] N NA
b. Annually by an Authorized Agent?	[Y] N NA
20. If air-line systems are used,	
a. Are breathing air line taps-in identified?	[Y] N NA
b. Are only Hansen or Shrader BK and HK series fittings used?	[Y] N NA
c. Are waist belts provided for the air-line systems?	Y [N] NA
d. Are air line systems equipped with 5 min. escape bottles?	(Y) [N] NA
e. Are air line systems inspected?	
1. Weekly by the owner (bottle pressure)	[Y] N NA
2. Monthly by the owner (condition, alarm regulator)	[Y] N NA
21. If air compressors are used,	No.
a. Is the compressor located in a clean area?	Y N [NA]
b. Is the compressor used during plant/unit emergencies?	
c. If there is not a CO alarm, are daily CO checks conducted?	Y N [NA]
d. Are the compressor alarms on the plant/unit's critical instrument checklist for annual testing?	Y N [NA]
e. Was testing conducted and documented?	Y N [NA]
22. Are back-up persons with suitable rescue equipment provided for persons working in confined spaces with supplied air?	[Y] N NA

DOW CONFIDENTIAL

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R&S 153772

6. PERSONAL PROTECTIVE EQUIPMENT

Question	Response
1. Is there a written protective equipment program addressing selection, use and limitations, decontamination, maintenance and storage?	[Y] N NA
2. Have all job tasks that pose significant exposure potential to physical and/or chemical agents been identified in your plant/unit and the protective equipment required?	[Y] N NA
3. Is this information specified in a table, job procedures or other?	[Y] N NA
4. Are the industrial hygienist and/or safety superintendent contacted when new PPE is considered for use in your plant/unit?	[Y] N NA
5. Is all the PPE used in this plant/unit approved by the Personal Protective Equipment Division Committee and the Plant for specific use?	[Y] N NA
6. Is there adequate documentation of breakthrough time and permeation rate on the chemical protective clothing (CPC) used in this plant/unit (especially CPC that is reused)?	[Y] N NA
7. How is contaminated chemical protective clothing (CPC) cleaned or decontaminated? <u>To 100% in 100% water</u>	
8. If contaminated clothing is sent to a commercial laundry, have they been notified of the potential contaminants by labeling and MSDS?	Y N [NA]
9. Are clean room/shower/dirty room areas designated?	Y N [NA]
10. How is in-use PPE stored? <u>in plastic bags</u>	
11. Are Nomex fire resistant work clothes being furnished for individual use? a. Are they laundered? On-site _____ or At home <u>X</u>	[Y] N NA
12. Are street clothes stored separate from work uniforms and PPE?	Y [N] NA
13. Have all employees required to wear PPE been trained in the proper use, inspection prior to use, donning and removal of contaminated equipment?	[Y] N NA
14. Has the training been documented?	[Y] N NA

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Personal Protective Equipment
(cont'd)

Question	Response
15. Are non-Dow employees required to wear personal protective equipment (PPE) as a part of the job?	[Y] N NA
16. Do you provide PPE used by non-Dow employees?	[Y] N NA

7. ERGONOMICS

Question	Response
1. Has ergonomics awareness training been conducted?	[Y] N NA
2. Have you ever had an ergonomics evaluation in your workplace for:	
a. Lifting practices <i>loading dock</i>	[Y] N NA
b. Office	Y [N] NA
c. Machinery	Y [N] NA
d. Tools	Y [N] NA
3. Are there areas of manual materials handling such as process additives handling or packaging (drum handling, bulk packaging, foam boards, fiber packs)?	[Y] N NA
4. For frequent tasks such as equipment cleaning, filter changes, etc., is there adequate access to equipment?	[Y] N NA
5. Do any of the routine job task require awkward body positioning?	[Y] N NA
6. Are there tasks that require employees to perform repetitive motion movements?	[Y] N NA
7. Are there jobs which require employees to stand for long periods of time?	[Y] N NA
8. For office tasks, do data entry personnel (more than 4 hours/day) have well-designed, properly adjusted work stations?	(Y) N NA
9. Is there a plant/unit ergonomic team to address the needs of your operations?	Y [N] NA

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8. THERMAL STRESS

(Ref: LAD S&LP E-1)

Question	Response
1. Do you provide training for thermal stresses for recognition and prevention?	[Y] N NA
2. Are non-Dow employees covered by a thermal stress training?	(Y) N NA
3. Do written job procedures or safe work permits address methods to avoid thermal stress on jobs where thermal stress may be a concern?	[Y] N NA
4. Are there any heat stress areas (hot equipment or work conditions such as chemical suits) within the plant/unit?	[Y] N NA
5. Is thermal stress considered during pre-job planning?	[Y] N NA

9. VENTILATION

(Ref: LAD S&LP E-13)

Question	Response
1. Are there lab exhaust hoods or other local exhaust ventilation systems in use?	[Y] N NA
2. Are the air intakes for the building located near any of the exhaust points for the fume hoods or local exhaust ventilation devices? What is the height of the exhaust stacks? <u>6-7 ft above roof</u>	Y [N] NA
3. Is there a procedure for maintaining clean air in the control room and major offices in case of a gas release?	[Y] N NA
4. Are the fume hoods equipped with flow sensing devices?	[Y] N NA
a. If no, has an airflow survey been conducted within the past year?	Y N [NA]
b. If Yes, has an airflow survey been conducted within the past two years?	[Y] N NA
c. Is there a procedure to weekly check the flow sensing devices?	[Y] N NA
5. Is there a preventative maintenance program for ventilation systems?	Y [N] NA
6. Have recommendations from the I.H. Department evaluation check been implemented?	[Y] N NA

Continued on next page

DOW CONFIDENTIAL

VENTILATION

(cont'd.)

7. How is the housekeeping in the hoods? <u>good</u>	
Are there objects present that restrict adequate air flow to the back baffle?	Y [N] NA
8. What type of ventilation is provided for operations such as spray painting, solvent/degreasing tank, etc.? _____ _____	
Has such ventilation systems been evaluated?	Y N [NA]
9. Are blast gates used in the ventilation system?	Y N [NA]
If so, are operating procedures established?	Y N [NA]

10. WELDING/CUTTING/BRAZING/SOLDERING

(Ref: OSHA 29 CFR 1910.252)

If there is any welding, brazing, cutting, and/or soldering activities in your operations, complete the following questions; otherwise, go to the next topic, Asbestos.

- Identify the welding, cutting, etc. operations in your location. (SMAW, TIG, plasma arc cutting, soldering) All
Stick Rod Welding. Heliarc. Arc Gouging

Question	Response
2. Is the ceiling in the area where welding, cutting, etc., is performed at least 16 feet high?	[Y] N NA
3. Is there at least 10,000 cubic feet of space for each welder?	[Y] N NA
4. If the answer to #2 or #3 is No, is mechanical or local exhaust ventilation available?	Y N [NA]
5. If mechanical ventilation is used to reduce fume below the exposure guidelines, is the flow at least 2000 cubic feet per minute for each welder?	Y N (NA)
6. Where booths or screens are used, is there at least two feet of open space at floor level to allow adequate circulation of air (unless the work is at floor level)?	[Y] N NA
7. Are MSDSs available for all compressed gases used in the operation?	[Y] N NA
8. Are MSDSs available for each category of welding rod, steel wire, solder, flux, etc.?	[Y] N NA

Continued on next page

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Welding/Cutting/Brazing/Soldering

(cont'd.)

Question	Response
9. Have welders and associated personnel been trained on symptoms, causes, and prevention of metal fume fever?	[Y] N NA
10. Are welders properly trained in effective ventilation methods for confined space welding?	[Y] N NA
11. Are welders periodically trained on symptoms, preventative measures, and first aid for thermal stress?	[Y] N NA
12. Have surveys been conducted to determine if welders are exposed to welding fume above the exposure guidelines?	Y [N] NA
13. Are welding related warning signs posted?	Y [N] NA
14. When a new welding rod or other potential hazardous substance is introduced into your area, is a MSDS obtained and hazard communication presented to the persons affected?	Not aware of any new ones.
15. Are containers of welding rods labeled with caution signs as per the OSHA welding standards?	[Y] N NA
16. Are welding rod ovens labeled with warning signs?	Y [N] NA

11. ASBESTOS

(Ref: LAD Handling Requirements and OSHA 29 CFR 1910.1001 and OSHA 29 CFR 1926.58)

If this plant/unit has any asbestos (insulation, gaskets, transite, etc.), complete the following questions; otherwise, go to the next topic, Plant/Unit Specific Program Review.

Question	Response
1. Has all asbestos material been identified and labeled?	[Y] N
2. Are "DANGER" signs posted to alert employees to the hazard (i.e., Block Entrance Signs)?	[Y] N
3. Are permanent records (inventory) available showing the location of asbestos materials?	[Y] N
4. Are asbestos containing materials inspected yearly for signs of deterioration?	[Y] N
5. Is there a program to identify asbestos containing materials prior to demolition, renovation, maintenance and removal operations?	[Y] N

Continued on next page

DOW CONFIDENTIAL

Asbestos (cont'd.)

Question	Response
6. Are specific job procedures available for work involving asbestos materials (i.e., to remove gaskets, uncover valves, short sections of insulation)?	[Y] N
7. Has annual training (health hazard, PPE, removal procedure, OSHA Regulations, etc.) been completed for all employees who work with asbestos (outlined in Division requirements)?	[Y] N
8. Has monitoring of personal exposures to asbestos been conducted?	Y [N]
9. Were any job classifications exposed to greater than 0.1 f/cc as a 8-hour TWA and 1.0 f/cc for 30-minute excursion? If the answer to 9 is yes, have all OSHA requirements been met for: a. Annual health hazard training,	Y (N)
b. Medical Surveillance,	Y N
c. Respiratory program/regular fit testing.	Y N
10. Are there copies of the most recent OSHA Asbestos Regulation 29 CFR 1910.1001, 29 CFR 1926.58, NESHAP Asbestos Regulation and LAD Handling Requirements?	[Y] N
11. Is there a current program to evaluate asbestos gasket replacement materials?	Y [N]
12. Has any asbestos been removed within the past twelve months? Describe: <u>siding on nort side of office buildings.</u> <u>floor tile in rest rooms. all gaskets except for</u> <u>R400.</u>	[Y] N
13. Are there any further asbestos abatement plans? Describe: <u>Phasing out use of asbestos gaskets where</u> <u>feasible.</u>	[Y] N

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PLANT/DEPARTMENT SPECIFIC PROGRAM REVIEW

12. SCREENING QUESTIONS

Complete the following questions which are designed to identify specialized programs required by some plants/units. For each yes answer, complete the associated appendix which contains the detailed questions for that program. Attach the completed appendices to this audit questionnaire.

Question	Response
1. Are there any radioactive sources, radiation devices (e.g., x-ray, etc.), or lasers in the plant/unit? If the answer is Yes, fill out Appendix A.	[Y] ☒ N
2. Are RCRA wastes stored more than 90 days or is there a facility Emergency Response team who can respond to emergencies involving RCRA wastes? HAZWOPER (Ref: OSHA 29 CFR 1910.120) If the answer is Yes, fill out Appendix B.	[Y] N
3. Is acrylonitrile used or produced in the plant/department in concentrations greater than 0.1%? (Ref: OSHA 29 CFR 1910.1045) If the answer is Yes, fill out Appendix C.	Y [N]
4. Is benzene used or produced in the plant/unit in concentration greater than 0.1% and not exempted by the OSHA benzene standard? (Ref: OSHA 29 CFR 1910.1028) If the answer is Yes fill out Appendix D.	[Y] N
5. Is ethylene oxide (EO) used or produced in the plant/unit in concentrations greater than 0.1%? (Ref: OSHA 29 CFR 1910.1047) If the answer is Yes, fill out Appendix E.	Y [N]
6. Is formaldehyde (liquid or gas) used or produced in the plant/department in concentrations greater than 0.1%?(Ref: OSHA 29 CFR 1910.1048) If the answer is Yes, fill out Appendix F.	Y [N]
7. Is vinyl chloride used or produced in the plant/unit? (Ref: OSHA 29 CFR 1910.1017) If the answer is Yes, fill out Appendix G.	[Y] N

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APPENDIX B - HAZARDOUS WASTE OPERATIONS & EMERGENCY RESPONSE (HAZWOPER) FOR TREATMENT, STORAGE AND DISPOSAL FACILITIES (TSD)

General

Question	Response
B-1. Is the facility Emergency Response Plan written? If yes, provide a copy for the audit team.	☒ Y ☐ N
B-2. Is the Emergency Response training conducted annually?	☒ Y ☐ N
B-3. Is the facility RCRA permitted?	☒ Y ☐ N

RCRA Facilities

If the answer to B-3 is no, skip the remainder of this section.

Question	Response
B-4. Is there a document that addresses HAZWOPER requirements?	☒ Y ☐ N
B-5. Is the Hazard Communication program written and implemented?	☒ Y ☐ N
B-6. Does the personal protective equipment program provide for decontamination of chemical protective clothing and equipment before leaving a contaminated area?	☒ Y ☐ N ☐ NA
B-7. Has annual training been conducted for employees who handle RCRA hazardous wastes? (Note: Some or all of the following may apply)	
a. Respiratory Protection	☒ Y ☐ N ☐ NA
b. Hazard Communication	☒ Y ☐ N ☐ NA
c. Protective Equipment	☒ Y ☐ N ☐ NA
d. Hearing Conservation	☒ Y ☐ N ☐ NA
e. Job Procedures (RCRA waste)	☒ Y ☐ N ☐ NA
f. Health Hazards	☒ Y ☐ N ☐ NA
g. Emergency Procedures	☒ Y ☐ N ☐ NA
h. Applicable Safety Standards/Rule	☒ Y ☐ N ☐ NA
i. RCRA Training	☒ Y ☐ N ☐ NA
j. Special Facility Rules/Procedures	☒ Y ☐ N ☐ NA

Continued on next page

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RCRA Facilities

(cont'd.)

Question	Response
B-8. Has the training (referenced above) been documented?	☒ Y ☐ N
B-9. Do to have drum handling and container activities as described by HAZWOPER?	☒ Y ☐ N ☐ NA

Drum Staging

If the answer to B-9 is no, skip the remainder of this section.

Question	Response
B-10. Has a RCRA drum staging area been established to minimize drum movement?	☒ Y ☐ N
B-11. Is there a spill contaminant program for RCRA drum staging areas?	☒ Y ☐ N

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APPENDIX D - BENZENE

Monitoring

Question	Response
D-1. Has initial exposure monitoring been completed to identify benzene exposures for all affected job classifications?	☒ Y ☐ N
a. Were any job classifications potentially exposed to more than 0.5 ppm as an 8-hour TWA (the action level)?	☐ Y ☒ N
b. If exposures were 0.5 to 1 ppm, was repeat follow-up monitoring conducted each 12 months?	☐ Y ☐ N ☒ NA
c. Were any job classifications potentially exposed to more than 1 ppm as an 8-hour TWA (the PEL)?	☐ Y ☐ N ☒ NA
d. If yes, was repeat follow-up monitoring conducted each 6 months?	☐ Y ☐ N ☒ NA
e. Were any job classifications potentially exposed to more than 5 ppm as a 15 minute TWA (the STEL) during job tasks?	☐ Y ☒ N
f. Were employees notified within 15 days after the exposure monitoring results became available?	☐ Y ☒ N
g. Were any employees exposed to concentrations greater than the action level for more than 30 days per year or greater than the PEL or STEL for more than 10 days per year?	☐ Y ☒ N
h. If yes, have these employees been placed on the annual Benzene MSR (Medical Surveillance Requirement) program?	☐ Y ☐ N ☒ NA

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**Exposure
Control**

If D-1 a, D-1 c, or D-1 e were answered yes, answer the following questions;
otherwise, skip to the next topic, Hazard Information.

Question	Response
D-2. Is there a written plan to reduce employee exposures to below the PEL?	Y N <u>NA</u>
D-3. Are regulated areas (>1 ppm) identified with the correct signs which state "Danger-Benzene-Authorized Personnel Only-Respirator Required"?	Y N <u>NA</u>
D-4. Has a respiratory protection program been implemented?	Y N <u>NA</u>
D-5. Are employees who use negative pressure respirators fit tested annually?	Y N <u>NA</u>
D-6. Have the cartridge/carister replacement frequencies been specified in the area's written respirator program?	Y N <u>NA</u>

**Hazard
Information**

Question	Response
D-7. Has initial health hazard training been completed for all employees who work with benzene?	Y <u>N</u>
D-8. Is health hazard training conducted annually?	Y <u>N</u>
D-9. Is there a current copy of the OSHA benzene standard in the Industrial Hygiene Manual?	Y <u>N</u>
D-10. Are all benzene containers (temporary and permanent storage) labeled with a sign stating "Danger-Contains Benzene-Cancer Hazard"?	Y <u>N</u> NA

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Contamination
Control

Question	Response
D-11. Is a change room available for those who must remove street clothes and change into benzene protective clothing?	Y N ☒ NA
D-12. Is the chemical protective clothing (CPC) impervious to benzene?	Y N ☒ NA
D-13. Is the CPC decontaminated before it is placed back in storage	Y N ☒ NA
D-14. Is there a benzene spill and leak detection program?	Y ☒ N

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APPENDIX G - VINYL CHLORIDE

Monitoring

Question	Response
G-1. Has initial exposure monitoring been completed to identify vinyl chloride exposures for all affected job classifications?	(Y) N
a. Were any job classifications potentially exposed to greater than 0.5 ppm as an 8-hour TWA (the action level)?	(Y) N
b. If yes, was repeat follow-up monitoring conducted each three months	(Y) N NA
c. Have these employees been placed on the annual vinyl chloride MSR (Medical Surveillance Requirement) program?	(Y) N NA
d. Were any job classifications potentially exposed to greater than 1 ppm as an 8-hour TWA (the PEL)?	(Y) N
e. If yes, was repeat follow-up monitoring conducted each month?	(Y) N NA
f. Were any job classifications potentially exposed to greater than 5 ppm as a 15 minute TWA (the STEL) during job tasks?	Y (N)

Exposure Control

If G-1 a, G-1 d or G-1 f were answered yes, answer the following questions, otherwise, skip to the next topic, Hazard Information.

Question	Response
G-2. Is there a written plan to reduce employee exposures to below the PEL or STEL?	Y N (NA)
G-3. Are regulated areas (>PEL or STEL) identified with signs which state "Cancer Suspect Area-Authorized Personnel Only"? <i>SIGNS AVAILABLE DURING EMERGENCY</i>	Y N (NA)

Continued on next page

DOW CONFIDENTIAL

Exposure
Control (cont'd.)

Question	Response
G-4. Has a respiratory protection program been implemented?	(Y) N NA
G-5. If air purifying respirators are used, is there a continuous monitor and alarm system to warn of excessive concentrations? <i>NOT USED</i>	Y N (NA)
G-6. Have the cartridge/canister replacement frequencies been specified in the area's written respirator program?	Y N (NA)

Hazard
Information

Question	Response
G-7. Has initial health hazard training been completed for all employees who work with vinyl chloride?	(Y) N
G-8. Is health hazard training conducted annually?	(Y) N
G-9. Is there a current copy of the OSHA vinyl chloride standard in the Industrial Hygiene Manual?	(Y) N
G-10. Are all vinyl chloride containers (temporary and permanent storage) labeled with a sign stating "Cancer Suspect Agent"?	Y (N) NA

Contamination
Control

Question	Response
G-11. Is a change room available for those who must remove street clothes and change into vinyl chloride protective clothing?	Y N (NA)
G-12. Is the chemical protective clothing impermeable to vinyl chloride?	(Y) N NA

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Vingl II - Walkthrough 11/10/93 8-

- Gasket { signs
- Transit.

T-260's

Louisiana Division Consolidated Audit

LOSS PREVENTION

129. Where dusts exist, have alternate methods of handling or isolation been considered? Yes ☒ No ☐

CATALYST CHANGE C.U.T. NEWER TECHNOLOGY

M. CONTROL OF PROCESS CHANGE/SAFETY & LOSS PREVENTION REVIEWS

130. Do you have a formal system in place to control Process Change? Yes ☐ No ☒

If yes, please describe. A FORMAL PROCESS SUGGESTION PROGRAM EXISTS FOR IMPLEMENTING NEW IDEAS. RELY HEAVILY ON AREA SUPERV/ENG AND SHIFT SUPERV.

131. How do you insure that the proper reviews are completed on any Process Change? PRE-START UP AUDITS ALWAYS DONE ON NEW PROJECTS.

132. Does your department review projects for Safety & Loss Prevention concerns at each phase? Yes ☐ No ☒

Who is involved? _____

133. Have you done a Hazard and Operability Study (HAZOP) on your process or process changes? Yes ☐ No ☒

134. Do you have plans to do a HAZOP? Yes ☐ No ☒

135. Are pre-start up audits done on all new projects?

Yes ☒ No ☐

Provide examples if appropriate. K210, GROUNDWATER RECOVERY, ETC.

136. Do you have a way to be certain that the proper materials of construction are used in maintenance of new projects?

Yes ☒ No ☐

FOLLOW PIPING SPECS

SOME INCORRECT MATERIALS HAVE BEEN DELIVERED.

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Louisiana Division Consolidated Audit

LOSS PREVENTION

137. Do you have a list of proper gaskets for your plant?
In plant specs Yes ☐ No ☒
138. Do you have cast iron in process service? Yes ☒ No ☐
K320, K330
139. Do you avoid the use of cast iron? Yes ☒ No ☐

N. ENGINEERING - PROJECT REVIEW

140. Does your plant/department have a formal review process for a safety and loss review of work orders and/or capital authorizations? Yes ☐ No ☒

If no, describe procedure in effect to ensure safety and loss considerations in such projects? WORK ORDERS REVIEWED BY
AREA SUPV/ENG TO ENSURE SAFETY.

141. Is there a dollar cut-off point for such projects above which a review is required; below which no formal review is required? Yes ☐ No ☒

Dollar cut-off _____

142. How do you handle "Management of Change"? MAINLY THROUGH
AREA SUPV/ENG, SHIFT SUPV AND SUGGESTION PROCESS.

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Louisiana Division Consolidated Audit

LOSS PREVENTION

O. Physical Facilities

From a standpoint of hazard to employee safety, please evaluate your estimation of adequacy of following:

Adequate

Inadequate

Plant Layout

☒
☐

Flammables, storage

☒
☐

Drainage

☒
☐

Doors, gates

☒
☐

Equipment

☒
☐

Congestion

☐

✓

☐

Identification of contents
of pipelines and vessels

Process Equipment

☒
☐

Relief devices (location
and direction)

☒
☐

Ventilation

☒
☐

Ignition sources

☒
☐

Glass equipment

☒
☐

Spare equipment

VFD FOR BOILERS

CONFIDENTIAL

R&S153790

Louisiana Division Consolidated Audit

LOSS PREVENTION

P. Maintenance

Check those for which a maintenance program exists:

<u>Maintenance Program</u>	<u>Registration</u>	<u>Testing</u>	
☒	☐	☐	Machinery
☐	☒	☒	Pressure vessels
☐	☒	☒	Relief valves
☐	☒	☒	Boilers
☐	☐	☐	Flame arrestors
☒	☐	☒	Electric switchgear

**Q. INSURANCE PACKAGE/CONTENTS OF RISK ANALYSIS
PACKAGE**

This will be sent to Dow's Insurance Company and must not contain proprietary information. If you have any questions regarding the proprietary aspects, please call Safety & Loss Prevention (1539).

If there are questions on how to fill out the "Unit Loss Prevention Summary", call Loss Prevention. Page Two of the "Unit" Loss Prevention Summary, General Unit Evaluation, will be filled out by the auditors.

Please keep this "Insurance Package" together and in the right order so that it can be easily copied for the insurance company.

Louisiana Division Consolidated Audit
LOSS PREVENTION

115. Do you have redundant controls on rotating equipment?

K-320 Only

Yes ☒ No ☐

116. What are your alarms and shutdowns on rotating equipment?

List attached

L. FLAMMABLE MIXTURES/COMBUSTIBLE DUSTS

117. Are flammable materials processed in open, freely ventilated structures?

Yes ☐ No ☒ Partly ☐

118. Are flammable materials stored in your plant?

Yes ☒ No ☐

119. Are flammables loaded/unloaded in your plant?

Yes ☒ No ☐

120. How do you prevent flammable mixtures in the vapor space of process tanks, storage tanks, rail cars, tank trucks, etc.?

Railcars reduced to 1000 ppm O₂. Tanks have N₂ purge or under positive process pressure.

121. How do you prevent the events in the above question from happening, or know if they do happen?

Railcars are checked before loading and customers are asked to leave some positive pressure. Tank pressures are monitored/alarmed.

122. Do you monitor system pressure and/or oxygen content in low positive pressure applications?

Yes ☒ No ☐

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Louisiana Division Consolidated Audit

LOSS PREVENTION

123. Do you have a flare system in your unit? Yes ☒ No ☐ NA ☐

•If yes, how do you prevent backflashes in the system?

N₂ PURGE VIA REGULATORS

•How do you maintain a non-flammable mixture within the flare header? N₂ PURGE

•How old is your flare tip? < 1 year

•Has it ever been inspected? Yes ☒ No ☐

•Is your flare tip on any kind of maintenance schedule?

Yes ☐ No ☒

Describe: _____

•How do you insure that you have a flame? 3 PILOT DUAL

THERMOCOUPLES WITH ALARMS.

124. Has a study or program taken place to install protective or preventive devices? RUPTURE DISCS IN SOME AREAS IN PLACE Yes ☒ No ☐

125. Have reactive chemical tests been run on various dust mixtures? OXY CATALYST Yes ☒ No ☐

126. Does the plant have guidelines and programs addressing static electricity? Yes ☐ No ☒

load rack, lab hood, cylinders and some specific procedures

N/A 127. Are regular checks made for electrical continuity in dust handling systems? Yes ☐ No ☐

N/A 128. Are there plant rules not allowing an accumulation of dust to build up on structural beams, surface of equipment, etc.?

Yes ☐ No ☐

Describe: _____

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Louisiana Division Consolidated Audit

LOSS PREVENTION

129. Where dusts exist, have alternate methods of handling or isolation been considered? Yes ☒ No ☐

CATALYST CHANGE OUT NEWER TECHNOLOGY

M. CONTROL OF PROCESS CHANGE/SAFETY & LOSS PREVENTION REVIEWS

130. Do you have a formal system in place to control Process Change? Yes ☐ No ☒

If yes, please describe. A FORMAL PROCESS SUGGESTION PROGRAM EXISTS FOR IMPLEMENTING NEW IDEAS. RELY HEAVILY ON AREA SUPERV/ENG AND SHIFT SUPERV.

131. How do you insure that the proper reviews are completed on any Process Change? PRE-START UP AUDITS ALWAYS DONE ON NEW PROJECTS.

132. Does your department review projects for Safety & Loss Prevention concerns at each phase? Yes ☐ No ☒

Who is involved? _____

133. Have you done a Hazard and Operability Study (HAZOP) on your process or process changes? Yes ☐ No ☒

134. Do you have plans to do a HAZOP? Yes ☐ No ☒

135. Are pre-start up audits done on all new projects?

Yes ☒ No ☐

Provide examples if appropriate. K210, GROUNDWATER RECOVERY, ETC.

136. Do you have a way to be certain that the proper materials of construction are used in maintenance of new projects?

Yes ☒ No ☐

FOLLOW PIPING SPECS

SOME INCORRECT MATERIALS HAVE BEEN DELIVERED.

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Louisiana Division Consolidated Audit

LOSS PREVENTION

137. Do you have a list of proper gaskets for your plant?

In plant specs

Yes ☐ No ☒

138. Do you have cast iron in process service? Yes ☒ No ☐

K320, K330

139. Do you avoid the use of cast iron? Yes ☒ No ☐

N. ENGINEERING - PROJECT REVIEW

140. Does your plant/department have a formal review process for a safety and loss review of work orders and/or capital authorizations? Yes ☐ No ☒

If no, describe procedure in effect to ensure safety and loss considerations in such projects? WORK ORDERS REVIEWED BY AREA SUPV/ENG TO ENSURE SAFETY.

141. Is there a dollar cut-off point for such projects above which a review is required; below which no formal review is required? Yes ☐ No ☒

Dollar cut-off _____

142. How do you handle "Management of Change"? MAINLY THROUGH AREA SUPV/ENG, SHIFT SUPV AND SUGGESTION PROCESS.

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Louisiana Division Consolidated Audit

LOSS PREVENTION

O. Physical Facilities

From a standpoint of hazard to employee safety, please evaluate your estimation of adequacy of following:

Adequate

Inadequate

Plant Layout

☒☐

Flammables, storage

☒☐

Drainage

☒☐

Doors, gates

☒☐

Equipment

☒☐

Congestion

☐

✓

☐

Identification of contents
of pipelines and vessels

Process Equipment

☒☐

Relief devices (location
and direction)

☒☐

Ventilation

☒☐

Ignition sources

☒☐

Glass equipment

☒☐

Spare equipment

VFD FOR BOILERS

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VINYL CHLORIDE

1. Is vinyl chloride used in the plant/area in concentrations greater than ~~0.1%~~ 0.5% Y N

IF THE ANSWER IS NO, SKIP THE REMAINDER OF THIS SECTION.

2. Has initial exposure monitoring been completed to identify vinyl chloride exposures for all affected job classifications? Y N
3. a. Were any job classifications potentially exposed to 0.5-1 ppm as an 8-hour TWA (the action level)? Y N
- b. If yes, was repeat followup monitoring conducted each 3 months? Y N
- c. Have these employees been placed on the annual vinyl chloride MSR (Medical Surveillance Requirement) program? Y N
4. a. Were any job classifications potentially exposed to greater than 1 ppm as an 8 hour TWA (the PEL)? Y N
- b. If yes, was repeat followup monitoring conducted each month? Y N
- c. Have these employees been placed on the annual vinyl chloride MSR (Medical Surveillance Requirement) program? Y N
5. Were any job classifications potentially exposed to greater than 5 ppm as a 15 minute TWA (the STEL) during job tasks? Y N

If 3a, 4a or 5 were answered YES, answer the following questions; otherwise, skip to question 12.

6. Is there a written plan to reduce employee exposures to below the PEL or STEL? Y N
- Have available the plan for inspection by the audit team.
7. Are regulated areas (>PEL or STEL) identified with signs which state "Cancer Suspect Area-Authorized Personnel Only"? Y N
8. Has a respiratory protection program been implemented? Y N

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R&S 153798

- | | | | | |
|-----|--|---|---|----|
| 9. | If air purifying respirators are used, is there a continuous monitor and alarm system to warn of excessive concentrations? | Y | N | NA |
| 10. | Have the cartridge/canister replacement frequencies been specified in the area's written respirator program? | Y | N | NA |
| | Have available the records for inspection by the audit team. | | | |
| 11. | Has initial health hazard training been completed for all employees who work with vinyl chloride? | Y | N | |
| | Have available the records for inspection by the audit team. | | | |
| 12. | Is health hazard training conducted annually? | Y | N | |
| | Have available the records for inspection by the audit team. | | | |
| 13. | Is a change room available for those who must remove street clothes and change into vinyl chloride protective clothing? | Y | N | |
| 14. | Is the chemical protective clothing impermeable to vinyl chloride? | Y | N | |
| 15. | Is there a current copy of the OSHA vinyl chloride standard in the Industrial Hygiene Manual <i>File</i> ? | Y | N | |
| 16. | Are all vinyl chloride containers (temporary and permanent storage) labeled with a sign stating "Cancer Suspect Agent"? | Y | N | |

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R&S 153799

Louisiana Division Consolidated Audit
LOSS PREVENTION

P. Maintenance

Check those for which a maintenance program exists:

<u>Maintenance Program</u>	<u>Registration</u>	<u>Testing</u>	
☒	☐	☐	Machinery
☐	☒	☒	Pressure vessels
☐	☒	☒	Relief valves
☐	☒	☒	Boilers
☐	☐	☐	Flame arrestors
☒	☐	☒	Electric switchgear

**Q. INSURANCE PACKAGE/CONTENTS OF RISK ANALYSIS
PACKAGE**

This will be sent to Dow's Insurance Company and must not contain proprietary information. If you have any questions regarding the proprietary aspects, please call Safety & Loss Prevention (1539).

If there are questions on how to fill out the "Unit Loss Prevention Summary", call Loss Prevention. Page Two of the "Unit" Loss Prevention Summary, General Unit Evaluation, will be filled out by the auditors.

Please keep this "Insurance Package" together and in the right order so that it can be easily copied for the insurance company.

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R&S153793

Louisiana Division Consolidated Program

LABORATORY AUDIT

PLANT: Vinyl II

BUILDING: 6601

REVIEW DATE & TIME: _____

LAB AUDIT TEAM: _____

REFERENCE: OSHA STANDARD 1910.1450--Occupational Exposure
to Hazardous Chemicals in Laboratories LAD SAFETY
STANDARD S-405--Storage & Handling of Flammable
Liquids in Laboratories

SUPERINTENDENT: _____

MAJOR MANAGER/SECTION MANAGER: _____

LAB SUPERVISOR/REPRESENTATIVE: _____

(To be completed by the Superintendent)

7/16/92

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R&S153801

Table of Contents

- I. Communication System
- II. Safety Instructions
- III. Master Cut-offs
- IV. Safety Equipment
 - a. Safety Shower/Eyewash Station
 - b. Fire Extinguishers
 - c. Combustible Gas Detectors
 - d. Air Monitors
 - e. Smoke Alarms
 - f. Personal Protective Equipment
- V. Lab Equipment/Fire Control
- VI. Chemical Storage
 - a. General
 - b. Flammable Liquids
 - c. Reactive Chemicals
 - d. Gas Cylinders
- VII. Chemical Handling
 - a. Leftover Chemicals
 - b. Reactive Chemicals
 - c. Pressure Sample Containers
 - d. Spills
- VIII. Static Charges
 - a. Two Conductive Containers
 - b. One Conductive Container
 - c. Two Non-Conductive Containers
- IX. Glassware/Needles and Syringes
- X. Training

7/16/92

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R&S153802

Louisiana Division
August, 1991

PLANT SUPERINTENDENT/DEPARTMENT HEAD

LABORATORY AUDIT QUESTIONNAIRE

The Laboratory Audit will be part of the Louisiana Division Consolidated Audit Program. The audit will be the responsibility of the Plant Superintendent/Department Head. This questionnaire has been prepared as a tool for each department to use as a self-evaluation in preparation for the audit. The questions are based on OSHA Standard--1910.1450 and LAD Safety Standard S-405. Please answer all questions that apply to your plant/department and make notes for discussion during the audit.

Be prepared to make a short presentation during the 3-day audit session. The presentation should include a brief Summary, Accomplishments, Strengths, and Opportunities for Improvement.

The Audit Team will conduct a Laboratory inspection four weeks before the 3-day audit session.

Please send the Division Audit Facilitator a complete copy of the self-evaluation at least (15) days prior to your plant/department audit.

7/16/92

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R&S153803

Laboratory Questionnaire

Instructions: Answer in as brief a statement as possible. When documentation or sample examples exist, please reference, include and attach to final report. If an area is non-applicable, mark it so. Circle for yes or no. Check squares where applicable.

I. COMMUNICATION SYSTEM

A. Telephone

1. Accessible phone located nearby?
(less than 100 ft.) (Yes) No
2. Current emergency phone numbers posted? Yes (No)

B. Intercom System? (Yes) No

C. Instruction Log utilized? (Yes) No

D. How is new information on health effects of chemicals communicated to all employees?
Our Industrial Hygiene representative would be responsible for this.

E. Do laboratories have list of MSDSs? (Yes) No

Is the list complete? (Yes) No

Where are the MSDS's located?
In Environmental Specialist's office

Are the MSDS's accessible to employees? (Yes) No

COMMENTS/RECOMMENDATIONS: The Vinyl II Plant emergency call list is located in the control room.

II. SAFETY INSTRUCTIONS

A. Safety Indoctrination available? (Yes) No
(Attach an example to the Questionnaire)

			PAGE 2
B.	Safety rules available?	(Yes)	No
C.	Appropriate warning signs posted? (hazardous material)	(Yes)	No
D.	Documentation of safe job procedures? (Attach an example to the questionnaire)	(Yes)	No
E.	Substitute hot plates or microwave ovens for open flames when possible?	(Yes)	No
F.	Instructed in proper handling of glass tubing? N/A	Yes	No
G.	Safety Manuals available w/safety instructions?	(Yes)	No
H.	Is Emergency shutdown procedures available on all equipment? See comment.	(Yes)	No
I.	Emergency shutdown procedures on all equipment? See comment.	(Yes)	No
J.	Does the laboratory post a copy of the Dow Internal Sample Labeling Guideline?	(Yes)	No
	Is this guideline followed in labeling?	(Yes)	No
K.	Are there Standard Operation Procedures for work in the laboratory?	(Yes)	No

COMMENTS/RECOMMENDATIONS: In an emergency, the main lab breakers would be
thrown and all equipment would be turned off. Breakers are labeled.

III. MASTER CUT-OFFS

- | | | | |
|----|---|------------|------|
| A. | Master control cut-off valve available, location known, accessible & functioning? | (Yes) | No |
| 1. | Gas? N/A | | |
| 2. | Electricity? | | |
| 3. | Water? | | |
| 4. | Steam? N/A | | |
| B. | Master control-off clearly labeled? | (Yes) | No |
| 1. | Gas? N/A | | |
| 2. | Electricity? | | |
| 3. | Water? | | |
| 4. | Steam? N/A | | |
| C. | Gas valves inspected for closure at the end of each day? | N/A
Yes | No |
| D. | Gas cut off with master control when not in use? | N/A
Yes | No |
| E. | Does nitrogen enter the lab? | (Yes) | No |
| 1. | Has the lab had an air change-over study done? | Yes | (No) |

COMMENTS/RECOMMENDATIONS: Contacted Industrial Hygiene to do a study.

IV. SAFETY EQUIPMENT

- | | | | |
|----|---|----------------|----|
| A. | Safety Shower/Eyewash Stations | | |
| 1. | Are there enough stations? | (Yes) | No |
| 2. | Are they easily accessible? | (Yes) | No |
| 3. | Are they alarmed? | (Yes) | No |
| 4. | Does the alarm sound in the control room? | (Yes) | No |
| 5. | How often are they checked? | <u>Monthly</u> | |
| 6. | Sufficient Water pressure? | (Yes) | No |
| 7. | Floor drain? | (Yes) | No |
| B. | Fire Extinguishers | | |

1. How many extinguishers are there? three (3)
2. What type? two CO2, one Halon
3. Are they easily accessible? (Yes) No
4. Are they on a weekly checklist? Yes (No)

Monthly

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R&S153807

C. Combustible Gas Detectors

1. Are there combustible gas detectors in the lab?
(Yes) No
2. Do they alarm in the control room? (Yes) No
3. How often are they checked? Weekly

D. Air Monitors

1. Does the plant have an air monitor system?
(Yes) No
- If so, is the lab monitored? (Yes) No

E. Personal Protective Equipment

1. What is the minimum protective equipment required in the lab? Safety Glasses
2. Are sign posted stating minimum equipment require?
Are they visible? (Yes) No

F. Handling Samples

1. What protective equipment is required when handling samples? Monogoggles
2. If special equipment is required in certain cases, is it readily available and in good condition?
(Yes) No
3. How are leftover samples disposed of? Poured in waste funnel in hood
3 which drains to S240 which is incinerated.
4. How are retained samples disposed of? Water samples are poured down one of four sink drains. Chlorothene samples are poured into 3 gal. flush jubs and dumped into T410 which is burned in Ecology area. VCM is returned to the process at sample points in the field.

5. How are leftover or out of date reagents disposed of?

They are given to a vendor (Lang Solutions) who disposes of them

6. Carriers available for carrying chemicals? Acids? (Yes) No

COMMENTS/RECOMMENDATIONS: _____

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V. LAB EQUIPMENT/FIRE CONTROL

- | | | | |
|----|---|-------|------|
| A. | Excess flow valves installed on flammable gases (H2)? | (Yes) | No |
| B. | Fire extinguisher available? | (Yes) | No |
| 1. | Correct size fire extinguisher? | (Yes) | No |
| | A. What type? <u>2 CO2 and 1 Halon</u> | | |
| 2. | Safety seals intact? | (Yes) | No |
| 3. | Easily visible location and unobstructed from view? | (Yes) | No |
| 4. | Personnel trained in use of fire extinguisher thru actual fire situations? | (Yes) | No |
| 5. | Are extinguishers located near escape route of lab? | (Yes) | No |
| C. | Fire Exits and Drills | | |
| 1. | Unobstructed and unlocked fire exits? | (Yes) | No |
| 2. | Labeled and functioning doors on exits? | (Yes) | No |
| 3. | Posted and practiced fire drill procedures? N/A
See Emergency Shutdown Procedure | Yes | No |
| 4. | Functioning general alarm system for entire building? | (Yes) | No |
| 5. | Doors open outward? | (Yes) | No |
| 6. | Do doors have crash bars? | (Yes) | No |
| D. | Smoke Alarms | | |
| 1. | Presence of smoke alarm in each laboratory? | (Yes) | No |
| 2. | Present of smoke alarm in storeroom? | Yes | (No) |

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R&S153810

3. Presence of regular maintenance (indicate date of most recent maintenance)?

(Yes)

No

4. Do they alarm in an area that has 24 hr. coverage?

(Yes)

No

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R&S153811

5. Automatic sprinkler system last inspection? None
6. No smoking/eating rule in lab? (Yes) No

COMMENTS/RECOMMENDATIONS: _____

VI. CHEMICAL STORAGE - LPP 12.5, S&LP S-405

A. General

- | | | |
|--|-------|----|
| 1. Inventory and disposal of unused hazardous chemicals? | (Yes) | No |
| 2. Are acids and bases stored separately? | (Yes) | No |
| 3. Are strong oxidizers stored separately from organics? | (Yes) | No |
| 4. Fully and properly labeled with | | |
| - Secure, water proof labels? | (Yes) | No |
| - Date of acquisition? | (Yes) | No |
| - Hazard alert? | (Yes) | No |
| - Name of supplier? | (Yes) | No |
| - Chemical's strength or purity? | (Yes) | No |
| 5. Are any chemicals stored in a refrigerator? | (Yes) | No |
| 6. Are flammables stored in a refrigerator? | (Yes) | No |

7. If so, is the refrigerator explosion proof? (Yes) No
8. Is any food stored in the refrigerator? Yes (No)
9. Is there a designated storage area for retained samples? (Yes) No
10. Are any peroxide forming materials kept in the lab? Yes (No)
11. If yes, list chemicals and expiration dates _____

12. Are any glass containers stored on open counter tops? (Yes) No
13. Are any large containers stored on open shelves? Yes (No)

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In storage rooms total quantities per 25 square feet of floor space shall be no more than?

1. Class I - Flammable Liquids - 4 gallons
(Yes) No
2. Class II - Combustible Liquids - 20 gallons
(Yes) No
3. Class III - Combustible Liquids - 50 gallons
(Yes) No
21. Are chemicals stored in regularly traveled areas? (Yes) No

B. FLAMMABLE LIQUIDS

1. Are any class 1A(2 gal), 1B(5 gal) or 1C (5 gal) flammable liquid kept in the lab? (Ref. S&LP S-405 Sec. 2B) (Yes) No
2. If yes, list chemicals
1A--Vinyl Chloride (standards are kept under hood 4)
3. Do any containers exceed maximum allowable size?
Yes (No)
4. Is total quantity within allowable limit?
(Yes) No
5. Are all flammable liquids, not kept in approved metal safety containers, stored in an approved metal cabinet or kept in quantity allowed?
(Yes) No
6. Are there detailed written procedures for each lab job involving the use of flammable and/or combustible liquids (as a minimum, procedures

should include safe handling of materials, spill precautions, proper waste disposal). Attach copy of procedures.

(Yes)

No

7. Are any flammable or combustible liquids piped into the lab?

Yes

(No)

8. If so, list chemicals involved

9. How are they piped in (tubing, screwed pipe, etc.)?

C. REACTIVE CHEMICALS

1. Have potential reactive chemical problems been considered?
(Yes) No
2. List known reactive chemical hazards that exist with any chemicals handled in the lab
Lab personnel perform only specific analyses which are in lab manual.
Reactive chemical hazards are considered in each procedure.
3. Are all the employees who work in the lab familiar with these hazards?
N/A Yes No
4. How is this information communicated?

5. Is this information in the lab manual?
(Yes) No
6. If there are some reactive chemical problems, are all waste containers (drums, wagons etc.) properly labeled to prevent improper disposal?
(Yes) No

D. COMPRESSED GAS CYLINDERS

1. Are any cylinders kept in the lab? (Yes) No
2. If yes, list contents of those cylinders
Low PPM gas blends with an inert gas being the major component

3. For cylinders kept outside the lab, how are they piped inside (tubing, screwed or welded pipe, etc..)?
Air, helium, and hydrogen are piped in with tubing.

4. Is nitrogen used in the laboratory? (Yes) No
5. Has an air change over study been conducted in the lab? Yes (No)
6. Is some type restriction used in event of regulator malfunction? (Yes) No
7. If yes, describe what's used Two stage regulators are used and provide for a diaphragm on second stage to releive pressure should the first stage fail.
8. Do all sample containers, used to collect samples of liquid or liquified gases, have a dip tube or a pressure relief device? (Yes) No
9. List chemicals involved and indicate whether a dip tube or relief device is used for each chemical VCM -- safety relief valve. Quench drum samples -- safety relief valve
10. Are all pressure sample containers legibly labeled? (Yes) No
11. Are there written procedures for preparing pressure sample containers and collecting samples? (Yes) No
12. Are these procedures in the lab manual? (Yes) No
13. Where are pressure sample containers stored? In a fume hood in the lab or outside in a designated metal safety cabinet.
14. Are all pressure sample containers periodically pressure tested? (Yes) No

15. How are they tested Visual inspection annually and hydrostatic testing
every 5 years.

16. Are they on the Division Pressure Vessel Program?
 (Yes) No

17. Who is responsible for the testing?
Permanent Lab Specialist

16. Who is responsible for adding/deleting pressure sample containers
 to/from the Pressure Vessel Program? Permanent Lab Specialist

19. Is the list up to date? (Yes) No

COMMENTS/RECOMMENDATIONS: _____

VII. STATIC CHARGES

A. Two Conductive Containers (such as metal cans, sample cylinders, drums)

1. Are flammable materials ever transferred from one container to another
 where both containers are good conductors?

Yes (No)

2. If yes, is physical contact between the two containers maintained during
 the transfer? N/A

Yes No

3. If physical contact cannot be maintained, or as an alternative to
 maintaining contact, are the two containers either electrically bonded to
 each other or is one container effectively grounded prior to the transfer?
 N/A

Yes No

B. One Conductive Container

1. Are flammable materials ever transferred from one container to another where one of the containers is a good conductor and the other is a poor conductor?

(Yes) No

2. If yes, is the conductive container grounded prior to the transfer?

(Yes) No

C. Two Non-Conductive Containers

1. Are any Class 1A flammable liquids ever handled in the lab?

(Yes) No

2. If yes, do lab personnel take the following precautions when transferring from one non-conductive container to another (such as glass)? _____

- Do the containers touch each other during the transfer?

(Yes) No

- Is the liquid transfer slowly to minimize the formation of droplets and thus minimize static formation?

(Yes) No

- Do operators handle Class 1A flammable liquids?

(Yes) No

COMMENTS/RECOMMENDATIONS: _____

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P&S 153820

VII. GLASSWARE/NEEDLES AND SYRINGES

A. Glassware

1. Are large glass containers protected by tape or a plastic or metal cover?
(Yes) No
2. How is broken glassware disposed of (in regular waste baskets or special containers)? Approved disposable plastic container.

3. Is glassware ever air dried? (Yes) No
4. If yes, what pressure air is used? 10 PSIG
5. Is any glassware ever subject to a vacuum?
Yes (No)

B. Needles and Syringes

1. Are regularly used syringes kept in designated containers?
(Yes) No
2. How are needles disposed of? Same container as glass ware

COMMENTS/RECOMMENDATIONS: _____

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R&S153821

IX. TRAINING

- A. How are new operators, who use the lab for some part of their job, trained on procedures? (Attach Documentation) Hands on by incumbent and reviewed by

Lab Chemist. Procedures are available in lab at all times.

- B. Is any training done by permanent lab personnel?

(Yes) No

- C. Is there a review test (attach copy)? (Yes) No
IPT Module Training in place.

- D. What about operators who have been promoted and now must handle different samples, run different analysis, etc. How is their training handled and do permanent lab personnel get involved at all (attach documentation)?

N/A

- E. Do operators mix reagents or calibrate instruments?

Yes (No)

- F. If yes, how are they trained to do these jobs? N/A

- G. Is there an on-going Hazard Awareness Training Program?

(Yes) No

Describe: Tailgate meetings are held every morning. Unsafe conditions.

PSI's, PSA's and other hazardous situations are discussed.

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R&S 153822

SAFETY/SECURITY AUDIT

(Thursday, September 12, 1991--7:30 a.m. to 11:30 a.m.)

Audit Team:

Presenter:

Attendance:

RECEIVED

DEC 28 1993

SAFETY DEPT.

Writer:

SAFETY PROGRAM FUNDAMENTALS:

The plant has a safety mission statement. Also, a written safety policy.

RECOMMENDATIONS:

None at this time.

EMPLOYEE RESPONSIBILITY FOR SAFETY:

Safety is a part of every job description. Individual safety goals are set and reviewed at least twice a year.

RECOMMENDATIONS:

- * 1. Complete Safety JPR's for all employees in the plant per Safety Phase III.

The safety JPR has been implemented for most plant personnel with plans for completion by 11/15/91. Safety JPR is no longer being used in the division.

Completed by: 12/93

PROGRAM STRUCTURE - ORGANIZATION - PLANNING:

The safety program is organized in accordance with the plant safety goals and set by a safety committee composed of a good cross-section of plant personnel (management, supervision, operations, etc.). Daily tailgate and monthly safety meetings along with good measurement and incentives strongly reinforce the program.

* INDICATES PRIORITY ITEM

REDACTED

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R&S153823

RECOMMENDATIONS:

1. Utilize the Safety Performance Improvement Process (SPIP) in the plant and individual safety goal setting process.

The results of the initial SPIP survey will be reviewed and communicated to plant teams by 11/30/91. Present goals already were addressing most areas that were deficient on the SPIP. Responsibility:

2. Consider more involvement from operators in the goal setting process.

*1992 preliminary goals were circulated to each team by
Completed January 1992*

SAFETY TRAINING:

All new Dow and contract employees receive a block safety indoctrination. Daily tailgate, weekly and monthly safety meetings are used effectively. Staff JSA's are also effective. Special training is utilized in critical areas.

RECOMMENDATIONS:

- * 1. Update block indoctrination video relative to harnesses and respirators. Also, develop and utilize a test to check comprehension of what is discussed in the indoctrination session (including video). An IPT module would be helpful.

An IPT module will be developed on the existing indoctrination video by 12/31/91.

Completed by January 1992

The indoctrination video and module will be updated by the end of 3Q92.

Responsibility: COMPLETED by 2/93

2. Check on the use of training aids for vessel entry, line opening and hot work.

The safety coordinator will check with the safety department to identify any available, useful training aids by 12/31/91. Responsibility:

Plant personnel completed training on Safe Work Permits. Red Tagging and Confined Space. COMPLETED 2Qrt/93 by

3. Obtain the updated LAD Safety & Loss Prevention Standards IPT and utilize.

*S & LP IPT modules are currently undergoing revision. The updated modules will be obtained for Vinyl II use when revision is complete. Responsibility: Safety Coordinator
COMPLETED The modules are now available on the vax. 3/93*

- * 4. Develop a training documentation system for documenting training at meetings, on procedures, on IPT's, etc.

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A system for training documentation will be developed and implemented by 2Q92.

Responsibility: COMPLETED 2Q92

5. Develop a timetable for completing all IPT modules.

The IPT program status is currently being updated. Yearly goals for IPT development will be set. High overtime for operators (25%) has caused this to be a low priority.

Progress will be slow until manpower can be increased. Responsibility:

Safety & Training Coordinator COMPLETED 1/93 Timetable developed

OPERATING PROCEDURES:

Operating Procedures, Safe Job Procedures and Red Tag Procedures are utilized. Operators write/up-date procedures with involvement of supervisor and Safety Coordinator.

RECOMMENDATIONS:

- * 1. Develop a plan for updating all procedures that are out of date and implement a system to assure updating on a regular basis.

The C-9 checklist currently calls for yearly procedure review/update of other procedures. A better documentation system is needed along with more specific responsibilities. A documentation guideline for plant procedures will be developed and implemented by 2Q92. Responsibility:

COMPLETED by Mike Cutrer 6/93 All Safe Job Procedures have been updated

EMERGENCY PLAN:

A block-emergency plan exists. Emergency drills are held on a quarterly basis.

RECOMMENDATIONS:

- * 1. Update block emergency plan and address explosions. Place a copy of the updated plan in the plant's copy of the LAD Emergency Plan Manual. Also, send a copy to for the EOC.

Block emergency procedures will be incorporated into a plant emergency plan by 12/31/91. Responsibility: COMPLETED 1/92

2. Add review of the block emergency plan to the C-9 Checklist to assure updating and reviewing with employees on a yearly basis.

Emergency procedures are currently reviewed annually as part of C-9. This check will be modified to include review of the emergency plan in 1992.

Responsibility: COMPLETED by 1/93

* INDICATES PRIORITY ITEM

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R&S 153825

- * 3. Conduct a "hands-on" emergency drill at least once a year.

This will be included in the plant 1992 safety program when it is developed.

Responsibility: Safety & Training Coordinator

COMPLETED by Mike Cutrer 9/93

- 4. Develop an IPT for the block emergency plan.

This will be included in the IPT program development guideline by 12/31/91 and should be developed by 1Q92. Responsibility: IPT program is being developed

at this time. 25% completed. 11/93 Expected Completion Date: 12/94

ACCIDENT/INCIDENT INVESTIGATION REPORTING:

Accidents/incidents are investigated promptly. Learning value is communicated and follow-up work is tracked to completion. Employees are encouraged to report minor injuries.

RECOMMENDATIONS:

- 1. Write-up accidents/incidents in Safe Working Style format.

The plant routinely does a thorough job of incident investigation. There are no plans to implement this format at Vinyl II. Completed by 1/92

SAFETY STANDARDS, GUIDES, REQUIREMENTS:

LAD Safety & Loss Prevention Standards and safe job procedures are utilized.

RECOMMENDATIONS:

- * 1. Update safe job procedures.

The operating procedures manual has not been updated due to conversion to Mod5 and high operator overtime. No effort planned on operating procedures until Mod5 conversion complete. The C-9 checklist currently calls for yearly procedure review/update of other procedures. A better documentation system is needed along with more specific responsibilities. A documentation guideline for plant procedures will be developed and implemented by 2Q92. Responsibility:

COMPLETED 6/93

- 2. Develop a plan for modifying sample points with quick open valves

The new EDC sampling system with quick opening valves is considered the safest alternative available. Other sampling systems have tubing directed away from the person catching the sample making that system the safest alternative available. Installing new

sampling systems wherever practical. Most should be replaced by 4Q92. Responsibility:
Area personnel COMPLETED 6/93

HAZARD DETECTION PROGRAM:

Inspections are made by the Plant Superintendent, Engineers and Supervisors on a regular basis. C-9 Checklists are used as a tool. Staff JSA's are also effective.

RECOMMENDATIONS:

- * 1. Assure that all identified hazards are tracked to completion and the documentation exists to support the fact.

Procedures for follow-up documentation for internal audits, USCR's, incident investigations, etc. will be defined and implemented by 12/31/91. Vinyl II will implement the Division form for housekeeping audits and follow-up which is currently being developed. Responsibility:

COMPLETED 1/92

SAFETY SUGGESTION SYSTEM:

A Safety/Environmental Suggestion System exists. All suggestions are reviewed and tracked to completion.

RECOMMENDATIONS:

- 1. Develop a system to be used in prioritizing suggestions.

This is currently being developed and should be in place by 11/30/91.

Responsibility:

COMPLETED 1/92

AWARD/RECOGNITION SYSTEM:

The block has a safety incentive program for which awards/recognition is given. Also, outstanding safety/environmental and process suggestions have awards/recognition quarterly.

RECOMMENDATIONS:

None at this time.

CONTRACTOR SAFETY:

Contractors follow the same policies/standards as Dow employees. All contractors receive the block safety indoctrination. The contractors also have their own safety incentive program.

* INDICATES PRIORITY ITEM

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RECOMMENDATIONS:

1. Involve contractors more in plant safety programs.

An active plant contractor program exists. More participation in Safety Committee meetings by contractors is currently being stressed. Responsibility:

Completed by 1/92

OFF-THE-JOB SAFETY:

Off-the-job safety is emphasized. Off-the-job safety is included in regular and tailgate safety meetings. Also, in the block safety incentive program.

RECOMMENDATIONS:

None at this time.

COMMUNICATIONS:

Closed circuit TV's and bulletin boards are utilized to communicate.

RECOMMENDATIONS:

1. Develop a system (initial and date list, etc.) to communicate new or revised procedures, learning value items, new or revised regulations, JSA's, inspections, etc.

A documented review procedure will be developed for use in plant communications by 12/91. Responsibility: COMPLETED 12/91

HOUSEKEEPING:

Control Room: *Overall housekeeping is excellent. Some cleanup needed on catwalk behind the board.

To be completed by 11/1/91. Responsibility:

COMPLETED 11/91

Active red tag masters are kept on a clipboard in the permit office and they are readily accessible to operators as well as contractors.

Long term masters are kept on a separate clipboard. Suggested they consider disabling some equipment to reduce the number of long term masters.

Audit red tag masters by area personnel by 12/31/91.

Responsibility:

COMPLETED 1/92

* INDICATES PRIORITY ITEM

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R&S 153828

All masters were checked and we found no discrepancies.

Permit area organized and neat.

A couple of the permits checked indicated that no on-site inspection was done and that lines to be opened had not been positively identified. When questioned the issuers said that both had been done, if so we should mark the permit as such.

Complete. Stressed with permit writers.

Completed by: 12/92

Office Area: All offices, conference rooms, closets and storage areas organized and neat.

Bulletin board postings current. OSHA posting present -- GOOD!!!

One corner in the men's dressing room being used to store a box of air conditioner filters, some P&ID's and some other paraphernalia. Rubber boot and old stencils in showers.

Some things complete. Will complete the remaining items by 11/1/91. Responsibility:

COMPLETED 1/92

* Ladies room had a slicker suit on the wash basin counter.

Complete. Completed by: 1/92

Operating Area: Safety showers visible and in good condition, painting program in progress.

* Noted one ladder missing safety gate, suggest audit for others.

Safety gate will be installed on RE230 by 12/31/91.

Responsibility:

Audit ladders throughout plant by 12/31/91. Responsibility:

COMPLETED by 12/91

* Oil absorbent pads throughout need replaced.

Ongoing program part of written outside round.

Complete by 12/91

* Some bleeds not plugged.

These are audited at least once per year. Sample points addressed in Safety Section of this audit.

Completed by

Trash in all of vessel skirts.

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R&S 153829

Some completed. Others to be completed by 12/1/91.

Responsibility:

COMPLETED 12/91

Some water standing in Oxy area.

Not considered a serious problem. Will address by 2Q92.

Responsibility: Completed 2Q92.

* Some unlabeled utility stations.

To be labeled by operations by 1Q92. Responsibility:

COMPLETED 1Q92

* Plenty of signs (caution, directional, etc.). Many are faded and need restenciling or replacing.

To be completed by operations by 1Q92. Responsibility:

COMPLETED 1Q92

* Wooden ladders laying against switchgear in MCC, electrical one-lines need updating, one MCC had unsealed cables leading into building.

Wooden ladder removed. Other items addressed in the Electrical Section of this audit. Completed by:

1Q92

Warehouse Area: * Warehouse work area clean and neat, grinder tool rests needs adjusting (to far from wheel). Warehouse east storage area needs attention, it's full and pretty cluttered, the bin areas looked good. Have some things stored against open walls that need to be properly stored.

Warehouse area audit will be completed by 12/31/91.

Responsibility: COMPLETED 1Q92

* Noted some flammables improperly stored on open shelves.

Proper storage to be investigated by 1Q92. Responsibility:

Completed 1Q92

Flammables storage area O.K., need to verify proper amounts. No fire extinguisher in area.

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R&S 153830

Addressed in Lab Section of this audit. Fire extinguisher available inside lab.

Lab Area: * Housekeeping fair.

* Hoods cluttered and dirty.

Addressed in Lab Section of this audit.

* Flammables stored under hood which also has 110v lights under it.

*To investigate an alternate to NVM test by 3Q92. Responsibility:
No Better Alternative COMPLETE 3Q92*

* Doors on hoods were opened beyond the 18 inch limit.

*Install removable stops by 2Q92. Responsibility:
COMPLETED 11/91*

Safety Files: * OSHA "Star" information needs to be compiled into one box (three years plus current). Need to initial and date paperwork upon completion of follow-up actions.

The OSHA Star information will be compiled and updated as noted by 12/31/91. Responsibility: COMPLETED 12/91

Good system for tracking follow-up test for plant indoctrination.

In the process of developing a follow-up test for plant indoctrination. Responsibility: COMPLETED 1/92

* Posted C-9 checklist in not up to date, Safety coordinator keeps a master copy and it is up to date.

Keeping the C-9 checklist in the permit office will be emphasized by 11/30/91. Responsibility: COMPLETED 11/91

EMPLOYEE SURVEY SUMMARY:

There were 27 safety surveys returned. The safety definitions indicated a good safety attitude at Vinyl II. Eighty eight percent rated supervisors views on safety high to excellent. Starting up and shutting down equipment was thought to be the part of the job that required the most caution and that a fall would be the next serious accident. When asked if they notice a fellow employee performing work in a unsafe manner would they intervene, 100% of surveys said they would. 85% said they would explain other ways of performing the work in a safer manner. Some even

* INDICATES PRIORITY ITEM

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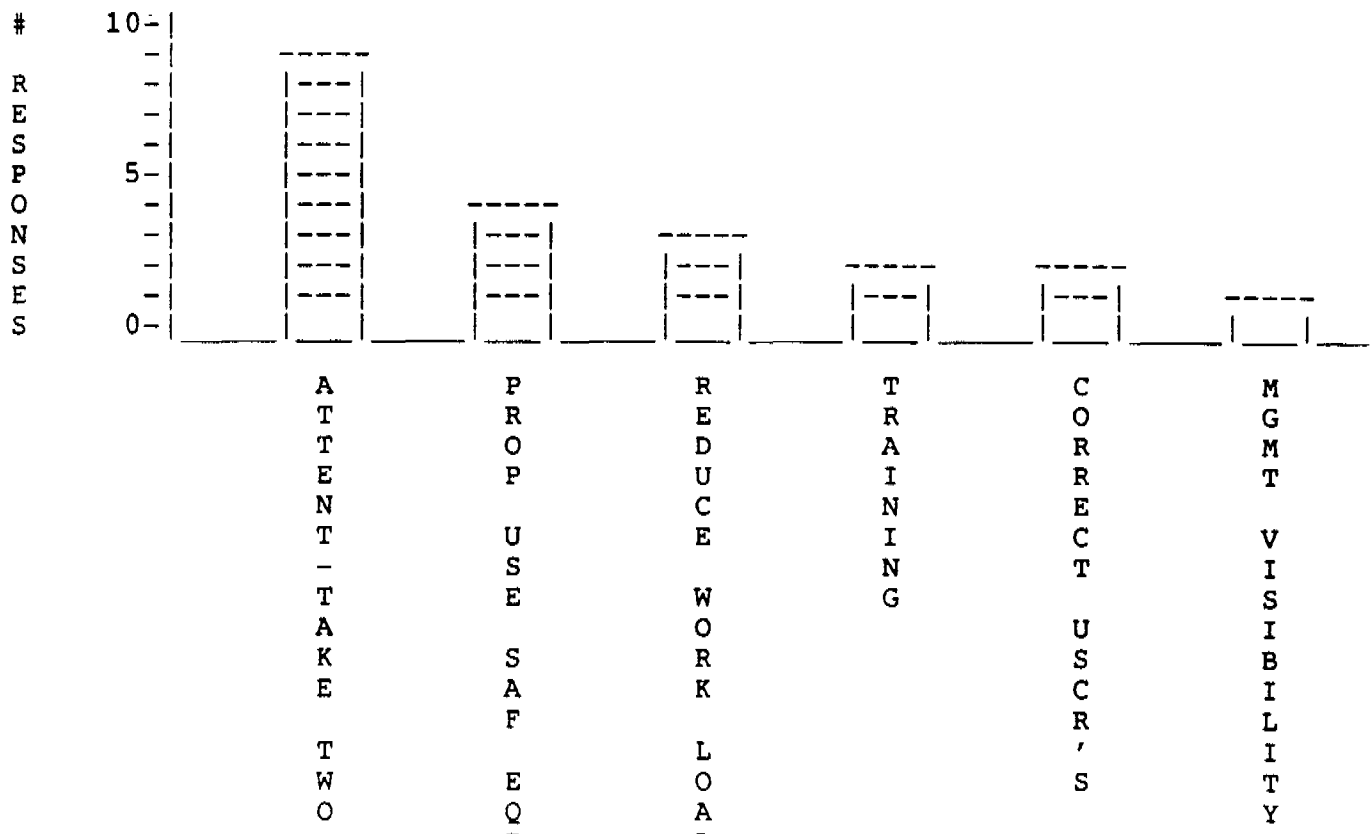
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R&S 153831

HIGHLIGHTS OF EMPLOYEE SAFETY SURVEY

- * There were 27 surveys returned (53 were handed out)
- * 88% rated supervisors views on safety high to excellent
- * Safety definitions indicated a good SAFETY attitude
- * 50% thought that their training was good to very good (there weren't any obvious areas where there was a lack of training)
- * Starting up and shutting down equipment was felt to be the part of the job that required the most caution
- * 100% indicated that intervention would be used if someone were observed performing an unsafe act
- * It is felt that a fall will be the next serious accident in the plant
- * 1/3 feel that accidents can be prevented ALL of the time and 2/3 feel they can be prevented ~~SOME~~ ^{MOST} of the time
- * 100% knew that the LAD is an OSHA "STAR" site (81.5% of these knew their rights under "STAR" program)

Shown below is a pareto chart of the respondents suggestion to prevent injuries to the people in their plant



VINLYL 2
HOUSEKEEPING AUDIT RESULTS

- CONTROL ROOM:
- * Overall housekeeping is excellent. Some cleanup needed on catwalk behind the board.
 - * Active red tag masters are kept on a clipboard in the permit office and they are readily accessible to operators as well as contractors.
 - * Long term masters are kept on a separate clipboard. Suggested they consider disabling some equipment to reduce the number of long term masters.
 - * All masters were checked and we found no discrepancies.
 - * Permit area organized and neat.
 - * A couple of the permits checked indicated that no on-site inspection was done and that lines to be opened had not been positively identified. When questioned the issuers said that both had been done, if so we should mark the permit as such.
- OFFICE AREA:
- * All offices, conference rooms, closets and storage areas organized and neat.
 - * Bulletin board postings current. OSHA posting present--GOOD!!!
 - * One corner in the men's dressing room being used to store a box of air conditioner filters, some P&ID's and some other paraphernalia. Rubber boot and old stencils in showers.
 - * Ladies room had a slicker suit on the wash basin counter.
- OPERATING AREA:
- * Safety showers visible and in good condition, painting program in progress.
 - * Noted one ladder missing safety gate, suggest audit for others.
 - * Oil absorbent pads throughout need replaced.
 - * Some bleeds not plugged.
 - * Trash in all of the vessel skirts.
 - * Some water standing in Oxy area.
 - * Some unlabeled utility stations.

- * Plenty of signs (caution, directional, etc.). Many are faded and need restenciling or replacing
- * Wooden ladders laying against switchgear in MCC, electrical one-lines need updating, one MCC had unsealed cables leading into building.
- * Overall the operation area is in very good condition.

- WAREHOUSE AREA:
- * Warehouse work area clean and neat, grinder tool rests needs adjusting (to far from wheel). Warehouse east storage area needs attention, it's full and pretty cluttered, the bin areas looked good. Have some things stored against open walls that need to be properly stored.
 - * Noted some flammables improperly stored on open shelves.
 - * Flammables storage area O.K., need to verify proper amounts. No fire extinguisher in area.

- LAB AREA:
- * Housekeeping fair.
 - * Hoods cluttered and dirty.
 - * Flammables stored under hood which also has 110V lights under it.
 - * Doors on hoods were opened beyond the 18 inch limit.

- SAFETY FILES:
- * OSHA "Star" information needs to be compiled into one box (three years plus current). Need to init and date paperwork upon completion of follow-up actions.
 - * Good system for tracking follow-up on incidents and unsafe conditions.
 - * In the process of developing a follow-up test for plant indoctrination.
 - * Posted C-9 checklist is not up to date, Safety coordinator keeps a master copy and it is up to date.