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Student Handout

General Employee Training

Fernald Environmental Management Project

Rev. 4, February 2001

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GENERAL INFORMATION MODULE 4075

EO1 State the mission of the FEMP.
EO2 State the purpose of the Standards/Requirements Identification Document (S/RID).

SETTING AND BACKGROUND

The Fernald Environmental Management Project (FEMP), formerly known as the Feed Materials Production Center (FMPC), is located about 20 miles northwest of Cincinnati, Ohio and is comprised on 1,050 acres of land.

During production years, 1953 through 1989, the FEMP produced uranium metal products and some thorium products for the nation's defense program. These uranium products were slightly enriched or depleted and, for the most part, were used at other sites to support Department of Energy (DOE) production reactors.

This production of uranium metal was suspended in July 1989 to focus on the new mission of the site, environmental remediation/restoration.

Since production operations were discontinued in 1989, the FEMP workforce has been dedicated entirely to environmental remediation/restoration. In December 1989, the site was added to the U.S. EPA's National Priorities List (NPL) because of releases to the environment during production years. DOE announced its intention to formally end the production mission in February 1991, and submitted a closure plan to Congress. That closure became effective in June 1991.

FEMP MISSION

EO1 State the mission of the FEMP.

The fundamental objective of the FEMP is to achieve excellence in the accomplishment of the DOE/Fluor Fernald mission, which is as follows:

> *"Together, DOE and Fluor Fernald are committed to safely restoring the Fernald site to an end state which serves the communities' needs, and we will do this within a decade."*

MANAGEMENT PLAN

The FEMP mission, as well as the philosophies and values which guide daily operations at the FEMP, are described in the President's Management Plan, RM-0016. The Manual describes to Fluor Fernald division managers and to the Project Manager at the DOE Field Office our understanding of the project, our underlying corporate foundations, our organization and how we organize work to achieve our objectives.

The following statements identify the underlying message of the Management Plan:

- Fluor Fernald defines itself as a corporation in terms of mission, values, objectives, and organization. It states the principles by which it will conduct its activities.

- The President of Fluor Fernald issues his Presidential Policies through this manual. The Fluor Fernald coaches follow these policies in the development of all work activities. Any employee who needs to have a more in-depth listing of this underlying foundation of the corporation may read it in the manual.

- Fluor Fernald, as a client-focused corporation, defines the standards and requirements that affect the FEMP.

- Fluor Fernald must know what the requirements are for the site; we are liable for complying with all requirements.

- To manage this large scope of work, Fluor Fernald has organized its work into work units called functional areas. There are twenty-four functional areas. A functional area is a logical grouping of activities associated with the environmental, safety, health or business management issues of a facility. Each of these functional areas has a manager.

EO2 State the purpose of the Standards/Requirements Identification Document (S/RID).

- To identify the standards and requirements that affect the FEMP, each functional area has undergone an extensive review. The result of this review is a document called the *Standards/Requirements Identification Document (S/RID)* that references all Fluor Fernald work requirements for each of the functional areas.

- To satisfy all requirements and to operate within the corporate principles, Fluor Fernald plans how it will conduct its activities. Written documents such as plans, procedures, and instructions are prepared to communicate to all how work will be done.

- All Fluor Fernald employees shall conduct their work activities in compliance with these written documents. Every requirement has a procedure. We must follow procedures to ensure that we meet all of our requirements.

All division and Level III managers have controlled copies of Fluor Fernald's Management Plan which is accessible to all employees to reference and read. An electronic copy is available on the Intranet.

HEALTH STUDIES

As part of the DOE's environmental, safety, and health program, and pursuant to the Atomic Energy Act, DOE conducts and funds health studies and health monitoring of workers at DOE facilities. Should health researchers need access to personnel records for a study, sensitive information that could be used to identify individuals, such as name and Social Security Number, will remain confidential and be protected from public disclosure to the extent permitted by law.

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If you have questions about ongoing or anticipated studies at your facility, you may contact the U.S. DOE, Office of Epidemiological Studies at (301) 903-2340.

When a study is to be conducted at a DOE facility, the study will be announced with a "Notice of Research Study." In addition, most studies will begin with a site visit by the investigators to present the study to management, employees, and organized labor.

The entire text of information concerning these studies is available. A copy of the information is also available to take with you from the facilitator.

QUALITY ASSURANCE MODULE

EO1 State the goal of the Quality Assurance Program.
EO2 State the responsibilities of the various groups and individuals for implementing the Quality Assurance Program.

REGULATORY DRIVERS and FEMP SPECIFIC PROCEDURES

The Regulatory Drivers and FEMP Specific Procedures for Quality Assurance are:

10CFR 830.120, Quality Assurance Requirements
RM-0012, Quality Assurance Program

EO1 State the goal of the Quality Assurance Program.

The goal of Quality Assurance is to implement federal and state statues and regulations, DOE Orders, and management directives to ensure a safe and efficient work environment.

Fluor Fernald supports this goal by implementing policies and procedures that provide every person the right training, resources, and motivation to do the job right the first time. The end result of an effective quality effort is safe, efficient, reliable operations, and high quality work.

EO2 State the responsibilities of the various groups and individuals for implementing the Quality Assurance Program.

We all play a big role in the effectiveness of the Quality Assurance Program at the FEMP.

Management Responsibilities

- The President and CEO of Fluor Fernald retains overall responsibility for the program.
- The Quality Assurance Functional Area Manager is assigned the authority to establish, administer, and evaluate the effectiveness of the Quality Assurance Program.
- All levels of management are to contribute to the achievement of quality by taking a leadership role in ensuring the program is understood and Implemented by all employees.

Employee Responsibility

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- Implement and support the Quality Assurance Program by:

  - Planning what to do;
  - Doing what you plan;
  - Recording what you do;
  - Identifying problems.

- Comply with all procedures. **PROCEDURE DEVIATION IS NOT PERMITTED.**

- Identify opportunities for improvement.

  Making sure you understand what your customer's needs are is one of the first steps in providing "quality" products and services. Before you begin any task, make sure you know exactly what your customer needs.

WHO IS YOUR CUSTOMER?

Your customer is any person or organization in your process that you provide with products and services they need in order to do their work. Understand what your customer wants and deliver it to them on time. Your suppliers provide you the things you need to do your job. Fluor Fernald supports this goal by implementing policies and procedures that provide every person the right training, resources, and motivation to do the job right the first time. The end result of an effective quality effort is safe, efficient, reliable operations, and high quality work.

WASTE MINIMIZATION MODULE

EO1 State the employee responsibilities for waste minimization.
EO2 Identify items that the site either recycles or reuses.

FEMP SPECIFIC PROCEDURE

The FEMP specific procedure for Waste Minimization is:

PL-3009, The FEMP Waste Minimization and Pollution Prevention Awareness Plan

WASTE MINIMIZATION OBJECTIVE

Waste minimization is a high priority in remediation of the FEMP. The intent is to prevent the generation of new waste, reduce pollution, and manage the waste that is generated daily at the FEMP.

In keeping with that challenge, the FEMP has implemented Waste Minimization and Pollution Prevention Programs. These programs reflect the goals and policies for waste minimization at the FEMP and represent an ongoing effort to make waste minimization and pollution prevention an integral part of the site's operating philosophy.

The objectives of the Waste Minimization Program are to:

- Enhance site-wide awareness of waste minimization issues
  Reduce waste generation where possible
- Recycle, reuse, segregate, and decontaminate waste

PL-3009 specifies those activities and methods, which will be employed to reduce the quantity and toxicity of wastes generated at the FEMP.

Source reduction of waste generated at the FEMP will receive the highest priority in waste minimization efforts. The concept behind source reduction is that when you don't generate waste, you don't have all the problems associated with managing the waste, such as storage, disposal, regulatory reporting, transportation costs, and liability costs.

When the generation of waste cannot be avoided, everyone should strive to recycle, treat, and dispose of the waste using techniques that will conserve energy and not adversely affect the environment.

Stormwater Pollution Prevention Plan (SWPPP)

Identifies potential sources of pollution that may affect the quality of the stormwater discharged at the FEMP. The purpose of the Plan is to prevent the release of toxic or hazardous substances into navigable waterways and it describes:

- Methods used to reduce pollutants
- Other inspection activities
- Other record keeping requirements

The SWPPP must meet the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) Permit, which includes:

- Inspections
- Spill response
- Sediment control devices
- Appropriate containment
- Good housekeeping practices

The Stormwater Pollution Prevention Team (SWPPT) ensures implementation of pollution reduction activities that are identified in the Plan.

Spill Prevention Control and Countermeasure (SPCC) Plan

The SPCC plan applies to owners or operators whose facilities have the potential for discharge of harmful quantities of petroleum products or PCBs into navigable waterways of the U.S. The SPCC describes methodology for preventing spills, and lists the requirements for reporting spills exceeding reportable quantities. The SPCC describes spill response, containment, diversionary structures, and equipment such as dikes, berms, curbing, and absorbent or skimming materials used to prevent discharges from reaching navigable waters.

EP-0004, "Spill Incident Reporting and Cleanup" identifies the requirements for reporting all releases to the Assistant Emergency Duty Officer (AEDO). The procedure ensures that all potential reportable releases receive the proper response, are properly evaluated, and are reported and documented as required. Included within the procedure are the offsite facilities and activities owned, operated or related to the FEMP.

Green is Clean Program

A successful segregation program at the FEMP is the Green is Clean Program. A major part of the Green is Clean Program is the Controlled Area Office Trash Disposal Program. The program was initiated to help reduce the volume of dry, compactible waste shipped to the Nevada Test Site (NTS). The program was developed to segregate Controlled Area trash from approved offices, break rooms, and restrooms as non-radiological sanitary waste.
The site's porters collect trash from offices and restrooms while the core group collects it from the break rooms. Trash that is part of the Green is Clean program is packaged in green tinted plastic bags and placed in the Green is Clean trash collection bins. Radiological Control personnel perform a visual inspection of the bags for prohibited items before performing a radiological sample of bags that are selected for 100% radiological surveillance. If the trash bags are determined to be clean and have no prohibited items, they are transferred to a dumpster for off-site disposal at a local sanitary landfill.

Prohibited items within the Green is Clean program include:

- Tools
- Equipment
- Clamps
- Mop heads
- Aerosol cans

- Plastic sample bottles
- Yellow tape
- Herculite
- Shoe covers
- Floor Sweepings
- Smears
- Radiological Control tape
- Masslin
- Any type of gloves

EO1 State the employee responsibilities for waste minimization.

In order to continue having an exceptional Waste Minimization Program, all employees are tasked with these responsibilities:

- Identify areas where waste minimization can be achieved. These include:
  - Material substitution of less toxic alternatives
  - Inventory control
  - Recycle and reuse materials;
  - Segregation opportunities.
- Alert management of areas with the potential for waste minimization;
- Participate in all recycling programs.

EO2 Identify items that the site either recycles or reuses.

Items that the FEMP recycles include:

- Toner cartridges
- Paper
- Aluminum cans
- Fluorescent lights and ballasts
- Copper
- Over 229,000 pounds of scrap metal
- Aerosol cans

Examples of reuse activities at the FEMP are:

- An electronic bulletin board to give away or receive office supplies
- Donating solid, non-hazardous chemicals from projects to local schools and non-profit organizations

CONDUCT OF OPERATIONS MODULE

EO1	*Describe the purpose for applying the Conduct of Operations guidelines at the FEMP.*
EO2	*Describe what a Graded Approach means.*
EO3	*Describe how the Conduct of Operations principles may be applied in a graded fashion to FEMP work processes.*

REGULATORY DRIVERS and FEMP SPECIFIC PROCEDURES

The Regulatory Driver and FEMP Specific Procedure for Conduct of Operations is:

DOE Order 5480.19, Conduct of Operations
RM-0029, Fluor Fernald Conduct of Operations (CONOPS) Program

EO1 Describe the purpose for applying Conduct of Operations guidelines at the FEMP.

DOE Order 5480.19, Conduct of Operations, was developed to provide guidance to DOE operating facilities. When the Conduct of Operations principles are properly implemented, safe efficient operations result. The 18 CONOPS principles are the result of many years of operational experience and lessons-learned at both DOE and industrial facilities. The principles are integrated into FEMP procedures and other work control documents. When we properly plan our work and follow our plans and procedures we are automatically implementing the Conduct of Operations principles. Procedures implement the CONOPS guidelines in these areas:

- Operations and Administration
- Shift Routines and Operating Practices
- Control Area Activities
- Communication
- Control On-shift Training
- Investigation of Abnormal Events
- Notifications
- Control of Equipment and System Status
- Lockouts and Tagouts
- Independent Verification
- Logkeeping
- Operations Turnover
- Operations Aspects of Facility Chemistry and Unique Processes
- Required Reading
- Timely Orders to Operators
- Operations Procedures
- Operator Aid Postings
- Equipment and Piping Labeling

By working to procedures, all employees help make CONOPS a "Way of Life"

Requirements Documents

The Safety Analysis Team determines the hazard categories assigned to facilities or activities. The site CONOPS, Quality, and Pre-Operational Assessment programs are based on those assigned hazard categories. Managers and supervisors then develop plans in support of the hazard categories assigned to their projects and activities.

Requirements documents for the programs include the following manuals:

- RM-0029, Fluor Fernald Conduct of Operations Program
- RM-0012, Quality Assurance Program
- RM-0025, Pre-operational Assessment Program

DOE Order 5480.19, Conduct of Operations, is applicable to all DOE elements and contractors. Therefore, the Order is applicable to Fluor Fernald. Since the FEMP is unique in that it is being remediated or cleaned up, it is critical that CONOPS principles are applied in a graded, cost efficient manner.

EO2 Describe what a Graded Approach means.

A graded approach is used to determine the extent that guidelines apply to a facility or activity. It may be used to decide the safety or training requirements to perform a task or job and the amount of detail needed for the work instructions provided. A graded approach also means applying available resources in a manner that ensures each activity receives the resources and applies the controls that are appropriate to the nature of the work being done. Excessive resources are inefficient and may impact work. Inadequate resources may allow performance or safety problems to arise.
Examples of resources that may be applied in a graded manner include:

- Staffing
- Equipment
- Funding
- Pre-job safety analysis
- Training

Examples of work controls that may be applied in a graded manner include:

- CONOPS Requirements
- Procedural Controls Details
- QA Surveillance/Oversight
- Training/Certification Requirements
- Access Controls
- Management Oversight

EO3 Describe how the Conduct of Operations principles may be applied in a graded fashion to FEMP work processes.

For activities where serious safety hazards exist or where the FEMP mission can be greatly impacted, or performance issues arise, it is appropriate to use extensive resources and controls. Each project or major activity is required to analyze the operation to be performed and identify which of the 18 CONOPS principles are applicable to that project and to what extent they are applicable. The conclusions are documented in a CONOPS applicability matrix. When moving Enriched Restricted Nuclear Material, much effort and resource is applied to planning, analyzing and executing the work. The controls applied are numerous.

Examples of controls are:

- Very detailed procedures
- Required permits
- Specialized worker training requirements
- Many rigorous safety requirements

In addition, both management and independent oversight i.e. (Q.A., Safety, and CONOPS) are very comprehensive to ensure DOE and Fluor Fernald's performance expectations are met. The consequence of a mistake is very severe.

For a simple project, like repairing an air conditioner, those controls that are important to the job, like Lock & Tag, would be rigorously followed by a detailed procedure. QA surveillance, management oversight, and extensive pre-job analyses would not be necessary, beneficial, or appropriate. The worst consequence of failure might mean the job would have to be done over.

Each project or major activity is required to analyze the operation to be performed and identify which of the 18 CONOPS principles are applicable to that project and to what extent they are applicable. The conclusions are documented in a CONOPS applicability matrix.

Let's use one of the CONOPS Chapters, Operations Turnover, as an example of how the graded approach may be applied.

For a 3rd shift operation:
Hazardous materials are being treated and stabilized. A very detailed meeting at the change of the work shifts would be expected to ensure that the oncoming shift knows exactly the status of everything that is in process, and of any equipment that is malfunctioning. Detailed logbooks would also be expected during the meeting. If the operators for the oncoming shift are not fully aware of project conditions, a safety or performance failure may occur.

For many operations where there is only 1 shift and the oncoming shift is unaware of an inefficient situation, there may be no safety consequences. Therefore, the CONOPS "Operational Turnover" principle is a much less formal process and may not be necessary.

The FEMP has projects that range from very complex activities conducted in Nuclear Facilities to very simple maintenance activities performed in administrative office areas. When properly applied, in a graded manner, the CONOPS principles are of benefit to any project regardless of complexity of hazards.

There are number Hazard Category III or higher facilities and activities at the FEMP.

Examples include:

- Silos 1 and Silos 2
- Thorium Warehouse
- Safe Shutdown Activities
- Nuclear Materials Handling

Most of the projects at the FEMP are less than Hazard Category III. Examples include:

- On-site labs;
- Advanced Waste Water Treatment (AWWT);
- Fork lift operations.

Implementing CONOPS principles into your work process ensures a safe, consistent way of doing work. Supervisors should ensure you receive proper training, and also ensure you follow procedures and work instructions. By practicing a consistent way of doing your job, you feel sure about what you do and take pride in your work. What you learn form one job may be carried to another, which may often be an advantage for you in this changing work environment. As these results are achieved, you will acquire better work habits and provide a safer work environment

DOE Order 5480.19 was designed to provide guidelines to use in developing directives, plans and procedures related to your job. Implementing this Order should improve quality and uniformity in your daily work. As these results are achieved, you will acquire better work habits and provide a safer work environment. Project Managers, Team Leaders, and work planners should be aware of the CONOPS principles and their applicability to the work being performed, and ensure they are integrated into procedures, task orders and other work control documents. When team members carefully follow procedures, they will be working in a safe, efficient manner and will be implementing good Conduct of Operations practices.

MT-0003, FEMP Work Request/Order Procedure, implements DOE policy for the conduct of maintenance at the FEMP. It provides a procedure for requesting maintenance and processing Work Orders. Under MT-0003, you have the right to generate a Maintenance Work Request. The process includes electronically generated Work Orders, which are computer processed and tracked. One advantage to this system is that you have access to feedback that provides the current status of your request. The new Electronic Work Package was developed as part of the Enhanced Work Planning initiative. This initiative is sponsored by the DOE as a means of finding better, faster, and more cost-effective means of doing business.

Fluor Fernald has developed a course for anyone who generates, processes, of approves maintenance work orders. It covers the MT-0003 process, generating Work Orders processing and approvals. For information on the course, contact your training coordinator.

EMERGENCIES MODULE 4075

EO1	*State the responsibilities of the various groups and individuals who implement the Safety and Health Program.*
EO2	*Define the "Walk Your Space" philosophy.*
EO3	*Identify measurements that indicate how safely we are working.*
EO4	*List the levels of emergency as defined by the Emergency Plan.*
EO5	*State the proper response to an accident or emergency.*
EO6	*Identify the alarms and the proper action to take in the event of an emergency.*
EO7	*Identify how personnel are accounted for in the event of an emergency.*

REGULATORY DRIVERS

The Regulatory Drivers for Emergencies are:

DOE Order 151.1, Comprehensive Emergency Management System
DOE Order 5483.1A, Occupational Safety and Health Program for DOE Contractor Employees at Government Owned Contractor Operated Facilities
DOE Order 440.1, Worker Protection Management for DOE Federal and Contractor Employees
DOE Order 232.1, Occurrence Reporting and Processing of Operations Information

EO1	*State the responsibilities of the various groups and individuals who implement the Safety and Health Program.*

The heart of our Safety and Health Program is the firm commitment by all managers, supervisors, and employees to prevent accidents or inadvertent health hazard exposures which may lead to illness or injury. Every organization needs to develop a program designed to protect the health and safety of the workers, eliminate accidents, and increase efficiency of operations. Each person has the responsibility to ensure their own safety, and the safety of their co-workers.

Under OSHA regulations, employers are responsible for:

- Developing a safety and health program
- Complying with OSHA regulations regarding record-keeping, posting, and reporting requirements
- Providing and maintaining personal protective equipment necessary for the safe conduct of operations within a given work environment
- Monitoring of hazardous and toxic material concentrations with appropriate monitoring devices
- Providing a medical surveillance program for employees exposed to hazardous materials
- Informing employees about known safety and health hazards within the workplace

The Safety and Health Department at Fernald is responsible for the recognition, evaluation, and control of safety, health, and environmental hazards associated with site clean-up operations. This is accomplished by:

- Management encouragement of employee participation in the Safety and Health Program
- Managers and supervisors maintaining low-risk environments in their area of control
- Managers and supervisors ensuring equipment and operations meet requirements of the Safety Manual and applicable Standard Operating Procedures
- Ensure that Safety, Health, and Fire Protection Groups are included in the design review process for new facilities and equipment, modifications, or additions to existing facilities for assuring compliance with DOE-described OSHA Standards
- Maintain surveillance of the work environment by establishing control measures of eliminating the hazards associated with any operation\equipment through:
  - Air quality monitoring
  - Self inspections
  - Preventive maintenance programs
  - Accident investigations
  - Employee training
- Maintain employee motivation programs.

Safety Program for Immediate Incentive Recognition (SPIIR)

The SPIIR provides Management, Supervision and Safety Officials with a means of recognizing employees immediately for safe performance of routine and non-routine tasks, as well as a demonstrated track record of safety performance. The employee is the first line of defense for their safety and health, and for that of their co-workers. Employees have the responsibility to prevent hazardous exposure by:

- Immediately reporting unsafe conditions to their supervisor
- Attending training
- Reviewing monitoring results
- Being familiar with hazardous materials
- Adhering to posted rules and regulations
- Properly wearing protective equipment
- Utilizing available engineering controls

Employee "Bill of Rights"

Each worker has rights with regard to what they are expected to do. Workers are not expected to enter hazardous conditions without knowing what the hazards are and what they can do to protect themselves. Each employee has a "Bill of Rights" which is specified on the DOE\OSHA Posters that are posted in prominent work locations.

An employee "Bill of Rights" card is distributed to workers, which can be attached to their security badge. One side of the card states that if you are not comfortable with a task or operation, you have the right to refuse to do the work until your concerns are addressed. The other side of the card identifies seven rights guaranteed by the highest level of management commitment:

- The **RIGHT TO KNOW** hazards;
- The **RIGHT TO REPORT** concerns or violations;
- The **RIGHT TO REFUSE** work;
- The **RIGHT TO ACCESS** safety and health information;
- The **RIGHT TO MAKE INPUT** regarding safety and health issues;
- The **RIGHT TO PERSONAL PROTECTIVE EQUIPMENT** or **PPE** without charge to the employee;
- The **RIGHT TO PARTICIPATE IN THE SAFETY EXCELLENCE PROCESS.**

Fluor Fernald's Safety and Health Program actively supports employee's rights with an **OPEN-DOOR POLICY** without employee fear of reprisal, harassment or retaliation.

E02 Define the "Walk Your Space" philosophy.

The **"WALK YOUR SPACE"** philosophy asks employees to identify and correct hazards under their control or in their immediate work area. To assist in achieving the "Walk Your Space" philosophy, employees are properly trained to identify and understand:

- Potential health hazards associated with a given workplace;
- How to minimize personal exposure risks;
- Potential risks to co-workers and the general public as a whole.

The following general items should serve as guidelines, however **WALKING YOUR SPACE** should not be limited to looking only at these items.

- Your area should be maintained in a clean, orderly, and sanitary condition.
- All emergency equipment must be easily accessible and in good condition.
- Be aware of the emergency procedures and routes for evacuating your area.
- All working surfaces should be free of accumulation of storage and materials.
- Walking surfaces should be free of tripping and slipping hazards.
- Chemicals are to be properly stored and labeled and Material Safety Data Sheets or MSDSs should be available for each chemical.

- Be alert to recognize a fire hazard and if unable to correct it yourself, report it to your supervisor immediately.
- Your workstation should "fit" you.
- Stress and strain from uncomfortable work positions and repetitive motions should be reported to your supervisor.
- All Personal Protective Equipment or PPE necessary for your area shall be readily accessible, in good condition and properly worn when required.
- All equipment should be in safe working condition, properly guarded, and free from defects.
- Learn the right way to do your job. If you are not sure you fully understand what is to be done or if instructions are not clear, ask questions.

EO3 Identify measurements that indicate how safely we are working.

Two measurements that are used to indicate how safely we are working are the OSHA Recordable Incidence Rate and Safe Work Hours. The OSHA Recordable Incidence Rate is based on the number of hours worked over a specific period of time, the number of OSHA recordable injuries and illnesses during that period, and an industry standard number of 200,000 hours.

An OSHA Recordable Injury and Illness is a work-related injury or illness on the job resulting in loss of consciousness, restriction of work or motion, or transfer to another job. It can also be an injury or illness that requires medical treatment beyond first aid or a death while on the job from something other than natural causes.

For the Fluor Fernald OSHA Recordable Incidence Rate, the number of OSHA recordable injuries and illnesses are multiplied by the industry standard number of 200,000 hours, and then divided by the number of hours worked over the same period of time. For the Fluor Fernald OSHA Recordable Incidence Rate, the number of OSHA recordable injuries and illnesses are multiplied by the industry standard number of 200,000 hours, and then divided by the number of hours worked over the same period of time.

Fluor Fernald also uses safe work hours to indicate how safely we are working. Safe work hours are the accumulation of consecutive work hours without a lost time injury. If you are injured on the job and that injury is severe enough that you are unable to report for work at your next regularly scheduled workday, then the injury would be considered a lost time injury. This is also known as a lost time day away from work injury.

Our low OSHA recordable injury incident rate shows that you and your co-workers are performing your jobs with a minimum of serious injuries. In addition, the significant accumulation of safe work hours also shows that you and your co-workers are working safely. Fluor Fernald is very proud of you. Your Safety First attitude, behaviors, and actions are responsible for our safety excellence.

EO4 List the levels of emergency as defined by the Emergency Plan.
EO5 State the proper response to an accident or emergency. 4075

There are four levels of an emergency as defined by the FEMP Emergency Plan (PL-3020). An **Alert** is an emergency that is confined to one area of the facility. A **Site Area Emergency** either impacts or has the potential to impact most or all of the site. A **General Emergency** either impacts or has the potential to impact, not only the entire site, but the surrounding community as well. An **Operational Emergency** is an unplanned, significant event or condition that requires a timely urgent response by FEMP Personnel.

In the event of an accident or emergency **on-site**, remember to ensure your own personal safety first. Then contact the Assistant Emergency Duty Officer or AEDO through the Communications Center by any of the following ways:

- Emergency Phone Number, x6511 or x911
- Non-emergency Phone Number, x4749
- Non-emergency for the Communications Center, x4444
- Radio, asking for "Control"
- Manual Pull Fire Alarm

The FEMP's Manual Pull Fire Alarm system is intended to summon the Emergency Response Team (ERT). It can be activated for a fire, security event or medical emergency.

When reporting an emergency or accident, attempt to supply the following information to the Communications Center:

- Your name and badge number
- The location of the event
- A brief description of the event
- If there are any injuries
- Any other unusual conditions that you may feel beneficial to the emergency responders
- Always stay on the phone until the Operator tells you to hang up

Your supervisor will escort you to Medical Services for evaluation and treatment as necessary. If the injury is serious or you are unable to report to Medical Services, your supervisor or another employee will call the Communications Center at x6511 or x911 or by radio asking for "Control" to request an ambulance. Within 24 hours, your supervisor will complete an Accident Investigation Report with you. This is dependent on when you are able to discuss the incident.

First Responder Program

The First Responder Program will allow a select number of employees to become certified First Responders at designated locations. The First Responders will:

- Provide immediate first-aid to injured personnel until trained Emergency Medical personnel arrive

- Provide over-the-counter medicines to employees as requested

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- Initiate evacuation procedures in the case of an emergency, such as a fire or tornado

When at an off site location for training, business or permanent work assignment and a volunteer First Responder is not available, all personnel must contact the local emergency response number which is 911 in most areas, to summon emergency assistance.

Should off site medical assistance be needed:

- Initiate evacuation procedures in the case of an emergency such as a fire or tornado
- Notify the local emergency medical service by calling 911
- Notify the First Responder Team at that facility
- Phone numbers should be posted in the work area
- Remain with the injured party until local emergency medical services arrive
- Provide First Aid, if trained
- Notify the supervisor of the involved person's illness or injury

EO4 Identify the alarms and the proper action to take in the event of an emergency.
EO5 Identify how personnel are accounted for in the event of an emergency.

The **Emergency Message System** is tested daily at 7:35 a.m. It is used to inform the site population following an activation of the plant alarm system. In accordance with the Americans with Disabilities Act, those employees who may have difficulty hearing the plant alarm horns may request that a light be installed in their work location. These lights will strobe whenever there is an impending EMS announcement. This will alert the employee to find a suitable location or a radio to hear the announcement.

The **Building Evacuation Alarm** sounds like a siren. If you hear this, leave your building immediately and report to a rally point. Again, **Do NOT** re-enter the building until the "ALL CLEAR" message is given over the Emergency Message System.

There are two types of **fire alarm** horns at the site, both of which are used to alert occupants that the fire alarm system in that building has been activated. Upon hearing the alarm, personnel should evacuate the building immediately and report to their designated rally point. Under NO circumstances should personnel re-enter the building until the "ALL CLEAR" message is given over the Emergency Message System.

The **Beta CAM Alarm** is a ringing sound with a flashing red beacon. This alarm sounds for elevated levels of airborne beta radioactivity in the vicinity. Employees should leave the area immediately and contact a Radiological Control Technician. **Do NOT** re-enter the area until the "ALL CLEAR" message is given.

There are two types of **radiation detection alarms** currently being used on site. The first RDA is air driven and sounds like an oscillating train horn. The second RDA is electric driven and sounds like a pulsed siren. Both are accompanied by turning red lights inside and outside of the affected building. This alarm alerts plant personnel of a nuclear criticality accident. If this alarm is activated, immediately leave the building where the RDA is sounding and report to the first floor North hallway of the Services Building.

Walk in the middle of the street when heading to this building. Personnel outside should seek shelter in a building where the alarm is not sounding. Personnel in other buildings should stay inside until the "ALL CLEAR" message is given over the Emergency Message System.

The **Severe Weather Alert Tone** is steady tone similar to the Civil Defense Alert Tone. This Alert can be activated by the National Weather Service or by FEMP Communications Center personnel in conjunction with Hamilton County or the City of Harrison. Employees should take shelter in the nearest permanent structure and wait for instructions from a supervisor and/or the Emergency Message System. If for any reason you do not hear these Emergency Messages or Warning Systems when they are tested, please notify the FEMP Communications Center at x4444.

A means of accounting for personnel during an emergency is better known as **Rally Point Accountability**. Rally Point Accountability requires personnel to report to a designated rally point. There are ten specified rally points located around the FEMP for the collection, management, and communication with personnel who have evacuated facilities. In the event of an actual evacuation, by-pass hand and foot monitors and report immediately to your designated rally point.

The building specific emergency plans give details as to the location of the primary and alternate rally points as well as the evacuation route. Employees are responsible for knowing where their rally point is located. Some things to remember when assembling at a Rally Point.

- Assemble in your organizational groups, if possible;
- Report your name, badge number, or any unusual conditions to your supervisor or manager.

HAZARDS MODULE

EO1	*Identify the classifications of hazards.*
EO2	*State the purpose of the Hazard Communication Program.*
EO3	*Identify the employee responsibilities regarding the Hazard Communication Program.*

REGULATORY DRIVERS

The Regulatory Drivers for the Hazards module are:

DOE Order 440.1, "Worker Protection Management for DOE Federal and Contractor Employees"
29 CFR 1910.1200, "Hazard Communication"
29 CFR 1910.120 (E), "Hazardous Waste Operations and Emergency Response-Training"

EO1 Identify the classifications of hazards.

There are five types of hazards. These hazards include biological hazards, chemical hazards, physical hazards, electrical hazards, and radiological hazards. Radiological hazards will be covered in more detail in another module, so we will only discuss the other four hazards in this module. You should be alert to the specific hazards in your own work area and what protection measures are available.

Biological Hazard

A biological hazard is defined as an agent, condition, or pathogen that poses a hazard to people. Individuals who will be assigned duties that may involve potential exposure to biological hazards will receive specialized training. Agents are things that exist in the environment such as ticks, snakes, insects and poisonous plants. Conditions are situations involving heat, cold, or damp environments.

Pathogens are microscopic organisms such as viruses, fungi or bacteria. Bloodborne pathogens can be carried in body fluids, so precautions should always be observed to prevent contact with blood or other potentially infectious materials. This includes Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV) among others.

Physical Hazards

Many factors influence the potential danger of physical hazards. These factors include:

- Include operations and use of tools, equipment, facilities, and materials that contribute to accidents such as:
  - Unguarded, poorly-maintained, or defective equipment
  - Poor, substandard construction
  - Cracks, holes, or elevation changes in sidewalks and aisles

- Human Factors

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  - Human factors are our actions or failure of actions that allows us to create or encounter a hazard; we call these actions or failure of actions **COMMISSION** and **OMISSION.**

  - Routinely performing or failing to perform certain actions results in the development of unsafe work habits or inattention to the task at hand.

  - Once an unsafe work habit is established, it's only a matter of time before an accident occurs.

  Fortunately, habits are learned and we can develop safe work habits just as easily.

The **COMMISSION** of an unsafe action arises for any of the following situations:

- Carrying materials stacked above eye level, so you cannot see over them

  - Engaging in horseplay
  - Removing guards from equipment
  - Improperly handling materials, which may result in injuries
  - Taking shortcuts, rather than traveling designated paths

- Unsafe conditions that arise from OMISSION on the part of workers, include:

  - Failure to keep your work area clean and orderly
  - Failure to report an oily spot on the floor
  - Failure to get help when lifting a load that is too heavy or awkward for one person
  - Failure to obey signs and postings

A final human factor that we need to discuss is that of **STRESS.** Stress is our physical, emotional, and behavioral reaction as we try to match our resources to the demands placed upon us. Our response to stress depends on our ability to manage stress. Coping requires awareness, acceptance, and action. When we become aware of stressful situations, we must learn to accept the situations we can not change and take action on the situations we can change. Our physical, mental, and emotional well being is dependent upon how we manage stress. Our inability to manage stress may lead to acts of **COMMISSION** or **OMISSION** on the job.

Managing stress includes:

- Physical fitness
- Relaxation
- Substance Avoidance
- Wellness
- Counseling
- Ergonomic Factors

Ergonomics is a science that focuses on human capabilities and limitations in the design of job workstations, tools and equipment. Video Display Terminal or VDT Ergonomics is the study of

the relationship between you and your computer. To stay comfortable at your computer and reduce your risk for injury you need to maintain the right posture and take breaks. The right posture means sitting in a relaxed, well-supported position. To maintain the right posture you may need to ensure that your workstation is properly adjusted.

Physical hazards may result from the following.

Sprains and Strains are two of the most common injuries in industry. Proper lifting techniques must be used in order to prevent these types of physical hazards. Repetitive Motion Injury occurs when workers fail to alter their routine. It is common to assembly line and computer work. Remember any type of strain or injury can cause pain, discomfort, decreased motion and inability to work.

You can avoid back injuries by following the proper safe lifting techniques.

- Determine if the load is light enough and small enough to handle on your own.
- Enlist help from others or use a mechanical lift.
- Something does not have to be heavy to cause a strain.
- For a long load, support the object on a shoulder, keeping the front end of the object higher than the back end.
- When two people are carrying an object, have the object on the same side of each person and keep it level.
- Minimize overhead lifts. Use a step stool or ladder to prevent over reaching.
- Do not lift anything greater than 25 pounds overhead.
- When lifting loads from a bin or container, lift with your legs, not your back.
- When lifting a load that reduces visibility, use a mechanical device or ask a co-worker for help or guidance.
- Never twist or turn while lifting.
- Shift your feet first in order to turn with a load.
- Don't bend your back; and use your legs to drive the load upwards. This way, your thighs and arms can absorb the strain instead of your back.

At the FEMP, all lifts must be evaluated that involve a weight of over 35 pounds and repeated three times within one hour or, any single lift involving a weight of over 50 pounds. When employees lift objects weighing greater than 50 pounds, ensure use of one of the following controls to start or complete a job:

- Engineer the lift out of the task through work planning
- Use a mechanical device

- Use two or more people

For a task that cannot comply with the above, the Supervisor-in-Charge is responsible to request that Safety and Health perform and document a work area/task evaluation to ensure the safety of that task.

Electrical Safety

Electrical equipment used at work and even in your home can produce a fatal electrical shock under the right conditions. To prevent electrical shocks:

- Use only approved grounded extension cords
- Extension cords should not be substituted for permanent wiring
- Check cords for worn insulation
- Pull the plug, not the cord, when unplugging equipment
- Avoid clutter around circuit breakers panel boxes
- Maintain at least 36 inches clearance around them
- Keep circuit breaker panel box doors closed
- If electrical equipment is locked and tagged, leave it alone
- Use properly grounded equipment

There are basic electrical safety principles that we should follow when we work with or around electrical equipment:

- **PLAN EVERY JOB** – Proper planning is the cornerstone to safely completing any electrical work. Break down each job into small, manageable tasks.

- **ANTICIPATE UNEXPECTED EVENTS** – Before undertaking any task, ask "What if..." and decide what to do if something goes wrong.

- **USE THE RIGHT TOOL FOR THE JOB** – Don't perform a task until you have the right tool at hand.

- **USE PROCEDURES AS TOOLS** – Procedures prompt you to ask the right questions. They help you plan your work and they should be properly maintained.

- **IDENTIFY THE HAZARDS** – Identify and consider each hazard separately. Remember that potential hazards are not always electrical.

- **ISOLATE THE EQUIPMENT**- Follow all company policies and procedures under the Energy Control Program.

- **PROTECT YOURSELF** – Use appropriate personal protective equipment (PPE) for each potential hazard.

- **ASSESS CAPABILITIES** – Consider the qualifications and capabilities of the person who is performing the task. Only qualified electricians shall repair the electrical components of electrical tools and equipment.

- **TEST BEFORE TOUCH** – All terminals or conductors must be treated as energized until they have been isolated and tested for the absence of voltage.

When required for safety, locks and tags are installed to isolate equipment, processes, or systems. The locks and tags are put in place to protect personnel from energy and materials that may be hazardous to them, to equipment, or to the environment. This is information that you need to know when you enter an area where lock and tag is in effect.

Prior to the installation of locks and tags, the Facility Owner of the building or another appropriate person shall use the most effective methods of informing personnel, who will be affected by the lockout of the effects that the locks and tags will have on them. For instance, if electrical power is to be locked and tagged out of a specific building, that Facility's Owner will inform persons who may enter the building of the lack of electrical power. Safety meetings, pre-job briefings, e-mail, loudspeakers, etc., may be used to inform affected employees. The OSHA procedure refers to anyone who is in the area but who does not install locks and tags as Affected Employees.

Only specifically trained and authorized personnel may install or remove any lock or tag. Affected Employees may only read the tag, view the lock, and report any safety deficiency to their supervisor. For instance, if an Affected Employee sees that the hasp to which a lock is attached has become loosened to the point that the hasp and lock may fall off, the employee shall immediately inform their supervisor. But they **MAY NOT** remove or install a lock or tag unless requested to do so by the lock's owner.

The first lock and tag installed at a point of isolation will be the Facility Owner's which is easily identified. It is 7 inches in length and has a brass tag attached to the shank. An identification number is stamped on the brass tag. This type of lock shall only be used for hazardous energy and material isolation. It shall not be used for any other purpose at the FEMP.

This type of lock shall be accompanied by a **DANGER – DO NOT OPERATE** tag. The information on the tag will identify where it is installed, why it is installed, and the position that the item should be in. If there is no tag accompanying this type of lock, report that fact to your supervisor. There **SHALL NOT** be a Facility Owner's lock without a **DANGER - DO NOT OPERATE** tag.

In isolated cases you may see a **DANGER – DO NOT OPERATE** tag without a lock. In those cases **DO NOT OPERATE** the equipment to which the tag is attached. Be aware that these tags are warning devices that do not provide the restraint of a lock. They shall never be bypassed, ignored, or otherwise defeated. Tags must be securely attached so they may not be inadvertently or accidentally detached during use. They shall be attached at the same point at which the lock would have been placed. **DO NOT** let tags used without a lock evoke a false sense of security. When in doubt about what the tag is for, contact the Supervisor in Charge of the lockout or the Facility Owner before taking any action in the tagout area.

You may see more than one type of lock installed at a point of isolation. In addition to the Facility Owner's lock, each worker who will be in the path of hazardous energy or material shall install their own personal lock and a **DANGER – PERSONNEL WORKING** tag.

When the work has been satisfactorily completed, the Facility Owner shall inform Affected Employees of the impending return of energy or material flow. The Facility Owner will use the

best available method to do so. In summary, you may be required to enter areas where locks and tags are in effect. If the lock and tag will affect you, you should be informed of the effect. Unless specifically trained, you shall not install or remove a lock or tag. Report to your supervisor any problems with the locks and tags such as possible failure of a hasp or a Facility Owner's lock without a tag. Prior to energy or material flow being restored, the Facility Owner or another appropriate person should inform the Affected Employees.

EO2 State the purpose of the Hazard Communication Program.

Many different kinds of hazardous chemicals exist in the work place. These chemicals are necessary in the operation of DOE sites. But if misused, they can cause property damage, injuries, or some may even cause death. OSHA's Hazard Communication or HazCom Standard 29 CFR 1910.1200 requires DOE contractors to provide information and training on workplace hazardous chemicals to workers so that they will know how to work with them safely.

To do this, Fluor Fernald maintains a written HazCom program, which is site document RM-2086. If you wish to see this document, contact your supervisor for directions to the nearest controlled document site procedure station (Rainbow Station).

EO3 Identify the employee responsibilities regarding the Hazard Communication Program.

Before using a hazardous chemical, you need to know the physical and health hazards it may present and the steps needed to work with it safely. This information is available in two sources:

- Hazardous Chemical container Labels;
- Material Safety Data Sheets (MSDS's).

MSDSs are maintained in a binder in each active building for those chemicals used or stored in the building. MSDSs may also be obtained by calling the MSDS hotline at x4000, or by searching, viewing, or printing them on the site Local Area Network computer system. If you have questions about the use or toxicity of a chemical, you have the right to refuse to work with it until you have reviewed the MSDS and warning label or had questions resolved by Supervision or Industrial Hygiene.

Here are some additional guidelines for working with hazardous chemicals:

- Do not remove or deface manufacturers' labels from containers.
- Ensure all secondary containers are labeled with NFPA-704 labels.
- Do not use chemicals until after reading the label or MSDS.
- Follow suggested safe work requirements on MSDSs or labels.
- If you have any questions about the chemical you're using, ask your supervisor or Industrial Hygiene.

- Don't mix chemicals unless it's part of an approved procedure.
- Do not open any unlabeled containers.
- Report any unlabeled containers of chemicals to your supervisor.
- Report any spills of or exposure to hazardous chemicals to your supervisor, flush affected skin or eyes, remove any contaminated clothing, then report to Medical Services for treatment or observation.

PERSONAL PROTECTIVE EQUIPMENT MODULE

EO1	*Identify Personal Protective Equipment (PPE).*
EO2	*Identify employee requirements for the care of PPE.*
EO3	*Identify employee requirements for replacement of PPE.*
EO4	*Identify employee requirements concerning the workplace location of PPE.*
EO5	*Identify employee requirements pertaining to limitations of PPE.*
EO6	*Identify engineering and administrative controls.*

REGULATORY DRIVERS

The Regulatory Driver for Personal Protective Equipment is:

29 CFR 1910 Subpart I – Personal Protective Equipment

The Safety Performance Requirements of SPR Manual has a section dedicated to Personal Protective Equipment. The SPR specifies the general requirements of PPE, management responsibilities, personnel responsibilities, and general PPE guidelines. SPR 2-2 does not define PPE for specific jobs. Specific PPE requirements are found within procedures or permits for individual tasks.

This training on PPE only provides a general awareness of the subject. Additional courses such as Lead Worker, Confined Space, and Respiratory Protection provide job-specific information regarding PPE for various work conditions. You need to contact the Industrial Hygiene group for guidance on all other specialized safety courses that are offered in special case hazards.

EO1 Identify Personal Protective Equipment (PPE).

Basic PPE includes work attire such as:

- Safety Glasses with Side Shields
- Safety Shoes
- Hard Hats
- Work Clothing
- Gloves
- Respirator

Respiratory protection protects the worker by either purifying the air that the worker is breathing or by supplying clean air to breathe. The following are examples of respiratory protection:

- Canister Air Purifying Respirator;
- HEPA Cartridge Air Purifying Respirator
- Full Face or Half-Mask Air-Line Respirator
- Bubble Hood Air Line
- Self Contained Breathing Apparatus or SCBA
- Emergency Life Support Apparatus or ELSA
- Dusts Masks

EO2 Identify employee requirements for the care of PPE.

For personal protective equipment to function as it is intended, it must be properly cared for by the user. When you are using PPE, it is important to be constantly aware of its condition while you are using it and when you have finished using it. It doesn't matter if it is PPE permanently assigned to you or PPE that has been issued for a particular job.

It is your responsibility, as the worker using PPE to make sure that it functions as intended. The following points are important with respect to the care of your PPE.

- Inspect it before and after use
- If you are unsure of how to inspect a particular type of PPE, ask your supervisor
- Do not use defective PPE
- If it comes in contact with an incompatible material, notify your supervisor
- Do not alter PPE
- If your eye glass prescription changes, update safety glasses

Remember, take good care of your PPE and it will take good care of you. If you have not used a particular type of PPE recently, make sure that you are using it correctly. If you are unsure, ask your supervisor.

EO3 Identify employee requirements for replacement of PPE.
EO4 Identify employee requirements concerning the workplace location of PPE.

Workers are usually issued basic PPE according to their normal task. The basic Personal Protective Equipment is supplemented by other PPE according to the daily activities of the worker. Replacement requirements are the same whether it is permanently issued to you or issued for a specific job.

If the PPE that you are issued is determined to be defective, it is your responsibility to return the defective equipment for replacement before continuing with your work activities. Defective PPE is like having no protection at all.

The Occupational Safety and Health Administration had mandated that PPE be available to the workers without charge. It may be located at various places around the site. Your supervisor will show you where to obtain PPE for the work that you will be performing. It is the supervisor's responsibility to ensure that workers obtain and properly use PPE.

As we have said before, Personal Protective Equipment provides a level of protection based on the placement of some sort of barrier between the hazard and your body. PPE is not without limitations. Each piece is designed to provide protection up to certain limitations. Limitations are based upon proper use of fully functional PPE. If we do not use PPE properly, or is it is defective, it will not provide the level of protection that it was designed to give.

EO5 Identify employee requirements pertaining to limitations of PPE.
EO6 Identify engineering and administrative controls.

Before you use a particular type of PPE, make sure that you understand its limitations. You would not use laboratory goggles to protect your eyes against grinding debris. You need to understand the limitations of PPE so that it will be properly used.

Hazards of one level or another exists in the work place. This is why safety controls are so important. There are two types of safety controls in addition to personal protective equipment. They are engineering and administrative.

An engineering control is a physical control over a hazard, which either removes the hazard or reduces the severity of the hazard.

Examples of engineering controls include:

- Local exhaust hoods in the Lab
- Physical barriers
- Liners of Storm Water Retention Basins
- Berms
- Work station designs

An administrative control is a means of accomplishing a task in the safest manner possible by direction of policy, practice, or procedure. Examples of administrative controls include:

- Procedures
- Signs and postings
- Setting stay times in work areas

ASBESTOS MODULE

EO1 Define Friable and Non-Friable Asbestos.
EO2 Identify health effects associated with Asbestos exposure.
EO3 Identify the methods used to communicate the presence, location, and quantity of Asbestos containing material.
EO4 Identify employee requirements for responding to or notification of incidents involving fallen asbestos or suspicious material that may contain asbestos.

REGULATORY DRIVERS

The Regulatory Drivers for the Asbestos Module are:

29 CFR 1926.1101, OSHA Construction Industry Asbestos Standard
DOE Order 440.1, Worker Protection Management for DOE Federal and Contractor Employees

Asbestos is a valuable mineral resource, useful in many applications. For all of the good qualities that asbestos has, it does have one bad quality "IT IS A SERIOUS HEALTH RISK." Before we look at the method of communicating the presence of asbestos, let's look at its history.

Asbestos is a naturally occurring family of minerals formed by combination of magnesium and silicon. These minerals take the form of hollow; microscopic fibers which are nearly indestructible and can be densely, packed, making a tough, flexible and very useful material.

EO1 Define Friable and Non-Friable Asbestos.

OSHA records show that almost all asbestos products may in time become hazardous, especially if their bonding material is disturbed. Exposure standards are based on the kind of work that is being performed and the likelihood that its fibers will break loose and become airborne, which is known as "friability."

Friable asbestos is asbestos that can be reduced to powder by hand pressure when it is dry. Sprayed on insulation and pipe insulation fall into this category.

Non-Friable asbestos is usually found bonded into other materials. Its fibers are harder to break down into a powder, but can still be released by cutting, grinding, or sanding. Examples include floor tile, transite, and brake pads.

EO2 Identify health effects associated with Asbestos exposure.

What are the Health Effects of Asbestos?

When bonded together, asbestos fibers pose little hazard. But if they are released from their bonding material, these fibers can break down into microscopic "fibrils." These tiny fibers are what makes asbestos so dangerous. If you inhale them they can enter your lungs and lodge in

tiny air sacs called "alveoli." It's through these air sacs that oxygen enters the blood and carbon dioxide is removed.

There are no warning signs that asbestos is causing problems in your body. It doesn't have any acute or short-term symptoms to alert you. In fact, many harmful effects do not appear for 20 years or more.

Smoking affects the lungs ability to remove asbestos fibers, allowing the fibers to stay in the lungs, which significantly increases the risk of developing lung cancer.

Who is at Risk?

You don't have to work directly with asbestos to be at risk from exposure to airborne fibers. You may also be exposed to asbestos if you work in a building that contains the material. Your risk increases if:

- Your work area contains friable asbestos, such as damaged pipe insulation
- You work near a construction or renovation area, which contains asbestos
- Or you are engaged in maintenance or custodial activities in areas containing asbestos

EO3 Identify the methods used to communicate the presence, location, and quantity of asbestos-containing material.

Under OSHA standards, employers must maintain records of the presence, location, and quantity of asbestos-containing material and inform employees who will perform housekeeping activities in these areas.

Methods of notifying personnel of the presence of asbestos at the FEMP include:

- **Warning Signs:** These signs are placed on the entrance doors of any building that contains asbestos.
- **Warning Labels:** These labels are placed on piping, ducts, tanks, etc. that contain potentially friable asbestos.
- **Material Safety Data Sheets or MSDS's:** These are available to anyone who may be working with or come in contact with asbestos.
- **Asbestos Work Permits:** These are issued for any job that involves the removal or repair of asbestos insulation.

Read all labels on asbestos products or asbestos waste that warns against causing dust and breathing airborne fibers.

EO4 Identify employee requirements for responding to, or notification of, incidents involving fallen asbestos or suspicious material that may contain asbestos.

Read all labels on asbestos products or asbestos waste that warns against causing dust and breathing airborne fibers.

How can you protect yourself at work?

- If you find any damaged insulation or material on the ground that you suspect may contain asbestos, notify your supervisor. If your supervisor is not available, notify the AEDO.
- Never hang plants from insulated pipes or otherwise cut through pipe insulation.
- Don't remove ceiling tiles or light fixtures from suspended ceiling grids.
- Try to avoid scraping floor tiles, walls or ductwork when moving furniture.

VEHICLE SAFETY MODULE 4075

EO1 Identify vehicle safety requirements.
EO2 Identify defensive driving techniques.

REGULATORY DRIVERS

The Regulatory Driver for Vehicle Safety is:

DOE Order 3791.2A, Federal Employee Motor Vehicle Safety Program.

EO1 Identify vehicle safety requirements.

Government owned motor vehicles are used extensively to transport personnel and equipment. Gasoline, diesel, or electric engines may power these vehicles. When you use one of these vehicles, you need to ensure that you observe vehicle use requirements. The use of government vehicles at Fluor Fernald is a privilege and it is the driver's responsibility to treat these units as if they were their own.

Vehicle safety requirements include:

- Observing Substance Abuse Policy requirements
- Obeying all company rules and public laws when operating on public roads
- Having in your possession a valid driver's license, which may be a required commercial driver's license
- Wearing safety restraints
- Reporting accidents immediately to supervision and Vehicle Administration
- Implementing the no smoking policy in government owned or leased vehicles
- Inspecting a motor vehicle using the appropriate checklist before operating it. This includes submitting the checklist to Vehicle Administration as required in the Safety Performance Requirements or SPR Manual.
- Having an operational back up alarm when the rear view is obstructed. This is required of all fleet vehicles that are in service.
- Transporting personnel in properly designed areas of the vehicle
- Ensuring that you are qualified to operate the vehicle as intended to be used.

EO2 Identify defensive driving techniques.

Any time you operate a motor vehicle you should practice defensive driving. To drive defensively, you must always be ready for the unexpected. Try to anticipate what the other driver is going to do and be prepared to keep the situation under control.

Some practices that you can implement that will make you a better defensive driver are:

- Always observe posted speed limits.
- Reduce your speed in inclement weather.
- Keep your motor vehicle in good repair.
- Make sure you have enough tread on your tires.
- Observe posted signs and anticipate that the other driver will not.
- Keep a safe distance from vehicles in front of you. A good rule of thumb is to allow one second of distance or one car length for every ten miles per hour you are traveling.
- Watch what is happening on the road.
- Consistently look as far down the road as you can see. This will give you time to prepare for situations that are coming up.
- Stay alert. Keep your mind on driving, not on the radio or your cellular phone.
- Keep both hands on the steering wheel and your feet properly positioned on or near the accelerator or brake pedal.
- Always adjust your mirrors before starting out. Try to arrange them in such a way as to eliminate blind spots.
- Don't try to become competitive with other drivers.

Affects of Adverse Weather Conditions

Rain seems harmless enough if there is a good visibility, however, we know differently. The initial downpour will lift oil and old rubber from the surface of the road, making the road extremely slippery. It will take at least 30 minutes of good rain to wash away the oil and rubber. For a heavy downpour, there is the chance of hydroplaning. This is where the tire is actually riding on a sheet of water instead of the road. Hydroplaning can be as treacherous as sliding on ice.

Skidding can be caused by either rain, or snow and ice. There are three steps to prevent skidding in any situation. Take your foot off the accelerator, turn into the skid, this means turning the steering wheel in the direction that the rear end of the car is moving, and Do Not Touch the brakes. This may lead to total loss of control of the vehicle.

Snow and ice have the potential to cause many problems. In addition to skidding, the lack of visibility may add to driving difficulties. One may not see the traffic lane stripe, stop signs, or even the edge of the road. Safe driving in snow requires having extra equipment in the car.

This equipment includes:

- Ice scraper
- Sand and shovel
- Extra windshield washer fluid
- Blanket and additional clothing
- Sunglasses for glare.

When driving in snowy or icy conditions, observe the following safety precautions. Drive with your headlights on, allow a longer braking distance, and apply soft taps on the brakes to slow down. Be extremely cautious when crossing bridges, this is the first place to ice up. Be prepared to take the proper actions for skidding.

The final general driving hazard is fog. There are several tips for driving safely in fog. Use low beams only, high beams can blind the driver by reflection. Do not use emergency flashers while driving. Besides being illegal, it may cause others to think that your vehicle is on the side of the road instead of actually on the road. Do not trust following tail lights of a vehicle in front of you, if you can't see well that person probably can't see well either.

There is one defensive driving technique that applies to all driving conditions, rain or shine, night or day. That technique is **slow down.**

CHEMICAL ACCOUNTABILITY MODULE

EO1	*Identify where to find MS-1034, "Chemical Accountability" which contains the requirements for the Chemical Accountability Program at the FEMP.*
EO2	*For chemicals that are controlled under the Chemical Accountability Program, recognize how they are labeled.*

The Chemical Accountability Program was implemented at Fluor Fernald in March 2000. The Chemical Accountability Program is a process used to review, obtain, identify, and track all chemicals at the FEMP.

The purpose of the program is to decrease the risk of exposure to hazardous materials to you and the environment by coordinating the inventory of chemicals at the FEMP and needs with other agencies. This limits the supply of hazardous materials and reduces the risk that excess quantities will accumulate.

The program establishes a system to introduce new chemicals to the FEMP. Purchase additional quantities of existing chemicals, acquire chemicals from available storage on site, other DOE sites, Ohio EPA Material Exchange, Hamilton County Interchange, GSA National Reuse Database, and to track storage location until consumed, declared as waste, or removed from the site.

MS-1034, "Chemical Accountability" can be found in the Rainbow Stations or on the Intranet in the Procedure section.

When chemicals that are tracked by Chemical Accountability have been received by RIMIA on site, the Site Chemical Administrator will affix a bar code label on the chemical container.

The Site Chemical Administrator will also update the Chemical Management System database and notify RIMIA when chemicals can be delivered to the assigned designated chemical storage areas.

If you have any questions concerning Chemical Accountability, your supervisor, project manager, facility owner, or Chemical Accountability Manager should be able to provide you with the answer.

COMPUTER SECURITY MODULE 4075

EO1 Identify the policies and procedures on computer security.
EO2 Identify the appropriate and responsible use of computer resources.
EO3 State the acceptable and unacceptable actions related to password security.
EO4 Relate the proper steps to perform with regard to virus scanning for computer virus protection.
EO5 Identify the proper forms and passes for moving computer hardware.
EO6 Determine the appropriate use of handling of licensed and unlicensed software.

REGULATOR DRIVERS and FEMP SPECIFIC PROCEDURES

The Regulatory Drivers and FEMP Specific procedures for Computer Security are:

DOE Order 5480.19, Conduct of Operations
DOE N 205.1, Unclassified Cyber Security Program
DOE N 205.3, Password Generation, Protection, and Use
DOE G 205.3-1, Password Guide
HR-0145, Employee Discipline
HR-0148, Business Ethics and Conduct
HR-0173, Use of Computer Resources
HR-0620, Educational Assistance
MS-1007, Technical Information Approval & Dissemination
MS-1012, Establishing & Terminating Computer User Accounts
MS-1013, Management of Off- the Shelf Software
MS-1014, Protection Against Computer Viruses and Using Personal Software

EO1 Identify the policies and procedures on computer security.

DOE N 205.1, "Unclassified Cyber Security Program," establishes requirements, policies, responsibilities, and procedures for developing, implementing and sustaining a Department of Energy computer security program. This notice replaces DOE 1360-2B.

These requirements extend to all site computer resources, including the electronic mail systems, Internet access, mini computers, and personal computers (PCs). Files may also be retrieved and reviewed under certain circumstances at the discretion and authorization of the Fluor Fernald's Computer Protection Program Manager (CPPM). The DOE Computer Protection Program Coordinator (CPPC) will monitor DOE employees.

Computer users should be aware there is no actual or legitimate expectation of privacy in the use of company and government computer resources. Examples include e-mail, Internet access, software and hardware owned by the Federal Government and Fluor Fernald.

In conjunction with DOE N205.1, "Unclassified Cyber Security Program," Fluor Fernald's Use of Computer Resources procedure sets forth the appropriate and responsible use of computer resources. This procedure applies to all persons using computer resources via computer systems or other means at the FEMP. This procedure applies to all computer resources, mini-

computing resources, personal computers, and computers that access public and private networks including the Internet, Extranet and Intranet.

Fluor Fernald employees, DOE employees, Teaming Partners or contractors must apply for access to Fluor Fernald computer resources, pursuant to MS-1012, "Establishing & Terminating Computer User Accounts." The employee's supervisor initiates applications for establishing and terminating computer users accounts.

HR-0173, "Use of Computer Resources" specifies the following:

Computer resource users shall use computer resources for the performance of their official duties only. The use of computer resources for personal or non-business purposes is prohibited and may result in disciplinary actions in accordance with HR-0145, "Employee Discipline."

Pursuant to HR-0620, "Educational Assistance," and with supervisor's approval, it is acceptable to use computer resources covered by HR-0173 to work on school assignments or to participate in course activities for company or DOE-sponsored classes or classes reimbursed through the Educational Assistance Program. Work on school assignments cannot interfere with official assignments and can only be done outside of normal work hours and assigned overtime hours.

EO2 Identify the appropriate and responsible use of computer resources.

Fluor Fernald's Information Management Department may monitor and record computer resource usage. Users should be aware that their usage of the Internet, Extranet, chatrooms, newsgroups, e-mail, and file transfer into Fluor Fernald's internal computer networks are monitored. Computer users shall conduct themselves honestly and appropriately while using computer resources and respect the copyright, software licensing rules, property rights, privacy and prerogatives of others.

Fluor Fernald computer resources shall not be used knowingly to violate the laws and regulations of the United States, any other nation, state, city, province, or other local jurisdiction. Use of these resources for illegal purposes may be grounds for immediate dismissal, and Fluor Fernald will cooperate with any legitimate law enforcement organization relating to allegations of such misuse of computer resources.

Any computer software that is acquired other than through normal procurement channels must be registered with the Information Management Department according to MS-1013, "Management of Off-the Shelf Software."

Such software must be scanned for viruses and reviewed to ensure that Fluor Fernald is not assuming any liability, financial or legal, before being certified for use.

Any kind or sexually explicit threatening, demeaning, harassing, offensive, and otherwise inappropriate images or documents on any Fluor Fernald computer system or electronic communication system is inappropriate, unacceptable, and may not be accessed, archived, stored, distributed, edited, printed, or recorded using Fluor Fernald computer resources. Any user receiving any document, correspondence or files of these types should retain the material

and immediately notify a supervisor or manager, the Fluor Fernald Computer Security Investigator or the Human Resources Employee Relations Section.

The use of Internet chat rooms and similar real-time discussion groups, newsgroups and message boards are not permitted unless directly related to a job requirement. The Internet, including chatrooms, newsgroups, and message boards are public forums and are subject to the restriction on dissemination of information pursuant to MS-1007, "Technical Information Approval & Dissemination."

Downloading of streaming audio or video files, or the listening to music, or watching videos, or the use of newsgroups with automatic update features (e.g. Pointcast, etc.) are not permissible unless directly related to a job requirement.

Day trading and other investment activities are not permitted.

Any user who attempts to disable, defeat or circumvent any company security mechanism will be subject to disciplinary action.

EO3 State the acceptable and unacceptable actions related to password security.

DOE N 205.3, "Password Generation, Protection, and Use," establishes the minimum requirements for the generation, protection and use of passwords to support authentication when accessing classified and unclassified Department of Energy information systems. The Notice requires that all classified or unclassified DOE multi-user information systems, desktops and laptops, and those information systems intended to provide unrestricted public access must have and use a password mechanism that authenticates the identity of each person accessing the DOE information system.

DOE G 205.3-1, "Password Guide," supplements DOE N 205.3 and provides the following guidance for the creation of passwords:

- Passwords must contain at least eight non-blank characters.
- Passwords must contain a combination of letters (preferably a mixture of upper and lowercase), numbers and at least one special character within the first seven positions.
- Passwords must contain a non-numeric character in the first and last positions.
- Passwords must not contain the user ID.
- Passwords must not include the user's own, or to the best of their knowledge, close friends' or relatives' names, employee badge number, Social Security number, birth date, phone number, or any information about them that the user believes could be readily learned or guessed.
- Passwords must not, to the best of the user's knowledge, include common words that would be in an English dictionary, or from another language with which the user has familiarity.

- Password must not, to the best of the user's knowledge, employ commonly used proper names; including the name of any fictional character or place;
- Passwords must not contain a simple pattern of letters or numbers, such as QWERTYXX or XYZ123XX.
- User must keep passwords confidential except in emergency circumstances or when there is an overriding operational necessity.
- Users must not leave clear-text passwords in a location accessible to others or secured in a location whose protection is less than that required for protecting the information that can be accessed using the password.
- Users must not enable applications to retain passwords for subsequent reuse.
- Leaving your computer while still logged on without activating the keyboard lock or password-protected screen saver, or leaving your password posted in a conspicuous place are computer security violations.
- Information on compromised passwords is to be reported to the Help Desk at x6661.

If you forget your password or have problems logging on, contact the Help Desk at x6661. They will give you assistance without reprisal.

The following are other misuses of computer resources:

- Playing games;
- Operating a private business;
- Gambling activities;
- Pornographic files;
- Personal letters;
- Fliers for non-sanctioned activities;
- Harassment

EO4 Relate the proper steps to perform with regard to virus scanning for computer virus protection.

MS-1014, "Protection Against Computer Viruses and Using Personal Software at the FEMP," provides the procedures for protecting computer resources from computer viruses and registering personal software for use at the FEMP. The steps you can take to avoid introducing a virus to your computer are:

- Don't use diskettes or CDs of unknown origin.
- Don't use unregistered public domain software or shareware.
- Don't use unregistered software downloaded from bulletin boards or other telecommunication services.

- Use a virus checker on all diskettes or CDs received through the mail or from others, even the computer next door.

- Scan all diskettes or CDs sent to and received from clients, contractors, etc.

Diskettes or CDs may be scanned at your desk by inserting them in the floppy or CD-ROM drive of your PC, right-click the appropriate drive letters as they appear under My Computer or Windows Explorer and selecting Scan for Viruses. If you suspect a virus has infected your computer, stop immediately and report all confirmed or suspected cases of a computer virus to the Help Desk at x6661.

Do **NOT** attempt to remove a virus on your own.

EO5 Identify the proper forms and passes for moving computer hardware.

When not in use, laptop computers must be secured in a lockable desk, file cabinet, storage cabinet, or secured office. Immediately report any missing computer equipment to your Asset Management Technical Specialists (AMTS) or Property Asset Custodian (PAC). DO NOT conduct your own investigation.

Movement of computer equipment by computer users is not permitted. This restriction applies whether moving equipment within a site or between sites.

EO6 Determine the appropriate use of handling of licensed and unlicensed software.

If your software is not installed on the network, then proof of licensing for the software is to be kept with the PC. The original software manual or original diskettes, kept with the PC, constitutes authorization to use that software. Where standard network software is involved, it is the responsibility of the Network Administrator to ensure that the appropriate license agreements have been obtained.

Any computer software that is acquired, other than through the normal procurement channels (for example, through universities, bulletin boards, or shareware), must be registered with Information Management, prior to its use at the FEMP. To register software, call the Help Desk at x6661.

In order to move any computer equipment, You must contact your AMTS or PAC for assistance. They will prepare a Miscellaneous Shipping Order for off-site moves, or Relocation Authorization for on-site moves. If you do not know whom your AMTS or PAC is, contact your manager or Property Management Hot Line at x7676. Property passes must be obtained from your AMTS or PAC for any government-owned computer equipment being removed from Fernald project facilities. A property pass is not required when transporting computer equipment from site to off-site or from off-site to site facilities.

HR-0173, "Use of Computer Resources," is summarized below. In addition, a brief statement about employees' Computer Security responsibilities is displayed during the login process. The computer resources at the FEMP are owned by the Department of Energy and operated by Fluor Fernald. They are to be used solely for business needs, approved education, and employee job search. Only authorized personnel may access the computer resources at the

FEMP, and they are required to read and sign FS-F-3925, "Computer Security Accountability Form." The computer resources at the FEMP may not be used to solicit for outside business ventures, personal parties, social meetings, charities, and membership in any outside organization, political causes, religious causes, or other matters not connected to business at the FEMP. Government-owned computer resources may not be used for personal business opportunities. To do so is in violation of HR-0148, "Business Ethics and Conduct."

HUMAN RESOURCES MODULE 4075

EO1 State the policy on substance abuse in the workplace.
EO2 State the definitions of diversity.
EO3 Identify what should be reported that might lead to workplace violence.
EO4 State the policy on Positive Employee Discipline.
EO5 Identify behaviors that constitute harassment in the workplace.

REGULATORY DRIVERS and FEMP SPECIFIC PROCEDURES

The Regulatory Drivers and FEMP Specific Procedures for Human Resources are:

10 CFR Part 707, Work Place Substance Abuse Programs at DOE Sites
49 CFR Part 29, The Department of Transportation Controlled Substances and Alcohol Use and Testing Program
The Occupational Safety and Health Act of 1970, General Duty Clause (5A)
HR-0145, Employee Discipline
HR-0147, Harassment
HR-148, Business Ethics and Conduct
HR-0172, Workplace Violence Prevention

EO1 State the policy on substance abuse in the workplace.

Drug and alcohol abuse is a major problem in the industry. Such substance abuse results in worker health problems and poor attendance, and may contribute to accidents in the workplace. In order to comply with federal regulations and protect worker health and safety, all sites have adopted a Substance Abuse Policy "to promote a work environment that is drug-free and alcohol free."

Other problems that substance abuse may cause are:

- Tardiness
- Poor performance

As a result of the Regulatory Requirements and the Substance Abuse Policy, Fluor Fernald has reserved the right to test all applicants and contractors, including teaming partners, for the presence of illegal drugs or alcohol in the body, and hire only those persons that pass the drug and alcohol screening. In addition, personnel already employed at the FEMP may be subject to random testing in accordance with the policy. Testing may also follow safety or security incidents, or when requested by managers for documented deterioration in attendance, performance or behavior. Fluor Fernald prohibits the submission of substituted or alternated urine samples. Evidence of such will be addressed in accordance with the Employee Discipline "HR-0145".

Fluor Fernald prohibits the use, possession, sale, distribution, or manufacture of illegal drugs at the FEMP. The five drugs most often abused, identified by the Department of Health and Human Services are:

- Marijuana
- Cocaine
- Opiates
- Phencyclidine
- Amphetamines

EO2 State the definitions of diversity.

Diversity can be defined as "the mosaic of people," who bring a variety of backgrounds, styles, perspectives, values, and beliefs as assets to the groups and organizations with which they interact." What stands out to you in this definition?

- Diversity is an ASSET, rather than a burden
- Diversity INCLUDES EVERYONE
- Diversity is a MOSAIC, rather than a melting pot

A diverse work force is now and will continue to be an integral part of today's business operations. What ways do people differ? Most people immediately think of factors such as race, color, age, gender, sexual orientation, ethnicity, and mental or physical characteristics and abilities, but there are other ways that people differ.

- Geographic location
- Work ethics
- Communication style
- Education level
- Language
- Personal interests
- Marital status

Actually, all of these factors and many more are ways that people show their diversity.

Although the U.S. workforce has always been made up of diverse groups, it is not until the latter part of the twentieth century that American society began to formally address issues surrounding workforce diversity. Rapidly changing global demographics and market trends are contributors to the changing face of the workplace in the United States and other countries. The diverse makeup of the workforce can be attributed to a combination of political, cultural, business and economic strategies.

Did You Know.....

4075

- The average worker in 1965 was a 29-year-old white who was married, had children, and had fewer than 12 years of education.
- The U.S. Census Bureau predicts that, in the year 2000, the average worker will be 40 years old.
- The U.S. Department of Labor predicts that in the year 2000, 85% of the new entrants in the workforce will be women and minorities and 15% will be white males.
- 75% of women between the ages of 25 and 34 are now in the workforce.
- Only 10% of U.S. families now have the traditional "father working, mother at home, with 2.4 children" scenario.
- Due to the shift from manufacturing to a service economy, two paycheck households are becoming the norm.
- 90% of those working at the beginning of the next century are already employed. In order for 75% of us to continue working we will need to be retrained.
- The fastest growing race in America is Hispanic.
- The U.S. Census Bureau estimates that in the year 2010, Hispanics will exceed African-American as America's largest racial minority.
- The most educated, affluent households in America are of the Asian/Pacific Islander ancestry.
- 1 in 10 Americans between the ages of 16 and 24 are high school dropouts.
- 1 in 10 American adults are gay or lesbian.
- In the year 2000, as many Americans will be over the age 75 as will be under age 5.
- People with disabilities are the largest of all minority groups in America.

Accepting these changes will be critical for the U.S. Workforce. The statistics show the potential for cross-cultural miscommunication is great. They also reflect the change that diversity is bringing to our culture and the challenges that change poses for each of us. Working effectively with diversity means recognizing many types of differences in you and others. It means capitalizing on each other's strengths and compensating for each other's weaknesses. It means being appropriately assertive, saying what you mean, and asking for what you want. It means developing patience and tolerance, and handling conflict and feedback appropriately.

Here are some other specific guidelines to help you manage your diverse relationships:

- **Be aware of the change in the workplace that's taking place around you, and welcome that change.**

- **Recognize and respect others and their individuality.** No one has the right to impose their ideas, ideals, or values on others.

- **Think before you speak, and be sensitive to others.** If you do accidentally offend someone, apologize immediately. To avoid embarrassing you, some people may deny that they felt offended. Even so, your apology will be heard and silently appreciated.

- **Talk about your differences and ask tactful questions about how people want to be treated.** Use the "Platinum Rule." The "Platinum Rule" is an extension of the "Golden Rule," and is considered the cornerstone of diversity behavior. Unlike the "Golden Rule," the "Platinum Rule" encourages people to treat others, as *they* want to be treated. By doing this you demonstrate respect and honoring of difference by assuming that others may want to be treated differently than you want to be treated

- **Listen more.** Being listened to increases a person's self-esteem and confidence. Listening encourages people to be less defensive and to talk through concerns and solve problems.

- **Recognize your own biases and prejudices.** Prejudice is a natural human emotion. You don't have to like or agree with everyone, but you do have to treat each person with respect and equality

- **Eliminate stereotypes and generalizations.** Each of us is made up of many factors. Avoid using words, images, and situations that suggest that all or most members of a particular group are the same, and identify people by race, gender or ethnic origin only when those facts are relevant.

- **Expose yourself to other cultures.** Most of us like to be around people that are like us, but we can't grow much that way. The best way for us to grow individually is to learn about other ways of doing things.

- **Remember that your race/gender/personality style is not the center of the universe.** Everyone is different. Respect people for who they are, and don't try to turn them into you. It's important to remember that you are different too.

- **Be careful with humor.** Sometimes people are eager to put their personality into their conversations that they forget to consider how off-the-wall comments and jokes might hurt others.

- **Lighten up.** Don't take everything so seriously. We wouldn't feel so threatened by diversity if we allowed ourselves to chuckle at our own, and other's, shortcomings.

Dealing with diversity in our lives is an ongoing learning experience. We must constantly look for ways to learn more about others, while learning more about ourselves.

We will be stronger as individuals, as an organization, and as a nation when we can work together, maximizing the abilities of all persons. We can do this by putting aside racism,

sexism, and all those other "isms" that separate us. You should be commended for completing this training module and hope that it has challenged you to take diversity to its full potential within yourself, the entire organization, and all of your life experiences.

EO3 Identify what should be reported that might lead to workplace violence.

Workplace violence is best defined as "any physical assault or threatening behavior of either internal or external source that adversely affects the work Environment." Workplace violence includes, but is not limited to:

- Hitting
- Biting
- Beating
- Stabbing
- Suicide
- Near-suicide
- Shooting
- Rape
- Physical abuse
- Sabotage
- Arson
- Vandalism

Fluor Fernald explicitly prohibits acts of violence and aggression in the workplace. Fluor Fernald's goal is to provide a safe workplace and will employ pro-active, responsive, and corrective measures against workplace violence through company assessments, management involvement, and appropriate disciplinary action against offenders. It is every Fluor Fernald employee's responsibility to observe and comply with this policy to ensure a safe work environment.

Individuals who commit a violent act in the workplace may be removed from the premises and may be subject to disciplinary action, criminal penalties, or both.

Acts of violence can happen in many ways. For example, acts of aggression or actions that are intended to create fear of bodily harm.

It includes, but not limited to:

- Threats
- Stalking
- Verbal abuse
- Harassment
- Intimidation
- Retaliation (physical or verbal)
- Obscene/harassing phone calls
- Belligerent language,
- Profanity
- Intimidating presence
- Horse play

Also, included are physical attacks. A physical attack may involve use of a weapon. It includes, but is not limited to:

- Striking
- Pushing
- Bumping
- Kicking
- Frontal hold or rear hold that restricts one's movement

Threats can be verbal, written, or gestures with an intent to cause physical harm. Verbal threats could include statements such as:

- "I'll get him for this."
- "I'll get even with her for what she did."
- "If they fire me, the computer system will crash."
- "If they fire me, somebody is going to get hurt."

Violence can also include acts of sabotage, arson, vandalism or property damage. What really causes people to become violent in the first place? It could come from:

- Downsizing within the company causing a perception of threatened job security
- Alcohol and/or drug abuse
- Increased job frustration or decreased job satisfaction
- Financial difficulties or indebtedness
- Poor performance review
- Non-selection for promotions
- Criticism by others
- Domestic violence

You are the key to a safe work environment. You are one of the major factors in preventing violence in the workplace. You are in the best position to observe potential problems in the work area on a daily basis. Many employees could exhibit early signs of violent behavior and never become violent or abusive. It would be much better, however, to be safe in the beginning rather than sorry in the end. It is your responsibility to report behavior that could lead to violence. It is management's responsibility to follow up on the concern.

You should report::

- Any and all physical assaults on an employee
- Behaviors such as throwing items or shaking fists or destroying property
- Possession of prohibited item
- Acts of intimidation
- Disruptive types of behavior
- Verbal threats
- Alcohol or substance abuse
- Change in personal hygiene
- Acute depression

If immediate violence, violence that occurs with or without warning or unannounced, occurs on-site, DO NOT intervene. Leave the area immediately and notify others to do the same. Notify the Communications Center at x911 or x6511, or on a hand-held radio call "Control" and notify them of the location of the violence. If you are off site and an incident occurs, the same procedure applies. Evacuate to a safe place, notify others to do the same and notify the authorities by calling 911. You will also need to notify the Fluor Fernald Communications Center at x6511. In both instances, notify your supervisor of the incident.

If you hear of or detect a threat of violence in the workplace, privately report the threatening behavior and/or potential acts of violence to the Communication Center at x911 or x6511. Also, notify your supervisor.

Remember that over one-half of employees who have been harassed, injured, or are victims of violence in the workplace never report it. Your alertness and willingness to REPORT any and all potential incidents will contribute immeasurably in minimizing violence in your work area.

EO4 State the policy on Positive Employee Discipline.

Fluor Fernald's disciplinary process stresses constructive discipline, which is intended to improve situations by providing employees and supervisory personnel with a means to correct deficient performance or conduct. The focus is to communicate an expectation of change and improvement rather than an expectation of future problems and eventual termination.

The process consists of a constructive, positive approach consisting of an oral reminder, a written reminder and a decision-making leave.

Oral Reminder

The purpose of an oral reminder is to correct a discipline problem by bringing it to the employee's attention in a friendly but serious manner. This approach may be appropriate after previous coaching has failed.

Written Reminder

A written reminder involves a formal, confidential conversation between the supervisor and the employee about a discipline problem. This step is appropriate for a more serious infraction or for repeated infractions. A memo is written to the employee summarizing the conversation and the need to improve and correct the situation. A copy of the written reminder is made part of the employee's permanent file.

Decision-making Leave

A decision-making leave consists of a formal, confidential conversation between the supervisor and the employee about a discipline problem. Following the conversation the employee leaves work for the remainder of his/her work shift (not to exceed the numbers of hours in the scheduled work shift) to decide whether to continue working for Fluor Fernald, which means following the Fluor Fernald policies and procedures. This period of time away from work is paid as a good faith gesture by the company to give the employee time to give due consideration to correcting the problem.

At the beginning of the employee's next scheduled work shift, the employee returns to work and renders their decision either to return to work and continue his/her association with Fluor Fernald by committing to improve or end his/her association with Fluor Fernald by voluntary resignation.

Termination

Termination of employment may occur if there is no improvement and all other appropriate steps in the discipline process have been exhausted, or an employee commits an offense so serious that continued employment cannot be tolerated.

For more information regarding the steps in the disciplinary process, please refer to HR-0145, "Employee Discipline," or contact your supervisor.

Business Ethics and Conflict of Interest

Fluor Fernald expects and requires all Team Members to maintain the highest standards of business ethics and personal conduct and in a manner that will safeguard the company's reputation, and maintain the respect of clients, customers, associates, stakeholders and community. Employees shall avoid any and all circumstances giving rise to potential bias due to conflicting personal interests, and investments not consistent with the employee's performance of Fluor Fernald business.

Conflicts of Interest are discussed and outlined in Site Procedure HR-0148, "Business Ethics and Conduct". These discussions of conflict of interest are intended to be general guidelines for disclosure. They are not meant to be all-inclusive or specific, but to encourage communication and dialogue between team members and supervisors concerning all such issues. Adequacy of disclosure is dependent upon good faith and judgement. HR-0148 is available during General Employee Training (G.E.T.), in the Site Document Rainbow Stations, on the Fluor Fernald Intranet, or from a team member's supervisor. All employees are expected and required to disclose potential personal conflicts of interest as part of the and to sign form, FS-F-5714, disclosing any conflict of interest. Any conflict will be discussed with the employee and appropriate mitigation measures taken.

EO5 Identify behaviors that constitute harassment in the workplace.

Fluor Fernald has made a commitment to provide all employees a positive, productive work environment that is free from harassment. Fluor Fernald's commitment to providing a harassment-free environment extends to, and must be followed by all employees at any location or any time an employee is engaged in activity associated with employment at Fluor Fernald. The nature of harassment is that it tends to offend, demean, belittle, or humiliate others. Whatever it is based on, harassment is prohibited whether or not it violates equal employment opportunity laws.

Harassment can be based on such things as race, sex, religion, national origin, age, sexual orientation, veteran status or disability. Harassment includes, but is not limited to the following:

- Epithets, slurs, derogatory comments or jokes, negative stereotyping, intimidation, threats, assaults, or physical interference with an employees normal work or environment.

- Written or graphic material placed on walls, bulletin boards, or electronic media, circulated in the work place or elsewhere on the company's premises that belittles or shows hostility or aversion toward an individual or a group.

- Any other conduct that has the purpose or effect of unreasonably interfering with an employee's work performance or creating an intimidating or offensive work environment.

Harassment based on sex is known as sexual harassment. Unwelcome and unsolicited sexual advances, request for sexual favors and other verbal, visual or physical conduct of a sexual nature constitute sexual harassment when one of the following conditions exists:

- Submission to the conduct is made either explicitly or implicitly as a term or condition of employment.

- Submission to or rejection of such conduct by an employee is used as the basis for employment decision affecting the employee.

- Conduct which has the effect of unreasonably interfering with an employee's work performance or creating an intimidating, hostile or offensive work environment.

Sexual harassment includes, but is not limited to the following:

- Unwanted sexual advances or propositions

- Offering employment advantages in exchange for sexual favors

- Making or threatening reprisals after a negative response to sexual advances

- Leering; making sexual gestures; displaying sexually suggestive objects; pictures; cartoons; or posters

- Verbal abuse or jokes of a sexual nature; sexual innuendo; graphic verbal commentaries about an individual body; sexually degrading words used to describe an individual; suggestive or obscene letters, notes or invitations

- Unwanted physical contact of a sexual nature, touching, brushing up against the body, assault, impeding or blocking movement.

If you believe you are a victim of harassment, you should report it to your supervisor and/or the Employee Advocate, an Employee Relations representative, or an Industrial Relations representative. You are not required to report it to the person who you believe is harassing you. Similarly, if you observe what you believe to be harassment of another employee, you should report it to the Employee Advocate, an Employee Relations representative, or an Industrial Relations representative.

Fluor Fernald will investigate any reported harassment. No reprisal, retaliation, or other adverse action will be taken, or tolerated, against any employee for making a good-faith report of harassment or for assisting in an investigation of harassment. Proven retaliation will be subject to disciplinary action. Dishonest reports of harassment are also not tolerated. Fluor Fernald will take appropriate disciplinary action if its investigation shows that dishonest and bad faith accusations have been made. Violations of the Harassment procedure are taken very seriously and are subject to disciplinary action up to and including immediate termination.

SECURITY MODULE

EO1 State the requirements for wearing and maintaining a FEMP picture badge.
EO2 State the Site Procedure for reference to determine the FEMP requirements for accessing or discussing business with a Foreign National.
EO3 State the proper response to a bomb threat.

REGULATORY DRIVERS

The Regulatory Drivers for Computer Security are:

DOE Order 0470.1, Safeguards and Security Program
DOE Order 0473.2, Protective Force Program
DOE M5632.1C, DOE Manual for Protection and Control of Safeguards and Security Interests
DOE N142.1, Unclassified Foreign Visits and Assignments

EO1 State the requirements for wearing and maintaining a FEMP picture badge.

FEMP Picture Badges are an effective means for controlling and maintaining security. Each employee is issued a badge to be worn above the waist, below the neckline, and on the outer garment. FEMP Pictures Badges must be worn at all company business locations for identification purposes. They should be worn for business reasons only. Your FEMP Picture Badge should never be left in a vehicle unattended or used for personal identification. FEMP Picture Badges are government property and must not be tampered with; (i.e. no markings, stickers, pins, etc.). If a badge is faded, or the person has a significant appearance change and is unrecognizable, the individual must call the Badge Office at x3985 to request a new badge.

FEMP Picture Badges must be returned to the Badge Office when the job has been completed or when access to the FEMP site or Fluor Fernald facilities is no longer required. If you are a contractor leaving one company and starting with another, you are required to complete the exit process, including returning the FEMP Picture Badge. When starting with the new company, you shall report to the pre-hire coordinator located at the DOS building to complete access requirements.

Contractor Badges are dated. You must report to the Badge Office prior to expiration date to exchange your FEMP Picture Badge for a new one.

If you have forgotten or lost your picture badge, you must report to the Badge Office or an off-site Badge Station and present photo identification to receive a temporary badge.

EO2 State the Site Procedure for reference to determine the FEMP requirements for accessing or discussing business with a Foreign National.

Foreign Nationals (non-U.S. Citizens, including resident aliens) access requirements are listed in Procedure SE-0005, "Foreign Nationals." Visits, assignments or extensions for Foreign

Nationals, may take from one week to six months for processing. Upon approval, Foreign Nationals are issued a "RED" colored badge with an expiration date.

Any questions regarding non-U.S. Citizens should be directed to the FEMP's Foreign National Coordinator, located at the Badge Office at x3985.

Violation of U.S. Code Title 18, Section 641; U.S. Code Title 18, Section 793F; and the Atomic Energy Act of 1954, Section 227 states:

> *"Anyone who knowingly steals, embezzles or converts to their own use anything of value to the United States shall be fined not more than $10,000.00 or imprisoned for not more than 10 years, or both."*

Federal statutes and codes prohibit theft, property damage, and misuse of new or used government property including scrap materials. Firearms, ammunition, explosives, incendiary devices, alcohol, and illegal substances are prohibited at the FEMP.

EO3 State the proper response to a bomb threat.

One of the many emergencies that could be encountered at the FEMP is that of a bomb threat. If you receive a bomb threat over the telephone, please take the following actions:

- Remain calm
- Listen to the caller without interrupting
- Make notes of everything the caller says, how they say it, or any other clues or information that may help identify the caller
- Notify security or the local police
- Talk to no one other than instructed.

If you are on-site, notify Security at x911, that links you directly to the Communications (Comm-Center). **Remember: The Bomb Threat checklist is located on the back cover of the FEMP Telephone directory.**

If you are located off-site, notify the local police using the 911 emergency number. After you have notified the local police, call Security at x6511. Use the Bomb Threat Checklist located on the back cover of the FEMP Telephone directory. Follow any directions that Security or the local police might give you. If you should happen to find a bomb-like device, take the following actions:

- DO NOT USE A RADIO OR CELLULAR PHONE TO NOTIFY AUTHORITIES! (Some Bombs can be activated by radio frequencies)Notify security or the local police.
- Notify security or the local police immediately using a non-cellular telephone.
- Follow the instructions given by security or the local police.

- Leave the area.

RECORDS MANAGEMENT MODULE

EO1	*State the reason we are responsible for protecting DOE records.*
EO2	*State reasons the FEMP is under general and epidemiological moratoria.*
EO3	*Define records and non-records, stating three elements and six characteristics of records.*
EO4	*State the purpose of the Fluor Fernald Records Management Program.*
EO5	*Identify benefits of the Fluor Fernald Records Management Program.*
EO6	*Define the responsibilities of the general employee relating to records.*
EO7	*Discuss the process of tracking records through the Active Records Inventory Database System (ARIDS).*
EO8	*Identify whom to contact regarding questions about managing records.*

REGULATORY DRIVERS and FEMP SPECIFIC PROCEDURES

The Regulatory Drivers and FEMP Specific Procedures for Computer Security are:

MS-1037, General Handling and Filing of Records
44 U.S.C., 3101 and 3102
36 CFR, Chapter XII, Subchapter B – Records Management
RM-0022, Records Management Program Requirements Manual

EO1 State the reason we are responsible for protecting DOE records.

The records created at the FEMP belong to the DOE, thereby making them federal records: All contractors and employees must manage these records in accordance with federal guidelines.

EO2 State reasons the FEMP is under general and epidemiological moratoria.

The DOE Records Destruction Moratorium means that records at the FEMP site are not destroyed without the direct guidance of the DOE.

A General Records Moratorium was imposed in 1985 to preserve the integrity of records during the transition between Contractors at the FEMP. Subsequent site litigation has imposed additional restrictions on record destruction.

DOE ordered the Epidemiological Records Moratorium in 1990 for all sites. It includes industrial hygiene, work identification, site organization configuration, and operations information records. It concerns on-going and planned studies of DOE and DOE-contractor employees.

These records all contain information that could be beneficial to health related studies, such as exposure time, dosimetry rates, or work assignment logs.

EO3 Define records and non-records, stating three elements and six characteristics of records.

Official records are supporting materials used to explain or document the history of the decision-making process in any work the contractors initiated or were directed to perform. They may include drafts, annotations, reports, raw data, and telephone logs.

Records are "recorded information produced or received in the initiation, conduct, or completion of an activity, and includes three elements, i.e., *content, context and structure* sufficient to provide evidence of activity regardless of the format or medium."

The six characteristics of a good record are:

- Authentic
- Complete
- Accurate
- Pertinent
- Useable
- Understandable

Some examples of records include

- Letters:
- Memos
- E-mails, originals and copies that give direction
- Meeting minutes
- Telephone confirmations
- Sign-in sheets that incorporate summaries of work-related discussions, decisions, directions, or commitments

Reports that include the final approved copy, back-up documentation, all comments received during the formal review.

Any Project-related material goes to the Project File, which is managed per ED-12-5001, "Project Document Control" (ECDC). Examples of Project File Records include:

- Design Change Notices (DCNs)
- Redline Drawings
- Work Plans
- Reports
- Studies
- Request for Proposals (RFPs)
- Work Bid Packages

Some examples of Non-Records are:

- Reference copies of documents

- Copies of controlled documents
- Trade magazines or reference books
- Personal papers, (e.g., training reference material) etc.

Non-records do not have to be retained past their usefulness.

EO4 State the purpose of the Fluor Fernald Records Management Program.
EO5 Identify benefits of the Fluor Fernald Records Management Program.

As a contractor for DOE, we are obligated to comply with 44 U.S.C. 3101 and 3102, and also 36CFR, Chapter XII, Subchapter B- Records Management. This provides a site wide control mechanism at the FEMP for records, from creation or receipt, to distribution, utilization, maintenance and final distribution.

The way in which Fluor Fernald complies with these requirements is outlined in RM-0022, "Records Management Program Requirements Manual." MS-1037, "General Handling and Filing of Records," is the procedure that outlines the steps of the Records Management Program from "Cradle to Grave."

Benefits of the FEMP Records Management Program include:

- Providing timely recovery of records during discovery periods in litigation
- Increased ease of locating records by using ARIDS to identify the record holder
- Assisting in knowledge management for future researchers.

EO6 Define the responsibilities of the general employee relating to records.
EO7 Discuss the process of tracking records through the Active Records Inventory Database System (ARIDS).
EO8 Identify whom to contact regarding questions about managing records.

Each employee has certain responsibilities associated with records. The Record Holder is responsible for record determination, and must determine if a document is a record that he or she is responsible for maintaining. If you are a record holder, you can make this determination by answering the following questions either "Yes" or "No".

- Did you receive it for action?

- Are you or your department responsible for records that are created in other departments because of oversight duties? An example of this would include Official Personnel Files that are created in all offices, but are held in Human Resources.

If you answer "Yes" to ANY of the questions, then the document is a record that you are required to maintain.

Record Holders are responsible for separating their records from non-records and for taking their records to the Record Custodian so that they may be identified and stamped as a record.

They must also ensure that records are not defaced, damaged, destroyed or lost, since unauthorized destruction of federal records is punishable by law and can result in personal

fines (up to $10,000 and up to a year in jail per occurrence) and financial liability to Fluor Fernald.

Other responsibilities of Record Holders include:

- Ensuring that records are identifiable and legible
- Ensuring e-mails meeting record definition are printed out and filed appropriately
- Ensuring that records are kept in approved files

The Active Records Inventory Database System (ARIDS) is a part of an integrated database system used to help identify location of records. The Records Custodian enters the holder name and location, folder title, file series and dates of the records in ARIDS. ARIDS then generates a bar-coded label that will be used for tracking and archiving the record. The Record Custodians will maintain ARIDS.

Questions concerning records should be addressed to your Records Custodian, Division Records Management Program Coordinator (RMPC), or the Records Management Department.

PORTABLE FIRE EXTINGUISHER MODULE

EO1	*Identify the four types of fire classification.*
EO2	*State the proper response to a fire.*
EO3	*Select the proper fire extinguisher to use.*
EO4	*List the steps in using a fire extinguisher.*
EO5	*List the steps in emergency notification.*

REGULATORY DRIVERS

The Regulatory Driver for Portable Fire Extinguisher Module is:

29 CFR 1910.157 (G), Portable Fire Extinguishers

Fire extinguishers are a good safety precaution, and your first line of defense against fires, but they will only work properly in the hands of a trained operator. Putting your confidence in an extinguisher that you do not know how to use could prove more deadly than not having one at all.

Even a fire that starts out small has the potential to quickly grow out of control. Loss of life or property can be avoided by a quick, knowledgeable response to the fire while it is still in its early stages.

Your first reaction to a fire on-site will be to alert the local Fire Department by pulling a fire alarm or calling your local number (x911). Fighting the fire is their job, not yours. It is your option to try to contain the fire with an extinguisher until they arrive, but only under specific circumstances.

You will see many types of extinguishers in the workplace, presenting you with a number of different reagents for fighting fires. They can range in size from two and one-half to several hundred pounds. You must know when, and how, to operate the extinguishers in your work area. You should always be aware of the location of fire extinguishers in your work area. Even if you do not wish to use one, you may need to inform another employee where it is.

Fire is defined as a chemical reaction between fuel, heat, and oxygen. These elements combine to make the fire tetrahedron. If any one of these elements is removed, the tetrahedron collapses and the fire goes out. Fire extinguishers are designed to control or remove one or more of the elements in the tetrahedron. They can cool the burning substance, taking away the heat necessary for combustion, or perhaps suffocate the fire, depriving it of oxygen. In either case, the chemical reaction ceases to take place and the fire stops burning. Knowing the elements of the Fire Tetrahedron will help you understand how an extinguisher affects fire.

The first step in controlling an incipient, or first-stage fire is categorizing it. Fires burn on various fuels, and different classes of fuels demand different treatment. Using the wrong type of fire extinguisher might not only be ineffective, but dangerous as well. Once you have recognized the fuel source of the fire, containment is your goal. Fire extinguishers are for the purpose of holding back the spread of the fire until properly trained emergency personnel arrive.

The techniques for proper use of the extinguisher will depend on its contents. Certain reagents, such as water, should be spread at the base of the fire, while others, such as foam, are meant for smothering the fire. Again, the effectiveness of any fire extinguisher relies on the know-how of the person behind it.

EO1 Identify the four types of fire classification.

Fires have been divided into four classes, A, B, C, and D, based on the fuel present. Every fire extinguisher will be labeled with the classes of fire for which it is suited. These specifications will appear either as a letter code, a picture icon, or both. It is imperative to understand which class of fire you are fighting in order to use the correct type of extinguisher.

Class A

Class A fires consist of burning rubbish, or materials such as wood, cloth, paper rubber or plastics. These fires are normally extinguished with compressed water extinguishers, although multipurpose fire extinguishers may also be used. Avoiding clutter such as stacks of paper or flammable rubbish beneath desks and tables or near sources of flame will help to reduce sources of Class A fires in the workplace.

Class B

The category of B describes fires whose fuel is made up of flammable liquids, such as gasoline or combustible gases, such as propane. These fires must be controlled with fire extinguishers containing carbon dioxide, foam, or dry chemicals, which cut off the supply of oxygen to the flame, thereby interrupting the chemical reaction that causes the fire. Class B fires includes flammable and combustible liquids. Many of the solvents used are in this category.

Class C

Class C fires involve energized electrical equipment and present a shock hazard. Dry chemical and carbon dioxide extinguishers are commonly used to combat Class C fires. Cutting off the power to the electrical circuit, and thereby de-energizing the electrical equipment, will cause a Class C fire to become a Class A or B fire, depending on the fuel source.

Class D

Class D fires include those with combustible metals, such as magnesium or thorium, as their fuel source. Because of the extreme heat of a burning metal, dry powder is used to smother a Class D fire. This inert material does not react in the heat of the flame. Class D fires should only be observed in the process area or the laboratory. They are not common at the FEMP.

EO2 State the proper response to a fire.

When you encounter a fire, you should follow a three-step process. First, you should always sound the nearest fire alarm or call the fire department. Second, evaluate your ability to extinguish the fire. Finally, use the extinguisher or evacuate the area.

Immediately upon discovering a fire, no matter how small, you should notify the local Fire Department by sounding a fire alarm. It is important to always know where the nearest fire

alarm is in your workplace. You may call the local Fire Department directly. Either action will ensure that help is on the way, whether or not you fight the fire yourself. Even if you successfully stop the spread of the fire, you will need trained experts to ensure that it is fully extinguished and that further danger, such as hazardous gases resulting from the blaze, are managed correctly.

Fire alarms at the FEMP alert the Communications Center that a hazard exists. In some areas a local audible alarm will also sound.

You may notify the fire department by:

- Dialing 911
- Pulling a fire alarm
- Calling "Control " on a radio

EO3 Select the proper fire extinguisher to use.
EO4 List the steps in using a fire extinguisher.
EO5 List the steps in emergency notification.

The technique for using these various units remains fairly standard. The system for fire extinguisher operation is known as **P.A.S.S.**, and follows four steps. The first step is to **pull** the safety pin from the handle at the top of the canister. This breaks the safety seal, making the unit ready for use. Next, **aim** the nozzle. Reagents work at the base of the flames, although some actually need to be spread across the entire surface. Where you aim depends on which type of extinguisher you use. To release the contents of the fire extinguisher, **squeeze** the lever, and then **sweep** the stream back and forth to ensure complete coverage.

This P.A.S.S. method will help you remember the basics of using any fire extinguisher, but it is still important to thoroughly understand the operation of the extinguishers that will be in your workplace.

Pressurized water extinguishers are used for Class A fires only, that is, those fueled by materials such as wood, paper, cloth, and plastics. These models tend to be bulky, weighing around twenty-five pounds, so resting the unit on the floor while operating it may be desirable. The stream should be aimed at the base of the fire itself, so as to cool and soak the fuel. When initially discharged, the unit's stream has a range of thirty to forty feet. As the extinguisher empties and the stream weakens, you may need to move closer for better aim and to inspect the fire scene. Do this only if you have succeeded in controlling the fire. As you move in, diffuse the stream by partially blocking it with your fingertip. This will decrease the force of the water and thus reduce the risk of spreading any burning fuel. If the fire is completely out, soak the fuel to absorb its heat and prevent re-ignition. The pressurized water extinguisher will empty in approximately one minute.

An extinguisher that is available for use on both Class A fires, those which involve simple rubbish and plastics, and Class B fires, which are fueled on flammable liquids and gases, is the A triple F, or Aqueous Film Forming Foam extinguisher. The soapy foam reagent in these extinguishers smothers the fuel and cuts off its oxygen supply, suppressing the release of combustible vapors. A triple F can also prevent fires by coating a flammable liquid spill before an actual fire begins. Don't forget that any spill may pose a serious threat and should be

reported immediately to your supervisor. When using a foam extinguisher on a Class A fire, the P.A.S.S. system is used with the foam being aimed at the base of the fire.

When containing a Class B flammable liquid, the operating technique is slightly different. The foam should be lobbed onto the fire, coating the surface completely. If the liquid fuel is UN-contained, as in the case of a puddle, land the foam directly in front of the flame, so that the supply of oxygen is pushed away from both yourself and the fire. In an open container such as a trough or drum, bounce the foam off the far wall of the container in order to coat the flammable liquid. Stop the stream periodically to allow the foam time to seal out the oxygen. Remember that these extinguishers have a stream about ten to twenty feet and last approximately one minute.

The carbon dioxide extinguisher can be used on B or C class fires, making it effective on fuels such as flammable liquids and gases, and also on fires involving electrical current. Carbon dioxide extinguishers range in size from just a few pounds to several hundred pounds. The smaller CO_2 units are characterized by the hard plastic horn attached in the place of a hose. In operating any CO_2 extinguisher, it is important not to touch this horn, as the gaseous agent is very cold when it is released and can cause frostbite upon contact. Operationally, the carbon dioxide should be swept back and forth at the source of the fire. Larger CO_2 units are identified by the horn at the end of the nozzle hose. Again, never touch the horn while the unit is in operation, but rather use the handgrip at the end of the hose. CO_2 extinguishers tend to have shorter ranges than other types, usually no more than three to eight feet, and are affected by strong winds, so aiming low directly into the source of the flames is important.

Dry chemical fire extinguishers allow the user a wide variety of applications, with some designed for Class B and C fires and others for Class A, B, and C fires. Class A fires burn on wood, paper, cloth, and plastics, while Class B fires have flammable liquids and gases as their fuel and Class C fires are electrical in nature. The reagent in these units softens and sticks to the hot fuel upon contact, interrupting the chemical chain reaction of fire. Although some dry chemical extinguishers have a cartridge that must be punctured to ready the reagent, most are stored pressured units that come ready to use and follow the same PASS routine used for other types of extinguishers. Most fire extinguishers at the FEMP are dry chemical.

In the event of a Class D fire involving combustible metals such as magnesium or lithium, only one type of material is appropriate: dry powder. Although they sound alike, do not confuse the dry powder with dry chemical. Dry powder agents are designed to smother the fire while remaining inert with the fuel itself, while other reagents can have violent reactions with the metal. Dry powder comes in two forms: the scoop and drum, and the cartridge extinguisher.

Dry powder agents often come in a cartridge extinguisher. Break the safety seal by lifting the nozzle then push the pressure button on the cartridge. To avoid possible injury, be sure not to lean over the extinguisher as you do this, because an improperly tightened cap may fly off with extreme force causing serious injury to the operator. When you are using the extinguisher, completely coat the fire, and look for hot spots. These units have a range of between six and eight feet and some are equipped with special nozzles that allow them to spray over an even greater range.

Some extinguishers are built for use on larger fires. They are mounted on wheels due to their size. Their advantages include greater range, up to forty feet, and longer life, anywhere from thirty seconds to two minutes.

The type of extinguisher to be used is dictated by the work that is done and the fire hazards that exist within the area. Ask yourself, *"What kinds of fuels are present and in what quantities?"* Always make sure that you have access to a signal for help from your local Fire Department wherever you are working. This can be a fire alarm box, a portable two-way radio, or a telephone with the emergency number nearby. Remember, that fire extinguishers are not meant to completely put out most fires. Rather, they should contain the spread of the flames until the Fire Department can arrive.

No matter which type of extinguisher you use, always take them to a qualified person for recharging or refilling, even after a partial use. Extinguishers can lose their internal pressure with time, so look for low pressure periodically by examining the gauge. Anyone can check for low pressure, but only a trained professional should attempt to refill the unit.

Before you begin to fight the fire, you must evaluate your ability to extinguish the fire. *Ask yourself, What's burning?"* Is there a risk of an explosion or sudden increase in flames? Is the fire near a tank of flammable gas? Is the fire contained and small enough for a portable fire extinguisher to be effective? *Ask yourself, "What is the area like?"* Are you able to avoid inhalation of smoke or fumes, and can you fight the fire with your back to a safe and clear path of escape in case you need to evacuate? Is there a heavy wind that will affect the spread of smoke, fire, or inhibit the range of your extinguisher? Finally, do you have the training and the equipment to fight the fire? Are you comfortable with the fire extinguisher you are going to use? Is it the right extinguisher for the fire?

A carbon dioxide extinguisher may be ineffective on a Class A fire, whereas a compressed water extinguisher might only increase the changes in and worsen a Class B, C or D fire. You must understand the limitations, such as range and duration, of an extinguisher as well as the hazards in using it.

If in doubt, or unsure of your ability to fight a fire, you should leave the area and let trained professionals manage the blaze. When you evacuate the area, you should remain low to avoid smoke, and close the door to reenter, because a fire that may have burned up all the oxygen in the room will re-light, perhaps explosively, when oxygen rushes into the room. If you are confident in fighting the fire with a portable fire extinguisher, then proceed carefully in doing so.

GENERAL EMPLOYEE RADIOLOGICAL TRAINING MODULE

EO1	*Identify natural and man-made sources of radiation.*
EO2	*State the whole-body radiation exposure limit for non-radiological workers.*
EO3	*State the potential biological effects from chronic radiation exposure.*
EO4	*State methods used to control radiological material.*
EO5	*State employee responsibilities for the ALARA program.*
EO6	*Identify site access requirements for a general employee.*

REGULATORY DRIVERS

The Regulatory Drivers and FEMP Specific procedures for General Employee Radiological Training Module are:

10 CFR 835, "Occupational Radiation Protection"

One way Fernald's management intends to minimize the exposure of employees who are not involved in the physical clean-up activities of the site is to limit their access to certain areas. The Administrative Support Area is designated as the only non-escorted area accessible to general employees. This area is located within the security access points but not within the Radiologically Controlled or Hazardous Waste Areas. It includes the administrative offices, the vending area, and various support facilities.

Radiation is the energy, in the form of particles or waves, given off by a radioactive material. Since both radiation and contamination are terms you will hear used frequently, it is important to understand the difference. First it must be clear that Radiation and Contamination are not the same thing. Radiation is the energy given off by a radioactive material. Radiation is energy. Contamination is radioactive material in an uncontrolled or undesirable location.

There are four basic types of ionizing radiation:

- Alpha particles
- Beta particles
- Neutron particles
- Gamma Rays

Some types of non-ionizing radiation are:

- Microwaves
- Radio waves
- Visible light
- Heat

EO1	*Identify natural and man-made sources of radiation.*

000066

The average American is exposed to 360 millirem per year of background radiation. A rem or millirem is a basic unit used to measure radiation exposure. Just like an inch measures distance, a rem or millirem measures radiation dose.

The sources that contribute to this exposure have been placed into two general categories, natural and man-made.

The main sources of natural background radiation are:

- Cosmic radiation or radiation from the sun and outer space
- Radon
- Radioactive materials naturally present in rocks and soil (Terrestrial Radiation)
- Materials, which are naturally present in our bodies such as Potassium-40, which comes from food, like bananas

Man-made sources of background radiation include:

- Medical sources such as x-rays and nuclear medicine
- Consumer products, such as smoke detectors, lantern mantels and tobacco products
- Fallout from nuclear weapons testing

When discussing radiation exposure, it's important to consider the quantity and the type of exposure. There are two categories of radiation exposure:

Acute Exposure

Acute dose is a large exposure, received in a short period of time. Examples include the victims of the atomic bomb explosions and the fire fighters at the Chernobyl accident. Acute doses of radiation are more damaging to the body because the body has less time to react and repair itself.

Chronic Exposure

A chronic radiation dose is one that occurs in small amounts over a longer period of time. Examples include natural radiation, routine medical exposures, and occupational radiation exposure. Chronic radiation exposure might carry with it a slightly increased risk of cancer. It's important though to view this risk in relation to naturally occurring cancer, and other cancer causing risk factors.

EO2 State the whole-body radiation exposure limit for non-radiological workers.
EO3 State the potential biological effects from chronic radiation exposure.

DOE has set the dose limit for visitors at 100 millirem per year. The dose limit for general employees and radiological workers is 5000 mrem/year. This is for occupational exposure and is in addition to any background exposure you receive.

It is obviously desirable, however, to keep this exposure as low as reasonably achievable. It is the responsibility of each and every employee and contractor, both radiological and non-radiological to take an active part in the ALARA process.

Pregnant Worker Policy

In addition to possibly increasing the risk of cancer, chronic radiation exposure may also affect the future children of an exposed parent. Heritable effects have been extensively studied in plants and animals, but no clear links have been shown in humans.

We do know, however, that the developing embryo/fetus is especially sensitive to ionizing radiation. High radiation doses to the embryo/fetus have been associated with several effects such as low birth weight, mental retardation, and increased risk of childhood cancer.

The DOE intends to minimize the risk of these effects by having special protective measures for the embryo/fetus and by keeping all exposures As Low As Reasonably Achievable. Female radiological workers are encouraged to voluntarily notify their supervisors, in writing, if they are pregnant. They will be provided with the option of a mutually agreeable assignment of work tasks, which makes further occupational exposure unlikely. This temporary reassignment is to be made without loss of pay or promotional opportunity.

EO4 State methods used to control radiological material.
EO5 State employee responsibilities for the ALARA program.

Since only specially trained or qualified workers are permitted unescorted entry into areas controlled for radiological purposes and handle radioactive materials, all radiological areas and materials are identified by one or more of the following:

- Signs that have the standard radiation symbol colored magenta or black over yellow background
- Yellow and magenta rope, tape, chain, and other barriers that are used to designate the boundaries of the posted areas
- Tags and labels with the standard radiation symbol
- Yellow plastic wrapping, or a labeled container that is used to package radioactive material

Each employee has responsibilities in keeping their radiation exposure ALARA. You must:

- Comply with stop work and evacuate orders given by Radiological Control

- Comply with written or verbal radiological control instructions
- Stay in low radiation areas whenever practical
- Eat, smoke or drink in designated areas only
- Comply with procedures
- Recognize emergency alarm signals and response actions
- Report open wounds to Medical and Management immediately
- Submit urine samples and other samples and analyses as required
- Voluntarily report pregnancy to management

If you discover radiological material that appears to be unattended, such as something discarded in a trash receptacle, sitting loose outside or in a hallway, you should take the following actions:

- Do NOT touch or handle the material
- Warn other personnel not to approach the area
- Guard the area and have someone notify Radiological Control personnel
- Wait for Radiological Control personnel to arrive

EO6 Identify site access requirements for a general employee.

Postings are used to alert personnel of a potential or known radiological condition, and to aid in minimizing exposure and preventing the spread of contamination. Postings are used for areas that are referred to as Controlled Areas and Radiological Areas. Unless you receive further training as a Radiological Worker, you may not enter Controlled Areas or Radiological Areas unless a Radiological Worker escorts you. This module only provides a general awareness of radiation safety. Additional courses such as Radiological Worker I and Radiological Worker II provide job-specific information regarding radiation safety for various working conditions.