

9/10.3

PLAINTIFF'S EXHIBIT

SH-2575

INTEROFFICE MEMORANDUM

OCTOBER 22, 1992

FROM: R. A. OTT, CMA RESPONSIBLE CARE COORDINATOR
DEER PARK MANUFACTURING COMPLEX

TO: K. C. CRAWFORD, HS&E

SUBJECT: CMA RESPONSIBLE CARE -- "EMPLOYEE HEALTH &
SAFETY CODE OF MANAGEMENT PRACTICES" ANNUAL
SELF AUDIT

Shell Oil Company participates in the Chemical Manufacturers Association's (CMA) Responsible Care Codes of Management Practices. Every year each Shell Complex responds to the CMA annual Member Self Evaluation Forms to indicate its progress. The audit attached to this letter covers Deer Park Manufacturing Complex's response to the eighteen items on CMA's "Employee Health & Safety Code of Management Practices" initial audit. It should be noted that this is the first audit on this specific subject so there is no baseline with which to compare progress. Please contact R. W. Penland, Senior Safety Inspector, at 246-3053 with any questions relating to the attached document.

R. A. Ott

R. A. Ott

Attachment

cc: R. A. Ott
J. D. Johnson
J. R. Nichols
E. M. Hawthorne
HSB Satellite File

LAM 001801

DPMC-17493

ENCLOSURE 2

**EMPLOYEE HEALTH & SAFETY CODE
ANNUAL SELF-EVALUATION FORM
AND INSTRUCTIONS**

LAM 001802

**RESPONSIBLE CARE®
EMPLOYEE HEALTH AND SAFETY CODE
OF MANAGEMENT PRACTICES**

MEMBER SELF-EVALUATION FORM

Member Company

Name: Shell Oil Co. - Deer Park Manufacturing Complex

Responsible Care® Coordinator

Name: R. A. Ott

Address: P. O. Box 100
Deer Park, TX 77536

Telephone: (713) 246-6300

Number of facilities subject to
the Employee Health and Safety Code: 1

LAM 001803

DPMC-17495

EMPLOYEE HEALTH AND SAFETY CODE OF MANAGEMENT PRACTICES

Management Practices

Categories

	NA	EV	DP	IA	PP	RI
1. Commitment by all levels of management to protecting and promoting the health and safety of people working at or visiting member company sites, through: published policies; accountability for implementation; and provision of sufficient resources, including qualified health and safety personnel. Comments on Category NA: _____ _____ _____						X
2. Opportunities for employees to participate in developing, implementing and reviewing health and safety programs. Comments on Category NA: _____ _____ _____						X
3. Provisions, including selection criteria, to confirm that on-site contractors' programs are consistent with applicable management practices of this code. Comments on Category NA: _____ _____ _____						X
4. Written, up-to-date health and safety programs and procedures appropriate to the facility. Comments on Category NA: _____ _____ _____				X		

Category NA
Category EV
Category DP
Category IA
Category PP
Category RI

- No action. If no action taken because the management practice is not applicable, please explain.
- Evaluating existing company practices against the Management Practices.
- Developing plan to implement Management Practices.
- Implementing action plan.
- Management Practice in place.
- Reassessing Management Practice implementation.

LAM 001804

DPMC-17496

Management PracticesCategories

	NA	EV	DP	IA	PP	RI
5. Means to verify that health and safety programs and procedures are effective and that actual practices are consistent with these programs and procedures. Comments on Category NA: _____ _____ _____					X	
6. Systems for maintaining records and analyzing data to evaluate health and safety performance, determine trends, and identify areas for improvement. Comments on Category NA: _____ _____ _____					X	
7. Methods to identify and evaluate potential health and safety hazards in planned or existing facilities, including facilities to be modified. Comments on Category NA: _____ _____ _____				X		
8. Exposure assessments and safety analyses to evaluate health and safety hazards to employees from processes; equipment; potentially hazardous chemical, physical or biological agents; or other work site conditions. Comments on Category NA: _____ _____ _____						X
9. Health assessments to determine employee medical fitness for specific job tasks. Comments on Category NA: _____ _____ _____					X	

Category NA	-	No action. If no action taken because the management practice is not applicable, please explain.
Category EV	-	Evaluating existing company practices against the Management Practice.
Category DP	-	Developing plan to implement Management Practice.
Category IA	-	Implementing action plan.
Category PP	-	Management Practice in place.
Category RI	-	Reassessing Management Practice implementation.

LAM 001805

Management PracticesCategories

	NA	EV	DP	IA	PP	RI
10. Employee occupational medical surveillance programs tailored to work site hazards. Comments on Category NA: _____ _____ _____						X
11. Mechanisms for reviewing the design and modification of facilities and job tasks, taking into account the following hierarchy of controls: inherent safe design, material substitution, engineering controls, administrative controls, and personal protective equipment. Comments on Category NA: _____ _____ _____				X		
12. Systems to verify that health and safety equipment is properly selected, maintained and used. Comments on Category NA: _____ _____ _____						X
13. Preventive maintenance and housekeeping programs to maintain the safety of facilities, tools and equipment. Comments on Category NA: _____ _____ _____					X	
14. Timely investigation of work site illnesses, injuries and incidents; corrective actions to prevent recurrence; and evaluation of the effectiveness of corrective actions taken. Comments on Category NA: _____ _____ _____						X

Category NA	- No action. If no action taken because the management practice is not applicable, please explain.
Category EV	- Evaluating existing company practices against the Management Practice.
Category DP	- Developing plan to implement Management Practice.
Category IA	- Implementing action plan.
Category PP	- Management Practice in place.
Category RI	- Reassessing Management Practice Implementation.

LAM 001806

DPMC-17498

Management PracticesCategories

	NA	EV	DP	IA	PP	RI
15. Security procedures and systems to control entry and exit of personnel and materials at the work site and restricted areas. Comments on Category NA: _____ _____ _____						X
16. Provisions for emergency medical assistance for people at work sites. Comments on Category NA: _____ _____ _____					X	
17. Communication of health and safety information that is relevant to specific job tasks and the work site. Comments on Category NA: _____ _____ _____						X
18. Health and safety training programs, including documentation of these programs, and methods to evaluate the effectiveness of both training and communications activities. Comments on Category NA: _____ _____ _____						X

INDUSTRY TREND DATA

Occupational injuries and illnesses for the previous calendar year were reported as specified in CMA's Occupational Injury and Illness Reporting Program.

Yes X No

If no, please explain: _____

Category NA
Category EV
Category DP
Category IA
Category PP
Category RI

- No action. If no action taken because the management practice is not applicable, please explain.
- Evaluating existing company practices against the Management Practice.
- Developing plan to implement Management Practice.
- Implementing action plan.
- Management Practice in place.
- Reassessing Management Practice implementation.

LAM 001807

PRACTICE 1 -- COMMITMENT BY ALL LEVELS OF MANAGEMENT TO PROTECTING AND PROMOTING THE HEALTH AND SAFETY OF PEOPLE WORKING AT OR VISITING MEMBER COMPANY WORK SITES, THROUGH: PUBLISHED POLICIES; ACCOUNTABILITY FOR IMPLEMENTATION; AND PROVISION OF SUFFICIENT RESOURCES, INCLUDING QUALIFIED H&S PERSONNEL.

DPMC is strongly committed at all levels of management to this practice. The complex Health and Safety Order System with its complex wide distribution, mandated training requirements, computerized training and record keeping (HSO and STARS), reflect this. Further, whenever there are major revisions or additions to these orders, sufficient time and resources are committed to allow a complete training package to be created. This package, usually including a custom made video, is used to "Train the Trainers" who then get a copy of the package to use in their area. Sufficient resources which usually includes qualified H&S personnel are provided. It should also be noted that all Health and Safety Orders are reviewed and revised as needed on a periodic scheduled basis utilizing a complex review and approval process.

DPMC's commitment to this practice is also reflected in its policy towards contractors. Engineering order E-19 on USE OF CONTRACTORS AT DPMC, in the Complex Policy and Procedures Manual, requires a pre-job conference before a contractor can initiate any activity within DPMC. At this conference, the contractor is issued a soft cover manual entitled "Instructions to Contractors" which communicates those basic safety rules and requirements with which all contractors must comply and a list of others that, if they do apply to the work to be done, must also be complied with. This list includes Safety Orders, Environmental Orders, Operational Orders, Maintenance Orders, and Security Orders. It is explained to all contractors that satisfactory safety performance is a condition of employment for the contractor. Further, all these safety rules and procedures must be communicated to their employees and compliance must be made a condition of their employment.

Business related visitors are the responsibility of the employee arranging the visit per AD-8 on Complex Business Related Visitors in the Policy and Procedures Manual. AD-8 requires the responsible employee to obtain the proper clearances, provide hard hats and proper eye and respiratory protection, if needed, and inform the visitors of our rules and regulations.

Beyond these basic safety commitments, are several newer programs that also demonstrate DPMC's commitment to protecting and promoting safety. The Complex Manager is the leader of the Health and Safety Management Team which

effectively demonstrates the importance management at DPMC places on Safety. The basic philosophy that Safety receive first priority has been promoted until it is an accepted way of life at DPMC and further reflects this commitment.

"Walk The Talk", a program that effectively mandates management's frequent presence in the field with the specific intent that management use this presence to demonstrate their commitment to Safety, is now a complex wide practice. It is an expectation of this program that management will show their commitment by visiting operators and craftsmen alike, by acknowledging individual safety related accomplishments, discussing safety related problems or issues, participating and leading in audits and safety meetings, getting to know people's concerns about safety by taking the time to listen to the individual's problems or suggestions, and show their commitment by responding to these problems or suggestions with prompt feedback and action, if needed.

Management has also made Safety performance a part of the Rating and Ranking Process which determines salary increases for non-hourly personnel, and it is also part of every employees evaluation, whether hourly or not.

Management also publishes and periodically updates a "Safety Philosophy Statement" that strongly expresses this. See attached copy.

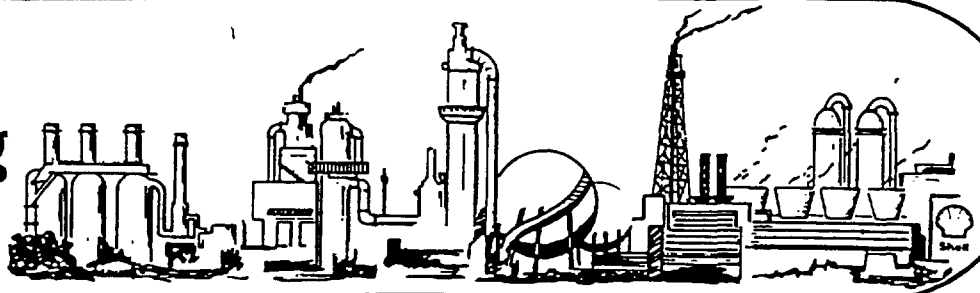
Participation in Safety both in the workplace and at home is also effectively encouraged by the DPMC Safety Recognition Program. This program rewards employees with gift certificates for safety meeting attendance and performance of certain listed voluntary safety items at work and at home or for belonging to certain safety related volunteer teams at DPMC. There are a dozen or more volunteer teams of salaried and hourly personnel with different functions at DPMC. They will be discussed with some of the later CMA practices.

Stage RI

LAM 001809

DPMC-17501

Deer Park Manufacturing Complex



Safety Philosophy Statement

The mission of the people at the DPMC is to provide a work place whereby individuals working safely together can utilize the facilities to change raw materials into useful products most effectively. The health and well-being of all personnel at the DPMC is vital to the accomplishment of this mission. Accordingly, our primary objective is to demonstrate excellence in safety. The prevention of injury is a basic part of everyone's responsibility in achieving this excellence. In considering work activities, safety will be considered first followed by environmental, product quality, production and cost control.

"Dedication to the principles of a safe work place and safe work practices is a requirement for all personnel at the DPMC. This safe work concept will be supported at all times by management. Each individual must strive to think safety and work safely. Acceptance of fundamental safety principles is an expectation of all personnel. The elimination of injury both at work and at home are important to each individual's well-being. This, in turn, will result in a better place to work, and safer conditions away from work."

LAM 001810

PRACTICE 2 -- OPPORTUNITIES FOR EMPLOYEES TO PARTICIPATE IN DEVELOPING, IMPLEMENTING AND REVIEWING HEALTH AND SAFETY PROGRAMS.

DPMC has developed all volunteer S.A.F.E. (Safety Awareness For Everyone) Teams, consisting of both hourly and staff, to give employees opportunities for participation in developing, implementing, and reviewing Health and Safety Programs. There are nine teams with from 8 to 14 members, each dedicated to one of the following subjects.

1. Safety Awareness: Develops and implements safety awareness programs. E.G. Hand Safety Awareness
2. Audit: Audits DPMC for compliance with safety orders and uses the results of these audits to make recommendations for possible revisions to safety orders.
3. Contractor Safety: Works with DPMC contractors on Health and Safety Programs. They are also responsible for the contractor safety performance recognition program.
4. Emergency Response: Works on emergency response and procedures. E.G. Safe Shelters, Family Fire Prevention Days
5. Family Safety: Develops and implements programs highlighting family safety. E.G. Family Safety Slogan Contest
6. Health: Develops and implements health awareness and wellness programs. E.G. Heat Stress
7. Procedures: Coordinates process for reviewing and updating Health and Safety Orders. All revised Safety Orders are also reviewed by this team as part of the review process.
8. Safety Training: Develops and implements monthly health and safety training programs. Also serves as a resource for development of effective Health and Safety training.
9. Management Tools and Practices: Develops and implements tools (E.G. COMPLY and HSO) and practices such as (E.G. "Walk The Talk" to assist in managing Health and Safety programs.

Membership on these teams is rotated with periodic solicitation throughout DPMC for new members.

LAM 001811

Another program initiated here at DPMC several years ago is "The Phase Two Participation Program." This program is voluntary but rewards those who meet the participation requirements for three consecutive months with gift certificates. It is administered at the local level by Safe Work Group Coordinators who are responsible for documenting participation. The eligibility requirements are as follows.

1. Must attend at least two safety meetings a month if any team member works in the field and one if all team members have office jobs.
2. Must do two voluntary safety items from list provided from "We All Can Participate" participation form available on the VM-29 Main Applications Menu under the heading "Safety". One of these must be a work related item, one must be from the home and frequently these items are preventive in nature. Some of these items are:
 - A. Perform a safety audit. (Home or work)
 - B. Positive intervention with someone when they are about to do or doing an unsafe act.
 - C. Do a Job Safety Analysis (JSA) of a task at home or work.
 - D. Submit an Accident Prevention Report (APR). This is another form available under the heading of "Safety" on the VM-29 Main Applications Menu. It allows an individual to document an unsafe condition or act and make a suggestion for a correction. The suggestion could be a maintenance ticket or a Problem Resolution Form. It could also be an item that was corrected on the spot. It is the responsibility of the Safe Work Group Coordinator (SWG) Coordinator to either respond or get a response to any issues raised and to track progress on incomplete items.
 - E. Make a valid Safety Suggestion.
 - F. Be a member of a complex or local SAFE team.
 - G. Be a member of an Shell Emergency Response Team.
 - H. Write and get published an article on Safety.

LAM 001812

There is also a Health and Safety Committee consisting of both hourly and staff personnel which meets monthly and not only discusses and gets resolved general safety issues that have been raised in their particular area, but has the minutes from these meetings distributed on a complex basis. They also perform audits in the second half of these meetings after meeting with representatives from the area they are planning to audit. These audits are generally non-specific and cover just about everything from housekeeping to compliance with Safety Orders, unsafe practices, etc. A response from the area is required.

Stage RI

LAM 001813

DPMC-17505

**PRACTICE 3 -- PROVISIONS, INCLUDING SELECTION CRITERIA, TO
CONFIRM THAT ON-SITE CONTRACTORS' PROGRAMS ARE CONSISTENT
WITH APPLICABLE MANAGEMENT PRACTICES OF THIS CODE.**

DPMC provides this information in the "Instructions To Contractors" manual mentioned previously in Practice 1. This document under Section 15.0, EXPECTATIONS FOR CONTRACTORS SAFETY PROGRAM lists all of DPMC's expectations in this regard. This section is attached if further details are desired.

Contractors when initially hired at DPMC are subject to a rigorous screening program. Many different Safety items are considered prior to granting a contract. They are:

1. OSHA Recordable Rate
2. First Aid Cases
3. Workmen's Compensation Associated Cases
4. Fatalities
5. Lost Work Day Cases
6. Contractor Safety Program
7. Presence of a Shell equivalent Substance Abuse Program.

DPMC in the "EXPECTATIONS FOR CONTRACTORS SAFETY PROGRAMS" document, also clearly states that "Satisfactory safety performance is a condition of a Contractors continued presence within DPMC." This is explained to every new contractor at the pre-job conference and has also been explained to all contractors already present at DPMC. Decisions to terminate a contractor are made on a case by case basis with circumstances as their Shell work injury history, nature of work, cause of injuries, etc. considered.

There is a monthly breakfast meeting at which safety is discussed and an annual meeting with Shell management where the past years safety performance is also discussed.

Finally, there is a complex SAFE team called Contractor Safety that assists contractors with their safety programs and administrates the contractor awards program.

STAGE RI

LAM 001814

HEALTH AND SAFETY

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	Personnel Lift Plan
	Process Unit Locations for Emergency Locations

SUMMARY OF SAFETY REQUIREMENTS

This Summary is not presented as a complete list of requirements or to replace requirements shown elsewhere. The following requirements are shown here to promote their visibility.

All employees of Contractor and Subcontractor must:

- a. wear hard hat and safety glasses.
- b. wear long sleeve shirts and long pants.
- c. wear substantial shoes.
- d. have chemical goggles in their possession.
- e. have hearing protection in their possession.
- f. have "Keep Safety on your Mind" pamphlet in their possession.
- g. be trained in Hazard Communication and Emergency Response.
- h. not wear contact lens without prior agreement to special requirements.
- i. have no facial hair.
- j. have permits before starting work.
- k. wear fire retardant clothing unless a variance is granted by Shell.
- l. attend Houston Area Contractors Safety Council training.

Contractors and Subcontractors must:

- a. comply with Federal, State and Local statutes.
- b. ensure employees comply with Safety requirements.
- c. must train employees and maintain records of that training.
- d. conduct and document regular Safety meetings onsite.
- e. have an Emergency Response Plan.
- f. have and critique monthly Emergency Response drills.
- g. have copies of drill critiques on site.
- h. immediately report accidents and injuries.
- i. attend Pre-Construction, Health, Safety, Environmental and Security meeting.

Shell will supply all scaffolding material.

All cranes and lifting equipment will be inspected by Shell, or a Shell authorized agent, prior to entry into the complex.

LAM 001816

DPMC-17508

SUMMARY OF SHELL SAFETY ORDERS

The following list of Shell Safety Orders and Procedures will be included with your scope of work. The Contractor is required to incorporate these procedures into their Safety Procedures Manual and their work practices.

AP-100	SHELL DPMC MOBILE CRANE PROCEDURES
S-102	FIRE AND SAFETY PERMITS (HOT WORK AND ENTRY)
S-103	DEPARTMENTAL SAFE WORK PERMITS
S-104	PROCEDURES FOR LOCKING OUT ELECTRICALLY DRIVEN OR CONTROLLED EQUIPMENT
S-109	VEHICLE SAFETY
S-114	PROCESS EQUIPMENT ISOLATION
S-119	ENTERING VESSELS AND CONFINED SPACES (WITH ADDENDUM)
S-120	FOOTWEAR POLICY (WITH ADDENDUM)
M-121	EXCAVATION AND SHORING
S-127	FIREWATCHES
S-136	SCAFFOLDING
S-144	FIRE RETARDANT CLOTHING (FRC)

Other orders which may apply in some cases follow. Contractors should review this list. If any of these may apply to the Contractor's work, copies may be requested from Shell.

S-107	CLEANING SOUR PETROLEUM STORAGE TANKS
S-108	RESPIRATORY PROTECTION
S-111	BREATHING AIR, WITH ADDENDUM
S-112	DANGER AND CAUTION TAGS
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S-115	PROCEDURES FOR ALL ACTIVITIES INVOLVING SOUR TANKS

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M-113 HOISTING PERSONNEL
M-114 PORTABLE LADDERS
M-120 AUTOMOTIVE AND HEAVY EQUIPMENT CHECKOUT PROCEDURES
O-7 CHEMICAL CLEANING OF PROCESS EQUIPMENT
O-121 CONTROL PROCEDURES FOR INSTALLATION AND REMOVAL OF BLINDS
EC-11 DRUM MANAGEMENT
SC-7 INFORMATION REQUIRED IN THE EVENT OF AUTOMOBILE ACCIDENTS

LAM 001818

CONTRACTOR SAFETY-HEALTH REGULATIONS AND PROCEDURES

1.0 STATEMENT OF POLICY

- 1.1 It is a policy of Shell Oil Company to provide a safe and healthful work environment for all personnel performing work in the Shell Deer Park Manufacturing Complex. In addition, it is the intent of Shell Oil Company to comply with OSHA (Federal Occupational Safety and Health Act of 1970) Safety and Health Standards: 29 CFR 1910 - General Industry and 29 CFR 1926/1910-Construction Industry.
- 1.2 It is expected that all non-Shell personnel (referred to as "Contractors"), i.e., Contractors and Subcontractors, service personnel, visitors, etc., will conduct their activities within DPMC in accordance with the above OSHA Standards, Regulations, and Procedures as applicable and required under all Federal, State, and Local Guidelines; and in particular, will observe and fulfill all requirements of this document.
- 1.3 These requirements shall be interpreted to bring about maximum compliance and safe work practices with Shell, industry and governmental standards.
- 1.4 Satisfactory safety performance is a condition of a Contractor's continued presence within DPMC.

LAM 001819

1.0 OBJECTIVE/RESPONSIBILITIES

- 2.1 Safety on the job requires the establishment and maintenance of three basic conditions: 1.) SAFE WORK ENVIRONMENT; 2.) SAFE WORK PRACTICES AND CONDUCT; and 3.) ELIMINATION OF ACCIDENTS THROUGH PREVENTION.
- 2.2 These conditions can be realized only through awareness of and interest in safety, and a conscientious effort by all concerned to develop and maintain habits and attitudes that will result in accident-free work performance.
- 2.3 The Contractor must communicate all safety work rules and procedures to its employees, and make compliance a condition of employment.
- 2.4 Supervision of work in the field must be delegated only to those employees whose experience and judgments qualifies them to make decisions that will assure the safest possible job.
- 2.5 Contractor's employees shall be required to know and understand the safety rules which apply to the work they are performing. Employees may be subject at any time to an examination by Shell of knowledge of safety rules applicable to their duties.
- 2.6 If any Contractor personnel working in the project area does not speak or understand English, the Contractor must provide bilingual supervision. It shall be the responsibility of this bilingual supervisor to instruct all non-English speaking Contractor personnel of the safety rules and work permit requirements as applicable. In addition, the supervisor must warn them of any hazards inherent in the area and/or adjacent operating areas. In the event of an upset of an operating unit, the bilingual supervisor must be present to convey safety instructions, Emergency Response Procedures, etc., from Shell Operations as the incident warrants.

LAM 001820

3.0 BASIC SAFETY RULES AND REQUIREMENTS

- 3.1 The following safety rules and requirements are mandatory for all personnel while in, or performing work in project areas throughout DPMC.
- 3.1.1 Smoking is permitted in designated areas only. Carrying ordinary, strike-anywhere matches and butane lighters are prohibited on Shell property.
 - 3.1.2 Safety glasses must be worn at all times.
 - 3.1.3 Hard hats must be worn.
 - 3.1.4 Hearing protection devices must be in each employee's possession at all times and used where required.
 - 3.1.5 Chemical goggles must be in each employee's possession at all times and used where required.
 - 3.1.6 Chemical goggles must be worn when entering active areas identified as "goggle areas." When wearing goggles the elastic headband must be independent of hard hat.
 - 3.1.7 Substantial footwear must be worn. Absorptive material shoe tops such as canvas or cloth tennis shoes are prohibited. A steel toe non-absorptive safety shoe having a skid resistant sole and heel material, such as neoprene, is encouraged. Heel must be of such a style so that they will stop when slid horizontally over a vertical ladder rung. (Reference Shell Safety Order S-120)
 - 3.1.8 Fire retardant clothing will be supplied by Shell and will be required - unless a variance is granted by Shell. If an FRC variance is given, then long sleeve shirts and long pants are required for employees, visitors and subcontract employees anywhere hard hats are required. Shorts or dresses are not allowed. (Reference Shell Safety Order S-144).
 - 3.1.9 Fall protection, such as, safety harness or belts must be provided and enforced for elevated work above ground level.
 - 3.1.10 Vehicle rules and regulations:
 - a. Speed limits must be observed.
 - b. Vehicles are not permitted in restricted areas. These restricted area roads are identified by signs in roadways or inter sections.
 - c. Pedestrians have the right of way.

LAM 001821

- d. Yield to emergency vehicles and heavy equipment.
 - e. Vehicle engines are not to be left running, unattended.
 - f. Do no park vehicles on streets. Streets must be unrestricted for emergency vehicles.
 - g. Road closures must be cleared and authorized through the Shell Project Engineer.
 - h. Keys are to be left in vehicles at all times in the Complex.
- 3.1.11 All personnel that work or enter any field or laboratory work areas will not be permitted to have any established facial hair that would interfere with obtaining a satisfactory seal in the sealing surface area of a respirator (OSHA 1910.134 (e) (i)).
- 3.1.12 The wearing of corrective "contact lens" is prohibited unless:
- a. The individual has special vision correction requirements, and;
 - b. The individual's eye doctor furnished a detailed written description of the problem for review by Shell Medical Department, and;
 - c. The individual agrees in writing to wear chemical goggles at all times while in the Complex.
- 3.1.13 Entry into confined spaces, i.e., vessels, sumps, etc., require a hole watch.
- 3.1.14 See Section 7 and Automotive Procedure 100 for crane inspection and lifting requirements.
- 3.1.15 Scaffold construction must comply with OSHA, ANSI and Shell Safety Order S-136:
- a. Shell will supply all scaffolding material.
 - b. Scaffolds above 10' 0" shall have handrail, midrail, toe board and complete decking.
 - c. If complete scaffolds are not possible, personnel must be wearing and using Safety Belts.
- 3.1.16 For tasks requiring the use of respirators, personnel must be trained and the training documented. Field cleaning of respirators is unacceptable. Outside cleaning is required. Jobs where respirators or breathing air may be required include spray painting, welding, cutting or burning steel coated with lead based paints, equipment isolation, equipment entry, catalyst handling, etc.
- 3.1.17 Contractors shall work with Shell to develop an Emergency Response Plan. Drills shall be conducted at least once per month. Training and drill critiques shall be filed on site.

LAM 001822

9.0 CONTRACTOR'S HEALTH AND SAFETY PROGRAM

9.1 Contractors and their Subcontractors working within the Complex shall comply with all applicable Federal (OSHA 2207 which contains all job safety and health rules and regulations covering construction,) State and Local Safety Standards and Guidelines and those established by their organization. Examples of OSHA Standards and Regulations that may be applicable, while not all inclusive, are listed below:

- a. OSHA-1910.132 - Personal Protective Equipment: General Requirements
- b. OSHA-1910.133 - Eye and Face Protection
- c. OSHA-1910.134 - Respiratory Protection
- d. OSHA-1926.52 - Occupational Noise Exposure
- e. OSHA-1926.55 - Gases, Vapors, Fumes, Dusts and Mists
- f. OSHA-1926.104 - Safety Belts, Lifelines, and Lanyards
- g. OSHA-1926.105 - Safety Nets
- h. OSHA-1926.59 - Hazard Communication
- i. OSHA-1910.1028 - Benzene

i.1. Contractor is responsible for complying with the requirements of OSHA's Benzene Standard which establishes permissible exposure limits (PEL) of 1 ppm (part per million) for an 8 hour time weighted average and 5 ppm short-term exposure limit (STEL) for 15 minutes. The Standard also references important requirements, such as:

- a. Exposure monitoring
- b. An employee benzene training program
- c. Respirators and/or protective clothing requirements.
- d. Medical Surveillance requirements:
- e. Record keeping requirements.

i.2. Shell's DPMC Hazard Communication Program (see Section 6.0) addresses the method by which specific information on benzene may be communicated regarding its health hazards, methods of detection, and appropriate work practices and personal protective equipment. In addition, units with benzene containing streams have been identified with posted signs at the unit boundaries or by labeling the benzene containers.

i.3. In accordance with OSHA requirements, Contractor will assure that its employees are not exposed to benzene in excess of the PEL by collecting breathing zone air samples which are representative of each employee's average exposure to airborne benzene. Shell will provide the necessary information about our work places on request.

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- 9.2 Contractors shall be responsible for the health and safety of both their own and Subcontractor employees as well as the total management of those employees and all equipment owned, leased or rented.
- 9.3 Contractor is responsible to see that Subcontractor's employees have been briefed/oriented on all health and safety issues and that the safety expectations are communicated prior to start of any field activity. Also Contractor is expected to audit Subcontractor's work activities for safety compliance during the progress of the job.
- 9.4 Contractor shall provide or designate a person to be identified as the field organization's Safety Coordinator.
- 9.5 Contractor shall provide and maintain first aid facilities with qualified first aid personnel in accordance with applicable OSHA Standards (1926.23 and 1910.151).
- 9.6 Contractors shall make and confirm, prior to initial field activity, arrangements with outside medical services. On Contractor's letterhead, the Contractor shall furnish the appropriate Shell Project Engineer, Shell Contact, or Shell Designated Person with the name, address, and phone number of the following:
- a. Doctor(s)
 - b. Ambulance (primary and alternate)
 - c. Hospital
 - d. Workman's Compensation Insurance Carrier
 - e. Safety Coordinator and authorized alternate
- 9.7 Contractor shall provide health and safety indoctrination to all initial and subsequent new-hire employees. Indoctrination is intended to instill desired attitudes toward health and safety and the part that it plays relating to job execution. Both Shell's and the Contractor's basic health and safety rules must be stressed and that compliance is a condition of continued employment.
- 9.8 Unless otherwise specified and agreed by Shell, Contractor will provide all approved personal protection and respirator equipment, and training in the use of such equipment, and enforcement of its use as the job requires.
- 9.9 Contractor's training and orientation of all employees shall include particular emphasis on chemical hazard information, Emergency Response, and on the personal protective equipment requirements for performance of specific jobs. Training records shall be maintained, and are subject to audit by Shell.

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15.0 EXPECTATIONS FOR CONTRACTORS SAFETY PROGRAM

- 15.1 Goals - Shell has a goal of ZERO INJURIES. Incremental steps of a 50% improvement each year in the OSHA RECORDABLE INCIDENCE RATE and no LTA'S are in place to assist in achieving the goal. The contractor management is expected to have similar goals and to develop a specific safety program to achieve the goals. The agreed upon Safety Program should be written with a copy(s) in the field for reference.
- 15.2 Personnel - The contractor is expected to have a Safety Focal Point and usually a Safety Coordinator for the Project. The duties should be explained in the bid and reviewed at the pre-award meeting. The resume of the safety coordinator is to be provided by the contractor.
- 15.3 Awareness Program - The awareness program should be explained in the bid and reviewed at the pre-award meeting when bids are reviewed. This program could consist of promotional activities such as banners, suggestion boxes, bulletin boards, safety themes, etc. All aspects of the safety program must be communicated to the craftsmen and subcontractors.
- 15.4 Tool Box Meetings (Quality/Timliness) - The frequency and topics for the tool box meetings should be explained in the bid and reviewed at the pre-award meeting. The coordinator's role in the meeting should be clarified.
- 15.5 Audits - The frequency of formal audits, the audit documentation and the follow-up procedures should be explained in the bid and reviewed at the pre-award meeting. Also, the audit topics should be reviewed.
- 15.6 Walk the Talk (Management Commitments) - The contractor management is expected to spend time in the field dedicated to observing the crafts for unsafe work practices or conditions. The frequency and participants should be explained in the bid and reviewed at the pre-award meeting.
- 15.7 Identification and Correction of Unsafe Conditions - The contractor is to present their plan to identify and correct unsafe conditions in the bid and review it at the pre-award meeting.
- 15.8 Training, Orientation and Hazcom - Any planned training should be explained in the bid and reviewed at the pre-award meeting. Required training includes Emergency Response Procedures, personal protective equipment training, HACSC orientation, unit specific orientation and HAZCOM training. The program must ensure that each employee receives the training and orientation (including those hired after work commences). Documentation showing whom received the training and orientation is required.

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- 15.9 Safety Procedures Manual - The contractor is required to have a Safety Procedures Manual in the field. Shell has specific requirements which pertain to lifts, scaffolding, permits, excavation, emergency response procedures and alarms, respirators, hole watch, firewatch, vessel entry, contact lenses, facial hair and the water system. The contractor needs to formally incorporate these requirements into the Safety Procedures Manual or an addendum to the manual. The review of safety procedures provide excellent material for the tailgate meetings mentioned above.
- 15.10 Investigation Procedures - The contractor must notify the Shell Project Engineer the same day in the event a recordable incident, near miss, fire or spill occurs. A formal investigation will be made for all recordable injuries within 24 hours or by the next working day. The purpose of the investigations is to determine exactly what caused the accident and what can be done to prevent similar incidents in the future. A more detailed investigation is required for LTA'S, disabling injuries, fatalities, vehicle incidents resulting in serious injury or property damage, fires or chemical spills.
- 15.11 Near Miss Communication - The contractor should present their near-miss program at the bid review meeting. It is required that serious near misses be communicated to Shell the same day they occur. An investigation is expected to begin within 24 hours or the next day. A formal report is required within five working days. The report should include recommendations for prevention as well as a description of the incident.
- 15.12 Documentation (Accident, Near Miss, Safety, Training) - The contractor is required to have written records, on the job site, of the training received by each employee. Also in the event of an accident, the standard form entitled "Employer's First Report of Injury, Form E-1" and the Shell form, "Report of Injury/Illness to Non-Shell Personnel" shall be filled out within 24 hours after the injury. Further, a "Monthly Contractor Job Injury Report" is required. Near Misses and accident investigation documentation are also required..
- 15.13 Housekeeping in General - The construction site should be kept as clean as possible with no unnecessary clutter. Normally, waste containers should be metal. Material in storage or laydown areas should not be scattered and should be identified if necessary.
- 15.14 Substance Abuse Program - Shell requires that the Contractor provide a drug-free workplace (Reference Shell Purchase Order Terms and Conditions, Para. 16; Drugs, Alcohol and Firearms.) Additionally, if work performed for Shell is considered safety/environmentally sensitive in nature, Contractor is required to provide evidence of a comprehensive substance

PRACTICE 4 -- WRITTEN, UP-TO-DATE HEALTH AND SAFETY PROGRAMS AND PROCEDURES APPROPRIATE TO THE FACILITY.

DPMC has programs and procedures at both the complex and local level. At the complex level, DPMC has the following hard binder manuals:

1. Health and Safety Complex Orders
2. Emergency Orders
3. Environmental Orders
4. Work Procedures and Emergency Response Procedures
5. General Operations-Chemical
6. General Operations-Refinery
7. General Maintenance-Chemical
8. General Maintenance-Refinery.

While all these manuals can be loosely defined as complex, the distribution of them may vary. Health and Safety Complex Orders, Environmental Orders, and both (Chemical and Refinery) versions of the Operations and Maintenance manuals are generally available in every operating and maintenance area. Emergency Orders are currently available upon request but distribution of them will be changed in the future to be the same as the Health and Safety Complex Orders books. The Work Procedures and Emergency Response Procedures is currently available complex wide but only Health and Safety personnel throughout the complex are book holders.

Generally speaking, all the documentation in these manuals (except the Work Procedures and Emergency Response Procedures) has the same basic dating format. There is a Table of Contents with an original issue date, a latest review date, and a latest revision date. Further each document is dated with an effective date and updating responsibility is assigned at the back of each with the exception of the Health and Safety Complex Orders which belong entirely to the Health and Safety Organization. Those with updating responsibility are supposed to update these procedures when change is needed. Generally speaking, only the Health and Safety Complex Orders book would rate a RI. All others would rate a PP.

Locally, each area is responsible for its own operating manuals and procedures manuals. Each area has these and they contain mandated information on the following subjects.

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1. Safe Start-Up and Safe Normal Shutdowns
2. Safe Normal Operations
3. Emergency Operations (includes emergency shutdowns and clearly defined authorities to shutdown the unit.)
4. Temporary Operations
4. Temporary Operations
5. Approved Ranges for Key Operating Conditions
5. Critical Operating Parameters
7. Health and Safety Considerations
8. Safety Systems and Functions

Currently, a survey of these requirements has been completed, compliance problem areas identified, and target completion dates assigned.

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PRACTICE 5 -- MEANS TO VERIFY THAT HEALTH & SAFETY PROGRAMS AND PROCEDURES ARE EFFECTIVE AND THAT ACTUAL PRACTICES ARE CONSISTENT WITH THESE PROGRAMS AND PROCEDURES.

COMPLY computer based program for auditing and checking procedures and equipment is being implemented on a complex wide basis. This program automatically notifies the responsible parties electronically when a checksheet or audit is due, provides the required checksheet, and stores the checksheet electronically. It also automatically notifies management if the audit or checksheet is not done when due. Finally, it generates random audits of these completed audits and checksheets and notifies the management representative responsible for completing them. Health and Safety is currently implementing utilization of COMPLY for Safety Inspector Quarterly Audits. These audits were already being done on a hard copy basis and correction of any discrepancies is an integral part of the program. Safety Inspector Quarterly Audit program is also currently being reviewed and updated to insure that all audits, whether mandated by OSHA, DPMC Safety Order, or safety considerations, are done at the proper frequency and have the proper content.

Location Assurance Reviews (LARs) are being done every three years to ensure compliance with:

1. Laws and Regulations
2. Corporate Policies
3. Written Location Procedures
4. Manufacturing Field Leadership Requirements
(Standards For Manufacturing Excellence or
S.F.M.E.)

The "Walk The Talk" Safety Program mentioned previously emphasizes the need for participation by management in safety audits as a way to heighten awareness and ensure compliance. These audits can be local or of a more complex basis.

The Health and Safety Committee, mentioned previously, meets monthly, discusses and gets safety issues resolved, performs audits that require a response from the parties audited, and communicates all this to the complex by distribution of their minutes.

Finally, the complex S.A.F.E. teams (Safety Awareness For Everyone) has an audit team part of whose charter requires them to perform audits on Safety Orders and report those results back to DPMC.

PRACTICE 6 -- SYSTEMS FOR MAINTAINING RECORDS AND ANALYZING DATA TO EVALUATE HEALTH & SAFETY PERFORMANCE, DETERMINE TRENDS, AND IDENTIFY AREAS FOR IMPROVEMENT.

DPMC has a computer based recording system for all on the job injuries suffered by Shell personnel. This system (SAFEST) prompts the person entering the data (usually a Safety Inspector) to enter all the required information. Another computer based system (SAFESTAT) allows that data to be analyzed, evaluated, trends determined, performance quantified, and areas identified that need improvement. This program is used in every corner of the complex to track local performance and areas of concern as well as on a complex basis. The results of this data are used as a justification for program development by the S.A.F.E. Safety Awareness Team and to developed responses to areas of concern. This data is also utilized to provide feedback at local performance reviews and on a complex basis.

Contractor injury data is maintained by Shell on a separate database program called S.T.A.R.S. (SAFETY TRACKING ANALYSIS RECORDING SYSTEM). This system records injuries and required information and allows some limited analysis. It is used to provide feedback to the contractor at a bimonthly breakfast meeting with Shell management. It is also used in the yearly review with each contractor on their safety performance. It is the contractors responsibility to respond to any trends or problem areas that this program might identify and incorporate those responses into his own safety program.

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PRACTICE 7 -- METHODS TO IDENTIFY AND EVALUATE POTENTIAL HEALTH & SAFETY HAZARDS IN PLANNED OR EXISTING FACILITIES, INCLUDING FACILITIES TO BE MODIFIED.

DPMC is currently in compliance with the "Management of Change" philosophy which requires that each location have written procedures requiring that changes to process units be reviewed, approved and documented prior to implementing the change. The four procedures (Process Change, Change to Critical Instrument Systems, Minor Capital Changes, and Maintenance Changes have been developed by management. (These requirements are documented in E-20 and TE-3 of the Policy and Procedures Manual and in S-137 of the Health and Safety Complex Orders Manual.) The implementation plan was developed and presented to field management. An orientation package has been developed and provided to individuals who have developed lists of key process parameters, critical operating parameters, and setting the limits. All personnel have now been trained on procedures for Management of Change and the structure is in place for compliance in each process unit. It is an expectation that for process changes requiring the use of Management of Change procedure, the unit Process Hazards Analysis will be used.

Process Hazards Analysis (PHA), a fundamental component for managing process safety, has been instituted as a program at DPMC. PHA is a rigorous analysis of potential events which could occur during manufacturing or other operations. The intent of the analysis is to determine whether additional safeguards are required to reduce the risk to people, the environment, and/or plant assets. The objective of PHA is to prevent releases of flammable and/or toxic materials from process equipment. The PHA technique addresses the following:

1. Process Hazards
2. Past Incidents
3. Engineering and Administrative Controls (includes consequences of failures of same)
4. Facility Siting
5. Human Factors
6. Qualitative evaluation of a range of possible health and safety effects on employees in the workplace due to failures of controls.

Process units have been prioritized for order of completion and work is preceding on a schedule that will meet all the OSHA 1910.119 time constraints.

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Process Safeguarding, a process that summarizes, in a structured format, the protective devices (PRV's, protective instrument systems, etc.) installed in a new unit to prevent uncontrolled loss of containment. It is written and updated to ensure that operational and hardware changes made to a unit do not compromise the inherent engineering features and premises of those protective devices. This is a requirement for new units. Older units were required starting in 1990 by the S.F.M.E. to write these for existing units and, since existing documentation was rarely adequate, a sizable effort was begun to produce detailed sizing calculations. It was at this point, after several DPMC units had completed their Process Safeguarding, that OSHA 1910.119 was issued.

This new rule requires Shell to provide certain information on the relief system design but the detailed sizing calculations and a formal Safeguarding Memorandum are not required. (A technical evaluation of the relief system is required if the current unit operation exceeds 110% of design.) Due to the implementation of many new "management of change" procedures such as PHA for proposed changes, updating of process safety information prior to changes, etc., Process Safeguarding for existing units is no longer a requirement but each unit are now beginning work to comply with the new OSHA standard. All completed Process Safeguarding Memoranda shall be kept current and used as part of that locations "management of change" procedures. Once compliance has been achieved with OSHA 1910.119, sizing calculations for relief devices and vent headers must still be done where such information is not available.

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**PRACTICE 8 -- EXPOSURE ASSESSMENTS AND SAFETY ANALYSES TO
EVALUATE HEALTH & SAFETY HAZARDS TO EMPLOYEES FROM
PROCESSES; EQUIPMENT; POTENTIALLY HAZARDOUS CHEMICAL,
PHYSICAL OR BIOLOGICAL AGENTS; OR OTHER WORK SITE
CONDITIONS.**

DPMC has a complex plan for monitoring individuals for exposure to any hazardous chemicals. This plan is developed and administered by Health and Safety. Under this plan, personnel (normally 50%) that are at risk of exposure from the targeted chemical wear sampling devices for a minimum of 7 hours of an 8 hour day. Targeted chemicals are Phenol, Benzene, ECH, Butadiene, Xylene, Toluene, Methyl Ethyl Ketone. Asbestos is also a target substance. Results from this monitoring are investigated where they exceed the permissible exposure limit and are also viewed statistically to find problem areas so they can be corrected.

Beyond this plan, operators, operations foremen, and safety inspectors are trained to operate equipment such as G.L.C.s, Draeger Pumps, etc. to verify that an area or a piece of equipment is safe to enter or work on. They are also trained to know that DPMC's Industrial Hygiene personnel are available to assist on an as needed basis.

DPMC's Industrial Hygiene Program has been audited by Shell's internal Compliance Assessment Review and Local Assurance Review and has been judged to be in compliance.

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**PRACTICE 9 -- HEALTH ASSESSMENTS TO DETERMINE EMPLOYEE
MEDICAL FITNESS FOR SPECIFIC JOB TASKS.**

DPMC has an occupational health program which assures the availability of medical services adequate to comply with applicable laws, regulations and company policies. This program consists of pre-placement exams, a return to work/medical evaluation program for people with work restrictions, occupational injuries or illness, and people off work for 8 or more calendar days. There is also a voluntary physical offered to full time employees. This physical consists of a Health Risk Appraisal, appropriate lab tests, X-rays, vision check, glaucoma screening, height and weight checks, a physical examination by a doctor, and referrals as needed.

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**PRACTICE 10 -- EMPLOYEE OCCUPATIONAL MEDICAL SURVEILLANCE
PROGRAMS TAILORED TO WORK SITE HAZARDS.**

DPMC has had, for years, a medical surveillance examination program designed for those employees for which predetermined entrance criteria have been established. This exam focuses on the early identification of health effects of possible exposure, based on the known toxicology of the particular substance. Examinations are performed in compliance with the requirements of OSHA Standards.

A computer call-up system is used for employee notification for these annual exams. All employees must either take the exam, sign a declination form, or have a note in their charts explaining their unavailability. DPMC has employees in the following programs. -

1. Asbestos
2. Vinyl Chloride
3. Hearing Conservation
4. Benzene
5. HAZMAT
6. Noise Exposure
7. Respiratory Certification

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PRACTICE 11 -- MECHANISMS FOR REVIEWING THE DESIGN AND MODIFICATION OF FACILITIES AND JOB TASKS, TAKING INTO ACCOUNT THE FOLLOWING HIERARCHY OF CONTROLS: INHERENT SAFE DESIGN; MATERIAL SUBSTITUTION, ENGINEERING CONTROLS, ADMINISTRATIVE CONTROLS, AND PERSONAL PROTECTIVE EQUIPMENT.

With the implementation of "Management of Change" and "Process Hazards Analysis" discussed at some length in Practice 7, these requirements have already been met and discussed. Refer back to Practice 7 if these need to be reviewed.

Beyond these two programs, DPMC has a program to identify opportunities and technology options for substituting and/or minimizing the inventory of materials classified as extremely hazardous by SARA TITLE III: Some planning work has been done on eliminating PCB containing equipment and liquid chlorine water treating facilities and further work will be done when funds are approved. Other chemicals are also being reviewed for possible elimination or substitution.

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PRACTICE 12 -- SYSTEMS TO VERIFY THAT HEALTH AND SAFETY EQUIPMENT IS PROPERLY SELECTED, MAINTAINED AND USED.

The following Safety Orders, which are revised with employee input via the content expert and the Procedures Safe Team every 3 years, contain most of these requirements for Personal Protective Equipment.

1. S-108 Respiratory Protection
2. S-117 Eye Protection Program
3. S-120 Footwear Policy
4. S-121 Safety Hats
5. S-123 Hydroblasting
6. S-124 Hearing Conservation
7. S-125 Asbestos
8. S-128 Protective Safety Gear
9. S-131 Benzene
10. S-144 Fire Retardant Clothing

It should also be noted that per S-128, DPMC Health and Safety is responsible for review, approval, and selection of all personal protective equipment. Health and Safety maintains a approved list and all purchases must be from that list. The order also states that "Each employee has the responsibility for visually checking protective equipment before use. Worn or damaged equipment should not be used and should be discarded."

All fire fighting equipment purchased is N.F.P.A. approved (includes S.C.B.A.). Maintenance of all fire and safety equipment is covered in Safety Order S-132 which requires weekly (on some equipment) inspections, monthly inspections (on the remainder), and quarterly and annual audits by Health and Safety. COMPLY, a computer based program mentioned earlier, is being implemented to facilitate tracking and auditing of this process. Where not yet in effect, the program is still done but utilizes hard copies. S-132 and S-108 also list the inspection and audit requirements for this equipment and how they should be maintained. All major pieces of fire fighting equipment such as fire trucks, pumpers, etc. are selected and maintained by Health and Safety. Certain OSHA inspection and maintenance function for fire extinguishers and S.C.B.A. are performed by outside contractors; Groda and Vallen respectively. Training is mandated annually for all field personnel on the use of fire extinguishers. S-108 mandates annual training on S.C.B.A.s to include a fit test and actual field use of S.C.B.A.s. Emergency Response personnel are also trained to handle all DPMC fire fighting apparatus and to meet all applicable laws, rules and Shell policies.

PRACTICE 13 -- PREVENTIVE MAINTENANCE AND HOUSEKEEPING PROGRAMS TO MAINTAIN THE SAFETY OF FACILITIES, TOOLS, AND EQUIPMENT.

Audits are routinely done at a local and complex level by both local and complex teams to assure that proper housekeeping at all times. This is done both during routine operations and during turnarounds and, indeed, is part of our current DPMC motto and pledge to "Keep It Safe Keep It Clean Keep It Running. A response to non-compliance issues by the responsible parties is an expectation and most issues are resolved quickly. These audits are performed by local and complex S.A.F.E. teams, the Health and Safety Committee, people out "Walking the Talk", combined teams of operations and maintenance which may include contractors particularly during turnarounds, and Health and Safety personnel:

Safety Order S-137, recently revised with the input of a content expert and the Procedures Safe Team, describes the procedures for the control and proper management of operating alarms, emergency alarms, and shutdown systems. This order includes a requirement that a complete audit of Emergency Alarms and Shutdown Systems shall be conducted at a minimum of every three years. It further requires a function test on all Emergency Alarm and Shutdown Systems during all maintenance turnarounds to ensure proper operation. Changes to any of these systems require explicit documentation and a rigid approval process. This order is currently being revised to include a section called Protective Instrument Systems which will state requirements for instruments considered supercritical. There are also some corporate preventative maintenance requirements for Digital Control Systems (Honeywell) that are performed at DPMC. Finally, under "Hazard Design Criteria For Control Rooms At DPMC", there are some testing and maintenance requirements for control room pressurization systems, and Combustibles Entering Control Room analyzers and alarms.

Electrical preventative maintenance is scheduled utilizing repeater MUTTS work tickets that are automatically generated by the computer once they are scheduled. N.F.P.A. guidelines are used for determining when equipment should be serviced and cleaned. There is also a document written by the electrical group that also uses these same N.F.P.A. guidelines to determine what electrical work should be scheduled and done during turnarounds.

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Pressure Equipment and piping is now almost wholly on a computerized documentation and scheduling program. Data from pressure equipment and piping is taken utilizing X-Rays, sonic readings, readings taken inside equipment during turnarounds, etc. This data is entered into a computer which uses it to calculate corrosion rates and make a recommendation on when the next inspection interval should

be or if the equipment should be relined or replaced. This program also is utilized to schedule PRV calibration dates although the interval for these is decided on a case by case basis by the local Pressure Equipment Inspector who considers failure rate for that PRV and the service it is in when making that determination.

Rotating equipment lubrication is documented in the Complex Maintenance Order book under M-103. This order covers:

1. Preventive Maintenance checks for oil mist systems.
2. List of critical equipment requiring periodic sampling of lube oil.
3. Frequency of and required lab tests for those periodic samples.
4. Responsibilities for drawing and submittal of periodic oil samples and analysis of results.
5. General lubrication recommendations

Mechanical Inspection at DPMC also has several other local documents that ensure they meet Practice 13. They are:

1. Mechanical Equipment Guides: This is essentially a technical assurance manual with information on couplings, overspeed trips, sentinel valves for turbines, purchasing guidelines, governors, preventive maintenance requirements, etc.
2. Mechanical Equipment Bulletins: This is also basically a technical assurance document with the same type of information as Mechanical Equipment Guides.
3. Machinery Repair Standards: This is a complex guideline for equipment overhaul.
4. Mechanical Equipment Alert Bulletin: This is a communication device with which one area mechanical can communicate information of a problem or issue that might be of common to the other areas. This allows other areas to take preemptive action on a potential issues of which they might not otherwise be aware.

Beyond these bulletins, there is also a complex wide vibration monitoring program that is computer driven. Vibration readings are downloaded and if a piece of mechanical equipment has reached a pre-identified alert point, a report will go to the responsible mechanical inspector. It can then be investigated and a possible equipment failure and a possible subsequent safety and environmental incident prevented.

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Finally, it should be noted that each area mechanical group, due to the unique operating environment and equipment that it operates, has developed their own individual preventive maintenance program. This allows specific applications rather than generic to specific problems and reduces risk of equipment failure.

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PRACTICE 14 -- TIMELY INVESTIGATION OF WORK SITE ILLNESSES, INJURIES AND INCIDENTS; CORRECTIVE ACTIONS TO PREVENT RECURRENCE; AND EVALUATION OF THE EFFECTIVENESS OF CORRECTIVE ACTION TAKEN.

Safety Orders S-105 and S-106 detail the requirements for investigations of both minor first aid cases (S-105) and more significant events (S-106). One was revised in 1992 and the other will be reissued in November, both with input from the Procedure Safe Team and a content expert. If an injury is minor, S-105 requires the following.

1. The employee should notify his/her employee and report to Medical (open 24 hours every day) immediately.
2. The first line supervisor shall also report to Medical if injury is deemed more than minor or if the supervisor judges it could impact the employee's ability to do their job.
3. Medical will provide appropriate treatment and determine what restrictions, if any, have resulted from the injury.
4. Medical will initiate form DPMC-3289, First Aid Report. This part of the form identifies the employee, department, supervisor, date and time the incident reported, location of incident, description of the incident, diagnosis and initial care, whether a follow-up trip to Medical is required, and signature of attending nurse or doctor.
5. If there are any work restrictions, Medical will document these on DPMC 3296. Both forms will be hand carried by the employee back to his supervisor. Medical will file their copies of each and copies of both forms will be distributed DPMC Human Resources (HR) and Health and Safety.
6. The employee or his supervisor will complete DPMC-3289 by making suggestions on how accident could have been avoided and deciding if incident requires further investigation. Should the employee and/or supervisor wish a further investigation, it will be done utilizing form DPMC 13400, sections 1-7.
7. Should the injury be classified as an OSHA recordable, form S-13400, Sections 1-7 will be filled out by the supervisor and will be sent to Health and Safety which will send a copy to DPMC HR. This form is a communications tool to allow HR

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and Health and Safety to execute their responsibilities.

S-106 mandates a formal investigation for the following.

1. Actual and Potential Asset Losses
 - A. Fire/Explosion
 - B. Gas Releases
 - C. Property Damages
 - E. Accident Related Production Loss
 - F. Environmental Losses
2. Actual and Potential Injuries
 - A. Accidents Resulting in No Personal Injuries
 - B. OSHA Recordables
 - C. Lost Time Accidents
 - D. Fatalities
 - E. Accident Related Chemical Exposure
 - F. Exposure to Toxic Substances

This investigation is the responsibility of the appropriate manager and may include the following; the person involved, witnesses, first line supervisor, Area Safety Inspector, Industrial Hygiene, and support groups as deemed required by the appropriate manager. After an investigation is completed, a draft will be written, usually within two weeks, which should include:

1. A description of the incident
2. A discussion of events leading to the incident
3. A description of corrective actions taken to prevent recurrence.

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In case of a highly complex incident where a complete report within two weeks is not practical, an interim report may be issued.

This report will be issued to the appropriate superintendent and the Health and Safety Department for review. It is the responsibility of the originating department to determine how widely the report should be disseminated. However, OSHA recordables are normally communicated to the complex to raise awareness of both the injury and the cause. Health and Safety is also responsible for auditing for timeliness, completeness, accuracy, follow up and commitment to any corrective actions.

The decision to distribute these reports within each department is the responsibility of the individual Superintendents/Managers that receive them. However, this

is highly recommended as an awareness tool, learning tool, and communications tool.

As was noted in a previous practice, all injury data is entered on SAFEST. This can be accessed by SAFESTAT and used to generate reports, establish trends, track complex and local OSHA recordable rates, etc. This also allows statistical follow up to determine if a trend is increasing or has been checked and facilitates follow-up action.

Finally, there is available on the computer in the VM-29 Main Applications Window under Select 1, SAFETY, a Accident Prevention Report/Safety Suggestion Form which can be used to document minor non-injury producing incidents and make suggestions for corrective action. This may involve a maintenance ticket or a Problem Resolution Form. These are forwarded electronically to a responsible party within each department. It is an expectation these will be responded to promptly and tracking mechanisms are required for the.

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PRACTICE 15 -- SECURITY SYSTEMS TO CONTROL ENTRY AND EXIT OF PERSONNEL AND MATERIALS AT THE WORK SITE AND RESTRICTED AREAS.

DPMC has the following security arrangements.

1. Complete fencing of DPMC
2. Identification, authorization, and control of all personnel and vehicles accessing DPMC. All vehicles and objects carried by personnel are subject to search upon entry or exit.
3. Security Patrols 24 hours a day
4. Strategically located video cameras which are monitored 24 hours a day.
5. Strategically located motion sensors
6. Control procedures for all material entering or leaving DPMC.
7. Office security for protection of proprietary and confidential information.
8. Safety Order S-109 describes strict procedures for entry and exit of areas restricted for process reasons.

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**PRACTICE 16 -- PROVISIONS FOR EMERGENCY MEDICAL ASSISTANCE
FOR PEOPLE AT WORK SITES.**

DPMC has registered nurses on duty in the medical in Medical 24 hours a day every day. DPMC also has a team of trained certified professionals (EMTs), many of whom work rotating shifts on maintenance and operating job such that one is normally available at the plant 24 hours a day to assist in any medical emergencies. This team is collectively called the SMART Team which is an acronym for Shell Medical and Rescue Team. There are also two ambulances normally available for use at DPMC.

EM-101 in the Emergency Complex Orders Book details the procedures for emergency medical response. Normally, when a call is made to the complex emergency number 6-4444 or, if from outside the plant, to either the Chemical or Refinery Main Gates, a designated ambulance driver will respond and pick up the nurse at Medical. They will then proceed to the site of the Emergency where SMART members, who have been notified via their SMART pagers would meet them. The third SMART member to arrive will normally assume the Role of Medical Supervisor and have primary responsibility for coordinating medical care. The first Medical Department person to arrive will normally relieve the SMART member of this duty.

The first Health and Safety person to arrive will assume the role of Incident Commander. During off hours, the Environmental Supervisor will assume this role until relieved, if he/she so desires, by the first Health and Safety Person to arrive. The Incident Commander will be responsible for ensuring adequate medical resources are available, developing transportation plans, (Shell ambulances, additional Ambulances, Life Flight, etc.) and has responsibility for overall incident management.

Should the Incident Commander determine that additional resources are required, Security can be notified and requested to activate Alert One and the STAR (Shell Trained Auxiliary Response) SMART Call Out. This would notify Health and Safety Personnel and those SMART members outside the plant who have agreed to come out in emergencies. If further assistance is needed, the Incident Commander, Health and Safety Management, or the Emergency Operations Center Coordinator can request it from CIMA, the Channel Industries Mutual Aid Organization. Security will use the CIMA radio at the South Main Gate to do this when instructed to do so. In addition to this, it should be noted that Shell has also developed a Mass Casualty Plan.

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**PRACTICE 17 -- COMMUNICATION OF HEALTH AND SAFETY
INFORMATION THAT IS RELEVANT TO SPECIFIC JOB TASKS AND THE
WORK SITE.**

DPMC has addresses this practice with a variety of practices and procedures that are mandated by Safety Orders. These orders are reviewed using a content expert and members of the Procedures Safe team and are all current at this time (revised within the last 3 years). Specifically, these orders and their content are:

1. S-100: Rules For The Safe Conduct of Work at DPMC

The following issues are addressed in this order.

- A. DPMC General Safety Requirements
- B. Chemical Safety
- C. Overhead Work, Climbing and Ladders
- D. Railroad Safety
- E. Tool Safety
- F. Static Electricity Safety
- G. Compressed Gas Cylinder Safety
- H. Lifting Safety

2. S-102 Fire and Safety Permits

This order addresses the permitting procedures and requirements for all work considered to be of the highest risk. Specifically, high risk permits consist of those which are either spark producing or involve entry into process equipment. Since this type of work is inherently more dangerous than other work in process areas, the permit process requires a more structured and detailed permit form and may require an additional layer of field auditing and approval. Additionally, within this high risk area are three additional levels of risk with approval by people with additional levels of training. Those levels and training requirements are as follows.

- A. Level 1 This is the lowest level of high risk permit and general involves heat producing work on non-process type equipment. This person is normally required to have 5 years experience as a Shell operator, be deemed by his/her manager to be qualified on an operating job, and must have completed the Level One Permit Training provided by Health and Safety. Level 1 permits authorized by level 1 permit writers do not require an audit by a higher level.

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- B. Level 2 This level of permitting involves specific jobs identified in the order that are considered of in the medium level of high risk. This is normally an individual who works as a first line supervisor or foreman-who has completed Level Two training at Health and Safety and has been qualified. This individual is only qualified to authorize these types of permits in his/her area of responsibility. Level 2 permits authorized by level two qualified employees do not require an audit by a level 3 certified employee.
- C. Level 3 This is the highest risk and typically involves flame producing tasks on or around process equipment or entry into process equipment. Examples of flame producing tasks are gas or electric welding, metallizing, use of a gas torch, use of explosives other than cartridge driven fasteners, etc. Level 3 permits, normally written by a Level 2 qualified individual must be audited by a Level 3 certified individual.

3. S-103 Departmental Safe Work Permits

This order addresses the permitting procedures and requirements for all work in process areas which are non-spark producing or do not involve entry into process equipment. This permit may be verbal if work does not involve opening a process or must be written if it does. Written Departmental Permits also uses a specific permit form with a written check-off type format with space for additional information but only the signatures of the responsible operator and the designated craftsman are required. This check-off format describes the job, warns the craftsmen of what chemical were in the equipment, and what PPE will be required, tells how the equipment was isolated from process hazards and/or electricity and how it was decontaminated. A comments section is added for Environmental comments and other safety comments that might not be included on the check-off. Finally a place is provided for both operator and craftsman to sign on and sign off at end of work day or at job completion.

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4. S-104 Procedure for Locking Out Electrically Driven or Controlled Equipment

This order establishes the requirements for lockout and tagout of electrically driven or controlled equipment. The order includes step by step procedures for affixing the lockout/tagout devices and communicating the status of work between the operating and maintenance personnel.

5. S-110 Hazard Communication

This order establishes the system for communicating the physical and health hazards of chemicals and materials found at DPMC to those who are at risk of exposure (E.G. Maintenance personnel performing a task that requires opening a piece of process equipment). It meets the requirements of OSHA Hazard Communication Standard 29 CFR 1910.1200.

6. S-114 Process Equipment Isolation

This order establishes the requirements for lockout and tagout of hazardous energy sources other than those covered in S-104 (electrical). This order includes step by step procedures for affixing the lockout/tagout devices and communicating the status of work between the operating and maintenance personnel.

7. S-130 Material Safety Data Sheets (MSDS)

This order establishes the requirements for MSDSs at DPMC. MSDS's are the basic reference source of health and safety information on chemicals used in the work place. As such, they have a key role in employee protection programs and in compliance with the OSHA's Hazard Communication Standard mentioned previously. It should be noted that DPMC utilizes the Shell computerized On-Line MSDS system.

8. S-131 Benzene

This order establishes the following OSHA mandated program to establish and minimize employee exposure to Benzene. Major elements of this program are:

1. Responsibilities
2. Employee Training
3. Exposure Monitoring
4. Medical Surveillance
5. Personal Protective Measures
6. Work Practices
7. Labeling and Posting Requirements

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9. S-145 Management of Flare Openings

This order establishes the authority levels, permitting requirements, communication requirements, and safe work practices for flare openings at DPMC.

It should be noted that training on Safety Orders is being conducted, in large part, on a computer driven Health and Safety Order Training Program. This program tests the individuals knowledge and, if they pass the test, uploads that information into the Shell corporate training records program, STARS. Some Safety Orders have additional training requirements that this program does not. These are satisfied by classroom training normally documented on STARS during the Safety Meetings held in each area.

Contractors, as previously discussed in Practice 3, are responsible for their own safety programs including any training that there people may require on Shell Safety Orders, procedures, work practices, etc.

It should also be noted that under DPMC's Industrial Hygiene Monitoring Program discussed previously, all results of this monitoring are posted and exposures in excess of the Permissible Exposure Limit are investigated.

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**PRACTICE 18 -- HEALTH AND SAFETY TRAINING PROGRAMS,
INCLUDING DOCUMENTATION OF THESE PROGRAMS, AND METHODS TO
EVALUATE THE EFFECTIVENESS OF BOTH TRAINING AND
COMMUNICATIONS ACTIVITIES.**

DPMC utilizes the corporate STARS computerized training documentation program to document much of our safety training. This program not only serves as a repository for much of our safety training but also allows searches, generates reports, and allows individual areas to set up their own area specific courses for documentation. However, there are some areas that are still working on implementation of this program. For that reason, some training records are kept in area file centers in a hard copy format. It should be noted that Area Safety Inspectors audit both sets when they annually audit the departments in their area for their mandatory safety training and any exceptions that are noted are followed up on for correction. The types of training that are documented may be complex issues or unit specific requirements. The following is a list of training issue audit items.

1. Hearing Conservation Training
2. Embryo-Fetal Policy
3. Emergency Response Teams Training
4. Portable Fire Extinguisher Training
5. Hazardous Waste Operations Training
6. Respiratory Protection Training
7. Asbestos Training
8. Benzene Training
9. Emergency Response Training
10. Hilti Gun Training
11. Hazard Communication
12. Cranes and Slings
13. Welding
14. Powered Industrial Trucks (Forklifts)
15. Lead
16. Warning Signs

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At DPMC, it is a requirement that all field teams have at least two safety meetings a month and office teams are required to have one. This is computer documented on the Phase Two Safety Program available on VM-29 and can be easily accessed for verification. It is also used as a qualification requirement for the Phase Two Safety Awards Program which rewards people with gift certificates if they both have the meeting and have 100% attendance at the meetings. The meetings are germane to this issue because they are frequently used for purposes of safety training.

DPMC also utilizes a P.C. based Health and Safety Order Training Program (HSO) for Safety Order training. This program has the following features.

1. Allows people or areas to choose which order they wish to review or test on.
2. Ensures they have an updated order or test by referencing the main frame via PROFS.
3. Allows them to read or test on the order.
4. Allows them to miss a question once, will then allow them to view the appropriate text of that order, will then reword and reask the question in a different format (True/False/Multiple Choice/Fill in the Blank). A second miss results in a 24 hour exclusion from the test on that particular order only so the order can be reviewed.
5. The program then automatically uploads all passed tests for all employees every 24 hours to both STARS. which is accessible to only certain personnel and to a PROFS program available to all.

It should be noted that not all Safety Order training requirements are satisfied by the HSO training program. Some orders require an annual training class and must be documented with either hard copies or manually uploaded to STARS.

If any Safety Order of complex concern is the subject of a major revision, then it is a requirement that a training package (usually includes a video) be produced and documented classroom training occur. It is an expectation that such training records will be uploaded to STARS but there is not 100% compliance on this issue yet.

Other safety videos are produced monthly by the SAFE Safety Awareness Team on issues of both industrial and home safety. These are reviewed by the different areas during their monthly safety meetings. Periodically, the Safety Awareness Team polls the area training coordinators for both comments on the past packages and suggestions for new ones.

The SAFE Audit Team also audits the complex for compliance with Safety Orders judged to be of complex concern. Not only is this audit used to gauge compliance, but it is also used to generate feedback and suggestions for change to the content expert working on the next revision. Currently, all safety orders are scheduled for revision every three years.

Finally, the training of the Emergency Response Teams such as the Fire Crew, HAZMAT, SMART, RAT, Rescue, and MER must be noted. This training meets all applicable requirements and is documented on STARS.

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