

1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101

INTRODUCTION

The following programs are included in your current Occupational Health Program. The programs are scheduled to be reviewed annually and updated on a two year basis.

Industrial Hygiene Monitoring Program
Hearing Conservation
Asbestos
Ventilation
Ergonomics
Heat Stress
Medical Surveillance
Hazard Communication
Industrial Hygiene Education Program
Respiratory Protection
Protective Equipment
Radiation
Hazwoper
Department Activities
Roster and Job Descriptions (updated on a yearly basis)
Chemical and Physical Agent Inventory (updated on a yearly basis)

These programs should be placed behind the appropriate tab in the Department Industrial Hygiene Manual.

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**OCCUPATIONAL HEALTH GOALS AND PLANS
1993-95**

	<u>DATE LAST COMPLETED</u>	<u>DATE DUE</u>
Industrial Hygiene Monitoring:		
Comprehensive Chemical (8-hr TWA & Excursion)	1989	1993
Noise (Area & Personal)	1991	1994
Hearing Conservation Training:	1993	1995
Asbestos Awareness Training:	1993	1995
Ventilation:		
Ventilation Survey	1992	1995
Manometer Check	quarterly	
Ergonomics:		
Team Training	---	1993
Heat Stress Training:	1993	1995
Hazard Communication:		
Review written Hazcom program	1992	1994
Review Industrial Hygiene Manual/Protocol	1993	1995
Update CPAI	1993	1994/95
Review MSDS's compared to CPAI	1993	1994/95
Health hazards training (annually)	1993	1994/95
New chemicals training	as needed	
Respiratory Protection:		
Fit Testing for MSA Ultravue, 3M Half face Scottovista full face		
air purifying	1993	1995
Training	1992	1993/94
Protective Equipment Training (biannually)	1992	1994
Radiation Inspections		
Visual (location, labels, sign)	Biannually (Feb./August)	
Wipe test, survey	Biannually (May/Nov.)	

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1993-95 OCCUPATIONAL HEALTH PROGRAM
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MONITORING PROGRAM

1. RATIONALE

Industrial Hygiene monitoring in 1990-92 at Unit 1 was focused on specific areas instead of a comprehensive survey as originally planned in the 1990-92 Occupational Health Program (IHS File OC1-3700-90).

Area and personnel monitoring was conducted at the Unit 1 tank car off-loading area as part of an OSHA quarterly monitoring requirement and to evaluate modifications to the duct work and fans associated with the off-loading area laboratory hoods. Modifications included rebuilding and rewiring of the fans associated with the hoods and redesigning and raising of the exhaust stacks. Followup area monitoring for vinyl chloride in the laboratory has shown a significant decrease from an average of 0.84 ppm to non-detectable. Personnel monitoring for vinyl chloride has shown average exposures have decreased but the average of 0.62 ppm continues to exceed the OSHA Action Level of 0.5 ppm. A new laboratory hood has been installed in the loading area laboratory and followup monitoring will be conducted. In addition, quarterly monitoring of Loading Technicians will be continued and engineering controls will continue to be investigated.

A comprehensive chemical survey has not been conducted at Unit 1 since 1989; therefore, a survey will be conducted as part of the 1993-95 Occupational Health Program to insure exposures remain within acceptable guidelines. Chemicals evaluated will include vinyl chloride, ethylene dichloride, benzene, 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, and 1,1,1,2-tetrachloroethane. The tetrachloroethanes have not previously been evaluated at Unit I. Monitoring for benzene was conducted as part of the 1989-90 protocol year; however, the data was inconclusive and the monitoring needs to be repeated. A few samples were collected in 1992 to evaluate exposures to benzene; however, the study will be completed as part of the 1993-95 Occupational Health Program. Both 8-hour time-weighted average (TWA) and short-term monitoring will be conducted.

Texas Operations Hearing Conservation Guidelines requires that a noise survey be conducted every three years. The previous noise survey at Unit I was conducted in 1991. A comprehensive area and personal noise survey will be conducted in 1994.

2. SAMPLING STRATEGY

A. 8-Hour TWA Chemical Monitoring

<u>Job Classification¹</u>	<u>Chemical²</u>	<u>Number of Samples</u>
Process Technician-OXY, BPR, VF, I&E	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	6/area
Process Technician-DC, VD	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2, Benzene	6
Process Technician-LD	V1	Quarterly
Process Technician-R	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	6
Process Technician-Lab	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	3
Mech. Tech. Specialist	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	3
Pipefitter/Contractor	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	4
Machinist/Contractor	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	3

1 OXY=oxychlorination, DC=direct chlorination, BPR=by-product recovery, VD=vinyl distillation, VF=vinyl furnace, I&E=instrument & electrical, LD=loading, R=repair.

2 V1 = vinyl chloride; EDC = ethylene dichloride; 1,1,2 = 1,1,2-trichloroethane; 1,1,2,2 = 1,1,2,2-tetrachloroethane; 1,1,1,2 = 1,1,1,2-tetrachloroethane.

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MONITORING PROGRAM (CONT.)

B. Job Task Monitoring

<u>Job Task</u>	<u>Area</u>	<u>Chemical</u>	<u>Number of Samples</u>
Process Sampling	All areas	V1; EDC; 1,1,2; 1,1,2,2; 1,1,1,2	3/area
Process Sampling	DC	Benzene	3
Filter Changing	DC	EDC	3
Waste T/T	BPR	V1; EDC	3
T/C Sampling	Loading	V1	quarterly
T/C Hookup	Loading	V1	quarterly
T/C Disconnect	Loading	V1	quarterly

C. Noise Monitoring

<u>Job Classification</u>	<u>Number of Samples</u>
Process Technician-OXY,DC BPR, VD, VF, I&E	6/area
Process Technician-LD	4
Process Technician-R	8
Process Technician-Lab	3
Mech. Tech. Specialist	4
Pipefitter/Contractor	4
Machinist/Contractor	4
Painter/Contractor	4

3. SAMPLING METHODS

Sampling for vinyl chloride, ethylene dichloride, 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,1,2-tetrachloroethane, and benzene will be conducted using 1 gram charcoal tubes and air sampling pumps. Pumps will be calibrated both before and after use at 50 cc/min for 8-hour TWA samples and 200 cc/min for excursion samples (as outlined in DLI-IHM-83-25A). Analysis will be performed by the Industrial Hygiene Laboratory.

Personal noise levels will be measured using Quest noise dosimeters (Model M-7B) and area noise levels will be measured using a Quest noise level meter (Model 215). All dosimeters and meters will be calibrated both before and after use.

4. QUALITY CONTROL AND EQUIPMENT

Routine quality control procedures shall be an integral part of the sampling and analysis procedures and functions. These shall include:

- Routinely introduced sampling of blanks and spikes (known content) along with other samples for analysis
- Routine checking, calibrating, and maintaining in good working order all equipment and instruments. Air sampling pumps will be calibrated both before and after use.
- Routine checking of procedures and results.
- Participation in Dow's Analytical Proficiency Testing (APT) Program.

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MONITORING PROGRAM (CONT.)

5. EVALUATION CRITERIA

Agent	Exposure Guideline	Excursion Guide	Source*
Vinyl Chloride	1 ppm	5 ppm-STEL	OSHA-PEL
Ethylene Dichloride	10 ppm	—	ACGIH-TLV
	1 ppm	2 ppm	Proposed OSHA-PEL
1,1,2-trichloroethane	10 ppm, Skin	—	ACGIH-TLV
1,1,2,2-tetrachloroethane	0.1 ppm, Skin	—	Dow IHG
1,1,1,2-tetrachloroethane	0.1 ppm	—	Dow IHG
Benzene	1 ppm	5 ppm-STEL	OSHA-PEL
Noise	—	90 dBA-Ceiling	Dow IHG
	90 dBA (8-hr TWA)	—	OSHA-PEL
	85 dBA (8-hr TWA)	—	OSHA-Action Level

- * OSHA-PEL = Occupational Safety and Health Administration-Permissible Exposure Limit
ACGIH-TLV = American Conference of Governmental Hygienists-Threshold Limit Value
Dow IHG = Dow Industrial Hygiene Guideline

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1993-95 OCCUPATIONAL HEALTH PROGRAM
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REVIEW OF PAST MONITORING DATA

A. CHEMICAL REPORTS:

TABLE 1
SUMMARY OF 8-HOUR TIME WEIGHTED AVERAGE EXPOSURES, 1989¹

JOB CLASS/CODE	# of SAMPLES	CONCENTRATION (PPM) ^{2,3}			
		VINYL CHLORIDE RANGE	AVE	ETHYLENE DICHLORIDE RANGE	AVE
Process Technician:					
Oxychlorination/ 12700580OX	4	ND	ND	ND-0.07	0.06
Direct Chlorination/ 12700580DC	7	ND-0.19	0.10	ND-0.44	0.25
Vinyl Distillation/ 12700580VD	7	ND-1.1	0.40	0.05-0.24	0.11
Vinyl Furnace/ 12700580VF	4	ND-0.16	0.09	ND-0.31	0.18
By-Product Recovery/ 12700580BPR	4	ND-0.14	0.09	0.04-0.30	0.14
Loading/ 12700580LO	10	0.47-1.6	0.94	ND	ND
Repair/ 12700580R	4	ND-0.24	0.17	ND-0.54	0.36
Contractor/Utility Man	2	0.07-0.10	0.09	0.26-3.2	1.7
Acceptable Guideline (8-hour TWA):		1		1⁴	

1. Reference: Blue, M. A, Evaluation of Employee Exposures to Chlorinated Hydrocarbons at the Unit I/ Vinyl Chloride Plant, Oyster Creek, 1989, IHS File OC-3138-89C.
2. Ethyl chloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and carbon tetrachloride were also monitored however all samples were less than 5% of their respective IHG's
3. ND = non-detectable; detection limits are as follows: vinyl chloride = 0.07 ppm; ethylene dichloride = 0.04 ppm
4. The guideline for ethylene dichloride (EDC), an OSHA PEL when the study was completed, is now considered a proposed PEL. The current ACGIH-TLV for EDC is 10 ppm.

Quarterly personnel monitoring was conducted in 1990-92 to evaluate Loading Technician exposures to vinyl chloride during tank car off-loading activities (IHS File OC-3652 and OC-3951). In 1990, the average 8-hour TWA exposure for Loading Technicians was 1.7 ppm. In 1991, due to adjustments to the laboratory hood and purge times, the average exposure was reduced to 0.69 ppm. In 1992, exposures averaged 0.62 ppm. As average exposures continue to exceed the OSHA Action Level of 0.5 ppm, quarterly personnel monitoring will continue to be conducted. Exposures are considered potential as full-face air-purifying respirators with canisters approved for use with vinyl chloride are used during tasks with a significant potential for exposure above the guidelines.

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT IVINYL CHLORIDE, OC-101**REVIEW OF PAST MONITORING (CONT.)**

In 1990 and 1991, short-term personnel exposures to hydrogen chloride, vinyl chloride, and ethylene dichloride (EDC) were monitored during furnace maintenance activities (IHS File OC-3702). Average personnel exposures were less than the acceptable guidelines with the exception of EDC. Average exposures to EDC at 7.4 ppm during top 90 removal and 5.7 ppm during let down valve removal exceeded the Short-term Exposure Limit for EDC of 2 ppm. Respiratory protection was used during top 90 removals.

In October, 1991, 8-hour TWA exposures to vinyl chloride and ethylene dichloride were evaluated during plant shut-down activities (IHS File OC-3866). Exposures were within acceptable limits the exception of EDC for a Process Technician in the Direct Chlorination area, two contractors in the furnace area, and one contractor working on the chilled EDC unit. Exposures were considered potential as full-face airline respirators were used whenever there was a significant potential for exposures above the guidelines.

Employee exposures to sulfur dioxide during sodium bisulfite tank truck unloading were evaluated in 1991. Area samples collected after opening the dome ranged from 50 to 100 ppm which exceeds the short-term exposure limit for SO₂ of 5 ppm. As a result of this data, a nitrogen regulator was installed and the sodium bisulfite trucks are now padded with nitrogen which eliminated the need to open the dome.

Hexachlorobenzene (HCB) wipe testing was performed in selected office and process areas in Unit 1. Areas of the plant that were identified as having higher levels of HCB were cleaned by hydroblasting and followup monitoring was conducted. HCB wipe testing will be conducted periodically to insure levels stay within acceptable limits.

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UNIT 1/VINYL CHLORIDE, OC-101

REVIEW OF PAST MONITORING (CONT.)

B. NOISE REPORTS:

TABLE 2A
SUMMARY OF 12-HOUR TWA NOISE EXPOSURES, 1991¹

JOB CLASS/ JOB CODE	# OF SAMPES	% OF OSHA ALLOWABLE RANGE AVE.	
Process Technician:			
Direct Chlorination/ 12700580DC	6	7.0-52	26
Byproduct Recovery/ 12700580BP	6	17-93	44
Oxychlorination/ 12700580OX	6	27-52	39
Vinyl Furnaces/ 12700580VIF	6	18-130	44
Vinyl Distillation/ 12700580VD	6	18-78	47
OSHA PEL			100
OSHA Action Level			50

1. Reference: Blue, M. A., 1991 Personal and Area Noise Levels at Unit 1/Vinyl Chloride, Oyster Creek, OC-101, IHS File OC-3700-90N.

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UNIT 1/VINYL CHLORIDE, OC-101

REVIEW OF PAST MONITORING (CONT.)

TABLE 2B
SUMMARY OF 8-HOUR TWA NOISE EXPOSURES, 1991¹

JOB CLASS/ JOB CODE	# OF SAMPES	% OF OSHA ALLOWABLE RANGE AVE.	
Process Technician:			
I&E 12700580VD	6	0.4-39	20
Repair/ 12700580R	7	1.5-61	28
Loading/ 12700580LO	4	1.7- 12	4.8
Sr. Technician/12700004:	7	13-69	23
Unit Technician-Training/ 12700780:	3	4.0-67	30
Process Technologist/12600580	4	7.0- 16	13
Mechanical Technologis/12606980t	5	4.7-17	12
Mechanical Supervisor/01203800	1	6	6
Supervisor/02400580	1	5	5
Service Technician/12903410	3	9.7-68	32
Contractors:			
Pipefitter/ 20910120C ²	4	20-54	36
OSHA PEL			100
OSHA Action Level			50

1. Reference: Blue, M. A., 1991 Personal and Area Noise Levels at Unit 1/Vinyl Chloride, Oyster Creek, OC-101, IHS File OC-3700-90N.

1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT IVINYL CHLORIDE, OC-101**HEARING CONSERVATION PROGRAM****1. JOB CLASSIFICATIONS IN A HEARING CONSERVATION PROGRAM**

The date of the last noise survey was June - July, 1991. The survey included both area noise levels and personal job exposure evaluations. Average equivalent noise exposures for all monitored job classifications were less than the OSHA Action Level of 50%. Therefore, these job classifications are not required to be in the Hearing Conservation Program.

2. TRAINING

Training should be conducted at least every 2 years.

3. HEARING PROTECTION AREAS

The following areas are designated as required hearing protection areas since they are at or above 90 dBA. These areas are posted with signs requiring hearing protection.

1. Compressors throughout the plant including PC-300, DC-300, C-350, C-300, C-204, C-103, C-104, C-30, and C-402
2. Fin fans in the Direct Chlorination area
3. Control valves near T-260 and D-28
4. Pumps throughout the plant including P-270B, P-267B, P-200B/C, P-311, P-313, P-350B, P-500, P-7A/B
5. Re-heater blowers between F-202 & F-203
6. Between R-100 & R-101
7. Generator G-12
8. D-301
9. Shop tool (grinders, drill press, air arcing, pipe threader)
10. Tow motors, cherry picker, trackmobile
11. Steam release

The following areas are designated as hearing protection areas for both plug and muffs since they are at or above 105 dBA. These areas are posted with signs requiring both plugs and muffs.

P-500 hurricane pump, when operating

4. HEARING PROTECTION TYPES

Hearing protection devices utilized at this department need to have a NRR rating over 19 dBA. Some of the devices available in the plant are:

<u>DEVICE</u>	<u>NOISE REDUCTION RATING (dBA)</u>
E-A-R plugs	29
Bilsom Viking Ear Muffs #2314	25
Wilson Sound Ban #20	19-22
Howard Leight Max-1 Foam Ear Plugs	33
Howard Leight Max-1 Foam Ear Plugs w/cord	33
E-A-R Caboflex #600	22

Other devices are available through plant supervision or the Occupational Health Department.

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HEARING CONSERVATION PROGRAM (Continued)

5. NOISE ABATEMENT PLAN

There are currently no noise abatement plans at this time.

Any new equipment or changes to the process, will be evaluated for noise and when feasible, engineered to keep noise levels below 85 dBA.

Temporary jobs that have equipment with noise levels at or above 90 dBA require temporary signs and mandatory use of hearing protection anytime the equipment is in operation. This includes such areas as sandblasting, hydroblasting, use of portable air compressors and hand tools.

6. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101**ASBESTOS PROGRAM****1. INVENTORY**

Asbestos is contained in this block in the following forms :

insulation gaskets transite pump packing

An inventory of all asbestos containing materials and their respective locations is attached. The inventory must be maintained until the materials have been removed. Labeling of asbestos is by block signs located at entrances to the block.

2. INSPECTION SCHEDULE

Asbestos containing materials will be inspected annually by _____ (Senior Technician/Repair) for signs of deterioration. If deterioration is found the material will be repaired or removed. In the event removal is required insulation services will be contacted for assistance. Removal and disposal will be according to appropriate procedures as outlined in the Texas Operations Asbestos Handbook (TOAH).

Questions may arise at the time of removal of insulation or at the time of the annual inspection as to whether a particular piece of equipment contains asbestos or not. If this situation arises, the material will be sampled and sent to analytical services to be analyzed.

3. TRAINING

The following job classifications are identified as having potential to handle asbestos containing materials and should be trained according to Section VII of the TOAH.

Process Technician Unit Technician Senior Technician

All individuals in the above job classifications will be trained before initial assignment and annually thereafter. Training will be documented and forwarded to Industrial Hygiene Services for inclusion in the plant's Industrial Hygiene files.

4. RESPIRATOR CERTIFICATION

For those jobs that require a respirator, an approved respirator will be chosen and mandatory medical certification and fit tests completed before initiation of the job. If exposure exceeds the Action Level (0.1 f/cc), the employee must be fit tested semi-annually and have annual medical examinations. Currently there are no employees at Unit I that require medical surveillance for asbestos.

5. PROCEDURES

Written procedures have been developed for the handling of asbestos materials during the performance of maintenance, demolition, and renovation activities to be conducted at the facility. The procedures are located in the Repair Office.

6. ASBESTOS ABATEMENT PLANS

All forms of asbestos containing materials are being phased out as replacement is warranted.

7. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101

VENTILATION PROGRAM

1. PROGRAM DESCRIPTION

The Unit I ventilation system includes as follows:

ID Number	Location	Last Survey	Next Survey	Average Velocity
OC10101 (Env)	OC-101	6/92	6/95	94
OC10102 (Vinyl)	OC-101	6/92	6/95	131
OC10103 (BPR)	OC-101	6/92	6/95	111
OC10104 (Main)	OC-101	6/92	6/95	90
OC10107A(DC)	OC-101	6/92	6/95	93
OC10107B (Dev)	OC-101	7/92	7/95	129
OC90101	OC-901	4/93	4/96	113

The hoods in are equipped with make-up air and are separately ducted to the outside.

2. OPERATING CRITERIA

A. Periodic Performance Evaluation and Maintenance Programs

-Administered by Industrial Hygiene Services and lab personnel at Unit I.

B. Laboratory Fume Hood Performance Criteria

-Utilize marked static pressure manometers to provide direct readouts and fall under the quarterly inspection guidelines.

3. DOCUMENTATION

The Industrial Hygiene Contact for Unit I is responsible for maintaining documentation on hood surveys and inspections.

5. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT IVINYL CHLORIDE, OC-101**ERGONOMICS PROGRAM****1. INTRODUCTION**

The plant ergonomics program is dependent on the work situation and other specific factors which contribute to musculoskeletal injuries. At this time, ergonomic concerns will be handled on a case by case basis by plant personnel with assistance from the department's Industrial Hygienist.

2. MANUAL LIFTING ACTIVITIES

<u>Job Activity</u>	<u>Frequency</u>	<u>Weight</u>
1. Recharging W-261 caustic pots	Biennially	50 lb
2. Repacking/recharging W-2's & W-7's	Biennially	50 lb
3. Adding iron chloride to D-8	Quarterly	35 lb fiberpacks

3. REPETITIVE MOTION/FORCEFUL EXERTIONS

none identified

4. POWER TOOL USE

Power tools used in Unit I include hand drills, portable grinders, impact wrenches, a drill press, and pipe threaders. The frequency and duration of use for each varies depending on the nature of the job.

5. TRAINING

Basic training on the identification of ergonomics factors is recommended for all block employees on a periodic basis.

6. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101**HEAT STRESS PROGRAM****1. HEAT STRESS INVENTORY**

The plant heat stress program is dependent upon the work situation and other specific factors which would generate excessive heat for the employee. The two factors to be considered are environmental temperatures and heat build-up due to the activity level of the employee. Based on previous heat stress studies, work/task evaluations, hot process operations and/or use of personal protective equipment such as impermeable suits, the following are identified as potential heat stress problems:

Outside manual labor with or without chemical protective clothing

2. TRAINING

The following job classifications are identified as having potential for heat stress and should be trained in the recognition, prevention and treatment of heat stress:

1. Process Technician
2. Unit Technician
3. Senior Technician

Heat stress training should be conducted every 2 years at a minimum.

3. HEAT STRESS ABATEMENT

The following drinking fluids are available for fluid replacement:

1. Water
2. Gatorade

The following checked personal protective equipment for the prevention of heat stress is available at this plant:

1. Ice vests

Recommended work practices for reduction of heat stress include:

1. Fluid replacement
2. Self-paced work
3. Scheduling
4. Acclimation

4. WORK REST SCHEDULE

The heat stress prevention work/rest schedule for jobs requiring impermeable clothing is as follows:

<u>Temperature (°F)</u>	<u>Maximum Stay Time (min.)</u>	<u>Minimum Rest Time (min.)</u>
72 - 79	40	20
80 - 87	30	30
88 - ?	20	40

5. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101

HEALTH SURVEILLANCE PLAN

1. HEALTH SURVEILLANCE

All employees are offered core examinations every two years.

2. MEDICAL SURVEILLANCE REQUIREMENTS

The following job classifications are included in the MSR programs as identified below:

<u>Job Classification</u>	<u>MSR</u>	<u>Tests</u>	<u>Test Frequency</u>
Process Technician, Unit Technician, Proc. Tech. Trainee	Vinyl Chloride	Health history, physical measurements, blood chemistries, (hepatic), hands on physical	Annual
	Vinyl Chloride (10 + years)	same as above	Semi-annual

3. DOCUMENTATION

Results are reported individually and in group format to area supervision.

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT IV VINYL CHLORIDE, OC-101**INDUSTRIAL HYGIENE EDUCATION PROGRAM****1. INTRODUCTION**

Training will be documented using the forms located in the "Training Guidelines" section of the facility's Industrial Hygiene Manual. The original documentation will be sent to Industrial Hygiene Services at B-101 for filing in the plant compliance files.

2. TRAINING PLANS - CHEMICALS

The Industrial Hygiene Education Program will focus on the following key agents for 1993/94:

1993

Vinyl Chloride
Benzene
Ethylene Dichloride
Ethylene Oxide
Betz Additives
Refractory Ceramic Fiber

1994

Vinyl Chloride
1,1,2,2-Tetrachloroethane
Benzene
Chlorine
Carbon Tetrachloride

3. RESPIRATORY PROTECTION TRAINING

Unit I will follow the guidelines defined in the Plant's written respirator program (located in the Industrial Hygiene Manual). Annual training is required.

4. CHEMICAL SURVEY RESULTS

A report of the results of sampling conducted in accordance with this protocol will be written and communicated individually and in a group session.

5. HAZARD COMMUNICATION TRAINING

All new employees shall review and document with signatures:

- hazard communication videos (2)
- the facility's hazard communication program
- health hazard information for all materials with Priority Rating of 1, 2, or 3 (see CPAI)
- health hazard information for OSHA regulated chemicals with a Priority Rating of 1, 2, 3, or 4
- health hazard information for the key agents listed above

See the plant's written Hazard Communication program in the Hazard Communication section (Section 10) of the facility's Industrial Hygiene manual for other training requirements.

Any temporary employees shall review and document: b, c, d, e.

6. ASBESTOS TRAINING

All personnel whose only potential for exposure to asbestos is accidental disturbance including but not limited to office personnel, engineers, supervisors, and some operations/maintenance personnel must receive Asbestos Awareness training on initial assignment and at least every 2 years thereafter. Employees involved in general maintenance and repair tasks where asbestos may be handled on a small-scale short-duration basis as an occasional or routine part of their jobs (ie., removal of asbestos gaskets with mechanical methods) must receive Asbestos Operations and Maintenance training initially and annually thereafter. Consult the Texas Operations Asbestos Handbook for training requirements.

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101**INDUSTRIAL HYGIENE EDUCATION PROGRAM (CONT.)****7. NOISE TRAINING**

Noise training for Unit I is required every 2 years at a minimum. Refer to the Hearing Conservation Manual for training requirements.

8. NEW CHEMICAL TRAINING

Per HAZCOM all employees to be potentially exposed to a new chemical must be trained on the hazards of that chemical and the approved protective equipment. Signed documentation is required at the time of this training, to include MSDS, TIME sheet, or hazard data used.

9. RADIATION TRAINING

Per the Radioactive Material license issued to Texas Operations, all persons working in areas with radioactive sources are to be trained on:

- a. the hazards of radiation
- b. signs and labelling requirements
- c. emergency procedures
- d. inspection requirements
- e. personnel monitoring (if required)
- f. approved procedures (use, close-out, transport, etc.)

10. HEAT STRESS TRAINING

Personnel performing jobs (eg. chemical suit in the summer) that may lead to heat stress are to be trained on heat stress avoidance procedures. This training is recommended for new employees and a minimum of every 2 years for experienced employees.

11. PROTECTIVE EQUIPMENT TRAINING

Per 29 CFR 1910.132 protective equipment shall be provided, used and maintained for employees with potential for exposure to environmental or process hazards. Personnel are to be trained on the proper use and limitations of protective equipment upon initial assignment, after major job changes, and periodically. Consult the Texas Operations Personal Protective Equipment Program Manual for training guidelines.

12. VENTILATION SYSTEM TRAINING

Personnel that use ventilation systems (incl. hoods, dust and chemical ventilators) are to be trained in the use, maintenance and documentation requirements. Hood requirements are covered in the Texas Operations Ventilation Manual.

13. HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE

Training must enable the employees to perform their job in a safe and healthful manner so as not to endanger themselves or others. Training topics include respiratory protection, hazard communication, health hazards training, protective equipment, safety standards/references, job procedures, RCRA, hearing conservation, eye protection, emergency procedures and unit specific rules.

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101

RESPIRATORY PROTECTION PROGRAM

1. INTRODUCTION

Information regarding Dow respiratory protection programs is located in the Texas Operations Respiratory Protection Manual (RPM). The RPM addresses selection, use, fit testing, medical approval, training, maintenance, records, administration and recommended respirators. Responsibilities for employees, supervisors, industrial hygiene, authorized repair/maintenance facility, central purchasing department and medical department are detailed in the RPM.

2. TYPES OF RESPIRATORS USED

Respirator Type	Cartridges, Filters, Canisters	Filter Change-Out Policy
AOR9722 Mouthpiece ¹	OVAG (R722) ²	After use or every 6 months
Scott 90-AG Mouthpiece	Acid Gas	After use or expiration date
Scottovista #801548-04 full face airline	Cylinder	NA
Scottoramic full face airline	Cylinder	NA
Scottovista full face air-purifying	HEPA/OVAG ³	After each use
3M half-face	HEPA	After each use
ELSA 5 min. Pack	5 min. air tank	Fire Dept. refill
Survivair 30 min. SCBA XL 30 ¹	30 min. air tank	Fire Dept. refill
Scott Air Pack 2.2	30 min. air tank	Fire Dept. refill
Survivair 5 min. SCBA Pack 9881-22 ¹	5 min. air tank	Fire Dept. refill
Scottovista Ska-Pak	5 min. air tank	Fire Dept. refill
3M 8710 Dust Mask	NA	After each use
MSA Ultravue	Canister (461480) ⁴	End of shift

¹ These respirators are gradually being phased out.

² The OVAG is NIOSH approved for Organic Vapors and Acid Gases.

³ HEPA - High Efficiency Particulate Air-Purifying.

⁴ This canister is approved for use with vinyl chloride.

3. RESPIRATOR USE CATEGORIES

Job Classification	User Category	Resp. Types Used	Individually Issued
Office Personnel	Escape Only	MP, ELSA	MP
Process Personnel, Lab Personnel	Routine/Emergency & Escape	All available in Unit	MP

MP = AOR9722 or Scott 90-AG Mouthpiece respirator

Routine/Emergency users are medically approved and fit tested every two years. Training for all respirators is conducted annually by a plant representative.

Visitors, contractors and employees are required to carry an escape respirator on their person while in Unit 1 process areas. The escape respirator is an AOR 9722 MP or Scott 90 AG.

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UNIT I/VINYL CHLORIDE, OC-101

RESPIRATORY PROTECTION PROGRAM (CONT.)

4. USE SITUATIONS

Respirator Type/Filter	Chemical of Concern	Use Situation
Airline	All chemicals	Line or equipment opening that cannot be cleared < acceptable guidelines
ELSA	All chemicals	Escape
30 min. SCBA	All chemicals	Emergency response
5 min. SCBA	All chemicals	Escape
MSA Ultravue	Vinyl Chloride	Tank car sampling/hook-up
Air purifying/HEPA (Half or full)	Refractory Ceramic fiber	Furnace maintenance
Air purifying/OVAG (Full face)	EDC, HCL	Sampling in Oxy area
Dust mask	Silica, alumina-copper chloride, Gunite dust	Sandblasting, catalyst addition

5. RESPIRATOR CLEANING STATIONS

The cleaning station is located in the Safety Supply room. After each use respirators are cleaned with soap and water and disinfected with a spray antiseptic or by wiping with antiseptic towelette. Before storage, respirators are dried with paper towels or allowed to air dry. SCBA's are sent to the authorized repair/maintenance agent for cleaning after each use.

Contaminated respirators and cartridges which cannot be decontaminated must be disposed of as chemical waste in accordance with applicable environmental standards.

6. RESPIRATOR STORAGE

Respirator	Storage Location
MP	Offices or personal lockers
ELSA	Cabinets in process area and computer room; racks in offices
SCBA (30 min.)	Cabinets throughout plant
SCBA (5 min.)	Cabinets in control room
Airline masks	Storage cabinet in supply room or personal lockers
Air purifying	Respirator cleaning room cabinets
MSA Ultravue	Cabinets in off-loading control center
Dust masks	Safety supply room

All respirators must be stored in secondary containers such as a plastic bag or storage box. Spare parts for the disposable MP are stored in the safety supply room. All other equipment must be sent to the Fire Department for repair.

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UNIT I/VINYL CHLORIDE, OC-101

RESPIRATORY PROTECTION PROGRAM (CONT.)

7. INSPECTION SCHEDULE

Respirator	Frequency	Inspected By	Documentation Retained By
Airline	Before each use Annually	User Fire Department	none Fire Dept.
Full face air-purifying	Before each use Annually	User Fire Department	none Fire Dept.
Half face air-purifying	Before each use	User	none
ELSA	Before each use Weekly Annually	Owner Plant Rep Fire Department	none Plant Rep Fire Dept.
SCBA	Before each use Weekly Annually	Owner Plant Rep Fire Department	none Plant Rep Fire Dept.
MP	Before each use Annually	Owner Owner	none none

8. BREATHING AIR COMPRESSOR

This block has no breathing air compressors, the only source is from bottles which have been pre-checked for oxygen content and markings.

9. DOCUMENTATION

Documentation of annual SCBA and ELSA inspections are maintained by the fire department. Documentation of all other formal inspections, fit testing, and training are maintained by the area supervisors. Training documentation with original signatures are sent to the plant industrial hygienist at B-101 for placement in the plant's 75 year compliance file. The Unit Manager and the Occupational Health Department maintain the medical approval list on file.

10. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101**PERSONAL PROTECTIVE EQUIPMENT PROGRAM****1. INTRODUCTION:**

Information regarding the Texas Operations personal protective equipment (PPE) program is located in the Texas Operations PPE Program Manual. The manual addresses program administration, approval procedures, testing requirements, selection, use and maintenance, decontamination, laundering, training, records, and program evaluation. Responsibilities for employees, supervisors, industrial hygiene, safety, purchasing, the Texas Operations Protective Equipment Team, and the Texas Operations Protective Equipment Supplier Partnership Team are detailed in the manual.

2. SELECTION:

See Table 1 for a listing of approved PPE for the Unit I/Vinyl Chloride plant. PPE selection was based upon the health and safety hazards associated with the site or job tasks. All PPE has been reviewed by the Unit I Industrial Hygienist and Safety Director and has been approved for use by the Texas Operations Protective Equipment Team.

3. TRAINING:

Training on user responsibilities, PPE inspection, use, donning, doffing, decontamination, limitations and the location of the Unit I/Vinyl Chloride PPE program is conducted for Dow employees and long-term contractors upon initial assignment and biennially thereafter. This training is documented. Visitors are informed of and provided the minimum PPE required in the Unit I/Vinyl Chloride plant.

4. INSPECTION:

All PPE items must be inspected visually before, during and after use for signs of deterioration, defects, damage, etc. However, the PPE items listed below shall be inspected according to the following minimum frequency and specific test protocol:

<u>PPE Item</u>	<u>Test Method</u>	<u>Frequency</u>	<u>By</u>
Totally encapsulated suits (emergency response)	Visual Inspection/Pressure Test	Monthly	Dept. Rep.
Chemical protective gloves (high hazard operations)	Air test method	Each use	User
Electrical rubber gloves	High voltage test	Semi-annual	Elec Shop
	Air test method	Each use	User
Electrical rubber blankets	High voltage test	Biannually	Elec Shop
Dielectric rubber boots	High Voltage test	Each use	User

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UNIT I/VINYL CHLORIDE, OC-101

PERSONAL PROTECTIVE EQUIPMENT PROGRAM (CONT.)

5. DECONTAMINATION AND DISPOSAL:

The Unit I/Vinyl Chloride decontamination stations are located in the following locations:

Safety shower tail hoses throughout the process area
2 shower nozzles in the D-36 and oxy-analyzer building area

After each use where PPE has been contaminated by hazardous substances, users of the contaminated PPE shall use one of the above listed decontamination stations and clean their PPE by rinsing with copious quantities of potable water. Before storage, the PPE is air dried. Contaminated PPE which cannot be decontaminated must be disposed of as chemical waste in accordance with applicable environmental standards.

6. MAINTENANCE:

No clothing or chemical protective suits are repaired in this department. Defective or damaged equipment is discarded.

7. LAUNDERING:

A washer and dryer is located in the boiler room. Cotton gloves and Nomex suits are cleaned by ARA laundry services. Material Safety Data Sheets are sent to ARA when it is suspected that the clothing items sent may be contaminated.

8. STORAGE:

The following lists where PPE is stored when not in use:

- a. OC-101 change room
- b. Loading area control center
- c. Lockers in OC-101 repair area
- d. New PPE is stored in the Safety Supply room in OC-101

9. PROGRAM EVALUATION:

This program shall be evaluated biennially or whenever there are major job or process changes that require a re-evaluation of the PPE currently in use.

NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101**TABLE 1**
UNIT I/VINYL CHLORIDE PPE INVENTORY, 1993

The following lists the approved PPE for the Unit I/Vinyl Chloride plant. Unit I written job procedures indicate when and which PPE items must be worn for specific job tasks.

A. HAND PROTECTION

1. Edmont #29-865 neoprene rubber gloves
2. Pioneer AF-18 nitrile butadiene rubber gloves
3. North #E214B dielectric natural rubber gloves
4. Scooba #JPS 10B cotton gloves
5. Stringer/Norton Leather gloves
6. Fisher Scientific vinyl disposable
7. PVC Dot, Cotton general purpose (Take Two)

B. FOOT AND LEG PROTECTION

1. Servus 22114 and 21629 natural rubber boots
2. Lehigh #1149 dielectric natural rubber boots

C. EYE, FACE AND HEAD PROTECTION

1. Jackson 24-40 Faceshield for welders
2. MSA Hard Hat
3. Sideshields
 - American Optical
4. Chemical goggles
 - Allsafe #211-10R

D. BODY PROTECTION

1. Nomex III coverall
2. Nomex III Switchman Flash Suits

E. RESPIRATORY PROTECTION

1. Self-Contained Breathing Apparatus
 - Survivair 30 min. SCBA XL-30, Model 9838-9 or Mark I Model 9845-2 (being phased out)
 - Survivair 5 min. SCBA Pack 9881-22 (being phased out)
 - Scott Air Pack 2.2
2. Airline Respirators
 - Scottoramic full face
 - Scottovista full face
3. Air-Purifying Respirator
 - 3M 6000 series half face
 - Scottovista full face
 - MSA Ultraview
 - 3M 8710
4. Escape Respirator
 - AO Mouthpiece R9722 with organic vapor/acid gas cartridge (being phased out)
 - ELSA 5 min. Pack
 - Scott 90 AG
 - Scottovista Ska Pak

F. HEARING PROTECTION

1. Caboflex # 600 Sound Ban (NRR=22)
2. E-A-R Foam Ear Plugs (NRR=29)
3. Bilsom Viking Ear Muffs #2314 (NRR=25)
4. Wilson Sound Ban #20 (NRR=19-22)
5. Howard Leight Max-1 Foam Ear Plugs with or without cord (NRR=33)

G. FALL/RESCUE PROTECTION

1. RTC 430 Body Harness
2. RTC 252 Lanyard

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101**RADIATION PROGRAM****1. RADIOACTIVE SOURCES**

Radioactive sources currently in use at Unit I are as follows:

<u>Source Number</u>	<u>Isotope</u>	<u>Activity (mCi)</u>	<u>Location</u>
0743	Cesium 137	200	Acid to V-60
0744	Cesium 137	100	Acid to Unit II
0745	Cesium 137	100	T-111 bottoms
0746	Cesium 137	100	T-400 bottoms
0747	Cesium 137	200	T-116 bottoms
0748	Cesium 137	200	T-110 bottoms
0749	Nickel 63	8	Varian 3700 GC
0792	Cesium 137	100	D-35
0793	Cesium 137	100	D-35

2. TRAINING:

In accordance with the Texas Radiation Control Act and Texas Department of Health, only trained personnel are allowed to handle or operate devices with radioactive material. Training should be done by a qualified person and documented, with the original documentation forwarded to the radiation compliance files.

At Unit I the following personnel have been trained:

3. INSPECTIONS:

A semi-annual inventory check is required in February and August in which the location, labels, sign, and condition are inspected. In May and November, in addition to the above, the posting, a wipe test, leak test, shutter check, shielding and source condition are also inspected and documented.
or _____ is responsible for conducting the inspections.

The GM radiation meter used for surveys at Unit I is located in _____ office and is in the annual meter calibration program.

4. SOURCE REMOVAL:

Sources are not to be removed from the work area or worked on without notifying the Radiation Safety Officer.

5. EMERGENCY NOTIFICATION:

In case of emergency, the Radiation Safety Officer or his back-up should be notified as soon as possible.

6. NEXT REVIEW DATE: April, 1995

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I/VINYL CHLORIDE, OC-101

DEPARTMENT ACTIVITIES

Direct Chlorination:

Oxychlorination:

Vinyl Furnaces:

By-Product Recovery:

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UNIT I/VINYL CHLORIDE, OC-101

DEPARTMENT ACTIVITIES (CONT.)

Vinyl Distillation:

Repair:

Lab:

Loading:

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UNIT IV/VINYL CHLORIDE, OC-101

JOB DESCRIPTIONS

Unit Manager, Unit Secretary, Sr. Clerk Typist:

The probability of personnel in these job classifications of experiencing a significant exposure to chemical and physical stresses in the plant is low as the majority of their time is spent in office areas.

Process Technician - oxychlorination, vinyl distillation, vinyl furnaces, direct chlorination:

Technicians in these areas are responsible for operating and maintaining the process streams in their respective areas. Duties include field and control center operation of these systems, minor maintenance when needed, and the collection and processing of routine lab samples from their respective areas. Estimated time distribution while in process is 10% labwork, 30% in the control center, and 60% in the field. Twenty percent annually of the Technician's time (2 weeks out of every ten) is spent as a Maintenance Technician in Repair.

Senior Technician:

The Senior Technician is responsible for control center operations and communications from within the control room. He assists other Process Technicians in controlling, troubleshooting, and emergency operation of respective areas. 100% of the Senior Technicians time is spent in the control room.

Process Technician - Loading:

The Loading Technicians are responsible off-loading vinyl chloride tank cars, maintaining appropriate VCM supplies to customers, and minor maintenance as required. All VCM samples from the storage spheres and tank cars are caught and analyzed by the Loading Technicians. Estimated time distribution is 10% lab work, 25% on the loading racks, 50% on other field activities, and 15% in offices.

Process Technician - By-Product Recovery:

The BPR Technician operates and maintains the plant's waste disposal systems. These include a thermal oxidizer, a waste incinerator, waste water, and ethyl chloride systems. Responsibilities include field and control center operation of these systems, minor maintenance, and sampling/analysis of lab samples from the BPR area. 20% annually of the BPR Technicians time is spent as a maintenance technician in repair. Estimated time distribution while in process is 10% lab work, 25% in the control center, and 45% in the field.

Process Technician - Laboratory:

The Lab Technician operates and maintains all of the plant's on-stream analytical equipment, manual sample collection loops, and in-house lab equipment. Lab Technicians also provide production support by way of special analysis for process development, trains operations personnel on lab procedures, and maintains the lab inventory. Estimated time distribution is 65% lab work, 15% in the office, and 20% in the field.

Process Technician - Instrument & Electrical, I&E Technician:

The I&E Technician installs, calibrates, maintains and repairs the plant's process instrumentation and electrical equipment. Estimated time distribution is difficult due to the varying natures of particular tasks, but an average would be 40% in the field, 20% in the control center and electrical panel rooms, and 40% in the I&E shops and offices.

Process Technician - Training:

These job classifications are responsible for coordinating and updating all phases of the plant's employee training program, both on the job and classroom sessions. Estimated time distribution is 50% in the field and 50% in the office.

Process Technician - Repair:

The Repair Technician participates in all phases of the plant's maintenance activities including pipefitting, exchanger work, mechanical and rotational equipment, vessel and tower repair, and general plant maintenance. Estimated time distribution is 50% in the shop and 50% in the field for rotational equipment personnel. For other functions the time distribution is approximately 90% field and 10% in the shop.

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UNIT I/VINYL CHLORIDE, OC-101

JOB DESCRIPTIONS (CONT.)

Service Technician:

The Service Technician is responsible for maintenance of Unit I's motorized equipment including vehicles, disposing of hazardous wastes, and occasionally works in the repair group. Estimated time distribution is 80% of the time in the shop and process areas and 20% as a repair technician.

Process Supervisor, Manufacturing Supervisor, Environmental Supervisor, Instrument and Electrical Supervisor, Mod V Specialist, Manufacturing Representative, Project Supervisor, Process Engineer, Process Specialist, Sr. Computer Engineer, Engineer:

The potential for exposure to chemicals in the process area is minimal for these job classifications. Estimated time distribution is 10% in the process areas and 90% in office areas/control room.

Lab Supervisor. Analytical Technologist:

These job classifications are involved in all aspects of the Unit I laboratories including on-stream analytical instrumentation, process development, analytical methodology, and supervision. Estimated time distribution is 5% in the field, 45% in the lab, and 50% in the office.

Mechanical Supervisor. Mechanical Technologist:

These job classifications are involved in the coordination of maintenance activities and construction projects. Estimated time distribution is 30% in the field and 70% in the shop and office areas.

Mechanical Tech. Specialist:

Supervises the repair and preventative maintenance of all pumps at Unit I, orders new mechanical equipment, and manages the EPIC equipment system. Estimated time distribution is 40% of the time in the field and 60% of the time in the office.

Contractors:

A significant amount of maintenance activities in the plant are performed by contractors in various capacities including welding, pipefitting, carpentry, insulation, painting, and electrical work. Estimated time distributions vary depending on the nature of the work.

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1993-95 OCCUPATIONAL HEALTH PROGRAM
UNIT I VINYL CHLORIDE, OC-101

OSHA SPECIAL REGULATIONS

Unit I is directly affected by OSHA special regulations 29 CFR 1910.1017: Vinyl Chloride, 29 CFR 1910.1028: Benzene, 29 CFR 1910.1001: Asbestos, 29 CFR 1910.95: Occupation Noise Exposure and 29 CFR 1910.120: Hazardous Waste Operations and Emergency Response (HAZWOPER). A copy of each of these standards is located in the plant's Industrial Hygiene Manual. Key elements of the standards include:

A. Vinyl Chloride, Benzene, and Asbestos

1. exposure monitoring requirements
2. respiratory protection and personal protective equipment
3. medical surveillance
4. information and training

A review of the past monitoring data, the plant's respiratory protection and protective equipment policies, and Hazard Communication and training program, has confirmed Unit I to be in compliance with the requirements outlined in the Vinyl Chloride, Asbestos and Benzene standards.

B. Noise

1. exposure monitoring requirements
2. audiometric testing requirements
3. hearing protection requirements
4. training requirements

A review of the hearing conservation program at Unit I has confirmed the plant to be in compliance with the requirements outlined in the Noise standard.

C. HAZWOPER

There are eight key elements to this standard:

1. provide a written safety and health program
2. provide and hazard communication program
3. implement a medical surveillance program
4. implement a protective equipment decontamination program
5. implement new technology as it becomes available
6. provide procedures for container handling
7. conduct employee training
8. provide emergency response plans

This protocol, Unit I's written job procedures, Dow Safety Standards, the written hazard communication program, Dow medical (health surveillance) programs, RCRA permit and Dow shipping procedures, training programs, and emergency response plans effectively meet the above requirements.

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UNIT 1 BLOCK FLOW DIAGRAM

IHS FILE #OC-4905

Unit 1 / Vinyl Chloride

UNIT I/VINYL CHLORIDE
OC-101

NOTIFICATION OF VINYL CHLORIDE EXPOSURE MONITORING RESULTS.

The OSHA vinyl chloride standard, 29 CFR 1910.1017, requires that any employee that has been monitored for exposures to vinyl chloride and found to have been exposed, without regard to the use of respirators, in excess of the permissible exposure limit, be notified in writing of the results of the exposure measurement and the steps being taken to reduce the exposure. This must be done within 10 working days following the monitoring.

The following employee was exposed in excess of the Permissible Exposure Limit of 1.0 PPM for vinyl chloride:

NAME	MASTER NUMBER	DATE MONITORED	8-HOUR TWA (PPM)
		<u>2-28-92</u>	<u>1.7</u>

The following controls are being implemented to reduce exposures:

The ventilation system ^{in the loading lab} is being evaluated by contractors
and will be upgraded within the second quarter.

SIGNATURE OF MONITORED EMPLOYEE:

DATE OF NOTIFICATION: 5-22-92 U

PLEASE FORWARD THE COMPLETED FORM TO 3, INDUSTRIAL
HYGIENE SERVICES, B-101 FOR INCLUSION IN THE 75 YEAR FILES.

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