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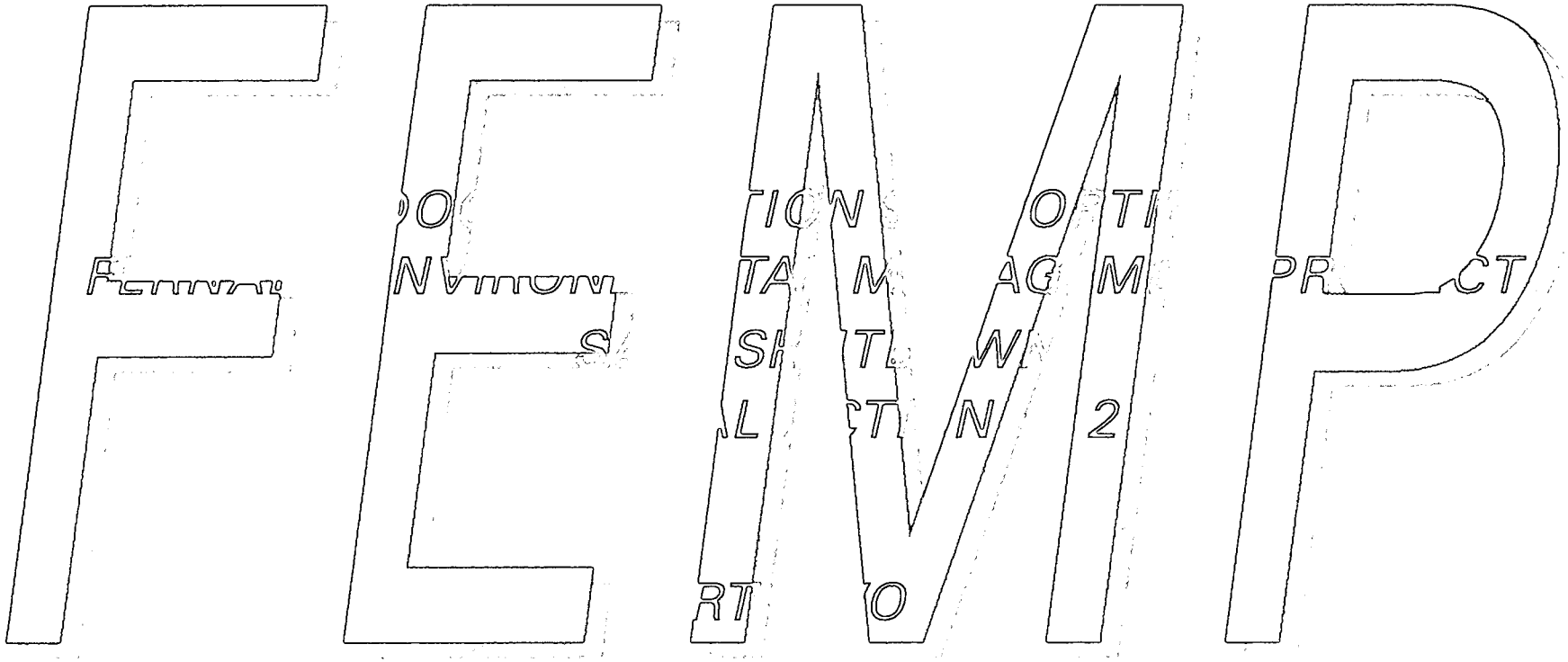
FEMP

SAFE SHUTDOWN HEALTH AND SAFETY PROGRAM

REVISION 1

APRIL 1995

UNCONTROLLED

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
Fernald Environmental Restoration Management Corporation
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PREPARED FOR THE
U.S. DEPARTMENT OF ENERGY
FERNALD SITE OPERATIONS OFFICE
UNDER CONTRACT DE-AC05-880R21734

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CHAPTER 1 - INTRODUCTION

1.1 Purpose

The purpose of this Health and Safety Program (HASP) is to provide an outline of specific problems and issues for Safe Shutdown Personnel who are involved in hazardous and radioactive waste operations during the conduct of Safe Shutdown field activities. It is designed to identify, evaluate and control safety and health hazards and provide for emergency response for hazardous and radioactive waste operations. It addresses the safety and health hazards for each phase of Safe Shutdown field activities and includes the requirements and procedures for employee protection.

1.2 Applicability

This Program Health and Safety Program (HASP) has been prepared in accordance with the provisions of the Fernald Environmental Restoration Management Corporation (FERMCO) Health and Safety Program. This HASP addresses those activities associated with the Safe Shutdown Program at the Fernald Environmental Management Project (FEMP) site. This program will be implemented during all safe shutdown activities, tasks and operations. All FERMCO and FERMCO subcontractors participating in the Safe Shutdown Program activities are required to comply with the provisions of this Safe Shutdown Health and Safety Program.

1.3 Site History

The Fernald Environmental Management Project (FEMP) is located in southwestern Ohio, approximately twenty miles northwest of downtown Cincinnati near the communities of Miamitown and Ross, Ohio. Of the total site area of 1050 acres, 850 are in Crosby Township of Hamilton County and the remaining 200 are divided between Ross and Morgan Townships of Butler County, Ohio. The FEMP is owned by the U.S. Department of Energy (DOE) and operated by FERMCO.

The FEMP was built in 1950 and full operation started in 1953. The purpose of the facility was to establish an in-house integrated production complex for processing uranium and its compounds from natural uranium ore concentrates for use in government defense programs. A wide variety of chemical and metallurgical process steps were utilized to support the production of uranium metal products. The initial mission of the facility was to produce uranium metal from a variety of feed materials. Since 1989 the mission is focused on environmental restoration and remediation under the direction of FERMCO.

C. Isolation of electrical power, steam, water, natural gas, and compressed air from all discrete pieces of equipment within or adjacent to each facility. Utilities will be disconnected outside each facility early in the Safe Shutdown process with the exception of electrical power. Some electrical power to each facility will be maintained to supply lighting, fire alarm and suppression systems, air monitoring equipment, HEPA vacuum cleaners, HEPA ventilators, and other equipment required to perform Safe Shutdown field activities. Electrical power will be terminated at each piece of unneeded equipment with the final termination of electrical power, external to the facility, at the conclusion of the removal action.

D. Removal of salvageable and stored equipment.

E. Gross decontamination of the remaining equipment and the interior of each facility. Gross decontamination performed as a Safe Shutdown field activity means general housekeeping by removing contaminated debris; vacuuming loose dust and a wet wipe down of equipment (external and internal where possible), ductwork (external), piping, and the interior structure walls; and removal of most loose visible residues.

Once a piece of equipment is opened for clean out, the material is assessed to determine if it is "loose". If so, it will be removed in accordance with approved Implementation Plans and packaged in an appropriate container. If the material is hardened, caked, or solidified such that it would require considerable force to be removed, no effort to remove it will be undertaken. Opened equipment will be closed to insure that the residual material or contamination is contained.

The primary purpose of the Safe Shutdown Program is to mitigate the hazard to the environment. It is not the intent to decontaminate the interior of these facilities to achieve the surface contamination limits described in Table 2-2 of the DOE Radiological Control Manual. Each building will continue to be a contamination area. Small quantities of nuclear material will exist in recesses of items located in each facility and will continue to present a potential hazard to personnel who perform tasks in that facility. Appropriate safety precautions for personnel working in contamination areas must be followed for future activities in these facilities.

1.4 Safe Shutdown Program Background

Production-related operations ceased in July 1989. Much of the shutdown equipment was however, scheduled for restart in order to prepare for continued production and to produce intermediate products for future DOE use in programs at other sites. The official termination of the FEMP production mission took place in June 1991, without the restart of the production processes or the stabilization of intermediate products.

In May 1991, the U.S. EPA, the Ohio EPA, and the U.S. Department of Energy entered into negotiations concerning a possible modification to the 1990 Consent Agreement pertaining to the Fernald Environmental Management Project (FEMP), formerly known as Feed Materials Production Center (FMPC). Consistent with arrangements made during these negotiations, all parties involved agreed that activities performed within the scope of the Safe Shutdown Program would constitute a Removal Action consistent with Section IX of the Consent Agreement and the provisions of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Removal Action was designated as number twelve (No. 12), termed Safe Shutdown, under the Amended Consent Agreement.

In July 1991, the FEMP initiated the Safe Shutdown Program to provide planning, engineering, and program control for the proper disposition of all uranium products and in-process residue materials, excess supplies, chemicals, and associated process equipment.

1.5 Safe Shutdown Program Purpose Statement

The Safe Shutdown Program Purpose at the FEMP is to complete Removal Action 12. In doing this, the primary goal is to remove nuclear and hazardous materials from existing equipment, ductwork, pipes and sumps in facilities to alleviate the potential for a criticality accident and to decrease the quantity of material below the Hazard Category 3 (REF: DOE Order 5480.23) levels. The material contained within a facility (either as stored residual material and waste or holdup material within equipment) appears to be reasonably safe from a loss of containment perspective. However, there presently are inadequate controls for the assurance that loss of containment will not occur.

For these reasons, it is important that holdup material be removed from equipment and utilities feeding each facility be placed in a safe shutdown configuration. The scope of Removal Action 12, therefore, includes:

A. Removal of nuclear holdup material from equipment, piping, and ductwork that is considered "releasable" through a credible accident. In Safe Shutdown Task Orders, this is defined as "loose" material.

B. Removal of the majority of RCRA hazardous constituents.

CHAPTER 2 - ORGANIZATION, STRUCTURE AND KEY PERSONNEL RESPONSIBILITIES

2.1 System Safety and Nuclear Safety

Effective immediately, the following requirements must be met for System Safety and Nuclear Safety review of all Safe Shutdown field activities. These are necessary to ensure an adequately documented safety basis for performing Safe Shutdown field activities. These requirements are included in the Safe Shutdown Basis for Interim Operation (BIO) submitted as part of the SAR/TSR Implementation Plan.

A. Obtain the Implementation Plan or Work Order for the task to be performed. Initially this may be a draft. Before approval is given, the final work plan must be reviewed and a copy of relevant portions retained in Safety Analysis files.

B. Obtain enrichment and inventory data. Before approval is given, this information must be in writing and approved by the cognizant Safe Shutdown Manager. If possible, determine the highest enrichment ever contained in the equipment.

C. Determine what work is occurring or scheduled to occur in the vicinity of the planned activity.

D. Visually inspect the equipment and the immediate vicinity of the planned activity to determine the presence of unusual hazards, stored material or other ongoing activities. This may be done by one person for both System Safety and Nuclear Safety. It should also be done in conjunction with similar inspections performed by other Health and Safety (H&S) disciplines. For minor tasks, this may be omitted, providing the basis for concluding no unusual conditions exist is documented.

E. Determine the criteria for Criticality Safety Analysis (CSA) viable records and/or postings on the equipment. This is necessary to ensure controls are not violated or alternate controls put in place (Nuclear Safety only).

2.3 Occupational Safety and Health Representative

A. Responsible for program compliance with all safety and health requirements.

2.4 Safe Shutdown Program Planning Manager

A. Responsible for directing the development of a Job Safety Analysis (JSA) for each Implementation Plan.

2.5 Safe Shutdown Field Activities Manager

A. Directs the accomplishment of all Safe Shutdown Program field activities.

B. Ensures compliance with all regulations and standards as they affect field activities.

C. Ensures daily safety briefings are conducted and documented.

D. Responsible on a day to day basis for the safety of every worker assigned to the Safe Shutdown Program.

E. Direct the development of FERMCO Work Permits and forward them to the Radiological Work Permit Group to initiate the development of a Radiological Work Permit (RWP).

2.6 Safe Shutdown Program Technical Manager

A. Responsible for implementation of safety and health requirements for all Safe Shutdown field activities.

B. Acts as the Safe Shutdown Health and Safety Officer. He is the single point contact for Environmental, Safety, Industrial Health, Fire and Radiological issues.

F. Review the work plan, the subtasks to be performed, and the order in which they will be performed to ensure the double contingency principle is met for all credible accidents or errors. Consideration will be given to equipment failure, dropped material, water admission and credible enrichment errors to ensure safety from the initial preparation activities through the packaging of material, interim storage and transfer to an approved fissile material storage location (Nuclear Safety only).

G. Document the results of the review on a CSA or Nuclear Safety Operational Authorization (NSOA), obtain peer review and approval and provide a copy to Safe Shutdown personnel and the Nuclear Criticality Safety (NCS) operations monitoring staff (Nuclear Safety only).

H. The total radiological material at risk must be below the amount for Category 3, as defined in DoE Order 5480.23, Safety Analysis Reports (4.2 curies of Uranium). Consideration should be given to cutting, disassembly, use of lifting devices, heavy equipment, and the potential for accidents by their failure. The presence of toxic chemicals in the equipment or in connecting piping should also be specifically considered. The quantity of hazardous material will be less than listed in 40 CFR 302.4, Designation of Hazardous Substances. This should be done in conjunction with the efforts of other S&H disciplines. It is not intended to duplicate their work, but to ensure that all non-standard industrial hazards have been identified and considered (System Safety only).

I. The review will be documented in an Auditable Safety Analysis approved by the Manager, System Safety. This may be a check list providing evidence the above issues have been considered, the hazardous material inventories at risk meet the above criteria and that the hazards are adequately handled by H&S program requirements.

2.2 Safe Shutdown Program Manager

A. Develops Project Specific Health and Safety Requirements Matrices (PSHSRM) for each Safe Shutdown project (See Appendix A).

B. Ensures Safety and Health compliance during this project. Ensures that project supervisors are knowledgeable on safety issues as they relate to the specific tasks.

C. Ensures daily safety briefings and Safe Shutdown safety meetings are conducted, documented and stored in a permanent file.

D. Ensures that all work is performed in a safe and cost effective manner. He is responsible for the safety of every worker assigned to the Safe Shutdown Program.

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2.8 Industrial Hygienist and Industrial Hygienist Technician

An Industrial Hygienist (IH) and IH technicians will support, when requested, the industrial hygiene aspects of Safe Shutdown field activities. The IH and IH Tech will ensure the industrial hygiene requirements of this HASP and the task Job Safety Analysis (JSA) form are complied with. Compliance will be insured through the performance of the following:

A. Assisting the Safety, Radiological, and Fire Protection Engineer with:

   1) Conducting a hazard identification survey of work area.

   2) Determining the size and boundaries of the exclusion zone(s).

   3) Determining the appropriate PPE, based upon potential hazards identified and associated upgrades and downgrades based upon monitoring results.

   4) Determining decontamination process specific to each task.

B. Attending and assisting with daily safety briefings and Safe Shutdown Safety Meetings.

C. Specifying additional real-time monitoring requirements for toxic substances in the work area.

D. Determining appropriate sampling methods and action levels for characterized materials for personnel air and work area monitoring and assisting in the performance of this sampling.

E. Conducting work area inspections.

2.9 Safe Shutdown Program Personnel

A. Read and understand the Safe Shutdown Health and Safety Program. Acknowledge this by signing the "compliance sign-off" contained in Appendix E.

B. Comply with all safety requirements necessary to protect themselves, co-workers and the environment as directed by the Safe Shutdown Program Technical Manager.

C. Seek guidance from his/her immediate supervisor on questions or uncertainties concerning the safety of a Safe Shutdown field activity.

D. Be personally responsible for participation in applicable monitoring programs (e.g. urinalysis).

2.7 Project Radiological Control Engineer and Radiological Control Technician

The Project Radiological Control Engineer and Radiological Control Technician will provide administrative guidance and assistance in implementing proper radiological controls for all Safe Shutdown activities, in accordance with 10 CFR 835,Occupational Radiation Protection, DOE/EH-0256T Radiological Control Manual and FEMP site and departmental procedures.

A. Work with Industrial Hygiene, Safety and Fire Protection personnel to accomplish the following:

   1) Hazard Analysis - identify potential and existing radiological hazards

   2) Work areas - identify radiological area levels, boundaries, and posting

   3) Personal Protective Equipment (PPE) - determine PPE in conjunction with IH based upon existing and potential hazards identified, (upgrades and downgrades per procedure).

   4) Determine the decontamination process specific to each task

B. Assess radiological conditions and provide applicable Radiological Work Permits (RWPs) (in accordance with RC-DPT-008, Radiological Work Permits), general area and task specific work permits.

C. Verify radiological training, discuss and review the applicable RWP, clothing and PPE requirements for personnel entering Safe Shutdown radiologically controlled areas.

D. Conduct and document radiation monitoring and perform instrument response checks.

E. Prescribe radiological decontamination procedures for project personnel and equipment and assist with initial radiation decontamination efforts.

F. Specify bioassay and air monitoring requirements for each task or area.

G. Review the radiological monitoring and dosimetry results.

H. Attend and assist in daily safety briefings and Safe Shutdown Safety meetings.

I. Assist in investigations pertaining to reportable incidents which involve personnel contaminations, radiation exposures above acceptable levels, or the release of radioactive materials into the environment.

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CHAPTER 3 - GENERAL SAFETY REQUIREMENTS

3.1 General

Safety is everyone's responsibility. Managers and Supervisors are responsible for Worker's safety, but Workers are responsible for conducting work in a safe manner. Taking chances or risks is unacceptable. If a Workers encounters an unsafe condition, he/she will stop work, place the system or equipment in a safe condition and report the unsafe condition to their supervisor immediately for correction.

Operations Supervisors will ensure that all applicable safety, health, and environmental practices and policies have been considered when planning work. They must assist in the development of a safe working environment and enforce all safety rules and regulations and at all times. Work sites are subject to periodic inspections by on duty Operational Safety and Health personnel.

3.2 Permits

A permit is required when a task is not covered by a Standard Operating Procedure (SOP), a technical work document applicable to all permit requirements or when a permit is specified by a SOP. The permit system provides written authorization and instructions before work is started. The permit formalizes the job safety planning between the supervisor, representatives of Safety and Health (S&H) and the workers.

For each task requiring a work permit, the Field Activities Manager directs the preparation of a FERMCO Work Permit. He forwards the FERMCO Work Permit to the Radiological Work Permit Group who coordinates obtaining necessary surveys and issues the RWP. The issue of task specific work permits is coordinated by the Radiological Control Technician and the Operations Supervisor. All work will comply with the specific requirements of the permits as well as other requirements specified in this Health & Safety Program (HASP).

Permits will be posted at the entrance/control point to the job site or contamination area by Radiological Control or Safety and Health personnel.

Examples of work requiring a FERMCO work permit are, but not limited to, the following tasks:

A. Entry into a confined space
B. Electrical work not covered by a FERMCO SPR
C. Elevated work not covered by a FERMCO SPR
D. First line breaks
E. Trenching, excavations or any floor penetration

3.3 Material Safety Data Sheets (MSDS) Locations

Material Safety Data Sheets will be available to employees according to ESH-1-1000, FERMCO Comprehensive Safety and Health Program, SPR 5-6. Industrial Hygiene keeps a copy of all site Material Safety Data Sheets in a centralized location. Material Safety Data Sheets for building-specific chemicals and compounds are kept in binders in the respective buildings and in the implementation plan for specific tasks. The location of such manuals and identification of potential chemical hazards at Safe Shutdown field activities locations will be reviewed with the Operators and Workers prior to initiation of any field activities.

3.4 Illumination

Illumination standards, as described in Table 2, will be observed. In areas of suspected insufficient lighting, Industrial Hygiene will be contacted prior to implementation of field activities and temporary lighting will be provided.

3.5 Drinking Water, Eating, and Sanitary Facilities

Documentation regulating drinking water, eating, and sanitary facilities are regulated by SH-3-001, FERMCO Radiological Control Requirements Manual and ESH-1-1000, SPR 5-4. There will be no eating in radiologically controlled areas. Controlled Area Drinking Stations and Break Rooms in radiologically controlled areas require the approval of Radiological Control (additionally, I.H. approval is required for Break Rooms which include Smoking Areas). Heat Stress Stations in radiologically controlled areas require the approval of both Industrial Hygiene and Radiological Control, by formal request per SSOP-11016, Establishment and Control of Heat Stress Stations in Contamination Areas.An adequate supply of potable water will be provided. Containers used to dispense drinking water will be clearly marked for this purpose and not used for any other purpose. Control of the break room and drinking area materials (e.g. containers, coffee and soda machines) is regulated by Radiological Control. Approved Break Room areas will be posted as a designated Break Room by Radiological Control and posted for occupancy by Fire Protection Engineering.

Portable toilets may be used in lieu of facility toilets. Trailers may be utilized to provide break areas, toilets, change-out, and shower areas. The sanitation requirements of ESH-1-1000, SPR 5-4 will be followed.

F. Welding or any work requiring an open flame
G. Working with hazardous chemicals or materials which are not addressed by a FERMCO (SOP)
H. Work involving asbestos containing materials
I. Work with radioactive materials
J. Work in a Controlled Area
K. Work that requires an outage (for example, road closure, interruption of sewer, water, telephone, fire protection system, or alarm system)
L. Work performed on manlifts

Table 1 is a partial listing of permits that may be required during Safe Shutdown field activities. The FERMCO S&H department to be contacted for permit issuance is also identified.

Table 1 Fermco Permits

PERMIT	FERMCO S&H DEPARTMENT	S&H MANUAL #
Chemical Hazardous Materials Work Permit	Occupational Safety and Health	SPR 5-16
Confined Space Excavation/Permit	Occupational Safety and Health	SPR 5-13
Construction Excavation/Penetration Permit	Occupational Safety and Health	SPR 3-9
Facility Outage Permit	Occupational Safety and Health	
Hazardous Work Permit	Occupational Safety and Health	SPR 2-57
Open Flame and Welding Permit	Occupational Safety and Health	SPR 2-57
Radiation Work Permit	Radiation Control	RCR 3-2

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CHAPTER 4 - SITE CONTROL/WORK AREA REQUIREMENTS

4.1 Work Area Requirements

Prior to conducting Safe Shutdown field activities, work areas will be established. This section provides a brief description of these areas and commonly encountered radioisotopes. Visitors to Safe Shutdown work areas will be restricted to the area outside the work area unless the Safe Shutdown Program Management grants access to the area and a proper escort is provided.

Personnel entering a work area must be in compliance with all training, medical, radiological and Health and Safety Program requirements.

4.2 Defining Work Areas

Safe Shutdown work areas will be established, using the requirements of ESH-1-1000, SPR 2-15, prior to commencing field activities. Each work area will have an entrance and exit, as designated by Radiological Control, Industrial Hygiene and the Operations Supervisor. Areas will be established using ropes, barricades or the facility itself.

Entrances to, and the perimeters of, radiological areas will be defined by yellow and magenta rope or, where practical, by physical structures, such as fences or buildings. All radiological areas will be identified by signs having the standard radiation symbol, the trifoil, on a yellow background.

Radiological areas may be expanded or upgraded for an (or the potential for) airborne activity, surface contamination or radiation level increase due to field activities. Radiological areas will be established, controlled and marked as required by DOE/EH-0256T, DOE Radiological Control Manual and the FEMP Radiological Posting procedure, PCN-RC-DPT-022.

4.2.1 Radiological Areas/Issues

Safe Shutdown field activities may involve work with many different radiological hazards. Engineering controls have be put into place to minimize them, however administrative controls and PPE are still necessary. Safe Shutdown personnel are directed to minimize their exposure to any hazard while performing Safe Shutdown field activities.

Table 2	Minimum Illumination Intensities in Foot-Candles
Foot-candles	Area or Operation
5	General site areas
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and fuel maintenance areas.
5	Indoors: warehouses, corridors, hallways, and exit ways.
5	Tunnels, shafts, and general underground work areas: (exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Bureau of Mines approved cap lights will be acceptable for use in the tunnel heading.)
10	General construction plant and shops (e.g., batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active storerooms, barracks, or living quarters, locker or dressing rooms, mess halls, and indoor toilets and workrooms.)
30	First aid stations, infirmaries and offices.

3.6 Health and Safety Operating Procedures and Other Requirements

All work conducted on-site will comply with all the safety and health requirements in ESH-1-1000, FERMCO Comprehensive Safety and Health Program and SH-3-001, FERMCO Radiological Control Requirements Manual.

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ventilation will also be used during Safe Shutdown field activities to reduce the concentration of thoron in enclosed spaces.

Radon

Radon (Rn^{222}) is a decay product of uranium (U^{238}). It is an inert gas that decays to a series of radioactive particulate products. The gas diffuses in air and tends to concentrate in areas of poor ventilation. It has a half-life of 3.8 days. Since it is an inert gas, it is unaffected by HEPA filters. Its particulate decay products have an effective half-life of about 30 minutes and will exist anywhere radon gas exists. HEPA filters are nearly 100% effective in removing the decay products. The principle hazard of radon (and its decay products) is inhalation. Due to their short half-life, a relatively high concentration is necessary to produce a significant dose concern. Since approximately 98% of the dose delivered by radon comes from the decay products, HEPA filtered respiratory protection is an effective means of controlling radiation exposure from it. HEPA filtered ventilation will also be used during Safe Shutdown field activities and will reduce the concentration of radon in enclosed spaces.

4.2.1.2 Radiological Areas

The following paragraphs list the types of radiological areas encountered during the performance of Safe Shutdown field activities covered by this HASP. Contamination limits presented are from DOE/EH-0256T, Rev.1, DOE Radiological Control Manual, Table 2-2, and are reprinted as Table 3.

A. **Controlled Area** - A Controlled Area is any area, room, or enclosure to which access is controlled to protect individuals from exposure to radiation and/or radioactive materials, or where radioactive materials may be present. Surface (loose) contamination, radiation, and airborne contamination are present in quantities less than applicable limits for further posting. Personnel exposure is not expected to exceed 100 mrem total effective dose equivalent in one year while working in a Controlled Area.

B. **Radioactive Material Area** - any area or structure where radioactive material is used, handled, or stored.

C. **Fixed Contamination Area** - any area or structure where fixed contamination exists but removable contamination is less than the limits Table 3.

4.2.1.1 Radiological Isotopes

- Uranium

Uranium can be found in the soil, water and buildings at the FEMP. Uranium is a radioactive material and in its soluble forms is highly toxic. Soluble uranium can be absorbed through the skin and affect the kidneys. Nonsoluble uranium is an inhalation and external radiation hazard. When working where uranium is present, a Radiological Work Permit (RWP) describing appropriate PPE including respiratory protection is required.

- Thorium

Thorium is a radioactive, silvery-white, soft, ductile metal. Most of the thorium stored in Building 65 is either thorium hydroxide or thorium oxalate. Thorium can also be found in selected waste pits, Plant 9, Pilot Plant and the Plant 1 Ore Silo area. Thorium is principally an inhalation and external radiation hazard. When equal amounts of activity are inhaled, thorium will deliver more radiation dose than uranium. Because of this, the limit for airborne thorium activity is approximately 40 times less than that of uranium. Personal air monitoring and respiratory protection are required everywhere airborne thorium may exist. Engineering controls have been put into place to minimize the hazard and the need to enter the airborne areas. The external radiation hazards are principally due to gamma radiation. When working with thorium and thorium bearing compounds are present, trained personnel using a Radiological Work Permit (RWP) describing appropriate PPE including respiratory protection are required.

Thoron

Thoron (Rn^{220}) is a decay product of thorium (Th^{232}). It is an inert gas that decays to a series of radioactive particulate products. The gas diffuses in air and tends to concentrate in areas of poor ventilation. It has a half-life of 55.6 seconds. Since it is an inert gas, it is unaffected by HEPA filters. Its particulate decay products have an effective half-life of about 10.6 hours and will exist anywhere thoron gas exists. HEPA filters are nearly 100% effective in removing the decay products. The principle hazard of thoron (and its decay products) is inhalation. Due to their short half-life, a relatively high concentration is necessary to produce a significant dose concern. Since approximately 98% of the dose delivered by thoron comes from the decay products, HEPA filtered respiratory protection is an effective means of controlling radiation exposure from it. HEPA filtered

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Table 3 Summary of Contamination Values		
NUCLIDE (See Note 1)	**REMOVABLE (dpm/100 cm²) (See Note 2)**	**TOTAL (FIXED + REMOVABLE) (dpm/100 cm²) (See Note 3)**
U-natural, U-235, U-238 and associated decay products	1,000 alpha	5,000 alpha
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-129	20	500
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-125, I-126, I-131, I-133	200	1,000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above. Includes mixed fission products containing Sr-90.	1,000 beta-gamma	5,000 beta-gamma
Tritium organic compounds, surfaces contaminated by HT, HTO and metal tritide aerosols	10,000	10,000

(from DOE/EH-0256T, Rev.1, DOE Radiological Control Manual, Table 2-2)

Notes:

1. The values in this Table apply to radioactive contamination deposited on, but not incorporated into the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha-and beta-gamma-emitting nuclides apply independently.

2. The amount of removable radioactive material per 100 cm² of surface area should be determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. For objects with a surface area less than 100 cm², the entire surface should be swiped, and the activity per unit area should be based on the actual surface area. Except for transuranics, Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.

3. The levels may be averaged over 1 square meter provided the maximum activity in any area of 100 cm² is less than three times the values in Table 3.

D. **Contamination Area** - any area, room, or enclosure where removable contamination levels exceeds applicable limits, but are less than 100 times these values.

E. **High Contamination Area** - any area, room or enclosure where removable surface contamination exceeds 100 times the applicable limit.

F. **Airborne Radioactivity Area** - any area where the concentration of airborne radioactivity above natural background exceeds or is likely to exceed 10% of the applicable Derived Air Concentration (DAC) averaged over a week (40 hours).

G. **Radiation Area** - any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 5 mrem (but less than 100 mrem) in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

H. **High Radiation Area** - any area accessible to individuals in which radiation levels could result in an individual receiving a deep dose equivalent in excess of 100 mrem in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates. These areas require supplemental dosimetry and stay time controls by Radiological Control.

4.2.2 Exclusion Zone

An exclusion zone is an area of high potential hazard due to physical or chemical dangers. Access to an exclusion zone is restricted to Safe Shutdown personnel who are required to enter in order to perform field activities. An exclusion zone will be marked with an easily recognizable device such as a rope, yellow caution tape or a fence. Signs posted will indicate the type of hazard(s) within the exclusion zone.

When an exclusion zone meets the criteria of one of the areas in Section 4.2.1.2 (other than Controlled Areas, Radioactive Material Areas, and Fixed Contamination Areas), the zone will be controlled as a radiological area of the appropriate type.

Exclusion zones and Radiological Areas will be defined by Industrial Hygiene, Safety and Radiological Control and will be determined by survey results and project needs.

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CHAPTER 5 - TRAINING

5.1 General

Individuals assigned to conduct Safe Shutdown field activities will not perform any work until they have been trained and qualified to a level commensurate with their job function, responsibilities, and with the degree of anticipated hazards. The training requirements listed in this section apply to all FERMCO and FERMCO subcontractor personnel assigned to Safe Shutdown Program activities/tasks.

5.2 Required Training For Entry To Site

To conduct work in a NON-RADIOLOGICAL AREA (Administrative Area), the employee will receive the following training:

A. General Employee Training (4 hour).

In order to work in the CONTROLLED AREA (former Process Area), or to meet the requirements of OSHA 1910.120, occasional site workers will also complete the following training:

A. Site worker training
B. Radiological Worker I Training.

In order to work in a RADIOLOGICALLY CONTROLLED AREA (Contamination, High Contamination, Radiation, High Radiation or Radiological Airborne Areas where a majority of Safe Shutdown field activities are conducted), FERMCO and Subcontract personnel are required to complete the following additional training:

A. Three (3) days supervised field experience; and
B. Radiological Worker II in lieu of Radiological Worker I

In addition, the following training may be required (Medical approval required):

A. FEMP Respirator Training and quantitative fit test.

Supervisors shall, in addition to the above training requirements, receive the following training:

A. OSHA 29 CFR 1910.120 (e) (4) - Eight (8) hour Supervisor training.

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5.4 Required Safety Meetings

Safe Shutdown Program personnel will be required to attend safety briefings, prior to each shift, during field activities when there is a change in the scope of work or when individuals not previously briefed on the field activities join a field team. These briefings will be conducted by the Operations Supervisor, Task Industrial Hygienist, Task IH Technician, or Radiological Control personnel and will be documented on form FSF-F-470, "Minutes of Safety Meeting". A copy of this form is included as Attachment B. Documentation of all health and safety briefings will become part of the permanent records maintained by the Safe Shutdown Program Manager. Such briefings will include but not be limited to:

A. Review of chemical/radiological/health hazards which may be encountered in the day's work;
B. Review of applicable MSDSs;
C. Briefing on other activities which will be underway in the same area
D. Review of the governing Safe Shutdown Health and Safety Plan and information contained within each Job Safety Analysis

The Safe Shutdown Health and Safety Program Compliance Sign-off will be signed by all personnel performing field activities. The sheet becomes a permanent Safe Shutdown record.

Subcontractors with proof of successful completion of OSHA 29 CFR 1910.120 (e)(3)(i) training are required to take GET, Site Worker and Radiation Worker I or II as determined by FERMCO Management on a case-by-case basis to comply with FERMCO requirements.

If subcontractors are used for Safe Shutdown field activities, each subcontracting company will be responsible for certifying their employees meet the requirements of pre-assignment training and all OSHA training.

5.3 Safe Shutdown Program Specific Training

All FERMCO and FERMCO subcontractor personnel performing Safe Shutdown field activities may be required to attend FERMCO training classes pertinent to a specific activity. Training classes may include, but are not limited to:

A. Asbestos, controlling the hazard
B. Confined Space Entry
C. Lockout/tagout
D. Establishment and Control of Satellite Accumulation Areas
E. Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area
F. Control and Utilization of Contaminated Trash Dumpsters
G. Emptying Liquid Hazardous Waste Storage Containers
H. Baghouse type dust filter removal
I. Nuclear Fissionable Material Handler
J. 65 Card
K. Venting potentially explosive drums
L. Checking scale operation
M. Cleaning sump systems
N. Hazardous material spill cleanup
O. Cleaning wet and dry systems
P. Conduct of operations
Q. Safe Shutdown Health and Safety Program
R. Histoplasmosis awareness
S. Operation of Nilfisk and Norclean vacuums
T. Tank/Sump content removal and abandonment
U. Movement of Hazardous Waste
V. Operation of Spencer and Hoffman Portable Dust Control System
W. Implementation Planning, Standing Orders and Conduct of Operations
X. Fire Watch and Hands on Fire Extinguisher Training

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CHAPTER 6 - MEDICAL MONITORING AND SURVEILLANCE

6.1 Worker Selection

Each individual, prior to performing Safe Shutdown field activities, will be required to successfully complete a medical surveillance examination consistent with the requirements of the FERMCO Medical Monitoring Program. The examination will be performed by a qualified licensed physician and will determine the individual's ability to work with hazardous materials, to work under biothermal stress conditions, to wear respiratory protection equipment (air purifying and supplied air) and any other required personal protective equipment (PPE).

6.2 Medical Monitoring Program

Medical surveillance examinations will be conducted in accordance with the following frequencies or as determined by FEMP Medical Services:

A. Pre-assignment (baseline)
B. Annual (within one year of previous physical)
C. After incidents, potential exposures, or upon physician recommendation
D. Exit (employment termination)

6.3 Bioassay Requirements

Safe Shutdown personnel required to work in the process or controlled areas at the FEMP facility will be required to participate in the FEMP radiation in-vivo and bioassay surveillance programs. The radiation surveillance will be conducted according to the following frequency:

A. Baseline (beginning of project or pre-employment)
B. Periodic
C. 60 day bioassay (unless otherwise specified by Radiological Control)
D. Annual in-vivo
E. Special Bioassay (after an incident, potential exposure or upon Radiological Control request)
F. Upon an individual's request
G. Exit (end of project or employment termination)

Elements other than Uranium will be evaluated by Radiological Control and Dosimetry for appropriate bioassay monitoring.

All Safe Shutdown personnel required to wear respiratory protection must be medically approved in accordance with ANSI Z88.2, Respiratory Protection. FERMCO Industrial

Table 4	Fernald Environmental Management Project Controlled Area Access Bioassay and Dosimetry Requirements				
	Baseline Bioassay	Exit Bioassay	Routine Bioassay	TLD Issue Sheet	Dosimeter Badge
Controlled Area Tour. Groups Remaining in Vehicle.	Not Required	Not Required	Not Required	Visitor Completes. Escort's Name Listed. 1 TLD/Group	FEMP Rep Obtains. FEMP Rep Returns.
Controlled Area Tour. Groups Exit Vehicle or Walk.	Not Required	Not Required	Not Required	Visitor Completes. Escort's Name Listed. 1 TLD/Person	Visitor Obtains. FEMP Rep Returns.
Deliveries and Vehicles Entering Controlled Areas	Not Required	Not Required	Not Required	Driver Completes.	Driver Obtains. Security Returns.
Radiological Area Tours - Hands Off	Not Required	Not Required	Not Required	Visitor Completes. Escort's Name Listed. 1 TLD/person	Visitor Obtains. FEMP Rep Returns.
Occasional Site Worker Rad I	Baseline Urine Sample	Urine Sample	Not Required	Permanent TLD Issued.	Store as Required in Racks.
General Site Worker Rad II	Baseline Urine Sample and In-Vivo Exam	Urine Sample and In-Vivo Exam	Bi-Monthly Urine Sample and Annual In-Vivo Exam	Permanent TLD Issued.	Store as Required in Racks.

Note: -General Site Workers must receive In-Vivo Whole Body counts for pre-employment, annually, and upon termination.
-General Site Workers may be required to submit special bioassay samples as needed for certain unique events.

Hygiene will validate the medical approval, the respirator quantitative fit test and issue a respirator fit test card.

Personnel required to perform work on lead-containing materials will participate in a medical surveillance program required by OSHA 29 CFR 1926.62, Occupational Health and Environmental Controls, Lead.

FEMP Controlled Area Access, Bioassay and Dosimetry requirements are listed in Table 4.

6.4 Submittal of Names

Prior to the initiation of work at the FEMP site, FERMCO subcontractors will submit the names of all personnel who may be involved in the performance of field activities and their medical surveillance documentation (if performed off-site) to the FERMCO Director of Medical Services.

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CHAPTER 7 - PERSONAL PROTECTIVE EQUIPMENT (PPE) AND SAFETY EQUIPMENT REQUIREMENTS

7.1 Personal Protective Equipment/Respiratory Protection

The level of PPE and respiratory protection worn by individuals performing work under this program is pre-planned and defined in task specific documentation and FERMCO Work Permits. Modifications to PPE and respiratory protection requirements, as specified in the task specific documentation and work permits, may be necessary if work area conditions change. Should condition changes result in a modification of the PPE/respiratory protection requirements, the modification will be based on a review of specific hazards, weather, work conditions, operating requirements or air monitoring data.

The levels of personnel protective equipment and respiratory protection (PPE/RP) identified in the Job Safety Analysis, individual Implementation Plans and FERMCO Work Permits is based upon characterization data and regulatory requirements at the time of their writing. Modification to the level of PPE/RP may be required based upon field monitoring and conditions.

Modification of the PPE/RP level due to changes in safety or chemical hazards (non-radiological) may be conducted by the Subject Matter Expert (SME) (HSO or Industrial Hygiene Technician) for the hazard being controlled. When changes are required, the following steps shall be taken:

A. Contact the Health and Safety Officer and all affected Safety and Health Departments (Industrial Hygiene Technologists and Technicians, Radiological Engineering and Control) to determine if the change affects their controls.

B. Industrial Hygiene Technicians will complete a new PPE page for the FERMCO work permit and inform the FERMCO Permit Group.

The modification of the PPE/RP level due to changes in radiological hazards requires the following steps be taken:

A. Consult with the Industrial Hygiene Technologist, Radiological Engineer and the Health and Safety Officer.

B. Radiological Control shall document the changes by rewriting and reissuing the affected field work permits.

Communications will be maintained by Safe Shutdown personnel during the performance of field activities by using a plant wide alarm system (if installed), in the form of direct verbal contact, authorized hand signals or two way radios. Safety hand signals must be standardized to prevent misinterpretation. All task team members will be instructed in the correct use of safety hand signals. Safety hand signals authorized for use during field activities are identified in Table 5.

Table 5 SAFETY HAND SIGNALS

SIGNAL	MEANING
Hand gripping throat	Out of air, cannot breath
Grip partner's wrist or place both hands around arm	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I'm all right
Thumbs down	No, negative

All personnel working under this HASP are responsible for reviewing the posted PPE/RP requirements and adhering to those requirements. All personnel must stay abreast of potentially changing work area conditions and requirements. This is should be accomplished pre-shift safety briefings and safety meetings.

7.2 Emergency Safety Equipment/Hazard Controls

Emergency safety equipment (emergency eye wash facilities, and fire extinguisher) will be immediately available in each work area. The Industrial Hygienist and Radiological Control Engineer along with the Safe Shutdown Program Technical Manager or his/her designee will perform an inspection of each facility prior to beginning Safe Shutdown field activities to determine that emergency equipment is readily available. The Implementation Supervisor will be responsible for ensuring emergency equipment remains accessible, is maintained in proper working condition and for conducting periodic inspections of the equipment. Representatives of Safety and Health will also conduct periodic inspections. Routine testing and maintenance of all safety showers and eyewash units is the responsibility of project management or the facility owner. Other emergency equipment is inspected on a periodic basis by Occupational Safety and Health personnel. Information on the location of the emergency safety equipment and the working conditions will be provided to each task team.

When feasible, engineering controls will be used to control physical, chemical, and radiological hazards. Engineering controls anticipated to be used for Safe Shutdown field activities include, but are not limited to:

A. Directional Air Flow, Hepa Ventilation Devices
B. Containment and control of dust
C. Wrapping of radiologically contaminated equipment and material
D. Decontamination techniques

The following administrative controls will be used to control physical, chemical, and radiological hazards during project activities:

A. M-108, Safe Shutdown Program Manager's Standing Orders
B. IM-6001, Safe Shutdown Planning and Implementation Manual
C. D10-05-001, Safe Shutdown Program Energy Isolation Procedure
D. Safe Shutdown Health and Safety Program
E. FERMCO Work Permits
F. Standard Operating Procedures
G. Task Implementation Plans

7.3 Communications

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CHAPTER 8 - REQUIRED MONITORING AND ACTION LIMITS

8.1 General

It is FERMCO policy to maintain radiation exposures and exposures to toxic substances and combustible gases As Low As Reasonably Achievable (ALARA). Air monitoring will be performed to ensure that contaminant concentrations in the breathing zone do not exceed the concentrations as specified by DOE, OSHA and applicable FERMCO site and departmental procedures.

8.2 Air Monitoring

Air monitoring will be performed to determine worker exposure to those chemical or radiological hazards of concern. Air monitoring identifies and quantifies airborne levels of hazardous substances. Air monitoring results will be used to select and validate engineering controls, work practices and personal protective equipment to control worker exposure. Engineering controls, work practices and PPE will be reviewed and modified based on the results of continuing air monitoring.

The need for air monitoring will be considered for the following circumstances:

A. Prior to issuing work permits

B. During field activities when a hazardous material may be encountered or used

C. When contaminants other than those previously identified are being handled

D. When a different Safe Shutdown field activity is initiated

E. When employees are handling leaking drums or containers or working in areas with obvious liquid contamination

F. During intrusive operations

G. Where the possibility of an Immediately Dangerous to Life and Health Condition or flammable atmosphere may have developed

H. During confined-space work requiring a work permit

I. When required by the Safe Shutdown Program Technical Manager, Industrial Hygienist or Radiological Control Engineer

Table 6	Radiological Control Action Level	
Measurement	Level	Action/Respiratory Protection
U-238, Th-230, and Th-232	> 0.10 x DAC[NOTE 2] (based on a weekly average)	Post "Airborne Radioactivity Area". Evaluate for Respiratory Requirements. [NOTE 1]
U-238, Th-230, and Th-232	> 1.0 x DAC	Full-faced air purifying respirator with anti-C hood
U-238, Th-230, and Th-232	> 5.0 x DAC	Contact Radiological Engineering
Rn-220 daughters	> 0.1 WL (based on a weekly average)	Area posted as "Airborne Radioactivity Area"[NOTE 1]
Rn-222 daughters	> 0.033 WL (based on a weekly average)	Area posted as "Airborne Radioactivity Area"[NOTE 1]

Notes:

1. Area will be posted as an **"Airborne Radioactivity Area"** by a Radiological Control Technician in accordance with RC-DPT-022, Radiological Postings, and will be controlled to minimize exposures to less than 4 DAC-hrs per week.

2. Derived Air Concentrations (DAC) for radionuclide(s) of interest.
   U^{238} 2E-11 U^{235} 2E-11 Th^{232} 5E-13 Rn^{222} 3E-08 (0.33 WL Radon)
   U^{236} 2E-11 U^{234} 2E-11 Th^{230} 3E-12 Rn^{220} 8E-09 (1.0 WL Thoron)

GENERAL NOTE:

Currently, real-time monitoring for long-lived (U-238, Th-230, and Th-232) airborne radioactivity, in the presence of short-lived radon/thoron daughter activity, is not always possible. Refer to "retrospective" seven day count (long-lived) data for the affected area, if this data is available. Otherwise, assigned respiratory protection will be based on the potential to exceed the Action Levels, or on confirmation of the airborne radioactivity levels present by special counting methods.

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8.2.1 Industrial Hygiene Air Monitoring

A Photoionization Detector (PID) or Flame Ionization Detector (FID) may be used periodically to test for organic vapors and measure breathing zone contaminants. Use and monitoring frequency will be based upon recommendation of the Industrial Hygiene Department. If organic vapors are detected, they will be treated as unknowns. Colorimetric indicating detector tubes may be used to measure levels of specific organic vapors as well as inorganic vapors, such as NO_2 and Nitric Acid. The MIE RAM-1 may be used to monitor for airborne particulate.

Combustible Gas Indicator/Oxygen (CGI)/(O_2) meters will be used to check the atmosphere of confined spaces prior to entry for the presence of combustible gases and percent oxygen.

8.2.2 Radiological Air Monitoring

Air monitoring requirements are found in SH-3-001, Radiological Control Requirements Manual and PCN-RC-DPT-009-0002, Monitoring for Airborne Radioactive Materials. The primary isotopes of concern during Safe Shutdown field activities are uranium, thorium or their daughter products. Uranium enrichment levels vary and affect monitoring requirements. Enrichment levels are specified on a task specific basis prior to initiation of work.

Radiological air sampling will be taken to indicate job specific, boundary and general area levels of airborne contamination. Additional air sampling may be required by the Radiological Control Department. The applicable action levels are listed in Table 6.

8.3 Radiation Monitoring

Radiological Control Technician's will perform routine and job specific monitoring of Safe Shutdown work areas and newly exposed equipment, material or surfaces to ensure radiological conditions have not changed and present controls are adequate. Work area survey frequency will depend on the degree of hazard as determined by the Radiological Control Engineer. If contamination or radiation controls are inadequate, the Radiological Control Technician will issue a verbal stop work order and immediately notify the Safe Shutdown Program Manager and Radiological supervisor.

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8.4 Contamination Monitoring

Control of contamination is a routine part of work at the FEMP. Contamination control techniques will be utilized to reduce the potential for spreading contamination. Radiological controls (PPE) will be utilized to reduce the potential for inhalation, ingestion or absorption of radioactive material.

Contamination surveys will be performed, prior to the issuance of Radiation Work Permits, to evaluate and assign area postings, and to determine protective clothing and respiratory requirements. Direct reading instruments for total contamination are utilized as well as smear techniques for detecting removable contamination. Contamination limits for applicable nuclides are as specified in DOE/EH-0256T, Radiological Control Manual, Table 2-2. Upon leaving a radiologically controlled area or contamination area, whole-body monitoring through either a personnel contamination monitor (PCM) or with a hand-held instrument is required, depending on the level of hazard or potential for personnel contamination present.

When frisking with a hand-held instrument, the beta-gamma probe must be held within 1/2 inch of the surface that is monitored in order to accurately measure contamination. Frisking is accomplished by moving the probe at one to two inches per-second over the surface being monitored. The alpha survey meter should be moved 1 inch per second and be kept within 1/8 of an inch from the surface being surveyed. If contamination exceeds the action limit (100 cpm over background, beta/gamma or detectable alpha above background), a Radiological Control Technician must be immediately notified.

8.5 Action Limits

The action levels for Safe Shutdown field activities will be determined by Industrial Hygiene and/or Radiological Control in concurrence with the Safe Shutdown Program Technical Manager and will be presented on the Job Safety Analysis or the Work Permit.

8.3.1 Internal Radiation Hazard

Internal dose assessment will be evaluated by FEMP Radiological Control/Dosimetry Department. Safe Shutdown personnel are responsible for compliance with all In-Vivo, In-Vitro bioassay requirements, as specified in job specific Radiation Work Permits, Safe Shutdown Health and Safety Program or by request of the Radiological Control Department or the Safe Shutdown Program Technical Manager.

8.3.2 External Radiation Hazard

External radiation hazards are identified by the Radiological Control Technician as he/she performs the survey required for a radiation work permit. If necessary, stay time monitoring requirements may be assigned by the Radiological Engineer for Safe Shutdown field activities. Measures such as increasing shielding, increasing distance or reducing exposure time will be used to minimize exposure.

The FERMCO personnel dosimetry program will be administered to demonstrate compliance with the radiation protection standards. The Dosimetry Department will issue personnel TLD badges and Radiological Control Department will issue project specific TLD's, ring dosimeters and Self Reading Pocket Dosimeters. Personnel dosimeters will be routinely calibrated and maintained.

Thermoluminescent dosimeters (TLDs) are to be kept clean and unobstructed and worn on the outside of clothing during all field activities except when in full anti-Cs and respirators (i.e., when no part of the body's surface area is exposed). In such cases, TLDs are to be worn beneath protective clothing. In either case, TLDs will be worn on the trunk of the body.

Ring dosimeters, when required, must always be worn on the fingers, underneath whatever protective clothing may be on the hands.

Breathing Zone (BZ) air samplers are used to detect airborne contamination concentrations at the workers face level in the work area. The use of Bzs will be specified by Radiological Controls based on the specific task.

Direct reading dosimeters (DRDs), when required, must be worn outside of protective clothing so they may be checked periodically throughout the performance of field activities.

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CHAPTER 9 - DECONTAMINATION

9.1 Site Personnel Decontamination Requirements

When working in Radiological Zones or Exclusion Zones, personnel decontamination equipment for radiological or chemical hazards will be available in the area surrounding the Zone if determined necessary by Industrial Hygiene and/or Radiological Control.

9.1.1 Radiological Decontamination

9.1.1.1 Area and Equipment

When working in radiological contamination areas, HEPA filtered portable vacuums, Maslin (or equivalent) mops/rags, and approved decontamination solutions will be available for use. Decontamination of radiological contaminants from work area surfaces and equipment may be performed by Safe Shutdown personnel, with the guidance of a Radiological Control Technician. These materials will be located near the radiologically controlled work area.

If utilized, vehicles, tools, and other equipment must be monitored before release from the radiological contamination areas. Those materials which cannot be adequately decontaminated for release from the work area will be wrapped in yellow Herculite (or equivalent yellow wrapping), and either taken to an approved decontamination facility or must remain in the work area pending alternative disposition.

9.1.1.2 Personnel

Personnel exiting work areas and performing whole-body monitoring are required to contact a Radiological Control Technician if contamination is detected on their skin or clothing. Detection of a count rate above background with a field portable Geiger-Mueller or alpha monitoring instrument, or an alarm indication on a PCM Whole-Body Monitor should alert personnel to possible contamination. The use of a Geiger-Mueller beta-gamma survey meter, when forced to use a portable instrument, is preferred over an alpha survey meter. When materials other than normal or depleted uranium are involved, contact Radiological Engineering.

Responding Radiological Control Technicians are to follow the instructions given in procedures RC-DPT-018 Personnel Decontamination, ED-0001, Event Notification and Occurrence Reporting Procedure and SSOP-1018, Event Categorization/Classification.

9.2.2 Equipment

Heavy equipment may be used during Safe Shutdown field activities. When heavy equipment is used inside an exclusion zone, the equipment may require surface decontamination prior to leaving the exclusion zone. A gross decontamination station will be established within the contaminant reduction zone of the work area. After gross decontamination, the equipment will then proceed to a centralized vehicle decontamination pad. The equipment will be decontaminated using steam cleaning or other approved methods. The decontamination pad must have sufficient collection capacity to accommodate the wash water generated by steam cleaning.

All equipment will be cleaned in a manner to minimize the generation of waste water. If small equipment cannot be steam cleaned, then a high pressure wash with low phosphate detergent will be used followed by a clean water rinse. All associated waste generated by the decontamination process will be containerized and stored.

9.3 Lead Decontamination Requirements

A shower facility will be located in close proximity to the work area for personnel working in lead regulated areas. All personnel will shower before lunch and at the end of their shift.

Personnel exiting a lead regulated area will wash their face and hands prior to breaks.

9.4 Asbestos Decontamination Requirements

A shower facility will be available for the asbestos abatement work covered by this HASP. Personnel performing asbestos abatement activities and individuals who enter an asbestos regulated area will be required to exit the area through the shower facility.

When personnel exit an asbestos regulated area, they will vacuum their disposable coveralls with a HEPA filtered vacuum cleaner, remove their latex shoe covers, and proceed to the change room of the shower facility.

Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption will be immediately reported to a supervisor. The supervisor will immediately report the possible radioactive materials intake to the Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved employee will report to the Urine Sampling Station at the end of their respective shift to complete an Incident Investigation Report (IIR, form FMPC-ES&H-1458), and submit an incident urine sample. The involved employee will also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. When the suspect isotope is other than uranium, the involved employee will report to the Dosimetry Section of the Radiological Control Department for determination of further action. Employees are responsible for complying with additional requirements specified by the Radiological Control Department.

9.1.1.3 Other

Hand powered tools should be sleeved with anti-contamination covers (Herculite, plastic covering, etc.). Hand powered tools which have inaccessible surfaces may not be releasable for unrestrictive use, due to the inability to survey those locations and to certify the item as not contaminated with radioactive materials.

Measures should be taken to protect heavy equipment from becoming contaminated while working with uncontained radioactive materials.

External surfaces of containerized radioactive materials and contaminated materials wrapped in herculite will be free of removable surface contamination to the levels specified in DOE/EH-0256T, Radiological Control Manual.

9.2 Chemical Decontamination

9.2.1 Personnel

Personnel working in an exclusion zone will be required to proceed through a decontamination process upon exiting. Personnel decontamination lines will be set up at each work area. All personnel working in exclusion zones will be required to shower at the end of their work shift. All personnel will be required to thoroughly wash their hands and face prior to eating, drinking, or using tobacco products. The Industrial Hygienist and Radiological Control Engineer will be responsible for determining the necessary decontamination steps, as listed on the Job Safety Analysis, for the particular work area. The Industrial Hygiene Technician and Radiation Control Technician will be responsible for observing individuals conducting Safe Shutdown field activities to insure compliance with the decontamination process. The Safe Shutdown Operations Supervisor will also be responsible for ensuring the supplies and equipment necessary for decontamination are readily available at the work location.

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CHAPTER 10 - JOB SAFETY ANALYSIS

10.1 General

Potential risks to workers may originate from the chemical, physical, biological and industrial safety hazards present at the FEMP site. Specific hazards for each Safe Shutdown field activity described in an Implementation Plan will be identified in the Job Safety Analysis attached to the plan.

10.2 Chemical Hazards

The following chemicals have been identified as hazardous chemicals at the FEMP site and could potentially be involved in a Safe Shutdown field activity.

A. Ammonia
B. Asbestos Containing Materials
C. Caustic Soda
D. Copper
E. Graphite
F. Hydrofluoric Acid
G. Kerosene
H. Lime (Calcium Hydroxide)
I. Lithium Carbonate
J. Magnesium Fluoride
K. Magnesium Oxide
L. Nitric Acid
M. Potassium Carbonate
N. Potassium Chloride
O. Sodium Chloride
P. Sodium Sulfide
Q. Sulfuric Acid
R. Thorium
S. Thorium Nitrate
Y. Uranium Dioxide
U. Uranium Octoxide
V. Uranium Tetrafluoride
W. Uranium Trioxide
X. Uranyl Nitrate
Y. Zirconium Oxide

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When workers enter the change room, they will remove their disposable coveralls, shoe covers, and gloves and place them in a labeled waste container. They will remove their safety shoes and leave them in the staging area. Any launderable clothing which is removed will be placed in a separate labeled container for delivery to the laundry. After all clothing has been removed and the worker is still wearing their respirator, they will proceed to the shower. In the shower they will rinse off their respirator, remove the respirator and then remove the cartridges from the respirator (cartridges are to be disposed of as asbestos waste). Workers must shower before entering the clean change area. Respirators will be allowed to dry before being placed into a respirator recycling receptacle. Any towels used by workers will be returned to the laundry in asbestos labeled bags or containers.

The shower must be drained through a filtration system with a minimum 5 micron final filter. If waste water is inadvertently released outside the shower area, it will be cleaned up using a wet vacuum or a wet mop to prevent any asbestos in the water from drying and becoming airborne.

9.5 Disposal Procedures

All discarded materials, waste materials, or other objects will be handled in a way that precludes the potential for spreading contamination, creating a sanitary hazard, or allowing litter to be left on-site. All potentially contaminated disposal materials, such as gloves and protective suits, will be drummed, labeled and segregated according to FEMP site procedures. All non-contaminated materials must be collected for appropriate disposal.

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The main radiation hazard is alpha radiation from internal exposure (inhalation, ingestion, injection). Contamination of surfaces or equipment with radioactive materials may be encountered in the production area or laboratory. Control zones with special requirements will be established to control these hazards. Soils in the production area may also have above background radioactive contamination. Inhalation of these materials can occur when contaminated surfaces or soils are disturbed and the radionuclides made airborne unless proper precautions are observed.

Ingestion of these materials can also occur if proper precautions are not observed with regard to eating, drinking, smoking and personal hygiene. Injection or absorption of radioactivity is unlikely although possible during an injury or through open cuts or sores.

The third hazard connected with radioactivity is criticality. Because of the low level of U-235 at the FEMP, criticality is a remote possibility, however, strict controls including drum color coding, storage and movement requirements are in effect to further reduce the potential for a criticality.

10.3.2 Cold Stress

Safe Shutdown field activities may be conducted when the temperature could present a potential cold stress hazard. Personnel must be aware of the symptoms of cold stress for themselves and be able to recognize these symptoms in other team members. Work environment temperatures will be evaluated during specific tasks. Cold stress symptoms and their mitigation will be reviewed at pre-shift briefings, with particular emphasis on a predetermined work/warmup regime. More detailed information on cold stress is contained in Appendix A.

10.3.3 Heat Stress

Safe Shutdown field activities may also be conducted during periods when the temperature could pose a heat stress hazard. Heat stress may occur at lower temperature and in less time when protective clothing is being worn. Safe Shutdown personnel will be trained in heat stress symptoms and prevention prior to commencing field activities. Work environment temperatures will be evaluated during specific tasks. Heat stress symptoms and their mitigation will be reviewed at pre-shift briefings, with particular emphasis on a predetermined work/rest regime. More detailed information on heat stress is contained in Appendix A.

In addition to these specific chemicals, some additional chemicals have been identified as hazardous chemicals including:

A. Vacuum oil
B. Coolants
C. Various types of paints (lead)
D. Dyamyl Amyl Phosphomat (DAAP)

For each chemical, a material safety data sheet (MSDS) will be reviewed with all task Safe Shutdown personnel and will be available at the work area. Required monitoring for chemical hazards will be performed by Industrial Hygiene.

10.3 Physical Hazards

Because of the diverse activities that may be conducted during Safe Shutdown field activities, the range of potential physical hazards is also diverse. The primary physical hazard associated with the FEMP site is the presence of ionizing radiation. In addition to ionizing radiation, cold and heat stress, noise, fire and explosion may also be hazards associated with safe shutdown activities.

10.3.1 Ionizing Radiation

The principal radioactive materials present at the FEMP site are uranium and thorium and their daughter products, although other radionuclides have been identified. Uranium and uranium-bearing materials are stored or have been processed in almost all parts of the FEMP Production Area and the Laboratory building. Thorium materials are also stored and have been processed. Uranium, thorium and their daughter products present an external radiation source from alpha and beta particles and gamma rays. The K-65 Storage Tanks contain significant quantities of material contaminated with radium-226. The radiation hazard from this material and its daughter products (including radon) must be considered and appropriate precautions taken when working in this vicinity.

Excavation activities in any area may expose radioactive material for which protective measures are required. Preparation for excavation must include having a Radiological Control Technician available to spot survey excavated or newly-exposed material and PPE ready for the potential hazard.

Welding and cutting activities on contaminated surfaces will generally require PPE (with respirators) and/or local ventilation to protect the worker from localized airborne contamination.

10.4.1 Bird Droppings

Accumulated droppings produced by birds roosting in various portions of the site structures pose a potential hazard from various infectious organisms such as the mold Histoplasma Capsulatum which may grow in the droppings and be contacted when these are disturbed and become airborne. Histoplasma Capsulatum is an inhalation and a contact hazard. While infection is common, overt clinical disease is not, making up only 5% of the disease picture. However, since this organism is endemic to the soils of the Ohio River Valley area, any work which would disturb accumulations of bird droppings or soils heavily contaminated by droppings must be properly controlled. This includes cleanup of droppings, movement of items heavily contaminated with droppings, removal of transite siding from the exterior or interior of buildings and disturbance or excavation of soil in former or current bird roosting areas. Appropriate respiratory protection will be identified by Industrial Hygiene personnel for work in these areas.

10.4.2 Poisonous Plants

Poisonous plants such as poison ivy, oak and sumac may be found at the FEMP site. Contact with these plants should be avoided.

10.4.3 Insects

Tick bites may result in the transmission of Lyme disease. Employees will perform self searches after working outside to check for ticks. Measures to avoid tick bites will be taken such as arranging for appropriate personal protective equipment (PPE) and clothing to keep ticks on the outside of clothing. Insect repellents may also be used.

In addition to ticks, bees and wasps may be a nuisance and employees may be stung while working.

10.5 Safety Hazards

The Safe Shutdown field activities will involve a variety of operations. Each operation will potentially have multiple safety hazard. Listed within this section are some of the potential hazards that may be encountered. During the completion of the tasks additional hazards may be recognized.

10.3.4 Noise

Operations being performed during Safe Shutdown field activities may present potential noise hazards. Excessive noise may occur during operations involving heavy equipment, pneumatic tools, generators and other machinery. Noise exposure will be evaluated by the Industrial Hygiene Technician prior to and during specific tasks to determine the need for hearing protection.

10.3.5 Fire and Explosion

The potential for fires and explosions may occur during Safe Shutdown field activities. Conditions may occur when handling metals, dust, chemicals, and compressed gases.

Uranium and thorium metal can be pyrophoric in certain physical states. Moist uranium chips, turnings and fines react slowly with water to form hydrogen. Hydrogen presents a dangerous fire and explosion hazard if precautions are not taken to eliminate ignition sources and if proper venting or ventilation is not provided. Uranium and thorium chips, turnings and fines are subject to spontaneous ignition. Magnesium metal, formerly used in uranium reduction, may generate hydrogen if wet with water. Some dust collection systems handling fine, dry material (e.g., the Plant 1 collector handling magnesium fluoride contaminated with particles of uranium metal) and other process equipment, when in use, have the potential for fire or explosion if not properly controlled. A propane storage facility, various gasoline storage tanks and dispensing facilities are located at the FEMP along with natural gas supply lines all of which have fire and explosion risks associated with them. Other flammable or oxidizable materials are also stored at the FEMP. In some cases, NFPA-704 hazard warning labels are used to identify such stored materials. Compressed gas cylinders are also used for a variety of materials, some of which may pose fire and explosion hazards. Specific task evaluations will be performed by the on duty Emergency Response Specialist (ERS). The ERS will determine any special requirements prior to commencing work involving these materials. Evaluation and approval of Safe Shutdown field activities relating to the removal and storage of these materials will be performed by the Fire Protection Engineer.

10.4 Biological Hazards

Depending on the type of field activities being performed, certain types of biological hazards may be present. Potential biological hazards that may cause injury or disease when encountered include:

A. Bird Droppings
B. Poisonous Plants
C. Insects

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When employees are required to enter trenches more than four (4) feet deep, a confined space entry permit must be obtained and a means of exit, such as ladders or steps, must be installed. The ladders or steps must be located so an employee does not have to travel more than twenty five (25) feet to exit the trench.

10.5.4 Heavy Equipment

Certain Safe Shutdown field activities may require the use of heavy equipment. Heavy equipment includes cranes, track hoes, back hoes, industrial trucks, and other types of equipment. To ensure the equipment operates in a safe manner, the equipment must be maintained and in good operating condition. The operator must be properly trained in the use of the equipment.

10.5.5 Welding and Cutting

Welding and cutting operations are also referred to as hot work. A hot work preventative procedure is designed to reduce the potential for equipment to generate a spark or other means of ignition causing a fire or explosion. The work is evaluated prior to, during, and after the operation involving the equipment. Prior to conducting hot work, a permit will be issued by the on duty Fire Fighter/Emergency Response Specialist. The purpose of the Hot Work Permit is to establish guidelines by which the use of any flame or spark producing equipment, including gasoline and electric powered equipment, may be safely used. The use of this equipment is especially critical in or around flammable liquid storage areas, tank farms, flammable or combustible waste or where flammable or combustible vapors may be present. A qualified fire watch will be required for hot work.

10.5.6 Lifting

Improper lifting is the most common cause of low back pain. Other injuries, such as disk lesions and hernias can occur from improper lifting. Many of the injuries do not result from a single incident, but develop over a period of time. This type of injury may result from repetitive lifting, such as bending over and improperly lifting objects.

The weight carried by each worker should be limited by factors such as the route and distance to be traveled, the amount of time required and the center of gravity necessary to safely handle the load.

In instances where manual lifting is necessary, the following apply:

A. Get help with heavy or awkward loads
B. Check for nails and sharp bindings
C. Face the load - don't twist
D. Take a normal breath and hold it when lifting; air acts as a cushion for abdominal walls

10.5.1 Confined Space

Confined spaces such as tanks, pits, enclosures, manholes, dust collectors and packing stations are present throughout the FEMP. These spaces may contain safety hazards, but pose additional risk due to the potential for containment of hazardous agents and the inherent difficulty in exiting. An oxygen deficiency is a potential hazard in a confined space along with a concentration of gases or vapors of any chemicals which may be present. Occupational Safety and Health will perform monitoring prior to work in confined space areas and may issue confined space work permits based on monitoring results.

10.5.2 Electrical

All electric work conducted during Safe Shutdown field activities, will be performed in compliance with OSHA 29 CFR 1910.331-335, Electrical Safety Related Work, ESH-1-1000, FERMCO Comprehensive occupational Safety and Health Program, SSOP-0719, FERMCO Lockout/Tagout (Hazardous Energy and Material Control) Procedure and D10-05-001, Safe Shutdown Program Energy Isolation Procedure. Electrical work will be performed by qualified personnel and all electrical circuits will be treated as if they are energized until checked and disconnected or de-energized. Extension cords and wiring will be checked regularly for damage and all electrical concerns will be reported to supervisors immediately. Extension cords used with portable electric tools and appliances will be the three (3) wire type. All receptacles and temporary circuits will be grounded properly. All temporary light bulbs used for general illumination will be protected from accidental contact by the use of suitable fixture or lamp holder with a guard. All temporary wiring will be elevated at least eight (8) feet above the floor or ground level. All energized equipment exposed to contact will be guarded (for example, energized electrical boxes). All temporary electric service and extension cord supplied power shall be protected by a GFCI. The GFCI shall be at the supply side of the power.

10.5.3 Excavations

All excavations and trenches must be clearly designated by the use of barricades or other means to alert individuals to their existence. The walls and faces of excavations and trenches must be supported by a shoring system, sloping of the ground, or some other equivalent means to protect workers from the dangers of moving ground and cave-ins.

Excavated materials, other materials or portable equipment will be placed at least two (2) feet from the top edge of the trench or excavation depending on conditions at the site. This is a precaution to prevent materials from sliding back into the trench or excavation resulting in an additional safety hazard.

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Scaffolds will be inspected prior to each use. Scaffolds will not be erected or used in the immediate vicinity of power lines or electric conductors until the lines and conductors are insulated, de-energized or otherwise rendered safe against accidental contact.

Moving a rolling scaffold without sufficient help will not be permitted. Personnel will be aware of openings in the floor, overhead obstructions and electrical conductors. Rolling towers must be used only on level surfaces and moved only by pushing at the base level. Extension of the overhead work area, by reaching out over the guardrailing, will not be permitted.

10.5.10 Underground Installations

Utility companies, municipally owned utilities and FERMCO officials must be contacted and advised of proposed work prior to the start of work. Prior to commencing Safe Shutdown field activities, efforts must be made to determine whether underground installations, such as sewer, telephone, water, fire, water, fuel or electric lines will be encountered and, if so, where such underground installations are located. If no underground lines are noted, care must still be employed while subsurface activities are being conducted. Underground lines may be found in areas where they are not anticipated.

10.5.11 Walking/Working Surfaces

Task personnel will be aware of their work surroundings and only walk where firm footing is assured. Avoid carrying anything bulky that will obstruct your vision. Look for falling, slipping and tripping hazards, such as cluttered traffic areas, unguarded openings and manholes, defective ladders, damaged ropes and slings, unsteady or snow- and ice-covered platforms, loose materials underfoot, tools hidden in the grass, and slippery, wet, oily or worn walkways. Climbing over equipment to reach items, falling off ladders, chairs, boxes, steep slopes, and stairs can cause serious and sometimes fatal injury or accidents.

10.5.12 Self Propelled-Elevated Work Platforms Aerial Lifts

The manufacturer's instructions and ESH-1-1000, SPR 2-44 will be followed during all operations and inspections involving aerial lifts. All accessories must be installed and used in accordance with the manufacturer's recommended procedures. Standing on the guardrail to gain extra reach will not be permitted. Guardrails will not be used to carry materials unless the guardrails are designed for this purpose, and excessive overhang of materials when elevating the platform will not be allowed.

E. Keep the load close to your body and carry it at knuckle height
F. Keep your path constantly in view
G. Beware of turns, blind corners, ramps, sills, steps and other potential tripping hazards
H. Pace your lifting tasks

10.5.7 Lockout/Tagout

During Safe Shutdown field activities, if energized equipment or utility lines are encountered the equipment or lines must be disconnected, blanked, or other means utilized to prevent accidental or unexpected flow activation or equipment operation. Prior to the initiation of field activities, situations which could result in injury due to electric shock, mechanical movement, or release of materials will be identified. The electrical circuits, material lines or equipment identified will then be locked out by the use of a lock, physically disconnected and tagged to indicate the reason for disconnection. Lockouts will be performed in accordance with SSOP-0719, FERMCO Lockout/Tagout (Hazardous Energy and Material Control) Procedure. D10-05-001, Safe Shutdown Energy Isolation Procedure will be used in conjunction with SSOP-0719 to place equipment in a safe shutdown configuration.

10.5.8 Overhead Obstructions

Drilling, construction or hoisting equipment will not be operated within 10 feet of energized electrical overhead lines. Before commencing any field activity, all overhead obstructions must be identified. Where possible, the work area should be moved away from the overhead lines. If the work area cannot be moved, then the overhead lines should be moved, de-energized, or guarded to protect against contact.

The Safe Shutdown Program Technical Manager or his/her designee will determine the appropriate protective action to ensure worker's protection when working around overhead hazards. Additionally, no person will be permitted to walk under loads handled by a back hoe, track hoe or crane. Personnel should stand clear of all machinery during use.

10.5.9 Scaffolding

Scaffolding may be used during Safe Shutdown field activities to allow worker access to an area. Fixed scaffolds will be erected on sound, rigid footing and be capable of carrying the maximum intended load without settling or displacement. Scaffolds shall be constructed and inspected in accordance with ESH-1-1000, SPR 2-20.

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CHAPTER 11 - EMERGENCY/CONTINGENCY PLANS

11.1 General

All injuries shall be reported to the injured employee's immediate supervisor and medical. The immediate supervisor will accompany the injured employee to the FERMCO Medical facility for evaluation and treatment. The Safe Shutdown Program Manager will be notified as soon as possible. Minor injuries such as sprains, strains, and cuts may initially be controlled by on-site medical personnel using standard first-aid practices.

Injuries complicated by chemical contamination will be evaluated after hazards associated with the contamination are considered. Injuries to personnel contaminated with acutely toxic chemicals will be handled to minimize the hazard to both the rescuer and the victim. Refer to section 11.5.4 for more information on employee contamination by chemical agents. **(Note: In all cases, if a worker cannot safely attempt rescue, the rescue will not be attempted.)**

Injuries occurring within the process area will be assumed to involve radioactive contamination until proven otherwise. The injury is to be given the highest priority. The contamination will be reduced as soon as practical. See section 11.5.5 for more information on radioactive contamination of employees.

The nearest medical facility is the FERMCO Medical Facility. It is the primary choice for on-site injuries. If necessary, the FERMCO ambulance will transport injured personnel to the nearest hospital. FERMCO maintains an emergency response capability which includes ambulances and Emergency Medical Technicians (EMT) on duty at all times. During normal work hours, the medical facility is staffed with nurses and physicians.

11.2 Reporting

Table 7 lists the emergency phone, radio, and pager numbers to be used in the event of an emergency.

11.2.1 Site Notification Procedure

Site notification will be accomplished in accordance with ED-0001, Event Notification and Occurrence Reporting Procedure.

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A safety belt with a lanyard, or a body belt and safety straps must be attached to the basket or boom of an extendable or boom platform. Leaning out over platform railings to perform work is not acceptable. Ladders or makeshift devices used on the platforms to obtain greater height will not be permitted. Personnel must remain clear of pinch points and shear points while the equipment is in use. Personnel will not climb up or down extendable, articulating or scissor arms.

Equipment will not be operated near electrical power lines. Care must be taken to prevent ropes, electric cords, hoses and other gear from becoming entangled in equipment when the platform is being elevated or equipment moved. Alteration of equipment or overriding safety devices will not be permitted.

10.5.13 Hand and Power Tools

Proper eye and face protection will be provided and worn while using all hand and power tools. All tools will be inspected prior to use. Defective tools will not be used. Tools will be used only for the application for which they were designed. Tools with mushroomed heads, sloppy connections or broken handles will not be used. The proper strength tool will be used for each job. The use of handle extensions or cheater bars, is prohibited.

When using electric powered hand tools, ensure a circuit with GFCI protection is used. Tools will be grounded with a three (3) prong grounded plug. Before making adjustments or attachment changes all tools and machines will be disconnected from their power source. Guards or safety devices will not be removed. All fuel-powered tools will be shut off before refueling. Air-powered tools must have safety clips or retainers on all hose connections. Manufacturer's safe operating pressure will not be exceeded for all fittings.

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It is important to remember to stay on the phone until the Communications Officer hangs up. The Communications Officer is trained to be calm and ask for the appropriate information in the order that it appears on his form. Additional information such as cross streets or an escort from the entrance to the site, may be required in some instances.

11.3 Evacuation Routes/Plant Wide Accountability

During a plant wide accountability all personnel will either report to their rally points (section 11.3.1) or report to their supervisor (section 11.3.2) per directions from the emergency message system.

11.3.1 Rally Point Accountability

There are eight rally points located around the FEMP for collection of and communication with personnel during the evacuation of facilities. After personnel have collected, the rally point coordinator, designated by an orange vest, will take accountability. The rally point coordinator will then forward the results of the accountability to the Accountability Center using the rally point telephone.

Building specific emergency plans give the location of primary and alternate rally points in addition to evacuation routes. Personnel working in controlled areas who are wearing radiological PPE will remove their PPE, monitor themselves and assemble at their rally point for accountability (for actual evacuations, no monitoring is required).

When assembled at a rally point, personnel will report their name, badge number and anything observed that they consider unusual.

In the event of a building evacuation alarm or direction from the emergency message system, alerted personnel will report to their assigned rally points.

11.3.2 In-Place Accountability

During an in-place accountability, all employees will report to their immediate supervisor directly or by radio or phone. These supervisors will communicate the names of missing or extra personnel numbers through departmental channels to the Accountability Center.

11.2.2 What/How to Report

Notify the Communication Center of:

A. Name
B. Badge Number
C. Location of incident
D. Unusual conditions observed in the area
E. Name/location of injured personnel

TABLE 7 Emergency Numbers

NAME	PHONE #	RADIO	PAGER
Ambulance/Hospital/Fire	6511	N/A	N/A
Communication Center	6511	Control/202	N/A
AEDO	6431/6295	Control/202	N/A
Industrial Hygiene	6207	357	N/A
Radiation Safety	6889	355	N/A
Fire & Safety	6235	303	N/A
Medical	6217	N/A	N/A
Dosimetry	6290	N/A	N/A
Health and Safety Manager	9401	N/A	554-0525
Manager of Occupational Safety and Health	9001	N/A	920-7812
Utility Engineer	6295	Control/202	N/A
Bioassay	6226	N/A	N/A

Events to report:

A. Serious injury or an injury complicated by contamination
B. Chemical / Radiation release
C. Chemical splash (Eye & Skin)
D. Any fire
E. Major property damage

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11.5.3 Fire Emergencies

Resources such as water, fire extinguisher and soil may be used to contain or extinguish small fires. All fire emergencies shall be reported via 6511, a manual pull station or radio contact with Control. Portable fire control equipment such as an extinguisher may be used to control an incipient fire. The primary concern in the event of a fire is to exit the area and ensure that all personnel are out of the hazard area and accounted for.

11.5.4 Chemical Emergencies

If a release in the form of a spill, leak or vapor cloud is observed, immediately move at least 300 feet upwind. Radio to CONTROL or call 6511 (738-6511). CONTROL will dispatch the necessary response personnel.

If an employee is contaminated, move him/her into an uncontaminated area and perform a preliminary decontamination. A more thorough decontamination can be performed later. Radio to CONTROL or call x6511 for assistance. Preliminary decontamination generally consists of flushing with water to dilute and remove most of the chemical or contamination using such devices as a safety shower. Remove contaminated clothing and wash the affected skin areas. Flush the skin for 15-30 minutes. Minimize the spread of contaminant run off by use of dikes and other engineered controls. As soon as the chemical hazard has been reduced to an acceptable level, stabilize the victim. Immediately report to the FERMCO Medical Department.

In the event of chemical contamination to the eyes, move the victim to an uncontaminated area if possible. Hold the victim's eyes open and flush the victim's eyes for 15 minutes with water (or isotonic saline solution). The natural response to eye pain is to close the eyes. Keep the victim's eyes open to remove chemical from under the victim's eyelids. Flushing solution should be maintained near body temperature because it can cause extreme discomfort if it is too hot or too cold. Call 6511 immediately or contact Control by radio.

11.5.5 Radiologic Emergencies

If a release of suspected or known radiological contaminants takes place, the release area will be evacuated (evacuate upwind in applicable). From there, radio to CONTROL or call x6511 and report the event according to ED-0001, Event Notification and Occurrence Reporting Procedure. The Operations Supervisor, AEDO, Radiological Control Technician, Radiological Engineer and Program Manager will be notified of the release. CONTROL will dispatch the necessary response personnel.

For employee contamination, follow the guidelines of section 9.1, Site Personnel Decontamination Requirements and section 11.5.4, Chemical Emergencies.

11.4 Available Emergency Equipment

11.4.1 Site-Wide Equipment

Fire and rescue equipment at the FEMP includes several pieces of specialized equipment. This includes pumping apparatus, rescue tools such as air bags, Hurst rescue equipment, rope rescue equipment, hazardous materials equipment and respiratory support equipment. Additionally, numerous tools such as forcible entry, lights and fans are available.

11.4.2 Facility Equipment

Fire suppression and detection equipment at the FEMP includes wet, dry and deluge sprinkler systems, and a Honeywell smoke and fire alarm system. The fire protection water supply is provided to the site through a looped and gridded underground distribution system with fire hydrants provided at appropriate locations throughout the site. In addition to these fixed systems, a full compliment of portable fire extinguisher are provided across the site.

Each facility also has the following safety/emergency systems:

A. Radiation Detection Alarm (RDA)
B. Evacuation System
C. Facility Alarm System
D. Manual Fire Alarm System

11.5 Emergency Response

11.5.1 Confined Spaces

At no time will any personnel enter an unknown atmosphere in a confined space without proper respiratory equipment, even to rescue a person who has collapsed. Co-workers may perform non-entry rescues and remove a victim by means of a safety line, if such rescues can be performed without endangering the rescuers or further endangering the victim. Safe Shutdown personnel should be familiar with ESH-1-1000, SPR-5-13, Rescue Requirements for Confined Spaces.

11.5.2 Medical Emergencies

FERMCO maintains an emergency medical response capability on all shifts, seven days a week. Immediately notify the Communication Center by phone at 6511 (738-6511) or radio (call CONTROL) to notify them of any serious injury. If properly trained, personnel may use standard first aid procedures to stabilize the injury pending arrival of FERMCO response personnel.

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CHAPTER 12 - CHANGES/AMENDMENTS TO THE HEALTH AND SAFETY Program

The Safe Shutdown Health and Safety Program is based on information available at the time of preparation. The program will normally be reassessed annually by the Safe Shutdown Program Technical Manager.

Unexpected conditions or events may arise which require an earlier reassessment of the health and safety issues. Upgrading or downgrading of precautions or personal protective equipment, identified in this program must be approved by the Safe Shutdown Program Technical Manager, Industrial Hygiene and Radiological Control, and will be documented in the appropriate work permit.

Unplanned activities or changes in work scope will require a review and may require an amendment to this Health and Safety Program. All amendments must be approved by the Safe Shutdown Program Technical Manager or his/her designee, CRU3 Project Director, Manager of Occupational Safety and Health Compliance and Safe Shutdown Program Manager.

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11.5.6 Weather Limitations/Adverse Conditions

Weather guidelines and warnings will be followed when provided by the emergency message system. In the event of severe weather, Operations Supervisors will contact the Safe Shutdown Program Technical Manager to obtain any special operating requirements during adverse weather conditions.

11.5.7 Occurrence Investigation

Accidents will be investigated in accordance with DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, Chapter VI and DOE Order 5484.1, Environmental Protection, Safety and Health Protection Information Reporting Requirements, Chapter 2. The Safe Shutdown Program Manager and the Health and Safety Officer will release the work area after any major occurrence or injury.

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CHAPTER 13 - APPLICABLE REFERENCES

10 CFR 835, Occupational Radiation Protection

29 CFR 1910.120, Hazardous Waste Operations and Emergency Response

29 CFR 1910.331-335, Electrical Safety Related Work

40 CFR 302.4, Designation of Hazardous Substances

DOE Order 5480.7A, Fire Protection

DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities

DOE Order 5480.23, Safety Analysis Reports

DOE Order 5484.1, Environmental Protection, Safety and Health Protection Information Reporting Requirements

NFPA 704, Identification of the Fire Hazards of Materials

DOE/EH-0256T Radiological Control Manual

SH-3-001, FERMCO Radiological Control Requirements Manual

ESH-1-1000, FERMCO Comprehensive occupational Safety and Health Program

ED-0001, Event Notification and Occurrence Reporting Procedure

SSOP-1018, Event Categorization/Classification

SSOP-0719, FERMCO Lockout/Tagout (Hazardous Energy and Material Control) Procedure

SSOP-11016, Establishment and Control of Heat Stress Stations in Contamination Areas

RC-DPT-008, Radiological Work Permits

RC-DPT-018 Personnel Decontamination

PCN-RC-DPT-022, FEMP Radiological Posting Procedure

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APPENDIX A

SAFETY PERFORMANCE REQUIREMENTS

Cold Stress

These Threshold Limit Values (TLVs) are intended to protect workers from the severest effects of cold stress (hypothermia) and cold injury and to describe exposure to cold working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects. The TLV objective is to prevent the deep body core temperature from falling below 36°C (96.8°F) and to prevent cold injury to body extremities. Deep body temperature is the core temperature of the body as determined by rectal temperature measurements. For a single, occasional exposure to a cold environment a drop in core temperature to no lower than 35°C (95°F) should be permitted. In addition to provisions for total body protection, the TLV objective is to protect all parts of the body with emphasis on hands, feet, and head from cold injury. The single most important aspect of life-threatening hypothermia is the fall in the deep core temperature of the body.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages:

A. Shivering

B. Apathy, listlessness, sleepiness, and rapid cooling of the body to less than 35°C (95°F)

C. Unconsciousness, glassy stare, slow pulse, and slow respiratory rate

D. Freezing of the extremities

E. Death.

Workers should be protected from exposure to cold so that the deep core temperature does not fall below 36°C (96.8°F) lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making or loss of consciousness with the threat of fatal consequences.

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 35°C (95°F). This must be taken as a sign of danger to the workers and exposure to cold should be immediately terminated for any workers when severe

PCN-RC-DPT-009-0002, Monitoring for Airborne Radioactive Materials

D10-05-001, Safe Shutdown Program Energy Isolation Procedure

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In cold environments, wind-chill temperature is a better description of thermal conditions than the ambient temperature alone. The wind adds to the rate of cooling and it is the combination of wind speed and air temperature that is most important. In the wind-chill chart, arbitrary risks of frostbite are given for short exposure periods. For example, at a wind-chill temperature of -25°F (from 5°F temperature and 15 MPH wind) exposed flesh may freeze within one minute. However, fingers, toes, nose tips, ears, or cheeks may become frostbitten at ambient temperatures as high as 32°F with high winds. This is approximately the freezing point of skin in the absence of subcooling.

Hypothermia (general lowering of body temperature) can occur from exposure to conditions well above freezing. The lethal deep body temperature is placed at about 78°F. This condition can occur when a worker is immersed in cold water (diver), is exposed to cool, high winds, is in a state of physical exhaustion, or has had insufficient food. Alcohol should not be consumed in cold environments because the resultant dilation of blood vessels can permit a rapid loss of body heat increasing the risk of hypothermia. For warming purposes, liquid intake should be hot nonalcoholic beverages or soup.

Frostbite

There are three stages of frostbite:

A. Frost nip or incipient frostbite. The condition is characterized by sudden blanching or whitening of skin.

B. Superficial frostbite. Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.

C. Deep frostbite. Tissues are cold, pale, and solid extremely serious injury.

Frostbite may be either superficial, involving only the skin, or deep, extending below the skin. Frostbite may be considered to be superficial if exposure time was short, otherwise assume the injury to be deep and, therefore, serious. Frostbite must be treated at a hospital not in the field. Frozen parts should be protected from additional cold injury but no attempts should be made to thaw them in the field. Never rewarm a frostbitten part by massage, exposure to open fire, cold water soaks, or rubbing with snow. Gradual rewarming against the skin is always preferred. It is important to know that pain will occur when thawing has occurred. The patient should also be kept warm. Superficial frostbite can be treated by:

A. Move patient to warm area if possible

B. Covering the cheeks with warm hands until pain returns

shivering becomes evident. Useful physical or mental work is limited when severe shivering occurs.

Since prolonged exposure to cold air, or to immersion in cold water, at temperatures well above freezing can lead to dangerous hypothermia, the following whole body protection must be provided:

A. Adequate insulating clothing to maintain core temperatures above 36°C (98.6°F) must be provided to workers if work is performed in air temperature below 4°C (40°F). Wind chill factor or the cooling power of the air is a critical factor. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required. An equivalent chill temperature chart relating the actual dry bulb air temperature and the wind velocity is presented in Wind Chill Chart. The equivalent chill temperature should be used when estimating the combined cooling effect of wind and low air temperatures on exposed skin or when determining clothing insulation requirements to maintain the deep body core temperature.

B. Unless there are unusual or extenuating circumstances, cold injury to other than hands, feet, and head is unlikely to occur without the development of the initial signs of hypothermia. Older workers or workers with circulatory problems require special precautionary protection against cold injury. The use of extra insulating clothing and a reduction in the duration of the exposure period are among the special precautions that should be considered. The precautionary actions to be taken will depend upon the physical condition of the worker and should be determined with the advice of a physician with knowledge of the cold stress factors and the medical condition of the worker.

C. Employees will be excluded from work in cold at -1°C (30°F) or below if they are suffering from diseases or taking medication that interferes with normal body temperature regulation or reduces tolerance to work in cold environments. Workers who are routinely exposed to temperatures below -24°C (-10°F) with wind speeds less than five miles per hour, or air temperatures below -18°C (0°F) with wind speeds above five miles per hour should be medically certified as suitable for such exposures.

Trauma sustained in freezing or subzero conditions requires special attention because an injured worker is predisposed to secondary cold injury. Special provisions must be made to prevent hypothermia and secondary freezing of damaged tissues in addition to providing for first aid treatment.

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Eye protection for workers employed out-of-doors in a snow or ice-covered terrain will be supplied. Special safety goggles, to protect against ultraviolet light, glare and blowing ice crystals which can produce temporary conjunctivitis or temporary loss of vision, are required when there is an expanse of snow coverage causing a potential eye exposure hazard.

Work place monitoring is required as follows:

A. Suitable thermometry should be arranged at any work place where the environmental temperature is below 16°C (60°F) to enable overall compliance with the requirements of the TLV to be maintained.

B. In outdoor situations, the wind speed should be measured and recorded at least every 4 hours, together with the air temperature whenever the air temperature is below -1°C (30°F).

C. For exposed skin, continuous exposure should not be permitted when the air speed results in an equivalent chill temperature of -32°C (-25°F). Superficial or deep local tissue freezing will occur at temperatures below -1°C regardless of wind speed.

Work-Warming Regimen

If work is performed continuously in the cold at an ECT of below -7°C (20°F) heated warming shelters (tents, cabins, rest rooms, etc.) will be made available nearby and the workers should be encouraged to use these shelters at regular intervals, the frequency depending on the severity of the environmental exposure. The onset of heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability, or euphoria, are indications for immediate return to the shelter. When entering the heated shelter the outer layer of clothing will be removed and the remainder of the clothing loosened to permit sweat evaporation or a change of dry work clothing provided. A change of dry work clothing will be provided as necessary to prevent workers from returning to their work with wet clothing. Dehydration, or the loss of body fluids, occurs insidiously in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of a diuretic and circulatory effect. (Note - food and drink will be consumed in non-radiologically controlled areas)

000061

C. Placing uncovered frostbitten fingers under the opposing armpit next to the skin

D. Placing bare frostbitten feet under the clothing against the skin of a companion

For work practices at or below -12°C (10°F) Equivalent Chill Temperature (ECT) the following will apply:

A. The worker will be under constant protective observation (buddy system or supervision).

B. The work rate should not be so high as to cause heavy sweating that will result in wet clothing. If heavy work must be done, rest periods must be taken in heated shelters and opportunity for changing into dry clothing will be provided.

C. New employees will not be required to work full-time in the cold during the first days until they become accustomed to the working conditions and required protective clothing.

D. The weight and bulkiness of clothing will be included in estimating the required work performance and weight to be lifted by the worker.

E. The work will be arranged in such a way that sitting still or standing still for long periods is minimized. Unprotected metal chair seats will not be used. The worker should be protected from drafts to the greatest extent possible.

The workers will be instructed in safety and health procedures. The training program will include as a minimum instruction in:

A. Proper rewarming procedures and appropriate first aid treatment

B. Proper clothing practices

C. Proper eating and drinking habits

D. Recognition of impending frostbite

E. Recognition signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur

F. Safe work practices

Special caution will be exercised when working with toxic substances and when workers are exposed to vibration. Cold exposure may require reduced exposure limits.

000062

Other Cold Stress Precautions

Balanced meals and adequate liquid intake are essential to body heat production and the prevention of dehydration. Dehydration is as prevalent in cold regions as it is in hot, dry areas. Warm liquids (hot soup or tea) are obviously preferable since they do not have to be warmed by the body after consumption. Cold foods and drinks should only be eaten as a matter of necessity. Hair should be cut and beards shaved or clipped closely. Long hair or a beard add very little in insulation value and natural hair oils soil the clothing. In the open, a beard serves as a base for ice build up and will mask the appearance of frostbite. Electric razors are preferable since they do not remove protective oils from the face.

000063

Protective Clothing

The following protective clothing options should be considered to avoid cold stress:

A. Clothing for both cold-wet (moderately cold weather above 14°F) and cold-dry (temperatures below 14°F) should be available.

B. Clothing worn loosely and in layers provides maximum protection because the trapped layers of warm air are more effective insulators than the cloth itself.

C. Clothing must be kept dry. If not, the exposure to cold must be altered with periods of rewarming and drying of clothes.

D. Moisture should be kept off clothes by brushing or shaking snow from it prior to entering heated shelters.

E. Means of evaporating perspiration should be encouraged by opening the neck, waist, arm sleeves, and ankle fasteners as needed to provide periodic fresh air circulation.

F. During severe wind-chill conditions, a cold weather mask or wool scarf should also be worn.

G. When wearing face protectors, they should be removed periodically to check for frostbite.

H. Skin on the hands can freeze easily, therefore, cold metal should never be touched with bare hands. Special protection of the hands is required to maintain manual dexterity for the prevention of accidents. If the air temperature is -17.5°C (0°F), the hands should be protected by mittens.

I. Pants should be tucked in and lapped over boot tops to prevent the entry of snow and cold water into the boot.

J. The foot wear for outdoor work in wet snow should be waterproof and reach well up on the leg. The soles and upper part of the boot should provide good insulation as well. A combination of working boots and rubber overboots provides this insulation.

K. Socks should be fairly heavy and reach well up on the leg to encourage wicking and evaporation of perspiration.

000064

C. Dilated (large) pupils

D. Loss of consciousness - the individual may go into a coma

Heat stress is a significant hazard associated with using protective clothing in hot weather. Local weather conditions may produce conditions which will require restricted work schedules in order to protect employees. A Wet Bulb Globe Temperature (WBGT) Index will be used to establish a work/rest cycle.

To ensure operational and personal safety of workers wearing personal protective equipment (PPE), the following table should be used as a guideline for establishing a work/rest cycle:

Table A-1
Permissible Heat Exposure Threshold Limit Values are given in degrees Fahrenheit (°F) Wet Bulb Globe Temperature Index (WBGT)

WORKLOAD	TEMPERATURES		
Work/Rest Regimen	Light	Moderate	Heavy
Continuous work	86.0	80.1	77.0
75% work - 25% rest, each hour	87.1	82.4	78.6
50% work - 50% rest, each hour	88.5	84.9	82.2
25% work - 75% rest, each hour	90.0	88.0	86.0

A. When workers are wearing semipermeable or impermeable clothing, add 10°F to the measured WBGT Index for comparison to the chart.

B. Rest means minimal physical activity. Rest should be accomplished in the shade. Any activity requiring only minimal physical activity can be performed during rest periods.

The Industrial Hygiene Technician will observe the field crew looking for potential symptoms of heat stress. These measures and training on heat stress symptoms for all workers should help prevent any heat stress illnesses from occurring.

Heat Stress

Heat stress is a significant potential hazard, especially for workers wearing protective clothing. The same protective materials that shield the body from chemical exposure also limit the dissipation of body heat and moisture. Heat stress manifests itself as one of three conditions: heat cramps, heat exhaustion, or heat stroke.

Heat cramps are brought about by long exposure to heat. As the individual perspires, water and salts are lost by the body bringing on painful muscle cramps. The signs and symptoms are as follows:

A. Severe muscle cramps, usually in the legs and the abdomen

B. Exhaustion, often to the point of collapse

C. Dizziness or periods of faintness

First aid treatment includes shade, rest, and fluid replacement. The individual should recover within half an hour.

Heat exhaustion usually occurs in a healthy individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual begins to fail as blood collects near the skin in an effort to rid the body of excess heat. The signs and symptoms are as follows:

A. Rapid and shallow breathing and a weak pulse

B. Skin appears pale, cold and clammy, with heavy perspiration

C. Fatigue, weakness and dizziness

D. Elevated body temperature

First aid treatment includes cooling the victim, elevating the feet, and replacing fluids. The individual should be transported to medical for medical attention.

Heat stroke occurs when an individual is exposed to excessive heat and stops perspiring. This condition is a medical emergency, requiring the cooling of the patient and transport to a medical facility immediately. The signs and symptoms are as follows:

A. Dry, hot, red skin

B. Body temperature approaching or above 105°F

000066

APPENDIX B

FEMP ALARM SIGNALS		
EMERGENCY SIGNALS ARE TRANSMITTED VIA ALARM HORNS. INSTRUCTIONS ARE TRANSMITTED VIA THE EMERGENCY MESSAGE SYSTEM.		
Alarm		
2-2, 2-2	AMBULANCE, FIRE, SECURITY EVENT	• Radio message to Emergency Response Team (ERT). • Emergency Message System (EMS) message follows with general information.
3-3, 3-3	SUPERVISOR ALERT	• Emergency Message System (EMS) and radio message follows, and may include weather information, all clear, evacuation, test (every Monday at 2 p.m.), or other announcements.
	In case of:	<u>Tornado</u> • Take immediate cover. • In FEMP buildings, go to the lowest floor or designated shelter area. • Avoid glassed areas, large roof spans, windward sides of buildings, and load-bearing walls. • In open country, lie face down in the nearest depression, such as a ditch, and protect your head with your arms. • Await all-clear announcement. <u>Evacuation</u> • Park vehicle along the side of the road. • Go to the nearest rally point (see map below). • Exit Contamination Area immediately - do not remove PPE or monitor for contamination.

APPENDIX C

FEMP RALLY POINTS

1. Administration
2. Alternate Administration
3. Building 12
4. Security & Garage
5. Plant 5
6. Waste Pit Area & Plant 1
7. Boiler Plant
8. Plant 8

(See attached site Map)

APPENDIX D

Location of FEMP Medical Facility

(See attached site Map)

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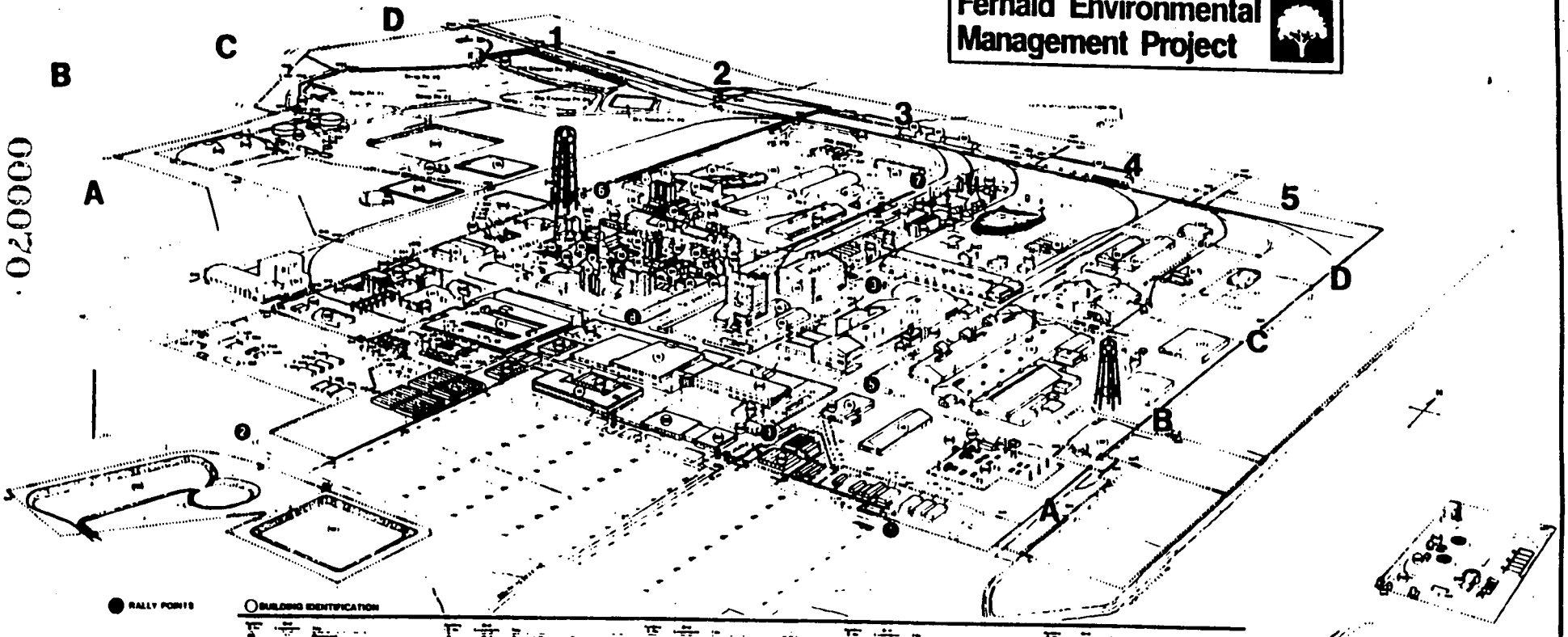
Fernald Environmental Management Project



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APPENDIX E - HEALTH AND SAFETY COMPLIANCE SIGN-OFF

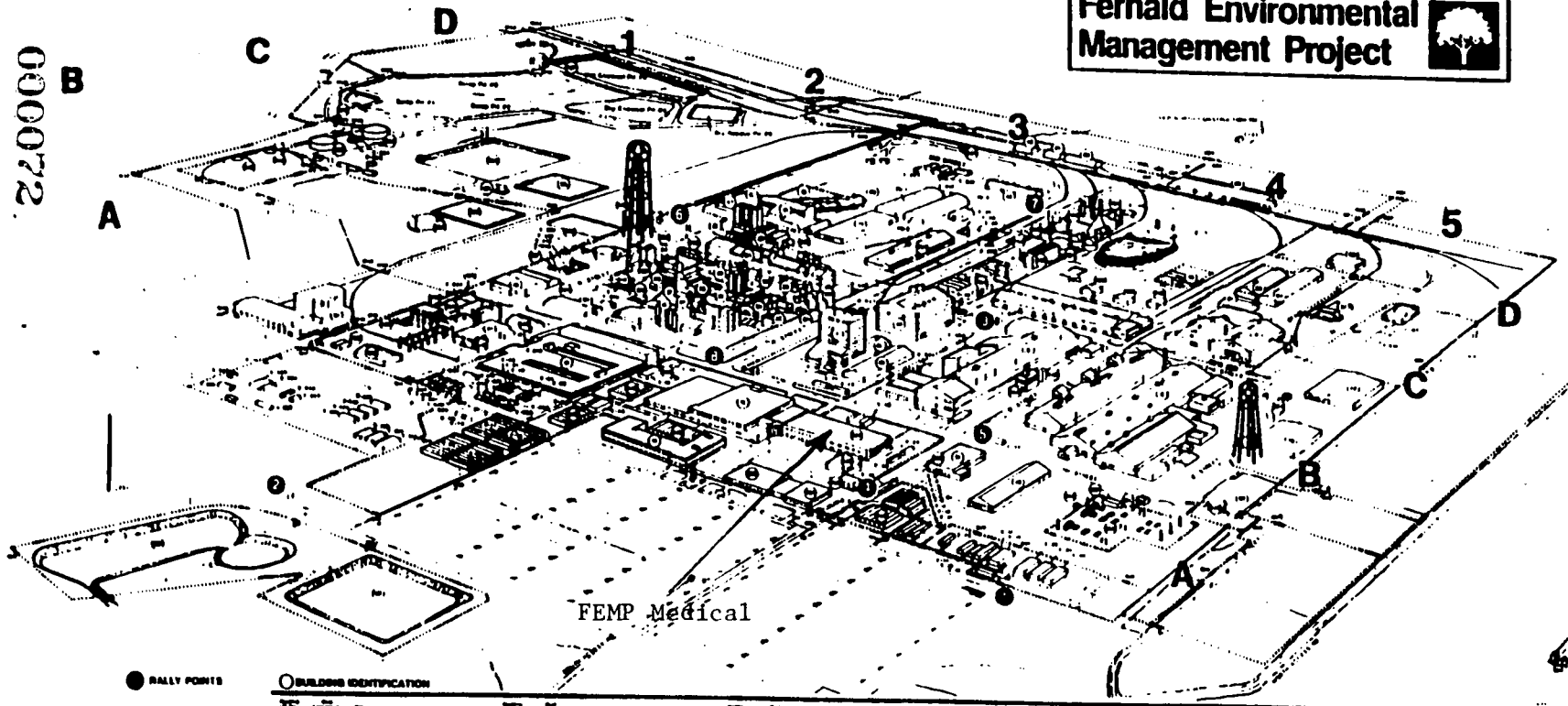
The undersigned persons have read and understand this Safe Shutdown Health & Safety Program and agree to follow all provisions [1].

Name (Printed)	Signature	Badge #	Date

[1] Compliance with the provisions of this Program may be audited through announced or unannounced site visits. Be sure that you are implementing the provisions of the Health and Safety Program and documenting the reasons for approved field actions/changes when they are necessary. Site visits may be performed by FERMCO, DOE and/or OSHA.

000022

Fernald Environmental Management Project



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1.0 PURPOSE

The purpose of this document is to provide inspection and operating requirements for safety harnesses and lanyards to be used during work assignments.

2.0 APPLICABILITY

This procedure applies to safety harnesses and lanyards used to support personnel while in hazardous positions and reduce the possibility of a fall in all areas of the Fernald Environmental Management Project (FEMP).

3.0 RESPONSIBILITIES

3.1 The **Supervisor** shall be responsible for the following:

3.1.1 Ensuring personnel are trained in the use of safety harnesses and lanyards before use.

3.1.2 Ensuring equipment meets inspection criteria.

3.1.3 Ensuring safety harnesses and lanyards are marked to meet Occupational Safety and Health Administration/American National Standards Institute (OSHA/ANSI) requirements.

3.1.4 Ensuring defective equipment is identified and removed from the work area.

3.1.5 Maintaining required records.

3.1.6 Ensuring safety harnesses and lanyards are marked with an identification number.

3.2 **Personnel** using safety harnesses and lanyards shall be responsible for the following:

3.2.1 Inspecting safety harnesses and lanyards per this Standard Operating Procedure.

3.2.2 Completing inspection records and submitting to the supervisor.

3.2.3 Reporting defective equipment to the supervisor.

4.0 **DEFINITIONS**

NONE

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 RM-0012, "Quality Assurance Program Description"

5.2 References

5.2.1 FMPC-2128, "FMPC Industrial Hygiene and Safety Manual"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Personnel using safety harnesses and lanyards shall be trained in the use and care of this equipment.

6.2 Equipment shall be inspected before each shift of use and inspection records maintained.

6.3 The safety harness and lanyard shall be a minimum 1/2 inch nylon or equivalent, with a maximum length to prevent a fall of no greater than six feet. The emergency release length and the lanyard length combined shall be less than the distance from the work area to the ground.

6.4 Work at elevated levels shall be performed in accordance with FMPC-2128.

6.5 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS** (cont.)

6.6 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 **GENERAL**

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 **PROCEDURE**

8.1 Inspect safety harnesses per Safety Harness Inspection Sheet (See Figure 1). Inspect lanyards per Lanyard Inspection Sheet (See Figure 2).

R 8.1.1 If equipment status is not acceptable, do not use equipment and notify the supervisor for determination of use.

NOTE: The supervisor shall remove the OSHA/ANSI tags from unsafe and disposed equipment and attach to file records to verify out-of-service status.

8.2 Deliver completed inspection forms to supervisor before use of equipment.

9.0 **APPLICABLE FORMS**

9.1 NN, "Safety Harness Inspection Sheet"

9.2 NN, "Lanyard Inspection Sheet"

Safety Harness Manufacture Date _____ ID Number _____

SAFETY HARNESS INSPECTION SHEET
(Page 1 of 2)

DATE: SHIFT: 1 2 3

ITEM NO.	INSPECTION ITEM	STATUS YES	STATUS NO	COMMENTS
0	OSHA/ANSI Tags Intact			
1	Friction Buckle (corners, outer or center bar) Distorted			
2	Distorted Buckle Shape			
3	Buckle Edges Distorted Exposing Sharp Metal			
4	Buckle Roller Mobile			
5	Billet Tongue Slipping			
6	Holes Elongated/with tread			
7	Grommets Loose/Broken			
8	Rivets Cracked			
9	Rivets Pitted			
10	Rivets Discolored			
11	Rivets have Burrs			
12	Rivets Flush with Surface			
13	Rivets Loose			
14	"D" Ring Distorted/Unusual Wear			
15	Buckles Distorted/Unusual Wear			

SAFETY HARNESS INSPECTION SHEET (Sheet 1 of 2)
Figure 1

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SAFETY HARNESS INSPECTION SHEET
(Page 2 of 2)

DATE: SHIFT: 1 2 3

ITEM NO.	INSPECTION ITEM	STATUS YES	STATUS NO	COMMENTS
16	Webbing Fibers Fraying/Cut			
17	Harness Chemically Damaged			
18	Harness has cuts/frayed edges			
19	Harness Stitches Pulled			
20	Harness Fibers Broken			
21	Harness Edges Fraying			

Supervisor Signature Date

Inspector Signature Date

- ☐ Acceptable
- ☐ Unacceptable for service
- ☐ Out of service; OSHA/ANSI tags removed.

SAFETY HARNESS INSPECTION SHEET (Sheet 2 of 2)
Figure 1

LANYARD INSPECTION SHEET

DATE: SHIFT: 1 2 3

ITEM NO.	INSPECTION ITEM	STATUS YES	STATUS NO	COMMENTS
1	"D" Ring/Thimble Strands Loose			
2	"D" Ring/Thimble Edges Rough			
3	"D" Ring/Thimble Cracked			
4	"D" Ring/Thimble Distorted			
5	Snap Edges Rough			
6	Snap Hook and Eye Distorted			
7	Adequate Spring Tension on Snap Keeper			
8	Snaps Binding/Distorted			
9	Steel Worn			
10	Steel Strands Broken			
11	Steel Fraying			
12	Steel Cuts			
13	Rope Stitches Damaged/Loose			
14	Rope Chemically Damaged			
15	Abrasion to Rope			
16	Rope Cuts			
17	Rope Wear/Breaks			
18	Changes in Rope Diameter			
19	Broken Rope Fibers			

Supervisor Signature Date

Inspector Signature Date

LANYARD INSPECTION SHEET
Figure 2

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RECORD OF ISSUE/REVISION

	DATE	REV.NO.	DESCRIPTION AND AUTHORITY
R R R	06-12-87	N/A	Procedure requested for inspection of safety belts, safety harnesses, and lanyards per Procedure Request No. P86-198, initiated by S. R. Eleton.
	01-16-91	0	Issued to comply with periodic review program requirement per Request P89-165, initiated by K.J. Dunbar. Revision program changed from "Page Revision Date" to Revision No.. SOP 20-C-609 supersedes SOP 01-102, dated 6-12-87.
R R R	03-02-94	0	Reissued, without technical changes after Periodic Review (R93-078), to update format per Request No. P93-574, initiated by J. L. Lenarduzzi.
	03-22-94	1	Revised Revision 0, dated 03-02-94 to correct typographical errors (Step 8.1.1 and Record of Issue/Revision) per Request No. P94-0130, initiated by N. K. Weichold.

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1.0 PURPOSE

The purpose of this document is to provide instructions for assembly and disassembly of tubular welded and coupler type frame scaffolding.

2.0 APPLICABILITY

This procedure shall apply to tubular welded and coupler type frame scaffolding used by Industrial Cleaning personnel during cleaning operations of Facility and Waste Operations facilities at Fernald Environmental Management Project (FEMP).

3.0 RESPONSIBILITIES

3.1 **Supervisors** are responsible for the following:

3.1.1 Ensuring personnel are qualified per the established training requirements as identified by the department/staff manager.

3.1.2 Ensuring only trained personnel inspect assembled scaffold.

3.1.3 Contacting Environmental Safety and Health (ES&H) Division to determine the appropriate respiratory protection and Personal Protective Equipment (PPE) for the process being performed.

3.1.4 Providing operators with the required respiratory protection for the process being performed.

3.1.5 Ensuring that scaffolding meets DOE/OSHA Regulations and monitoring scaffolding use through routine inspections.

3.2 **Industrial Cleaning personnel** are responsible for the following:

3.2.1 Assembly and disassembly of the scaffolding per this standard operating procedure (SOP).

3.2.2 Notifying the supervisor of damaged equipment.

3.3 **Fire Protection (FP) and ERT** are responsible for performing audits, monitoring, and routine inspections of the scaffolding operation per the ES&H requirements.

4.0 DEFINITIONS

None

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 PO-D-026, "Site Services Document Program"

5.1.2 RM-0012, "Quality Assurance Program Description"

5.1.3 29 CFR 1910.451 and 1926.451, "Scaffolding"

5.2 References

5.2.1 FMPC-2128, "FMPC Industrial Hygiene and Safety Manual"

5.2.2 SPR 2-20, "Metal Scaffolding"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Respiratory protection and personal protective equipment (PPE) provided by the supervisor shall be worn when required.

6.3 Leather-palm gloves shall be worn to protect hands from rough material and sharp edges.

6.4 Safety glasses shall be worn unless other eye protection is specified by ES&H.

6.5 Hard hats shall be worn as designated by supervisory personnel.

6.6 Only trained personnel shall assemble and disassemble scaffolding.

6.7 Ground floor work shall have areas marked and posted with "Men Working Overhead" signs from all accessible areas. If working over a doorway, the doorway shall be barricaded and appropriate signs posted upon approval of FP & ERT.

6.8 Personnel climbing scaffolding shall keep hands free and utilize a tool belt or tool bucket with tag line for required tools.

6.9 Work at elevated levels shall be performed in accordance with FMPC-2128 (IH&S-S-14).

6.10 Slippery conditions on scaffolds shall be eliminated as soon as possible after they occur.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.11 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.12 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE

WARNING

Scaffolds and their components shall be capable of supporting without failure, at least four times the maximum intended load (29 CFR 1926.451) to prevent serious injury.

8.1 Assembly of Tubular Welded Form Scaffolding

8.1.1 Space panels or frames such that work loads specified in Table 1 are not exceeded.

8.1.2 Position diagonal braces between the vertical end pieces.

8.1.3 Install cross braces to keep the erected scaffolding plumb, square, and rigid.

8.1.4 Ensure brace connections are secure and all pins inserted.

8.1.5 Set scaffold legs on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum rated load.

8.0 **PROCEDURE** (cont.)

8.1.5.1 If wheels/casters are utilized for rolling a scaffold, lock the wheels/casters except during movement of the scaffolding.

WARNING

Personnel, unsecured tools and equipment are not permitted on a moving scaffold structure to prevent possible injury.

8.1.6 Place frames one on top of the other with coupling or stacking pins to provide vertical alignment of the legs.

8.1.6.1 Lock panels together vertically by pins or equivalent, where uplift may occur.

8.1.7 Secure the scaffold with No. 9 wire or equivalent to the building or structure at intervals not to exceed 30 feet horizontally and 26 ft. vertically.

WARNING

The height shall not exceed three times the smallest base dimension without additional stabilization.

8.1.8 Assemble wood planks on scaffold (Refer to Table 1 for span/work load limits).

8.1.8.1 Overlap planks a minimum of 12 inches and secure to prevent movement.

8.1.8.2 If scaffold is 10 feet or more above floor level, protect the sides and open ends with components assembled as follows:

A. Guardrails of lumber, or other material providing equivalent protection, measuring a minimum of 2 x 4 x 42 inches.
B. A midrail of 1 x 6 inch lumber or other equivalent protective material.
C. Toeboards a minimum of four inches in height.

8.1.8.3 Ensure the length of the planks extend > 6 inches and < 18 inches over the end supports.

8.1.9 Install wire mesh under the scaffold where personnel are required to work or pass under.

8.1.10 Install a screen between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard Wire 1/2 inch mesh or equivalent.

8.2 Assembly of Tube and Coupler Type Scaffolding

8.2.1 Assemble light, medium, and heavy-duty scaffolding using the load limits, post spacing, and working level requirements listed in Table 2.

8.0 **PROCEDURE** (cont.)

8.2.2 Ensure posts are accurately spaced, erected on suitable bases, and maintained plumb.

8.2.3 Erect runners along the length of the scaffold, located on the inside and the outside posts at even height.

8.2.4 Interlock runners to the inside and the outside posts at even heights to form continuous lengths.

8.2.5 Connect runners to each post.

8.2.6 Locate the bottom runners as close to the base as possible.

NOTE: Runners shall be set no more than 6 feet - 6 inches on center.

8.2.7 Install bearers transverse between posts and securely connect to the posts bearing on the runner coupler.

CAUTION

Medium-duty scaffolding shall use only bearers of nominal 2-1/2 inch O.D. Steel tubing.

NOTE 1: When connected directly to the runners, the coupler must be kept as close to the posts as possible.

NOTE 2: Bearers shall be a minimum of 4 inches/maximum of 12 inches longer than the post spacing or runner spacing.

8.2.8 Install cross bracing across the width of the scaffold at least every third set of posts horizontally and diagonally from the inner and outer runners upward to the next outer and inner runners.

8.2.9 Install longitudinal diagonal bracing on the inner and outer rows of poles at approximately a 45 degree angle from near the base of the first outer post upward to the extreme top of the scaffold.

NOTE: Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post.

8.2.10 In a similar manner as in Step 8.2.9, install longitudinal diagonal bracing from the last post extending back and upward toward the first post.

NOTE: Where conditions preclude the attachment of this bracing to the posts, it may be attached to the runners.

8.2.11 Using No. 9 wire or equivalent, tie and securely brace scaffold against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.

8.0 **PROCEDURE** (cont.)

WARNING

The height shall not exceed three times the smallest base dimension without additional stabilization.

8.2.12 If scaffold is 10 feet or more above floor level, protect the sides and open ends with components assembled as follows:

A. Guardrails of lumber, or other material providing equivalent protection, measuring a minimum of 2 x 4 x 42 inches.
B. A midrail of 1 x 6 inch lumber or other equivalent material.
C. Toeboards a minimum of four inches in height.

8.2.13 Install wire mesh screen under the scaffold where personnel are required to work or pass under, between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard Wire 1/2 inch mesh, or equivalent.

8.3 Inspection

8.3.1 Notify the supervisor installation is ready for inspection of completed scaffolding.

8.4 Disassembly

CAUTION

When disassembling scaffolding, avoid dropping or throwing components to prevent damage to equipment.

8.4.1 Disassemble scaffolding in the following order:

A. Remove the handrails.
B. Remove siderails.
C. Remove toeboards.
D. Remove planking.

8.4.2 Lower scaffolding parts with a rope.

8.4.3 Continue disassembling one buck at a time until disassembly is complete.

8.4.4 Inspect disassembled scaffolding and notify the supervisor of any equipment damaged during disassembly.

8.4.5 Properly store disassembled components of scaffold.

9.0 **APPLICABLE FORMS**

None

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TABLE 1
PLANKING SPAN/WORK LOAD LIMITS

MATERIAL	WORKING LOAD (PSF)(MAX.)	PERMISSIBLE APAN (FT)(MAX.)
2 inch x 10 inch or Wider Wood	25	10
Full Thickness Lumber	50	8
Undressed Lumber	75	6
Nominal Thickness Lumber[1]	25	8
	50	6

[1]Do not use nominal thickness lumber for heavy duty use.

TABLE 2
TUBE AND COUPLER SCAFFOLD WORKING LIMITS

	LIGHT DUTY	MEDIUM DUTY[1]	HEAVY DUTY
1. Uniformly Distributed Load	25 PSF max.	50 PSF max.	75 PSF max.
2. Post Spacing (longitudinal)	10 ft.	8 ft.	6 ft. - 6 in.
3. Post Spacing (transverse)	6 ft.	6 ft.	6 ft.
4. Working level	48 ft.	48 ft.	48 ft.

[1]Post spacing ≤ 5 feet x 8 feet shall use bearers of nominal 2 inch O.D. Steel tubing.

-6944

RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
02-15-91	0	Procedure requirement issued for assembly and disassembly of tubular scaffolding per Request No. P89-164, as initiated by K. Dunbar. Superseded SOP 01-101, dated 06-12-87.
03-02-94	0	Reissued Assembly/Disassembly of Scaffolding per Request No. P93-606, initiated by T. J. Arnold.

CONTROL NO. FER-0018 6944

SITE PROCEDURE: NS-0001 (SSOP-0095)
REVISION NO.1

CRITICALITY SAFETY ANALYSIS AND APPROVAL PROCESS

Effective Date:

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Originator (Subject Expert): Ronald C. Marble 3/8/95
Date

Checker Concurrence: [signature] 3/8/95

APPROVED BY: Stuart L. Hinnefeld 3/27/95
Stuart L. Hinnefeld, Vice President, Safety and Health Division Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

000089

Fernald Environmental FERMCO Restoration Management Corporation	Title: CRITICALITY SAFETY ANALYSIS AND APPROVAL PROCESS	
	DOCUMENT NO: SSOP-0095 REVISION NO: 1	
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-16-93	0	Procedure needed to establish the nuclear criticality process per Request S92-232 initiated by T. Brown. This procedure and SR-2117 replace FMPC-2117, "Topical Manual for Nuclear Criticality Safety" and FMPC-0517, "Nuclear Criticality Safety".
Draft	1	Revision completed to include steps for tracking and distributing NSOAs and CSAs, revise forms, and update organization names per Request S94-186 initiated by T. Brown.

NOTE: Change bars and snading from the previous revision have been removed. The latest changes to this document are indicated by a "change bar" (▌) in the right margin. Changes are also shaded in the text when needed to help identify changes.

1.0 PURPOSE

This procedure details how to initiate a criticality safety evaluation and obtain nuclear criticality safety approval for activities involving enriched material at the Fernald Environmental Management Project (FEMP).

This procedure supports implementation of SR-2117, "Nuclear Criticality Safety Requirements" to ensure that the public, workers, government property, and essential operations are protected from the effects of a criticality incident.

2.0 SCOPE

This procedure applies to new or modified system designs, storage arrangements, and changes to current remediation operations involving enriched uranium.

This procedure applies to FERMCO management responsible for shipping/receiving, storing, processing or otherwise having stewardship of fissile nuclear materials at the FEMP site. Criticality safety is a line management responsibility, as are all other safety issues.

3.0 DEFINITIONS

Contingency - A possible but unlikely change in condition originally specified as essential to the nuclear criticality safety (NCS) of a specified operation such that its result is a loss of NCS control.

Criticality Safety Analysis - An analysis performed before starting a new operation involving fissile materials or before an existing operation or piece of equipment involving fissile materials is changed to determine whether the entire process will be subcritical under both normal and credible abnormal conditions.

Criticality Safety Analysis (CSA) Form - A two-part form used to request and approve nuclear criticality safety parameters for a new activity/design or change in activity/design that will not be completed within 90 days.

Enriched Material - Uranium, or material containing uranium, at a U235 enrichment greater than 0.711%.

Fissile Material - Any material containing uranium-235 or other fissile radionuclides. Other fissile radionuclides are plutonium-239, plutonium-241, and uranium-233.

Nuclear Criticality - A self-sustaining chain reaction of fissions, i.e., the state in which the effective neutron multiplication constant (K_{eff}) of a system of fissile material equals or exceeds unity.

3.0 **DEFINITIONS** (cont.)

Nuclear Criticality Safety - The prevention or termination of inadvertent nuclear criticality, mitigation of consequences, and protection against injury or damage due to accidental criticality.

Nuclear Safety Operational Authorization (NSOA) - A form used by Nuclear Criticality Safety to authorize a new activity or change in activity involving fissionable material scheduled for completion within 90 days.

Requestor - The individual requesting a nuclear criticality analysis who has responsibility for the design, operation, or use of the procedure, equipment, or storage area.

4.0 **RESPONSIBILITIES**

Requestor

- Determines if a criticality safety analysis is required or contacts Nuclear Safety if material enrichment or type is questionable.
- Initiates an NSOA or CSA, as applicable.
- Initiates extension/revision to CSA or NSOA.

Nuclear Safety Organization (Safety and Health Division)

- Performs analysis of activity considering criticality safety factors and determines solution.
- Approves NSOAs and CSAs.
- Tracks and distributes NSOAs an CSAs.

Facility Manager reviews and approves all CSA and NSOA requests.

5.0 **GENERAL**

This procedure uses two forms to request criticality safety approval. Depending on the duration of the operation, the requestor selects the appropriate form to obtain approval.

The CSA form is used to request approval for an operation expected to last over 90 days. The NSOA form is used to request approval for an operation that will be completed within 90 days.

5.0 **GENERAL** (cont.)

This procedure describes three primary steps required to obtain nuclear criticality safety approval or authorization for operations involving enriched uranium. The three steps (request, evaluation, and approval/ authorization) are equally important to the process. The level of detail for each step of the process should be commensurate with the complexity of the operation.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

7.1 DETERMINING IF A CRITICALITY SAFETY ANALYSIS IS REQUIRED

REQUESTOR

1. Determine if the operation will involve material above the limits listed in Table 1 as identified on equipment/material marking. If the material enrichment is questionable, contact Nuclear Safety.

   a. If the operation involves enriched uranium, proceed per the following applicable step.

      1) For an activity that will be finished within 90 days, follow instructions in section 7.2.

      2) For an activity that will not be finished within 90 days, follow instructions in section 7.4.

   b. If the operation does not involve enriched uranium, this procedure is not applicable.

TABLE 1
MATERIAL ENRICHMENT LIMITS

Material	*Enrichment Limit, Wt. % U^{235}
Uranium Metal	> 0.711
Compounds (UO_2, U_3O_8, UO_3, and UF_4)	> 0.96
Uranyl Nitrate	> 1.96

*Limits given are taken from ANS/ANSI Standard 8.1, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors."

7.2 OBTAINING NUCLEAR SAFETY OPERATIONAL AUTHORIZATION

REQUESTOR

1. Complete Section 1 of the "Nuclear Safety Operational Authorization" (NSOA), Form FS-F-4057 (see Figure 1).

   a. For the location, identify the area where the operation is to be performed, including the plant or building number and the room, as applicable.

   b. For the activity, state the applicable task or project.

   c. For the operation, state the proposed action or operation for which the change in procedure is recommended.

   d. For the initial conditions, describe any existing conditions that clarify the need for the change in procedure, affect the change, clarify the operating conditions, or are necessary for a safe operation.

   e. For the proposed actions, record the solution to the implementing action or proposed change.

      NOTE: Nuclear Safety may be consulted for assistance in determining the proposed action. A consultation does not constitute approval for operations to start.

2. Sign the NSOA as the requestor and obtain immediate manager's approval signature.

3. Submit the NSOA to Nuclear Safety Manager for NCS requirements.

NUCLEAR SAFETY ENGINEER

4. Ensure Section 1 of the NSOA is complete. If this section is not complete, return to requestor for completion.

5. Review and evaluate the change and solution for criticality safety factors per written department procedures.

6. Complete Section 2 of the NSOA as follows:

   a. In the NCS requirements section, record any requirements, in addition to those described in the proposed actions, that are necessary for a safe operation.

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FEMP
NUCLEAR SAFETY OPERATIONAL AUTHORIZATION

TO BE COMPLETED BY NUCLEAR SAFETY	
NUMBER:	
EXPIRATION DATE:	

SECTION 1

LOCATION:	DATE:
OPERATION:	DATE REQUIRED:

ACTIVITY:

INITIAL CONDITIONS:

PR[illegible] ACTIONS:

SIGNATURES:

_____ _____
(REQUESTOR) *(REQUESTOR'S MANAGER)*

SECTION 2

NCS REQUIREMENTS:

It is further agreed that this temporary approval will be void if any change in the equipment or operation with which it is concerned is made. Its provisions will be reviewed for incorporation in an operating procedure.

CONCURRENCE:

_____
(NUCLEAR SAFETY ENGINEER)

APPROVED: APPROVED:

_____ _____
(MANAGER FACILITY OPERATIONS) *(MANAGER NUCLEAR SAFETY)*

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	[illegible]EALTH	8.	RADIOLOGICAL CONTROL MANAGER
	[illegible]	9	QUALITY ASSURANCE

[illegible]/95)

Figure 1 - Nuclear Safety Operational Authorization, FS-F-4057

7.2 OBTAINING NUCLEAR SAFETY OPERATIONAL AUTHORIZATION (cont.)

NUCLEAR SAFETY ENGINEER

b. Sign the NSOA as the Nuclear Safety Engineer and obtain the applicable approval signatures on the NSOA.

7. Assign a number and expiration date to the NSOA.

NOTE: The expiration date shall be 90 days from the date of approval.

8. Log the following information in the NSOA database:

- NSOA Number
- Expiration Date
- Location
- Operation
- Date Requested
- Date Required
- Comments (i.e., extension)

9. Distribute the NSOA to personnel indicated in the distribution block on the form.

7.3 EXTENDING AN NSOA

REQUESTOR

1. When an extension is needed to an existing NSOA, complete a new NSOA (at least one week prior to the expiration date of the original NSOA) using information from the original NSOA.

2. Sign and submit the new NSOA with a letter requesting an extension to the original NSOA.

NUCLEAR SAFETY

3. Assign a request number to the new NSOA by using the original NSOA number and adding the suffix Ext. 1 or the applicable extension number (e.g., NSOA-XXX-Ext.1).

4. Sign the NSOA and distribute.

7.4 OBTAINING CRITICALITY SAFETY APPROVAL

NOTE: A consultation with Nuclear Safety may be arranged by the requestor to discuss criticality safety issues prior to initiating a "Request for Criticality Safety Analysis" (CSA), Form FS-F-0014 (see Figure 2). A consultation does not constitute approval for the operation to start.

REQUESTOR

1. Complete Section 1 of the CSA (see Figure 2) and sign the requestor signature block.

   NOTE: Any item that is unknown shall be indicated as such in the block.

   a. For the "Title" block, include information on the type of operation, equipment names, procedure titles and numbers, and project identification numbers, as appropriate to the request.

   b. For the "Duration of Operation" block, record either the expected completion date of the process or equipment use or the duration of use in weeks, months, or years.

   c. For the "Operating Area" block, identify the former production area name (e.g., Plant 5 Reduction Area) and a specific geographical reference point (e.g., northwest corner or column numbers).

      NOTE: It is suggested a sketch of the area be provided.

   d. For the "Mass of Uranium" block, record the total mass of uranium involved in the operation and the mass per part, per container, etc. Do not enter the amount of U235.

   e. For the "Uranium Concentration or Density" block, identify the concentration of the uranium solution or the density of the uranium solid. If a range of densities or concentrations is involved, designate the maximum, as well as the normal operating density or concentration.

   f. For the "Isotopic Enrichment" block, identify the actual weight percent of U235. If a range of enrichments are involved, list the minimum and maximum U235 enrichment.

FERMCO
REQUEST FOR CRITICALITY SAFETY ANALYSIS

SECTION 1

TITLE:			DURATION OF OPERATION:
DATE OF REQUEST:	BUILDING:	ROOM:	OPERATING AREA:

CRITICALITY PARAMETERS: (LIST CONTENTS OF DIFFERENT CONTAINERS IN A SHIPMENT SEPARATELY. IF PARAMETER IS NOT APPLICABLE, RESPOND "N/A".)

SHIPPING OR TRANSFER OF CONTAINER:	
FORM AND COMPOSITION OF MATERIAL:	
MASS OF URANIUM:	
URANIUM CONCENTRATION OR DENSITY:	ISOTOPIC ENRICHMENT (WT. $\%U^{235}$):
REFLECTING MATERIALS:	MODERATORS:

DESCRIPTION OF ANALYSIS REQUESTED: (SUMMARIZE WHAT PROCEDURES AND EQUIPMENT ARE PROPOSED, AND WHAT LIMITS ARE REQUESTED. USE ADDITIONAL SHEETS IF NECESSARY. ATTACH SKETCHES, DETAILED PROCEDURES, ENGINEERING DRAWINGS, ETC., IF AVAILABLE.)

APPROVED: (AREA SUPERVISOR OR MANAGER OF REQUESTOR)	SIGNED: (REMEDIATION SUPERVISOR OR REQUESTOR)

REQUEST NUMBER

☐ TEMPORARY
☐ PERMANENT

FS-F-0014 (REV. 01/17/95)

Figure 2 - Request for Criticality Safety Analysis (Sheet 1 of 2)

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SECTION 2

DATE OF EXPIRATION OF TEMPORARY APPROVAL:	CRITICALITY SAFETY APPROVAL	DESIGNATION OF PERMANENT APPROVAL:

CONDITIONS OF APPROVAL:

?R APPROVAL	REFERENCES							
SAFETY PARAMETERS	GEOMETRY		MASS		CONCENTRATION		COMPOSITION	
?ECTION	INTERACTION		ENRICHMENT		NEUTRON ABSORBERS		MODERATION	

CONTINGENCIES CONSIDERED AND SAFEGUARDS:

APPROVAL FOR CRITICALITY SAFETY IS SUBJECT TO ANY CONDITIONS GIVEN ABOVE. ANY DEVIATION FROM THE APPROVED CONDITIONS CONSTITUTES A CRITICALITY SAFETY VIOLATION. A TEMPORARY APPROVAL EXPIRES AUTOMATICALLY ON THE EXPIRATION DATE GIVEN ABOVE, BUT MAY BE RENEWED UPON APPLICATION TO NUCLEAR SAFETY.

SIGNATURES:

PREPARED: (ENGINEER, NUCLEAR SAFETY)	DATE:
?EVIEWED: (ENGINEER, NUCLEAR SAFETY)	DATE:
ED: (MANAGER, NUCLEAR SAFETY)	DATE:
?RRENCE: (LINE MANAGER)	DATE:

FS-F-0014 (REVERSE) (REV. 01/17/95)

Figure 2 - Request for Criticality Safety Analysis (Sheet 2 of 2)

7.4 OBTAINING CRITICALITY SAFETY APPROVAL (cont.)

REQUESTOR

g. For the "Reflecting Materials" block, list any materials in the area that may act as neutron reflectors (e.g., concrete, water, or firebrick).

h. For the "Moderators" block, identify neutron moderating materials that may be routinely or accidently mixed with the uranium materials (e.g., water, coolant, oil, or graphite).

2. Submit request to the requestor's facility or operations manager for review and approval.

3. When approval of the request has been obtained, transmit request to Nuclear Safety.

NUCLEAR SAFETY

4. Assign a request number to the form for tracking purposes.

5. Determine if the approval will be permanent or temporary and mark the applicable block on the front side of the request form.

6. Perform a criticality safety analysis of the requested activity.

7. Fill out Section 2 of the CSA.

8. If the approval is temporary but is required for more than 90 days, determine the expiration date with the requestor.

9. Sign the signature block for the Nuclear Safety Engineer and obtain signature of Nuclear Safety Manager on the CSA.

10. Discuss "conditions of approval" with the Line Manager.

11. Obtain the Line Manager's signature on the final approved CSA.

12. For the "Contingencies Considered and Safeguards" block, identify a minimum of two contingencies that must occur before criticality is possible.

7.4 OBTAINING CRITICALITY SAFETY APPROVAL (cont.)

NUCLEAR SAFETY

13. Log the following information in the CSA database:

- CSA Number
- Date Requested
- Date Issued
- Operation
- Location
- Temporary/Permanent
- Comments

14. Distribute copies of the CSA to the Requestor and the Requestor's Manager. File the original in the Safety Analysis Department file.

7.5 REVISING AN APPROVED NSOA OR A CSA

REQUESTOR

1. If any portion of the activity/procedure is modified after the NSOA or CSA has been approved, notify Nuclear Safety.

NUCLEAR SAFETY

2. Determine if the modification affects the nuclear criticality safety of the operation.

   a. If the modification does not affect criticality safety, inform the operating group that the current NSOA or CSA is still valid under the new conditions.

   b. If the modification does affect criticality safety, notify the requestor to initiate a new NSOA per this procedure. Inform the requestor that the number of the original NSOA should be referenced in the "Basic Conditions" of Section 1.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- S/RID No. 9, "Nuclear and System Safety"
- SR-2117, "Nuclear Criticality Safety Requirements"

8.2 REFERENCES

Source Reference

- ANSI 8.1, "Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors"

JOB SAFETY ANALYSIS

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1.0 General

1.1 This SPR defines the minimum requirements for developing and using the Job Safety Analysis (JSA). If these requirements cannot be met, work **does not** continue.

1.2 JSAs supplement plans, procedures, and instructions that have **not** addressed all hazards.

1.3 The terms **FEMP Personnel** and **Employee(s)** include anyone performing work at FEMP.

2.0 Requirements

2.1 Notify the Occupational Safety and Health (OS&H) Department if any of the requirements in this SPR cannot be met.

2.2 If these requirements cannot be met, **do not** proceed with the work.

2.3 JSAs are not required when:

A. Plans, procedures, or instructions adequately address safety and health procedures.

B. A previously developed JSA is applicable to the job/task.

2.4 OS&H Department

A. Develop and communicate JSA requirements.

B. Provide safety and health representatives to ensure requirements are met.

C. Assist in developing JSAs when requested.

D. Ensure JSAs are complete, accurate, and approved.

1. Review JSAs to ensure:

   a. Recommended safe job procedures **do not** conflict with standard safety and health requirements.

   b. JSAs meet the requirements of this SPR.

2. Make necessary changes to JSAs.

JOB SAFETY ANALYSIS

3. Sign JSAs in the APPROVED BY: block, or return to the Supervisor for necessary revisions.

E. Assign each JSA a distinct tracking number and enter it on the bottom left hand corner of the JSA.

F. Maintain original JSAs and return copies to the Supervisor.

2.5 Safety Analysis Department

Evaluate work involving activities in or around enriched restricted nuclear material, by issuing criticality safety authorization (CSA), criticality safety operational authorization (NSOA), and technical work documents when required.

2.6 Management/Supervision

A. Mitigate hazards where possible.

B. Address job hazards through plans, procedures, instructions, or JSAs.

C. Evaluate the need for a task JSA when:

1. A recordable injury occurs.
2. Multiple first aid cases occur.
3. Observing or documenting a "close call" or "near miss."
4. Plans, procedures, or instructions **do not** address hazards.
5. Developing new plans, procedures, or instructions.
6. Planning new projects.

D. When work involves activities in or around enriched restricted nuclear material or specified quantities of hazardous chemicals, ensure appropriate safety analysis document requirements are incorporated into JSAs.

E. Document the evaluation results using Attachment A, Job Safety Analysis Form.

F. Contact OS&H for assistance, as needed, and for approval of JSAs.

JOB SAFETY ANALYSIS

E. Document the evaluation results using Attachment A, Job Safety Analysis Form.

F. Contact OS&H for assistance, as needed, and for approval of JSAs.

G. Complete the JSA form header by entering the following information:

1. JOB: Name of the job/task analyzed or the title of the plan, procedure, or instruction that the JSA supplements.

2. DATE: Date JSA developed.

3. JOB TITLE: Job classification(s), (e.g., sampler, electrician, or pipefitter).

4. DEPARTMENT: Name of the division and/or department that developed the JSA.

5. SECTION/GROUP: Name of the section or group that developed the JSA.

6. SUPERVISOR: Name of the Supervisor responsible for oversight or completion of the job/task.

   Note: This block may be left blank and filled in as used for JSAs that support repetitive job/tasks not otherwise covered in plans, procedures, or instructions.

7. ANALYSIS BY: Name(s) of the JSA developers.

8. REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT: Personal Protective Equipment (PPE) listed in the "RECOMMENDED SAFE JOB PROCEDURE" column.

H. Conduct a job safety analysis.

1. Break down the job/task into distinct steps in the order in which they are performed.

2. Observe the task when possible.

3. Record and number the steps in the "SEQUENCE OF BASIC JOB STEPS" column of the JSA form.

JOB SAFETY ANALYSIS

4. Record the potential accident or hazard for each step in the "POTENTIAL ACCIDENT OR HAZARD" column of the JSA form.

   a. If there is no potential hazard, enter "None".

   b. Number the potential accident or hazard to match the corresponding step.

5. Determine actions to take that prevent or mitigate the potential accident or hazard.

   Note: Engineer out hazards, if possible.

   a. Record the action in the "RECOMMENDED SAFE JOB PROCEDURE" column of the JSA form.

   b. Number the action to match the corresponding step and potential accident or hazard.

6. Print the name(s) of the preparer(s) in the "ANALYSIS BY:" block of the JSA form.

7. Request review of the JSA by employees involved in accomplishing the task or with knowledge of the task.

8. Print the name(s) of the reviewer(s) in the "REVIEWED BY:" block of the JSA form.

I. Forward the completed JSA to OS&H at Mail Stop 31.

J. Review and revise JSAs, as necessary, when:

   1. The job/task or steps are changed.

   2. The supplemented plans, procedures, or instructions are revised to reflect the JSA information.

   3. Injuries, "close calls", or "near misses" are still reported.

K. Review completed and approved JSAs with employees prior to beginning work, or routinely for repetitive work covered by a JSA.

JOB SAFETY ANALYSIS

2.7 FEMP Personnel

A. Assist Management/Supervision in developing JSAs and comply with the "Recommended Safe Job Procedures" stated on JSAs.

B. Report "close calls" and "near misses" to Management/Supervision.

C. Follow Recommended Job Safety Procedures.

D. Request revision to JSAs as necessary.

3.0 Attachments

Attachment A: Job Safety Analysis Form

4.0 References

DOE 76-45/19 - SSDC-19, Job Safety Analysis

JOB SAFETY ANALYSIS

Attachment A
Page 1 of 1
Job Safety Analysis Form

FEMP
JOB SAFETY ANALYSIS

JOB			DATE
JOB TITLE	DEPARTMENT	SECTION/GROUP	
SUPERVISOR	ANALYSIS BY	REVIEWED BY	APPROVED BY
REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:			

SEQUENCE OF BASIC JOB STEPS	POTENTIAL ACCIDENT OR HAZARDS	RECOMMENDED SAFE JOB PROCEDURE

REQUIREMENT MANUAL
DOCUMENT NO. RM-2116
REVISION NO. 0

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SAFETY ANALYSIS PROGRAM

REQUIREMENTS

RM-2116

ADVANCE COPY

Effective Date: 2-21-95

AUTHORIZED BY: _____ 2-17-95
D. Ofte, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 53253-8704

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RECORD OF ISSUE/REVISION

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
02-21-95	0	New document required to establish safety analysis program standards, requirements, and responsibilities for the FEMP per Request No. S94-111, initiated by E. R. Schmidt. This document replaces FMPC-2116, dated 01-01-89, Rev. 0, and provides direction for Functional Area No. 9, Nuclear and System Safety (NS) and its related implementing procedures.

1.0 INTRODUCTION

This document establishes the basic principles, responsibilities, and requirements of the Fernald Environmental Management Project (FEMP) Safety Analysis Program. These requirements are provided to help ensure the health and safety of the public, the workers, and the environment through the conduct and use of documented safety analyses.

RM-0016, *The Management Plan, FERMCO Policies and Requirements Manual* is the driving document for all Fernald Environmental Restoration Management Corporation (FERMCO) Programs. In regard to the Safety Analysis Program, the Management Plan contains PO-NS-01, *Presidential Policy for Nuclear and System Safety*, which states FERMCO's commitment to the safety and health of workers, the public, and the environment as well as the conduct of a Safety Analysis Program. The Management Plan also contains the 24 Functional Area Standards/Requirements Identification Documents (S/RIDs) for the FEMP. S/RID Number 9 contains the documents which will be followed by FERMCO in maintaining the *Nuclear and System Safety (NS)* Functional Area. The organizational responsibilities, as they relate to the NS Functional Area, are summarized in this requirements document. Implementing procedures will provide detailed responsibilities and processes (steps) necessary for conducting safety analyses.

This document presents the primary requirements and responsibilities of the FEMP Safety Analysis Program, which are drawn from the above FERMCO drivers as well as DOE Orders 5480.21, *Unreviewed Safety Questions*, 5480.22, *Technical Safety Requirements*, 5480.23, *Nuclear Safety Analysis Reports*, and 5481.1B, *Safety Analysis and Review System*.

In addition to the information contained in the body of this document, additional information is provided in seven attachments:

Attachment A: Definitions. Terms and their meaning as they relate to the Safety Analysis Program.

Attachment B: Abbreviations and Acronyms.

Attachment C: FEMP Safety Analysis Documents. A table describing the safety analysis documents used at the FEMP.

Attachment D: FEMP Hazard Categories. A table of DOE Hazard Categories for Nuclear and Non-nuclear hazards.

Attachment E: FEMP Safety Analysis Program Process. A flow diagram presenting an overview of the Safety Analysis Program and its Processes. Detailed process steps will be documented and described in separate implementing procedures or other documents.

Attachment F: Safety Analysis Document Hierarchy. Figure showing the FEMP Site Safety Documentation Hierarchy as it relates to the FEMP Safety Analysis Program.

1.0 INTRODUCTION (cont.)

Attachment G: Matrix of Safety Analysis Program Responsibilities. A matrixed table showing the key line management and staff positions, aligned under their corresponding functional areas, and their respective categories of responsibilities in regard to the Safety Analysis Program.

2.0 SCOPE

The requirements and responsibilities contained herein shall apply to all FEMP personnel and subcontractors responsible for, or involved with, facilities, projects, or activities that require safety analyses and are subject to the drivers described in Section 1.0 of this document.

3.0 DEFINITIONS

(The definitions contained in this document are to be used in lieu of the definitions listed in the site "Glossary of Definitions and Terms", GAA-300.)

Refer to Attachment A for a complete list of definitions. This attachment is provided as a centralized list of program definitions that can be removed from RM-2116 for ease of use. Refer to Attachment B for a list of abbreviations and acronyms.

4.0 REQUIREMENTS

4.1 PRINCIPLES

1. The FEMP Safety Analysis Program provides the programmatic guidance, direction, and technical resources for implementing FERMCO Presidential Policy, *Nuclear and System Safety*, PO-NS-01. The Safety Analysis Program is integrated with other safety and health programs through the FEMP's Comprehensive Environmental Occupational Safety and Health Program (CEOSHP), ES&H-1-1000.

2. FEMP personnel shall perform safety analyses that develop and evaluate the adequacy of the safety basis for all FEMP facilities and modifications to those facilities, except those assessed to encompass only standard hazards. The goal of performing these analyses is to help ensure the health and safety of the public and workers and to protect the environment. NOTE: "Facilities" includes activities as well as systems and structures.

3. FEMP personnel shall adhere to the assumptions and commitments set forth in its safety analyses. This is especially true for personnel working in or around FEMP facilities, projects, or activities, which possess potential hazards to workers, the public, and the environment.

4. Each safety analysis will be documented and maintained in a retrievable and auditable condition to allow independent reviewers access to the same information and data used to perform the original analysis.

4.0 **REQUIREMENTS** (cont.)

5. As required by current DOE Orders and anticipated "Rules," the FEMP will develop and execute implementation plans for upgrading the Safety Analysis Program and the existing FEMP Safety Basis documentation in a manner that supports the safe, least-cost, earliest, final clean-up of the Fernald site.

6. The graded approach as described in DOE Order 5480.23, *Nuclear Safety Analysis Reports* will be used to determine the appropriate levels of analysis and documentation for each nuclear facility commensurate with:

   a. The magnitude of the hazards being addressed;

   b. The complexity of the facility, systems, or activities being relied on to maintain an acceptable level of risk;

   c. The stage or stages of the facility, project, or activity life cycle for which DOE approval is sought; and

   d. Mission, timing, and importance to the overall FEMP goals.

7. Radiological and other industrial facilities will be analyzed and documented appropriately in accordance with DOE-EM-STD-5502-94, *Hazard Baseline Documentation*, and its referenced orders, standards, and codes.

8. FEMP safety analyses and related documentation will conform to the format and content requirements of DOE orders, standards, and guides using instructions provided in FEMP site procedures, guides, and other documents.

9. The FEMP shall perform hazard analyses of its facilities, projects, and activities (nuclear and non-nuclear) as early as practicable in the design and development stages to classify processes, operations, and activities in accordance with the following requirements:

   a. The consequences of radioactive and/or hazardous material releases shall be evaluated and classified without taking credit for mitigation;

   b. The hazard analysis shall be based on the maximum potential or allowable inventory of radioactive and nonradioactive hazardous materials and the potential consequences associated with them being stored, utilized, or otherwise associated with the nuclear facility, project, or activity.

   c. The hazard analysis shall identify energy sources or processes that might contribute to an uncontrolled release.

4.0 **REQUIREMENTS** (cont.)

d. Safety analysis documents shall contain the hazard analysis and shall be developed, controlled, and issued to DOE, if required, as specified in site procedures, guides, and other applicable safety analysis documentation.

10. To avoid duplication of effort and to improve the consistency, quality, and coordination of hazard analyses; integrated hazard analysis teams that represent the appropriate technical elements associated with the targeted facility, project, or activity will be utilized, when appropriate.

11. The FEMP shall maintain and control all safety analysis documentation and appropriate supporting documents, as specified in procedures, guides, and other applicable safety analysis documentation, to ensure that users of these documents have current editions.

12. The responsibility for the conduct of appropriate safety analyses rests with **Line Management** in regard to preparing and reviewing safety analyses designed to assure that:

    a. Potential hazards are systematically identified;

    b. Potential consequences are analyzed;

    c. Reasonable measures are taken to eliminate, control, or mitigate hazards; and

    d. Documented management authorizations of FEMP operations are obtained and maintained based upon an objective assessment of safety analyses.

13. The FEMP shall develop, implement, and maintain, as necessary, Technical Safety Requirement (TSR) documents for nuclear facilities, per DOE Order 5480.22, *Technical Safety Requirements*, which prescribe the bounds for their safe operation to protect the health and safety of the public, reduce risks to workers, and protect the environment. Operational Safety Requirements (OSRs) and Process Requirements (PRs) may also be developed when TSRs are determined not to be required or necessary per the safety analysis.

14. The FEMP shall implement an Unreviewed Safety Question (USQ) Program consistent with DOE Order 5480.21, *Unreviewed Safety Questions (USQ)*, that assesses changes involving nuclear facilities, projects, or activities relative to the authorization basis. The USQ Program shall be applied to all FEMP Nuclear facilities that have a current, existing DOE approved safety basis document. A similar review of changes to non-nuclear and radiological facilities shall be conducted using a Request for Safety Assessment Form.

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4.0 **REQUIREMENTS** (cont.)

15. The Safety Analysis Program requirements described in this document shall be integrated with and, where practical and appropriate, combined with the programmatic requirements of the Nuclear Criticality Safety Program as defined in SR-2117, *"FEMP Nuclear Criticality Safety Requirements."*

16. Within the FERMCO Nuclear and System Safety Functional Area, the Safety Analysis Program will comply with the specified S/RIDs, as described for the FEMP per RM-0016.

4.2 PROGRAM

1. The FEMP Safety Analysis Program is outlined in this section. Site procedures shall be developed and maintained for the six types of safety analysis documents within the Safety Analysis Program. Each type of document satisfies programmatic requirements for adequately documenting the analyses performed upon which a safety basis for FEMP facilities, projects, and activities is established at the FEMP:

   a. Existing and future safety basis documents [Basis for Interim Operations (BIO)]

   b. Safety Assessment (SA) [Hazard Screening and Classification]

   c. Auditable Safety Record (ASR) [Auditable Safety Analysis (ASA)]

   d. Safety Analysis Report (SAR) and, if required, TSR, OSR, and PR

   e. Unreviewed Safety Questions (USQ) [Configuration/Change Control]

   f. Upgraded Safety Analysis Documents

   Lower tier documents containing detailed procedures and guidance in preparing these types of safety analysis documents may be required.

2. The FEMP Safety Analysis Program shall incorporate the following:

   a. A Safety Analysis Department shall be established and maintained in the Safety and Health Division. The qualifications of personnel in the safety analysis organization shall be defined and documented as required by DOE Order 5480.20.

   b. The safety analysis program shall conform to DOE 5480 series orders, standards, and related guides.

4.0 REQUIREMENTS (cont.)

c. The program shall be documented in requirements manuals (RMs), site procedures, information manuals, safety analysis guides (SAGs) and other appropriate documents that define the roles and responsibilities of the Safety Analysis Staff, operating groups, other FEMP groups, and contractors and subcontractors, as appropriate. RM-2116 is the site requirement document for System Safety and its corresponding safety analyses. Implementing procedures will be based on the requirements and responsibilities contained in this RM.

d. Safety Analysis Guides (SAGs) may be developed to provide suggested methods, techniques, and other reference information in conducting safety analyses for FEMP facilities, projects, and activities. These SAGs are not intended to place additional requirements on the safety analysis process. All safety analyses for FEMP facilities, projects, and activities shall meet the requirements of this RM.

e. The safety analysis program shall be based on the DOE graded approach, which correlates the safety analysis degree and detail required for facilities, projects, and activities based on the hazards present and the potential consequences associated with these items. The greater the hazard or potential adverse consequences of an item, the more detailed the safety analysis must be for that item. The FEMP will use the documents listed in Attachment C to implement the graded approach.

f. The hazard classifications for Nuclear, Non-Nuclear, Radiological, and (Other) Industrial Facilities, as described in DOE-EM-STD-5502-94, shall be used in the FEMP Safety Analysis Program as listed and described in Attachment D.

g. Personnel qualification shall be established for technical personnel involved in the development and review of FEMP safety analysis documentation.

h. Safety analyses shall be initiated as early in the conceptual design phase of all FEMP facilities, as practical. These analyses shall be revised and expanded throughout the life of the facility, project, or activity, as required, to ensure the maintenance of a valid safety basis.

i. All changes impacting facilities that have an existing safety analysis shall be reviewed for potential implications against the existing safety basis. Such reviews shall be documented, integrated with the FEMP Configuration Management Control Program, and maintained in an auditable format.

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4.0 REQUIREMENTS (cont.)

j. An Unreviewed Safety Questions (USQ) program shall be implemented to ensure the review and appropriate determination of all changes related to existing and future SARs, TSRs, BIOs, and other DOE approved safety basis documents for nuclear facilities, projects, and activities.

k. Independent technical reviews of all DOE approved safety analyses, BIOs, TSRs, and USQ determinations are required.

l. An annual self-assessment by the Manager of Safety Analysis shall be conducted to evaluate the effectiveness, efficiency, and quality of the FEMP safety analysis program. Deviations and recommended corrective actions shall be documented and maintained in an auditable format.

m. The Safety Analysis Department will implement Quality Assurance (QA) measures for the FEMP Safety Analysis Program in accordance with 10 CFR 830.120, *Quality Assurance Requirements* and RM-0012, Quality Assurance, or any revisions thereof. These measures shall include the requirements for document review, approval, and control; self-assessment; and personnel qualifications.

n. A *Request For Safety Assessment Form* must be submitted to the Safety Analysis Department Manager for all proposed facilities, projects, and activities. All safety analyses, as determined in the Safety Assessment (SA), must be completed, reviewed, and approved prior to starting work or physically modifying a FEMP facility, project, or activity.

o. All safety analysis documents (SARs, BIOs, ASRs, SAs, OSRs and TSRs) for open or continuing facilities, projects, or activities shall be reviewed and updated, as necessary, within one year of the documents' issuance and thereafter. These reviews shall be documented.

p. The organization(s) responsible for planning and engineering FEMP facilities, projects, and activities and the Safety Analysis Department shall work in conjunction to determine the appropriate hazard category and resulting requirements as early in the process as possible. Assumptions and criteria shall be jointly developed to ensure full understanding of the potential hazards.

4.3 PROCESS

Although this is a requirement manual, a brief description of the FEMP Safety Analysis Program is provided.

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4.0 **REQUIREMENTS** (cont.)

1. The Safety Analysis Program is served by four key processes:

   - Hazard Screenings
   - Hazard Classifications
   - Auditable Safety Records
   - Safety Analysis Reports

2. The Safety Assessment is common to all of these processes as the initiating document. A *Request for Safety Assessment* (SA), shall be submitted at the beginning of the conceptual design and prior to the completion of project-specific plans to ensure integration of the safety analysis program. FEMP facilities, projects, and activities shall, at a minimum, be screened using the SA.

3. Standard Industrial Hazards (SIHs) and standard construction activities will be screened out with a minimal level of review. Facilities requiring an USQ will also be quickly screened out. Requests which do not screen out, will be assessed for the appropriate degree of hazard classification. Initial determinations, based on the best information available, will be documented in the SA.

4. The responsible line manager, the Manager of System Safety, and the Manager of Safety Analysis are required to approve the SA before further analysis is performed.

5. In most cases, the process flow sequence for determining the level of further safety analysis is shown in Attachment E. However, exceptions may occur.

Site procedures shall provide detailed description of the FEMP Safety Analysis Program and the steps involved in its processes. In addition, supporting safety analysis documents shall be issued to provide requestors, preparers, and others with appropriate guidance, information, and directions concerning the preparation, processing, review, and approval of FEMP safety analysis documents.

5.0 **IMPLEMENTATION**

5.1 REQUIREMENT DOCUMENTS

The requirements contained in this document shall be implemented through levels of documents and procedures as presented in Attachment F.

5.2 RESPONSIBILITIES (Refer to Attachment G for a summary table of the FEMP Safety Analysis Program responsibilities.)

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5.0 **IMPLEMENTATION** (cont.)

1. Line Management assumes primary responsibility, authority, and accountability for complying with the FEMP Safety Analysis Program contained in this document, as well as in Federal Laws, Regulations, DOE Orders, Standards, Guides, and other safety analysis requirements, applicable to the FEMP for design, operation, and safety of the facility, project, or activity.

2. Line Management and Technical Support Staff

   - Perform appropriate safety analyses for all facilities and associated projects and activities, prior to the commencement of any physical work, major procurement, or other financial commitments.

   - Obtain a safety basis and subsequent safety authorization, as prescribed in EM memorandum dated August 8, 1994, DOE-EM *Safety Authorization Delegation of Authority*, prior to physical work or financial commitment, unless a specific request for exemption has been submitted and approved.

3. FERMCO President

   - Establishes FERMCO policy for Nuclear and System Safety and assumes overall responsibility for complying with DOE Orders and other external requirements as required in the FEMP Standards/Requirements Identification Documents (S/RIDs).

   - Charters and sponsors the Independent Safety Review Committee (ISRC) and appoints in writing ISRC members.

   - Approves all major safety analyses documents, such as: SARs, BIOs, TSRs, and USQs prior to being submitted to the DOE.

4. Executive Vice Presidents (VPs) ensure programmatic compliance, integration, funding, and line/staff management support of safety analyses within their respective areas of responsibility.

5. Vice-President, Performance/Quality Assurance (P/QA)

   - Serves as the Functional Area Manager (FAM) for Functional Area (FA) 13, Quality Assurance (QA).

   - Provides independent program assessment and oversight throughout the FEMP.

5.0 **IMPLEMENTATION** (cont.)

6. Vice-President, Project and Information Control (P&IC)

   - Serves as the FAM for FA 21, Project Control (PC).
   - Ensures the total integration of safety analysis documents, unreviewed safety questions, and safety evaluations as they relate to scheduling and cost controls as well as project performance measures and reports.

7. Vice-President, Administration (ADM)

   - Serves as the FAM for FA 15, Security (SE); FA 16, Training and Qualification (TR); and Human Resources and Industrial Relations (HR).
   - Provides training on program requirements, standards, and policies to line and support organizations.
   - Maintains training and qualification records of the technical support staff.

8. Vice-President, Contracts and Acquisitions (C&A)

   - Serves as the FAM for FA 19, Acquisitions and FA 22, Property Management (PM).
   - Ensures that all FEMP contracts contain the appropriate provisions, program requirements, standards, specifications, and policies related to the FEMP Safety Analysis Program as specified in DOE Order 5480.23.

     (As a minimum, each FEMP contract shall contain a clause or statement requiring the contractor, vendor, or their servicing agents to adhere to the assumptions and commitments set forth in all applicable safety analysis documentation related to the contract work scope.)

9. Vice-President, Environmental Compliance (EC)

   - Serves as the FAM for FA 5, Environmental Protection (EP) and FA 17, Environmental Restoration and Waste Management (EW).
   - Integrates the Safety Analysis Program with other EC programs, including regulatory policy, environmental protection, permitting, environmental planning and environmental risk assessment.
   - Administratively supports the FERMCO Standards/Requirements Identification Documents (S/RIDs) program.

5.0 IMPLEMENTATION (cont.)

10. Vice-President, Remediation Support Operations (RSO)

- Serves as the FAM for FA 7, Maintenance (MT) and FA 11, Operations (OP).
- Assumes line management responsibility for producing, reviewing, and submitting safety analysis documentation for review and approval, for activities and operations within area of responsibility.
- Submits requests for Safety Assessments to the Safety Analysis Department Manager.
- Provides assistance in the preparation of safety analysis documentation, including safety analysis reports for packaging (SARPs), related to facility engineering and maintenance, support operations, CRU projects, and facility management.
- Incorporates the measures identified in safety analysis documents into work plans, TSRs, SOPs, Emergency Operating Procedures (EOPs), and other procedures, as required.
- Establishes procedures for ensuring the development and use of TSRs, Process Requirements (PRs), Implementation Plans, and USQs, as required.
- Notifies and coordinates with the Safety Analysis Manager, through assigned facility owners, all changes to facilities, projects, and activities with safety analyses.

11. Vice-President, Safety and Health (S&H)

- Serves as the FAM for FA 9, Nuclear and System Safety (NS) and promotes awareness of the Safety Analysis and Nuclear Criticality Safety Programs, their requirements and corresponding responsibilities among the DOE, FERMCO, and the 19 other FAMs.
- Also serves as the FAM for FA 3, Emergency Preparedness and Management (EM); FA 6, Fire Protection (FP); FA 10, Occupational Safety and Health (SH); and FA 14, Radiological Protection (RP).
- Assists the Manager of Safety Analysis with the integration of the NS functional area and other appropriate functional areas.
- Supports the Safety Analysis Department and provides assistance in the preparation of safety analysis documentation related to health and safety programs; e.g., emergency preparedness, fire protection, occupational safety and health, and radiological protection.
- Ensures that applicable requirements from SARs, ASRs, TSRs, and PRs are included in health and safety plans (HASPs), as applicable.

5.0 **IMPLEMENTATION** (cont.)

12. Vice-President, Waste Programs Management (WPM)

- Serves as the FAM for FA 12, Packaging and Transportation (PT).
- Assumes line management responsibility for producing, reviewing, and submitting safety analysis documentation for review and approval of activities and operations within areas of responsibility.
- Submits requests for Safety Assessments to the Safety Analysis Manager.
- Provides assistance in the preparation of safety analysis documentation, including safety analysis reports for packaging (SARPs), related to facility engineering and maintenance, support operations, CRU projects, and facility management.
- Incorporates the measures identified in safety analysis documents into work plans, TSRs, SOPs, EOPs, and other procedures, as required.
- Establishes procedures for ensuring the development and use of TSRs, Implementation Plans, and USQs, as required.
- Notifies and coordinates with the Safety Analysis Manager through assigned facility owners all changes to facilities, projects, and activities with safety analyses.

5.0 **IMPLEMENTATION** (cont.)

13. Directors, CERCLA/RCRA Units (CRUs)

- Assume line management responsibility for producing, reviewing, and submitting safety analysis documentation for review and approval, of projects within their area of responsibility.
- Submit requests for Safety Assessments to the Safety Analysis Manager.
- Ensure all facilities, projects, and activities within their respective CRUs receive the appropriate level of safety analysis as early in the life cycle as possible.
- Coordinate with FERMCO Contracting Officer Technical Representatives (COTR) to ensure that safety analysis provisions required by DOE Order 5480.23 are included in FEMP subcontracts, as appropriate.
- Incorporate the measures identified in safety analysis documents into work plans, TSRs, SOPs, and other procedures, as required.
- Notify and coordinate with the Safety Analysis Department through assigned Project Managers, Project Engineers, or Control Account Managers all changes to facilities, projects, and activities with safety analyses.

14. Vice-President, Environmental Engineering & Technologies (EE&T)

- Serves as the FAM for FA 1, Configuration Management (CM) and FA 2, Engineering Design (ED).
- Ensures all new or modified facilities and activities receive the appropriate level of safety analysis as early in the life cycle as possible.
- Administratively supports the ISRC and its members in performing reviews of FEMP safety analysis documentation and assures appropriate operational readiness reviews (ORRs) based on nuclear facility hazard categories.
- Ensures the total integration of safety analysis documents, unreviewed safety questions, and safety evaluations with the FEMP Configuration Management Program and the implementation of configuration control.
- Develops specifications and drawings or reviews such items prepared for subcontractors, vendors, or their servicing agents designed to ensure adherence to the assumptions and commitments set forth in all applicable safety analysis documentation related to the contract work scope.

5.0 **IMPLEMENTATION** (cont.)

15. Vice-President, Construction/Remedial Action (C/RA)

- Serves as the FAM for FA 18, Construction (CT).
- Ensures all decontamination and decommissioning and construction facilities receive the appropriate level of safety analysis as early in the life cycle as possible.
- Develops specifications or reviews specifications prepared for subcontractors, vendors, or their servicing agents designed to ensure adherence to the assumptions and commitments set forth in all applicable safety analysis documentation related to the contract work scope.

16. Director, Environmental Technical Services (ETS)

- Ensures all environmental facilities receive the appropriate level of safety analysis as early in the life cycle as possible.
- Support CRUs with the integration of safety analyses into studies, work plans, and other project documentation, as required.

17. Manager, Safety Analysis Department

- Assumes administrative and technical responsibility for the overall FEMP Safety Analysis Program.
- Provides support and expertise to line management and other support organizations development of safety analysis documentation.
- Manages the FEMP Safety Analysis Program.
- Reviews and approves all FEMP safety analysis documentation, including those documents prepared by other FEMP organizations, contractors, or subcontractors.
- Conducts safety analyses in support of line organizations and provides written technical safety requirements to bound FEMP facilities, projects, and activities to ensure the health and safety of the public, workers, and protection of the environment.
- Provides safety analysis technical assistance to all FEMP organizations involved in the design of new facilities, alteration of existing facilities, and the decontamination and decommissioning of excess facilities.
- Establishes the Safety Analysis Program training requirements for all FEMP personnel. Reviews and approves the content of safety analysis training.

5.0 IMPLEMENTATION (cont.)

17. Manager, Safety Analysis Department (cont.)

- Supports safety analysis activities related to the removal, remediation, and waste management projects and activities involving radioactive, chemical, hazardous materials, and other hazards greater than standard industrial hazards (SIHs) and standard construction activities.

- Conducts an annual review of safety analysis documentation on open or continuing activities for updating.

- Advises line management and other support organizations on the radiological and chemical hazards present at the FEMP site and the acceptable measures available for eliminating, controlling, or mitigating these hazards.

- Implements an unreviewed safety question (USQ) program designed to review procedures, revisions to work plans, and modifications associated with all FEMP facilities, projects, or activities, which have a DOE approved safety analysis. Coordinates USQ determinations with affected line organizations and the Configuration Management Department.

- Performs, in conjunction with QA, reviews of facilities, projects, and activities subject to TSRs, OSRs, or administrative controls as documented in safety analyses. Informs line management of technical problems or unsafe conditions and supports efforts to correct noted deficiencies.

- Supports the conduct of integrated hazard analysis (Integrated Hazard Analysis) using a team approach, where applicable, and encourages the broad dissemination and use of results within the FEMP where hazard data and information are required or add value to risk-based, informed decision-making.

- Supports line organizations in submitting and obtaining substantive, independent reviews of safety analysis documents from the ISRC and DOE. Assists line management in resolving comments, correcting noted deficiencies, and preparing safety analysis documents for approval.

- Provides liaison to DOE in all matters pertaining to FEMP safety analysis policy, documents, audits, and other activities.

18. Safety Analysis Department Personnel

- Provide technical support to FEMP organizations or their subcontractors responsible for preparing, using, maintaining, and submitting safety analysis documentation.

5.0 **IMPLEMENTATION** (cont.)

18. Safety Analysis Department Personnel (cont.)

- Ensure customer understanding of and agreement with the assumptions and parameters to be utilized in performing safety analyses and hazard categorizations. to the extent practical.
- Review and assist with comment resolution of safety analysis documents. as appropriate.
- Assure criticality analyses are performed for appropriate facilities. projects. and activities.
- Maintain technical and administrative points of contact with FEMP line management organizations with the Remediation Support Operation (RSO) Division. each Comprehensive Environmental Response. Compensation. and Liability Act and Resource Conservation and Recovery Act (CERCLA/RCRA) Unit or CRU. and other organizations.

19. Contractors and Subcontractors

- Satisfy all contractual provisions within FEMP contracts related to the FEMP Safety Analysis Program. as appropriate.
- Support and participate in the preparation of safety analysis documents by providing technical and managerial information as requested concerning equipment and processes to be used during each work activity and phase. when included as part of their contract.
- Serve as subject matter experts (SMEs) during the preparation of safety analysis documentation. when included within the scope of their work scope.
- Review and comment upon safety analysis documentation prepared for related facilities. projects. and activities. when included within the scope of their scope of work.
- Adhere to the assumptions and commitments set forth in all applicable safety analysis documentation. when included as part of their contract.

20. Independent Safety Review Committee (ISRC)

- Provides independent technical reviews of safety analysis documents (SARs. TSRs. and USQs) and associated safety documentation prior to approval by the FERMCO President and submittal to the DOE: reviews activities. facilities. programs. and documents as requested by the FERMCO President.

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5.0 **IMPLEMENTATION** (cont.)

20. Independent Safety Review Committee (ISRC) (cont.)

- Advises line management on safety analysis compliance issues. (The ISRC is to consist of knowledgeable, experienced individuals who did not participate in preparing the documents to be reviewed and are not directly involved in the facility, system, or activity under review.)

21. Other FERMCO Vice-Presidents/Directors (OFVP&Ds) ensures all respective facilities, projects, and activities under their control receive the appropriate level of safety analysis as early in the life cycle as possible. This includes the FAMs for FA 4, Research and Development and Experimental Activities (RD); FA 8, Management Systems (MS); FA 23, Public Involvement (PI); and FA 23, Financial Management (FM).

6.0 **APPLICABLE DOCUMENTS**

6.1 DRIVERS

Contract DE-AC05-92OR21972, Section 1.29, DEAR 970.5204-26, Nuclear Safety, (APR 1984) and all changes thereto, as specified by the requirements listed below:

RM-0016, Rev. 1, *The Management Plan, FERMCO Policies and Requirements Manual*, including PO-NS-01, *Presidential Policy for Nuclear and System Safety* and S/RID No. 9, Nuclear and System Safety (NS):

DOE Orders, Rules, Standards, and Directive:

- DOE Order 5480.21, *Unreviewed Safety Questions*, 12-24-91
- DOE Order 5480.22, *Technical Safety Requirements*, 2-25-92
- DOE Order 5480.23, *Nuclear Safety Analysis Reports*, 4-30-92
- DOE Order 5480.24, *Nuclear Criticality Safety*, 8-12-92
- DOE Order 5481.1B, *Safety Analysis and Review System*, 9-23-86
- 10 CFR 830.120, *Quality Assurance Requirements*
- DOE Standard, DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports* DRAFT, December 1992
- DOE Standard, DOE-STD-3009-94, *Preparation Guide for Non-Reactor Nuclear Facility Safety Analysis Reports*, July 1994

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6.0 APPLICABLE DOCUMENTS

6.1 DRIVERS (cont.)

- DOE-EM-STD-5502-94. *Hazard Baseline Documentation*. August 1994
- DOE-STD-3011-94. *Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans*
- EM Memorandum. *Delegation of Review and Approval Authority for Safety Documentation and for Start-up/Restart for Environmental Management Field Activities*. August 1994

6.2 REFERENCES

SR-2117. *FEMP Nuclear Criticality Safety Requirements*

ES&H-1-1000. *Comprehensive Environmental Occupational Safety and Health Program (CEOSHP)*

ATTACHMENT A

DEFINITIONS

Administrative Controls (ACs) - Provisions relating to organization and management, procedures, recordkeeping, assessment, and reporting necessary to ensure safe operation of a facility. (DOE Order 5480.23) ACs are usually found in facility or project specific requirements documents.

Accident - A deviation from normal operations or activities associated with a hazard which has the potential to result in an emergency. (DOE Order 5500.1B)

Auditable Safety Record (ASR) - Documentation that contains the Auditable Safety Analysis (ASA) for radiological facilities and certain low hazard non-nuclear facilities at the FEMP to ensure that construction, operation, maintenance, shutdown, cleanup, and decommissioning activities can be safely performed in compliance with applicable laws, regulations, and requirements. An ASR may be employed when a Safety Assessment (SA) concludes that further safety analysis is required.

Authorization Basis - Those aspects of the facility design basis and operational requirements relied upon by the DOE to authorize operation. For the FEMP, the authorization basis is considered to be a Safety Analysis Report (SAR), Technical Safety Requirements (TSRs), and Operational Safety Requirements (OSRs) that have been approved by DOE. (DOE Order 5480.21)

Basis for Interim Operation (BIO) - BIO is a documented demonstration that nuclear facility operations can be conducted at an adequate level of safety until more detailed safety documentation, fully compliant with the requirements of DOE 5480.22 and DOE 5480.23, is developed and approved by DOE. For non-reactor nuclear facilities, a BIO is required for each Hazard Category 1, 2, and 3 facility whose safety documentation does not fully comply with DOE 5480.22 or DOE 5480.23. An approved BIO serves as the interim DOE safety basis until the upgraded safety documentation is developed and approved. (DOE-STD-3011-94)

Cleanup Operation - An operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleaned up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment. [OSHA 29 CFR 1910.120 (3)]

Configuration - The functional and/or physical characteristics of hardware and/or software as set forth in technical documentation and achieved in a product. (DOE 4700.1).

Configuration Control - The systematic evaluation, coordination, and disposition of all proposed configuration changes and verification of approved change incorporation before or after the formal establishment of a baseline.

Configuration Management - An integrated process to assure that physical hardware, requirements, and documentation conform to and accurately reflect what exists. This is accomplished by Program Management, Design Requirements, Document Control, Change Control, and Assessments.

ATTACHMENT A (cont.)

Consent Agreement - A written agreement entered into by the U.S. DOE and the U. S. EPA in April 1990 (as amended September 1991) that specifies actions to be taken at the FEMP. The goal of the consent agreement is the remediation of the FEMP.

Contractor - Any person under contract with the DOE with the responsibility to perform activities in connection with a nuclear facility. (DOE Orders 5480.22 and 5480.23)

Decommissioning - The process of closing and securing a nuclear facility or nuclear materials storage facility to provide adequate protection from radiation exposure and to isolate radioactive contamination from the human environment. (DOE 5480.30)

Decontamination - The act of removing a chemical, biological, or radiological contaminant from, or neutralizing its potential effect on, a person, object or environment by washing, chemical action, mechanical cleaning, or other techniques. (DOE 5480.30)

Delegation of Authority - Written authorization, from the Assistant Secretary for Environmental Management, delegating review and approval authority for EM Field Activity Safety Documentation, that is specified into hazard categories through applicable DOE Orders as follows:

- Hazard Category 1 Nuclear Facilities and High Hazard Non-Nuclear Facilities
  There is no delegation for SARs, SAs, TSRs, OSRs, TSs, USQs, or SERs.

- Hazard Category 2 Nuclear Facilities and Moderate Hazard Non-Nuclear Facilities
  Approval authority for SARs, TSRs, OSRs, TSs, USQs, and SERs is delegated to the Operations/Field Office Manager and may be re-delegated within the Operations/Field Office.

- Hazard Category 3 Nuclear Facilities and Low Hazard Non-Nuclear Facilities
  Approval authority for SARs, TSRs, OSRs, TSs, USQs, and SERs is delegated to the Operations/Field Office Manager and may be re-delegated within the Operations/Field Office.

- Radiological/Other Industrial Facilities
  Contractor management is authorized to approve Auditable Safety Analyses (ASA) for radiological facilities as defined in DOE-EM-STD-5502-94.

- (EM Memorandum dated August 08, 1994, DOE-EM Safety Authorization Delegation of Authority)

Design Basis - The set of requirements that bound the design of systems, structures, and components (SSC) within the facility. These design requirements include consideration of safety, plant availability, efficiency, reliability, and maintainability. Some aspects of the design basis are important to safety, although others are not. (DOE Orders 5480.21 and 5480.23)

Design Basis Accidents (DBAs) - Accidents that are postulated for the purpose of establishing functional requirements for safety significant structures, systems, components, and equipment. (DOE Orders 5480.21 and 5480.23)

ATTACHMENT A (cont.)

Engineer Safety Features - Systems, structures, and components (SSCs) that prevent and/or mitigate the consequences of all potential accidents including the bounding design basis accidents. (DOE Order 5480.23)

Evaluation Basis Accident (EBA) - An accident postulated for evaluation of the performance of a facility for which documentable design basis accidents do not exist. The intent of an EBA is to derive from facility parameters an accident that can be used to determine the potential consequences of functional failures in mitigating or preventive systems. (Proposed DOE-DP-STD-3005-93)

Facility - Any equipment, structure, system, process, or activity that fulfills a specific purpose. Examples include accelerators, storage areas, fusion research devices, nuclear reactors, production or processing plants, coal conversion plants, magnetohydrodynamic experiments, windmills, radioactive waste disposal systems and burial grounds, testing laboratories, research laboratories, transportation activities, and accommodations for analytical examinations of irradiated and unirradiated components. (DOE Orders 5000.3B)

Facility Owner - The person designated as building custodian or the senior supervisor on shift in a plant. (PL-2194)

Fernald Environmental Restoration Management Corporation (FERMCO) - The contractor for the Department of Energy (DOE) responsible for performing all activities under an Environmental Restoration Management Contract at the Fernald Environmental Management Project.

Fissile Material - Any material containing uranium-235 or other fissile radionuclides. Other fissile radionuclides are plutonium-239, plutonium-241, and Uranium-233. (SR-2117)

Graded Approach - A process by which the level of analysis, documentation, and actions necessary to comply with DOE requirements are commensurate with the:

(1) Relative importance to safety, safeguards, and security; and the magnitude of any hazards involved:

(2) The complexity of the facility and/or systems being relied on to maintain an acceptable level or risk; and

(3) Life cycle stage of the facility or activity. (DOE Order 5480.23)

Hazard - A source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation). (DOE Order 5480.23)

ATTACHMENT A (cont.)

Hazard Analysis - The process to determine that material, a system, a process, and plant characteristics can produce undesirable consequences, followed by the assessment of hazardous situations associated with a process or activity. Largely qualitative techniques are used to pinpoint weaknesses in design or operation of a facility that could lead to accidents that could expose members of the public, onsite workers, facility workers, and the environment to hazardous materials. (DOE-STD-3009-94)

Hazard Classes - Non-nuclear facilities will be categorized as high, moderate, or low hazards based on the following:

- High - hazards with a potential for onsite and offsite impacts to large numbers of people or for major impacts to the environment.
- Moderate - hazards which present considerable potential onsite impacts to people or the environment, but at most only minor offsite impacts.
- Low - hazards which present minor onsite and negligible offsite impacts to people and the environment. (DOE 5481.1B)

Hazard Categories - The consequences of unmitigated releases of radioactive and/or hazardous material are evaluated as required by DOE 5480.23 and classified by the following hazard categories:

- Category 1
  The hazard analysis shows the potential for significant offsite consequences.
- Category 2
  The hazard analysis shows the potential for significant onsite consequences.
- Category 3
  The hazard analysis shows the potential for only significant localized consequences. (DOE 5480.23)

(DOE-STD-1027-92 provides guidance and radiological threshold values for determining the hazard category of a nuclear facility.)

Hazardous Materials - Any solid, liquid, or gaseous material that is toxic, explosive, flammable, corrosive, or otherwise physically or biologically threatening to health. Oil is excluded from this definition. (DOE Order 5480.23)

Important to Safety - Equipment important to safety is intended to include any equipment whose function can impact safety either directly or indirectly. This includes safety-related equipment, equipment relied upon for safe shutdown, and in some instances, balance-of-plant equipment. (DOE Order 5480.21)

ATTACHMENT A (cont.)

Independent Safety Review Committee (ISRC) - A FERMCO committee responsible for the independent review and approval of FEMP safety analysis documentation and related documentation; e.g., SARs, TSRs, USQs, BIOs and other safety analysis reports, that establish the safety basis for FEMP facilities, projects, and activities. The ISRC helps to ensure compliance with and conformance to DOE safety requirements. The ISRC is composed of knowledgeable, experienced individuals who have not participated in the preparation of safety analysis documents, and are not directly involved in the facility, system, or activity under review.

Line Organization (Management) - An unbroken chain of command which extends from the Secretary [of Energy] through the Under Secretary, to the [Program] Secretarial Officer (SO) who sets program policy and plans and develops assigned programs, to the field organization managers responsible to the SO for execution of these programs, to contractors [FERMCO] who conduct the programs. Accordingly, line management responsibility for safety (safety analyses) flows from the Secretary through the Under Secretary, to EM-1, to the Manager DOE-FN, to the President of FERMCO, to the managers and supervisors responsible for the cleanup, remediation, decontamination, and waste management activities at the FEMP.

Margin of Safety - The margin built into the safety analyses of the facility as set forth in the authorization basis acceptable limits. (DOE Order 5480.21)

Mitigative Feature - Any structure, system, or component that serves to mitigate the consequences of a release of hazardous materials in an accident scenario. (DOE-STD-1027-92)

Modification - Any change or alteration to a facility/system which affects the form, fit, or function of equipment, systems, processes, or facilities, and which does not involve direct same-for-same replacement of components (or like-for-like, if substitutes were previously analyzed and approved) or routine maintenance utilizing approved procedures.

Non-reactor Nuclear Facility - Those activities or operations that involve radioactive and/or fissionable materials in such a form and quantity that a nuclear hazard potentially exists to the employees, general public, or environment. Included are activities or operations that:

(1) Produce, process, or store radioactive liquid or solid waste, fissionable materials, or tritium;

(2) Conduct separation operations;

(3) Conduct irradiated material inspection, fuel fabrication, decontamination, or recovery operations;

(4) Conduct fuel enrichment operations;

(5) Perform environmental remediation or waste management activities involving radioactive materials; or

(6) Design, manufacture, or assemble items for use with radioactive materials and/or fissionable materials in such a form or quantity that a nuclear hazard potentially exists. (10 CFR 830.3)

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ATTACHMENT A (cont.)

Non-Standard Hazards - Hazards that are not routinely encountered or accepted by a vast majority of the general public in the course of everyday living. Non-standard hazards are used to categorize DOE facilities as High, Moderate, or Low Hazard facilities via the hazard classification process. (Inferred from DOE 5481.1B)

Nuclear Facility - Reactor and non-reactor nuclear facilities. (DOE Orders 5480.21, 5480.22, and 5480.23)

Offsite - The area beyond the boundaries of a site. (DOE Order 5500.1B)

Oil - Oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. (PL-2194)

Onsite - The facility/site area over which the Lead Federal Agency (at the FEMP this is the DOE) has access control authority. The onsite area includes any area that has been established as a National Defense Area or National Security Area. (DOE Order 5500.1B) [For the purposes of this site requirement document and resulting site procedures addressing safety analysis, FEMP facilities, projects, and activities that are physically beyond the boundaries of the FEMP Site will be assessed for consideration as an "onsite" area based on the DOE's access control authority. Such determinations will be incorporated into the appropriate safety analyses and related calculations.]

Operable Unit (OU) - Term for each of a number of separate activities undertaken as part of a Superfund site cleanup. The FEMP consists of five operable units. Portions of OU5 physically extend beyond the FEMP Site property boundaries.

Operational Readiness Review (ORR) - A disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems to ensure that a facility will be operated safely within its approved safety envelope as defined by the facility safety basis. The Operational Readiness Review scope is defined based on the specifics of the facility and/or the reason for the shutdown as related to a minimum set of core requirements. A graded approach will be used in defining the depth of the Operational Readiness Review based on these core requirements. (DOE 5480.31)

Operational Safety Requirement (OSR) (Refer to definition of TSR.)

Preliminary Hazard Analysis (PHA) - An analytical tool usually used early in the life of a project or activity to identify, collect, and integrate information concerning:

(1) Hazards (materials in quantity, form, and location)

(2) Energy sources and potential initiating events

(3) Preventive features

(4) Mitigative features

ATTACHMENT A (cont.)

Preventive Feature - Any structure, system, or component that serves to prevent the release of hazardous material in an accident scenario. (DOE-STD-1027-92)

Process Requirement (PR) - Requirements similar to those documented in a TSR but used in FEMP radiological, non-nuclear, or (other) industrial facilities. PRs are approved by FERMCO.

Process Safety Management (PSM) - A process or activity involving the application of management principles as defined in 29 CFR 1910.119, "Process Safety Management of Highly Hazardous Chemicals." (DOE-STD-3009-94)

Project - A defined set of activities pursued towards a defined, final conclusion. Examples of projects at the FEMP include the remedial investigation/feasibility studies for each operable unit, removal site evaluations, and removal actions.

Project Authorization (PA) - A document which describes a proposed project and requests approval by valid authority.

Project Engineer (PE) - The Project Engineer (PE) is the individual who has the secondary responsibilities of a line item project and reports to the Project Manager (PM.)

Project Manager - The Project Manager (PM) is the individual in charge of a project.

Project-Specific Plans - Scoping documents required for any program or project. Project-specific plans may include, but are not limited to, work plans, field sampling plans, health and safety plans, and standard operating procedures.

(Program) Secretarial Officer (SO) - Heads of DOE offices with responsibility for specific DOE facilities, including the Assistant Secretaries for ... Environmental Restoration and Waste Management (EM) ... For the FEMP, the SO is EM-1. (Extracted from DOE Order 5480.23)

Quality - The degree to which an item or process meets or exceeds the user's requirements and expectations. (DOE 5700.6C, 08-21-91)

Quality Assurance - Actions that provide confidence that quality is achieved (DOE 5700.6C) or all those planned and systematic actions necessary to provide adequate confidence that a facility, structure, system, and component will perform satisfactorily and safely in service. Quality assurance includes quality control, which comprises all those actions necessary to control and verify the features and characteristics of a material, process, product, or service to specified requirements. (DOE 5820.2A)

Quality Assurance Program - The overall program established by an organization to implement the requirements of DOE Order 5700.6C. The program assigns responsibilities and authorities, defines policies and requirements, and provides for the performance and assessment of work (DOE 5700.6C) or the overall program established by FERMCO to implement the quality assurance requirements imposed on the FEMP by its customers. The Program assigns responsibilities and authorities, defines policies and requirements, and provides for the performance and assessment of work. (RM-0012)

ATTACHMENT A (cont.)

Quality Assurance Program Description - The formal, approved and controlled document that describes the FERMCO QA Program which ensures adherence to FERMCO policies for achieving required quality levels at the FEMP. (RM-0012)

Quality Assurance Record - A completed document that furnishes evidence of the quality of items and/or activities affecting quality. Records verifying compliance with regulatory requirements are quality assurance records. These records are often generated by organizations other than the FERMCO Quality Assurance Division. (RM-0012)

Quality Control - The overall system of technical activities that measures and controls the quality of a process, item, or service so that it meets the stated needs of the user. (RM-0012)

Radiological Facilities - A facility that does not meet or exceed the hazard category 3 threshold values published in Table A.1 of DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, but contains some quantity of radio-active material (above those discussed in Appendix B to 40 CFR 302). (DOE-EM-STD 5502-94) (DOE-STD-1027)

Requirement Manual (RM) - A site document defining and establishing federal and state regulations/laws or management practices that are applicable to the FEMP. All organizations are responsible for implementing requirements, as applicable, through a site level or department procedure. (A requirement manual is not an instructional document and is not to be used when performing work.)

Risk - A quantitative or qualitative expression of possible loss which considers both the probability that a hazard will cause harm and the consequences of that event. (DOE Order 5480.23)

Safety Analysis - A documented process that provides systematic identification of hazards within a given DOE operation; describes and analyzes the adequacy of measures taken to eliminate, control, or mitigate identified hazards; and analyzes and evaluates potential accidents and their associated risks. (DOE Order 5480.23)

Safety Analysis Documentation - At FEMP, records containing the elements of analysis upon which operational, procedural, and administrative decisions are based that ensure the health and safety of the public, the work force, and the environment. FEMP safety analysis documents include, but are not limited to, Safety Assessment (SA), Auditable Safety Record (ASR), Basis for Interim Operation (BIO) Preliminary Safety Analysis Report (PSAR), Final Safety Analysis Report (FSAR), Safety Analysis Report (SAR), Technical Safety Requirement (TSR), Operational Safety Requirement (OSR), Process Requirements (PRs), Safety Analysis Report for Packaging (SARP), and Unreviewed Safety Question (USQ) Determination (USQD).

ATTACHMENT A (cont.)

A program required for all Department of Energy (DOE) reactor nuclear facilities, as established in DOE Order nd Review System and DOE Order 5480.23, Nuclear Safety ogram provides for the analysis and review of all ith the end goal of reducing the risks associated with ies after accounting for all measures which have been te, or control hazards identified during the course of the of a standard industrial nature, i.e., those which are ndustry and accepted by the public, are not governed by sis documentation is generated to assist in fulfilling the m.

R) - A report that documents the adequacy of safety lity to ensure that the facility can be constructed, down, and decommissioned safely and in compliance with tions. (DOE Order 5480.23)

) - A safety analysis document produced early in the project which systematically identifies safety design tential hazards, and proposes measures to eliminate, these hazards; and evaluates the potential risks. (Line ed to obtain EM-1 or designee approval of PSARs prior to ent of materials and components, construction, and pre- f DOE nuclear facilities, unless authorized by DOE in

safety analysis document produced after the construction eration of a facility or activity which systematically escribes and analyzes the adequacy of measures taken to r mitigate these hazards; and analyzes and evaluates the nd associated risks. (Line management is required to nee approval of FSARs prior to operating a DOE nuclear

nts may be merged into a single FSAR or may be submitted n written approval of EM-1.

Packaging (SARP) - A safety analysis document that echnical evaluation and review of the design, testing, aintenance procedures, and quality assurance program for es compliance with the Nuclear Regulatory Commission (NRC) rtation (DOT) regulatory safety standards or equivalent he Department of Energy (DOE) for approving packaging and mpliance. (SR-2117)

FEMP Form FS-F-2706, Request for Safety Assessment. A tive document used to screen FEMP projects and activities ard industrial hazards exist. If such hazards are hazard analysis (PHA) is typically included in the SA n for additional safety analyses; i.e., ASR, SAR, etc. If azards or standard construction activities are identified, e SA.

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ATTACHMENT A (cont.)

Safety Basis - A combination of information relating to the control of hazards at a nuclear facility (including design, engineering analyses, and administrative controls) upon which the DOE depends for its conclusion that activities at the facility can be conducted safely. (DOE Order 5480.23)

Safety-class structures, systems, and components (safety-class SSCs) - Systems, structures, or components including primary environmental monitors and portions of process systems, whose failure could adversely affect the environment, or safety and health of the public as identified by safety analyses. (DOE-STD-3009-94)

Safety Evaluation - A record required to document the review of a "change". This document records the scope of the evaluation and the logic for determining whether or not an Unreviewed Safety Question exists. (DOE Order 5480.21)

Safety structures, systems, and components (safety SSCs) - The set of safety-class structures, systems, and components, and safety-significant structures, systems, and components for a given facility. (DOE-STD-3009-94)

Shall, Should, and May - **Shall** is used to denote a requirement; **should** is used to denote a recommendation; and **may** is used to denote permission, neither a requirement nor a recommendation. (DOE Order 5480.20)

Site - See the definition for onsite.

Site Procedure - A type of site document providing detailed operating or administrative instruction for an ongoing activity/process (a sequence of actions).

Standard - A specific set of rules or conditions concerned with the classification of components; delineation of procedures; definitions of terms; specification of materials, performance, design, or operations; or measurements of quality in describing materials, products, systems, services or practices. Standards may be specified by DOE as mandatory (i.e., required) or recommended.

Standard Construction Activity - Any construction, alteration, demolition, repair, maintenance, or renovation of structures, substrates, or portions thereof, that do not possess the potential for releasing significant quantities of radiological and/or hazardous materials; i.e., do not meet or exceed 40 CRF 302 quantities.

Standard Hazards - Hazards that are routinely encountered or accepted by a vast majority of the general public in the course of everyday living.

ATTACHMENT A (cont.)

Standard Industrial Hazard (SIH) - Hazards that are routinely encountered in general industry and construction, and for which national consensus codes and/or standards (e.g., OSHA, transportation safety) exist to guide safe design and operation without the need for special analysis to define safe design and/or operational parameters. (DOE-STD-3009-94)

Standard Operating Procedure (SOP) - An operation, analysis, or action whose mechanics are thoroughly prescribed and documented and which is commonly accepted as the usual or normal method for performing certain routine or repetitive tasks. (RM-0012)

Standards/Requirements Identification Document (S/RID) - A document issued within RM-0016, FERMCO Management Plan, that identifies the baseline requirements for a functional area which establishes FERMCO's responsibilities and authorities under the Environmental Restoration Management Contract.

Subcontractor - All non-FERMCO employees requiring access to the FEMP for the purpose of providing supplies, services, or construction activity in performance of a contractual obligation. Onsite employees of other DOE prime contractors will be considered subcontractors. (SSOP-0051)

Technical Safety Requirements (TSRs) - Those requirements (previously designated as OSRs) that define the conditions, safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear facility and to reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from radiation exposure due to inadvertent criticality. A TSR consists of operating limits, surveillance requirements, administrative controls, use and application instructions, and the basis thereof. TSRs are to eventually replace OSRs. (DOE Order 5480.22)

Undue Risk - A level of identifiable risk that is unacceptable to the DOE.

Unreviewed Safety Question (USQ) Determination - A determination made on all existing safety bases when changes are considered by examining and identifying any of the following circumstances:

- Temporary or permanent changes in the facility as described in existing safety analyses:
- Temporary or permanent changes in the procedures as derived from existing safety analyses: and
- Tests or experiments not described in existing safety analyses.

(Extracted from DOE Order 5480.21.)

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ATTACHMENT B

ABBREVIATIONS AND ACRONYMS

AC	Acquisitions
ADM	Administration
ASA	Auditable Safety Analysis
ASR	Auditable Safety Record
BIO	Basis for Interim Operation
C&A	Contracts & Acquisitions
CEOSHP	Comprehensive Environmental Occupational Safety and Health Plan
CM	Configuration Management
COTR	Contracting Officer's Technical Representatives
CRU	Comprehensive Environmental Reclamation, Compensation, Liability Act and Resource Conservation and Recovery Act (CERCLA/RCRA) Unit
CSE	Criticality Safety Evaluation
C/RA	Construction/Remedial Action
CT	Construction
DBA	Design Basis Accidents
DOE	Department of Energy
DOT	Department of Transportation
EBA	Evaluation Basis Accident
EC	Environmental Compliance
ED	Engineering Design
EM-DOE	Environmental Restoration and Waste Management
EM	Emergency Preparedness and Management
EOP	Emergency Operating Procedure
EP	Environmental Protection
EPA	Environmental Protection Agency
EE&T	Environmental Engineering & Technologies
ETS	Environmental Technical Services
EW	Environmental Restoration and Waste Management
FA	Functional Area (S/RIDs)
FAM	Functional Area Manager
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FM	Financial Management
FP	Fire Protection
FSAR	Final Safety Analysis Report
HASP	Health and Safety Plan
HR	Human Resources and Industrial Relations
H&S	Health and Safety
IAW	In Accordance With
ISRC	Independent Safety Review Committee
MS	Management Systems
MT	Maintenance
NRC	Nuclear Regulatory Commission
NS	Nuclear and System Safety
OP	Operations
ORR	Operational Readiness Review
OSHA	Occupational Safety and Health Administration (or Act)
OSR	Operational Safety Requirements
OU	Operable Unit

ABBREVIATIONS AND ACRONYMS

PC	Project Controls
PE	Project Engineer
PHA	Preliminary Hazard Analysis
PI	Public Involvement
PI&C	Project Information and Control
PM(FA)	Property Management
PM	Project Manager
PO	Presidential Policy (PO-NS-01
PR	Process Requirement
PSM	Process Safety Management
PSAR	Preliminary SAR
PT	Packaging and Transportation
QA	Quality Assurance
RD	Research and Development and Experimental Activities
RM	Requirement Manual
RP	Radiological Protection
RSO	Remediation Support Operations
RT	Recycling and Technology Programs
SA	Safety Assessment
SAG	Safety Analysis Guide
SAR	Safety Analysis Report
SARP	Safety Analysis Report for Packaging
SE	Security
SER	Safety Evaluation Report
SH	Occupational Safety and Health
SIH	Standard Industrial Hazard
SME	Subject Matter Expert
SO	Secretarial Officer
S/RIDs	Standards/Requirements Identification Documents
SSC	Systems, Structures, and Components
SSOP	Site Standard Operating Procedure
TR	Training and Qualification
TS	Technical Specification
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question
USQD	Unreviewed Safety Question Determination
VP&Ds	Vice Presidents & Directors
WPM	Waste Programs Management

ATTACHMENT C

FEMP SAFETY ANALYSIS DOCUMENTATION

SAFETY ANALYSIS DOCUMENT	DESCRIPTION	FEMP Application
Auditable Safety Record (ASR)	An Auditable Safety Analysis (ASA) that: - adequately describes a proposed FEMP facility, project, or activity - contains appropriate analyses for the proposed facility, project, or activity (including remediation) - does not require DOE review and approval, rather is contractor approved - is maintained on file with copies of other supporting information, such as, review comments and their resolutions.	ASRs are used to document safety analyses for FEMP facilities, projects, or activities classified in Safety Assessments (SAs) as Radiological or Non-facility Nuclear.
Basis for Interim Operation (BIO)	A safety analysis document that: - adequately describes existing FEMP nuclear facilities that lack safety basis documentation according to current DOE Orders or Federal Codes. - contains appropriate (summary or de minimus) analyses for continuing safe operation. - requires DOE (EM-1 or designee) review and approval. - is maintained on file, reviewed periodically for continued applicability, and upgraded, as appropriate, to a SAR w/TSRs. - is prepared using guidance contained in DOE-STD-3011-94.	BIOs are used to document the basis for continued activities or operations of FEMP nuclear facilities that either never established a safety basis or no longer comply with a pre-existing safety basis. BIOs apply only to nuclear facilities and are designed to provide an interim authorization for operations, until a fully compliant SAR w/TSRs can be developed and issued.

SAFETY ANALYSIS DOCUMENT	DESCRIPTION	FEMP Application
Safety Analysis Report (SAR)	A safety analysis document that: - adequately describes a proposed FEMP facility - contains appropriate (graded) analyses for the proposed facility - requires DOE (EM-1 or designee) review and approval - is maintained on file, reviewed on an annual basis, and updated (upgraded), as appropriate. - is prepared in accordance with (IAW) DOE Orders 5480.23 or 5481.1B.	SARs are used to document safety analyses for FEMP facilities classified in SAs as: Nuclear - Hazard Category 1, Hazard Category 2, or Hazard Category 3. Non-nuclear - Hazard Class High, Hazard Class Moderate, or Hazard Class Low.
Safety Analysis Report for Packaging (SARP)	A safety analysis document that provides the administrative requirements and procedures associated with the review and approval for designing, implementing, and testing of specific packages for transporting radiological, including fissile, and/or mixed (radiological and hazardous) materials. A SARP: - adequately describes a proposed project or activity requiring packaging for the transport of radiological and/or hazardous materials - contains appropriate analyses for the proposed use of packaging and related activities - requires DOE (EM-1 or designee) review and approval - is maintained on file, reviewed on an annual basis, and updated (upgraded), as appropriate.	SARPs are used to document safety analyses for FEMP projects and activities that require new or modified packaging for the transportation of radiological materials.

SAFETY ANALYSIS DOCUMENT	DESCRIPTION	FEMP Application
Safety Assessment (SA)	A brief, factual, and objective safety document that determines if activities involve hazards -- other than those standard to industry -- which require elimination, control, or mitigation, thereby establishing a need for a SAR, ASR, or other appropriate safety analysis document. A REQUEST FOR SAFETY ASSESSMENT is used to document SAs.	SAs are used to document the initial hazard screening of nuclear and non-nuclear facilities . Based on the results of the screening, SAs are prepared to document: Standard industrial hazards (SIHs), Standard Construction Activities (Hazard Screenings) or The need for further safety analyses and documentation in the form of ASRs, SARs, and SARPs, as appropriate, (Hazard Classifications).
Technical Safety Requirements (TSRs), Operational Safety Requirements (OSRs), or Process Requirements (PRs)	Documents that define the conditions, safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear facility and to reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from radiation exposure due to inadvertent criticality. TSRs are maintained on file, reviewed on an annual basis, and updated (upgraded), as appropriate. TSR format is specified in DOE Order 5480.22. OSRs will eventually be upgraded to TSRs. PRs may be used for radiological, non-nuclear, or (other) industrial facilities and their activities.	TSRs are used to document the design features, operating limits, surveillance requirements, administrative controls, use and application instructions, and the basis thereof associated with FEMP nuclear facilities as determined in SARs. OSRs existing at the FEMP will eventually be upgraded to TSR per DOE 5480.22. PRs are used at the FEMP in a manner similar to TSRs in radiological, non-nuclear, and (other) industrial facilities.

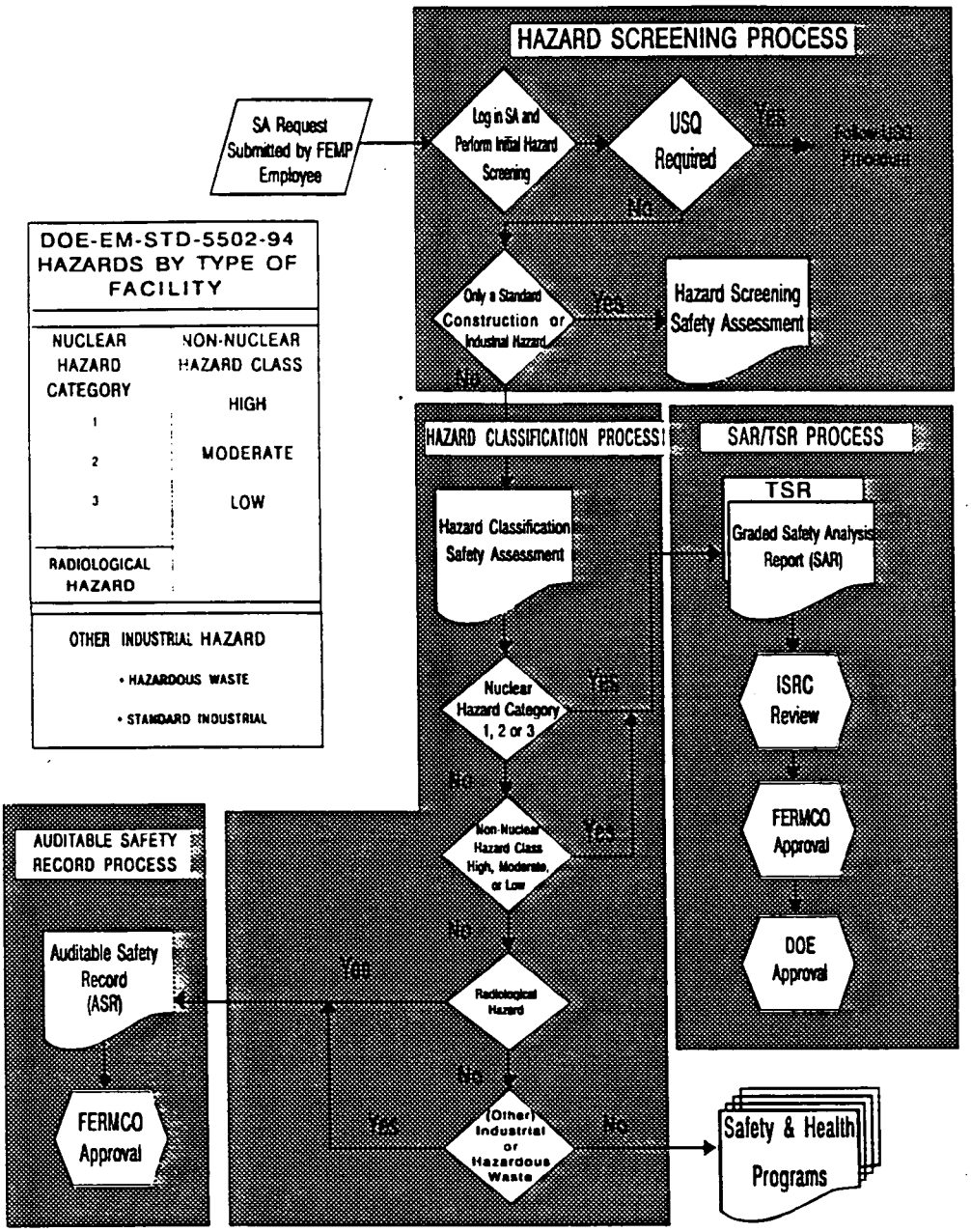
ATTACHMENT D

HAZARD CLASSIFICATIONS USED IN THE FEMP SAFETY ANALYSIS PROGRAM

HAZARD DESCRIPTIONS	EXPLANATION OF HAZARD CLASSIFICATIONS	
	NUCLEAR DOE Order 5480.23	NON-NUCLEAR DOE Order 5481.1B
High	Hazard Category 1: The hazard analysis shows the potential for significant offsite consequences. DOE-STD-1027-92, Hazard Category 1 threshold is met or exceeded.	Hazard Class High: Those with the potential for onsite or offsite impacts to large numbers of persons or for major impacts to the environment. •
Moderate	Hazard Category 2: The hazard analysis shows the potential for significant onsite consequences. DOE-STD-1027-92, Hazard Category 2 threshold is met or exceeded.	Hazard Class Moderate: Those which present considerable potential for onsite impacts to people or the environment, but at most only minor offsite impacts. •
Low	Hazard Category 3: The hazard analysis shows the potential for only significant localized consequences. DOE-STD-1027-92, Hazard Category 3 threshold is met or exceeded.	Hazard Class Low: Those which present minor onsite and negligible offsite impacts to people or the environment. • Non-Nuclear Facilities may have a radioactive material potential for release less than the reportable quantity (RQ) listed in Appendix B to Table 302.4 of 40 CFR 302; however, the amount of non-radioactive hazardous material potential for release is equal to or greater than the RQ values listed.
Radiological	Radiological Facilities contain radiological material; however, the level is below the Hazard Category 3 threshold as defined in DOE STD-1027-92, but at or above the reportable quantity (RQ) listed in Appendix B to Table 302.4 of 40 CFR 302.	

HAZARD DESCRIPTIONS	EXPLANATION OF HAZARD CLASSIFICATIONS	
	NUCLEAR DOE Order 5480.23	NON-NUCLEAR DOE Order 5481.1B
(Other) Industrial Facilities	HAZARDOUS WASTE ACTIVITY FACILITIES Facilities with hazardous materials below the reportable quantities (RQ) listed in Appendix B to Table 302.4 of 40 CFR 302. STANDARD INDUSTRIAL HAZARD (SIH) FACILITIES/STANDARD CONSTRUCTION ACTIVITIES Facilities or activities with hazards of a type and nature that are routinely encountered in industry and are addressed by the implementation of consensus standards or OSHA or similar safety and health programs.	

ATTACHMENT E
FEMP SAFETY ANALYSIS PROGRAM PROCESS



Low Hazard Classification and Non-Facility Nuclear Hazards may be ASR (FERMCO Approval) with concurrence of DOE

ATTACHMENT E

(1) FEMP personnel; e.g., Project Manager, Project Engineer, Facility Owner, submits a *Request for Safety Assessment* to the Safety Analysis Department as early as possible in the conceptual design phase of the facility, project, or activity.

(2) Safety Analysis Department receives the SA Request, logs it into the SA database, and performs an initial hazard screening to determine if the request potentially involves an USQ or if the work scope involves only a standard industrial hazard (SIH) or standard construction activity.

a. If an USQ is involved, then the USQ process is initiated.

b. If a SIH or standard construction activity is the only hazard involved, then the SIH or standard construction activity will be documented using the SA Request Form originally submitted. This SA is referred to as a Hazard Screening Safety Assessment in Attachment E. It is assumed that FERMCO Safety and Health Programs will address the hazards and requirements associated with SIH or standard construction activities.

c. If other than a SIH or standard construction activity exists, then a Hazard Category Determination, supported in most cases by a hazard analysis, will be performed and documented using the SA request form. This SA is referred to as a Hazard Classification Safety Assessment in the process flow. An Integrated Hazard Analysis Team may be used to perform the hazard analysis, when practical. As a minimum, the assumptions and parameters to be used will be agreed upon by the Safety Analysis Technician and the requestor of the SA.

(3) The Hazard Classification Safety Assessment not only documents the hazard category and potential consequences, it also documents the need for further safety analyses. Safety analyses at the FEMP will be performed and documented based on the following guidelines:

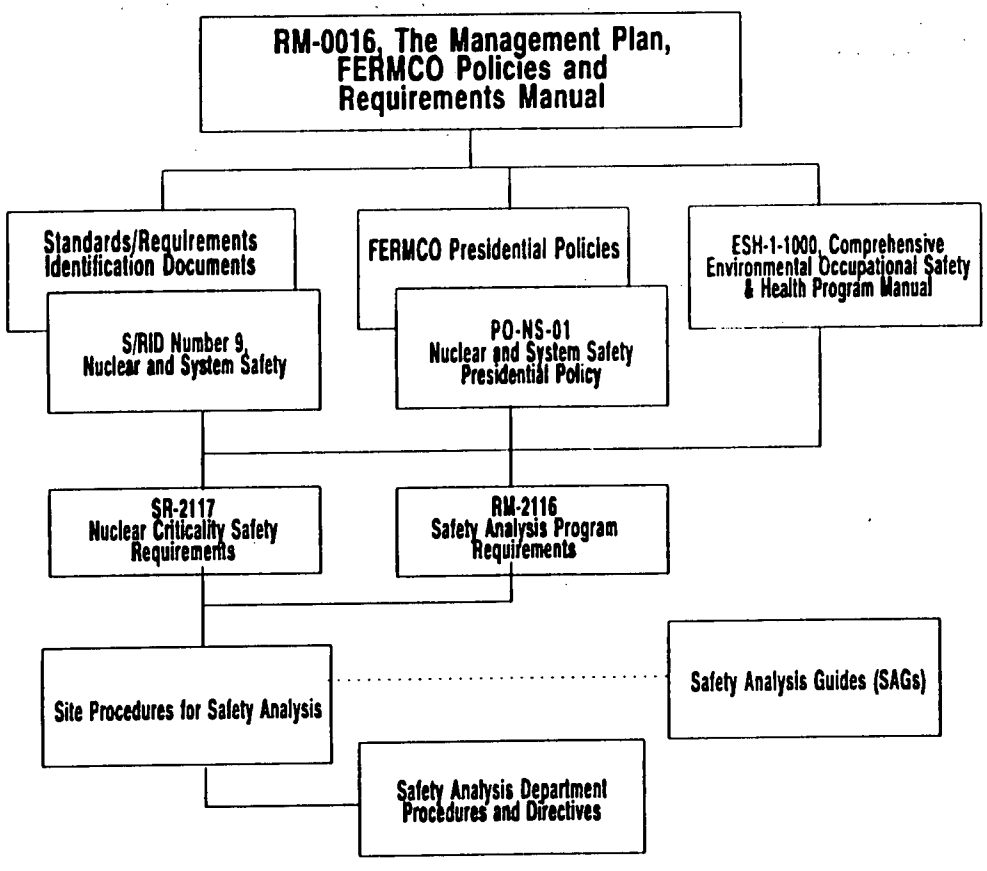
a. Nuclear facilities, projects, or activities will be classified as Hazard Category 1, 2, or 3 and non-nuclear facilities, projects, or activities will be classified as Hazard Class High, Moderate, or Low. The appropriate safety analysis documentation will depend upon the characteristics of the work scope and the hazard categorization or classification. The resulting safety analysis may be a Preliminary Safety Analysis Report (PSAR), Final Safety Analysis Report (FSAR), Auditable Safety Record (ASR) or Technical Safety Requirements (TSR). The appropriate safety analysis document shall be reviewed by the Independent Safety Review Committee (ISRC) and approved by the FERMCO President or designee prior to being submitted to DOE for approval. Additionally, a health and safety plan (HASP) or HASP Matrix may be developed.

b. Radiological facilities shall require the preparation of an ASR that shall be approved by the FERMCO President or designee. Additionally, a HASP or HASP Matrix may be developed.

c. (Other) industrial facilities in which hazardous waste activities are conducted may require the preparation of a HASP. At a minimum, such facilities, projects, and activities are assumed to be addressed by FERMCO safety and health programs.

ATTACHMENT F

DOCUMENT HIERARCHY FOR SAFETY ANALYSIS PROGRAM



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RESPONSIBILITIES SUMMARY FOR FEMP SAFETY ANALYSIS PROGRAM

RESPONSIBLE INDIVIDUALS / SA PROGRAM ITEM	FERMCO PRESIDENT	EXECUTIVE VPs	S&H FAM (EM) (FP) (NS) (RP) (SH)	MGR SA	SA STAFF	DOE
Establish Safety Analysis Program	LR	S	RL	L	SI	A
FEMP Policies Procedures	A	A	RLA	L	I	A
Department/Project Procedures	S	AI	RLA	L	SIL	I
Safety Analysis Documentation	A	AI	RLA	L	SIA	A
Training	S	S	RA	L	SIR	S
Quality Oversight	L	S	I	L	SI	A
Safety Analysis Oversight and Compliance	LI	LI	RA	L	SIR	A
Configuration Control	L	LI	RS	S	S	-
Contractual SA Compliance Clauses	L	LI	S	SA	SI	A
FEMP Compliance Integration	L	LI	RLI	S	SI	A
Submit Requests for Safety Assessment	AS	AS	RLA	AL	SIR	A
Annual Review of SAs	A	S	RLA	L	SIR	A
Independent SA Program Appraisal	A	A	RLI	L	SR	A
USQ Program	A	A	RLA	L	SIAR	A
DOE SA Interface	LI	LI	LAS	LI	SI	AL

TABLE KEY:

L = Lead Responsibility (responsibility may be shared)
S = Supports the Program and Participants
A = Approves the Program or Products
I = Implements the Program, Action, or Process Required
R = Requirement

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ATTACHMENT G

RESPONSIBILITIES SUMMARY FOR FEMP SAFETY ANALYSIS PROGRAM

RESPONSIBLE INDIVIDUALS / SA PROGRAM ITEM	PI&C FAM (PC)	C&A FAM (AC) (PM)	ADM FAM (TR) (SE) (HR)	WPM FAM (PT)	EE&T FAM (CM) (ED)	C/RA FAM (CT)	ETS
Establish Safety Analysis Program	S	S	S	SI	S	S	S
FEMP Policies Procedures	I	I	LS	I	I	I	I
Department/Project Procedures	S	S	S	SI	S	S	S
Safety Analysis Documentation	S	SI	S	I	S	S	S
Training	-	S	LI	S	-	-	-
Quality Oversight	-	-	-	I	-	-	-
Safety Analysis Oversight and Compliance	S	S	S	LI	-	-	-
Configuration Control	RLA	-	-	LI	-	-	-
Contractual SA Compliance Clauses	-	LI	-	S	-	-	S
FEMP Compliance Integration	S	S	-	SI	-	-	-
Submit Requests for Safety Assessment	S	-	-	I	I	I	I
Annual Review of SAs	S	-	-	I	I	I	I
Independent SA Program Appraisal	S	S	S	S	S	S	S
USQ Program	S	-	-	I	I	I	I
DOE SA Interface	S	S	-	I	I	I	I

TABLE KEY:

L = Lead Responsibility (responsibility may be shared)
S = Supports the Program and Participants
A = Approves the Program or Products
I = Implements the Program, Action, or Process Required
- = Requirement

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RESPONSIBILITIES SUMMARY FOR FEMP SAFETY ANALYSIS PROGRAM

RESPONSIBLE INDIVIDUALS / SA PROGRAM ITEM	P/QA FAM (QA)	EC FAM (EP) (EW)	RSO FAM (OP) (MT)	CRUs	OTHER FERMCO VPs/Directors FAMs (RD) (MS) (PI) (FM)	SUBCONTRACTORS	ISRC
Establish Safety Analysis Program	S	S	SI	I	S	SI	S
FEMP Policies Procedures	I	I	I	I	I	IS	IS
Department/Project Procedures	S	S	SI	LI	S	SI	S
Safety Analysis Documentation	S	S	I	I	S	SI	SA
Training	S	S	S	S	-	S	SA
Quality Oversight	RLA	-	I	LI	-	I	-
Safety Analysis Oversight and Compliance	S	SA	I	I	S	I	LA
Configuration Control	S	-	I	LI	S	I	S
Contractual SA Compliance Clauses	LA	-	S	S	-	S	-
FEMP Compliance Integration	S	-	SI	SI	S	SI	S
Submit Requests for Safety Assessment	S	S	I	LI	S	SI	-
Annual Review of SAs	S	S	I	LI	S	SI	S
Independent SA Program Appraisal	S	S	S	SI	S	S	S
USQ Program	S	S	I	LI	S	SI	SA
DOE SA Interface	-	S	I	LI	S	SI	SA

TABLE KEY:

L = Lead Responsibility (responsibility may be shared)
S = Supports the Program and Participants
A = Approves the Program or Products
I = Implements the Program, Action, or Process Required
R = Requirement

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CONTROL NO. FER-0018
SITE PROCEDURE EP-0001 (SSOP-0031)
REVISION NO.2

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DOCUMENT PROCESS

NON-CONTROLLED COPY

Effective Date: 12-21-93

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: _____ 2/14/95
Terry D. Hagen, Manager of Environmental Protection Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

WORK PERMITS

COPY

1.0 General

1.1 This SPR defines the requirements for obtaining written authorization and instructions before beginning work in any area of FEMP.

1.2 The term Requestor on the FERMCO Work Permit form (Attachment A) applies to FEMP maintenance planner-estimators, Construction scheduler/planners, and subcontractors requesting authorization to perform work at FEMP.

1.3 The terms **FEMP Personnel** and **Employee(s)** include anyone performing work at FEMP.

2.0 Requirements

2.1 Notify the Occupational Safety and Health (OS&H) Department if any of the requirements in this SPR cannot be met.

2.2. Obtain an approved FERMCO Work Permit prior to performing any work at FEMP unless specifically exempted in an approved job safety analysis, project specific health & safety plan or other S&H approved technical work document.

2.3 Notify the responsible Facility Owner prior to initiating work authorized in the FERMCO Work Permit.

2.4 Safety and Health (S&H) Division

A. Develop and communicate work permit requirements through OS&H and Radiological Control.

B. Consistently specify the precautions necessary to safely complete the scopes of work requested in FERMCO Work Permits.

C. Delegate responsibility within the S&H organization to:

1. Ensure information provided by the requestor on the work permit is complete and accurate.

2. Ensure respective departments within the S&H Division review the Work Permit to verify requirement for S&H permits and issue required permits based on job hazards and proposed work scope.

Note: Lead Radiological Control Technicians and OS&H Technicians may annotate Section B of the Work Permit in the field indicating that a type of permit is not required by "N/A", followed by initials and date.

3. Obtain concurrence on the protective clothing and equipment requirement and complete Attachment B, PPE Requirements.

WORK PERMITS

4. Authorize revision to PPE Requirements.

   a. Lead Radiological Control Technicians and/or OS&H Technicians may complete a Notice of PPE Modification Form (Attachment C) and obtain concurrence from respective S&H departments specifying safety permits associated with the Work Permit before revising PPE requirements (Attachment B).

   b. Remove existing PPE page, attach to Attachment C, and submit to the Radiological Control RWP group.

   c. Implement revised PPE requirements by completing new Work Permit PPE Requirements (Attachment B) and attach to the Work Permit.

5. Assist work permit requestors in obtaining necessary permits and in understanding posting and safety requirements contained in the approved work permit.

2.5 OS&H Department

A. Develop and communicate work permit requirements, *other than radiological.*

B. Ensure work permits are used appropriately.

C. Specify appropriate safety precautions and issue safety permits, other than RWPs.

2.6 Radiological Control

A. Develop and communication radiological work permit requirements.

B. Specify radiological controls and issue radiological work permits in keeping with RM-0020, Radiological Control Requirements Manual.

C. Accept possession of terminated work permits that contain a Radiological Work Permit and review documentation to verify specified paperwork is complete and accurate.

D. Annotate the Work Permit (Attachment A) with Radiological Work Permit (RWP) number(s) when applicable.

E. Assemble transmittal containing original records for transfer to S&H TP&DC.

2.7 S&H TP&DC

Maintain historical files including the FERMCO work permit or any modifications to the work permit.

WORK PERMITS

2.8 Safety Analysis Department

A. Provide technical support to staff working in or around nuclear materials or waste and/or specified quantities of hazardous chemicals by performing safety assessments and/or safety analyses.

B. Evaluate work involving activities in or around enriched restricted nuclear material, by issuing criticality safety authorization (CSA), criticality safety operational authorization (NSOA), and technical work documents when required.

2.9 Management/Supervision

A. When work involves activities in or around nuclear material or waste and/or specified quantities of hazardous chemicals:

1. Submit a Request for Safety Assessment (see SPR 2-9, Safety Analysis) to the Safety Analysis Department.

2. Make employees aware of the administrative and engineered controls contained in safety analysis documents related to their facility or work activity.

3. Ensure appropriate safety analysis document requirements are incorporated into procedures, work plans, etc.

B. Use a FERMCO Work Permit to initiate or establish the need for the following permits:

1. Confined Space Permit:

   a. Entry into a confined space
   b. If trench/excavation must be entered by personnel

2. Chemical Hazardous Materials Work Permit:

   Work with or in the vicinity of hazardous chemicals or materials **not** covered by a FERMCO standard operating procedure (SOP).

3. Open Flame and Welding Permit:

   Cutting or welding with electrical arc, open flames, or other forms of hot work (e.g., grinding or brazing activities).

4. Hazardous Work Permit:

   a. First line breaks
   b. Electrical work
   c. Elevated work
   d. Demolition/construction projects

WORK PERMITS

5. Facility Outage Permit:

   Work that requires an outage (e.g., roads, sewer, water, steam, electric, or alarm systems).

6. Asbestos Work Permit:

   a. Work or maintenance involving asbestos containing materials
   b. Work involving transite
   c. Work or maintenance involving refractory ceramic fibers (RCFs)

7. Excavation/Trenching/Penetration Permit:

   a. Penetration of the ground, floor or a wall
   b. Trenching/excavating work

8. Radiological Work Permit:

   a. Work involving radioactive materials
   b. PPE not covered in another permit

C. Attach applicable Job Safety Analysis (JSA), Project Specific Health and Safety Plan, or other approved technical work document to the Work Permit.

D. When an RWP is required for the proposed work scope, complete and submit a FERMCO Work Permit to the Radiological Control RWP Group *(within the Radiological Assessment section)*.

E. When an RWP is not required for the proposed work scope, submit the completed Work Permit to OS&H for review and approval.

F. Obtain approved Field Copy of the work permit from OS&H or Radiological Control RWP Group as appropriate.

G. Post the associated permits at the job site.

H. Terminate the Work Permit upon completion of work or when justified (i.e., change in work scope, safety concerns, or violations), by signature, at the bottom of the Work Permit form.

I. Return all terminated Field Copies of Work Permit to the Radiological Control RWP group for permanent record storage.

2.10 FEMP Personnel

A. Read permits and follow any requirements listed or checked.

B. Sign permits, as required, if there are no questions about the permits.

WORK PERMITS

C. Contact the department issuing the permit if there are questions regarding the information in the permit.

D. **Immediately** report to Management/Supervision unplanned or unwanted events that occur while performing work under the guidelines of permit(s).

3.0 Attachments

Attachment A: FERMCO Work Permit
Attachment B: FERMCO Work Permit PPE Requirements
Attachment C: FERMCO Notice of PPE Modification

4.0 References

RM-0020
SPR 2-9

WORK PERMITS

Attachment A
Page 1 of 1
FERMCO Work Permit

WORK PERMIT NUMBER:

RWP:

FERMCO
WORK PERMIT

SECTION A - BACKGROUND INFORMATION *(Completed by Requestor)*

MAINTENANCE CMMS#:	JOB START DATE:	ESTIMATED COMPLETION DATE:
CONSTRUCTION WORK ORDER NUMBER:	COMPANY:	EXACT LOCATION:

EXACT DESCRIPTION OF WORK:

REQUESTOR:	BADGE NUMBER:	PHONE/RADIO NUMBER:

SECTION B - TYPES OF PERMITS REQUIRED ○ *Completed by Requestor* ☐ *Verified by ES&H*

○☐ OUTAGE	○☐ OPEN FLAME/WELDED (posted)	○☐ CHEM/HAZ MATERIAL (posted)
○☐ CONFINED SPACE (posted)	○☐ ASBESTOS (posted)	○☐ RADIOLOGICAL (posted)
○☐ PENETRATION	○☐ HAZARDOUS WORK (posted)	☐ CSA/NSOA

SECTION C - GENERAL PRECAUTIONS *(Completed by Supervisor-In-Charge)*

PRELIMINARY	REQ'D.	DNA	AREA ISOLATED	REQ'D.	DNA
1. Working with or in the vicinity of enriched restricted materials? ☐ YES ☐ NO			20. Area barricades	☐	☐
2. Check for Utilities	☐	☐	21. Signs (PPE)	☐	☐
3. Health & Safety Plan	☐	☐	22. Signs (Warning)	☐	☐
4. Work Plan	☐	☐	23.	☐	☐
5. Working surface safe for load (espec. roof wt.)	☐	☐	24.	☐	☐
ENERGY CONTROL (Lock & Tag)			OTHER CONTROLS		
6. Electrical	☐	☐	25. Exhaust Ventilation	☐	☐
7. Chemical	☐	☐	26. Supplied Air Ventilation	☐	☐
8. Mechanical	☐	☐	27. GFCI	☐	☐
9. Other (Steam, etc.)	☐	☐	28. Screen/Shield	☐	☐
10. Specific Equipment Plan Required	☐	☐	29. Non-Sparking Tool	☐	☐
11.	☐	☐	30. Intrinsically Safe Equipment	☐	☐
ACCIDENT PREVENTION			31.	☐	☐
12. Fire Extinguisher	☐	☐	EGRESS/FALL PROTECTION		
13. Safety Shower Operable & Less Than 100 ft.	☐	☐	32. Ladder	☐	☐
14. Eye Wash Operable & Less Than 100 ft.	☐	☐	33. Scaffolds/Railings	☐	☐
15. Protective Clothing Available	☐	☐	34. High Lift Platform	☐	☐
16. Communications	☐	☐	35. Safety Harness	☐	☐
17. Magnetic Survey for Buried Utilities/Objects	☐	☐	36. Safety Line	☐	☐
18.	☐	☐	37. Tripod/Retrieval System	☐	☐
19.	☐	☐			

SUPERVISOR-IN-CHARGE:	BADGE NUMBER:	DATE:

NO.	DISTRIBUTION OF COPIES
1	Original - Document Control Files
2	Field Use Copies as Needed

IN CASE OF EMERGENCY: CALL "CONTROL" BY RADIO PHONE 6511, OR USE NEAREST FIRE ALARM BOX

PERMIT TERMINATION (WORK COMPLETED/JOB CONDITIONS HAVE CHANGED)

SUPERVISOR-IN-CHARGE SIGNATURE:	DATE:

*** Facility Owner must be notified prior to initiating work under this Work Permit.**

FS-F-2939 (REV. 02/28/95)

WORK PERMITS

Attachment B
Page 1 of 1
FERMCO Work Permit PPE Requirements

FERMCO WORK PERMIT PPE REQUIREMENTS	WORK PERMIT NUMBER	Page: 2 of ____

HEAD PROTECTION ☐ None	☐ Surgeon's Cap ☐ Anti-C Hood ☐ Goggles	☐ Face Shield ☐ Welding Goggles ☐ Hard Hat	☐ Safety Glasses ☐ Other ____ ☐ Other
GLOVES (Inner) ☐ None	☐ Cotton ☐ Nitrile ☐ Vinyl Liner	☐ Leather Palm ☐ Viton ☐ Rubber	☐ Neoprene ☐ Other ____ ☐ Other
GLOVES (Outer) ☐ None	☐ Cotton ☐ Nitrile ☐ Vinyl Liner	☐ Leather Palm ☐ Viton ☐ Rubber	☐ Neoprene ☐ Other ____ ☐ Other
PROTECTIVE CLOTHING ☐ Double set PPE* ☐ None * Requires ALI Concurrence	☐ Production Coveralls ☐ Smock ☐ Paper Coveralls ☐ Tyvek Coveralls ☐ Cloth Coveralls	☐ Water Resistant Coveralls ☐ Taped Openings ☐ Acid Splash Suit ☐ Fire Retardant ☐ Rubber Shoecovers ☐ Chemical Resistant Coveralls	☐ Disposable Shoecovers ☐ Safety Shoes ☐ Other ____ ☐ Other ____ ☐ Other ____
RESPIRATOR ☐ None	☐ Half Mask APR ☐ Full Face APR ☐ Powered APR ☐ Continuous Flow Airline	☐ Belt Mounted Half Mask APR ☐ Air Line Half Mask ☐ Air Line w /Escape ☐ Pressure Demand Airline	☐ Air Line w /Dual Flow ☐ Hooded Airline ☐ SCBA ☐ Other
CARTRIDGE ☐ None	☐ HEPA ☐ HF/HEPA Canister ☐ Ammonia	☐ Organic/Acid/HEPA Comb. ☐ Organic Vapor ☐ Acid Gas	☐ Mercury ☐ Ammonia/HEPA ☐ Other
OTHER ☐ None	☐ Ear Plugs ☐ Ear Muffs	☐ Cool Vest ☐ Other ____	☐ Other ____ ☐ Other ____

Special Instructions:	RESPONSIBLE DEPARTMENT	
	Item No.	(IH, RC, and/or F&S)

NO.	DISTRIBUTION OF COPIES
1.	Original - Document Control Files
2.	Field Use Copies as Needed

RADIOLOGICAL CONTROL SIGNATURE:	DATE:
OS&H SIGNATURE:	DATE:

FS-F-2939-1 (02/28/95)

WORK PERMITS

Attachment C
Page 1 of 2
Notice of PPE Modification

(1) RWP #:	NOTICE OF PPE MODIFICATION	(2) WP #:
CAUTION: A DOWNGRADE OF RWP REQUIREMENTS REQUIRES A FORMAL REVISION		
(3) INITIATOR:		
(4) DATE:	(5) TIME:	(6) LOCATION:
(7a) REASON FOR MODIFICATION: _____		
(7b) DESCRIPTION OF MODIFICATION: _____		
(7c) NEW PPE SHEET COMPLETED?		
(8) NEW PPE SHEET VERIFIED TO MEET RWP AND IH REQUIREMENTS? ☐ YES ☐ NO		
FIRE AND SAFETY TECHNICIAN *(if applicable)*:	RA LEAD TECHNICIAN *(if applicable)*:	
FERMCO SAFETY *(if applicable)*:	IH TECHNICIAN *(if applicable)*:	
(9) WORK SUPERVISOR CONCURRENCE:	DATE:	
(10) WORKERS* BRIEFED REGARDING NEW PPE RQMTS? ——— BY:		
*SEE RWP AUTHORIZATION SHEET FOR COMPLETE LIST OF WORKERS		
(11a) RWP SUPERVISOR CONCURRENCE:		
(11b) RAD ENGINEER CONCURRENCE:		
(11c) RAD COMPLIANCE CONCURRENCE:		

NO.	DISTRIBUTION OF COPIES	
1	White	RC RWP GROUP
2	Blue	POST WITH WORK PERMIT

FS-F-4093 (01/25/95)

WORK PERMITS

Attachment C
Page 2 of 2
Notice of PPE Modification

INSTRUCTIONS FOR PPE MODIFICATION
INSTRUCTIONS
1. INITIATOR COMPLETE BLOCKS 1 THROUGH 7.
2. INITIATOR FILLS OUT NEW PPE REQUIREMENTS FORM.
3. RESPONSIBLE S&H TECHNICIANS SIGN BLOCK 8.
4. OBTAIN COGNIZANT SUPERVISOR SIGNATURE IN BLOCK 9.
5. BRIEFING IS REQUIRED FOR ALL WORKERS WHO SUBSEQUENTLY PERFORM WORK UNDER WORK PERMIT. COMPLETE BLOCK 10.
6. OBTAIN SIGNATURE CONCURRENCE IN BLOCK 11 FROM RADIOLOGICAL CONTROL SECTIONS INDICATED ON THE RWP (e.g. RAD. ENGINEERING, RAD, ASSESSMENT, RAD. COMPLIANCE).
7. ATTACH THE OBSOLETE PPE PAGE TO THIS FORM AND RETURN TO RADIOLOGICAL CONTROL RWP GROUP.

FS-F-4089 REVERSE (01/28/95)

PERMIT-REQUIRED CONFINED SPACE PROGRAM

1.0 GENERAL

A. The site uses permits to safeguard working personnel. A permit is required because it formalizes job safety planning both by the supervisor and by safety and/or hygiene personnel. It also serves to advise working personnel of health and safety requirements for the job. Finally, it informs Occupational Safety and Health (OS&H) personnel about the start of a job so they can determine whether job requirements have changed from those anticipated.

B. This procedure outlines the minimum safety requirements for work inside a permit-required confined space (permit space). This program also lists requirements for protecting individuals in a permit space from hazards such as hazardous atmospheres, hazardous materials, moving parts, and blocked escape routes.

C. To qualify as a confined space, a space must meet all of the following requirements: large enough and so configured that a worker may bodily enter and perform work; has limited or restricted means for entry and exit; and not designed for continuous occupancy by personnel.

D. There are many types of confined spaces found at the FEMP site. Confined spaces include but are not limited to storage tanks, process vessels, pits or permanent structures (e.g., silos, vats, degreasers, reaction vessels, furnaces, boilers, ventilation and exhaust ducts, manholes, sewers, tunnels, underground utility vaults and pipelines).

E. A confined space shall be classified as a permit space if it has one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere, contains a material that has the potential for engulfing an entrant, has an internal configuration such that an entrant could be trapped or asphyxiated, or contains any other recognized serious safety or health hazard.

F. All confined spaces at the FEMP shall be identified as permit spaces and labels affixed to the exterior of the space. This labeling provides instruction that a Confined Space Entry Permit is required to be issued before entry into the permit space may be authorized.

G. A permit space may be re-classified as a non-permit confined space if it does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. A permit-space may be re-classified as a non-permit space by OS&H through completion of a Confined Space Evaluation.

H. Prior to any entry into a confined space, a Confined Space Evaluation must be performed by OS&H.

I. Based on the Confined Space Evaluation, if no hazards are present inside the space and no hazard will be created by the work to be performed inside the space, the permit space may be re-classified by OS&H a non-permit confined space.

J. OS&H may authorize extended work inside a non-permit space when the potential for hazards do not exist.

K. The goal of the FERMCO permit space program is that prior to any entry into a permit space, every effort should be made to remove any hazard which may be present inside a space as well as any potential hazards so that the space can be re-classified as a non-permit confined space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

L. Anytime a permit space must be entered and all hazards cannot be removed, a Confined Space Entry Permit shall be issued by OS&H prior to any personnel entering the permit space.

M. The FERMCO Permit-Required Confined Space Program shall be reviewed on an annual basis and revised as necessary. Anytime deficiencies are found in the program which may subject personnel to permit space hazards, those deficiencies shall be corrected immediately and the program revised accordingly.

2.0 RESPONSIBILITIES

2.1 Facility Owner

A. Signs the FERMCO Work Permit authorizing the Supervisor-In-Charge to perform the work task in their facility.

B. Ensures that the work site is provided in a safe a condition.

2.2 Supervisor-In-Charge (Entry Supervisor)

A. Identifies the need and initiates the work permit based on the work to be performed.

B. Ensures completion of the work permit by checking that the appropriate entries have been made on the permit, that all tests have been conducted and that all procedures and equipment specified by the permit are in place before signing the permit and allowing entry to begin.

C. Ensures that personnel are trained and adhere to all permit requirements.

D. Immediately reports any unwanted, unplanned event to the Assistant Emergency Duty Officer (AEDO), Emergency Response Team (ERT) and/or the Facility Owner as appropriate.

E. Ensures that OS&H personnel are notified of any changes in work site conditions since permit issuance.

F. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and the consequences of exposure to the hazards.

G. Terminates the entry and cancels the permit when the entry operations have been completed or when a condition that is not allowed under the entry permit arises in or near the permit space.

H. Verifies that the means to summon rescue services are available and operable.

I. Ensures the removal of unauthorized individuals who enter or may enter the permit space during entry operations.

J. Ensure that entry operations remain consistent with the terms of the entry permit whenever responsibility for a permit space entry is transferred and at intervals dictated by the hazards and operations performed within the space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

2.3 Authorized Permit Space Entrant

A. Adheres to all requirements listed on the work permit.

B. Ensures that they have signed section D of the permit stating that they understand all permit requirements.

C. Knows the hazards that may be faced during permit space entry, including information on the mode, signs or symptoms, and consequences of exposure to the hazards.

D. Ensures proper use of equipment required for the permit space entry.

E. Communicates with the standby person as necessary to enable the standby to monitor the status of entrants and to enable the standby to alert entrants of the need to evacuate the space when required.

F. Alerts the standby whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or when the entrant detects a prohibited condition.

G. Exits the permit space as quickly as possible whenever; an order to evacuate is given by the standby or the entry supervisor, the entrant recognizes any warning sign or symptom of exposure to a hazardous condition, the entrant recognizes a prohibited condition, or an evacuation alarm is activated.

2.4 Standby Person

A. Adheres to all requirements listed on the permit.

B. Ensures that they have signed section D of the permit stating that they understand all permit requirements.

C. Notifies personnel in the vicinity, the permit space entrant(s), the entry supervisor, or the Communication Center when the supervisor is not present, when they recognize an emergency or prohibited condition.

D. Knows the hazards that may be faced during permit space entry, including information on the mode, signs or symptoms, and consequences of exposure to the hazard.

E. Ensures awareness of possible behavioral effects of hazard exposure in authorized entrants.

F. Continuously maintains a count of authorized entrants in the permit space and ensures that the names of authorized entrants in the permit space are listed on the entry permit.

G. Remains outside the permit space during entry operations until relieved by another standby person.

H. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space when necessary.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

I. Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the entrants to evacuate the permit space immediately if a prohibited condition is detected, if the behavioral effects of hazard exposure are detected in entrants, if a situation is detected outside the space that could endanger the entrants, or if the standby cannot effectively and safely perform all their assigned duties.

J. Summons rescue and other emergency services as soon as the standby determines that the entrants may need assistance to escape from permit space hazards.

K. Ensures the following actions are taken when unauthorized persons approach or enter a permit space while entry is underway; warn the unauthorized persons that they must stay away from the permit space, advise the unauthorized persons that they must exit immediately if they have entered the permit space, and inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

L. Performs non-entry rescue of entrants when required.

M. Performs no duties that might interfere with the standby's primary duty to monitor and protect the authorized entrants.

2.5 OS&H Representative

A. Reviews the FERMCO Work Permit (see SPR 2-13) to ensure that it is complete.

B. Inspects the work site for compliance with the conditions listed on the Work Permit.

C. Performs atmospheric testing as required to ensure the proper level of protective equipment is specified on the permit.

D. Evaluates the confined space and completes the Confined Space Evaluation/Permit (Attachment A) to classify the confined space as a permit-required confined space or a non-permit confined space.

E. Completes the Confined Space Entry Permit when required.

3.0 REQUIREMENTS

3.1 Permit Requirements

A. Entry into a confined space occurs when any part of an individual's body breaks the plane of any opening of a confined space.

B. When a "FERMCO Confined Space Evaluation/Permit" is required, a "FERMCO Work Permit" is also necessary (see SPR 2-13).

C. Prior to workers entering a confined space, the supervisor-in-charge must complete and sign a FERMCO Work Permit authorizing entry into the confined space and outlining specific requirements. The Work Permit is valid only for the job, location, and time period specified. The permit must be approved by the supervisor, Facility Owner, and OS&H organization.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

D. After completion of the Work Permit, the confined space shall be evaluated by OS&H to determine whether the space is a permit-required confined space or a non-permit space for the work to be performed. The OS&H representative will complete a Confined Space Evaluation classifying the space as a permit space or a non-permit space.

E. When the confined space is classified as a non-permit space, sections 3.2, 3.3, 3.7, and 3.9 through 3.16 of this procedure apply.

F. When the confined space is classified as a permit space, all sections of this procedure apply.

G. All persons entering the permit space, standby personnel, and backup personnel must review and sign the Confined Space Permit. All personnel signing the permit shall be qualified to enter the permit space.

H. The Confined Space Permit must be posted near the entry point of the permit space.

I. If conditions change significantly from those listed on the permit, the entrants shall exit the space, and the permit is no longer valid. The permit shall be terminated and a new permit is required.

J. If any unplanned or unwanted event occurs while performing work under the guidelines of the permit, it must be reported immediately to the Supervisor-in-Charge.

K. When working in a non-permit space, if the conditions change significantly or an unplanned/unwanted event occurs, OS&H shall be contacted to re-evaluate the space to determine if it should be re-classified as a permit space.

L. The OS&H representative, has the "Stop Work Authority" (terminate the work permit for the job).

M. When Confined Space Permit work has been completed, the space shall be closed and OS&H contacted to terminate the permit.

N. Terminated permits shall be returned to OS&H for review and maintained in OS&H files.

3.2 Initiation of FERMCO Confined Space Evaluation/Permit

A. SUPERVISOR-IN-CHARGE

Contact OS&H for an OS&H representative to perform the initial evaluation.

B. OS&H REPRESENTATIVE

- Check the completeness of the "FERMCO Work Permit" which is posted at the job site.
- Check other permits which must be posted, and verifies that their expiration date has not passed.
- Complete the required atmospheric tests.
- Complete the Work Permit PPE Requirements page specifying the proper personal protective equipment required for the work to be performed and sign in the appropriate block.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

- Complete the applicable portions of Sections "A" and "B" of the Confined Space Evaluation/Permit, and signs in the appropriate block(s).

C. SUPERVISOR-IN-CHARGE

- Ensure that all employees on the job have read and understand the required precautions and required PPE.
- Ensure that all employees on the job have signed the permit in block "D".
- Note permit expiration date(s)/time(s).
- Sign the permit.
- Post the original at the job site, and distributes the copies as indicated on the form.

3.3 Renewal of FERMCO Confined Space Evaluation/Permit

A. SUPERVISOR-IN-CHARGE

Contact an OS&H representative to perform a re-evaluation of the permit space.

B. OS&H REPRESENTATIVE

- Check the completeness of the "FERMCO Work Permit" which is posted at the job site.
- Check other permits which must be posted, and verifies that their expiration date has not passed.
- Complete the required atmospheric tests.
- Check the PPE Requirements page verifying that the specified personal protective equipment (PPE) is proper for the work to be performed. If necessary, PPE requirements should be modified as appropriate. If the PPE requirements change, the OS&H representative will issue a new PPE Requirements page to document the change.
- Complete the applicable portions of Sections "A" and "B" of the Confined Space Evaluation/Permit, and signs in the appropriate blocks.

C. SUPERVISOR-IN-CHARGE

- Ensure that any new employees on the job have read and understand the required precautions and required PPE.

  Note: If the required precautions or PPE have changed, all employees on the job are considered to be new employees.

- Ensure that all new employees on the job have signed the permit in block "D".
- Note permit expiration date(s)/time(s).

PERMIT-REQUIRED CONFINED SPACE PROGRAM

- Sign the permit.
- Post the original and distributes the copies as indicated on the form.

Note: Both an unexpired permit and the signature of each employee on the job must be posted at the job site. This will usually require that more than one "FERMCO Confined Space Evaluation/Permit" must be posted. The supervisor may prefer to have all employees sign the permit each time it is issued.

3.4 Rescue Plan

A rescue plan must be developed and reviewed by the entry supervisor with all personnel entering a permit space and all standby personnel. The rescue plan must include the following:

A. Who and how to call for assistance in case of emergency (phone 6511, radio Control, or pull nearest fire alarm pullbox).

B. How persons are to be removed from the permit space in case of emergency.

3.5 Rescue Procedures

A. If a person inside a permit space is unconscious, it shall be assumed that there is a hazardous atmosphere present in the space. The standby person should not enter the confined space, but should try to remove the person by non-entry rescue using the safety harness and retrieval system.

B. For emergency situations on the FEMP site, the Communication Center shall be notified by radio, telephone (extension 6511), or by pulling the lever of the nearest fire alarm pullbox. The Communication Center shall be told that the Emergency Response Team (ERT) is needed because a person is down and/or injured inside a confined space. The ERT officer shall evaluate the situation and determine the rescue method to be used.

C. When rescuing an unconscious victim, self-contained breathing apparatus (SCBA) shall be worn by every individual conducting the rescue inside the confined space, and shall be available for each backup individual. A safety harness and lifeline shall be worn by any rescue personnel entering the confined space, unless the harness and lifeline would not assist in the rescue procedure.

D. Any rescue situation involving the use of SCBA shall include a backup person outside the confined space at all times to: monitor the rescue efforts; maintain unobstructed lifelines; and communicate with all personnel inside the space.

E. The designated standby person shall not enter the permit space for rescue purposes unless told to do so by the Emergency Response Team officer. The standby person shall not make even an ordered entry into the confined space unless wearing the proper personal protective equipment.

F. Under no circumstance shall the standby person enter the permit space until a backup standby person is at the entrance of the permit space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

G. When developing a rescue plan for permit space work off the FEMP site, special arrangements need to be made. Offsite emergency response personnel may need to be notified of the permit space work. Mutual aid response arrangements may need to be made to deal with permit space rescue situations.

H. Consult the Fire Protection and Emergency Response organization for additional information on rescue procedures.

3.6 Training

A. All personnel entering a permit space, standby personnel, and backup standby personnel shall be provided training so they acquire the understanding, knowledge, and skills necessary for the safe conduct of permit space work.

B. This training shall include instruction on the nature of permit space hazards; the mode, signs or symptoms, and consequences of exposure to hazardous conditions; the precautions to be taken to avoid incidents; and the use of emergency and personal protective equipment required to work inside a permit space.

C. Training shall be provided before an employee is first assigned duties for a permit space entry.

D. Additional training shall be provided whenever there is a change in permit space operations which presents a hazard which the employees entering the permit space have not previously been trained or whenever a deviation from permit space entry procedures indicate that a worker's knowledge or use of permit space procedures are inadequate.

3.7 Evaluating the Confined Space Hazards

A. Prior to personnel entering a confined space, the space shall be evaluated by OS&H to determine whether any hazards may be present inside the space.

B. The hazards or potential hazards which may be present inside a permit space are: the space may contain or have the potential to contain a hazardous atmosphere, contain a material that has the potential for engulfing an entrant, has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section, or contains any other recognized serious safety or health hazard.

C. The confined space shall be evaluated with respect to its previous contents to ensure that the necessary ventilation, protective clothing, respiratory equipment, and fire prevention precautions are specified and provided.

3.8 Alternate Permit Space Entry Procedure

A. When a permit space has been evaluated, and the only hazard identified within the space is the potential for the development of a hazardous atmosphere, the following alternate procedures may be used to reduce the requirements for the permit space entry: the atmosphere within the permit space shall be controlled through the use of forced air ventilation from a clean air supply and the atmosphere within the space shall be continuously monitored to ensure the atmosphere within the space remains safe for entry.

B. When this alternate procedure is used to work in a permit space, a Confined Space Entry Permit shall be issued and all personnel performing the permit space work shall have completed training as required by section 3.6. Other sections of this SPR may apply when required by the supervisor-in-charge and/or the OS&H representative authorizing the permit space entry.

3.9 Testing the Atmosphere

A. The atmosphere in the confined space must be tested by OS&H prior to personnel entering the space, and special care must be taken to ensure that all accessible areas of the confined space are sampled. OS&H must determine the type and frequency of sampling which is required during the entry. Atmospheric testing may also be required in the area outside the space.

B. The atmosphere must meet the following conditions for entry;

- Oxygen - 19.5 percent minimum, 23.5 percent maximum
- Flammable gases - less than 10 percent of the lower explosive limit (LEL)
- Toxic gases - less than one-half OSHA permissible exposure limit or the ACGIH threshold limit value (whichever is more stringent)
- Radioactivity - not to exceed limits established by Radiation Control

C. If the above atmospheric conditions are not attainable, ensure that a special job plan is written. The job plan must be approved by the OS&H organization.

D. Continuous atmospheric testing for oxygen and flammable gases shall be performed while personnel are working inside permit spaces. Continuous and/or periodic atmospheric testing shall be conducted for other contaminants when necessary.

E. If work inside the permit space could generate flammable vapors or produce an oxygen-deficient or hazardous atmosphere, the space shall be provided with continuous forced ventilation and the atmosphere shall be tested continuously with an instrument capable of producing an audible alarm while work is being performed inside the permit space.

F. Smoking is not allowed in a confined space or in areas immediately adjacent to entrances of confined spaces.

G. No internal combustion pumps, generators, or blowers shall be used in any confined space. Observe caution when locating this equipment near the openings of confined spaces due to the possibility of carbon monoxide entering the space.

H. Consult the OS&H organization for additional information on toxic or explosive vapors.

3.10 Lock and Tag

A. Follow the steps outlined in SPR 2-24 for lockout and tagout of process systems before entry into a confined space.

B. Take confined space drive or agitator out of service by uncoupling the drive, removing belts, or disconnecting the motor leads.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

3.11 Low-Voltage Lighting and Electrical Equipment

A. Low-voltage (12 volt) lighting is preferred for use inside a confined space. All other lighting sources must be protected by an approved ground fault circuit interrupter (GFCI). All electrical tools used inside a confined space must be protected by an approved GFCI.

B. Lighting and tools should be on separate circuits. The GFCI, transformer, and disconnects must be located outside the confined space. For more information on using GFCI devices, see SPR 2-23, Ground Fault Circuit Interrupters.

C. Adequate lighting shall be provided for the work to be performed in the confined space and shall meet the illumination requirements of 29 CFR 1910.120.

D. All flashlights and/or lamps shall be approved for use in the atmosphere within the confined space.

E. All electrical equipment shall be in good condition, grounded, protected against physical abuse, and approved for the atmosphere in which it is to be used.

F. All potential for ignition in confined spaces shall be removed.

3.12 Grounding Cable

If the confined space is equipped with a grounding cable, it must be Megger tested to confirm the existence of a firm mechanical joint.

3.13 Process Isolation

All pipe lines to the confined space must be physically disconnected or blanked before entry in accordance with SPR 2-24.

3.14 Cleaning Procedures

A. No confined space shall be entered which contains an IDLH atmosphere.

B. All noxious, toxic and/or flammable material, gases and vapors shall be eliminated as much as possible from tanks and other confined spaces by such methods as washing, inerting, neutralizing, purging or ventilating.

C. Continuous forced ventilation from a clean air source shall be provided in such a manner to maintain the confined space safe for entry.

3.15 Barriers/Barricades

A. When personnel working inside a confined space may be exposed to hazards from vehicle or pedestrian traffic, barricades shall be established around the opening of the space.

B. Where appropriate, barricades shall be established around the entry of a confined space to prevent unauthorized entry into the space.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

C. All barricades and barricade tags shall be used in accordance with SPR 2-15.

3.16 Ladders

When ladders are required for entry into confined spaces, they shall be secured and shall not be removed while persons are inside the confined space except in response to an emergency.

3.17 Safety Harness

All persons entering a permit space must wear a safety harness and lifeline. Where the entrance is too restricted to allow removal of a person equipped with safety harness, use a shoulder-type safety harness or a wrist harness.

3.18 Lifelines and Retrieval Systems

A. All persons entering a permit space must wear a safety harness and lifeline. Due to the configuration of a permit space or the large number of people involved, it may not be practical to keep lifelines attached. In such cases, the safety harness must be worn, and the lifeline must be kept ready at the permit space entry point in case of emergency.

B. To allow for non-entry rescue, retrieval systems or methods shall be used whenever personnel enter a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

C. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

3.19 Personal Safety and Escape Equipment

Personnel who work inside a permit space, including all standby personnel, must be aware of personal safety, escape procedures, and equipment.

3.20 Respirators

A. Respiratory protection shall be determined based on atmospheric testing performed as part of the confined space evaluation. The need for 5-minute escape air packs should be considered for personnel entering the permit space. A SCBA or air-supplied respirator equipped with escape provisions must be available in case rescue assistance is needed.

B. Only those persons trained to use SCBAs shall use them for permit space entry or rescue.

3.21 Standby Person

A. A minimum of one standby person must be at the entry point to the permit space. The standby person's primary responsibility is to be attentive to the personnel inside the permit space. The standby person shall make every effort to constantly observe workers who are in the permit space. There shall be constant communication between persons working in the permit space and the standby person. Two-way radios may be required for communication during some entry operations.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

B. A standby person shall not be assigned to observe work being conducted in more than one permit space at a time. If work must be performed simultaneously in multiple permit spaces, one standby person must be assigned to cover each separate entry.

C. The standby person shall know the location of the nearest telephone, fire alarm pullbox, safety shower, fire extinguisher, and evacuation exit; the practices or procedures to shut down all equipment on the job; be observant to determine any malfunction of the respiratory equipment in use by personnel inside the permit space; and the way to contact the ERT in an emergency.

D. The standby person should be observant of activities outside the permit space. Unauthorized personnel should not be allowed around the permit space during authorized entry. Unplanned activities outside the permit space may require evacuation of the permit space. The permit space shall immediately be evacuated if any building alarm (e.g., evacuation, fire) is activated.

3.22 Backup Standby Person

In case of an emergency during a permit space entry and the ERT would not be immediately available, one or more backup standby person(s) must be available to assist the standby person to perform a non-entry rescue of entrants inside the permit space.

3.23 Protective Clothing and Equipment

If entry is required to clean the permit space, the appropriate protective clothing and equipment shall be provided to the workers performing the entry.

3.24 Breathable Atmosphere

A. A breathable atmosphere should be maintained inside a permit space through use of either natural draft or forced fresh air ventilation. Compressed air must not be blown into a permit space.

B. Air-supplied respiratory equipment with escape provisions is required when entering a permit space where there is the potential for an oxygen deficiency (less than 19.5 percent).

3.25 Welding and Burning

A. Personnel involved in welding or burning inside a confined space must consider personal safety, equipment requirements, and potentially hazardous conditions. An Open Flame/Welding Permit is required for all welding and burning operations (see SPR 2-57).

B. Welding or burning operations inside a confined space will result in the space being classified as a permit space.

C. When burning inside a confined space, locate all cylinders outside the space. Check hose connections for leakage prior to entry. When welding inside a confined space, locate welding machines outside the space. Remove all hoses from the confined space at the end of the work shift unless multishift work is in progress.

D. Where welding/cutting operations are indefinitely suspended, all gas and/or electrical supply to equipment used in the confined space shall be shut off, and all torches, leads and hoses shall be removed from the area.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

E. No welding equipment except hoses, stingers, torches and lead cable shall be taken into the confined space.

F. All welding and burning equipment taken into a confined space shall have shutoffs the standby person can control to quickly secure the gas and/or electric supply.

3.26 Shell Material

Consider the possibility of flammable, explosive, or toxic materials being absorbed into the shell material of the confined space prior to burning or welding.

3.27 Stripping Toxic Coatings

Strip all surfaces covered with toxic coatings at least 6 inches from the area of heat application. If toxic coatings are not stripped, protect employees with positive pressure air-supplied respirators, ventilation, and, if applicable, protective clothing.

3.28 Fume Releases

The Confined Space Permit is automatically cancelled in the event of any plant emergency alarm or area fire alarm (except a test alarm). Personnel inside the permit space must exit the space and follow emergency procedures. When the "all clear" has sounded, the Confined Space Permit can be reinstated after atmospheric tests are retaken and the results are noted on the permit.

3.29 Non-FERMCO Personnel Working in Permit Spaces

A. Non-FERMCO personnel who may enter a permit space controlled by FERMCO shall be required to follow all the requirements of this SPR.

B. FERMCO shall inform non-FERMCO personnel that permit spaces are located in their work area and that permit space entry is only allowed through compliance with this SPR.

C. FERMCO shall inform non-FERMCO personnel of any hazards identified in a permit space that they may be required to enter.

D. FERMCO shall inform non-FERMCO personnel of any precautions or procedures which FERMCO has implemented for the protection of workers in or near the permit space.

E. FERMCO shall coordinate entry operations when both FERMCO and non-FERMCO personnel will be working in or near permit spaces so that workers of each company do not endanger each other during permit space entry activities.

F. FERMCO will debrief non-FERMCO personnel at the conclusion of entry operations regarding any hazards confronted or created in permit spaces during entry operations.

4.0 ATTACHMENTS

Attachment A: FERMCO Confined Space Evaluation/Permit and Chemical Hazardous Materials Work Permit

PERMIT-REQUIRED CONFINED SPACE PROGRAM

ATTACHMENT A
Page 1 of 1

FERMCO Confined Space Evaluation/Permit and Chemical Hazardous Materials Work Permit

FERMCO
CONFINED SPACE EVALUATION/PERMIT AND CHEMICAL HAZARDOUS MATERIALS WORK PERMIT

WORK PERMIT NUMBER:

SECTION A - BACKGROUND INFORMATION *(This permit is only valid when attached to a FERMCO WORK PERMIT)*

TODAY'S DATE	TIME:	ESTIMATED COMPLETION DATE:	
BUILDING/PLANT:	LEVEL:	COORDINATES:	PLANT JOB NUMBER:

SECTION B - CONFINED SPACE EVALUATION

HAZARDS OF SPACE
- ☐ HAZARDOUS ATMOSPHERE
- ☐ MECHANICAL/MOVING PARTS
- ☐ SPACE CONFIGURATION/ENTRAPMENT
- ☐ ELECTRICAL
- ☐ ENGULFMENT
- ☐ OTHER: _____

ATMOSPHERIC TEST RESULTS

GAS	ACCEPTABLE ENTRY CONDITIONS	INITIAL CONCENTRATION	PEAK CONCENTRATION	TWA
Oxygen %	19.5 to 23.5			
L.E.L. %	<10%			
CO (ppm)	<25			
H_2S (ppm)	<10			
ALT	<5			

INSTRUMENT ID NUMBER | FIELD CALIBRATION DATE

SPACE HAS BEEN EVALUATED AND
☐ IS ☐ IS NOT A PERMIT-REQUIRED CONFINED SPACE FOR THIS WORK.

IH SIGNATURE: | BADGE NO.:

Contact Industrial Hygiene if there is any change in work activity.

CONFINED SPACE ENTRY PERMIT

Entry/Exit Points Evaluated	☐ Yes		
Monitoring Required	☐ Continuous	☐ Periodic	
Standby to Worker Communication	☐ Voice ☐ Other:	☐ Sight	☐ Radio
Standby to ERT Communication	☐ Radio	☐ Phone	☐ Fire Alarm

PRECAUTIONS	REQ'D.	DNA
Mechanical Ventilation	☐	☐
Additional Lighting	☐	☐
Explosion-Proof Lights	☐	☐
Safety Line & Harness	☐	☐
Retrieval Equipment	☐	☐

SPECIAL INSTRUCTIONS:

IH SIGNATURE: | BADGE NUMBER:

PERMIT ISSUE DATE: | TIME: | PERMIT EXPIRATION DATE: | TIME:

Permit void if conditions change from original issuance conditions.
Call IH to pick up equipment and close permit when finished

PERMIT TERMINATION *(Work Completed/Job Conditions Have Changed)*

IH SIGNATURE: | DATE:

DISTRIBUTION OF COPIES

1 Post at Job	3 Industrial Hygiene/Industrial Safety
2 Supervisor in Charge	4 Employee Representative

F5-F-0746 (REV. 3/12/93)

SECTION C - CHEMICAL/HAZARDOUS MATERIAL PERMIT

NAME OF MATERIAL:	HAZARDOUS COMPONENT:
NAME OF MATERIAL:	HAZARDOUS COMPONENT:
NAME OF MATERIAL:	HAZARDOUS COMPONENT:

1. TYPE OF HAZARD	☐ Chemical	☐ Biological	☐ Physical
2. PHYSICAL STATE	☐ Solid/Dust	☐ Liquid/Mist	☐ Gas/Vapor
3. TYPE OF OPERATION	☐ Sampling	☐ Clean Up	☐ Repair
	☐ Inspection	☐ Other_____	
4. MSDS REVIEWED	☐ Yes	☐ DNA	
	☐ Not Available (Hazards Reviewed)		
5. POTENTIAL HAZARDS	☐ Skin	☐ Inhalation/Ingestion	
	☐ Eye	☐ Oxygen Deficiency	
	☐ Explosive (contact FS if >2%)		
6. MONITORING REQUIRED	☐ BZ	☐ GA	☐ Perimeter
	☐ Clearance	☐ None	
	☐ Other _____		
7. WORKER-TO-RESCUE COMMUNICATION	☐ Radio	☐ Phone (6511)	☐ Pull Box
8. HYGIENE REQUIREMENTS	☐ Wash Hands at Breaks		
	☐ Shower at Lunch/End of Shift		
	☐ Other _____		

SPECIAL INSTRUCTIONS:

IH SIGNATURE: | BADGE NUMBER:

PERMIT ISSUE DATE: | TIME: | PERMIT EXPIRATION DATE: | TIME:

Permit Void If Conditions Change Significantly During The Job

SECTION D - SIGNATURES *(Employees assigned to job)*

I have read and understand all requirements of this permit.

EMPLOYEE(S) SIGNATURE(S)	BADGE NO.	DATE
1.		
2.		
3.		
4.		
5.		
6.		

WORK AUTHORIZATION REVIEWED AND FOUND ACCEPTABLE FOR USE

SUPERVISOR IN CHARGE | DATE: | TIME:

IN CASE OF EMERGENCY CALL "CONTROL" BY RADIO PHONE 6511, OR USE NEAREST FIRE ALARM BOX.

- -6944

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CONTROL NO. FER-0018
SITE PROCEDURE EW-0018 (PP-FMPC-5010)
REVISION NO. 0

MANAGEMENT OF LOW LEVEL WASTE (LLW)

Effective Date: 12-26-90

Originator (Subject Expert): _____ Date

Checker Concurrence: _____ Date

APPROVED BY: _____ 2/15/95
Terence D. Hagen, Manager of Environmental Restoration and Waste Management — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

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RECORD OF REVISION

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
10-12-89	0	Procedure required for cleaning hazardous spills per Request No. P89-370, initiated by K. A. Lawson.
07-28-93	0	Reissued to update technical content, per Request No. P93-135, initiated by C. Glassmeyer, incorporate CIO C93-133 per Request P93-595, and reformat to conform with Procedure Program requirements.
01-27-95	0	Reissued per Request P94-0489, initiated by K. Belgrave.

-6944

1.0 PURPOSE

The purpose of this document is to establish the procedure for reporting, containing, controlling and cleaning hazardous material leaks and spills.

2.0 SCOPE

This procedure applies to hazardous materials/wastes (including but not limited to RCRA and radioactive materials/wastes) leaks and spill events which occur in Waste Operations areas.

3.0 RESPONSIBILITIES

3.1 Supervisors shall be responsible for the following:

- Upon notification of a spill, immediately reporting the incident by telephone or radio to the Assistant Emergency Duty Officer (AEDO), (See SSOP-0067, "Spill Incident Reporting and Cleanup")
- Performing an investigation and preliminary evaluation of the magnitude and nature of the incident.
- Reporting the spill incident to the Area Supervisor and Waste Operations Manager.
- Contacting Industrial Hygiene and/or Radiological Control to determine the appropriate respiratory protection and personal protective equipment (PPE).
- Contacting Industrial Hygiene and/or Radiological Control and/or Materials Control & Accountability as required to assist in the identification of the spilled substance and provide technical information.
- Contacting Nuclear Criticality if the spill involves Enriched Restricted Nuclear Material (ERNM).
- Ensuring equipment is cleaned after use.

3.0 RESPONSIBILITIES (cont.)

3.2 **Industrial Hygiene (IH)** and/or **Radiological Control** shall be responsible for the following:

- Assisting supervision in identification of the material spilled as requested.
- Determining exposure risk and appropriate personal protective equipment.
- Providing smear surveys of an area following cleanup of a PCB spill, in order to verify the area is as clean as specified by the EPA.

3.3 The **Assistant Emergency Duty Officer (AEDO)** shall be responsible for the following:

- Classifying the event.
- Providing the necessary information to the Clean Water Programs Release Evaluator (CWP/RE) or (RE) for support in the assessment and establishment for the off-site reporting requirements.
- Completing reporting requirements as specified in the Site Policy and Procedure SSOP-0067, "Spill Incident Reporting and Cleanup".

3.4 **Materials Control & Accountability (MC&A)** shall be responsible for assisting supervision in the identification of the material spilled as requested.

3.5 **Operators** shall be responsible for complying with this SOP.

3.6 **Nuclear Criticality Section** shall be responsible for the following:

- Provide support and guidance for the handling and cleanup of spills involving Enriched Restricted Nuclear Material (ERNM).

4.0 SAFETY REQUIREMENTS

- Safety glasses shall be worn in the Process Area unless other eye/face protection is required by work permits, ES&H, or posted signs.
- Personal protective equipment (PPE) and clothing specified by work permit ES&H, Radiological Control, or Supervisors shall be worn for spill cleanup

4.0 SAFETY REQUIREMENTS (cont.)

- Chemical resistant gloves applicable to the material type shall be worn when handling liquids and solids contaminated with acids or caustics.

- In the case of contact with acids or caustics, contaminated clothing shall be removed and the affected body area thoroughly flushed with water in a Safety Shower/Eye Bubbler. Injured personnel shall report to Medical Services for treatment as soon as possible.

- Leather-palm gloves shall be worn when handling drums, operating equipment, and when handling rough or sharp-edged material.

- Personnel shall have reviewed and be familiar with Material Safety Data Sheets (MSDSs) for hazardous chemical/materials that may be used or encountered.

- Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

- Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

5.0 PROCEDURE

5.1 GENERAL INSTRUCTIONS

5.1.1 Additional information, Warnings, Cautions and Notes are included, in bold print, in the Step to which they apply.

5.1.2 Any employee who detects an actual or potential hazardous spill shall be responsible for reporting the spill to the Supervisor.

5.1.3 The Supervisor shall assign personnel to the appropriate tasks during spill cleanup.

5.2 REPORTING A SPILL

5.2.1 Upon identifying a spill, immediately alert nearby workers.

5.2.2 Leave the area of the spill.

5.2.3 Notify supervision of the spill. **The Supervisor notified shall report the spill and take reporting actions as directed by SSOP-0067, "Spill Incident Reporting and Cleanup".**

5.2.4 If a Supervisor is not available, pull the lever on the nearest fire alarm box or use the telephone and notify the Communications Center (x6511).

5.2.5 Unless dangerous conditions exist, a personal observation shall be made in order to supply the following information.

a. The location of the spill,

b. Identity of the material (if known),

c. Any personnel injuries or unusual conditions,

d. The source of the spill,

e. Whether or not the flow has stopped, and

f. The approximate volume of the spilled material.

5.0 PROCEDURE (cont.)

5.3 PREPARATION FOR CLEANING A SPILL

5.3.1 Identify the material involved.

a. Determine the identity of the spilled material. Industrial Health and Radiological Safety personnel shall assist in the identification of the spilled material and provide technical information as requested. Material Safety Data Sheets (MSDS), or the Material Lot Marking System may be used for material identification. The Supervisor shall inform spill cleanup personnel of the spilled material and hazards associated with the cleanup.

b. Determined if the spilled material is flammable. If it is viewable and legible, the Hazardous Material Label on the parent vessel indicated the flammability of the spilled material. If the Hazardous Material Label is not viewable or legible, the sources of material identification listed in Step 5.3.3 should be used to determine the flammability of the spilled material.

5.3.2 If the material is flammable, ensure that heat sources in the area are shut off, locked and tagged, or removed. The Supervisor shall identify all sources of electrical, thermal and mechanical energy which may be a source of ignition and de-energize the lockout the sources per SSOP-0719, "FERMCO Lockout/Tagout - Hazardous Energy and Material Control".

5.3.3 If the material is Enriched Restricted Nuclear Material (ERNM), contact Nuclear Criticality Safety for assistance.

5.3.4 If the spilled material is uncharacterized, contact the Spill Response Team for assistance.

5.3.5 Ensure that spill cleanup supplies are available and are in usable condition. Spill cleanup supplies include, but are not limited to; patches, plugs, large plastic bags, diking materials, sorbents, plastic shovels, pails, and miscellaneous tools. The Supervisor shall also specify what cleanup supplies are required for the spill.

5.3.6 Place barricades with restrictive signs around the affected area to prevent personnel not associated with the cleanup from entering.

5.0 PROCEDURE (cont.)

5.3.7 Check that required personal protective equipment (PPE), as specified by work permits, MSDS, Rad Tech., or the IH representative is available and in good condition prior to the start of the cleanup.

5.3.8 Notify the Supervisor of missing/damaged equipment. **The Supervisor shall determine whether cleanup equipment and PPE requirements are satisfied and whether spill cleanup activities may proceed.**

5.4 CONTAINING LEAKING MATERIAL FROM A TANK, PIPING OR OTHER PROCESS EQUIPMENT

5.4.1 If material is leaking from a tank, piping, or other process equipment, directions for containing the leaking hazardous material shall be provided by the Supervisor or Assistant Emergency Duty Officer (AEDO).

5.5 CONTAINING LEAKING MATERIAL FROM DRUMS AND SMALL CONTAINERS

5.5.1 If possible, position the leaking container in a manner that the damaged area is above the material level. **A transfer of material from the leaking container to a new container may be required. If such a transfer is required, see section 5.6 of this procedure.**

5.5.2 Patch the leak, if possible, using one or more of the following methods as directed by the Supervisor. **The patching material shall be compatible with the material in the damaged container.**

a. Patch small punctures located above the liquid level which are not subject to pressure with insoluble putty.

b. Where a plug is required and the material is not corrosive, one of the following methods may seal the leak. **Felt plugs shall not be used for containers of corrosive material.**

1. Use ball plugs pierced by a bolt, washer, and wing nut assembly to patch small punctures that are relatively round in shape.

2. If the patch will be subjected to liquid pressure, use a soft, wooden plug with felt padding or a self-tapping scr with a washer or gasket.

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5.0 **PROCEDURE** (cont.)

3. Patch small linear punctures by placing felt into the crack of the leaking drum using a wedge.

4. Patch larger, irregular holes with a gasket backed plate, held in place by a compression washer, nut and bolt combination, or equivalent.

5. Patch large holes with a combination of square tapered wedge shaped plugs, arranged to fit into the hole, that are wrapped in felt prior to insertion.

c. Where possible, use heavy-duty tape to cover the patch as a temporary seal. **The sealing surface shall be dry and free of residues prior to the application of tape.**

d. Cover the patched and/or plugged hole with a plastic bag to prevent leakage when the drum is overpacked.

5.5.3 After a leaking container has been successfully patched and/or plugged, it shall be overpacked per SOP 20-C-600, "Overpacking Defective Containers". **The overpacking location shall be determined by the Supervisor.**

5.6 TRANSFER OF MATERIALS FROM LEAKING DRUMS

5.6.1 Temporarily control the leak from the drum as directed by supervision.

5.6.2 Transfer the contents from the leaking drum to a new drum following the applicable procedure listed below. **The transfer location shall be determined by the Supervisor.**

a. Transfer liquid hazardous waste per SOP 20-C-613, "Emptying Liquid Hazardous Waste Storage Containers".

b. Transfer the empty container to the drum crusher area and crush per SOP 20-C-109, "Crushing Drums using Tee-Mark Locker/Crusher".

5.0 **PROCEDURE** (cont.)

5.6.3 For drums that contain primarily solid material with leaking free liquid, proceed as follows:

a. Remove the free liquid following the procedure in SOP 20-C-613, "Emptying Liquid Hazardous Waste Storage Containers".

b. Chemically inert sorbent material may be added to the drum if so directed by supervision.

c. Cover the temporary patch/plug with a plastic bag to prevent leakage when the drum is overpacked.

d. Overpack the drum per SOP 20-C-600, "Overpacking Defective Containers".

5.7 CONTROLLING A SPILL

5.7.1 Build dikes at the edges of the spill. **Do not flush spill material into a drain or manhole. Chemically inert sorbent materials such as vermiculite, diatomeceous earth, sand, sorbent pigs, or equivaler shall be used as dikes to contain the spilled material to the immediate area.**

5.7.2 To prevent hazardous material from entering a drain or manhole, proceed as follows:

a. Cover the drain or manhole with plastic or rubber sheet, plywood, or other material as specified by the supervisor,

b. Using sorbent materials (Refer to Section 5.7.1) build a dike around the edges and the top of the drain cover.

5.8 CLEANUP OF A SPILL

5.8.1 For spills involving Poly Chlorinated Biphenyls (PCBs), see Section 5.8.8 of this procedure.

5.8.2 For spills not involving PCBs, follow the instructions of Sections 5.8.3 through 5.8.7 of this procedure.

5.0 **PROCEDURE** (cont.)

5.8.3 **Spilled material cleanup is started by neutralization and adsorption or absorption only, as specified by supervision or the IH Representative.**

5.8.4 If the spilled material is corrosive (acid or caustic) neutralize it as directed by the following instructions. **Only corrosive material spills shall be neutralized. IH shall check the spilled material for dangerous gasses or vapors before starting neutralization and during the neutralization process.**

a. Apply neutralizing agent to the spill to reduce or eliminate the hazardous properties of the spill. **The neutralizing agent as specified on the MSDS, by the Supervisor, or IH Representative shall be used.**

b. Apply sorbent material to the neutralized spilled material per Section 5.8.5.

5.8.5 Absorb the spilled materials as directed by the following instructions.

a. Ensure that the correct sorbent is available. **Chemically inert sorbent materials shall be used when the spilled material is a solvent, the chemical make-up of the spill material is unknown, or the reaction resulting from neutralization would create an unsafe condition. The Supervisor shall specify the sorbent material to be used.**

b. Apply the specified sorbent to the spill. Proceed from the outer edges toward the center to reduce the chances of spreading the material. **Because sorbents do not change the hazardous properties of a spilled substance, use caution during cleanup and disposal.**

c. Apply enough sorbent to absorb the spilled material. However; avoid the use of excess sorbent. **When using sorbent for flammable materials, non-sparking tools shall be used to avoid starting a fire. Appropriate fire fighting equipment shall be readily available in case of an emergency.**

d. Using a shovel, transfer the soaked sorbent material into a compatible tare weighed waste container.

5.0 PROCEDURE (cont.)

e. When the container is full or cleanup is completed, place a lid and a bolt type lock ring on the container. **Ensure that the lock ring bolt lugs are facing the body of the drum.**

f. Tighten the bolt ring assembly per the following:

1. Tighten the locking bolt until the lid is secured. **See "Installation of Bolt-Type Locking Ring", (Figure 1).**

2. Tighten the locking nut against the threaded lug (right lug) by hand.

3. Using a wrench, tighten the nut 1/4 turn.

4. Dab the bolt with red paint as a visual code designating that the tightening procedure has been completed.

g. Obtain a gross weight for the container.

h. Stencil the lot number, drum number, gross weight, tare weight net weight, and other applicable markings as specified in SSOP-0035, "Satellite Accumulation Areas for Hazardous Wastes".

i. Apply appropriate labeling as specified in SSOP-0035.

j. Fill out an "Item Production/Certification/Identification" Form, FS-F-1945-XX (Figure 2) for the container.

k. Fill out a "Permanent Inventory Record" Form, FS-F-367 (Figure 3) for the container.

l. Give the completed forms to the Supervisor. **The Supervisor shall check the forms and give the completed forms to the MC&A representative.**

m. Store the container per the applicable procedure based on the material type as designated by the Supervisor.

5.0 PROCEDURE (cont.)

5.8.6 Discard contaminated disposable items (such as clothing and diking/sorbent materials) in properly identified containers. **Any disposable item which comes into contact with a hazardous material shall be handled and stored in a manner consistent with the regulations for that material.**

5.8.7 After the spill cleanup is completed, clean the equipment per Section 8.5 of SOP 20-C-806, "Sampling Waste for Hazard Identification", before returning the equipment to use.

5.8.8 The AEDO shall provide specific instructions for the cleanup of PCB material spills. In addition to the AEDO's instructions, proceed with the cleanup of spill involving PCBs as follows:

a. Don the required PPE before beginning the cleanup.

b. Control the spill per Section 5.7 of this procedure.

c. Cleanup the spilled material as instructed by the AEDO.

d. Package the cleanup materials in accordance with Sections 5.8.5.e through 5.8.5.m of this procedure.

e. Perform all post spill cleanup area decontamination activities as directed by the AEDO.

f. All cleanup materials, tools and PPE are considered PCB contaminated and are to be packaged as waste as directed by the AEDO.

6.0 DEFINITIONS

- Acid - Corrosive chemical (such as hydrochloric acid, hydrofluoric acid, nitric acid, and sulfuric acid) with a pH of less than 7.0.

- Assistant Emergency Duty Officer (AEDO) - The onsite management authority for all shifts and for all abnormal events. This position is filled by the Utilities Engineer.

- Caustic - Corrosive chemical (such as ammonia, calcium oxide, calcium hydroxide, and potassium hydroxide) with a Ph greater than 7.0.

6.0 DEFINITIONS (cont.)

- Compatible Container - A container, usually a drum, that is approved to hold the spilled material.

- Event - An unplanned, unwanted occurrence that requires classification by the AEDO.

- Hazardous Material - A substance or material capable of posing an unreasonable risk to health, safety, and property.

- Hazardous Substance - A material designated as a "hazardous substance" by the Clean Water Act (CWA), a "hazardous waste" regulated under the Resource Conservation and Recovery Act (RCRA), and "toxic pollutant" listed under the Clean Water Act, any "hazardous air pollutant" listed under the Clean Air Act (CAA), any substances regulated by the EPA under Section 8 of the Toxic Substances Control Act (TSCA), any additional substances designated by USEPA as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or any substance regulated under the Occupational Safety and Health Act (OSHA).

- Hazardous Waste - A waste material exhibiting the characteristics of ignitability, corrosivity, reactivity, or toxicity or is listed in 40 CFR 261 (hazardous waste regulations) or identified in applicable state regulations.

- Reportable Quantity - The amount of a substance released to the environment which must be reported to regulatory agencies.

- Resource Conservation and Recovery Act (RCRA) - The Congressional Act requiring strict control for the safe handling and disposal of hazardous waste.

- Sorbent - A substance (such as straw, clay, vermiculite, activated charcoal, sorbent sheet, or PIGS and pillows) that absorbs.

- Spill Incident - An unplanned event that allows a hazardous toxic pollutant, hazardous substance, hazardous material, toxic pollutant, hazardous air pollutant, radioactive substance, oil or TSCA chemical substance or mixture to enter the environment.

- TSCA Section 8 (e) Chemical Substance - A chemical substance or mixture which presents a substantial risk of injury to health or environment, as defined the Toxic Substances Control Act (TSCA).

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7.0 APPLICABLE DOCUMENTS

7.1 Drivers

- DOE Order 5480.19

7.2 References

- SSOP-0035, "Satellite Accumulation Areas for Hazardous Wastes"
- SSOP-0067, "Spill Incident Reporting and Cleanup"
- SOP 20-C-613, "Emptying Liquid Hazardous Waste Storage Containers"
- SOP 20-C-806, "Sampling Waste for Hazard Identification"
- SOP 20-C-600, "Overpacking Defective Containers"
- SSOP-0719, "FERMCO Lockout/Tagout - Hazardous Energy and Material Control"
- SOP 20-C-109, "Cleaning Drums using the Tee-Mark Packer/Crusher"

FIGURE 1

INSTALLATION OF BOLT-TYPE LOCKING RING
(Typical Example)

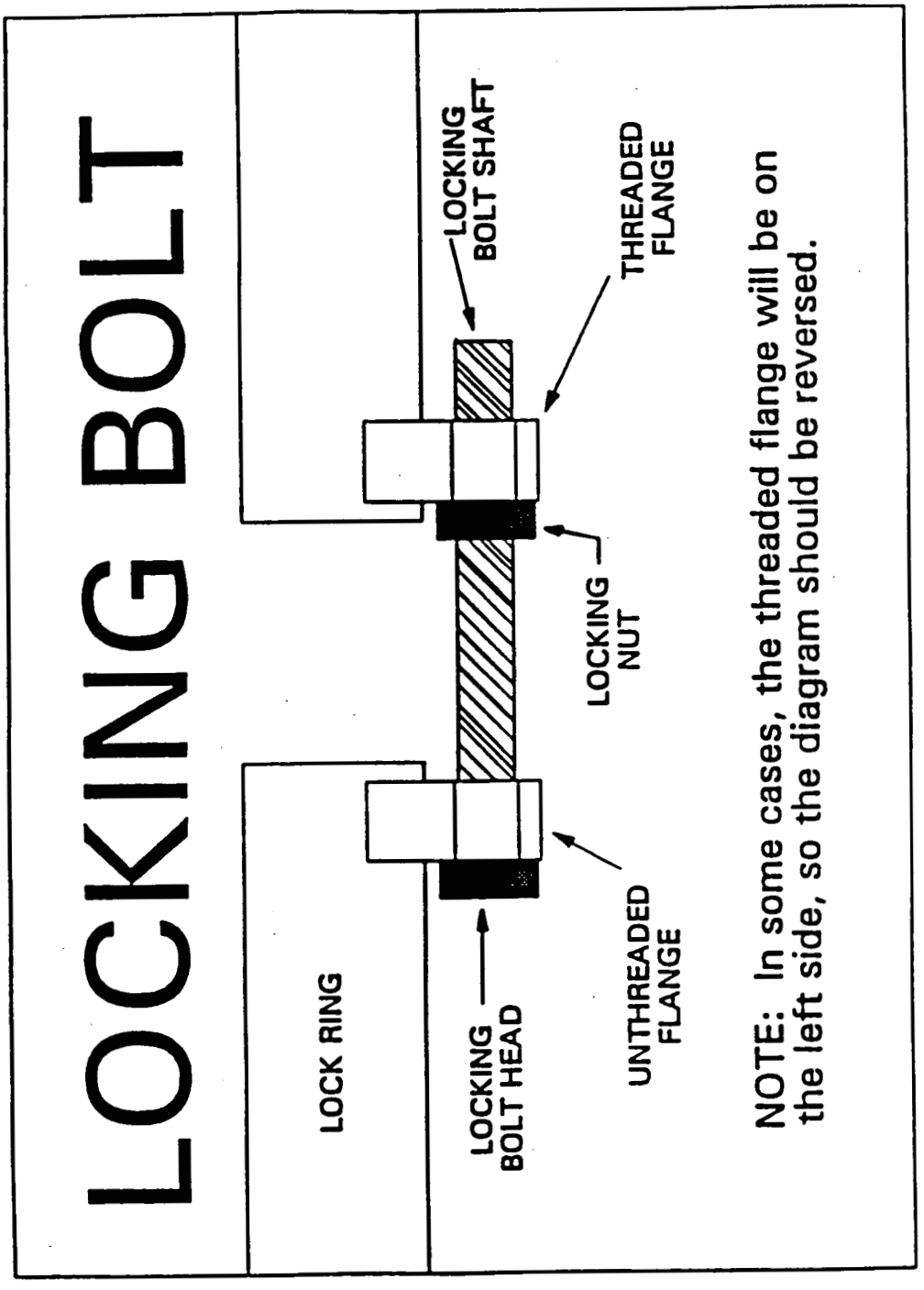

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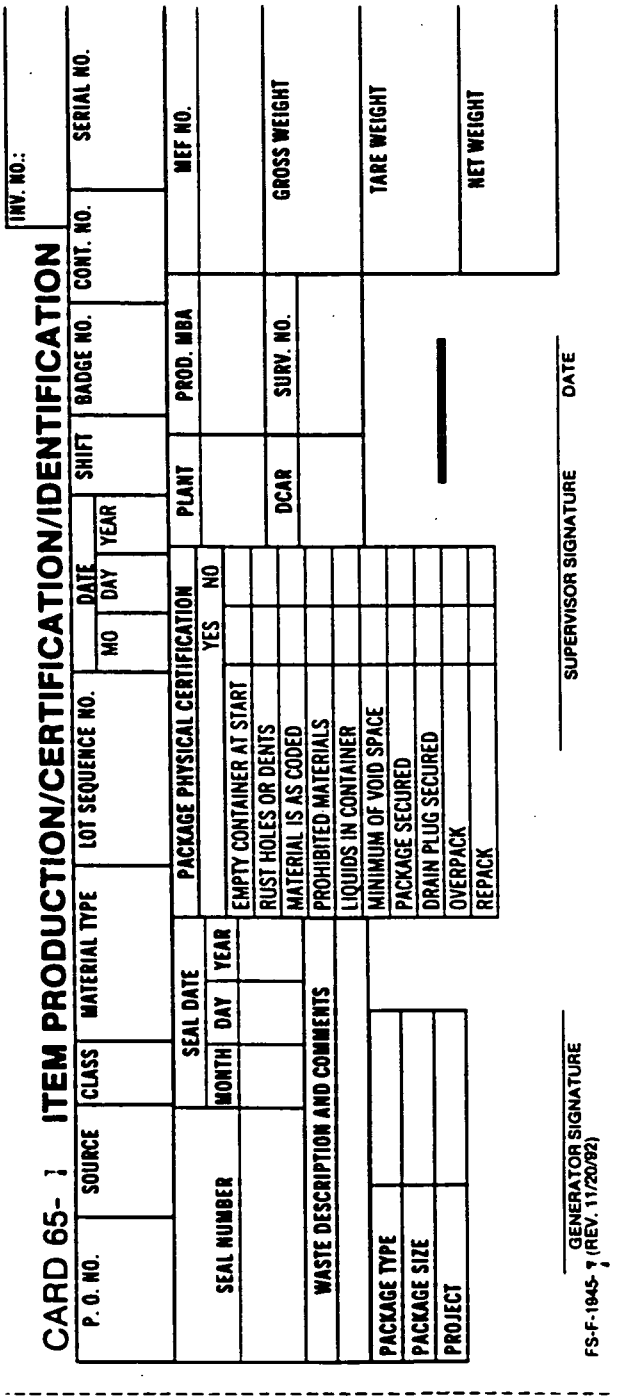
FIGURE 2

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

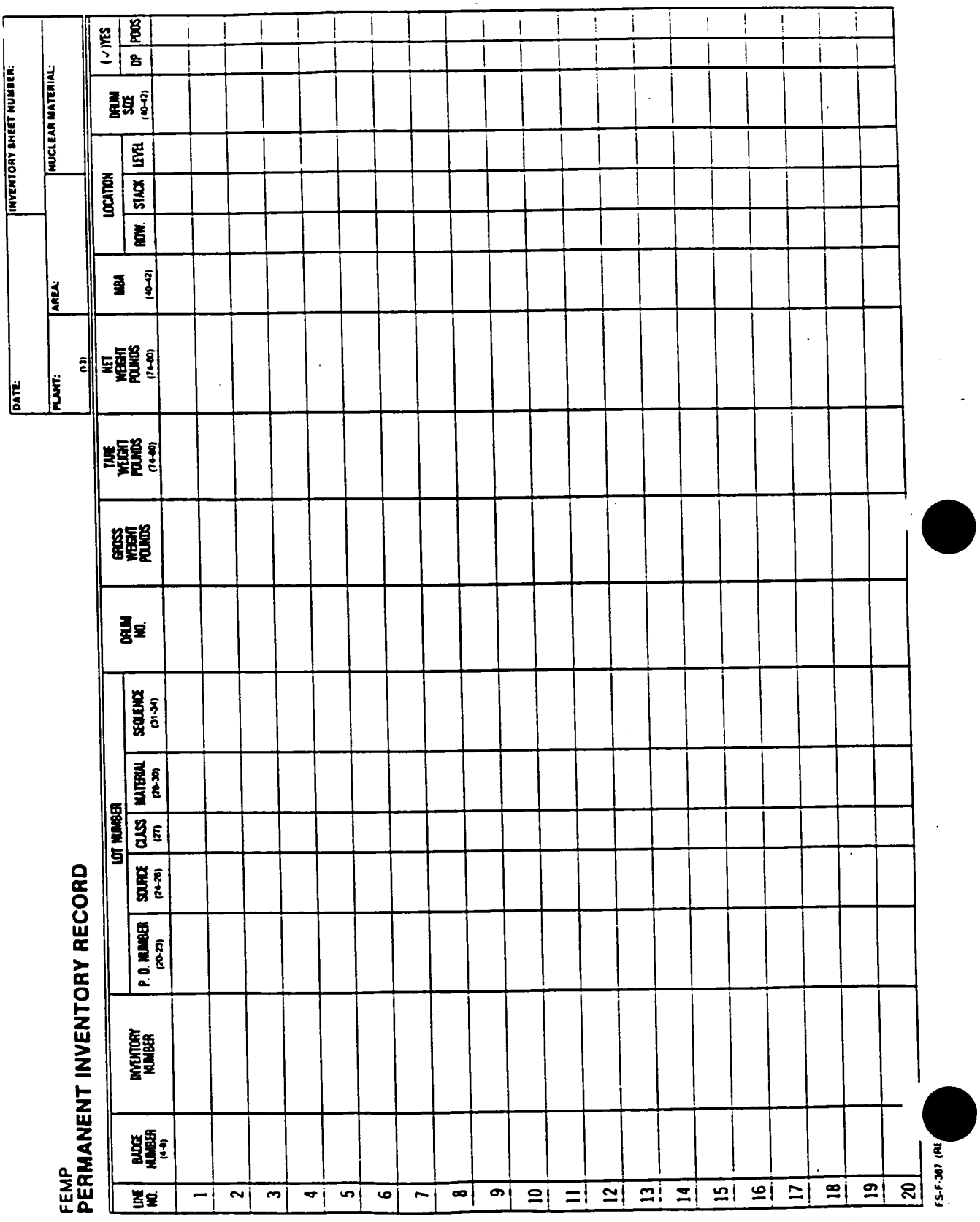
Form FS-F-1945-1



GOVERNMENT PRINTING OFFICE: 1993

FIGURE 3

PERMANENT INVENTORY RECORD
Form FS-F-367



CONTROL NO. FER-0018
SITE PROCEDURE EW-0004 (SSOP-0035)
REVISION NO. 3

SATELLITE ACCUMULATION AREAS FOR HAZARDOUS WASTES

NON-CONTROLLED COPY

Effective Date: 10-18-94

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: _____ 2/15/95
Terence D. Hagen, Manager of Environmental Restoration and Waste Management — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

CONTROL NO: -6944

SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0035
REVISION NO. 3

SATELLITE ACCUMULATION AREAS FOR HAZARDOUS WASTES

NON-CONTROLLED COPY

SSOP-0035

Effective Date: 10-18-94

AUTHORIZED BY: _____ 10/5/94
D. Ofte, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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Fernald Environmental
FERMCO
Restoration Management Corporation

Title: SATELLITE ACCUMULATION AREAS FOR HAZARDOUS WASTES	
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
10-26-92	0	SSOP required for use of SAAs and interim containers per Request No. P91-443, initiated by J. Ogg. This document replaces Site Services SOP 20-C-605.
09-28-93	1	Revision needed to address accumulation of batteries, closing an SAA, and update organization names per Request S93-029, initiated by R. Enneking. This document supersedes Revision 0, dated 10-26-92.
05-16-94	2	Revision needed to update and make corrections to this procedure per Request No. S93-294, initiated by R. Enneking. This document supersedes Revision 1, dated 09-28-93.
10-18-94	3	Minor revision to update Figures 6 and 10, Tables 1 and 2, and some organizational changes per Request No. S94-139, initiated by R. Enneking. This document supersedes SSOP-0035, dated 05-16-94, Rev. 2.

1.0 PURPOSE

This procedure provides the instructions for establishing, maintaining and closing a Satellite Accumulation Area (SAA), accumulating hazardous waste in SAA containers, and preparing SAA containers for transfer to storage at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This procedure is applicable to FEMP personnel responsible for establishing and maintaining SAAs for hazardous waste containment at any area of the FEMP site. The procedure also applies to personnel who prepare accumulation containers for transfer to storage.

This procedure outlines the steps for (1) identifying the need for an SAA container; (2) establishing an SAA; (3) accumulating hazardous waste in an accumulation container; (4) preparing containers for transfer to storage; (5) inspecting an SAA; and (6) closing an SAA.

3.0 DEFINITIONS

Accumulation Container - An approved container, usually a drum, that is specified by RCRA Program and Logistics Administration to be compatible with the waste to be accumulated.

Accumulation Start Date - A date indicating when the container is declared full and which is the start date for the "Three Day Rule."

Approved Container - A container that meets U.S. Department of Transportation (DOT) specifications defined in 49 CFR, part 173.

Battery Accumulation Container - A container designated solely for the purpose of temporarily storing depleted batteries excluding lead-acid and dry-cell batteries (those commonly used in flashlights, pagers).

Authorized Personnel - Individuals who have successfully completed all FEMP training requirements to perform work related to this procedure.

Bung Drum - A container used to hold liquid materials.

Corrosive - RCRA term referring to aqueous wastes with a pH ≤ 2 or ≥ 12.5 or a liquid waste that will corrode SAE 1020 steel at a rate >0.25 inches per year at 55° C (130° F).

D.O.T. Proper Shipping Name - The name of a hazardous material as specified in D.O.T. Regulation 49 CFR 172.101.

3.0 DEFINITIONS (cont.)

D.O.T. UN or NA Number - D.O.T. identification number prefixes for hazardous materials as specified in D.O.T. Regulations 49 CFR 172.101 and 172.102. "UN" denotes materials recognized for international and domestic shipments. "NA" denotes materials recognized for domestic shipments and shipments to and from Canada, but not for other international shipments.

U.S. EPA Identification Number (EPA ID No.) - The 12-digit code assigned to the FEMP as a generator and storage facility of hazardous waste (OH6890008976).

EPA Hazardous Waste Number (EPA Waste No.) - The 4-digit alpha-numeric code that categorizes a hazardous waste and is specific for the waste in a particular container.

Excess Container - An approved container, usually the same type of container as the accumulation container, that is used to store excess waste at an SAA while the full accumulation container is being removed and a new accumulation container is being prepared.

Excess Waste - Waste that when brought to an SAA causes the SAA to exceed the 55-gallon volume limit for an SAA.

Facility Operator - A person who is in control of the process generating the hazardous waste.

FEMP Lot Marking and Color Coding System - A system which assigns 15-digit alpha-numeric codes and a color code to identify nuclear materials ensuring complete separation of depleted, normal, and enriched uranium or thorium materials.

Generator - A person authorized to deposit hazardous waste in an accumulation drum/container.

Hazardous Waste - A discarded material listed in the Environmental Protection Agency Hazardous Waste List (40 CFR 261, subpart D) which poses a threat to human health and/or the environment or which exhibits any of the following four characteristics: ignitability, corrosivity, reactivity or Toxicity Characteristic Leaching Procedure (TCLP) toxicity (40 CFR 261, subpart C). Both "listed" and "characteristic" wastes are regulated under RCRA. (The hazard characteristics are defined in this section.)

Ignitable - RCRA term referring to liquid wastes with closed-cup flash points <60°C (140°F), or non-liquid wastes capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes.

3.0 **DEFINITIONS** (cont.)

Incompatible Materials - Materials of differing enrichments or materials which, when placed near each other, produce undesirable chemical effects.

Mixed Waste - Waste containing both radioactive and hazardous waste components.

One Day Collection of Waste - the collection of hazardous waste in a container and its movement to a RCRA storge warehouse all in the same day.

Open-head Drum - A container used to hold material mixtures of solids and liquids.

Reactive - A RCRA term referring to wastes that exhibit properties such as reacting violently, forming potentially explosive mixtures or generating toxic gases with water, generating toxic gases (cyanide or sulfide) at pH between 2 and 12.5, or detonating or exploding at standard temperature and pressure or when heated under confinement.

Reactivity Group Code (RGC) System - An identification system for hazardous waste designed to ensure that no incompatible materials are accumulated or stored adjacently.

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous waste.

Satellite Accumulation Area (SAA) - An area approved to accumulate waste characterized as RCRA hazardous waste for an extended period of time (over one day) at or near the waste generation point under control of the supervisor managing the operation generating waste.

Short Term Use Accumulation Container - An approved container that is used to store hazardous waste for transfer to a RCRA storage area for less than one day before being emptied.

Spill Accumulation Container (SAC) - Containers designed to hold liquid material. These include portable polyethylene containers designed to hold one 55-gallon drum of material, flammable liquid cabinets, and welded or seamless pans designed to contain leaks. All accumulation containers except those accumulating solids with no free liquids shall stand in SACs.

3.0 **DEFINITIONS** (cont.)

Spill - Any unplanned event involving spilling, leaking, pumping, pouring, injecting, escaping, emitting, emptying, leaching, releasing, dumping, discharging, or disposing of hazardous waste onto the ground, into water, or into the air, within or beyond the boundaries of the FEMP.

Three-Day Rule - A RCRA regulation requiring transfer of all containers in an accumulation area in excess of the 55-gallon limit to an approved storage facility within three days from the date the SAA exceeds the 55-gallon volume limit.

Toxicity Characteristic - A RCRA term referring to wastes whose extracts by the Toxicity Characteristic Leaching Procedure (TCLP) contains contaminants listed in Table 1 of 40 CFR 261.24, at a concentration equal to or greater than the applicable values that the table specifies.

TCLP - A RCRA term referring to an Analytical procedure (Method 1311 from 40 CFR, Appendix II), which checks whether or not materials listed in Table 1 of 40 CFR 261.24 can be extracted from a waste.

4.0 **RESPONSIBILITIES**

Supervisor/Facility Operator responsible for each waste generation area/SAA

- Initiates a Material Evaluation Form (MEF)/Verification as required.
- Determines if an SAA is required.
- Establishes an SAA as determined from the results of a material evaluation and notifies Hazardous Waste Compliance (HWC) for assistance in establishing the SAA.
- Determines the location of the SAA.
- Coordinates and notifies support organizations of assistance required per this procedure.
- Ensures compliance with DOE/EH 0256T, "U.S. Department of Energy Radiological Control Manual."
- Coordinates the filling of accumulation containers and ensures only authorized personnel access the areas and make additions of hazardous waste to the accumulation containers.

4.0 **RESPONSIBILITIES** (cont.)

- Ensures applicable documentation, signs, and labels are located in the SAA and the required documentation is completed, signed, and transferred with the drum to storage.
- Ensures inspections are performed within seven calendar days of previous inspection.
- Ensures labeling of accumulated waste is in accordance with the FEMP Lot Marking and Color-Coding System, Reactivity Group Code (RGC) system, D.O.T standards, and EPA standards.
- Ensures no incompatible materials are accumulated in adjacent accumulation containers within an SAA in accordance with the RGC system.
- Supplies necessary tools.
- Contacts Industrial Hygiene and Radiological Control (RC) to determine the appropriate respiratory protection and other Personal Protective Equipment (PPE).
- Provides SAA generators with the required respiratory protection and other PPE.
- Contacts Radiological Control to acquire the required Radiological Work Permits.
- Contacts Quality Assurance (QA) to perform independent checks of full containers.
- Ensures lever lock rings are replaced with bolt lock rings on 30- and 55-gallon accumulation containers declared full prior to movement from the SAA.
- Maintains a list of personnel authorized to perform this procedure.

Generator

- Deposits hazardous waste in an accumulation container per this procedure.
- Reports any unusual condition to the supervisor or, in the supervisor's absence, the Assistant Emergency Duty Officer (AEDO).

4.0 **RESPONSIBILITIES** (cont.)

Waste Characterization

- Supplies EPA Waste Numbers to categorize waste streams regarded as RCRA concerns.
- Provides analytical data and waste stream process knowledge to Environmental Engineering for determining RGC(s).
- Provides the proper D.O.T shipping name.

HWC

- Maintains a current list of SAAs.
- Ensures applicable regulatory requirements, including those defined by the U.S. and Ohio EPA, Department of Energy, Department of Transportation, and the FEMP are incorporated in this procedure and are followed at the site.
- Oversees implementation of this procedure.
- Assists in the designation, establishment, and closure of an SAA.

QA performs an independent oversight check on accumulation containers to ensure compliance with this procedure prior to transferring any material to storage.

Industrial Safety and Health (IS&H)

- Determines appropriate respiratory equipment and any other personal protective equipment required for each SAA.
- Supports establishment and closure of SAAs.

Environmental Engineering provides the supervisor of the SAA with the appropriate RGC(s), based on material evaluation data.

Motor Vehicle Operator (MVO)

- Obtains an accumulation container, as specified by immediate supervisor in accordance with D.O.T regulations, and completed MEFs/Verifications.
- Transports approved empty containers to the accumulation area.
- Transports full accumulation containers from SAAs to RCRA Storage Facilities.

4.0 **RESPONSIBILITIES** (cont.)

Materials Control & Accountability (MC&A)

- Prepares and maintains nuclear material generation and transfer records when containers are filled.
- Verifies drum identification in accordance with material evaluation results.
- Designates storage area destination of an accumulation container declared full with assistance from Waste Programs Management.

Environmental Safety and Health (ES&H), Radiological Control, and HWC approve the SAA location.

Waste Programs Management handles disposal of photographic and drafting solutions.

5.0 **GENERAL**

None

6.0 **PREREQUISITES**

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

A defined safety system is not specified.

Safety glasses shall be worn unless other eye protection is specified by ES&H. Goggles or face shields shall be worn when handling caustic, acids, or any other chemical which could cause immediate skin damage upon contact.

Respiratory protection provided by the supervisor shall be worn when required.

Leather-palm gloves shall be worn when handling drums, operating equipment, and when handling rough, sharp-edged, or contaminated material.

Gloves specified by ES&H shall be worn when handling hazardous chemical substances where skin contact is possible.

A rubber apron shall be worn when handling caustic, acids, or any other chemical which could cause immediate skin damage upon contact.

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

HEPA type filter vacuum cleaners or a vacuum system approved by RC with a current DOP (Di-sec Octyl Phthalate) test label properly affixed to vacuum shall be used for spill cleanup.

Any release of hazardous waste shall be reported immediately to the supervisor or, in the supervisor's absence, the AEDO.

Two-way communication devices and emergency response equipment shall be available to personnel performing this procedure.

Any circumstance that could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to RC for evaluation.

The personnel involved shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form FS-F-1458) and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. Employees are responsible for complying with additional requirements as specified by RC.

6.2 PERSONNEL REQUIREMENTS

Annual SAA Classroom Training, "RCRA-Hazardous Waste SAA Training" is required for any person who will be adding hazardous waste to an SAA without oversight, overseeing addition of hazardous waste to an SAA, inspecting an SAA, or functioning as Supervisor/Facility Operator or alternate for an SAA and signs the SAA inspection form.

6.3 TOOLS AND MATERIALS REQUIREMENTS

- Bung Wrench
- Socket Wrench or Adjustable Wrench
- Safety Glasses
- Goggles
- Face Shields
- Leather-palm Gloves

6.3 TOOLS AND MATERIALS REQUIREMENTS (cont.)

- HEPA Filters
- Two-way Communication Devices
- Respiratory Equipment
- PPEs

7.0 PROCEDURE

7.1 DETERMINING IF AN SAA IS NEEDED

SUPERVISOR/FACILITY OPERATOR

1. For hazardous waste that can be accumulated and sent to proper storage the same day, an SAA is not required, but the requirements of Section 7.4 apply.

2. For hazardous waste that cannot be accumulated and sent to storage the same day, establish an SAA per Section 7.2.

   NOTE: Each SAA can contain more than one approved container and/or waste stream, but the total capacity of the containers in the SAA shall not exceed 55 gallons.

7.2 ESTABLISHING A SATELLITE ACCUMULATION AREA

SUPERVISOR/FACILITY OPERATOR

NOTE: If a waste has not been characterized, handle it per established uncharacterized waste procedures.

1. Determine the location of the SAA, ensuring that the SAA is located at or near the generation area of the waste and will use a hard surface (i.e., concrete with sealer) as the floor of the SAA.

2. Notify HWC for assistance in establishing the SAA.

3. Acquire the completed MEF/Verification for the waste stream(s) to be accumulated from Waste Characterization.

4. Ensure that two-way communication devices and emergency response equipment are accessible.

7.2 ESTABLISHING A SATELLITE ACCUMULATION AREA (cont.)

SUPERVISOR/FACILITY OPERATOR

5. Contact IS&H, RC, and HWC for approval that the SAA requirements, protective equipment, postings, and location are in compliance with regulatory requirements and site procedures.

6. When approval is received from IS&H, RC, and HWC, contact HWC for assignment of a unique identification number to the SAA which will be used on applicable forms to identify the SAA location.

7. Notify HWC to update the SAA Data List with information on the establishment of the new SAA.

8. For 30 and 55-gallon accumulation containers, complete the following substeps.

   a. Identify and establish the SAA per Figure 1.

   b. Notify MVO to deliver a compatible accumulation container and SAC (as applicable) for the waste to be accumulated and stored per a completed MEF/Verification.

9. For 5- and 10-gallon containers, complete the following substeps.

   a. Identify and establish the SAA per Figure 2.

   b. Acquire containers and SACs from Stores or Purchasing.

      NOTE: Some SAA containers are not stocked and will need to be ordered (e.g., five gallon stainless steel containers used by Analytical Laboratory). When ordering these containers, be sure to purchase adequate quantities.

      NOTE: Wastes that do not contain free liquids are not required to be placed in a SAC.

MVO

10. Select the accumulation container according to the waste to be accumulated and stored per a completed MEF/Verification.

7.2 ESTABLISHING A SATELLITE ACCUMULATION AREA (cont.)

MVO

NOTE: A black open-head drum or black bung drum, as applicable, shall be used as the accumulation container unless a different container type is specified for compatibility reasons or volume size.

NOTE: Material placed in containers other than black drums prior to 7-1-91 shall not require repackaging.

11. Transport empty container to SAA per applicable department procedure.

7.3 PREPARING THE ACCUMULATION CONTAINER

SAA GENERATOR

NOTE: The identification of the accumulation container shall be placed as shown in Figure 3 or Figure 4. The drum labeling arrangement in Figure 3 is effective as of 11-16-90. Drums labeled prior to 11-16-90 shall not require relabeling.

NOTE: Information stencilled on 5- to 10-gallon accumulation containers shall be one inch in height.

NOTE: Information stencilled on an accumulation container >10 gallons shall be 1-1/2 to 2 inches in height.

1. Using criteria in Tables 1, 2, and 3, ensure the accumulation container and SAC for accumulating waste are free of damage and debris prior to use.

2. Check Table 4 to see if waste to be accumulated requires a vented container.

   a. If the container needs to be vented, notify supervisor of the Material Type Code (MTC) and Source Code (SRC) for the waste to be accumulated.

   b. As directed by supervisor, vent drum per SOP 20-C-910.

      NOTE: 30 and 55 gallon drums to be used for accumulating batteries (e.g., Ni-Cad) require venting.

7.3 PREPARING THE ACCUMULATION CONTAINER (cont.)

SAA GENERATOR

3. Stencil the FEMP Lot Marking Code on the side of the container with the "P.O. No., Source, Material Class, and Material Type" per Figure 3 or Figure 4, as applicable.

   NOTE: The sequence number is recorded when the drum is declared full.

   NOTE: The FEMP Lot Marking Code shall be determined by using the FEMP Lot Marking and Color-Coding System, RM-0005, or contacting MC&A.

4. Tare weigh the accumulation container and SAC separately.

   NOTE: Ensure the scale to be used has been tested per the applicable scale procedure.

5. Stencil the tare weight on the side of the accumulation container and SAC per Figure 3 or Figure 4.

6. Stencil the Reactivity Group Code (RGC), as specified by supervisor, on the container.

   NOTE: The RGC will be provided to the supervisor by Environmental Engineering.

7. If the material to be accumulated is a solvent, mark the solvent name on the container.

8. Affix a clear, weather-resistant envelope to the top or handle of the container.

9. Fill out a "Hazardous Waste Disposal Record" (see Figure 6), entering the SAA number (place the storage location name here for one-day accumulation containers), material description, and the MEF/Verification number, and then insert it in the envelope on the container.

10. Fill out an "Item Production/Certification/Identification," 65 Card (see Figure 7), as follows:

    a. Record the FEMP Lot Marking Code in the areas titled "P.O. No.," "Source," "Material Class," and "Material Type."

    b. Record a general description of the waste in the area titled "Waste Description and Comments."

7.3 PREPARING THE ACCUMULATION CONTAINER (cont.)

SAA GENERATOR

c. Record the type of container in the area titled "Package Type".

d. Record the size or volume of the container in the area titled "Package Size".

e. Complete all of the applicable required package checks of the container in the section titled "Package Physical Certification".

NOTE: Other information shall be added to the card after the container is declared full (refer to Section 7.6, steps 19 to 22).

11. Insert the 65 Card into the envelope on the container.

12. Insert a copy of the MEF/Verification for the waste to be accumulated into the envelope on the container.

13. If the "Hazardous Waste Marking" label (see Figure 3) is not preprinted, use a black waterproof permanent marker and fill in the following information:

NOTE: No other information is required on the "Hazardous Waste Marking" label until the container is declared full.

a. Record the "Name, Address, City, State, and Zip" as follows:

DOE/FEMP
7400 Willey Rd.
Fernald, OH 45030

b. Record the "EPA Identification Number".

NOTE: The EPA Identification Number is "OH6890008976".

c. Record the "Phone Number" as (513) 738-6200.

d. Record the "EPA Waste Number" provided by the supervisor.

NOTE: Information will be available on the MEF/Verification.

14. Affix the "Hazardous Waste Marking" label on the drum.

7.3 PREPARING THE ACCUMULATION CONTAINER (cont.)

SAA GENERATOR

15. Inspect the container to ensure the stenciling, marking, and labeling have been placed correctly on the drum/container (see Figure 3 or 4, as applicable).

16. Place the SAC in the SAA/one-day location, ensuring tare weight is visible.

    NOTE: Wastes that do not contain free liquids are not required to be placed in a SAC.

17. Place the accumulation container into the SAC. For drums, place the drum into the SAC with the drum seam facing the front of the SAA/one-day location.

7.4 ONE-DAY COLLECTION OF WASTE

NOTE: The collection and transfer of the waste to storage must be completed the same day (no overnight waste storage) or an SAA will need to be established.

SUPERVISOR/FACILITY OPERATOR

1. Determine the location of the accumulation container.

2. Contact HWC for assistance in completing the one-day waste collection.

3. Ensure an MEF/Verification has been completed. If an MEF/Verification has not been completed for the material, initiate a form per SSOP-0002.

    NOTE: Only material that has been characterized RCRA can be collected using this procedure.

    a. If the accumulation container is going into the RCRA warehouse for storage after the waste is accumulated, prepare it per Section 7.3.

    b. If the accumulation container is only going to be used to accumulate/hold waste until it can be transferred to another container in the RCRA warehouse, it will be a short-term use accumulation container. Prepare the container by marking "Hazardous Waste" and the waste accumulation date on the container.

7.4 ONE-DAY COLLECTION OF WASTE (cont.)

SUPERVISOR/FACILITY OPERATOR

4. Contact MVO to deliver a compatible 30- or 55-gallon container or contact Stores/Purchasing to acquire a 5- or 10-gallon container.

   NOTE: Some accumulation containers are not stocked and will need to be ordered (i.e., five gallon stainless steel containers used by the Analytical Laboratory). When ordering these containers, be sure to purchase adequate quantities.

MVO

5. Select the accumulation container per the completed MEF/Verification.

6. Transport empty accumulation container to specified area.

GENERATOR

7. Prepare the accumulation container.

8. As directed by supervisor, place waste in the accumulation container the same day.

   NOTE: Only personnel trained in the SAA procedure shall make additions to the container.

   a. If the accumulation container is required to accommodate material overnight, establish as SAA per Section 7.2.

   b. Secure container as instructed by supervisor.

      NOTE: The container of hazardous waste shall be closed at all times except while adding, inspecting, or sampling the waste.

9. When the collection of waste is complete, notify supervisor the accumulation container is ready for transfer to approved RCRA storage.

SUPERVISOR/FACILITY OPERATOR

10. If the accumulation container is going into RCRA storage, ensure that steps 4, 5, 7-14, 18-27, and 29-33 of Section 7.6 are completed for the accumulation container.

11. Ensure the accumulation container is moved to an approved storage area the same day the accumulation started.

7.4 ONE-DAY COLLECTION OF WASTE (cont.)

SUPERVISOR/FACILITY OPERATOR

a. If the accumulation container is a short-term use accumulation container, have the container transported to the RCRA Storage Area. (Contact MVO if necessary.)

b. Ensure the short-term use accumulation container is moved to an approved storage area and its contents are emptied into the final storage container the same day accumulation started.

GENERATOR

NOTE: The accumulation container must be decontaminated before removing the "Hazardous Waste" marking.

c. After the short-term use accumulation container is emptied, mark out the date. Also, mark out the "Hazardous Waste" marking and put an "empty" label on the short-term use accumulation container if use again the next day is not planned.

d. Store the short-term use accumulation container as directed by the supervisor.

MVO

12. Transport full container to storage per the applicable division procedure and sign the 68/69 card.

7.5 ACCUMULATING WASTE IN AN SAA CONTAINER

SAA GENERATOR

NOTE: Any additions of hazardous waste to an SAA will be done by or in the presence of trained personnel.

NOTE: Spills and/or unsafe conditions shall be reported immediately to the supervisor or the AEDO.

WARNING

NEVER MIX WASTE MATERIAL TYPES.

7.5 ACCUMULATING WASTE IN AN SAA CONTAINER (cont.)

SAA GENERATOR

NOTE: A container that was used to store excess waste cannot be used to store any other type of material unless the container is decontaminated.

1. Select the accumulation container designated to receive the waste type requiring disposition.

   NOTE: A five-gallon, foot-lever container (see Figure 5) may be used for solid materials being collected.

2. Open the container and visually check the waste volume in the accumulation container to see if adequate capacity for the waste to be added is present.

   a. If the container is nearly full of waste (less than 5 inches remaining at the top), notify supervisor.

      NOTE: In drums the waste level when full should be approximately three inches or more below the top of the container.

   b. For a battery accumulation container, ensure an addition to the container will not cause the volume or plastic liner (if present) to raise above the vent holes or prevent the lid from closing.

WARNING

ONLY AUTHORIZED PERSONNEL SHALL HANDLE HAZARDOUS WASTE.

3. If the container has adequate capacity, carefully add the waste to the container and proceed to Step 5 (for batteries, see a and b below). If a spill occurs, proceed per SOP 20-C-606, "Hazardous Material Spill Cleanup." For depleted batteries proceed as follows:

   a. Cover all exposed electrical contacts with electrical tape or equivalent.

   b. Carefully place the batteries in the container.

4. If the container does not have adequate capacity, notify the supervisor and complete steps 4.a. through 4.f.

7.5 ACCUMULATING WASTE IN AN SAA CONTAINER (cont.)

SUPERVISOR/FACILITY OPERATOR

a. Contact MVO to deliver a compatible 30-55 gallon container and a SAC (if required) or contact Stores/Purchasing to acquire a compatible 5- or 10-gallon container unless one is available in the area for storing the excess waste.

NOTE: If possible, use a container (for the excess waste) that can be converted to an accumulation container for use in the SAA.

GENERATOR

b. Prepare an excess container by marking, stenciling, or labelling "Hazardous Waste" on the container and then placing the container by or in the SAA.

c. Complete filling the accumulation container and put the excess waste into the excess container as directed by the Supervisor/Facility Operator.

NOTE: Do not forget to record this last addition to the accumulation container on the "Hazardous Waste Disposal Record" for the container.

d. Secure the excess container as directed by Supervisor/Facility Operator.

NOTE: All hazardous waste containers shall be closed at all times except while adding, inspecting, or sampling the waste.

e. Mark, stencil, or label the date and time the accumulation started on the excess container.

f. Prepare the full accumulation container per Section 7.6 and replace it per Section 7.7.

5. Secure the accumulation container once the additions are completed.

NOTE: The container of hazardous waste shall be closed at all times except while adding, inspecting, or sampling the waste.

7.5 ACCUMULATING WASTE IN AN SAA CONTAINER (cont.)

GENERATOR

NOTE: A lever-lock ring may be used for containers greater than 10 gallons while located in the SAA. Bolt-type rings are required when transporting and storing these containers.

6. Record addition of waste material to the accumulation container on the "Hazardous Waste Disposal Record" (see Figure 6) by completing the following substeps:

   a. Remove the disposal record from the plastic envelope attached to the accumulation area collection container lid or handle.

   b. Record the date of the waste addition in the appropriate column.

   c. Record badge number in the column labeled "Generator's Badge Number."

   d. If conditions exist that are not defined by this procedure, or if anything unusual is noticed, note in comment column of the disposal record and notify supervisor immediately.

7. Return the disposal record to the plastic envelope attached to the container lid or handle.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE

NOTE: Spills and/or unsafe conditions shall be reported immediately to the supervisor or the AEDO.

SAA GENERATOR

1. Check with supervisor for maximum weight limits.

   NOTE: For 55-gallon drums being shipped off site up to and including December 31, 1995, the maximum gross weight is 1200 lbs.

   NOTE: For 55-gallon drums to be shipped after December 31, 1995, the maximum gross weight is 883 lbs.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

2. When the material is approximately three inches from the top of container, complete steps 3 through 29 of Section 7.6 immediately.

3. Notify supervisor of Satellite Accumulation Area to verify the container is full.

   NOTE: Once a drum of hazardous waste is declared full, it must be transferred to an approved RCRA storage area within three calendar days.

SUPERVISOR/FACILITY OPERATOR

4. Check the disposal record (see Figure 6) to ensure only authorized personnel made additions to the container and only the waste specified was placed in the container.

5. Record the date and time the container is declared full and sign the "Hazardous Waste Disposal Record." Send a copy of the disposal record to HWC and return the original to the envelope on the container.

   NOTE: When closing an SAA, the container(s) in it may not be full. If this condition exists, mark out the words "Container Declared Full" at the base of the disposal record for the partially full containers, while adding date and initials. Then, add the words "Accumulation Container Closed" along with the date and time the disposal record is completed.

SAA GENERATOR

6. For a full battery accumulation container, complete the following substeps to dispose of batteries:

   a. If the batteries are in a 5-or 10-gallon container, perform the following steps:

      1) Remove batteries from accumulation container and place in a plastic bag.

      2) Mark "HAZARDOUS WASTE" on the plastic bag.

      3) Using tape or tie, close and secure the bag.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

4) Notify supervisor the bag of batteries is ready for storage.

NOTE: Supervisor shall ensure the bag is transported to the proper warehouse for storage and eventual disposal.

b. If the batteries are in a 30- or 55-gallon drum with a plastic bag lining the drum, use tape or a tie wrap to secure the plastic bag.

7. For 30- or 55-gallon drums, install a lid and bolt-type lock ring on an open head drum or a threaded bung plug on a bung head drum, as applicable.

8. Secure lid on drum as follows:

a. Check gasket placement and condition of drum lid (for open head drums). Replace damaged gaskets.

b. Seat lid evenly on open head drum or using a bung wrench. Screw bung plug into bung hole tightly and evenly, as applicable.

c. Place locking bolt ring no more than six inches from the seam of the drum on lid of open head drum ensuring the flanges point downward from lock ring (Figure 8).

d. Install locking bolt shaft through unthreaded flange, locking nut, and then threaded flange (see Figure 8) so that the bolt head rests against unthreaded flange.

e. Manually tighten the locking nut against the threaded flange. Then, using a wrench, tighten the nut against the flange an additional 1/4 turn.

9. Specify the scale to be used.

a. If a scale is available, continue procedure.

b. If a scale is not available at the SAA area, notify Waste Programs Management.

NOTE: The drum/container may be transferred and weighed at an approved RCRA Storage Area.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

MVO

10. Inspect the forklift, as applicable.

11. Using the forklift, move the SAC containing the full accumulation container to the area for weighing.

    NOTE: Only drums are required to be moved in SACs.

SAA GENERATOR

12. Inspect the scale to be used (if not previously done).

    NOTE: The scale shall be inspected and operated in accordance with the SOP applicable to the area.

MVO

13. Using a forklift as needed, move the full accumulation container onto the scale (with SAC, as applicable).

    NOTE: Drums shall not be removed from SAC before weighing.

SAA GENERATOR

14. Obtain the gross weight of the container. For drums, obtain gross weight by subtracting the tare weight of the SAC (indicated on the side) from the weight indicated on the scale.

15. If the drum is within the specified weight limit, proceed to Step 18.

16. If a 55-gallon drum is over the specified weight limit, move the drum back to the SAA and transfer the excess material to another accumulation drum by completing the following steps.

    NOTE: Step 16 is applicable to 55-gallon drums only.

    a. Remove lock ring and lid or bung head from the drum.

    b. Using scoop or approved removal device, remove material from the drum and place in an accumulation drum (within a SAC) in the SAA until the drum weight is within limits.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

NOTE: The removed material may be either included in an unweighed, underfilled drum of the same lot, or placed in empty drum of the same lot according to Sections 7.3 and 7.5.

c. Install a lid and bolt-type lock ring on an open head drum, or install a threaded bung plug on a bung head drum, and secure by completing section 7.6, step 7.

MVO

17. Using the forklift, move the SAC containing the accumulation drum onto the scale and complete steps 13 through 15 in this section until the drum weight is within limits.

18. Using the forklift as needed, remove the accumulation container from the scale.

SAA GENERATOR

19. Remove the 65 card from the envelope on the container and record gross weight, net weight, lot sequence number, and badge number.

20. Stencil the gross weight, net weight, lot sequence number, and drum number on the container (see Figure 3 or 4, as applicable).

21. Sign the area provided for generator's signature on the 65 Card.

SUPERVISOR/FACILITY OPERATOR

22. Record the date the container is declared full on the 65 card, sign the 65 card, and obtain completed "NM Transfer Record (68/69 card) (see Figure 9) from MC&A.

SUPERVISOR/SAA GENERATOR

23. Sign the area indicated for the shipper's signature on the 68/69 card.

24. Have an MC&A Nuclear Materials Recorder (NMR) sign the 68/69 card next to the shipper's signature and return card to generator.

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

SAA GENERATOR

25. Insert the completed 65 Card and the 68/69 Card into the plastic envelope on the lid or handle of the container.

    NOTE: The area titled "Manifest Document Number" shall not be completed until the waste is ready for offsite shipment.

26. Using a black waterproof permanent marker, record the date that the container was declared full in the area titled "Accumulation Start Date" on the "Hazardous Waste Marking" label (Figure 3).

27. Complete a "Hazardous Waste Container Pre-Transfer Checklist" (see Figure 10), including the drum number and lot mark code.

    NOTE: Procedure SSOP-0035 may be referenced in other procedures in order to get drums not generated in an SAA into RCRA storage. In those instances, the pre-transfer checklist is not required.

28. Notify the supervisor that the container is ready for transport to the storage area and a replacement container required.

    NOTE: A SAC is required for a container holding free liquid.

    NOTE: The three-day rule must be followed when a container is ready for shipment to storage.

29. Insert completed "Hazardous Waste Container Pre-Transfer Checklist" into plastic envelope.

SUPERVISOR/FACILITY OPERATOR

30. Contact QA to perform an independent check.

    NOTE: No container shall be released to MVO for transfer to storage until approval has been received from QA.

QA

31. Perform an independent check of the hazardous waste container per applicable written department procedures.

CONTROL NO. FER-0018 -6944

FEMP
SITE DOCUMENT SYSTEM

SDC No.	SC94-071
Effective Date:	12-16-94
Expiration Date:	06-16-95

SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER	2. AFFECTED DOCUMENT PAGE NUMBER
SSOP-0035	26

3. TITLE OR SUBJECT:
Satellite Accumulation Areas for Hazardous Wastes

4. ACTIVITY AND AREA AFFECTED:
Preparing a full SAA container for transfer to storage.

5. APPROVAL SIGNATURE:
Stu Hinnefeld — Division Mgr. — Date 12/14/94

6. CHANGE:

Section 7.6 is changed to read as follows:

31. Perform an independent check of the hazardous waste container per applicable procedures.

7. DOCUMENTATION CONTROL REQUIRED ACTION

[ ] No Procedure Action (Temporary Change)

[X] Revise affected procedure per this document.

FILING INSTRUCTIONS: File facing page 26, Document No. SSOP-0035
(Effective Date: 10-18-94, Revision No. 3)

7.6 PREPARING A FULL SAA CONTAINER FOR TRANSFER TO STORAGE (cont.)

QA

NOTE: Deviation reports will be completed for deficiencies found (i.e., incomplete paperwork and improper labelling).

SUPERVISOR/FACILITY OPERATOR

32. Correct any noted deficiencies and insert form and copy of the MEF/Verification into the plastic envelope on the lid or handle of the container.

33. Notify MVO and MC&A that a container of hazardous waste is ready for shipment to storage.

7.7 REPLACING FULL ACCUMULATION CONTAINER

SUPERVISOR/FACILITY OPERATOR

1. Contact MVO to deliver a replacement 30- or 55- gallon container and SAC (as applicable) or contact stores/purchasing to acquire a replacement 5- or 10- gallon container if one is not available in the area.

SAA GENERATOR

2. When the full accumulation container(s) has been prepared per Section 7.6 and removed, place a new accumulation container prepared per Section 7.3 in the SAA.

   a. If an excess container that meets the future accumulation needs of the SAA was used to store excess waste by or in the SAA, prepare the excess container per Section 7.3 and use it as the new accumulation container.

7.7 REPLACING FULL ACCUMULATION CONTAINER (cont.)

SAA GENERATOR

b. If an excess container that does not meet the future accumulation needs of the SAA was used to store excess waste by or in the SAA, perform the following: (1) empty the contents of the excess container in the new accumulation container; (2) mark out the date, time, and the hazardous waste markings on the excess container; (3) mark "Empty" on the excess container; (4) store the excess container as directed by supervisor(s); (5) place the new accumulation container and SAC (as applicable) into the SAA.

NOTE: The container used to store excess waste cannot be used to store any material other than the type of excess waste it was used for unless the container is decontaminated.

7.8 TRANSFERRING FULL SAA CONTAINER TO STORAGE

MVO

1. Transport full container to storage per the applicable division procedure and sign the 68/69 card.

OPERATOR/SUPERVISOR

2. If the waste is solution from photographic or drafting equipment, contact the Waste Programs Management for disposal.

7.9 INSPECTING AN SAA

CAUTION

A SPILL OR UNSAFE CONDITION SHALL BE REPORTED TO THE SUPERVISOR, OR IN THE SUPERVISOR'S ABSENCE, THE AEDO.

SAA GENERATOR

1. Inspect the SAA within seven calendar days of previous inspection and complete an FS-F-3136, "Hazardous Waste Satellite Accumulation Area Inspection Log" (see Figure 11).

2. If a defective container is found during inspection, proceed per Tables 1, 2, and 3 before completing the inspection log.

-6944

CONTROL NO. FER-0018

Page 1 of 1

FEMP
SITE DOCUMENT SYSTEM

SDC No.	SC94-072
Effective Date:	12-16-94
Expiration Date:	06-16-95

SITE DOCUMENT CHANGE

1. AFFECTED DOCUMENT NUMBER	2. AFFECTED DOCUMENT PAGE NUMBER
SSOP-0035	28

3. TITLE OR SUBJECT:
Satellite Accumulation Areas for Hazardous Wastes

4. ACTIVITY AND AREA AFFECTED:
Inspecting an SAA.

5. APPROVAL SIGNATURE:
S. Hinnefeld — Stu Hinnefeld — Division Mgr. — 12/14/94 — Date

6. CHANGE:

Section 7.9 is changed to read as follows:

1. Inspect the SAA weekly and complete an FS-F-3136, "Hazardous Waste Satellite Accumulation Area Inspection Log" (figure 11).

7. DOCUMENTATION CONTROL REQUIRED ACTION

[ ] No Procedure Action (Temporary Change)

[X] Revise affected procedure per this document.

FILING INSTRUCTIONS: File facing page 28, Document No. SSOP-0035
(Effective Date: 10-18-94, Revision No. 3)

7.9 INSPECTING AN SAA (cont.)

SAA GENERATOR

NOTE: Overpacking shall be completed per SOP 20-C-600, as required.

NOTE: Both the inspector and supervisor (who must be different people) shall sign and record the date and time the inspection was performed.

NOTE: Supervisor shall immediately correct deficiencies on Form FS-F-3136 found during inspection.

3. Transmit completed inspection log to supervisor of the SAA.

NOTE: Supervisor/Facility Operator shall review, sign, and distribute inspection log to HWC.

7.10 CLOSING AN SAA

SUPERVISOR/FACILITY OPERATOR

1. Determine if the SAA is no longer required based on usage.

2. When an SAA is not required, notify HWC in writing why the SAA is not needed along with a request for assistance in closing the SAA.

3. Handle the container(s) in the SAA per Steps 4 through 26 of Section 7.6 of this procedure.

HWC

4. When a closure request is received, survey the SAA to determine if the SAA is empty of accumulated waste.

   a. If the SAA is free of waste, proceed to step 5.

   b. If the SAA contains waste, transfer to RCRA Storage Area.

5. Transfer SAA accumulation logs and inspection records to the RCRA Operating Record maintained by HWC.

6. Notify applicable organizations in writing that the SAA is closed.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- 40 CFR 265, "Interim Status Standards of Hazardous Waste Treatment, Storage, and Disposal Facilities"
- 40 CFR 262, "Standards Applicable to Generators of Hazardous Waste"
- 40 CFR 261, "Identification and Listing of Hazardous Waste"
- 49 CFR 172, "Hazardous Material Regulations; General Information, Regulations, and Definitions"
- 49 CFR 173, "Shipper's General Requirements for Shipments and Packagings"

8.2 REFERENCES

- DOE/EH 0256T, "U.S. Department of Energy Radiological Control Manual"
- RM-0005, "FEMP Lot Marking and Color Coding System"
- SOP 20-C-600, "Overpacking Defective Containers"
- SOP 20-C-606, "Hazardous Material Spill Cleanup"
- SOP 20-C-910, "Venting Potentially Explosive Drums"
- SSOP-0002, "Completing the Material Evaluation Form"

TABLE 1
CORROSION INSPECTION TYPES

TYPE	CHARACTERISTIC	COULD CAUSE LOSS OF BOX INTEGRITY		CORRECTIVE ACTION
		YES	NO	
1	Holes, large dents, or large areas of corrosion that affect the structural integrity of the container or require the entire side to be painted	X		1. Notify Maintenance to patch. Overpack or repackage in another container. NOTE: Supervisors ensure that touchup or painting is completed. 2. Notify QA and MC&A of all repairs or repackaging of waste containers.
2	Heavy rust with areas of pitted metal flaking (> 18 square inches - hand size) and no holes present		X	1. HAZWATS scrape loose oxides and paint the area to be repaired.
3	Light surface rust with no pitting of the base metal		X	1. Wipe with masoline cloth or wash with soap and water, if needed to remove dirt. 2. Ship as is.

TABLE 2
LEAKER INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Material flowing from container and accumulation on, under, or around container.	1. Notify supervisor and Radiological Control (RC). 2. Supervisor notify AEDO. 3. Stop or contain leak as directed by supervisor. 4. Record on inspection form that the container requires mitigation within 24 hours. 5. Complete additional cleanup as necessary. 6. Supervisor initiate an Occurrence Report (OR).
2	Material on container exterior only; no material on, under, or around container.	1. Record leak on inspection form. 2. Notify supervisor and RC. 3. Supervisor initiate an OR. 4. Supervisor review the completed inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
3	Container exterior discolored/visible contamination; no material release.	1. Record condition on inspection form. 2. Notify supervisor and RC. 3. Supervisor schedule container for overpacking.

TABLE 3
DENT/BULGE INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affect container to degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

TABLE 4
MATERIAL REQUIRING VENTING

MTC CODES										
039[1]	040	041	042	046	055	056	070	075	076	080
081	084	098	103	104	107	109	110	111	112	113
114	118	119	120	124	125	128	129	130	131	136
137	141	153	161	218	219	220	221	222	223	224
225	227	228	229	230	231	232	233	234	235	236
237	238	239	240	241	242	243	244	245	246	251
252	254	260	261	262	263	300 and above				

[1] Material Type Code (MTC) 039 with source codes 655-659 do not require vented drums and can be moved without restrictions.

DANGER
NO SMOKING, MATCHES, OR OPEN FLAME

FEMP
HAZARDOUS SATELLITE ACCUMULATION AREA
Operator:_____
Operator No:_____

DANGER
NO SMOKING, MATCHES, OR OPEN FLAME

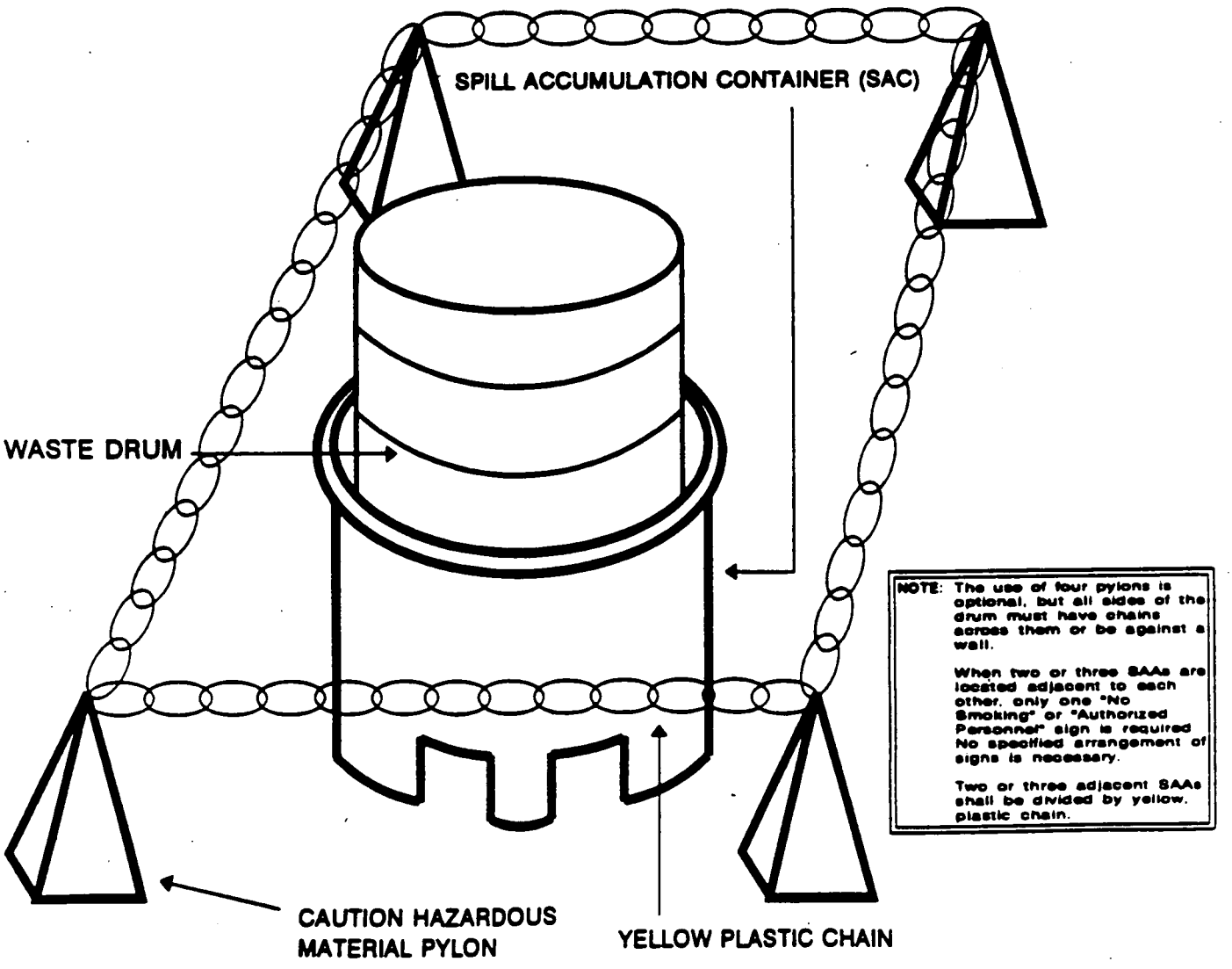
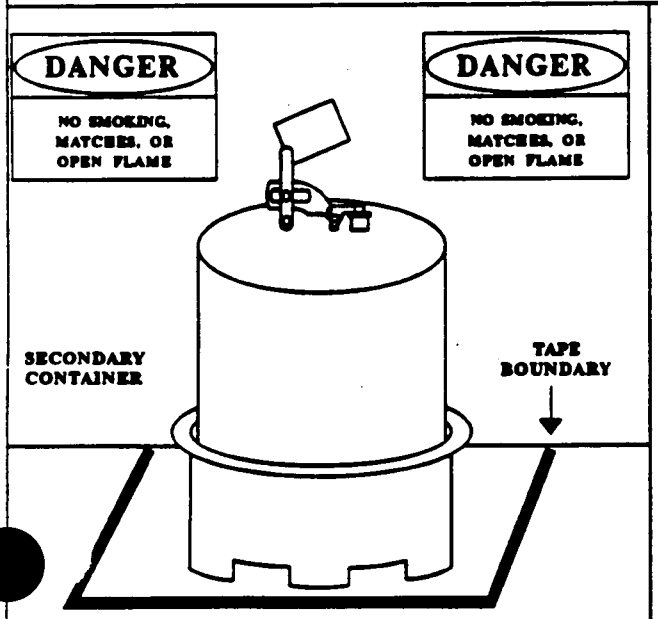
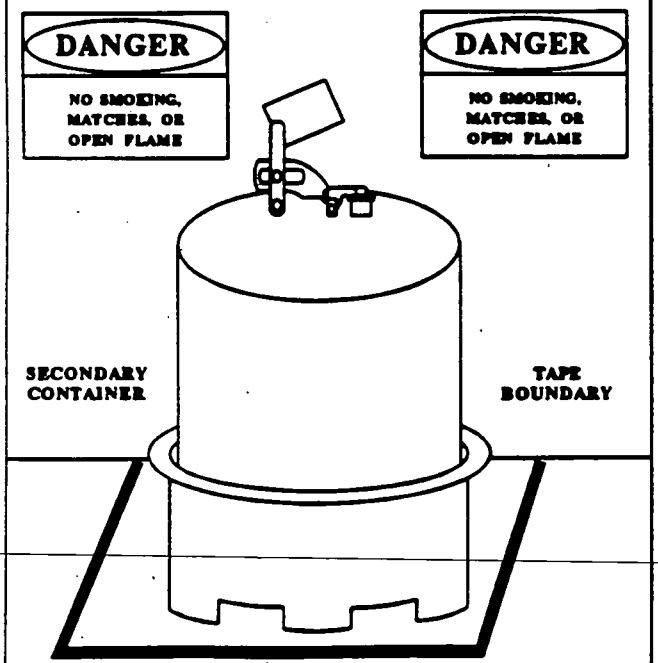


Figure 1 - Diagram of SAA for 30- and 55- Gallon Containers

TYPICAL EXAMPLE OF

SAA FOR 5 AND 10-GALLON CONTAINERS





FLAMMABLE/CORROSIVE CABINET FOR STORING APPROPRIATE MATERIALS

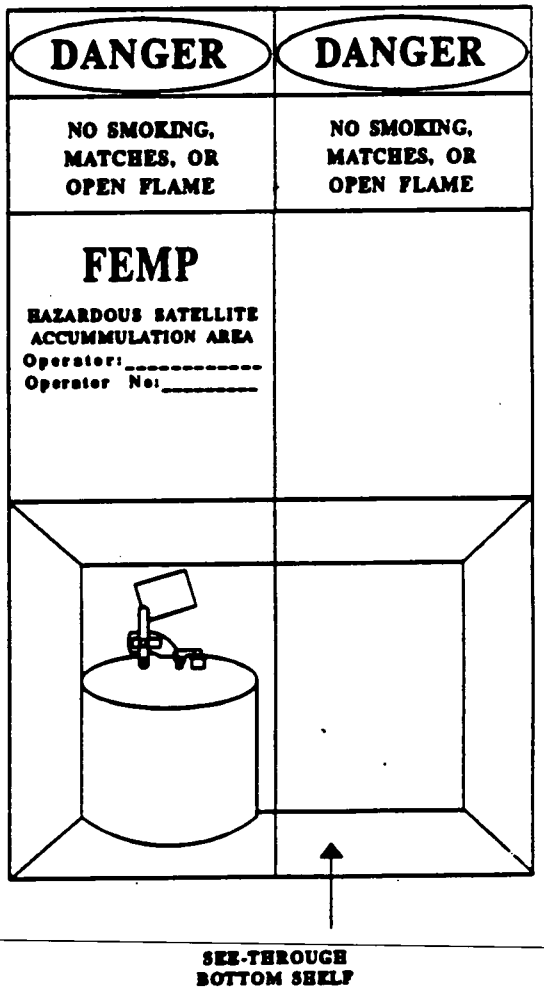
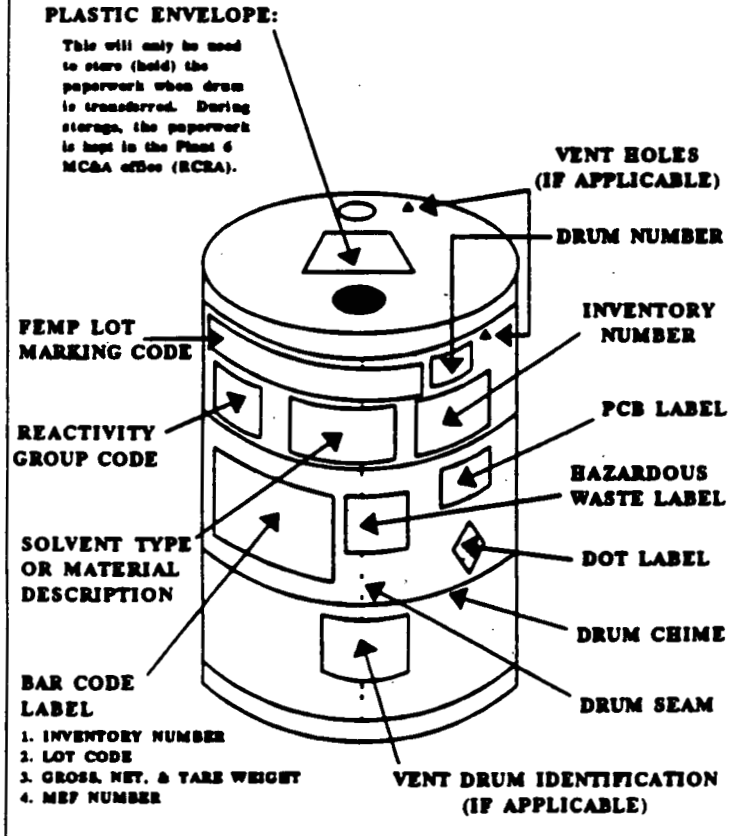


Figure 2 - Diagram of SAA for 5- and 10-Gallon Containers

NOTE: The labeling/stenciling/marking orientation shown on this diagram is for guidance only. Not all information shown is required on every container.

TYPICAL EXAMPLE OF

LABELING/STENCILING OF AN OPEN HEAD OR BUNG CONTAINER



TYPICAL EXAMPLE OF

MARKINGS/LABELS

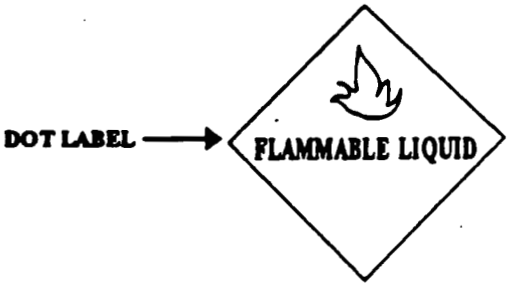
HAZARDOUS WASTE LABEL

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.

NAME _____
ADDRESS _____
CITY _____

HANDLE WITH CARE



SAC SPILL ACCUMULATION CONTAINER (EXAMPLE)

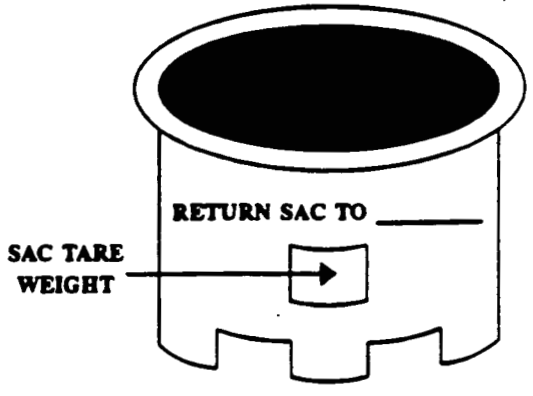
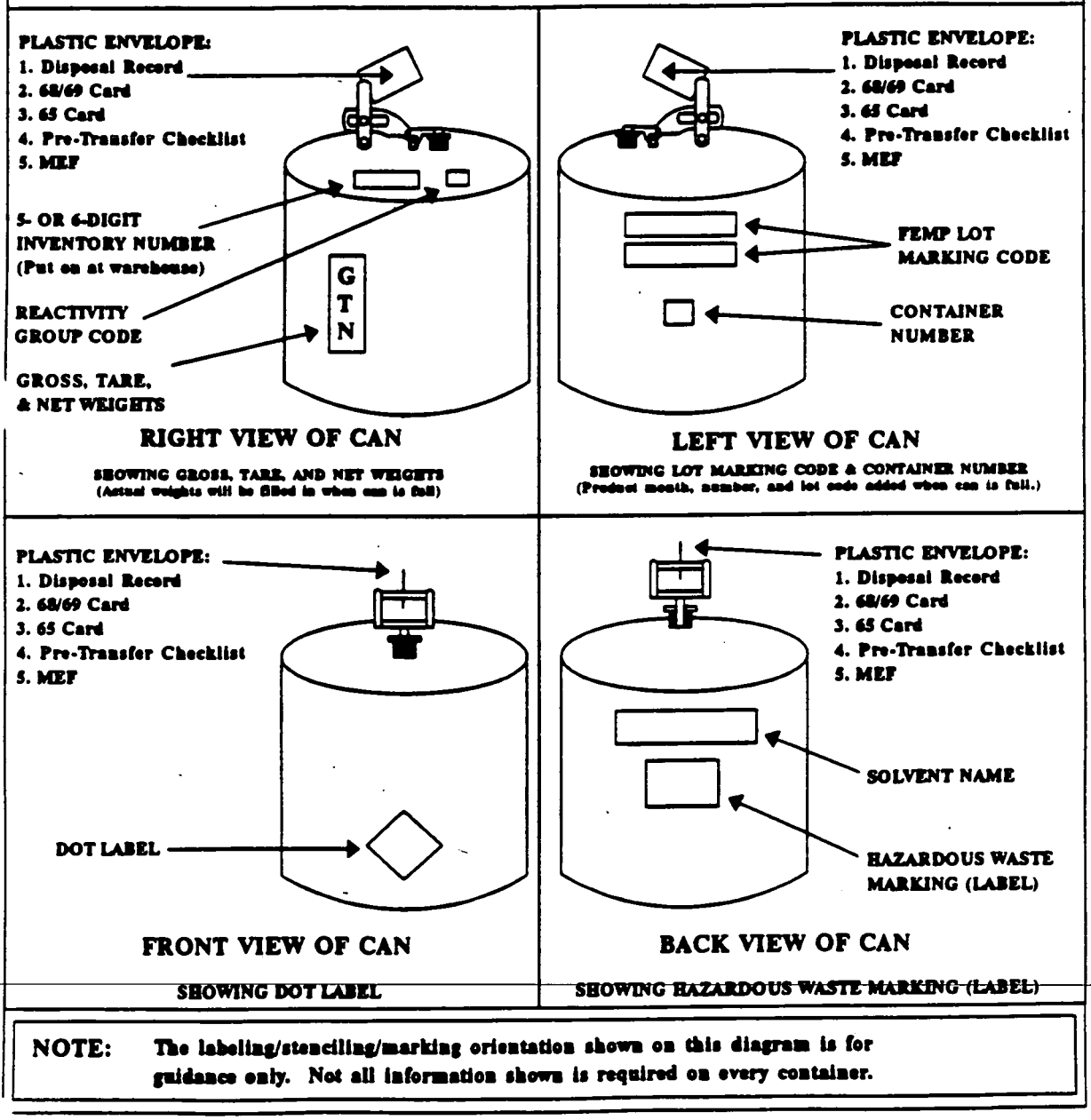


Figure 3 - Diagram of 30- and 55-Gallon Drum Identification

TYPICAL EXAMPLE OF

RCRA WASTE CONTAINER LABELING/MARKING



NOTE: The labeling/stenciling/marking orientation shown on this diagram is for guidance only. Not all information shown is required on every container.

Figure 4 - Diagram of 5- or 10-Gallon Container Identification

TYPICAL EXAMPLE OF RCRA WASTE CONTAINER LABELING/MARKING

NOTE: THE LABELING/STENCILING/MARKING ORIENTATION SHOWN ON THIS DIAGRAM IS FOR GUIDANCE ONLY. NOT ALL INFORMATION SHOWN IS REQUIRED ON EVERY CONTAINER.

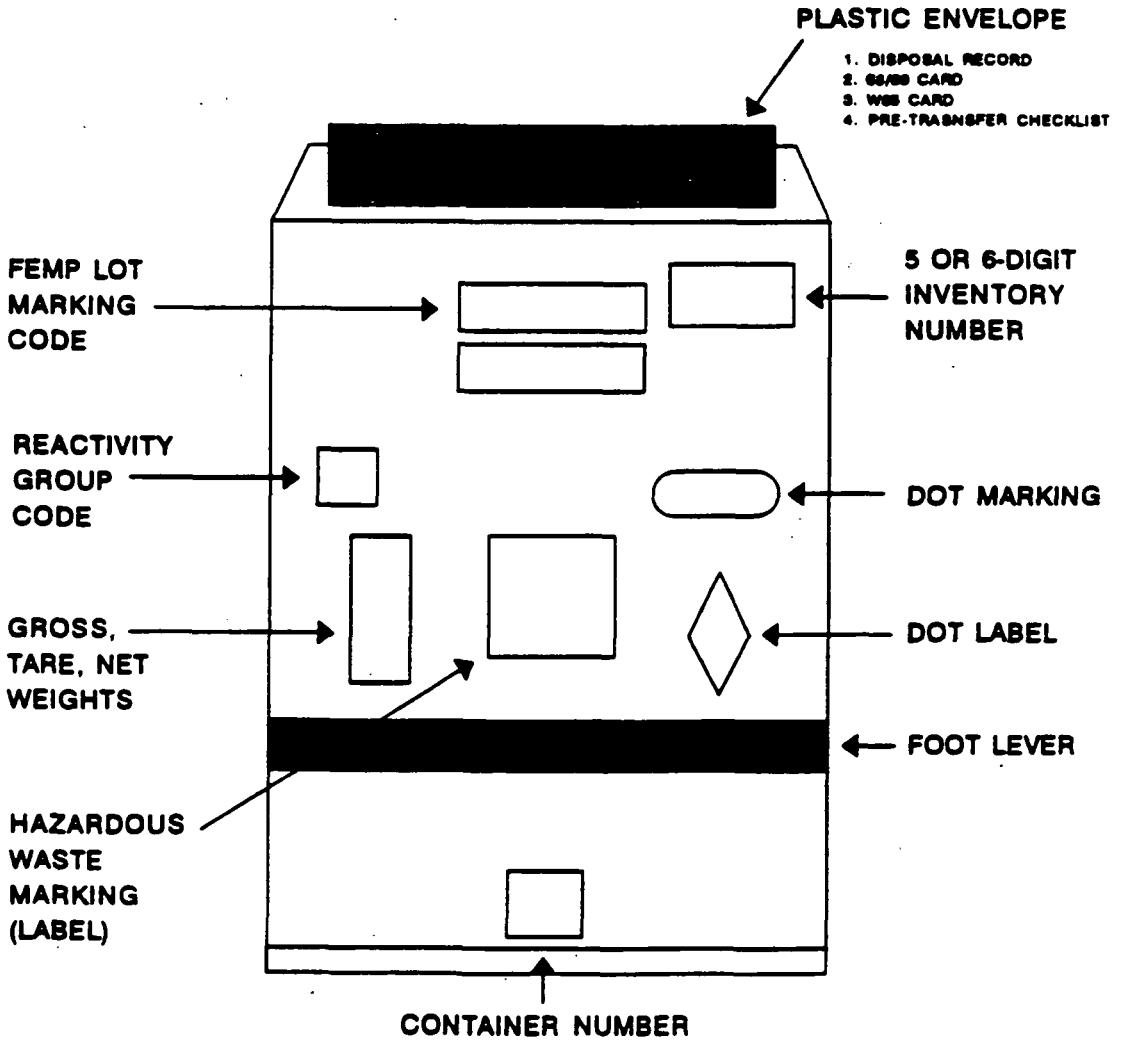


Figure 5 - Diagram of Five-Gallon Foot Lever Container

Fernald Environmental FERMCO Restoration Management Corporation	Title: SATELLITE ACCUMULATION AREAS FOR HAZARDOUS WASTES	
	DOCUMENT NO: SSOP-0035 REVISION NO: 3	
	Effective Date: 10-18-94	Page 39 of 44

FEMP

HAZARDOUS WASTE DISPOSAL RECORD

SATELLITE ACCUMULATION AREA NUMBER	MATERIAL DESCRIPTION	MEF/VERIFICATION NUMBER

DATE	GENERATOR'S BADGE NO.	COMMENTS (QTY, ETC.)

SUPERVISOR SIGNATURE:	CONTAINER DECLARED FULL: DATE:	TIME:

NO.	DISTRIBUTION OF COPIES	
1	White	ATTACHED TO CONTAINER
	Yellow	HAZARDOUS WASTE COMPLIANCE/RCRA OPERATOR RECORD

EV 04/29/94)

Figure 6 - Hazardous Waste Disposal Record
FS-F-3064

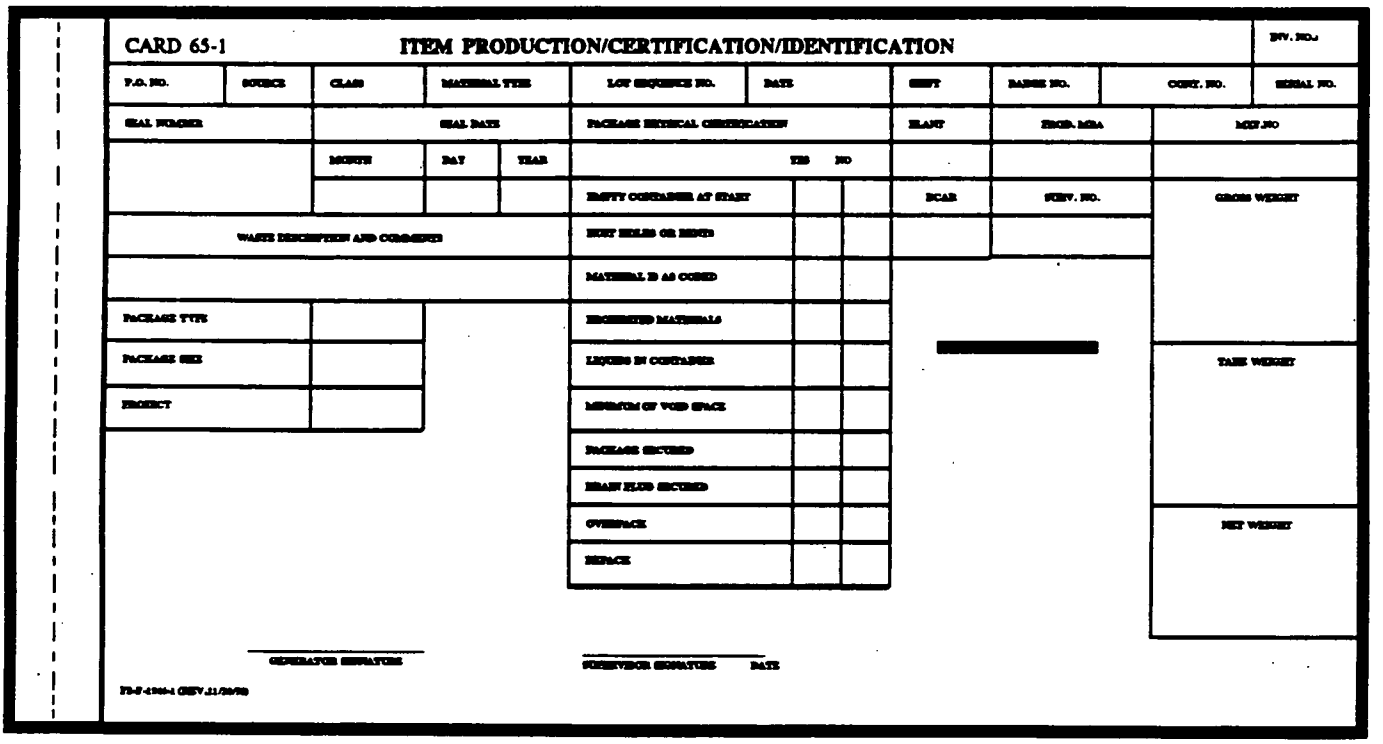


Figure 7 - Item Production/Certification/Identification (65 Card)
FS-F-1945-xx

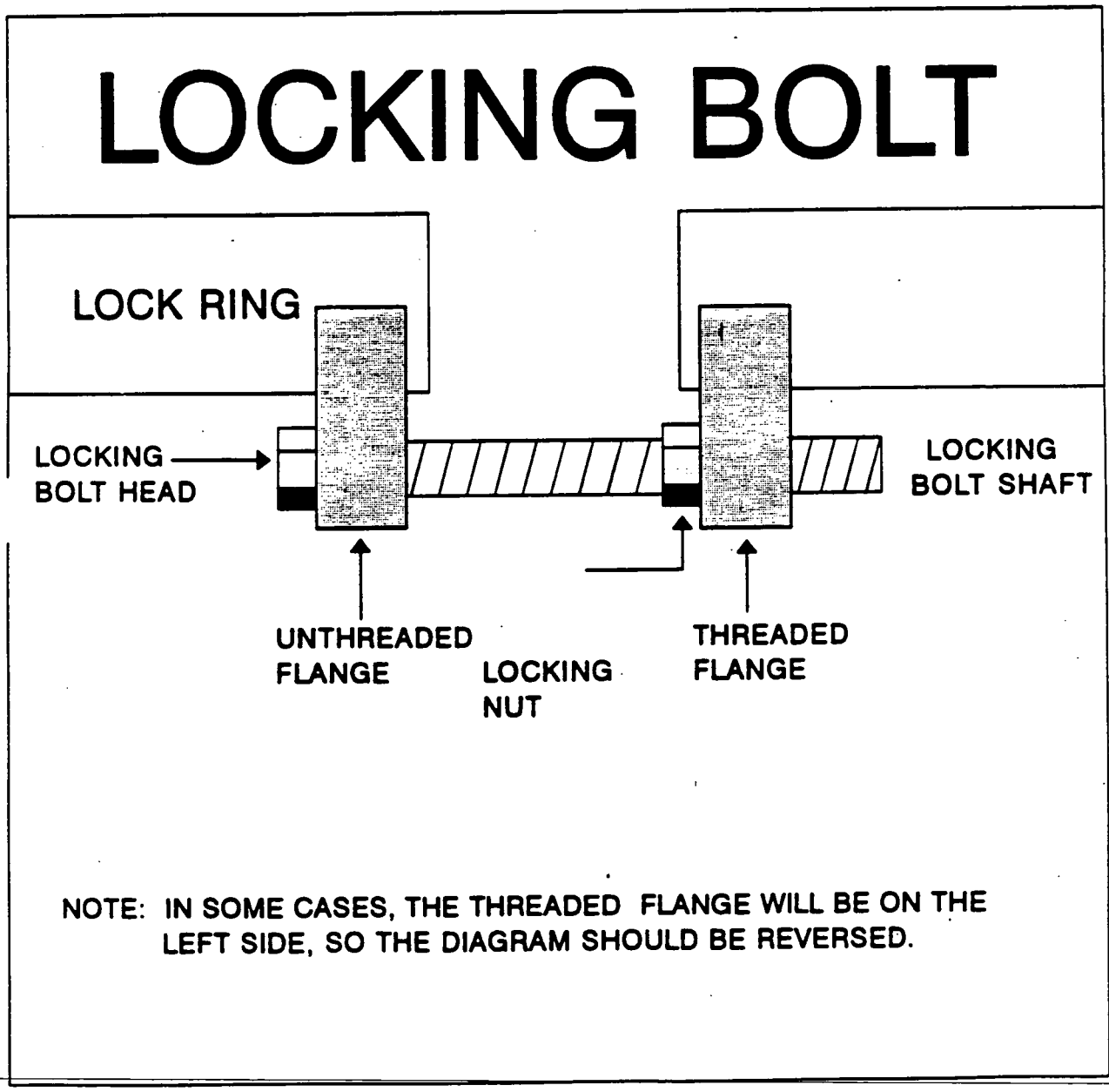
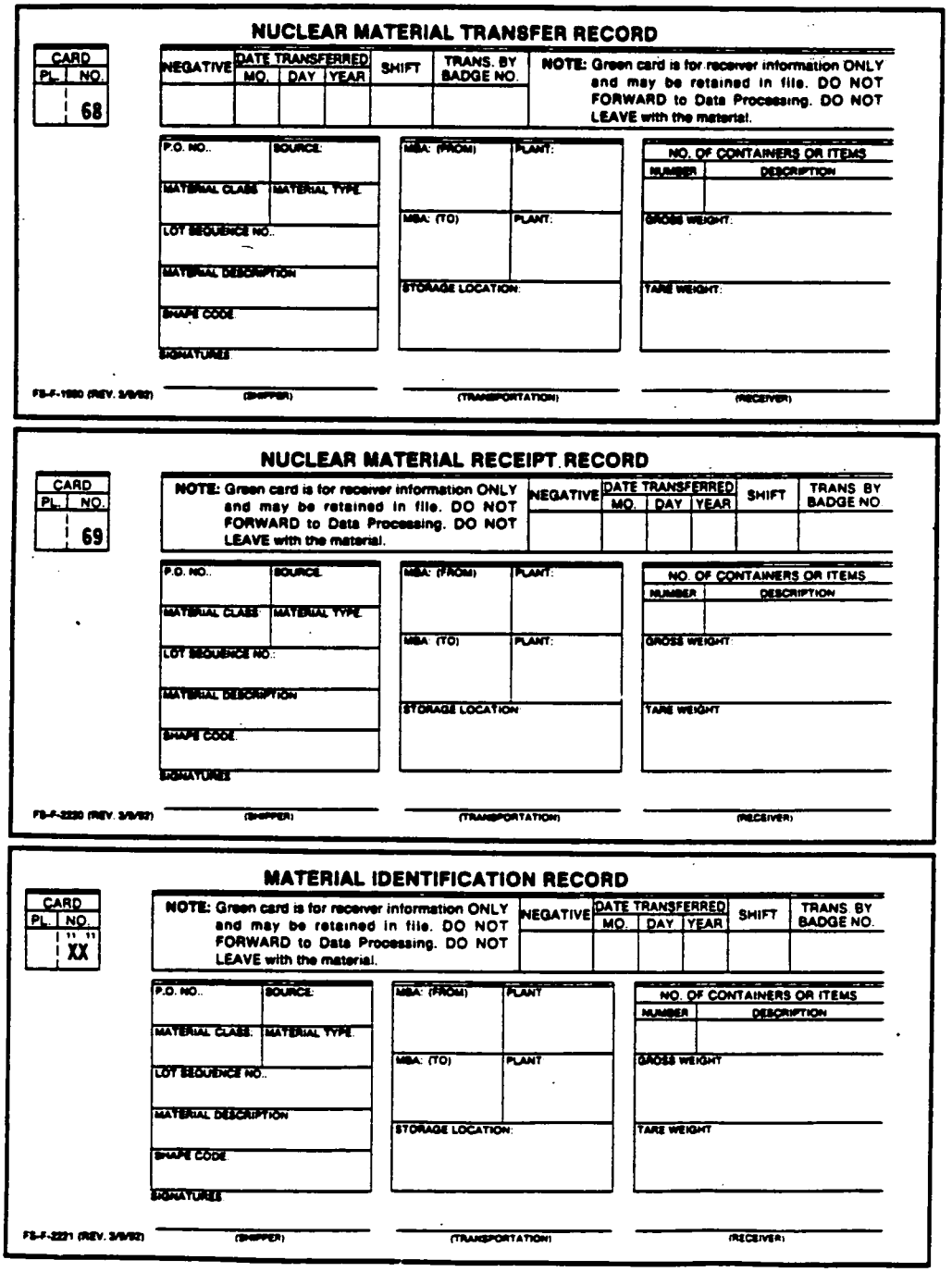


Figure 8 - Installation of Bolt-Type Locking Ring



NUCLEAR MATERIAL TRANSFER RECORD

CARD PL. NO. 68

NEGATIVE | DATE TRANSFERRED MO. DAY YEAR | SHIFT | TRANS. BY BADGE NO.

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

P.O. NO. | SOURCE:
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO.
MATERIAL DESCRIPTION
SHAPE CODE
SIGNATURES

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS
NUMBER | DESCRIPTION
GROSS WEIGHT:
TARE WEIGHT:

FS-F-1990 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

NUCLEAR MATERIAL RECEIPT RECORD

CARD PL. NO. 69

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE | DATE TRANSFERRED MO. DAY YEAR | SHIFT | TRANS BY BADGE NO

P.O. NO. | SOURCE
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO.
MATERIAL DESCRIPTION
SHAPE CODE
SIGNATURES

MBA: (FROM) | PLANT:
MBA: (TO) | PLANT:
STORAGE LOCATION

NO. OF CONTAINERS OR ITEMS
NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT

FS-F-2220 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

MATERIAL IDENTIFICATION RECORD

CARD PL. NO. " " XX

NOTE: Green card is for receiver information ONLY and may be retained in file. DO NOT FORWARD to Data Processing. DO NOT LEAVE with the material.

NEGATIVE | DATE TRANSFERRED MO. DAY YEAR | SHIFT | TRANS BY BADGE NO.

P.O. NO. | SOURCE
MATERIAL CLASS | MATERIAL TYPE
LOT SEQUENCE NO.
MATERIAL DESCRIPTION
SHAPE CODE
SIGNATURES

MBA: (FROM) | PLANT
MBA: (TO) | PLANT
STORAGE LOCATION:

NO. OF CONTAINERS OR ITEMS
NUMBER | DESCRIPTION
GROSS WEIGHT
TARE WEIGHT

FS-F-2221 (REV. 3/9/92) (SHIPPER) (TRANSPORTATION) (RECEIVER)

Figure 9 - Nuclear Material Transfer Record (68/69 Card)
FS-F-1990

FEMP
HAZARDOUS WASTE CONTAINER PRE-TRANSFER CHECKLIST

INSPECTOR'S NAME:				INSPECTOR'S BADGE NO.:	
SATELLITE ACCUMULATION AREA NUMBER:		LOCATION:		DATE:	TIME:

ITEM NO.	INSPECTION	ACCEPTABLE		CORRECTIVE ACTION & DATE CORRECTED
		YES	NO	
1	Container label arrangement is correct per SSOP-0035			
2	Locking ring and lock bolt are secure on drum (±6" from drum seam)			
3	FEMP Lot Marking Code, Container Number, and Reactivity Code are applied			
4	Weights on the XX card correspond to weights on drum			
5	Weights are correctly encilled on container			
6	X (65 card) and 68/69 card are complete and signed			
7	Container full date has been recorded on the Hazardous Waste Label as start date *			
8	Container exterior acceptable per SSOP-0035 criteria			
9	Container exterior and SAC container have no leaks and are clean			
10	Hazardous Waste Label completed **			
11	Hazardous Waste Disposal Record is complete and in envelope			
12	Material Evaluation Form (MEF)/Verification is in envelope			

* *NOTE 1: Date should be the same date appearing on Hazardous Waste Disposal Record Sheet*

** *NOTE 2: Should include Generator's name/address, EPA ID No., Telephone number, EPA waste number and should be written in waterproof ink.*

COMMENTS:

INSPECTOR'S SIGNATURE:	DATE:	SUPERVISOR'S SIGNATURE:	DATE:

07/29/94)

Figure 10 - Hazardous Waste Container Pre-Transfer Checklist
FS-F-3133

HAZARDOUS WASTE SATELLITE ACCUMULATION AREA INSPECTION LOG

ACCUMULATION AREA:	LOCATION:	DATE:	TIME:

ITEM NO.	INSPECTION ITEM	ACCEPTABLE			CORRECTIVE ACTION & DATE CORRECTED
		YES	NO	N/A	
1	"Danger-No Smoking, Matches, or Open flame" sign posted				
2	"Danger–Authorized Personnel Only" sign posted				
3	"FEMP Hazardous Waste Satellite Accumulation Area" sign posted including facility owner name and phone number				
4	SAA floor free of spilled/leaked waste				
5	SAA identified and accessible				
6	SAC container free of spilled/leaked waste				
7	Container compatible with waste accumulated				
8	Container Exterior–no dents, chipped paint, corrosion				
9	Container Condition–no leakage, particularly at seams				
10	FEMP Lot Marking complete, and stencilled, (located on the upper third of drum side)				
11	SAC Container Tare Weight Marking complete, stencilled and located properly				
12	Form FS-F-3064 initiated, and inside envelope, (located on top of a drum)				
13	Form FS-F-1945-XX initiated with lot no., container type, and size recorded				
14	Form FS-F-1945-XX inside envelope				
15	"Hazardous Waste Label" complete and affixed (located on a drum, middle right side of drum seam)				
16	Lid secure on container (lock ring on drum, lid down on funnel)				
* 17	Container waste level (3" from the top is full)				
18	Accessibility to spill control and emergency response equipment				
19	Accessibility to two-way communication devices				

* **Record the approximate waste level of container in the COMMENTS section.**

COMMENTS: _____

INSPECTOR'S SIGNATURE:	DATE:	SUPERVISOR'S SIGNATURE:	DATE:

FS-F-3136 (Rev. 7/13/93)

Figure 11 - Hazardous Waste Satellite Accumulation Area Inspection Log
FS-F-3136

Fernald Environmental Management Project Fernald Environmental Restoration Management Corp. REMEDIATION SUPPORT OPERATIONS DOCUMENT PROGRAM		Page 1 of 9 Revision No. 0 Revision Date: N/A
REMEDIATION SUPPORT OPERATIONS PROCEDURE	Inspecting RCRA Waste Load/Unload and Staging Areas	SOP 20-C-500 Area: As Applicable
(Signature on File) Authorization: G. Hazlewood, Waste Treatment and Storage Manager	Supersedes: SOP 20-C-500 Dated: 04-14-92	Issue Date: 09-07-94

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NON-CONTROLLED COP

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- 3.1 Supervisors 2
- 3.2 Operators 2
- 3.3 Waste Operations Support 3

4.0 SAFETY REQUIREMENTS 3

5.0 PROCEDURE 4
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- 5.2 Staging Area Inspection 5
- 5.3 Record Distribution 5

6.0 DEFINITIONS 6

7.0 APPLICABLE DOCUMENTS 6
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Forms

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2 Trailer Staging Area Pre- and Post Load/Unload of (RCRA Material) Inspection Checklist 8

1.0 PURPOSE

The purpose of this document is to establish the procedure for inspecting areas used for loading/unloading and staging containers of RCRA material.

2.0 SCOPE

This procedure is applicable to any area, with the exception of Satellite Accumulation Areas, where RCRA material is loaded/unloaded or staged (including warehouses, plant pads, and trailer staging areas) for shipping, receiving, or interplant transfer of RCRA containers (drum or white metal boxes).

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

- Notifying support organizations when assistance is required during inspection.
- Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.
- Specifying segregation of containers if incompatible wastes are positioned together prior to shipment or storage.
- Notify the AEDO and complete the report following SSOP-1018 and ED-0001 if a spill occurs.
- Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection and/or personal protective equipment for the task being performed.
- Issuing the required respiratory protection and/or personal protective equipment to personnel according to applicable permits.
- Obtaining and posting any or all work permits that will be required for the task.
- Reviewing applicable Material Safety Data Sheets (MSDSs) and Material Evaluation Forms (MEFs) with personnel.

3.2 **Personnel** shall be responsible for complying with this Standard Operating Procedure (SOP).

3.0 RESPONSIBILITIES (cont.)

3.3 **Waste Operations Support** shall be responsible for the following:

- Assisting the responsible Supervisor while inspecting loading/unloading and/or staging areas.
- Providing the inspecting Supervisor with the layout of dock area.

4.0 SAFETY REQUIREMENTS

4.1 Safety glasses shall be worn unless other eye protection is required by Industrial Hygiene (IH) or Radiological Control (i.e. goggles or full-faced respirators).

4.2 Chemical cover goggles or face shield, rubber apron, and neoprene rubber gloves shall be worn when handling caustic, acids, or a chemical that could cause skin damage.

4.3 Respiratory protection and Personal Protective Equipment (PPE) issued by the Supervisor shall be worn when required by IH or Radiological Control.

4.4 Leather-palm gloves shall be worn while handling drums or operating equipment and when handling rough, sharp-edges.

4.5 In case of contact with acid or caustic, contaminated clothing shall be removed and the affected body area flushed with water in an eye bubbler/safety shower. Injured personnel shall report to Medical Services.

4.6 A release of hazardous waste shall be reported per SOP 20-C-606.

4.7 Employees shall have reviewed, and be familiar with, MSDSs or MEFs for chemical/hazardous materials that may be used or encountered.

4.0 SAFETY REQUIREMENTS (cont.)

4.8 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

4.9 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR)(Form No. FS-F-1458), and submitting bioassay samples (e.g., blood, urine, etc.). Employees are responsible for complying with any additional requirements as specified by ES&H.

4.10 Plumbed eyewashes shall be flushed weekly. Portable eyewashes shall have the pressure checked weekly and fluids changed every 6 months. All eyewashes shall be located within 100 ft. of the work area.

5.0 PROCEDURE

- Inspection of RCRA material loading, unloading and staging ares is required per 40 CFR section 265.15.

-6944

5.0 PROCEDURE (cont.)

5.1 Inspecting Loading/Unloading Areas

- Inspect loading/unloading and staging areas and the containers in these areas at the start of the shift when loading/unloading is scheduled per the "RCRA Waste Loading/Unloading Area Inspection Log," Form No. FMPC-OPR-3268 (See Form 1).

  - Emergency and spill response equipment shall be accessible, intact, and have a current inspection or charge tag.

  - Containers of RCRA material and recovery drums with rust/corrosion, dents, holes, bulges or with any other condition that could have an adverse affect on container integrity are unacceptable. (In the case of a spill refer to SOP 20-C-606 and for leaking container overpack per SOP 20-C-600).

  - Floors and curbs shall be free of debris and intact (no cracks, breaks, holes).

  - Not Applicable (N/A) shall be entered in the Comments section with an explanation when an item does not apply.

5.2 Staging Area Inspection

- Inspect trailer staging areas per the "Trailer Staging Area Pre- and Post Load/Unload of (RCRA Material) Inspection Checklist," Form No. FS-F-3305 (See Form 2).

NOTE: Only one inspection per day is required, before or after loading/unloading RCRA material.

5.3 Record Distribution

- Turn the completed inspection forms over to the Supervisor.

  - The Supervisor shall obtain "Work Requests" (if applicable) to correct unacceptable conditions listed on the form. The work order number must be listed on every inspection form until the date that it has been corrected.

  - ~~Completed inspection forms shall be distributed to the RCRA Operating Records as required~~ and maintained in a file for three years from the date of the inspection.

6.0 DEFINITIONS

6.1 Hazardous Waste - A discarded material which is listed in the Environmental Protection Agency Hazardous Waste List, fails the TCLP test, or exhibits any of the following three characteristics; ignitability, corrosivity, or reactivity. Both "listed" and "characteristics" wastes are regulated under RCRA.

6.2 Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous waste.

6.3 Loading/Unloading Areas - Permanent areas where RCRA material is placed on, removed from, vehicles.

6.4 Staging Areas - Temporary area established to load/unload trailers of RCRA material.

7.0 APPLICABLE DOCUMENTS

7.1 **Drivers**

7.1.1 PO-D-026, "Site Services Document Program"

7.1.2 RM-0012, "Quality Assurance Program Description"

7.2 **References**

7.2.1 SOP 20-C-606, "Hazardous Material Spill Clean-Up"

7.2.2 SOP 20-C-600, "Overpacking Defective Containers"

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FEMP
RCRA WASTE LOADING/UNLOADING AREA INSPECTION LOG

Area: _____ Inspected By: _____ Badge No. _____

Date: _____ Supervisor: _____ Badge No. _____

ITEM	DESCRIPTION	ACCEPTABLE		DESCRIPTION OF[1] UNACCEPTABLE CONDITION	COMMENTS
		YES	NO		
1	Fire Extinguisher				
2	EXIT sign				
3	DANGER - NO SMOKING OPEN FLAME OR MATCHES sign				
4	DANGER-AUTHORIZED PERSONNEL ONLY sign				
5	Recovery drums				
6	Absorbent pads				
7	Spill material PIGs				
8	Leather-palm gloves				
9	Rubber gloves				
10	Rubber boots				
11	Disposable coveralls				
12	Respirators and cartridges				
13	Shovels				
14	Brooms				
15	Spill kit accessible				
16	Emergency call number posted				
17	Curb intact				
18	Floor/liner sealed/intacted				
19	Free liquid on floor/liner				
20	Condition of containers[2]				

(1) If a Work Request was issued for correction, list the Request Number, Item Number, and date corrected: _____

_____

_____

(2) Indicate corrosion (I, II, III) or leaker type (I, II, or III) in the description column.

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1	ORIGINAL	WASTE MANAGEMENT CONTROL FILES
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3	COPY	RCRA OPERATING RECORDS

FORM 1

000251

FEMP
TRAILER STAGING AREA PRE- AND POST-LOAD/UNLOAD OF (RCRA MATERI INSPECTION CHECKSHEET

DATE:	AREA:	INSPECTED BY:

PRE-LOAD/UNLOAD INSPECTION

INSPECT FOR	ACCEPTABLE		DESCRIPTION	WORK REQUEST REQUIRED		WORK REQUEST NUMBER	DATE COMPLETED
	YES	NO		YES	NO		
Spill cleanup equipment accessible (1)							
Evidence of spill (2)							
Container condition (3)							

POST-LOAD/UNLOAD INSPECTION

INSPECT FOR	ACCEPTABLE		DESCRIPTION	WORK REQUEST REQUIRED		WORK REQUEST NUMBER	DATE COMPLETED
	YES	NO		YES	NO		
Signs of leakage							
Container condition (4)							
Material stored in accordance with applicable SOPs							

(1) Do not load or unload unless all spill equipment is accessible.

(2) Do not unload containers until spill material has been removed and permission granted to unload.

(3) Do not load/unload damaged containers.

(4) Do not move damaged containers into storage.

REMARKS: _____

INSPECTOR SIGNATURE:	BADGE NO.:	DATE/TIME:
SUPERVISOR SIGNATURE:	BADGE NO.:	DATE/TIME:

NO.	DISTRIBUTION OF COPIES	
1	ORIGINAL	WASTE MANAGEMENT CONTROL FILES
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FORM 2

RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
04-14-92	0	Procedure required for inspecting RCRA Loading/Unloading and Trailer Staging Areas per request P90-357, initiated by J. W. Ogg.
08-09-93	1	Revised to incorporate CIO C93-126 per Request P93-767 and update to conform with Procedure Program requirements.
09-07-94	0	Reissue of document to update to current requirements per Request No. P94-0398, initiated by J. Baarlaer. The document format does not conform to current RSO SOP format per PO-D-026, format changed at the request of 20-C-500 document owner.

CONTROL NO. FEB'0018
SITE PROCEDURE PT-0002 (SSOP-0008)
REVISION NO. 1

PACKAGING AND TRANSFERRING UNCHARACTERIZED WASTE TO THE CONTROLLED HOLDING AREA

Effective Date: 01-13-92 NON-CONTROLLED COPY

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: M L West 2/15/95
Michael L. West, Manager of Packaging and Transportation Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

CONTROL NO. FEA-0018
SITE PROCEDURE OP-0002 (SSOP-0028)
REVISION NO. 1

CONTROLLING PORTABLE HEPA FILTRATION DEVICES (HFDs)

NON-CONTROLLED COPY

Effective Date: 06-02-94

Originator (Subject Expert): _____ Date

Checker Concurrence: _____ Date

APPROVED BY: Don Paine, FAM _____ 3/22/94 Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

1.0 PURPOSE

The purpose of this document is to establish the procedure for operating NORCLEAN vacuum cleaners.

UNCONTROLLED COPY

2.0 APPLICABILITY

This procedure is applicable to NORCLEAN vacuums used at the FEMP.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Contacting Industrial Hygiene and Radiological Control to determine the appropriate respiratory protection for the process to be performed.

3.1.2 Issuing the required respiratory protection to operators.

3.1.3 Ensuring personnel are qualified per the established training requirements identified by the Division Manager.

3.1.4 Obtaining and posting a "Radiation Work Permit" (RWP) before opening a vacuum.

3.1.5 Signing the "Vacuum Cleaner/Negative Pressure Device Check Out/Check In Log" Form FS-F-2631 when a NORCLEAN vacuum is removed from, or moved into, an assigned building.

3.1.6 Contacting Industrial Hygiene to determine the information required for Hazard Communications Labels.

3.1.7 Arranging for repair of damaged and/or inoperative equipment.

3.1.8 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2 **Operators** shall be responsible for complying with this SOP.

4.0 DEFINITIONS

4.1 Filter Integrity Test - A test to measure bypass leakage around/through the HEPA filter.

4.2 High Efficiency Particulate Air (HEPA) Filter - A filter that removes 99.97% of 0.3 micron or larger particles from the vacuum exhaust air per UL 586.

4.0 **DEFINITIONS** (cont.)

4.3 Knockout Drum - A drum with a special lid attached that collects liquids or residues for transfer and/or storage.

4.4 Power Head - The part of the vacuum cleaner that produces the suction.

4.5 Prefilter Bag - A polyester felt filter that prevents large particles from reaching the HEPA filter.

5.0 **APPLICABLE DOCUMENTS**

5.1 Drivers

5.1.1 RM-0012, "Quality Assurance Program Description"

5.1.2 PO-D-026, "Site Services Document Program"

5.2 References

5.2.1 SOP 20-C-100, "Moving and Storing Depleted, Normal, and Enriched Uranium Materials <20% and Thorium Metal and Material"

5.2.2 SOP 20-C-707, "DOP Testing In-Place HEPA Filters"

5.2.3 SOP 20-C-904, "General Nuclear Safety Requirements"

5.2.4 SSOP-0035, "Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers"

5.2.5 RM-0005, "FEMP Lot Marking and Color Coding System"

6.0 **INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS**

6.1 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.2 Nuclear safety requirements of the SOP or MS for the applicable area shall be observed for the material removed from the dust collector.

6.3 Safety glasses shall be worn unless additional eye/face protection is specified by the supervisor, posted signs, or ES&H.

6.4 Respiratory protection provided by the supervisor shall be worn when required by ES&H.

6.5 Leather-palm gloves shall be worn when handling drums and while operating the vacuum.

6.6 Material removed from the vacuum shall be moved and stored per SOP 20-C-100, 20-C-904, and SSOP-0035.

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REMEDIATION SUPPORT OPERATIONS
TEMPORARY CHANGE NOTICE (TCN)

1

ONLY ONE TCN CHANGE PERMITTED PER DOCUMENT PAGE

1. NOTE: TCN not valid without Supervisor signature, Manager initials and Operator signature (when required).

SUPERVISOR: Brian Howard EXT: 6449 SIGNATURE: (Signature on File)

OPERATOR: Robert Schallick EXT: 6637 SIGNATURE: (Signature on File)

DOCUMENT OWNER: Frank Peters SUPV. ORG.: RSO CHARGE NUMBER:

2. EFFECTIVE DATE OF CHANGE: 01-03-95

3. EXPIRATION DATE OF CHANGE: 07-03-95 ***NOTE: Maximum effective period six months.***

4. AFFECTED DOCUMENT NUMBER: SOP 20-C-700

5. AFFECTED PAGE NUMBER 1

NON-CONTROLLED COPY

6. DOCUMENT ISSUE DATE: 03-02-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 3.3 is added to read as follows:

3.3 **Electricians** shall be responsible for properly grounding the Norclean Vacuum units as specified in this SOP.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TCN TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.7 When working in dusty conditions, the exterior of clothing shall be vacuumed before removing respirator.

6.8 A preoperational inspection shall be completed before operating the vacuum cleaner.

6.9 The power cord on electrical units shall not be plugged in or the vacuum operated, in areas of standing water.

6.10 Extension cords shall be equipped with, or plugged into, a Ground Fault Protector.

6.11 The vacuum shall not be used to vacuum wet material or liquid unless the vacuum is equipped with a vendor supplied/recommended water separator device.

6.12 Air supply to air operated units shall be off and air supply hose bled empty before disconnecting the air supply from the vacuum cleaner.

6.13 Clothing and body parts shall be clear of the suction inlets and suction hoses of operating units.

6.14 The suction hose shall not be pointed towards personnel or materials that are not to be collected.

6.15 The vacuum exterior, hoses, separator lids, and vacuum accessories shall be identified with a "Hazard communications Label."

6.16 Units with frayed, burnt, or cut power cords or cords that have damage extending through the insulated covering shall not be used.

6.17 The vacuum shall be disconnected from the power source prior to maintenance or before the vacuum is opened.

6.18 Prior to emptying the unit, changing filters, or cleaning the vacuum interior, a "Radiation Work Permit" shall be obtained and posted.

6.19 Spills shall be vacuumed as soon as the spill occurs and Radiological safety notified.

6.20 In addition to the regular schedule, HEPA filters shall be DOP tested after installation or after the unit has been opened.

6.21 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.22 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Item or Step to which they apply.

8.0 PROCEDURE

8.1 Prestart Inspection

8.1.1 Prior to use, inspect the vacuum cleaner per the "Portable Dust Collector Operating Log," Form FS-F-2630 (See Figure 1).

8.1.2 For air powered NORCLEAN Vacuums, also inspect as follows:

8.1.2.1 Check that the ON/OFF Valve is OFF and not damaged.

8.1.2.2 Check that the air supply is free of water and debris.

8.1.2.3 Check that the supply hose has a one inch Chicago fitting secured to the air supply and vacuum with safety wire or pin.

8.1.2.4 Check the supply hose for cracks, tears, or noticeable damage.

NOTE: A current, intact Integrity Test sticker shall be considered proof that the filters are correctly installed.

8.1.3 Check that the dust bag and prefilter/HEPA filter are correctly installed.

8.1.4 Notify the supervisor if the unit does not meet inspection criteria.

8.2 Knockout Lid Installation

8.2.1 If a drum equipped with a knockout lid is to be used for pickup and storage of material, tare weigh a 55 gallon drum that is color-coded per RM-0005.

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2) The following Steps are added to follow Step 8.4 to read as follows:

8.4A When vacuuming UF_4, or UF_4, an electrician must properly ground vacuum unit as follows:

8.4A.1 Loosen a single metal screw on the vacuum unit housing.

8.4A.2 Attach one end of an appropriate length of #14 groundwire with one full wrap around shaft of metal screw.

8.4A.3 Retighten metal screw.

8.4A.4 Attach opposite end of #14 groundwire to a clean, bare surface of a structural steel member with a grounding clamp.

8.4A.5 Ensure #14 groundwire and grounding clamp are secure.

REMEDIATION SUPPORT OPERATIONS
TEMPORARY CHANGE NOTICE (TCN)

1

ONLY ONE TCN CHANGE PERMITTED PER DOCUMENT PAGE

1. NOTE: TCN not valid without Supervisor signature, Manager initials and Operator signature (when required).

SUPERVISOR: Brian Howard EXT: 6449 SIGNATURE: (Signature on File)

OPERATOR: Robert Schallick EXT: 6637 SIGNATURE: (Signature on File)

DOCUMENT OWNER: Frank Peters SUPV. ORG.: RSO CHARGE NUMBER:

2. EFFECTIVE DATE OF CHANGE: 01-03-95

3. EXPIRATION DATE OF CHANGE: 07-03-95 ***NOTE: Maximum effective period six months.***

4. AFFECTED DOCUMENT NUMBER: SOP 20-C-700

NON-CONTROLLED COPY

5. AFFECTED PAGE NUMBER 5

6. DOCUMENT ISSUE DATE: 03-02-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) The following Steps are added to follow Step 8.3.1 to read as follows:

8.3.1A When vacuuming UF_4, or UF_4, an electrician must properly ground vacuum unit as follows:

8.3.1A.1 Loosen a single metal screw on the vacuum unit housing.

8.3.1A.2 Attach one end of an appropriate length of #14 groundwire with one full wrap around shaft of metal screw.

8.3.1A.3 Retighten metal screw.

8.3.1A.4 Attach opposite end of #14 groundwire to a clean, bare surface of a structural steel member with a grounding clamp.

8.3.1A.5 Ensure #14 groundwire and grounding clamp are secure.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TCN TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

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8.0 PROCEDURE (cont.)

NOTE: The supervisor shall use RM-0005 to determine the lot number/MTC.

8.2.2 Stencil the drum with the tare weight and the lot number and MTC supplied by the supervisor.

8.2.3 Inspect the drum for rust, dents, corrosion, or other damage.

8.2.3.1 If damage is found, set the drum aside.

8.2.3.2 Notify the supervisor.

8.2.4 If the drum is to be used for dry residue pickup, install a knockout lid (See Figure 2) as follows:

8.2.4.1 Place the knockout lid on top of the 55 gallon drum.

8.2.4.2 Connect a suction hose to the knockout lid suction inlet.

8.2.4.3 Connect a suction hose between the vacuum cleaner suction inlet and the knockout lid suction outlet.

8.2.5 If the drum is to be used for collection of liquid, install a knockout lid with a float assembly (water shut off) attached.

8.2.5.1 Ensure the required size ball is present in the assembly basket.

8.3 Air Powered Unit Startup

8.3.1 Ensure that the Plant Air Outlet Valve and the Vacuum Cleaner air supply valve are set at OFF.

8.3.2 Using an air hose, connect the Plant Air Supply Outlet to the vacuum cleaner air supply ball valve.

8.3.3 Open the Plant Air Outlet Valve.

8.3.4 Open the air supply valve on the vacuum cleaner power head.

8.4 Electrically Powered unit Startup

8.4.1 Connect the electric power cord to an GFCI-equipped electrical outlet.

8.4.2 Turn the ON/OFF switch to ON.

8.0 **PROCEDURE** (cont.)

NOTE 1: If liquid is being picked up, when drum is full the float will automatically rise and shut off the suction.

NOTE 2: Dry, light, and/or fluffy powder/residue will carry over to vacuum cleaner. A full drum is determined by changes in vacuuming sound or suction rate decrease.

8.5 Vacuum Cleaner Shutdown

8.5.1 Shutdown Air Powered Vacuum Cleaners as follows:

8.5.1.1 Shut off the air supply to the power head.

8.5.1.2 Close the Air Supply Ball Valve on the vacuum power head.

8.5.1.3 Open the ball valve on power head 1/4 turn.

8.5.1.4 When the air is bled from the supply line, close the ball valve.

8.5.1.5 Disconnect the air hose from the Plant Air Supply Outlet Valve and the vacuum cleaner.

8.5.2 Shut off electric powered vacuum cleaners as follows:

8.5.2.1 Set the ON/OFF switch to OFF.

8.5.2.2 Unplug the power cord.

8.5.2.3 Secure the cord to the vacuum cleaner.

8.6 Use of Dual (Double Drum) Container Vacuum Cleaners (See Figure 4)

8.6.1 Line the collection drum with a 6 mil polyethylene bag.

8.6.2 Install a knockout lid on the collection drum.

8.6.3 Attach a suction hose section to the knockout lid inlet.

8.6.4 Connect a suction hose between the vacuum cleaner inlet and the knockout lid outlet.

8.6.5 Start the vacuum per Item 8.3 or 8.4.

8.7 Residue Removal

NOTE: The supervisor shall obtain and post an "Asbestos Work Permit" and an RWP before a bag of asbestos is removed from the vacuum.

8.7.1 Notify the supervisor that residues are being removed.

8.7.2 Disconnect the hoses from the knockout lid.

8.7.3 Secure the ends of the hoses to the knockout lid.

8.0 PROCEDURE (cont.)

8.7.4 Remove the knockout lid.

8.7.5 Using a second vacuum equipped with a HEPA filter, remove spilled and/or loose material.

8.7.6 Place the dust bag in a polyethylene bag.

8.7.7 Tape the bag shut to prevent the escape of loose residues.

8.7.8 Remove the bag from the vacuum cleaner.

8.7.9 Install a new polyethylene bag in the drum.

8.7.10 Install the knockout lid and hoses.

8.8 Prefilter Bag Replacement

NOTE: The supervisor shall obtain and post the required permits.

8.8.1 Notify the supervisor that the prefilter bag is being replaced.

CAUTION

Two persons are required if the power head/filter housing assembly is to be removed.

8.8.2 Remove the vacuum power head and HEPA filter housing assembly as one unit.

8.8.3 Place the assembly on a plastic sheet.

NOTE 1: The prefilter bag will remain on the bottom of the float basket attached to the bottom of the HEPA filter housing or will remain on top of the lower container of the vacuum.

NOTE 2: The concave face of the prefilter will be contaminated.

8.8.4 Remove the prefilter (See Figure 5).

8.8.5 Place the prefilter in a plastic disposal bag.

8.8.6 Tape the opening of the disposal bag to secure the filter.

8.8.7 Stretch a new prefilter over the float basket until the basket is completely covered.

WARNING

Keep fingers away from the HEPA filter housing bottom ring and top ring of bottom canister while installing the power head/filter housing.

8.8.8 Hold the prefilter in place and install the power head and HEPA filter housing.

8.0 **PROCEDURE** (cont.)

8.8.9 Visually inspect to ensure that the filter bag material is draped over the issued of the top ring of the canister.

8.8.10 Lock down the fasteners.

9.0 **TROUBLESHOOTING**

9.1 Loss of Suction

NOTE: Dirt and moisture will reduce the performance of the vacuum.

9.1.1 Check that the air source is clean and dry.

9.1.1.1 If not, notify the supervisor that an alternate air supply is required.

9.1.2 Check that air fittings and air supply hose are large enough for the material being picked up.

9.1.2.1 If not, obtain a larger size.

9.1.3 Check the hoses for plugs and/or flow restrictions, holes, or breaks/tears.

9.1.3.1 Replace damaged hoses.

9.1.3.2 Clear line of plugs/restriction.

9.1.4 Check that the sealing surface lip at top of each container is smooth and round.

9.1.4.1 If the sealing surface is nicked, gouged, or out-of-round, obtain a new drum.

9.1.5 Check that suction hose connections to containers and work tools are tight.

9.1.5.1 Tighten loose connections.

9.1.6 Check the Magnehelic Gage reading on the vacuum.

9.1.6.1 If the reading exceeds 3.0 inches, change the disposal bag and prefilter.

9.1.6.2 If the reading is less than 3.0 inches, remove and replace the disposal dust bag.

9.2 Dust/Moisture in Vacuum Discharge Air

NOTE: The unit shall be shut off as soon as dust is observed.

9.2.1 Shut off the unit.

9.0 **TROUBLESHOOTING** (cont.)

NOTE: The supervisor shall obtain and post an RWP and inform Maintenance that repair is required.

9.2.2 Notify the supervisor of the condition.

9.3 Abnormal Noise Level

NOTE: The supervisor shall obtain and post an RWP before the power head is removed and notify Maintenance that repair is required.

9.3.1 Notify the supervisor of the condition.

9.4 HEPA Filter Magnehelic Gage Shows a Pressure Drop Equal to or Greater Than 3 Inches

NOTE: The supervisor shall obtain and post an RWP before the power head/filter housing assembly is removed and notify Maintenance that repair is required.

9.4.1 Notify the supervisor of the condition.

10.0 **APPLICABLE FORMS**

10.1 FS-F-2630, "Portable Dust Collector Operating Log"

FEMP

PORTABLE DUST COLLECTOR OPERATING LOG

FACILITY OWNER:	COLLECTOR:	MONTH:

DATE	OPERATOR BADGE NUMBER	SHIFT	1 MATERIAL TYPE	2 BAG HOUSE	3 POWER CORD	4 MATERIAL LABEL	5 PRESSURE GAUGE	6 HEPA TEST LABEL	7 HEPA HOUSING	8 GAUGE READING	9	10	11

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INSTRUCTIONS: 1. *The items listed in Table 1 shall be checked prior to turning on the portable dust collector referenced each day the collector is operated.*

2. *Denote with an "S" all satisfactory findings, and "N" not satisfactory findings and "DNA" those items listed that do not apply.*

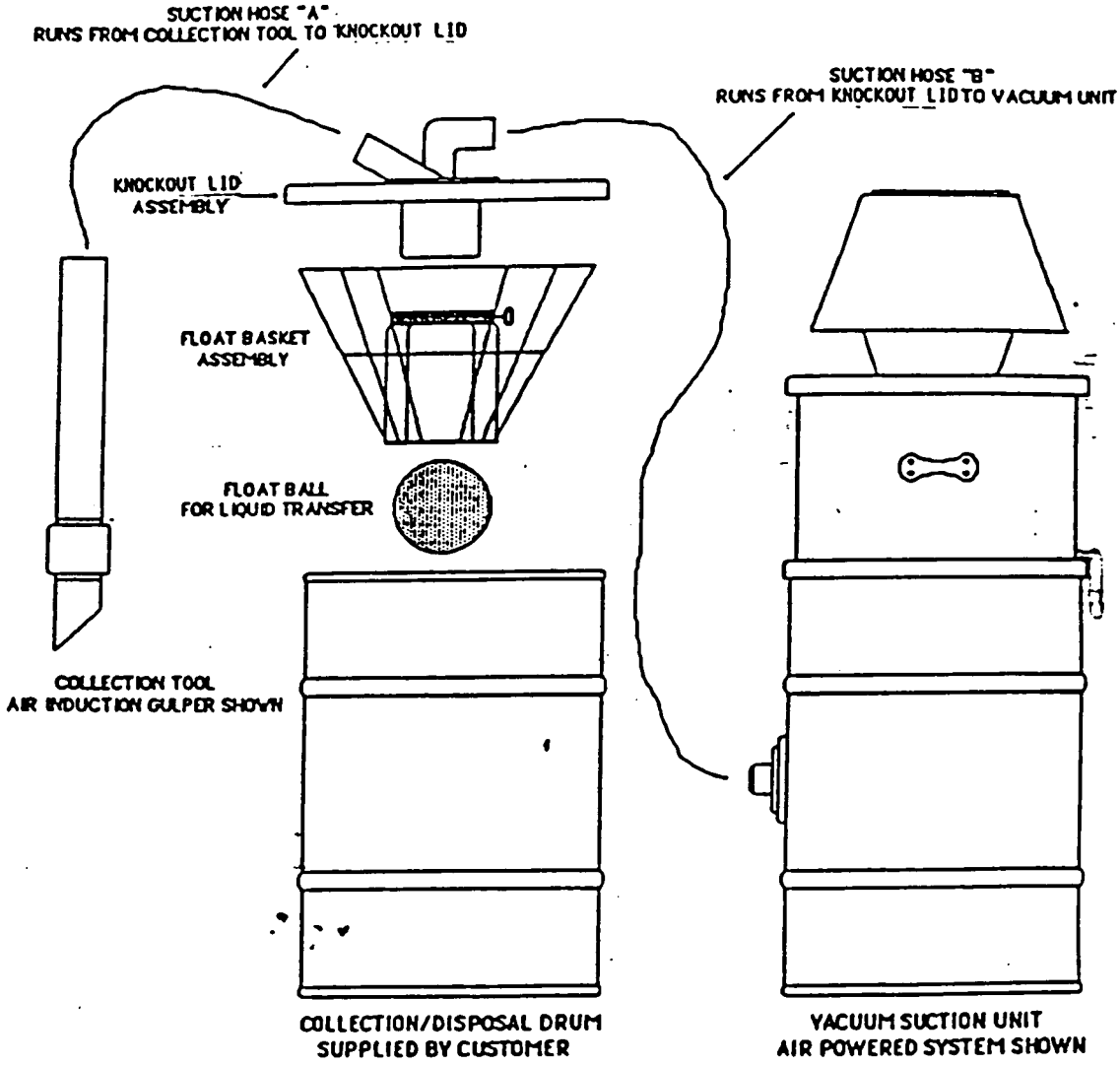
3. *At the beginning of each month, issue a new operating log for the referenced collector.*

TABLE 1

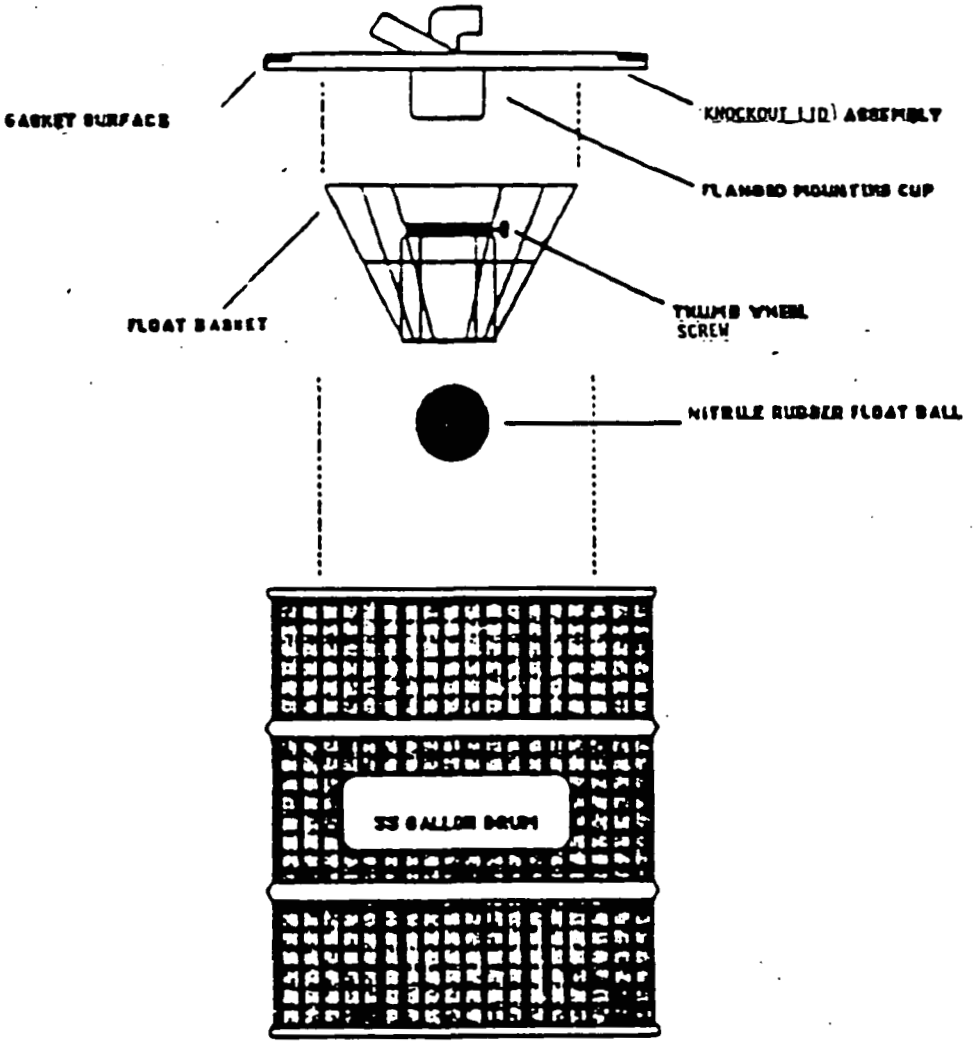
ITEM	ITEM NAME	INSPECTION	CONDITION	CORRECTIVE ACTION
1	MATERIAL TYPE	MATERIAL TO BE VACUUMED (ALL)		Ensure unit is compatible with residue to be collected. Record material to be collected in space provided.
2	BAGHOUSE HOUSING	OUTER CIRCUMFERENCE/ FRAME/WHEELS (ALL)	Dents	Notify supervisor. Proceed as directed.
			Hole(s), loose/missing rivets or clips or knobs or bolts	REMOVE FROM SERVICE. Notify supervisor.
			Shaker arm boot missing or torn	REMOVE FROM SERVICE. Notify supervisor.
3	POWER CORD	CORD (ALL)	Frayed, not exposing wires	DO NOT USE. Notify supervisor to have repaired.
			Frayed, exposing wires	DO NOT USE. Notify supervisor to have repaired.
			Worn/damaged	Notify supervisor. Proceed as directed.
		CONNECTIONS (ALL)	Cracked, broken, contact bent	DO NOT USE. Notify supervisor to have repaired.
			Excessive wear	Notify supervisor. Proceed as directed.
4	MATERIAL LABEL	NFPA LABEL (ALL)	Label missing	Contact supervisor and identify material, then label unit. DO NOT USE without label affixed.
			Listed material on label not compatible.	Contact IH Section. If material is not compatible, a different vacuum unit must be selected.
5	PRESSURE GAUGE	GO/NO GO MANOMETER/ MAGNEHELIC GAUGE (ALL BUT GS-80 & -81)	Gauge missing	DO NOT OPERATE. Notify supervisor to replace.
			Out-of-calibration	Notify supervisor to have gauge calibrated.
			Gauge damaged	Notify supervisor and proceed as directed.
6	HEPA LABEL	CERTIFICATION LABEL (ALL)	Label torn, missing or expired	REMOVE FROM SERVICE. Have unit retested.
7	HEPA HOUSING	OUTER CIRCUMFERENCE (ALL)	Dents, holes, loose clips/clamps	REMOVE FROM SERVICE. Have unit in-place tested.
8	GAUGE READING	GO/NO GO GAUGE/ MAGNEHELIC GAUGE (ALL BUT GS-80 & -81)	Gauge in high green or red (GS-82 & -83, HAKO)	Replace paper disposal bag and clean main filter. Recheck gauge reading when done.
			Reading greater than 3 High setpoint is 7" for Bartlett. (Hoffman/Spencer/Bartlett/Norclean)	Change HEPA. Check to see if bags need to be changed.

FS-F-2630 (REV. 1/26/93)

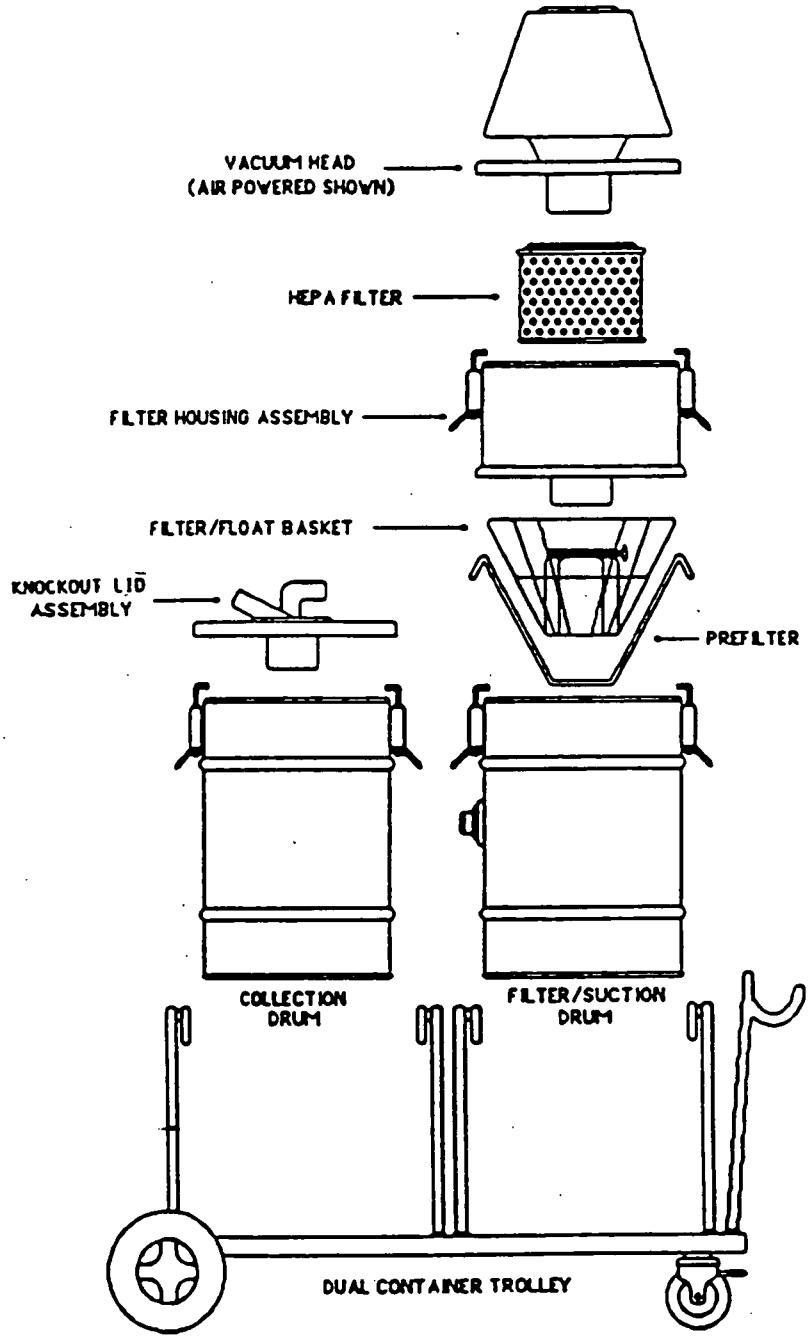
PORTABLE DUST COLLECTOR OPERATING LOG
FS-F-2630
Figure 1 (Sheet 2 of 2)



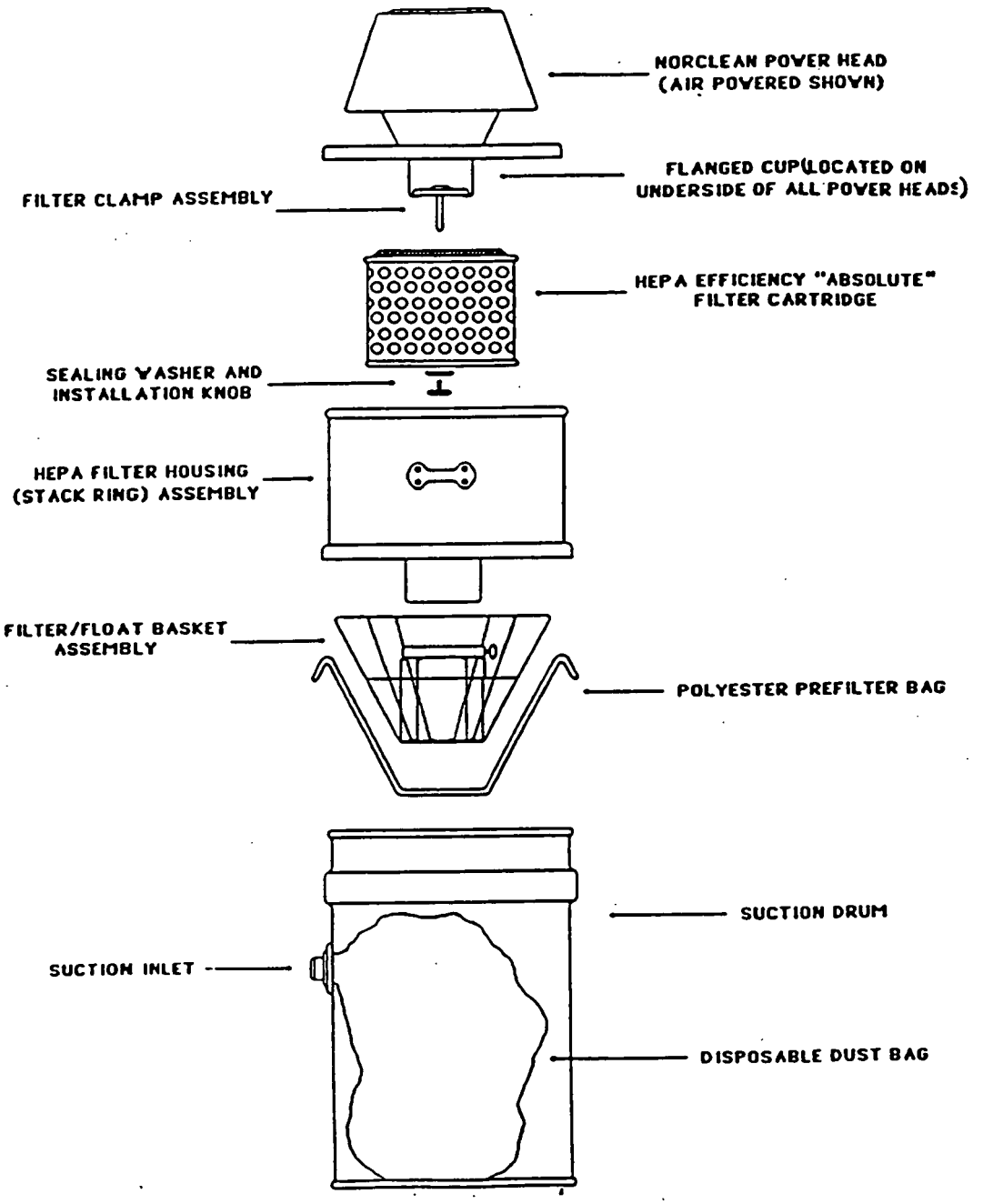
KNOCKOUT LID INSTALLATION
Figure 2



KNOCKOUT LID FLOAT ASSEMBLY
Figure 3



DUAL CONTAINER
Figure 4



NORCLEAN VACUUM ASSEMBLY
Figure 5

2468

RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
05-30-91	0	Procedure requirement for operating NORCLEAN Vacuum Cleaners per Request P90-350, initiated by C.R. Palmer.
03-02-94	0	Reissued per Request P93-662 following Periodic Review (R93-116), initiated by R. Palmer.

CONTROL NUMBER: FER-6944
SITE PROCEDURE PT-0005 (SSOP-0075)
REVISION NO. 2

PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR SHIPMENT TO THE NEVADA TEST SITE

NON-CONTROLLED COPY

Effective Date: 03-30-95

Originator (Subject Expert): Robert P Guise 3/15/95
Date

Checker Concurrence: [signature] 3/16/95
Date

APPROVED BY: M West 3/16/95
Mike West, FAM of Packaging and Transportation Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

000275

Title: **PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR SHIPMENT TO THE NEVADA TEST SITE** *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0005 (SSOP-0075)	
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ISSUE AND REVISION SUMMARY

Revision	Date	Description of Issue or Revision
0	12-14-92	Separate procedure written, using information from SSOP-0024, for packaging LLRW in drums per Request No. S92-123, initiated by M. Hundley. SSOP-0075, SSOP-0078, and SSOP-0079 replace SSOP-0024.
1	10-04-94	Major revision to reflect company name change from WEMCO to FERMCO and update the procedure per Request No. S93-095, initiated by Lori Hurst. This document supersedes SSOP-0075, dated 12-14-92, Rev. 0.
2	03-30-95	Major revision to omit the labeling, marking, and inspecting sections and outline the latest responsibility changes per Request No. S94-174, initiated by B. Giessl. This document replaces SSOP-0075, dated 10-04-94, Rev. 1.

Title: **PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR SHIPMENT TO THE NEVADA TEST SITE** *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0005 (SSOP-0075)	
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1.0 PURPOSE

1.1 This procedure provides the instructions for packaging low level radioactive waste (LLRW) in drums for shipment offsite from the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

2.1 This procedure outlines the steps for (1) inspecting the waste to be packaged, (2) inspecting and preparing the empty drums, (3) filling the drums, (4) weighing the filled drums, and (5) securing the drums.

2.2 The packaging operation is applicable to FEMP personnel (including subcontractors) responsible for packaging LLRW in open-head drums at any packaging location of the FEMP site.

3.0 REFERENCES

3.1 EW-0001, Completing the Material Evaluation Form

3.2 PT-0003, Control and Movement of Containers at the FEMP

3.3 PT-0011, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment

3.4 SOP 20-C-600, Overpacking Defective Containers

3.5 MCA-I-018, Completing the Item Production/Certification/Identification Form

3.6 RM-0005, FEMP Lot Marking and Color-Coding System

4.0 RESPONSIBILITIES

4.1 Packager inspects waste and containers and packages waste per this procedure. Complies with any additional requirements specified by S&H.

4.2 LLW Packaging Support verifies drums are empty and in acceptable condition before packaging. Verifies contents of drums. Coordinates the movement of drums.

4.3 Waste Characterization provides documentation supporting characterization of all LLRW packaged under this procedure.

4.4 Materials Control and Accountability (MC&A) provides bar-code labels. Maintains records and inventory of drums. Tracks movement of empty and full drums.

4.5 Safety & Health (S&H) provides a Radiological Control Technician (RCT), as requested. Determines appropriate respiratory equipment and any other employee protection.

4.6 Supervisor of Waste Generation Area specifies applicable scale procedures and standard tare weight of packages. Ensures packaging materials are available for packagers. Ensures that personnel have currently and successfully completed training in packaging waste material. Ensures that personnel who package waste for shipment follow applicable NTS criteria and DOT and EPA regulations. Contacts S&H to determine the appropriate respiratory protection for the process being performed and the radiological surveys required for materials moving in and out of contamination areas. Provides packagers with the required respiratory protection and other personal protective equipment. Ensures the lid on a drum is secured after packaging so unknown materials are not added. Ensures waste packages are weather-protected. Contacts S&H before opening any drum of unknown radioactive material.

4.7 Motor Vehicle Operator (MVO) delivers empty drums to designated areas. Supports packager when performing scale inspection/test. Transports packaged waste to the applicable storage area.

4.8 Performance/Quality Assurance (P/QA) overviews packaging operation to verify compliance with this procedure.

5.0 GENERAL

5.1 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall be immediately reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to the S&H Radiological Control (RC) Department for evaluation. When the suspect isotope is uranium, the involved employee(s) shall report to the Urine Sampling Station at the end of their shift to complete an FS-F-1458, "Incident Investigation Report" (IIR), and submit a urine sample. The involved employees shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. When the suspect isotope is something other than uranium, the involved employees shall report to the Dosimetry Section of RC for further determination of actions. Employee(s) are responsible for complying with appropriate requirements as specified by authorized S&H staff.

6.0 PREREQUISITES

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified by S&H.

6.2 Respiratory protection provided by the supervisor shall be worn when required.

6.3 Gloves shall be worn when handling drums, operating equipment, and handling rough, sharp-edged, or contaminated material.

6.4 Neoprene rubber gloves shall be worn when handling hazardous chemical substances where skin contact is possible.

6.5 A Radiation Work Permit (RWP) must be approved and current.

6.6 Face shields shall be worn when removing lids of drums filled with liquids or during operations where personnel could be splashed with liquids.

6.7 Drums filled with unknown material shall be labelled "UNKNOWN" (with the current date). Empty drums shall be marked "EMPTY."

6.8 HEPA type filter vacuum cleaners or a vacuum system approved by S&H with a current DOP test label properly affixed to vacuum shall be used for cleaning.

6.9 Obtain the following items/supplies before preparing drums and packaging waste:

- indelible ink marker
- black paint, red paint, white paint (as applicable)
- 15/16 inch combination wrench
- impact wrench
- wire and wire pullers
- drum labels (as applicable)
- lab label tape and dispenser
- absorbent pads

6.10 "Prohibited Materials" list (Attachment A) and packaging guidelines shall be displayed in the packaging area.

6.11 The "Process Area Scrap Checklist" (Attachment B) shall be displayed in the packaging area or on the container when packaging Waste Stream ONL000000000l process area scrap.

6.12 An FS-F-3252, "Material Evaluation Form (MEF)," shall be completed to determine if the waste is RCRA or non-RCRA. The packaging operation may not be started before the characterization is completed and an MEF is assigned by WC in accordance with EW-0001.

6.13 A minimum of two packagers shall package waste.

6.14 Packagers shall be qualified in the use of Personnel Protective Equipment (PPE).

6.15 Employees shall be briefed on and sign the RWP (in black ink) before performing work.

7.0 PROCEDURE

7.1 INSPECTING WASTE

Packager

7.1.1 Ensure the waste to be packaged is not on the "Prohibited Materials" list (Attachment A) and can pass the "Process Area Scrap Checklist" (Attachment B).

NOTE: Packaging waste listed on the "Prohibited Materials" list or that does not pass the "Process Area Scrap Checklist" is not permitted.

a. If waste is not on the "Prohibited Materials" list and passes the "Process Area Scrap Checklist," continue procedure.

OR

b. If waste is on the "Prohibited Materials" list or does not pass the "Process Area Scrap Checklist," notify a supervisor for disposition before continuing procedure.

7.1.2 Ensure the waste characterization has been completed and an MEF has been obtained from WC.

a. If the waste characterization has been completed, package it per this procedure.

OR

b. If the waste characterization has not been completed, inform Supervisor to contact WC for disposition before continuing procedure.

7.1.3 Visually check waste for free liquid (including ice).

a. If free liquid is present, notify supervisor for disposition before continuing procedure.

OR

b. If free liquid is not present, continue procedure.

Performance/Quality Assurance

7.1.4 Perform periodic surveillances of waste per applicable department procedures.

7.2 PREPARING AN EMPTY DRUM

Waste Generator

7.2.1 Notify Container Distribution Facility (CDF) when containers are needed. Include an FS-F-3468, "Fernald Site Container Request" (Attachment C), signed by the Control Account Manager (CAM).

Container Distribution

7.2.2 Visually inspect container following PT-0003 before distributing.

LLW Packaging Support

7.2.3 Request container transport to the waste loading site.

7.2.4 Verify that the drum interior and exterior does not have damage, such as corrosion, bulges, dents, holes, leaks, or other defects (refer to Tables 1, 2, and 3).

a. If drum is damaged, notify supervisor to contact the CDF for disposition.

OR

b. If drum is not damaged, continue procedure.

7.2.5. Verify the drum(s) have an inventory number on a bar code on the side of the drum.

7.2.6 Visually inspect the interior to ensure the drum is empty.

a. If material is present notify CDF for disposition before continuing procedure.

OR

b. If no material is present, continue procedure.

Supervisor

7.2.7 Specify the scale to be used for weighing the empty drums.

Packager

7.2.8 Specify the method of transporting the drum to the scale.

7.2.9 Inspect the scale to be used per the scale procedure applicable to the area.

7.2.10 Place drum on scale.

7.2.11 Tare weigh drum per the scale procedure applicable to the area.

7.2.12 Record the tare weight on the drum with indelible ink or paint (see Attachment D).

7.2.13 Remove drum from scale.

Motor Vehicle Operator

7.2.14 Move drum to loading area.

Supervisor

7.2.15 Notify P/QA that the container has been prepared.

Performance/Quality Assurance

7.2.16 Inspect container preparation per applicable department procedure for compliance with this procedure.

NOTE: Only periodic inspections of container preparation are required for areas pre-approved by P/QA.

7.3 FILLING THE DRUM WITH WASTE MATERIAL

Performance/Quality Assurance Inspection Services

7.3.1 Overview filling of drums to ensure compliance with this procedure.

Packager

7.3.2 Remove lock ring and lid from empty drum.

WARNING

A RESPIRATOR AND OTHER PERSONAL PROTECTIVE EQUIPMENT, SPECIFIED IN THE HEALTH AND SAFETY PLAN AND PROVIDED BY THE SUPERVISOR, SHALL BE DONNED PRIOR TO FILLING CONTAINERS TO PREVENT INHALATIONS AND EXPOSURES.

NOTE: Any waste encountered in the packaging operation not covered by the MEF or that does not meet the "Process Area Scrap Checklist" requirements shall be set aside and shall not be packaged without the Supervisor contacting WC for disposition instructions.

7.3.3 Fill drum with LLRW ensuring the waste level remains three inches below top of drum.

NOTE: The volume of waste to be packed will vary because the density varies according to waste type.

7.3.4 Place lid on drum ensuring gasket is seated to maintain a tight seal.

7.3.5 Install bolt-type lock ring on lid.

7.3.6 Complete a "Process Area Scrap Checklist" per SOP 20-C-625.

7.3.7 Complete a Form FS-F-1945, "Item Production/Certification/ Identification" 65 Card (Attachment E), for each box following MCA-I-018, "Completing the Item Production/Certification/ Identification Form."

7.3.8 Notify the supervisor that the drums are ready to be weighed.

7.4 WEIGHING THE FILLED DRUM

Supervisor

7.4.1 Specify scale for weighing the filled drum.

7.4.2 Specify the method of transporting drum to scale.

Packager

7.4.3 Inspect scale to be used per the applicable scale procedure.

Motor Vehicle Operator

7.4.4 Move drum onto the scale.

Packager

7.4.5 Weigh drum using applicable scale procedure.

a. If weight is within limits (see Table 4), continue procedure.

OR

b. If weight is not within limits, do the following:

(1) Remove lock ring and lid from drum.

(2) Transfer waste from drum into approved container until gross weight of drum is within limits.

NOTE: The approved container may be an underweight drum from the same lot or an empty drum from the same lot.

(3) Change the waste description on the 65 Card, if needed.

(4) Place lid on drum.

(5) Re-install bolt-type lock ring on lid.

Motor Vehicle Operator

7.4.6 Remove the drum from the scale.

Supervisor

7.4.7 Do one of the following:

a. For a drum requiring temporary storage, do the following:

(1) Notify MC&A that container is full.

(2) Label/Mark the drum per RM-0005 and SOP 20-C-600.

OR

b. For a drum not requiring temporary storage, continue procedure.

Packager

7.4.8 Mark the shipment number and the gross weight on the lid of the drum (see Attachment D) in indelible ink or paint.

7.4.9 Calculate net weight.

7.4.10 Record the weight on the 65 Card.

Supervisor

7.4.11 Sign 65 Card indicating accuracy and completeness.

7.4.12 Complete and sign the appropriate form(s).

7.4.13 Forward 65 Card and the appropriate form(s) to LLW Packaging Support.

LLW Packaging Support

7.4.14 Review, sign, and distribute the 65 Card and the appropriate form(s).

Materials Control & Accountability (MC&A)

7.4.15 Mark inventory number and container number on lid of drum (see Attachment D).

7.4.16 Print required bar code labels and submit to supervisor.

8.0 DRIVERS

8.1 NVO-325, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements

8.2 S/RID 12, Packaging & Transportation

8.3 49 CFR, Section 173

9.0 DEFINITIONS

Drum - A cylindrical, metal open-head container which meets Department of Transportation (DOT) and Environmental Protection Agency (EPA) requirements, and Nevada Test Site (NTS) acceptance criteria. See Table 4 for specifications.

Free Liquid - Any free flowing liquid or any liquid that readily separates from the solid portion of a waste under ambient temperature and pressure conditions. Ice is also considered a free liquid.

Low-Level Radioactive Waste (LLRW) - All radioactive waste not classified as high-level waste, spent nuclear fuel, Transuranic (TRU) waste, uranium mill tailings, or Mixed Waste (MW).

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control, documentation, and proper management of hazardous wastes.

TABLE 1
CORROSION INSPECTION TYPES

TYPE	CHARACTERISTIC	COULD CAUSE LOSS OF BOX INTEGRITY		CORRECTIVE ACTION
		YES	NO	
1	Holes, large dents, or large areas of corrosion that affect the structural integrity of the container or require the entire drum to be painted	X		1. Notify Maintenance to patch. Overpack or repackage in another container. **NOTE**: Supervisors ensure that touchup or painting is completed. 2. Notify P/QA and MC&A of all repairs or repackaging of waste containers.
2	Heavy rust with areas of pitted metal flaking (> 18 square inches - hand size) and no holes present		X	1. HAZWATS scrape loose oxides and paint the area to be repaired.
3	Light surface rust with no pitting of the base metal		X	1. Wipe with masoline cloth or wash with soap and water, if needed to remove dirt. 2. Ship as is.

TABLE 2
LEAKER INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Material flowing from container and accumulation on, under, or around container	1. Notify supervisor and Radiological Control (RC). 2. Supervisor notifies AEDO. 3. Stop or contain leak at the discretion of the supervisor. 4. Record on inspection form that the container requires mitigation within 24 hours. 5. Complete additional cleanup as necessary. 6. Supervisor initiate an Occurrence Report (OR).
2	Material on container exterior only; no material on, under, or around container	1. Record leak on inspection form. 2. Notify Supervisor and RC. 3. Supervisor shall initiate an OR. 4. Supervisor shall review the completed inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
3	Container exterior discolored/visible contamination; no material release	1. Record condition on inspection form. 2. Notify Supervisor and RC. 3. Supervisor schedule container for overpacking.

TABLE 3
DENT/BULGE INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affecting container integrity to the degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

TABLE 4
WEIGHT LIMITATIONS FOR SHIPMENTS BEFORE 1996

DRUM SIZE	MAXIMUM GROSS WEIGHT
30 gallons	700 pounds
55 gallons *	1,200 pounds
85 gallons *	1,000 pounds
85 gallons overpack *	1,280 pounds

* After December 31, 1995, the maximum gross weight for new packed drums is 932 pounds (423.6 kg) except overpacked drums, for which the maximum weight is 882 pounds.

Title: **PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR SHIPMENT TO THE NEVADA TEST SITE** *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0005 (SSOP-0075)	
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ATTACHMENT A - PROHIBITED MATERIALS

PACKAGING GUIDELINES FOR WASTE GENERATOR	
Package has been properly prepared for closing when the following conditions exist:	
No liquids of any kind have been placed in container.	
Heavy/bulky items have been secured within container.	
All available space has been utilized efficiently.	
Prohibited materials (listed below) have been excluded.	
Packaging has not been damaged during loading.	
Liner is in place and properly lapped and sealed.	
PROHIBITED MATERIALS AND EXAMPLES	
Compressed Gases	***Corrosive Materials***
unpuctured aerosol cans	*acid or caustic material*
gas cylinders with valves or plugs in place	*acidic*
Free Liquids	***Hazardous Waste***
water, ice, seepage, condensation,	*solvents, petroleum products,*
drinks, coffee, juices, pop, soaked rags,	*lead, mercury, batteries,*
fuel, oil, fluids, solvents, etc.	*pesticides, etc.*
Etiologic Agents	***Explosives***
medical waste	

ATTACHMENT B - PROCESS AREA SCRAP CHECKLIST

SECTION I - WASTE EVALUATION	Yes	No	N/A
1.0 Free Liquids: 1.1 Any free liquids entrapped in nooks, crannies, or folds? 1.2 Did the item contain internal (working) fluids? 1.3 Have internal fluids been drained? 1.4 Has item been tagged "drained?"			
2.0 Electrical Equipment: 2.1 Any light ballasts on the item? 2.2 Any starter caps on the item? 2.3 Any mercury switches on the item? 2.4 Any capacitors bigger than 5 inches in diameter on the item?			
3.0 Excess Residues: 3.1 Any residues on item that could be removed and managed separately? 3.2 Any soils on item that could be removed and managed separately?			
4.0 Painted Material: 4.1 Metal item < 1/8" thick AND more than 10% painted w/ lead-based paint? 4.2 Wood item < 1" thick AND more than 10% painted w/ lead-based paint?			
5.0 Restrictions on Material Type: 5.1 Is the material itself made of lead (Pb)? 5.2 Is the material itself uranium (U) or thorium (Th) metal?			
6.0 Glass: 6.1 Any light bulbs or lamps other than incandescent? 6.2 If sample jars, any material remaining in container?			
7.0 Trash: 7.1 Are there any prohibited items as listed in the posted "prohibited items" list?			
8.0 Property: 8.1 Has all property been administratively processed for disposal as LLW?			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a detailed description of the materials in the container, including source or origin if available)

2. PACKAGING START DATE:	3. PACKAGING END DATE:	4. INCHES FREEBOARD/HEADSPACE
5. CONTAINER NUMBER:	6. CONTAINER TYPE: ☐ S/L ☐ WMB ☐ Drum ☐ OTHER, Specify:	
7. APPROVED BY: Supervisor(s) Signature/Date	8. ACCEPTED BY: WPM Signature/Date	

GENERATOR TO MAKE DISTRIBUTION:

1	White	Waste Characterization
2	Blue	Low-Level Waste Handling and Disposal
3	Yellow	Materials Control and Accountability
4	Green	Waste Generator

Title: PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN DRUMS FOR SHIPMENT TO THE NEVADA TEST SITE *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0005 (SSOP-0075)	
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ATTACHMENT C - FERNALD SITE CONTAINER REQUEST

Requisition No:

REQUESTED BY:				PHONE NUMBER	MAIL STOP	BADGE NUMBER	
PROJECT							
REQUEST DATE				CONTROL ACCOUNT NUMBER			
CONTAINER TYPE							
ISO	LWMB	SWMB	30 DRUM	55 DRUM	85 DRUM	110 DRUM	ROLL-OFF
QUANTITY REQUESTED							
TO BE SHIPPED TO NTS? YES___ NO__				FOR ONSITE STORAGE? YES___ NO___			
LOCATION FOR DELIVERY:							
CONTACT NAME:				PHONE:	RADIO:		
DELIVERY DATE REQUIRED:				MEF NUMBER			
MATERIAL DESCRIPTION/PWID							

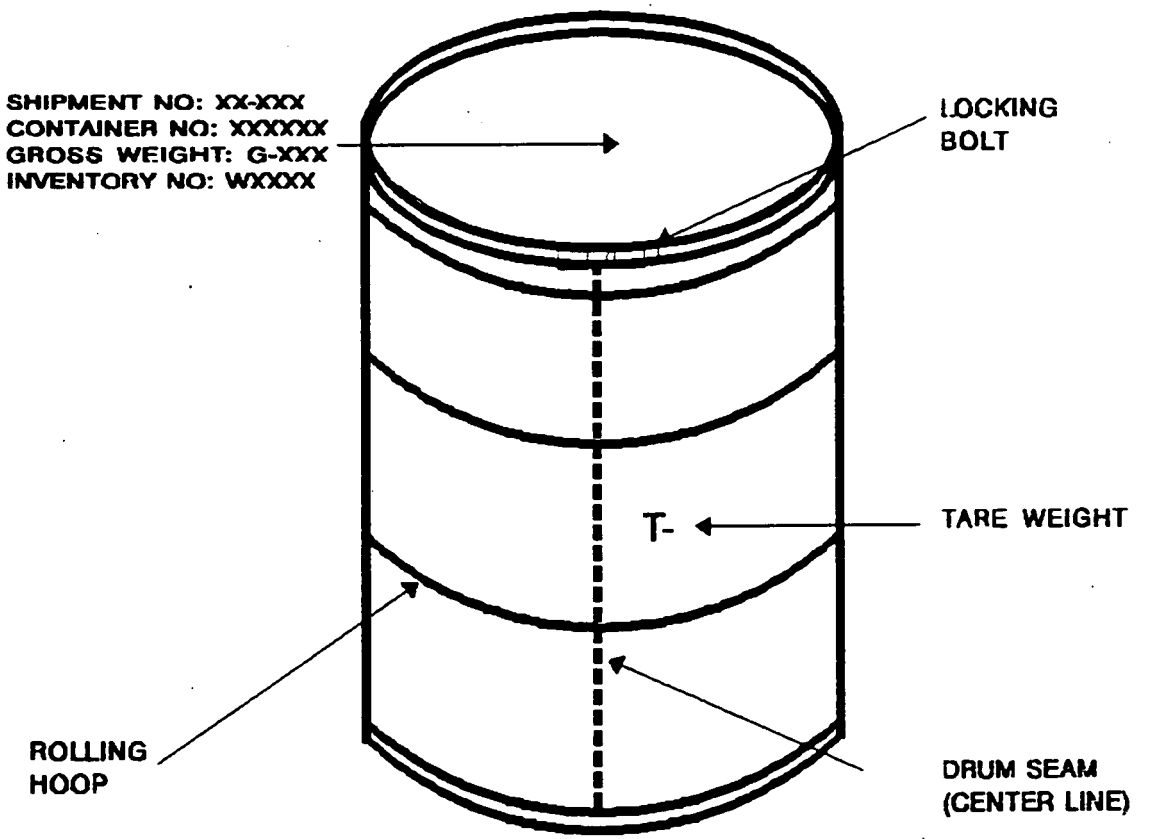
DELIVERY DATE	QUANTITY	DELIVERY DATE	QUANTITY

SIGNATURES REQUIRED	
CONTROL ACCOUNT MANAGER (REQUIRED)	DATE:

COMMENTS:

ATTACHMENT D - LOCATIONS FOR LLRW DRUM LABELING

TYPICAL LABELING OF NON-RCRA OR LOW-LEVEL RADIOACTIVE WASTE DRUM



ATTACHMENT E - ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

DIV. NO:

P.O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE			PACKAGE PHYSICAL CERTIFICATION			PLANT	PROD. MBA	MILE.NO
	MONTH	DAY	YEAR		YES	NO			
				EMPTY CONTAINER AT START			DCAS	SURV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				RUST HOLES OR DENTS					
				MATERIAL IS AS CODED					
PACKAGE TYPE				PROHIBITED MATERIALS					
PACKAGE SIZE				LIQUIDS IN CONTAINER					TARE WEIGHT
PROJECT				MINIMUM OF VOID SPACE					
				PACKAGE SECURED					
				DRAIN PLUG SECURED					
				OVERPACK					NET WEIGHT
				SPACE					

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

DOE-F-1360-1 (REV. 11/28/93)

-6944

CONTROL NUMBER: FER-0018
SITE PROCEDURE PT-0006 (SSOP-0078)
REVISION NO. 2

PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN ISO CONTAINERS FOR SHIPMENT TO THE NEVADA TEST SITE

NON-CONTROLLED COPY

Effective Date: 03-30-95

Originator (Subject Expert): Robert P Grieb 3/15/95
Date

Checker Concurrence: [signature] 3/16/95
Date

APPROVED BY: [signature] 3/30/95
Mike West, FAM of Packaging and Transportation
Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

000295

Title: PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN ISO CONTAINERS FOR SHIPMENT TO THE NEVADA TEST SITE *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0006 (SSOP-0078)	
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Title: **PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN ISO CONTAINERS FOR SHIPMENT TO THE NEVADA TEST SITE** ***COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE***	DOCUMENT NO: PT-0006 (SSOP-0078)	
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ISSUE AND REVISION SUMMARY

Revision	Date	Description of Issue or Revision
0	12-14-92	New procedure required for shipping LLRW in International Shipping Organizational (ISO) containers per Request No. S92-175, initiated by M. Hundley. SSOP-0079, SSOP-0078, and SSOP-0075 replace SSOP-0024.
1	10-04-94	Revision needed to add Tables 1 through 4, add ES&H requirements, update Figure 4, clarify role of Quality Assurance, and incorporate SC93-006 per Request No. S93-072, initiated by Lori Hurst. This document supersedes SSOP-0078, dated 12-14-92, Rev. 0.
2	03-30-95	Major Revision to omit the labeling, marking, and inspecting sections; revise the container preparation activities; and outline the latest responsibility changes per Request No. S94-174, initiated by B. Giessl. This document replaces SSOP-0078, dated 10-04-94, Rev. 1.

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1.0 PURPOSE

1.1 This procedure provides the instructions for packaging low-level radioactive waste (LLRW) into ISO containers for shipment offsite from the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

2.1 This procedure outlines the steps for (1) inspecting the waste to be packaged, (2) inspecting and preparing the empty ISO container, (3) filling the ISO with waste, (4) weighing the ISO, and (5) securing the ISO.

2.2 The packaging operation is applicable to FEMP personnel (including subcontractors) responsible for packaging LLRW in ISO containers at any packaging location of the FEMP site.

3.0 REFERENCES

3.1 EW-0001, Completing the Material Evaluation Form

3.2 EW-0006, Management of Excess Soil, Debris, and Waste from a Project

3.3 PT-0003, Control and Movement of Containers at the FEMP

3.4 PT-0011, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment

3.5 MCA-I-018, Completing the Item Production/Certification/Identification Form

4.0 RESPONSIBILITIES

4.1 Packager inspects waste and containers and packages waste per this procedure.

4.2 LLW Packaging Support ensures the box is empty and in acceptable condition before packaging. Ensures contents of ISO Containers. Coordinates the movement of containers.

4.3 Waste Characterization (WC) provides documentation supporting characterization of all LLRW packaged under this procedure.

4.4 Materials Control and Accountability (MC&A) provides bar code labels. Maintains records and inventory of ISO containers. Tracks movement of empty and full containers.

4.5 Safety and Health (S&H) provides a Radiological Safety Technician, as requested. Determines appropriate respiratory equipment and any other employee protection.

4.6 Supervisor of the Waste Generation Area specifies applicable scale procedures and standard tare weight of packages. Ensures packaging materials are available for packagers. Ensures that currently trained personnel package waste material. Ensures that personnel who package waste for shipment follow applicable Nevada Test Site (NTS) criteria and Department of Transportation (DOT) and Environmental Protection Agency (EPA) regulations. Contacts S&H to determine the appropriate respiratory protection for the process being performed and the radiological surveys required for materials moving in and out of contamination areas. Contacts Radiological Control (RC) for a Radiological Work Permit (RWP) or other safety permits and ensures permits are obtained and signed prior to performing work. Provides packagers with the required respiratory protection and other personal protective equipment. Ensures doors are secured after packaging so unknown materials are not added. Ensures waste packages are weather-protected. Contacts S&H prior to opening any container of unknown radioactive material.

4.7 Motor Vehicle Operator (MVO) delivers empty boxes to designated packaging location. Supports packager as needed per this procedure.

4.8 Performance/Quality Assurance (P/QA) overviews packaging operation to verify compliance with this procedure.

5.0 GENERAL

5.1 Any circumstance that could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall be immediately reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to S&H RC Department for evaluation. When the suspect isotope is uranium, the involved employees shall report to the Urine Sampling Station at the end of their respective shift to complete an FS-F-1458, "Investigation Report" (IR), and submit an incident urine sample. The involved employees shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. When the suspect isotope is other than uranium, the involved employee(s) shall report to the Dosimetry Section of RC for further determination of actions. Employees are responsible for complying with appropriate requirements as specified by authorized ES&H staff.

5.2 The following substitutions should be made for Contaminated Construction Removal Action Waste and Waste Stream ONL0000000002:

- Waste characterization may be performed using SSOP-0044, "Management of Excess Soil, Debris, and Waste from a Project."
- A Packager could be the subcontractor or FEMP personnel.

- A Supervisor could be the Construction Coordinator if a project is subcontracted.

5.3 DOT label letter shall be 2 inches high by 1/4 inch wide.

6.0 PREREQUISITES

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified.

6.2 Respiratory protection provided by the supervisor shall be worn when required.

6.3 Gloves shall be worn when handling containers, operating equipment and when handling rough, sharp-edged, or contaminated material.

6.4 Neoprene rubber gloves shall be worn when handling HEPA type filter vacuum cleaners, or a vacuum system approved by ES&H.

6.5 Vacuum cleaners with HEPA type filters or a current DOP test label properly affixed to vacuum shall be used for cleaning.

6.6 An RWP must be approved and current.

6.7 Face shields shall be worn when removing lids or bungs of containers filled with liquids or during operations where personnel could be splashed with liquids.

6.8 Containers with unknown contents shall be labeled "UNKNOWN" (with the current date). Empty containers shall be marked "EMPTY."

6.9 Obtain the following items/supplies prior to performing the packaging operation:

- appropriate safety protective equipment
- absorbent pads
- 1/4-inch x 4-foot x 8-foot plywood sheets (all grades)
- indelible marker
- black paint, red paint, white paint (as applicable)
- clean rags
- 1-1/2 inch black metal bands, clips, and banding equipment

6.10 "Prohibited Materials" list (Attachment A) shall be displayed in the packaging area or on the container.

6.11 The "Process Area Scrap Checklist" (Attachment B) shall be displayed in the packaging area or on the container when packaging Waste Stream ONL0000000001 process area scrap.

6.12 An FS-F-3252, "Material Evaluation Form (MEF)," shall be completed to determine if the waste is RCRA or non-RCRA. The packaging operation may not be started before the characterization is completed and an MEF is assigned by WC in accordance with SSOP-0002.

6.13 A minimum of two personnel are required to package waste.

6.14 Packagers shall be qualified in use of Personal Protective Equipment (PPE).

6.15 Employees shall be briefed on and sign the RWP in black ink before performing work.

7.0 PROCEDURE

7.1 INSPECTING WASTE

Packager

7.1.1 Ensure the waste to be packaged is not on the "Prohibited Materials" list (Attachment A) and can pass either the "Process Area Scrap Checklist" (Attachment B) or the "Material Evaluation and Container Information - Scrap Vehicle" (Attachment C), when applicable.

a. If the waste is on the Prohibited Materials List or does not pass the "Process Area Scrap Checklist" or the "Material Evaluation and Container Information - Scrap Vehicle," notify supervisor for disposition before continuing procedure.

OR

b. If the waste is not on the Prohibited Materials List and passes either the "Process Area Scrap Checklist" or the "Material Evaluation and Container Information - Scrap Vehicle," continue procedure.

7.1.2 Ensure the waste characterization has been completed and an MEF has been obtained from WC.

a. If the waste characterization has been completed, package it per this procedure.

OR

b. If the waste characterization has not been completed, inform Supervisor to contact WC for disposition before continuing procedure.

7.1.3 Visually check waste for free liquid (including ice).

a. If free liquid is present, notify supervisor for disposition before continuing procedure.

OR

b. If free liquid is not present, continue procedure.

Performance/Quality Assurance

7.1.4 Perform periodic surveillances of waste per applicable department procedures.

7.2 PREPARING AN EMPTY ISO CONTAINER

Waste Generator

7.2.1 Notify Container Distribution Facility (CDF) when containers are needed. Include an FS-F-3468, "FEMP Container Request" (Attachment D), signed by the Control Account Manager (CAM).

Container Distribution Facility

7.2.2 Visually inspect containers following PT-0003 before distributing.

LLW Packaging Support

7.2.3 Request container transfer to waste loading site.

7.2.4 Visually inspect interior and exterior of container for damage, such as corrosion/rust, hole, leak, breach, or dent per Tables 1, 2, and 3.

a. If the container is damaged, inform supervisor to contact the CDF for disposition.

OR

b. If the container is not damaged, continue procedure.

NOTE: ISO containers will be sealed by the supplier as of June, 1995. If old ISO containers are to be used that are not sealed by the supplier, preparation instructions will be provided by LLW Packaging Support.

7.2.5 Visually inspect interior of container to ensure the container is empty except for 2 layers of absorbent material and plywood used to go over absorbent material and protect the sides of the containers.

a. If other material is present or if plywood and absorbent material is not present, notify supervisor for disposition before continuing procedure.

OR

b. If other material is not present, continue procedure.

7.2.6 Verify that the ISO has an inventory number on a bar code on the side of the container (see Attachment E). If it does not, notify CDF before continuing procedure.

7.2.7 Spread two layers of absorbent pads on container floor, permitting no gaps and allowing padding to extend 3 inches (±1 inch) upward along each wall.

NOTE: Doorway edge shall remain free of padding at this time.

Packager

7.2.8 Starting at the back of container, place plywood sheets over the pads, overlapping, across the container floor to the doorway.

7.2.9 Lean three plywood sheets along each container side and one plywood sheet along the back wall.

7.2.10 Adhere a "Prohibited Materials" list and a "Process Area Scrap Checklist" (when applicable) to interior side of door.

7.2.11 Inform supervisor the container preparation is complete.

Supervisor

7.2.12 Notify P/QA that the container has been prepared.

Performance/Quality Assurance

7.2.13 Inspect container preparation per applicable department procedure for compliance with this procedure.

NOTE: Only periodic inspections of container preparation are required for areas pre-approved by P/QA.

7.3 FILLING THE ISO CONTAINER WITH WASTE MATERIAL

LLW Packaging Support

7.3.1 Maintain communication with P/QA to permit P/QA to view filling of containers in accordance with applicable department procedure.

Performance/Quality Assurance

7.3.2 Check for nonconformance and do one of the following:

a. If a nonconformance is identified, document and evaluate for corrective action per applicable procedure and notify supervisor to have nonconformance corrected.

OR

b. If nonconformance is not identified, continue procedure.

Packager

WARNING

A RESPIRATOR AND OTHER PERSONAL PROTECTIVE EQUIPMENT, SPECIFIED IN THE HEALTH AND SAFETY PLAN AND PROVIDED BY THE SUPERVISOR, SHALL BE DONNED PRIOR TO FILLING CONTAINERS TO PREVENT INHALATIONS AND EXPOSURES.

NOTE: Any waste encountered in the packaging operation not covered by the MEF or that does not meet either the "Process Area Scrap Checklist" or Material Evaluation and Container Information - Scrap Vehicle" requirements shall be set aside and shall not be packaged without the Supervisor contacting WC for disposition instructions.

7.3.3 Load waste into container as tightly as possible ensuring the container is within the specified weight and freeboard limitations (see Table 4) and the load is balanced to prevent tipping. Aggregate material shall be carefully loaded to minimize damage, settling, and shifting during transportation.

NOTE: To allow for ice build-up in winter, maximum weight for shipments is 40,000 pounds if shipped between November and March and 42,000 pounds if shipped between April and October.

7.3.4 Complete either a "Materials Evaluation and Container Information - Scrap Vehicle" form (Attachment C) per PT-0011 or a "Process Area Scrap Checklist (Attachment B).

7.3.5 Initiate an FS-F-1945, "Item Production/Certification/ Identification," 65 Card (Attachment F) per MCA-I-018, "Completing the Item Production/Certification/Identification Form."

7.3.6 Calculate tare weight by adding 325 pounds to the weight of the container.

7.3.7 Forward the 65 Card and the "Materials Evaluation and Container Information" form or the "Process Area Scrap Checklist" to LLW Packaging Support.

LLW Packaging Support

7.3.8 Review, sign, and send the 65 Card and the "Materials Evaluation & Container Information" form or the "Process Area Scrap Checklist" to MC&A.

7.4 SECURING THE ISO CONTAINER

Performance/Quality Assurance

7.4.1 Perform final examination of contents and complete documentation for verification of materials packaged.

NOTE: This documentation may include photographs.

Packager

7.4.2 If directed by supervisor, place two sheets of plywood vertically in front of container doorway for shoring.

7.4.3 Roll (double-thick) absorbent pads together and place evenly along the floor (maintaining continuous contact with floor) in front of the plywood sheets.

7.4.4 Caulk door frame interior and inside edges of each door.

7.4.5 Close the container doors.

7.4.6 Close and latch doors ensuring all latching mechanisms are engaged.

7.4.7 Band doors securely together with 1-1/4 inch bands spaced approximately 2 feet apart around the center locking bars at mid-height of the container.

7.4.8 Secure each band with two double-crimp seals.

LLW Packaging Support

7.4.9 Complete, sign, and distribute the "Process Area Scrap Checklist," if applicable.

7.4.10 Apply a tamper-proof red seal to door.

7.4.11 Notify MC&A and Transportation when container is full and is to be moved.

Supervisor

7.4.12 Specify the scale and the method of transporting the box to the scale.

Packager

7.4.13 Inspect the scale to be used per the applicable scale procedure.

7.5 WEIGHING THE FILLED ISO CONTAINER

Motor Vehicle Operator

7.5.1 Move container onto scale.

NOTE: The scale shall be a currently calibrated accountability scale.

Checker

7.5.2 Fill out weight ticket and transmit to LLW Packaging Support.

a. If box is over 42,000 pounds, notify supervisor and proceed as directed.

OR

b. If box is less than or equal to 42,000 pounds, continue procedure.

Motor Vehicle Operator

7.5.3 Remove container from the scale.

8.0 DRIVERS

8.1 NVO-325, Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements

8.2 S/RID 12, Packaging & Transportation

8.3 49 CFR, Section 173

9.0 DEFINITIONS

9.1 Free Liquid - Any free flowing liquid or any liquid that readily separates from the solid portion of a waste under ambient temperature and pressure conditions. Ice is also considered a free liquid.

9.2 Freeboard - The amount of allowable void space between packaged materials and the lid of the box.

9.3 ISO Container - An Intermodal container (Dry Cargo Type). Those used at the FEMP typically measure 8-1/2 feet high X 8 feet wide X 20 feet long with two doors on the end. Although frequently referred to as a "Sea/Land" container at the FEMP, an ISO container may be, but is not necessarily, a Sea/Land container. (See Table 4 for specifications.)

9.4 Low-Level Radioactive Waste (LLRW) - All radioactive waste not classified as high-level waste, spent nuclear fuel, Transuranic (TRU) waste, uranium mill tailings, or Mixed Waste (MW).

9.5 Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control, documentation and proper management of hazardous wastes.

TABLE 1
CORROSION INSPECTION TYPES

TYPE	CHARACTERISTIC	COULD CAUSE LOSS OF BOX INTEGRITY		CORRECTIVE ACTION
		YES	NO	
1	Holes, large dents, or large areas of corrosion that affect the structural integrity of the container or require the entire side to be painted	X		1. Notify Maintenance to patch. Overpack or repackage in another container. NOTE: Supervisors ensure that touchup or painting is completed. 2. Notify P/QA and MC&A of all repairs or repackaging of waste containers.
2	Heavy rust with areas of pitted metal flaking and no holes present		X	1. HAZWATS scrape loose oxides and paint the area to be repaired.
3	Light surface rust with no pitting of the base metal		X	1. Wipe with masoline cloth or wash with soap and water, if needed to remove dirt. 2. Ship as is.

TABLE 2
LEAKER INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Material flowing from container and accumulation on, under, or around container.	1. Notify supervisor and Radiological Control (RC). 2. Supervisor notify AEDO. 3. Stop or contain leak as directed by supervisor. 4. Record on inspection form that the container requires mitigation within 24 hours. 5. Complete additional cleanup as necessary. 6. Supervisor initiate an Occurrence Report (OR).
2	Material on container exterior only; no material on, under, or around container.	1. Record leak on inspection form. 2. Notify supervisor and RC. 3. Supervisor initiate an OR. 4. Supervisor review the completed inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
3	Container exterior discolored/visible contamination; no material release.	1. Record condition on inspection form. 2. Notify supervisor and RC. 3. Supervisor schedule container for overpacking.

TABLE 3
DENT/BULGE INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affecting container integrity to the degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

TABLE 4
WEIGHT AND FREEBOARD LIMITATIONS

CODE	SHIPPING CONTAINERS	TARE WT (LBS)	WT LIMIT (LBS)
109	Sea/Land - Conventional No. 102"H x 96"W x 238"L Exterior 93"H x 94"W x 232"L Interior	VARIED	42,000 or full

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ATTACHMENT A - PROHIBITED MATERIALS

PACKAGING GUIDELINES FOR WASTE GENERATOR	
Package has been properly prepared for closing when the following conditions exist:	
No liquids of any kind have been placed in container.	
Heavy/bulky items have been secured within container.	
All available space has been utilized efficiently.	
Prohibited materials (listed below) have been excluded.	
Packaging has not been damaged during loading.	
Liner is in place and properly lapped and sealed.	
PROHIBITED MATERIALS AND EXAMPLES	
Compressed Gases	***Corrosive Materials***
unpuctured aerosol cans	*acid or caustic material*
gas cylinders with valves or plugs in place	*acidic*
Free Liquids	***Hazardous Waste***
water, ice, seepage, condensation,	*solvents, petroleum products,*
drinks, coffee, juices, pop, soaked rags,	*lead, mercury, batteries,*
fuel, oil, fluids, solvents, etc.	*pesticides, etc.*
Etiologic Agents	***Explosives***
medical waste	

ATTACHMENT B - PROCESS AREA SCRAP CHECKLIST

SECTION I - WASTE EVALUATION	Yes	No	N/A
1.0 Free Liquids: 1.1 Any free liquids entrapped in nooks, crannies or folds? 1.2 Did the item contain internal (working) fluids? 1.3 Have internal fluids been drained? 1.4 Has item been tagged "drained?"			
2.0 Electrical Equipment: 2.1 Any light ballasts on the item? 2.2 Any starter caps on the item? 2.3 Any mercury switches on the item? 2.4 Any capacitors bigger than 5 inches in diameter on the item?			
3.0 Excess Residues: 3.1 Any residues on item that could be removed and managed separately? 3.2 Any soils on item that could be removed and managed separately?			
4.0 Painted Material: 4.1 Metal item < 1/8" thick AND more than 10% painted w/ lead-based paint? 4.2 Wood item < 1" thick AND more than 10% painted w/ lead-based paint?			
5.0 Restrictions on Material Type: 5.1 Is the material itself made of lead (Pb)? 5.2 Is the material itself uranium (U) or thorium (Th) metal?			
6.0 Glass: 6.1 Any light bulbs or lamps other than incandescent? 6.2 If sample jars, any material remaining in container?			
7.0 Trash: 7.1 Are there any prohibited items as listed in the posted "prohibited items" list?			
8.0 Property: 8.1 Has all property been administratively processed for disposal as LLW?			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a detailed description of the materials in the container, including source or origin if available)

2. PACKAGING START DATE:	3. PACKAGING END DATE:	4. INCHES FREEBOARD/HEADSPACE
5. CONTAINER NUMBER:	6. CONTAINER TYPE: ☐ S/L ☐ WM8 ☐ Drum ☐ OTHER, Specify:	
7. APPROVED BY: _____ Supervisor(s) Signature/Date	8. ACCEPTED BY: _____ WPM Signature/Date	

GENERATOR TO MAKE DISTRIBUTION:

1	White	Waste Characterization
2	Blue	Low-Level Waste Handling and Disposal
3	Yellow	Materials Control and Accountability
4	Green	Waste Generator

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ATTACHMENT C - MATERIALS EVALUATION AND CONTAINER INFORMATION - SCRAP VEHICLE

SECTION I - WASTE EVALUATION

		YES	NO	N/A
1. Free from the following fluids:	a. Anti-freeze			
	b. Brake fluid			
	c. Gasoline			
	e. Engine oil			
	f. Power steering			
	g. Differential fluid (rear end)			
	h. Windshield Wiper Fluid			
2. Removed:	a. Radios			
	b. Distributor coils and amplifiers			
	c. Alternators			
	d. Electronic fuel injector circuit			
3. Fuel tank removed				
4. Propane tank removed				
5. Tires Deflated				
6. Tire valve stem removed				
7. Freon pumped/contained for recycling				
8. Auxiliary Hydraulic Unit removed or drained				
9. Oil filter and Gas filter removed and filter receptacles on engine sealed				
10. Batteries removed				
11. All Hoses that contain liquids have been cut and Drained				

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on source or origin if available): _____

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION: _____

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE: _____ PACKAGING FINISH DATE: _____	3. VERIFIED BY: _____ DATE: _____
4. CONTAINER NUMBER:	5. CONTAINER TYPE:
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
*PROVED BY: _____ SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: _____ QC SIGNATURE/DATE

or materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO DISTRIBUTE

1	White	Waste Characterization	2	Blue	Low-level Waste Handling & Disposal	3	Yellow	Materials Control & Accountability	4	Green	Waste Generator

FS-F-3472 (REV. 12/17/93)

ATTACHMENT D - FERNALD SITE CONTAINER REQUEST

Requisition No:

REQUESTED BY:				PHONE NUMBER	MAIL STOP	BADGE NUMBER	
PROJECT							
REQUEST DATE				CONTROL ACCOUNT NUMBER			
CONTAINER TYPE							
ISO	LWMB	SWMB	30 DRUM	55 DRUM	85 DRUM	110 DRUM	ROLL-OFF
QUANTITY REQUESTED							
TO BE SHIPPED TO NTS? YES___ NO__				FOR ONSITE STORAGE? YES___ NO___			
LOCATION FOR DELIVERY:							
CONTACT NAME:				PHONE:	RADIO:		
DELIVERY DATE REQUIRED:				MEF NUMBER			
MATERIAL DESCRIPTION/PWID							
DELIVERY DATE	QUANTITY			DELIVERY DATE	QUANTITY		
SIGNATURES REQUIRED							
CONTROL ACCOUNT MANAGER (REQUIRED)				DATE:			
COMMENTS:							

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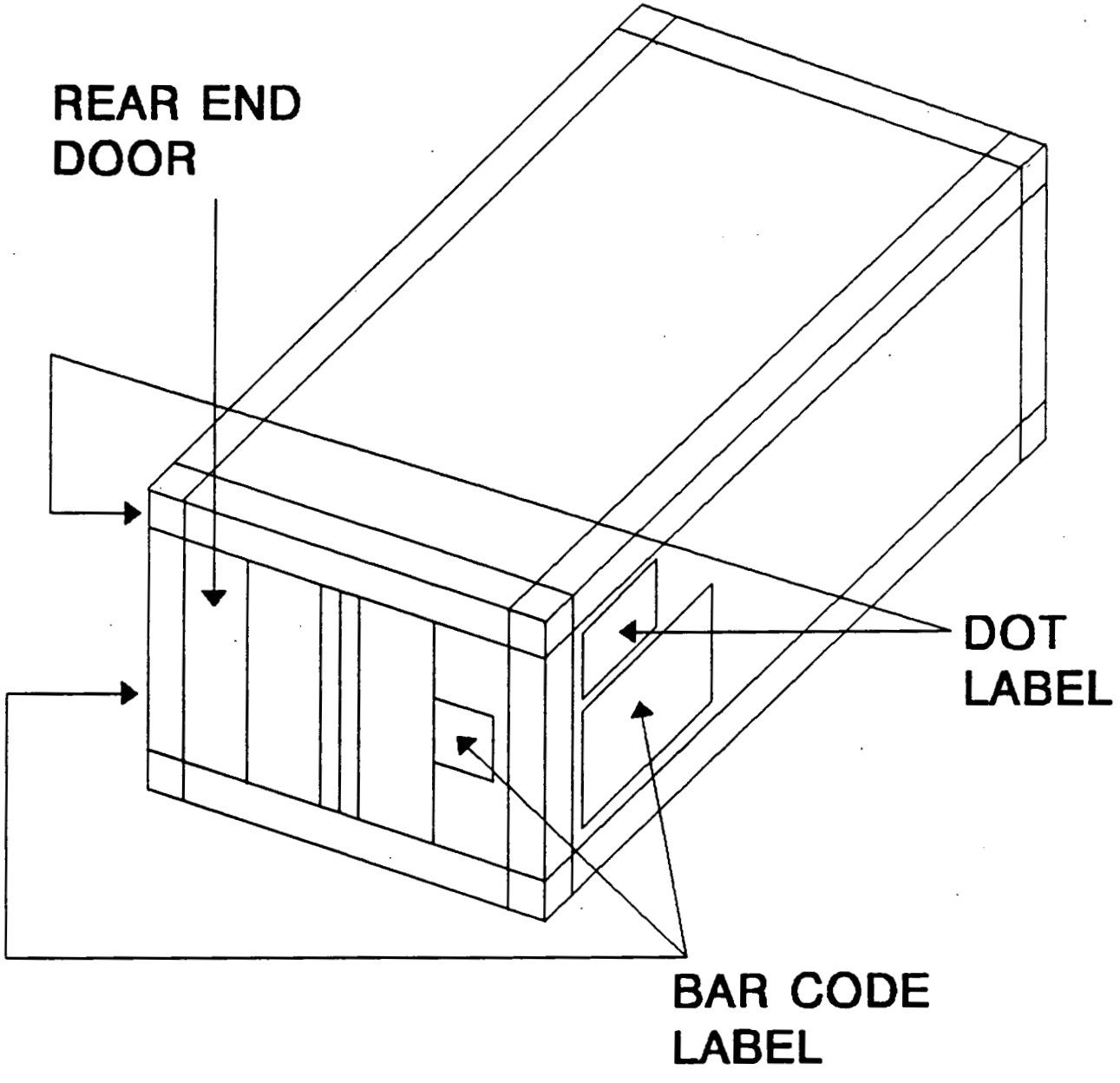
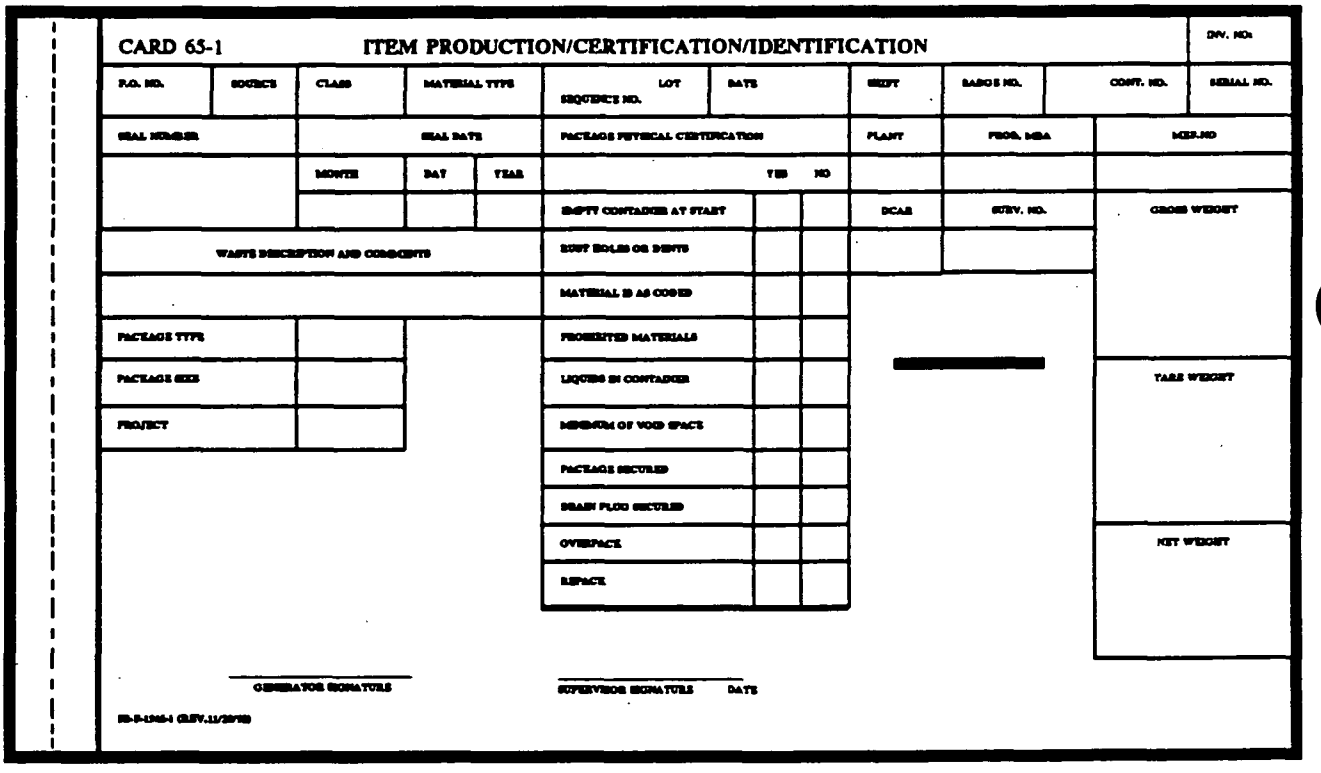
ATTACHMENT E - ISO LABELING LOCATIONS



ATTACHMENT F - ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FS-F-1945



CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

DIV. NO.

P.O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE | SHIFT | BASIS NO. | CONT. NO. | SERIAL NO.

SEAL NUMBER | SEAL DATE | PACKAGE PHYSICAL CERTIFICATION | PLANT | PROD. MBA | MISC.NO

MONTH | DAY | YEAR | YES | NO

EMPTY CONTAINER AT START | DCAS | SUSV. NO. | GROSS WEIGHT

WASTE DESCRIPTION AND COMMENTS | EXACT SEALS OR DENTS

MATERIAL ID AS CODED

PACKAGE TYPE | PROHIBITED MATERIALS

PACKAGE SIZE | LIQUIDS IN CONTAINER | TARE WEIGHT

PROJECT | MINIMUM OF VOID SPACE

PACKAGE SECURED

DRAIN PLUG SECURED

OVERPACK | NET WEIGHT

REPACK

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

EG-F-1945-1 (REV.11/29/93)

-6944

CONTROL NUMBER: FCR-0018

SITE PROCEDURE PT-0007 (SSOP-0079)

REVISION NO. 2

PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN METAL BOXES FOR SHIPMENT TO THE NEVADA TEST SITE

Effective Date: 03-30-95

NON-CONTROLLED COPY

Originator (Subject Expert): Robert P Greul 3/15/95
Date

Checker Concurrence: Robert A. Hunt 3/16/95
Date

APPROVED BY: M West 3/16/95
Mike West, FAM of Packaging and Transportation
Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

Title: PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN METAL BOXES FOR SHIPMENT TO THE NEVADA TEST SITE *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0007 (SSOP-0079)	
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ISSUE AND REVISION SUMMARY

Revision	Date	Description of Issue or Revision
0	12-14-92	Separate procedure written for packaging LLRW in boxes per Request No. S92-176, initiated by M. Hundley. SSOP-0079, SSOP-0078, and SSOP-0075 replace SSOP-0024.
1	10-04-04	Major revision required to update tables, Figure 3, and organization names and add labeling requirement per Request No. S93-073, initiated by Lori Hurst. This revision supersedes SSOP-0079, dated 12-14-92, Rev. 0.
2	03-30-95	Major Revision to omit the labeling, marking, and inspecting sections; add requirements for top-loading boxes; add requirements for packaging regulated asbestos containing materials; and outline the latest responsibility changes per Request No. S94-174, initiated by B. Giessl. This document replaces SSOP-0079, dated 10-04-94, Rev. 1.

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1.0 PURPOSE

1.1 This procedure provides the instructions for packaging low-level radioactive waste (LLRW) in metal boxes for shipment offsite from the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

2.1 The procedure outlines the steps for (1) inspecting the waste to be packaged, (2) inspecting and preparing empty boxes, (3) filling boxes with waste, (4) weighing filled boxes, and (5) securing the boxes.

2.2 The packaging operation is applicable to FEMP personnel (including subcontractors) responsible for packaging LLRW in metal boxes at any packaging location of the FEMP site.

3.0 REFERENCES

3.1 EW-0001, Completing the Material Evaluation Form

3.2 EW-0006, Management of Excess Soil, Debris, and Waste from a Project

3.3 PT-0003, Control and Movement of Containers at the FEMP

3.4 PT-0011, Evaluating Low-level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment

3.5 MCA-I-018, Completing the Item Production/Certification/Identification Form

4.0 RESPONSIBILITIES

4.1 Packager inspects waste and containers and packages waste per this procedure. Complies with any additional requirements specified by Safety and Health (S&H).

4.2 LLW Packaging Support ensures the box is empty and in acceptable condition before packaging. Ensures contents of waste package. Coordinates the movement of containers.

4.3 Waste Characterization (WC) provides documentation supporting characterization of all LLRW packaged under this procedure.

4.4 Materials Control and Accountability (MC&A) provides bar code labels. Maintains records and inventory of metal boxes. Tracks movement of empty and full containers.

4.5 Safety and Health (S&H) provides a Radiological Control Technician (RCT), as requested. Determines appropriate respiratory equipment and any other employee protection.

4.6 Supervisor of the Waste Generation Area specifies applicable scale procedures and standard tare weight of packages. Ensures packaging materials are available for Packagers. Ensures that only trained personnel package waste material. Ensures that personnel who package waste for shipment follow applicable Nevada Test Site (NTS) criteria and Department of Transportation (DOT) and Environmental Protection Agency (EPA) regulations. Contacts Safety and Health (S&H) to determine the appropriate respiratory protection for the process being performed and the radiological surveys required for materials moving in and out of contamination areas. Contacts Radiological Control (RC) for a Radiological Work Permit (RWP) or other safety permits and ensures permits are obtained and signed prior to performing. Provides packagers with the required respiratory protection and other personal protective equipment. Ensures the lid on an unfilled box is secured after packaging so unknown materials are not added. Ensures waste packages are weather-protected.

4.7 Motor Vehicle Operator (MVO) delivers empty boxes to designated packaging location. Supports packager as needed per this procedure.

4.8 Performance/Quality Assurance (P/QA) overviews packaging operation to ensure compliance with this procedure.

5.0 GENERAL

5.1 Any circumstance that could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall be immediately reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to the S&H RC Department for evaluation. When the suspect isotope is uranium, the involved employees shall report to the Urine Sampling Station at the end of their respective shift to complete an FS-F-1458, "Investigation Report" (IR), and submit an incident urine sample. The involved employees shall also report to the Urine Sampling Station at the start of their next shift to submit a follow-up urine sample. When the suspect isotope is other than uranium, the involved employee(s) shall report to the Dosimetry Section of RC for further determination of actions. Employees are responsible for complying with appropriate requirements as specified by the authorized S&H staff.

5.2 For Waste Stream ONL0000000002 Contaminated Construction/Removal, the following substitutions should be made:

- WC may be performed using EW-0006, "Management of Excess Soil, Debris, and Waste from a Project."
- A Packager could be a subcontractor or FEMP personnel.
- A Supervisor could be the Construction Coordinator if a project is subcontracted.

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5.3 DOT label letters shall be 2 inches high by 1/4 inch wide.

6.0 PREREQUISITES

6.1 Safety glasses with side shields shall be worn unless other eye protection is specified.

6.2 Respiratory protection provided by the supervisor shall be worn when required.

6.3 Gloves shall be worn when handling boxes, operating equipment, and handling rough, sharp-edged, or contaminated material.

6.4 Neoprene rubber gloves shall be worn when handling hazardous chemical substances where skin contact is possible.

6.5 Vacuum cleaners with HEPA type filters or a current DOP test label properly affixed to vacuum shall be used for cleaning.

6.6 An RWP must be approved and current.

6.7 Face shields shall be worn when removing lids or bungs of containers filled with liquids or during operations where personnel could be splashed with liquids.

6.8 Containers with unknown contents shall be labelled "UNKNOWN" (with the current date). Empty containers shall be marked "EMPTY."

6.9 Access to the container storage area will be secured and the container will be labeled as required in 40 CFR 61.149 (c) (5) (iii) and 40 CFR 61.149 (d) (1) (i), (ii), and (iii) when packaging Regulated Asbestos Containing Materials (RACMs).

6.10 Obtain the following materials and tools, as needed, before packaging:

- Appropriate safety protective equipment
- Foam-strip gasket (size appropriate for box)
- Diatomaceous earth
- Indelible marker
- Black paint, red paint, white paint (as applicable)
- Hammer and screw driver, as applicable
- Wrench and channel locks, as applicable
- Clear lab label tape and dispenser
- Clean rags
- Electric drill
- Impact wrench
- Absorbent pads

6.11 "Prohibited Materials" list (Attachment A) shall be displayed in the packaging area or on the container.

6.12 The "Process Area Scrap Checklist" (Attachment B) shall be displayed in the packaging area or on the container when packaging Waste Stream ONL0000000001 Process Area Scrap.

6.13 An FS-F-3252, "Material Evaluation Form (MEF)," shall be completed to determine if the waste is RCRA or non-RCRA. The packaging operation may not be started before the characterization is completed and an MEF is assigned by WC in accordance with EW-0001.

6.14 A minimum of two personnel are required to package waste.

6.15 Packagers shall be qualified in use of Personal Protective Equipment (PPE).

6.16 Employees shall be briefed on and sign the RWP in black ink before performing work.

7.0 PROCEDURE

7.1 INSPECTING WASTE

Packager

7.1.1 Ensure the waste to be packaged is not on the "Prohibited Materials" list (Attachment A) and can pass either the "Process Area Scrap Checklist" (Attachment B) or the "Material Evaluation and Container Information - Scrap Vehicle" (Attachment C), when applicable.

a. If the waste is on the Prohibited Materials List or does not pass the "Process Area Scrap Checklist" or the "Material Evaluation and Container Information - Scrap Vehicle," notify supervisor for disposition before continuing procedure.

OR

b. If the waste is not on the Prohibited Materials List and passes either the "Process Area Scrap Checklist" or the "Material Evaluation and Container Information - Scrap Vehicle," continue procedure.

NOTE: The determination to package a waste stream is based on a completed MEF.

7.1.2 Ensure the waste characterization has been completed and an MEF has been obtained from WC.

a. If the waste characterization has been completed, package it per this procedure.

OR

b. If the waste characterization has not been completed, inform Supervisor to contact WC for disposition before continuing procedure.

7.1.3 Visually check waste for free liquid (including ice).

a. If free liquid is present, notify supervisor for disposition before continuing procedure.

OR

b. If free liquid is not present, continue procedure.

Performance/Quality Assurance

7.1.4 Perform periodic surveillance of waste per applicable department procedure.

7.2 PREPARING AN EMPTY, SMALL METAL BOX

Waste Generator

7.2.1 Notify Container Distribution Facility (CDF) when containers are needed. Include an FS-F-3468, "Fernald Site Container Request" (Attachment D), signed by the Control Account Manager (CAM).

Container Distribution

7.2.2 Visually inspect container following PT-0003 before distributing.

LLW Packaging Support

7.2.3 Request container transfer to the waste loading site.

7.2.4 Verify that the interior of the box is empty and there is no interior or exterior damage such as corrosion, leaks, and dents/bulges per Tables 1, 2, and 3.

a. If the box is damaged or material is present, inform supervisor to contact the CDF for disposition before continuing procedure.

OR

b. If the box is not damaged and material is not present, continue procedure.

7.2.5 Verify the box has an inventory number on a bar code on the side of the box (Attachment E).

7.2.6 If the bottom of the box has a drain plug, ensure plug is securely in place.

Supervisor

7.2.7 Specify the scale for weighing and method of transporting the box to the scale.

NOTE: The scale shall be a currently calibrated accountability scale.

Packager

7.2.8 Inspect the scale to be used per the scale procedure applicable to the area.

Motor Vehicle Operator/Packager

7.2.9 As directed, move the box onto the scale.

NOTE: Packagers may move any container within the capacity of a forklift; Motor Vehicle Operators shall move anything greater than the capacity of a forklift.

Packager

7.2.10 Tare weigh box per the scale procedure applicable to the area.

7.2.11 Record the weight of the box on the upper front side of the box with indelible ink or paint so that it can be covered by the bar code.

Motor Vehicle Operator/Packager

7.2.12 Remove the box from the scale.

Packager

7.2.13 Remove lid and place in a designated location to prevent damage.

7.2.14 Do one of the following:

a. For concrete or materials with sharp edges, do one of the following:

(1) Place one layer of pallets (provided by LLW Packaging Support) in the bottom of the box and then pour 1/2 to 1 inch of diatomaceous earth evenly over the pallets.

OR

(2) Place one layer of absorbent material in the bottom of the box and cover with one layer of pallets.

OR

b. If loading soil, wood, or drummed materials, place one layer of absorbent pads in the bottom of the box and pour 1 to 2 inches of diatomaceous earth evenly in the bottom of the box.

NOTE: Pallets are not required when loading soil, wood or drummed materials.

7.3 PREPARING AN EMPTY, TOP-LOADING METAL BOX

Waste Generator

7.3.1 Notify Container Distribution Facility (CDF) when containers are needed. Include an FS-F-3468, "FEMP Container Request," signed by the Control Account Manager (CAM).

Container Distribution Facility

7.3.2 Visually inspect container following PT-0003 before distributing.

LLW Packaging Support

7.3.3 Request container transfer to the waste loading site.

7.3.4 Verify that the interior of the box is empty and there is no interior or exterior damage such as corrosion, leaks, and dents/bulges per Tables 1, 2, and 3.

a. If the box is damaged or material is present, inform supervisor to contact the CDF for disposition before continuing procedure.

OR

b. If the box is not damaged and material is not present, continue procedure.

7.3.5 Verify the box has an inventory number on a bar code on the side of the box (Attachment F).

Packager

7.3.6 Place one layer of pallets (provided by LLW Packaging Support) in the bottom of the box.

7.3.7 Place one layer of absorbent material in the bottom of the box.

Supervisor

7.3.8 Notify P/QA that the container has been prepared.

Performance/Quality Assurance

7.3.9 Inspect container preparation per applicable department procedure for compliance with this procedure.

NOTE: Only periodic inspections of container preparation are required for areas pre-approved by P/QA.

7.4 FILLING THE BOX WITH WASTE MATERIAL

Performance/Quality Assurance

7.4.1 Overview filling of boxes per applicable department procedure to ensure compliance with this procedure.

Packager

WARNING

A RESPIRATOR AND OTHER PERSONAL PROTECTIVE EQUIPMENT, SPECIFIED IN THE HEALTH AND SAFETY PLAN AND PROVIDED BY THE SUPERVISOR, SHALL BE DONNED PRIOR TO FILLING CONTAINERS TO PREVENT INHALATIONS AND EXPOSURES.

NOTE: Any waste encountered in the packaging operation not covered by the MEF or that does not meet either the "Process Area Scrap Checklist" or Material Evaluation and Container Information - Scrap Vehicle" requirements shall be set aside and shall not be packaged without the Supervisor contacting WC for disposition instructions.

7.4.2 Load waste into box as tightly as possible ensuring the box is within the specified weight and freeboard limitations (see Table 4) and the load is balanced to prevent tipping. Aggregate material shall be carefully loaded to minimize damage, settling, and shifting during transportation.

NOTE: To allow for ice build-up in winter, maximum weight for shipments is 40,000 pounds if shipped between November and March and 42,000 pounds if shipped between April and October.

7.4.3 Using a clean rag, wipe top edge of box. Place rag in disposal container.

7.4.4 Peel protective paper from foam-strip gasket and carefully apply gasket to box edge and/or the underside channel of the lid.

7.4.5 Place lid on box and secure as directed by supervisor.

7.4.6 Complete either a "Materials Evaluation and Container Information - Scrap Vehicle" form (Attachment C) or a "Process Area Scrap Checklist" (Attachment B) per PT-0011.

7.4.7 Complete a Form FS-F-1945, "Item Production/Certification/Identification," 65 Card (Attachment G) for each box following MCA-I-018, "Completing the Item Production/Certification/Identification Form."

NOTE: Tare weight for the large top-loaders is embossed in the top corner of the box.

LLW PACKAGING SUPPORT

7.4.8 Apply tamper-proof red seal to container.

7.4.9 Notify supervisor that the box is ready to be weighed.

7.5 WEIGHING THE FILLED BOX

Supervisor

7.5.1 Specify the scale and the method of transporting the box to the scale.

Packager

7.5.2 Inspect the scale to be used per the applicable scale procedure.

Motor Vehicle Operator

7.5.3 Move the box onto the scale.

Packager

7.5.4 Using the applicable scale procedure, weigh the box including box pins and other hardware to obtain gross weight.

a. If the box is over the specified weight limit (see Table 4), notify supervisor for disposition.

OR

b. If the box is within weight limit, continue procedure.

7.5.5 Do one of the following:

a. For a box requiring temporary storage, do the following:

(1) Apply a tamper-proof seal, lock, and other device to secure lid and prevent unauthorized additions.

LLW Packaging Support

(2) Notify MC&A and Transportation that container is full and ready to be moved.

OR

b. For a box not requiring temporary storage, continue procedure.

Packager

7.5.6 Using indelible ink, mark the gross weight, shipping number, and serial number on the upper front side of the box so the markings can be covered by the bar code label when provided.

7.5.7 Remove box from scale.

7.5.8 Record the weight on the 65 Card.

7.5.9 Send 65 Card and any applicable form(s) to supervisor.

Supervisor

7.5.10 Sign 65 Card indicating accuracy and completeness.

7.5.11 Complete and sign the appropriate form(s).

7.5.12 Forward 65 Card and the appropriate form(s) to LLW Packaging Support.

LLW Packaging Support

7.5.13 Review, sign, and distribute the 65 Card and the appropriate form(s).

Materials Control & Accountability/Shipment Coordinator

7.5.14 Print required bar code labels and submit to supervisor.

8.0 DRIVERS

8.1 NVO-325, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements"

8.2 S/RID 12, Packaging & Transportation

8.3 49 CFR, Section 173

9.0 DEFINITIONS

Free Liquid - Any free flowing liquid or liquid that readily separates from the solid portion of a waste under ambient temperature and pressure conditions. Ice is also considered a free liquid.

Freeboard - The amount of allowable void space between packaged materials and the lid of the box.

Low-Level Radioactive Waste (LLRW) - All radioactive waste not classified as high-level waste, spent nuclear fuel, Transuranic (TRU) waste, uranium mill tailings, or Mixed Waste (MW).

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which established safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control, documentation, and proper management of hazardous wastes.

White Metal Boxes (WMB) - Bulk containers with a net capacity greater than 452 liters and less than 3,000 liters that meet HM-181 test standards. (See Table 4 for specification of each type.)

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TABLE 1
CORROSION INSPECTION TYPES

TYPE	CHARACTERISTIC	COULD CAUSE LOSS OF BOX INTEGRITY		CORRECTIVE ACTION
		YES	NO	
1	Holes, large dents, or large areas of corrosion that affect the structural integrity of the container or require the entire drum to be painted	X		1. Notify Maintenance to patch. Overpack or repackage in another container. NOTE: Supervisors ensure that touchup or painting is completed. 2. Notify P/QA and MC&A of all repairs or repackaging of waste containers.
2	Heavy rust with areas of pitted metal flaking and no holes present		X	1. HAZWATS scrape loose oxides and paint the area to be repaired.
3	Light surface rust with no pitting of the base metal		X	1. Wipe with masoline cloth or wash with soap and water, if needed to remove dirt. 2. Ship as is.

TABLE 2
LEAKER INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Material flowing from container and accumulation on, under, or around container	1. Notify supervisor and Radiological Control (RC). 2. Supervisor notifies AEDO. 3. Stop or contain leak at the discretion of the supervisor. 4. Record on inspection form that the container requires mitigation within 24 hours. 5. Complete additional cleanup as necessary. 6. Supervisor initiate an Occurrence Report (OR).
2	Material on container exterior only; no material on, under, or around container	1. Record leak on inspection form. 2. Notify Supervisor and RC. 3. Supervisor shall initiate an OR. 4. Supervisor shall review the completed inspection forms to prioritize containers for transfer to overpack staging area and subsequent mitigation.
3	Container exterior discolored/visible contamination; no material release	1. Record condition on inspection form. 2. Notify Supervisor and RC. 3. Supervisor schedule container for overpacking.

TABLE 3
DENT/BULGE INSPECTION TYPES

TYPE	CHARACTERISTIC	CORRECTIVE ACTION
1	Dents and/or bulges affecting container integrity to the degree of potential or actual release	Overpack or transfer to new container.
2	Dents and/or bulges not affecting container integrity	Continue to monitor.

TABLE 4
WEIGHT AND FREEBOARD LIMITATIONS

CODE	SHIPPING CONTAINERS	TARE WT (LBS)	WT LIMIT (LBS)
113	WMB - Pin Type No. 30A-5500-M-00059, Rev. 0 43"H x 53"W x 77"L Exterior 38"H x 52"W x 76"L Interior	630	6000 or no more than 3" freeboard
117	WMB - Clip Type Electropanel No. 89DW000800, Rev. 1 41"H x 54"W x 78"L Exterior 37"H x 48"W x 72"L Interior	680	6000 or no more than 3" freeboard
119	WMB - Bolt Type No. C01-542-2-01 40.5"H x 57.25"W x 81.25"L Ext 32"H x 52"W x 76"L Interior	850	8000 or no more than 3" freeboard
117	WMB - Bolt Type (Carolina) No. PT188-93 42"H x 55"W x 80"L Exterior 37"H x 50"W x 75"L Interior	~900	8000 or no more than 3" freeboard
117	WMB - Bolt Type (Galbreath) No. IS1503 41 13/16"H x 55.5"W x 80"L Ext 37"H x 51.5"W x 74.5"L Interior	~900	8000 or no more than 3" freeboard
120	Top Load No. 40X-5500-M-00041, Rev. 1 89"H x 96"W x 240"L Exterior	VARIED	42,000 or full
121	Top Load No. 94"H x 96"W x 240"L Exterior 88"H x 92"W x 236"L Interior	VARIED	42,000 or full

ATTACHMENT A - PROHIBITED MATERIALS

PACKAGING GUIDELINES FOR WASTE GENERATOR	
Package has been properly prepared for closing when the following conditions exist:	
No liquids of any kind have been placed in container.	
Heavy/bulky items have been secured within container.	
All available space has been utilized efficiently.	
Prohibited materials (listed below) have been excluded.	
Packaging has not been damaged during loading.	
Liner is in place and properly lapped and sealed.	
PROHIBITED MATERIALS AND EXAMPLES	
Compressed Gases	***Corrosive Materials***
unpuctured aerosol cans	*acid or caustic material*
gas cylinders with valves or plugs in place	*acidic*
Free Liquids	***Hazardous Waste***
water, ice, seepage, condensation,	*solvents, petroleum products,*
drinks, coffee, juices, pop, soaked rags,	*lead, mercury, batteries,*
fuel, oil, fluids, solvents, etc.	*pesticides, etc.*
Etiologic Agents	***Explosives***
medical waste	

ATTACHMENT B - PROCESS AREA SCRAP CHECKLIST

SECTION I - WASTE EVALUATION	Yes	No	N/A
1.0 Free Liquids: 1.1 Any free liquids entrapped in nooks, crannies, or folds? 1.2 Did the item contain internal (working) fluids? 1.3 Have internal fluids been drained? 1.4 Has item been tagged "drained?"			
2.0 Electrical Equipment: 2.1 Any light ballasts on the item? 2.2 Any starter caps on the item? 2.3 Any mercury switches on the item? 2.4 Any capacitors bigger than 5 inches in diameter on the item?			
3.0 Excess Residues: 3.1 Any residues on item that could be removed and managed separately? 3.2 Any soils on item that could be removed and managed separately?			
4.0 Painted Material: 4.1 Metal item ≤ 1/8" thick AND more than 10% painted w/ lead-based paint? 4.2 Wood item < 1" thick AND more than 10% painted w/ lead-based paint?			
5.0 Restrictions on Material Type: 5.1 Is the material itself made of lead (Pb)? 5.2 Is the material itself uranium (U) or thorium (Th) metal?			
6.0 Glass: 6.1 Any light bulbs or lamps other than incandescent? 6.2 If sample jars, any material remaining in container?			
7.0 Trash: 7.1 Are there any prohibited items as listed in the posted "prohibited items" list?			
8.0 Property: 8.1 Has all property been administratively processed for disposal as LLW?			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a detailed description of the materials in the container, including source or origin if available)

2. PACKAGING START DATE:	3. PACKAGING END DATE:	4. INCHES FREEBOARD/HEADSPACE
5. CONTAINER NUMBER:	6. CONTAINER TYPE: ☐ S/L ☐ WMB ☐ Drum ☐ OTHER, Specify:	
7. APPROVED BY: Supervisor(s) Signature/Date	8. ACCEPTED BY: WPM Signature/Date	

GENERATOR TO MAKE DISTRIBUTION:		
1	White	Waste Characterization
2	Blue	Low-Level Waste Handling and Disposal
3	Yellow	Materials Control and Accountability
4	Green	Waste Generator

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ATTACHMENT C - MATERIALS EVALUATION AND CONTAINER INFORMATION - SCRAP VEHICLE

SECTION I - WASTE EVALUATION

	YES	NO	N/A
1. Free from the following fluids: a. Anti-freeze			
b. Brake fluid			
c. Gasoline			
e. Engine oil			
f. Power steering			
g. Differential fluid (rear end)			
h. Windshield Wiper Fluid			
2. Removed: a. Radios			
b. Distributor coils and amplifiers			
c. Alternators			
d. Electronic fuel injector circuit			
3. Fuel tank removed			
4. Propane tank removed			
5. Tires Deflated			
6. Tire valve stem removed			
7. Freon pumped/contained for recycling			
8. Auxiliary Hydraulic Unit removed or drained			
9. Oil filter and Gas filter removed and filter receptacles on engine sealed			
10. Batteries removed			
11. All hoses that contain liquids have been cut and drained			

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION (Provide a complete description of the waste in the container, including information on source or origin if available): _____

SPECIFIC DISCERNIBLE ITEMS APPROVED AS LLRW (NON-RCRA) BY WASTE CHARACTERIZATION: _____

WASTE CHARACTERIZATION SIGNATURE/DATE

2. PACKAGING START DATE: _____ PACKAGING FINISH DATE: _____	3. VERIFIED BY: _____ DATE: _____
4. CONTAINER NUMBER:	5. CONTAINER TYPE:
6. LOCATION PACKAGED:	
7. *MEF NUMBER:	8. INCHES FREEBOARD/HEADSPACE:
*ROVED BY: _____ SUPERVISOR(S) SIGNATURE/DATE	APPROVED BY: _____ QC SIGNATURE/DATE

*materials packaged that do not meet the criteria in Section I, but have an approved MEF number, record the MEF number and material packaged.

GENERATOR TO DISTRIBUTE

1	White	Waste Characterization	2	Blue	Low-level Waste Handling & Disposal	3	Yellow	Material Control & Accountability	4	Green	Waste Generator

FS-F-3472 (REV. 12/17/93)

ATTACHMENT D - FERNALD SITE CONTAINER REQUEST

Requisition No:

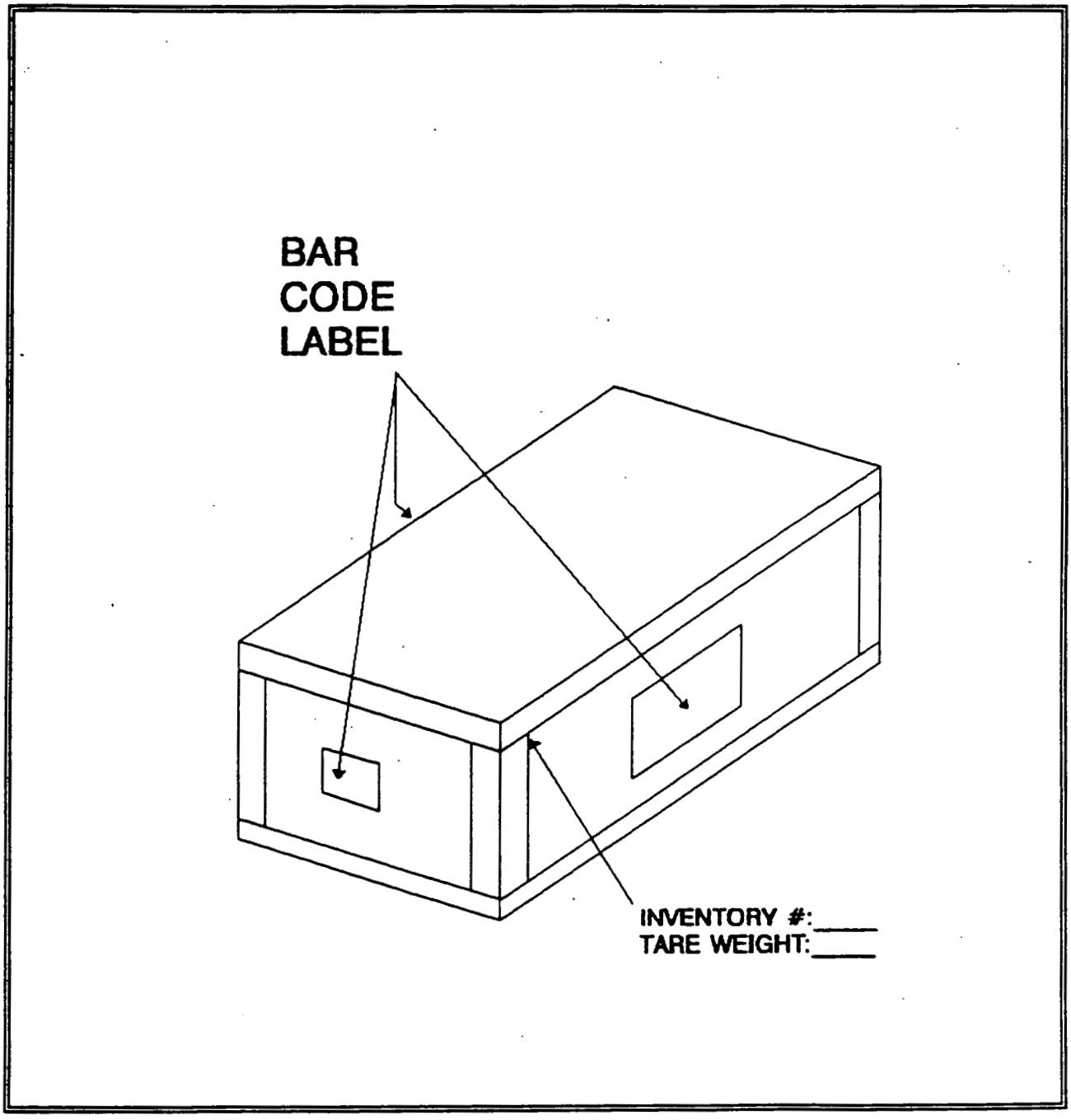
REQUESTED BY:				PHONE NUMBER	MAIL STOP	BADGE NUMBER	
PROJECT							
REQUEST DATE				CONTROL ACCOUNT NUMBER			
CONTAINER TYPE							
ISO	LWMB	SWMB	30 DRUM	55 DRUM	85 DRUM	110 DRUM	ROLL-OFF
QUANTITY REQUESTED							
TO BE SHIPPED TO NTS? YES___ NO__				FOR ONSITE STORAGE? YES___ NO___			
LOCATION FOR DELIVERY:							
CONTACT NAME:				PHONE:	RADIO:		
DELIVERY DATE REQUIRED:				MEF NUMBER			
MATERIAL DESCRIPTION/PWID							

DELIVERY DATE	QUANTITY	DELIVERY DATE	QUANTITY

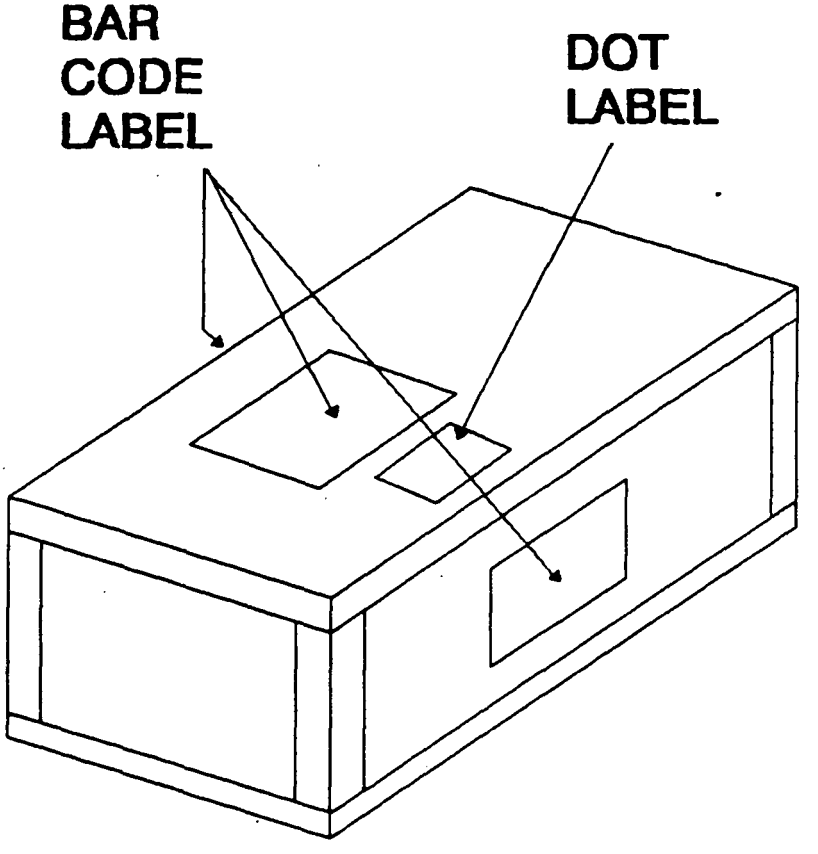
SIGNATURES REQUIRED	
CONTROL ACCOUNT MANAGER (REQUIRED)	DATE:

COMMENTS:

ATTACHMENT E - TOP-LOADING BOX LABELING



ATTACHMENT F - LLRW BOX LABELING



Title: PACKAGING LOW-LEVEL RADIOACTIVE WASTE (LLRW) IN METAL BOXES FOR SHIPMENT TO THE NEVADA TEST SITE *COMPLIANCE WITH THIS PROCEDURE IS MANDATORY WHILE PERFORMING THE ACTIVITIES WITHIN ITS SCOPE*	DOCUMENT NO: PT-0007 (SSOP-0079)	
	Date: 03-30-95	Revision No. 2
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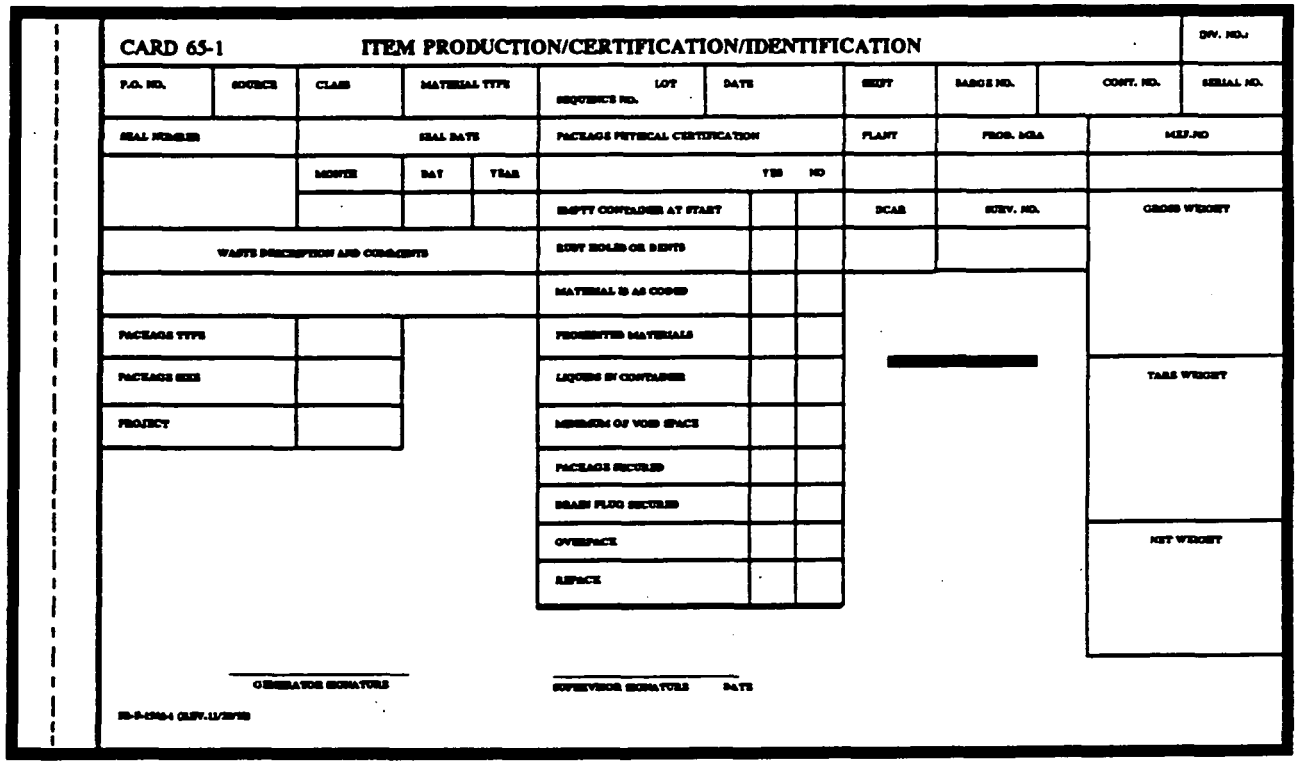
ATTACHMENT G - ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION



CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

DIV. NO.:

P.O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE	SHIFT	BARGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE			PACKAGE PHYSICAL CERTIFICATION			PLANT	PROD. AREA	MEF NO
	MONTH	DAY	YEAR		YES	NO			
				EMPTY CONTAINER AT START			SCAS	SERV. NO.	GROSS WEIGHT
WASTE DESCRIPTION AND COMMENTS				LOST SOLID OR DEPTH					
				MATERIAL ID AS CODED					
PACKAGE TYPE				PROHIBITED MATERIALS					
PACKAGE SIZE				LIQUIDS IN CONTAINER					TARE WEIGHT
PROJECT				MEASURE OF VOID SPACE					
				PACKAGE SECURED					
				DRAIN PLUG SECURED					
				OVERPACK					NET WEIGHT
				REPACK					

OPERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

-6944

CONTROL NO. FER-0018
SITE PROCEDURE PT-0008 (PP-0314)
REVISION NO. 0

PACKAGING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF MATERIAL

Effective Date: 12-20-91 NON-CONTROLLED COPY

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: M L West 2/15/95
Michael L. West, Manager of Packaging and Transportation — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

CONTROL NO: 6944

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		SITE POLICY AND PROCEDURE Page 1 of 29
Title: **PACKAGING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF MATERIAL**		DOCUMENT NO: PP-0314 REVISION NO. 0
Authorization: W. H. Britton, President	Supersedes: FMPC-314, Dated 12-31-90, Rev. 2	Issue Date: 12-20-91

1.0 POLICY

It is the policy of the Westinghouse Environmental Management Company of Ohio (WEMCO) to ensure that the packaging, on-site movement and off-site shipment of hazardous and non-hazardous materials, including radioactive materials, is conducted in a safe manner that provides for the protection of the public and the environment, and is in compliance with the applicable federal, state, and local regulations, Department of Energy (DOE) Orders and Directives, and WEMCO policies and procedures.

2.0 SCOPE

This procedure identifies, defines, and establishes the policies and responsibilities that govern the packaging, on-site movement, and off-site shipment of materials. Provisions of this document are applicable to all WEMCO Sections involved in the packaging, on-site movement, and off-site shipment of non-hazardous materials and hazardous materials, including hazardous substances, hazardous wastes, nuclear, and radioactive materials.

3.0 DEFINITIONS

3.1 Carrier - Any person engaged in the transportation of passengers or property as common, contract, or private charter, or freight forwarder, as defined in the Interstate Commerce Act, as amended, or by the United States Postal Service.

3.2 Consignee - The person or organization designated in the shipping papers to receive a shipment.

3.3 Hazardous Material - A material or substance, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, or property during transport.

3.4 Hazardous Substance - A material, including its mixtures and solutions, as defined in 49 CFR 171.8, section 101 (14) and 102 of CERCLA, section 311 (b) (2) (a) of the CWA.

3.5 Hazardous Waste - Any waste material that is designated as hazardous by the Administrator of the Environmental Protection Agency (EPA) in 40 CFR Part 261 and that is subject to the Hazardous Waste Manifest requirements of 40 CFR Part 262.

3.6 Material - For purposes of this procedure, any material classified as non-hazardous items or hazardous materials, including hazardous substances, hazardous wastes, nuclear, and radioactive materials.

3.0 **DEFINITIONS** (cont.)

3.7 Off-Site - All areas outside the main perimeter security fence that are not controlled at all times by guards and security gates.

3.8 On-Site - All areas inside the main perimeter security fence that are controlled at all times by guards and security gates to gain entrance to the Fernald Environmental Management Project (FEMP) Site.

3.9 Package - A packaging plus its contents as presented for transportation.

3.10 Packaging - The assembly of one or more containers and any other components necessary to ensure compliance with the minimum packaging requirements of 49 CFR.

3.11 Radioactive Material - Any material having a specific activity greater than 0.002 microcuries per gram per 49 CFR.

3.12 Radioactive Source - For the purpose of this procedure any source used as a standard for the radiation it emits sealed in a capsule or having a bonded cover in which the capsule or cover is strong enough to prevent contact with, or dispersion of, the radioactive material under normal conditions of use, including a one-meter drop onto an unyielding surface.

3.13 Radioactive Waste - Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended, and of negligible economic value when the costs of recovery are considered.

3.14 Shipment Originator - The person, or WEMCO Section, who initiates an on-site movement or off-site shipment of material.

3.15 Waste Originator - Any person, or WEMCO Section, whose operation or process generates hazardous waste, radioactive waste, or a mixed waste.

3.16 Nuclear Material - Collective term that includes all such materials designated by the DOE. A listing of designated nuclear materials may be found in DOE Order 5633.3; however, at the FEMP site, nuclear materials shall mean depleted, normal, or enriched (less than 20% U-235 by weight) uranium or thorium.

4.0 RESPONSIBILITIES

4.1 Centralized Training - Responsible for the proper development of training activities to comply with mandatory training requirements and to enable employees to qualify, requalify, or enhance their ability to perform job duties and tasks. Responsible for appropriate documentation and maintenance of training activities, development of in-house audio/video training aids, providing assistance in the development/section training, maintaining and administering the TRMS', maintaining the TMR, including the maintenance of subcontractor training records supplied to centralized training by technical instructors or by the manager of the contracting department.

4.2 Maintenance/Garage - Responsible for the inspection of inbound carrier vehicles that will be used for outbound shipments, providing for the inspection used for on-site shipments, and the preventative maintenance of all such government vehicles at FEMP, and documenting all maintenance and inspections.

4.3 Radiological Safety - Responsible for conducting radiological surveys of materials, packages, and carrier vehicles that will be used for outbound shipments, documenting results of surveys, and providing copies of the results as required. Radiological Safety is also to be notified so surveys can be performed on all on-site movements of materials.

4.4 Facilities and Warehousing - Responsible for packaging materials for on-site movement, packaging uranium metals, oxides, and related products for off-site shipment, providing support documentation, and assigning the personnel and equipment required for on-site movements, loading off-site shipments, and spotting/loading carrier trailers and freight containers.

4.5 Material Control and Accountability - Responsible for the nuclear materials control and accountability program at FEMP.

4.6 Procurement/Materials Management - Responsible for the review and approval of off-site miscellaneous shipping documentation.

4.7 Analytical Section (of Site Services) - Responsible for providing analytical documentation of material samples and the packaging of samples for off-site analysis.

4.8 Logistics Administration - Responsible for developing and updating transportation related procedures ensuring compliance with all Federal, State and Local regulations, Doe Orders and Directives.

4.0 **RESPONSIBILITIES** (cont.)

4.9 Site-Wide Quality Assurance - Responsible for verifying the packaging processes for uranium metals, oxides, and other related materials and for conducting periodic inspections of packaging operations. Coordinate all required Quality Assurance review activities including conducting annual audits of the packaging and transportation of hazard material shipments.

4.10 Radioactive Source Controller - Responsible for controlling and the coordination of radioactive source for shipment off-site.

4.11 Safeguards and Security - Responsible for the coordination of security and safeguard measures for off-site shipments.

4.12 Shipment Originator - Responsible for preparing documentation of materials for on-site movement or off-site shipment.

4.13 Transportation Safety Committee - Responsible for the evaluation of WEMCO policies and procedures for packaging and transport of all materials, exchange knowledge and experience in resolution of transportation safety problems, uniform interpretation and implementation of Federal, State, and Local regulations, including OSHA safety requirements, DOE Orders, and WEMCO guidelines as applicable to transportation safety.

4.14 Traffic Control - Responsible for providing guidance on the requirements for the on-site movement of hazardous materials. Responsible for preparing bills of lading, coordinating the loading of off-site shipments, and coordinating the scheduling of off-site shipments.

4.15 Waste Originator - Responsible for accumulating and packaging waste for storage or disposal and for making the proper notifications when accumulated wastes must be transported to on-site storage facilities.

4.16 Facilities and Material Evaluation - Responsible for providing assistance to waste generators, arranging for waste sampling, and categorizing waste.

4.17 Waste Operations - Responsible for packaging hazardous and radioactive wastes for off-site shipment.

4.18 Waste Shipping Coordinator - Responsible for preparing and reviewing waste shipment documentation for off-site shipments.

4.19 Waste Shipping - Responsible for preparing waste packages and packaging waste for off-site shipment.

4.0 **RESPONSIBILITIES** (cont.)

4.20 Safe Shutdown - Responsible for controlling order requirements for nuclear materials disposition activities at the FEMP for off-site shipment.

5.0 **GENERAL**

5.1 Sections responsible for the activities assigned herein shall develop implementing procedures, and perform operational and oversight functions that are consistent with internal WEMCO operating policies and procedures.

5.2 Shipment generators for off-site shipments must prepare a nuclear, radioactive, hazardous material/hazardous waste - non-nuclear, or miscellaneous shipping order and have the order processed and approved by the appropriate sections before material will be set up for off-site shipment. In addition, all packages must have been monitored by the Radiological Safety section for removable contamination, radiation levels, per the applicable departmental procedures and provide appropriate documentation to Traffic Control.

5.3 PACKAGING PROVISIONS

Package Description Per Pkg.	Material Description	Authorized Gross Weight
DOT Spec 17C metal 5-gal. drum (DOT 7A Type A)	samples, bulk type radioactive material	100 lbs.
DOT Spec 17H metal 30-gal. drum (DOT 7A Type A)	samples, bulk type radioactive material	500 lbs.
DOT Spec 17H metal 55-gal. drum (DOT 7A Type A)	samples, bulk type radioactive material	900 lbs.
FEMP Family of wooden Boxes DOT 7A Type A:		
Model No. G-4214	uranium metal products	1,260 lbs.
Model No. G-4245	uranium metal products	225 lbs.
Model No. G-4255	uranium metal products	1,470 lbs.
Model No. G-4273-5	uranium metal products	3,045 lbs.
Model No. G-4273-6	uranium metal products	3,540 lbs.
Model No. G-4292	uranium metal products	1,330 lbs.
Strong Tight Containers	LSA Material consigned as exclusive use Limited Quantity Material	Dependent on container per applicable department procedure

5.0 **GENERAL** (cont.)

5.3.1 No special packaging provisions are required for the on-site movement and off-site shipment of nonhazardous miscellaneous materials.

5.3.2 PCB substances which are regulated by the Toxic Substances Control Act (TSCA) and the Clean Air Act (CAA) and shall be controlled the same as RCRA waste material.

5.3.3 WEMCO shall respond to incoming emergency calls concerning an accident involving hazardous materials shipped from the FEMP or in transit in the area, supporting the agency with authority, as requested per FMPC-125, "Emergency Management."

6.0 **PROCEDURE**

6.1 Packaging Operations

CENTRALIZED TRAINING

6.1.1 Approve departmental lesson plans for the personnel in each organization that are involved with the packaging of hazardous materials, hazardous wastes, and radioactive materials.

6.1.2 Verify that the results of lesson plans are documented and that training qualifications records are included in the employee's personnel record and entered into Centralized Training computer files.

ANALYTICAL SECTION (of Site Services)

6.1.3 Analyze the samples to determine the hazardous constituents of the waste.

6.1.4 Document the waste analysis results on the Report of Analysis form.

6.1.5 Provide analytical data to Environmental Management, and the Project Engineer (if requested) for use in characterizing the waste.

6.1.6 Package samples in accordance with applicable Sampling Plan and Departmental procedures. Ensure compatibility of materials in one package meets all criteria of Title 49 CFR, Subpart C, 177.848.

6.0 **PROCEDURE** (cont.)

ANALYTICAL SECTION (of Site Services)

6.1.7 Request that Radiological Safety monitor the samples and packages according to departmental procedures and provide the appropriate documentation.

SITE-WIDE QUALITY ASSURANCE

6.1.8 For all hazardous and radioactive packaging, verifies compliance with regulations, specifications, plans and procedures through review of documentation, witnessing of activities, and examination. Verifies identification of packaged uranium metals, oxide and related products against the Shipping Order for Nuclear Material. Conduct internal and independent audits of the packaging of hazardous materials including hazardous substances, hazardous wastes, and nuclear and radioactive materials according to the appropriate DOE requirements.

6.1.9 Conduct periodic inspections of packaging operations per applicable departmental procedures, to verify compliance with applicable DOT/DOE/EPA regulations, WEMCO policies and procedures, and document inspections.

6.1.10 Verify that radiological surveys have been conducted for materials.

6.1.11 Review radiological survey results and verify that the radiation readings for packages are within the limits established by 49 CFR; document the review on Form FEMP-IRS&T-1993.

TRAFFIC CONTROL

6.1.12 Verify that hazardous material is packaged for off-site shipment according to the applicable Safety Analysis Report for Packaging and Certificate of Compliance supplied by the Traffic Control.

SHIPMENT ORIGINATOR

6.1.13 Verify that personnel have been properly trained to package hazardous materials, hazardous substances, hazardous wastes, and nuclear and radioactive materials.

6.0 **PROCEDURE** (cont.)

SHIPMENT ORIGINATOR

6.1.14 Obtain approval from Nuclear Safety before packaging off-site shipments of enriched radioactive materials to ensure criticality concerns are addressed according to applicable regulations. Verify that each package used for on-site movement or off-site shipment of hazardous materials, hazardous substances, hazardous wastes, nuclear and radioactive materials is correctly assembled and that all components of the packaging are sufficiently secured.

6.1.15 Ensure packaging is free of rust, dents or other conditions making it unsuitable for loading material.

6.1.16 Package non-hazardous materials, hazardous materials, hazardous substances, hazardous wastes, and nuclear and radioactive materials for on-site movement or off-site shipment per applicable WEMCO procedures.

6.1.17 Inspect all hazardous materials packages to verify that it has been packaged properly. Notify supervisor if any defects or deficiencies are detected.

6.1.18 Verify that packaging has the capability that will enable the use of mechanical loading equipment, items may be placed on pallets to meet this requirement.

6.1.19 Verify that a radiological survey has been conducted on all packagings that will be used for the off-site shipment of nuclear or radioactive material before the packaging is used.

NOTE: Packagings that are contaminated above the levels specified in Title 49 CFR 173.443 may not be used for off-site shipments unless they are cleaned or refurbished.

6.1.20 Verify that inner packaging is suitably cushioned in the outer packaging with an adequate quantity of material to prevent breaking and shifting during transport, as directed by Traffic Control.

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6.0 **PROCEDURE** (cont.)

SHIPMENT ORIGINATOR

6.1.21 Apply and Verify that all packages for on-site movement or off-site shipping, including samples, are marked and/or labeled according to the requirements of 49 CFR and the written instructions provided by the Traffic Control.

NOTE: Selection of the proper DOT shipping name is based on process knowledge of the waste stream, laboratory analysis, or the Material Evaluation Form provided by EA & QA.

6.1.22 Verify that all packages of material are monitored for external removal contamination and radiation levels.

RADIOACTIVE SOURCE CONTROLLER

6.1.23 Request Radiological Safety to conduct radiological surveys of the radioactive source material and packaging.

6.1.24 Review radiological survey results to verify compliance with applicable regulations.

6.1.25 Maintain constant surveillance of radioactive source material.

WASTE ORIGINATOR

6.1.26 Accumulate and package waste for storage and/or disposal according to all applicable EPA/DOT/DOE regulations and WEMCO procedures.

6.1.27 Notify Facilities and Materials Evaluation when accumulated waste is packaged for on-site storage facilities.

6.1.28 Request radiological surveys of wastes and packages as necessary.

6.1.29 Provide waste tally sheet to Environmental Compliance for use in preparing Material Evaluation forms.

FACILITIES AND MATERIALS EVALUATION

6.1.30 Provide assistance to waste generators with characterization and packaging of wastes for storage and/or disposal.

6.0 **PROCEDURE** (cont.)

ENVIRONMENTAL COMPLIANCE

6.1.31 Characterize waste according to Resource Conservation and Recovery Act (RCRA) guidelines and DOE requirements based on the results of the waste analysis conducted by Analytical Laboratories.

RADIOLOGICAL SAFETY

6.1.32 Conduct radiological surveys of materials and packages.

6.1.33 Document survey results on the appropriate forms according to departmental procedures.

6.1.34 Forward copies of the surveys to the Shipment Originator, Waste Originator, and Site-Wide Quality Assurance as required.

TRANSPORTATION SAFETY COMMITTEE

6.1.35 Evaluate policies for packaging safety at the FEMP for compliance with applicable federal, state and local regulations.

6.1.36 Ensure packaging policies and practices are conducted in accordance with all FEMP and OSHA safety requirements.

WASTE OPERATIONS

6.1.37 Package hazardous waste and radioactive waste.

6.1.38 Ensure that hazardous waste has been packaged according to EPA/DOT/DOE regulations and WEMCO Guidelines.

6.1.39 Verify that hazardous waste, radioactive, or mixed waste is packaged according to 49 CFR.

6.1.40 Request radiological surveys of packaged waste as required.

WASTE SHIPPING

6.1.41 Prepare waste packaging for use by the Waste Originator according to departmental procedures.

6.1.42 Prepare packages of waste according to departmental procedures and specific consignee requirements.

6.1.43 Request radiological surveys of waste containers as required.

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6.0 **PROCEDURE** (cont.)

6.2 On-Site Movements

CENTRALIZED TRAINING

6.2.1 Approve departmental lesson plans for the personnel in each organization involved with the loading, and transporting of hazardous materials on site, hazardous wastes, and radioactive materials.

6.2.2 Verify that the results of lesson plans are documented and that training qualifications records are included in the employee's personnel record and entered into Centralized Training computer files.

ANALYTICAL SECTION (of Site Services)

6.2.3 Ensure that samples are properly identified and quantified in order to determine on-site transport requirements.

6.2.4 Ensure that temporary storage of samples incidental to transport complies with existing requirements in applicable operating procedures and Nuclear Safety guidelines.

6.2.5 Contact Traffic Control if further guidance is needed when offering samples for on-site movement.

SITE-WIDE QUALITY ASSURANCE

6.2.6 Conduct periodic inspections of on-site shipping operations per applicable departmental procedures to verify compliance with applicable DOT/DOE/EPA regulations, WEMCO policies and procedures, and document inspections. Also conduct internal and independent audits of the on-site transportation of hazardous materials including hazardous substances, hazardous wastes, and nuclear and radioactive materials according to the appropriate DOE requirements.

6.2.7 Sign checksheet/release verifying that all Site-Wide Quality Assurance/Quality Certification functions have been performed and documented for on-site movement as required.

TRANSPORTATION SAFETY COMMITTEE

6.2.8 Evaluate policies for on-site transportation safety at the FEMP for compliance with applicable Federal, State and Local regulations.

6.0 **PROCEDURE** (cont.)

TRANSPORTATION SAFETY COMMITTEE

6.2.9 Ensure on-site transportation policies and practices are conducted in accordance with all FEMP and OSHA safety requirements.

SHIPMENT ORIGINATOR

6.2.10 Verify that the material is properly identified and quantified to determine on-site movement requirements.

6.2.11 Notify Facilities and Warehousing when the material is ready to be moved.

6.2.12 Attach appropriate transfer documents from Material Control and Accountability when required. Initiate appropriate transfer documents for on-site movement of material from one area to another.

6.2.13 Verify that the storage of materials incidental to transport complies with current requirements contained in the appropriate operating procedures and Nuclear Safety guidelines.

6.2.14 Contact the Traffic Control if further guidance is required when material is moved on-site.

6.2.15 When shipping nonradioactive hazardous materials, initiate form FMPC-OPR-3292, "Hazardous Material Transfer On-site Shipment."

6.2.16 Attach the completed form FMPC-OS&H-1993-1 to the Traffic Control copy of Form FMPC-OPR-3292.

6.2.17 Ensure a signed "Nonradioactive Hazardous Materials Shipment Approval Tag," form FMPC-OPR-2947 is attached to each package when shipping on radioactive hazardous materials on-site.

WASTE ORIGINATOR

6.2.18 Notify Facilities Services, Site-Wide Quality Assurance and MC&A when accumulated packaged waste must be transported to on-site storage facilities.

6.2.19 Request radiological surveys of wastes and packages as required.

6.2.20 Notify Facilities and Warehousing when packaged waste is ready to be transported to on-site storage facility.

6.0 **PROCEDURE** (cont.)

MAINTENANCE/GARAGE

6.2.21 Inspect, perform preventative maintenance, and repair all government vehicles used for on-site movement of material at FEMP.

6.2.22 Maintain records of services.

6.2.23 Notify government vehicle custodians of scheduled preventative maintenance and safety inspection services.

FACILITIES AND WAREHOUSING

6.2.24 Verify that on-site motor vehicle operators possess a valid state driver's license with the appropriate endorsements.

6.2.25 Verify that on-site motor vehicle operators have been properly trained and qualified according to the responsibilities to be performed.

6.2.26 Motor vehicle operator shall document the inspection results on the appropriate vehicle inspection form (Form OPR 2414), sign the inspection form and submit it to their supervision, and notify supervision of any defective or unsafe vehicle conditions.

NOTE: All defective or unsafe vehicle conditions must be corrected before the vehicle can be used.

6.2.27 Ensure that all packages are marked per applicable departmental procedures.

NOTE: If package markings are illegible or missing, notify supervision per applicable departmental procedure.

6.2.28 Ensure that all hazardous waste packages are labeled with the applicable DOT/EPA/OSHA labels and/or markings.

NOTE: If package labels are illegible or missing, notify supervision per applicable departmental procedure.

6.0 **PROCEDURE** (cont.)

FACILITIES AND WAREHOUSING

6.2.29 Load the material properly on the transport vehicle and ensure that the material is adequately distributed for weight distribution, stable and secured against shifting during transport.

NOTE: Hazardous materials shall be loaded onto a transport vehicle according to the guidelines provided in the DOT Hazardous Materials Segregation/Separation Chart and in compliance with all applicable Nuclear Safety guidelines.

6.2.30 Deliver the material to the designated delivery point by using the most direct and least congested route.

6.2.31 Prepare depleted, normal, or enriched uranium and other nuclear or radioactive material for on-site movement.

NOTE: Material Control and Accountability (MC&A) documentation must accompany the shipment from one area to the next area when necessary.

6.2.32 Request radiological surveys of materials and packages if not already available.

6.2.33 Review and verify radiological survey results for compliance with the appropriate regulatory requirements.

6.2.34 Assign personnel and equipment for on-site movement as requested.

6.2.35 Provide personnel and equipment for special emergency on-site movement as requested.

TRAFFIC CONTROL

6.2.36 Provide guidance for the required documents, packaging, marking, labeling, and the requirements for the placarding of hazardous materials for on-site movement.

6.2.37 Verify that the appropriate Federal and State Regulations and WEMCO Guidelines are followed for personnel and environmental safety.

6.0 **PROCEDURE** (cont.)

RADIOLOGICAL SAFETY

6.2.38 Conduct radiological surveys of materials, packages and vehicles on site.

6.2.39 Document the survey results on the appropriate forms according to departmental procedures.

6.2.40 Forward copies of the surveys to the Shipment Originator, Waste Originator, Traffic Control, and Site-Wide Quality Assurance as required.

MATERIAL CONTROL AND ACCOUNTABILITY (MC&A)

6.2.41 Prepare MC&A documentation for on-site movement of material as required.

NOTE: MC&A documents shall be used for verification of the materials and will serve as the shipping papers for on-site movement.

6.3 Off-Site Shipments

CENTRALIZED TRAINING

6.3.1 Approve departmental lesson plans for the personnel in each organization involved with the off-site loading, and transporting of hazardous materials, hazardous wastes, and radioactive materials.

6.3.2 Verify that the results of lesson plans are documented and that training qualification records are included in the employee's personnel record and entered into Centralized Training computer files.

ANALYTICAL SECTION (of Site Services)

6.3.3 Notify Material Control and Accountability and the Traffic Control when a sample containing nuclear radioactive material is to be shipped off-site.

6.3.4 Initiate Shipping Order for Nuclear Material Form, FEMP CONT-558, for samples that are to be shipped to off-site laboratories for analysis

6.0 **PROCEDURE** (cont.)

ANALYTICAL SECTION (of Site Services)

6.3.5 Forward the shipping order to Material Control and Accountability.

6.3.6 Initiate Shipping Order for Hazardous Material/ Hazardous Waste Non-Nuclear Form, FEMP CONT-3388, for samples that are to be shipped to off-site laboratories for analysis.

6.3.7 Forward the shipping order to Material Control and Accountability.

6.3.8 Verify that the waste samples are in proper packaging for off-site shipment according to departmental procedures.

6.3.9 Generate Form No. FMPC-OPR-2595, Off-Site Loading and Tie Down Inspection.

6.3.10 Maintain and verify the chain of custody transfer for off-site shipment according to applicable procedures.

6.3.11 Request that Radiological Safety monitor the samples and packages according to departmental procedures and provide the appropriate documentation to Traffic Control.

SITE-WIDE QUALITY ASSURANCE

6.3.12 Verify the identification of packaged uranium metals, oxides, and related products with the Shipping Order for Nuclear Material.

6.3.13 Conduct periodic inspections of the shipping operations per applicable departmental procedures to verify compliance with applicable DOT/DOE/EPA regulations and WEMCO policies and procedures and document inspections.

6.3.14 Review the Garage Section incoming vehicle inspection form for vehicle defects or deficiencies.

6.3.15 Attach the Quality Assurance Inspection Sheet, Form QAC-891010-1, Rev 1, to the support documentation for each vehicle loaded.

6.3.16 Verify that radiological surveys have been conducted for each carrier trailer and the materials for off-site shipment.

6.0 **PROCEDURE** (cont.)

SITE-WIDE QUALITY ASSURANCE

6.3.17 Verify that the exclusive use trailers have been sealed by Radiological Safety and document verification on Form FEMP-ES&H-1956-1.

6.3.18 Review the radiological survey results and verify that radiation readings for packages and the carrier vehicles are within the limits established by 49 CFR; document the review on Form FEMP-IRS&T-1993.

6.3.19 Verify, during the loading of carrier vehicles, that the packaging, marking, labeling, and placarding of off-site shipments are in compliance with 49 CFR; document compliance on appropriate form.

6.3.20 Review all documentation that supports each off-site shipment, including Quality Assurance documentation; document this review on Form QAC-890601-1, Rev. 0.

6.3.21 Sign the appropriate consignee shipment certification (NVO-211) certifying that Low Level Radioactive Waste shipments comply with the waste acceptance criteria established by the consignee.

6.3.22 Sign the shipping order verifying that all Site-Wide Quality Assurance/Quality Certification functions have been performed and documented for off-site shipments as required.

6.3.23 Coordinate all Quality Assurance review activities with the appropriate WEMCO sections and conduct internal and independent audits of the packaging and transportation of hazardous materials including hazardous substances, hazardous wastes, and nuclear and radioactive materials according to the appropriate DOE requirements.

RADIOLOGICAL SAFETY

6.3.24 Conduct radiological surveys of materials and packages in accordance with applicable departmental procedures.

6.3.25 Coordinate the radiological survey of inbound carrier vehicles, with the Traffic Control, before and after loading, and prior to release from FEMP.

6.0 **PROCEDURE** (cont.)

RADIOLOGICAL SAFETY

6.3.26 Document the survey results on the appropriate forms according to departmental procedures.

6.3.27 Forward copies of the surveys to the Shipment Originator, Waste Originator, Traffic Control, and Site-Wide Quality Assurance as required.

SHIPMENT ORIGINATOR

6.3.28 Provide the Traffic Control with the required advance notification of off-site shipment.

6.3.29 Verify that material is properly identified and quantified.

6.3.30 Provide the Traffic Control with the information required to determine the appropriate DOT requirements for the shipment.

6.3.31 Notify Facilities and Warehousing when the material is prepared for loading or movement to the designated area for off-site shipment.

6.3.32 Provide Facilities and Warehousing with the documentation that designates the location on-site where the material for off-site shipment is to be picked up, location on-site where the material for off-site shipment is to be delivered, and the name and quantity of the material to be moved.

6.3.33 Provide any additional information required to the transporter to facilitate the safe loading and movement of material.

6.3.34 Verify that the temporary storage of materials incidental to off-site transport is in compliance with the existing requirements of the appropriate operating procedures and Nuclear Safety guidelines.

6.3.35 Prepares Product Order per FMPC-714 for proposed shipments of nuclear product material.

6.3.36 Initiate Shipping Order for Nuclear Material (Form FMPC Cont-558) for nuclear materials that are to be shipped off-site and forward shipping order to Material Control and Accountability.

6.0 **PROCEDURE** (cont.)

SHIPMENT ORIGINATOR

6.3.37 Initiate Shipping Order for hazardous Material/Hazardous Waste - non-nuclear (Form FMPC Cont-3388) for all hazardous non-nuclear material that is to be shipped off site and forward shipping order to Material Control and Accountability.

6.3.38 Initiates Miscellaneous Shipping Order (FMPC-ADMS-871) and obtains applicable approvals for all non-nuclear nonhazardous material shipments. Forwards approved Miscellaneous Shipping Order (MSO) to the Traffic Control.

6.3.39 Request radiological survey results of materials and packages to ensure compliance with applicable regulations and site procedures.

6.3.40 Notify and obtain approval of site-wide Quality Assurance/ Quality Certification for shipments of nuclear material.

6.3.41 Obtain Radiological Safety sign-off for nonradioactive material on a Miscellaneous Shipping Order.

6.3.42 Obtain Environmental Compliance sign-off for nonhazardous material on a Miscellaneous Shipping Order.

6.3.43 Provide Traffic Control with the information necessary to the applicable DOT requirements and prepare the bill of lading.

6.3.44 Contact the Traffic Control for further guidance when preparing material for off-site shipment.

FACILITIES AND WAREHOUSING

6.3.45 Verify that the transport vehicle is appropriate for the weight and center of gravity of the material to be loaded.

6.3.46 Inspect the transport vehicle and record the findings of the inspection.

6.3.47 Accept or reject equipment based on the vehicle inspection.

6.3.48 Position packages on the vehicle so that the weight is equally distributed over the width and length of the vehicle and as equally as possible among the vehicle's axles.

6.0 **PROCEDURE** (cont.)

FACILITIES AND WAREHOUSING

6.3.49 Ensure the load is placed on the vehicle in such a manner that it does not obscure the driver's view ahead or to the right or left sides, interfere with the free movement of his arms or legs, prevent his free and ready access to accessories required for emergencies, or prevent the free and ready exit of any person from the vehicle's cab or driver's compartment.

6.3.50 Ensure that all loading of hazardous materials, hazardous substances, hazardous wastes, and radioactive materials is conducted according to the guidelines provided in the DOT Hazardous Materials Segregated/Separation Chart in compliance with all applicable Nuclear Safety guidelines.

6.3.51 Block and brace all packages on or in the vehicle to prevent shifting or changing of position during normal transportation conditions, and in such a manner that the packages will remain stable after the restraints are removed prior to unloading the packages.

NOTE: Do not rely upon the ends, sides, or doors of the vehicle to prevent shifting of heavy loads unless they are specifically designed for this purpose.

6.3.52 Ensure that all sides, sideboards, rear endgates and endboards capable of preventing packages shifting are in their proper place and are strong enough and high enough to ensure that packages will not shift upon, or fall from the vehicle.

6.3.53 Use as many tiedown assemblies to secure all packages being transported on vehicles which are not equipped with sides or sideboards, and rear endgate or endboard as directed by applicable FEMP procedures.

6.3.54 Use only tiedown assemblies that conform to the rules of 49 CFR 393.102; plastic or fiber rope, any material with unknown strength or any damaged materials shall not be used as components of a tiedown system.

6.3.55 Tiedown assemblies will be installed to ensure the load will not move or shift during normal transport.

6.0 **PROCEDURE** (cont.)

FACILITIES AND WAREHOUSING

6.3.56 Ensure the principal tiedown forces are transmitted to the vehicle's frame rather than the wood or metal decking, and that the strength of the tiedown attachment points on the vehicle are equal to or greater than the strength of the tiedowns.

6.3.57 Ensure that flexible tiedowns (e.g., rope, strap, chain, etc.) are free from contact with any other stationary objects when they are taut to prevent chafing and damage during transport.

6.3.58 Visually check all packages before loading to ensure no defects are present.

6.3.59 Complete and submit the Off-Site Loading and Tie-Down Inspection Form to the Traffic Control when necessary.

6.3.60 Review and verify the radiological survey results for compliance with the appropriate regulatory requirements.

6.3.61 Submit appropriate paperwork to Traffic Control after loading.

6.3.62 Assign personnel and equipment for loading off-site shipments as required.

6.3.63 Assign personnel and equipment for spotting/loading of carrier trailers and freight containers used for off-site shipments.

PROCUREMENT/MATERIALS MANAGEMENT

6.3.64 Review and approve Miscellaneous Shipping Orders (MSO) and other documentation for off-site shipment of non-hazardous materials.

6.3.65 Forward approved copies of the Miscellaneous Shipping Order (MSO) to the Traffic Control.

6.3.66 Verify, using the appropriate shipping order, that the packages of material are identified as on the shipping order.

6.3.67 Attach the required markings, labels, and tally sheet to the packages of hazardous materials adhering to departmental procedures and direction by Traffic Control.

6.0 **PROCEDURE** (cont.)

MAINTENANCE/GARAGE

6.3.68 Inspect the inbound carrier vehicles that will be used for off-site shipments according to Federal Motor Carrier Safety Regulations and WEMCO procedures.

6.3.69 Document the inspection results on the FEMP Preliminary Visual Trailer Inspection Form with appropriate comments.

6.3.70 Forward copies of the maintenance and inspection documents to Site-Wide Quality Assurance and Facility Service and Support Sections.

6.3.71 Inspect, lubricate, perform the preventative maintenance for, and repair all government vehicles used for loading off-site shipments at FEMP.

6.3.72 Maintain records of services.

6.3.73 Notify the government vehicle custodians of scheduled preventative maintenance and safety inspection services.

TRAFFIC CONTROL

6.3.74 Provide guidance for the required documents and the requirements for the placarding of off-site shipments.

6.3.75 Verify compliance with appropriate Federal and State Regulations and WEMCO Guidelines.

6.3.76 Coordinate the scheduling of off-site shipment with the Shipment Originator, Site Services, and the carrier.

6.3.77 Coordinate the loading of off-site shipment with Site Services, Facilities and Warehousing, and the carrier.

6.3.78 Review shipping documents for completeness, proper authorization(s), and compliance with WEMCO policy, procedures, and accounting requirements.

6.3.79 Ensure that all off-site shipments are in compliance with legal restrictions on weight and dimension prior to release.

6.0 **PROCEDURE** (cont.)

TRAFFIC CONTROL

6.3.80 Prepare the Uniform Hazardous Waste Manifest according to the requirements of 40 CFR and the appropriate departmental procedures using documentation provided by the Shipping Originator and WEMCO support sections.

6.3.81 Prepare and sign the bill of lading according to the requirements of 49 CFR using documents provided by the Shipping Originator and WEMCO support sections.

6.3.82 Obtain the signature of the carrier's agent (driver) on all bills of lading and hazardous waste manifests to acknowledge receipt of the shipment by the carrier.

6.3.83 Use only ICC and PUCO approved commercial or contract carriers according to the appropriate DOE requirements.

NOTE: Commercial or contract carriers must have received an identification number from the Administrator of the USEPA. Additionally, State EPA identification numbers must be obtained from the Administrator of the State EPA Office when required.

6.3.84 Issue the appropriate shipment notifications to consignees.

6.3.85 Return the shipping order and notify Material Control and Accountability when a shipment of hazardous material, hazardous waste (non-nuclear), or nuclear material is shipped from FEMP.

TRANSPORTATION SAFETY COMMITTEE

6.3.86 Evaluate policies for off-site transportation safety at the FEMP for compliance with applicable Federal, State and Local regulations.

6.3.87 Ensure off-site transportation policies and practices are conducted in accordance with all FEMP and OSHA safety requirements. Conduct periodic inspections and evaluations of all activities associated with the handling and transporting of hazardous materials for off-site shipments.

6.0 **PROCEDURE** (cont.)

SAFEGUARDS AND SECURITY

6.3.88 Provide interpretation and advice concerning the security and safeguard measures required for off-site shipment of classified or strategic nuclear materials.

6.3.89 Coordinate with Traffic Control to spot incoming carrier vehicles for inspection by the Maintenance Garage and to have the radiological survey conducted.

6.3.90 Verify that vehicle doors are properly secured.

6.3.91 Verify that the seal number, when recognizable, matches the serial number on the bill of lading before the shipment leaves the FEMP site.

6.3.92 Verify that the bill of lading has been signed by the Traffic Control authorizing the shipment to be released.

6.3.93 Coordinate emergency response activities for off-site shipments with the Emergency Operations Center as required.

MATERIAL CONTROL AND ACCOUNTABILITY (MC&A)

6.3.94 Verify that the consignee is authorized to receive the specific nuclear materials before the materials are shipped.

6.3.95 Process, verify the type of material and lot numbers, and approve the Shipping Order for Nuclear Material Form, FEMP CONT-558, for off-site shipment of nuclear material.

6.3.96 Forward the shipping order to the Traffic Control.

6.3.97 Process, verify the type of material and lot numbers, and approve the Shipping Order for Hazardous Material/ Hazardous Waste Non-Nuclear Form, FEMP CONT-3388, for off-site shipment of material.

6.3.98 Forward the shipping order to the Traffic Control.

6.3.99 Receive shipping order from Traffic Control.

6.3.100 Notify the consignee that the preparation for off-site shipment has been completed.

6.0 **PROCEDURE** (cont.)

MATERIAL CONTROL AND ACCOUNTABILITY (MC&A)

6.3.101 Prepare and forward to the consignee, DOE/NRC Nuclear Materials Transaction Report, Form 741, for off-site shipments.

NOTE: These documents are used for verification of materials and shipping paper by Facility Site Services for material transport.

RADIOACTIVE SOURCE CONTROLLER

6.3.102 Notify the Traffic Control of the intent to ship radioactive source material off-site.

6.3.103 Provide copy of the purchase order to the Traffic Control.

6.3.104 Request Radiological Safety to conduct radiological 48-hour surveys of the radioactive source material and packaging.

6.3.105 Review the radiological survey results to verify compliance with applicable departmental procedures.

6.3.106 Initiate Shipping Order for Hazardous Material/Hazardous Waste Non-Nuclear Form, FEMP CONT-3388, after approval from EC&QA.

6.3.107 Notify the Traffic Control when the packaged material is ready to be shipped off-site.

6.3.108 Maintain constant surveillance of radioactive source material until it is loaded onto the transport vehicle for off-site shipment.

6.3.109 Remove the radioactive source material shipped from the inventory list.

WASTE OPERATIONS

6.3.110 Package hazardous waste and radioactive waste for off-site shipments.

6.3.111 Verify that hazardous waste for off-site shipment has been packaged according to EPA/DOT/DOE regulations and WEMCO Guidelines.

6.3.112 Request radiological surveys of packaged waste as required per applicable departmental procedures.

6.0 **PROCEDURE** (cont.)

WASTE SHIPPING COORDINATOR

6.3.113 Prepare and forward the Storage and Disposal Data Sheet, the Tally Sheet, and other documents as required to Site-Wide Quality Certification for review and approval.

6.3.114 Prepare additional shipping documentation according to consignee requirements.

NOTE: Consignee requirements must exceed the requirements of 49 CFR.

6.3.115 Receive the documentation associated with off-site shipment from the appropriate departments.

6.3.116 Forward the documentation to Site-Wide Quality Assurance for review.

WASTE SHIPPING

6.3.117 Prepare waste packaging for use by the Waste Originator according to departmental procedures.

6.3.118 Prepare packages of waste for off-site shipping according to departmental procedures and specific consignee requirements.

6.3.119 Request the radiological survey of waste containers as required.

SAFE SHUTDOWN

6.3.120 Prepares Nuclear Materials Disposition Order (NMDO) per PP-5031 for proposed shipments of nuclear materials.

6.3.121 Acts as liaison internally to facilitate shipment and externally to ensure customer satisfaction.

6.3.122 Tracks NMDO through completion, issues completion notice and maintains documentation on activity.

7.0 **APPLICABLE DOCUMENTS**

7.1 Drivers

7.1.1 DOE 1540.1, "Materials Transportation and Traffic Control Management"

7.0 **APPLICABLE DOCUMENTS** (cont.)

7.1.2 OR 1540.1B, "Materials Transportation and Traffic Control Management"

7.1.3 DOE 1540.2, "Hazardous Material Packaging for Transport - Administrative Procedures"

7.1.4 DOE 1540.3, "Base Technology for Radioactive Material Transportation Packaging Systems"

7.1.5 DOE 5000.3A, "Occurrence Reporting and Processing of Operations Information"

7.1.6 DOE 5480.3, "Safety Requirements for the Packaging and Transportation of Hazardous Materials"

7.1.7 DOE 5632.1, "Physical Protection of Classified Matter and Information"

7.1.8 DOE 5632.2A, "Physical Protection of Special Nuclear Material and Vital Equipment"

7.1.9 DOE 5700.6B, "Quality Assurance"

7.1.10 DOE/EV 06194-3, "Explosives Safety Manual"

7.1.11 DOE 5480.19 "Conduct of Operations"

7.1.12 10 CFR Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions"

7.1.13 40 CFR Parts 116 -117, "Designation of Hazardous Substances and Their Reportable Quantities"

7.1.13 40 CFR Parts 260-265, "Standards Applicable to Hazardous Wastes"

7.1.14 49 CFR Parts 100-199, "Hazardous Material Regulations"

7.1.15 49 CFR Parts 383-397, "Federal Motor Carrier Safety Regulations"

7.1.16 International Atomic Energy Agency (IAEA) "Safety Series No. 6," 1985 Edition, as amended

7.0 **APPLICABLE DOCUMENTS** (cont.)

7.1.17 International Air Transport Association (IATA) "Dangerous Goods Regulations," 1991 Edition

7.1.18 International Civil Aviation Organization (ICAO) "Technical Instructions," 1985 Edition

7.1.19 American National Standards Institute (ANSI) N14 Series

7.1.20 Directory of DOE Certificates of Compliance for Radioactive Materials Packaging

7.2 Reference Documents

THIS SECTION WILL CONTAIN A LIST OF APPLICABLE WEMCO PROCEDURES.

8.0 **APPLICABLE FORMS**

THIS SECTION WILL CONTAIN A LIST OF APPLICABLE WEMCO FORMS AND FORM NUMBERS.

9.0 **ATTACHMENTS**

None

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT COMPANY OF OHIO SITE DOCUMENT PROGRAM		**SITE POLICY AND PROCEDURE** Page 29 of 29
Title: **PACKAGING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF MATERIAL**		DOCUMENT NO: PP-0314 REVISION NO. 0
Authorization: W. H. Britton, President	Supersedes: FMPC-314, Dated 12-31-90, Rev. 2	Issue Date: 12-20-91

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
12-20-91	0	Document describing how on-site and off-site materials are packaged and moved per Request No. P91-387, initiated by J. McGrogan.

NON-CONTROLLED COPY

1.0 PURPOSE

The purpose of this document is to establish the procedure for processing the contents of the Refinery Sump.

2.0 APPLICABILITY

This procedure is applicable to processing uranyl nitrate solutions from Refinery Storage Tanks.

3.0 RESPONSIBILITIES

3.1 **Supervisors** shall be responsible for the following:

3.1.1 Ensuring that personnel are qualified per the established training requirements identified by the Division Manager.

3.1.2 Contacting Industrial Hygiene and Radiological Control to determine the appropriate respiratory protection for the process to be performed.

3.1.3 Issuing the required respiratory protection, to operators.

3.1.4 Notifying Maintenance when repair is required.

3.1.5 Reviewing applicable Material Safety Data Sheets (MSDS) with operators.

3.2 **Operators** shall be responsible for complying with this SOP.

3.3 The **Area Supervisor** shall be responsible for notifying the Refinery Supervisor to start Sump operation.

4.0 DEFINITIONS

None

5.0 APPLICABLE DOCUMENTS

5.1 Drivers

5.1.1 RM-0012, "Quality Assurance Program Description"

5.1.3 PO-D-026, "Site Services Document Program"

5.0 APPLICABLE DOCUMENTS (cont.)

5.2 References

5.2.1 None

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Chemical cover goggles shall be worn in all areas where exposure to acids, caustics, organics, steam or pressurized gases is likely, while working near pipes/valves containing hazardous substances, and while taking samples.

6.3 Safety glasses shall be worn at all times.

6.4 Respiratory equipment provided by the supervisor shall be worn when required by ES&H.

6.5 Chemical-resistant gloves shall be worn when handling acidic or caustic powders and liquids.

6.6 Gloves shall be checked for leaks by inflating and placing gloves under water and looking for bubbles. Leaking gloves shall be discarded and a new pair obtained.

6.7 After use, contaminated gloves shall be rinsed and hung up to dry, unless the inside is contaminated. Gloves with contamination inside shall be discarded.

6.8 Safety showers and eye wash stations shall be tested weekly.

6.9 Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.

6.10 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6.11 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.0 GENERAL

7.1 Warnings, Cautions, and Notes precede the Step or Item to which they apply.

8.0 PROCEDURE

8.1 Precipitation of Uranium from Decanted Slop Liquor

8.1.1 When Receiving Tank F1-608 contains approximately 20,000 gallons of solution, use the steam sparge and heat tank contents to 125° (± 5°) F.

8.1.2 Ensure that the pH flow cells are set to measure the pH of solution fed to Precipitator F1-609.

8.1.3 Close Discharge Valve on MgO Slurry Makeup Tank F1-617.

8.1.4 Fill Tank F1-617 with $MgOH_2$ slurry from Tank 12.

8.1.5 Start the agitator in Tank F1-617.

8.1.6 Open Tank F1-617 Discharge Valve.

8.1.7 Start ODS Pumps and circulate slurry through MgO slurry lines between Precipitation Tanks F1-609/F1-610 and Tank F1-617.

8.1.8 Position valves as required to transfer solution from Receiving Tank F1-608 to Precipitation Tank F1-609.

NOTE: Tank F1-609 Discharge Valve is normally closed. When Tank F1-609 is full, the solution overflows into Tank F1-610.

8.1.9 Ensure Tank F1-609 Discharge Valve is closed.

8.1.10 Start Pump G1-609 or G2E-601.

8.1.11 Observe Tank F1-609 contents. When the agitator blades are covered, start the agitator.

8.1.12 When Tank F1-609 overflow covers Tank F1-610 agitator blades, start the agitator.

8.0 **PROCEDURE** (cont.)

8.1.13 When F1-609 is 80 percent full, contact the supervisor and request permission to pump to Plant 8.

8.2 Cleaning Out Lines

CAUTION

Steam shall not be used to blow out lines which contain MgO or RTS. Steam will dry out the plug. Steam may be used momentarily to locate the plug.

8.2.1 Open valves on line to be cleaned.

8.2.2 Ensure both ends of the line are clear.

8.2.3 If a permanent steam/air/water line is available, open the valve to the line being cleaned.

8.2.4 If no permanent steam/air/water line is available, proceed as follows:

8.2.4.1 Connect a hose, using the proper fittings and clips, between the steam/air/water source and the line to be cleaned.

8.2.4.2 Open the valve to the line being cleaned.

8.2.4.3 When the line has been blown/flushed out, close the steam/air/water valve.

8.2.5 Disconnect the temporary line (if installed).

9.0 **APPLICABLE FORMS**

None

RECORD OF ISSUE/REVISIONS

TE	Rev. No.	DESCRIPTION AND AUTHORITY
-02-65	N/A	Issued.
02-17-67	N/A	Reissued.
04-11-68	N/A	Deleted NOTE at beginning of Item 4.
04-11-68	N/A	Deleted former Item 8.3. Revised Item 8.2 to include F1-608 and F2E-601 tanks. Deleted former Item 8.10 and NOTE. Renumbered remaining items.
04-11-68	N/A	Added new Items 9 & 10 and renumbered former Item 9 as Item 11.
04-11-68	N/A	Added to include carryover. All above changes per L.M. Levy.
06-07-68	N/A	Revised handling of degraded solvent and pH of heated slop in 2nd paragraph under "Description".
06-07-68	N/A	Revised Item 4.1 to correct error in destination of portable slop tank and added "NOTE" regarding handling of good solvent.
06-07-68	N/A	Added Item 9.7 on disposition of portable tank.
2-09-68	N/A	Eliminated duplication of specifications given in Mfg. Spec. 2-BE-460-1, Section 3. Added procedure for making in-plant determination of wt. % solids in thickener underflow, Item 7.1. Clarified wording throughout SOP.
11-03-72	N/A	Complete revision ordered by J. Beckelheimer and prepared by F. C. Tritschler and B. Emison with him. Description and SOP revised to eliminate the alternative of routing RTS to Plant 8. Drawing (now page 9) revised.
09-06-73	N/A	Requirement that Plant 8 slop containing thorium be processed in Plant 8 deleted.
09-06-73	N/A	Temperature of 170°F for slop liquor in F2E-601 changed to a range of 160-170°F.

RECORD OF ISSUE/REVISIONS (cont.)

DATE	REV NO.	DESCRIPTION AND AUTHORITY
09-06-73	N/A	Target for pH of less than 1.0 specified. Note added to indicate that pH cell set up must be checked.
04-09-76	N/A	Changed to refer to pumps instead of educators.
04-09-76	N/A	Temperature range rather than a temperature specified.
04-09-76	N/A	Definite article "the" rather than "as" required.
04-09-76	N/A	Note added underlining fact that water is to be added before any MgO is introduced.
04-09-76	N/A	Break point for disposition of U infiltrate changed from 0.02 to 0.048 g/l.
04-09-76	N/A	Renumbered from 7.1.3.3 after deletion of overnight settling requirement for slurry in F1-612.
04-09-76	N/A	General updating specified by Eli Nutter in request for Change in Standard Operating Procedure No. 143.
03-13-89	N/A	Reissue of procedure per Request No. P86-066, initiated by T. N. Huey and Request P87-057, initiated by W. D. Eager.
04-10-91	0	Reissued to delete data that no longer applies, and correct tank content destination per Request No. P90-678, initiated by J. B. Patton.
02-10-94	0	Reissued per Request P93-576 initiated by C. Glassmeyer following periodic review (R93-076) and to incorporate CIO C93-037 per Request P93-590.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	East EIMCO Filter Operation	08-C-608 TECHNICAL PROCEDURE

(Signature on File) Authorization: D. Brettschneider, UNH Project Manager	Supersedes: 08-C-608 Dated: 11-23-94	Issue Date: 12-28-94

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-6944

1.0 PURPOSE

1.1 The purpose of this document is to establish procedures for safe operation of the Plant 8 East EIMCO filter.

2.0 SCOPE

2.1 The scope of this procedure consists of the following:

2.1.1 Filtering MDU slurry from Tanks F43-203 and F43-203A through the East EIMCO Filter in Plant 8.

2.1.2 Sampling the filtrate and filter cake.

2.1.3 Storing the filtrate.

2.1.4 Transferring the filtrate to the General Sump or Plant 2/3.

2.1.5 Drumming the filter cake for shipment and disposal.

3.0 APPLICABLE DOCUMENTS

3.1 Source Documents

3.1.1 M-116, "Facility Owner's Standing Orders for Plant 8 Filtration and Volatile Organic Compound (VOC) Treatment Systems", Rev. 0.

3.1.2 D10-00-020, "Remediation Support Operations Division Document System"

3.1.3 D10-00-007, "RSO Division Conduct of Operations Policy"

3.2 Reference Documents

3.2.1 RM-0005, "FEMP Lot Marking and Color-Coding System"

3.2.2 20-C-807, "Inspection of Plant 2/3 (Refinery) and Plant 8 Safety Shower/Eye Bubbler Stations"

3.2.3 20-C-912, "Checking Scale Operation"

3.2.4 20-C-606, "Hazardous Material Spill Clean-up"

3.2.5 MS 08-BN/E-490-2, "Disposal of Waste Filtrate and Effluent"

3.2.6 20-C-918, "Install Lid and Ring on Product Drum"

3.2.7 SSOP-0719, "FERMCO LOCKOUT/TAGOUT (Hazardous Energy and Material Control) Procedure"

3.2.8 RSO-HSP-1005, August 1994, "Project Specific Health and Safety Plan for the Neutralization and Stabilization of UNH Solutions at Plant 2\3 and 8"

3.0 APPLICABLE DOCUMENTS (cont.)

3.2.9 20-C-806, "Waste Sampling for Hazardous Identification"

4.0 DEFINITIONS

4.1 East EIMCO Filter - Rotary vacuum filter that is 6 feet in diameter and 10 feet long.

4.2 Ensure - Make certain that an activity has taken place or a condition exists per specified requirements (by action if necessary).

4.3 Feed Tanks - Tanks F43-203 and F43-203A used to hold MDU Slurry prior to filtration.

4.4 Filter Cake - Solids produced during filtration. The cake is scraped from the filter drum and is packaged in drums.

4.5 Filtrate - The clean water produced during filtration.

4.6 Filtrate Receiving Tank 25[illegible] - Tank located inside Plant 8, used to collect and hold filtrate from the East or West EIMCO filters during filtration of UNH.

4.7 Magnesium Diuranate (MDU) - Compound produced by neutralization of uranyl nitrate with magnesium hydroxide.

4.8 Precoat Material - A dry, powdered diatomaceous earth, such as Dicalite, that will be mixed with water and vacuumed onto the filter cloth to prov a surface for the collection of solids from waste water.

4.9 Uranyl Nitrate Hexahydrate (UNH) - Uranium dissolved in nitric acid. Also referred to as UNH.

4.10 Verify - Confirm that a specified activity has occurred or a stated condition exists. If the activity or condition do not exist, the Process Leader shall be notified to investigate the condition.

5.0 RESPONSIBILITIES

5.1 Operations Manager

5.1.1 Coordination of all personnel and activities required for the safe processing of the site UNH inventory.

5.2 Process Engineer

5.2.1 See manual M-116 for description of responsibilities. Additional responsibilities specific to the UNH project include the preparation of the batch sheets for use in operations.

5.0 RESPONSIBILITIES (cont.)

5.3 **Plant 8 Facility Owner**

5.3.1 See Manual M-116 for description of responsibilities.

5.4 **Process Leader**

5.4.1 See Manual M-116 for description of responsibilities.

5.5 **Process Supervisor**

5.5.1 See Manual M-116 for description of responsibilities.

5.6 **Operator**

5.6.1 See Manual M-116 for description of responsibilities.

6.0 GENERAL

6.1 Responses to Emergency Conditions are addressed in Section 8.9.

6.2 Warnings, Cautions and Notes shall precede the Item, Step, or Sub-Step, Section, or Sub-Section to which they apply.

6.3 "Initial Valve Position Log Sheet" (Table 2) identifies the normal position of the valves prior to operation and at any point that the process is shutdown. This log will be completed prior to the initial start-up of the UNH process.

6.4 "Initial Power Supply and Switch Position Verification Log" (Table 3) identifies the normal position of power supply and control switches prior to operation and at any point that the process is shutdown. This log will be completed prior to the initial start-up of the UNH process.

6.5 The scale used to weigh product drums shall be maintained as per procedure 20-C-912, "Checking Scale Operation."

6.6 Product drums prepared to receive filter cake shall be marked per RM-0005, "FEMP Lot Marking and Color-Coding System."

6.7 Filter cake shall be packaged in 55 gallons drums with plastic liners.

6.8 Tanks F43-203 and F43-203A shall be used to hold MDU Slurry prior to filtration.

6.9 Filtrate generated from filtration of MDU slurry shall be collected in Tank 25A only.

6.10 Filtrate shall be pumped either to the General Sump or to Plant 2/3 Tanks F1-25 or F1-26. The destination of filtrate depends on the Analytical sampling results and dilution/rinse water requirements in Plant 2/3.

6.0 GENERAL (cont.)

6.11 Figure 1 is a simplified flow diagram for EIMCO filter operations.

6.12 RCRA samples will be taken per procedure 20-C-806, "Waste Sampling for Hazardous Identification".

7.0 HEALTH AND SAFETY REQUIREMENTS

7.1 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.2 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.3 All Health and Safety requirements are addressed in the Project Specific Health and Safety Plan.

8.0 PROCEDURE

8.1 East EIMCO Filter Operation

8.1.1 **Receiving Magnesium Diuranate (MDU) Slurry from Plant 2/3**

NOTE: Plant 2/3 Process Leader will notify Plant 8 Process Leader by radio when to prepare to receive MDU slurry.

A. Obtain copy of batch sheet from Process Supervisor

NOTE: Quantity of MDU Slurry to be received is given on the batch sheet.

B. Verify quantity of MDU to be transferred with Plant 2/3 Process Leader.

8.0 **PROCEDURE** (cont.)

NOTE: High level in either Tank F43-203 or F43-203A will sound an alarm and automatically close the inlet valve.

C. IF Tank F43-203 is the first receiving tank,
THEN follow Steps below:

1. Open valve HOV-200.

2. Open valve HOV-203.

3. Inform Plant 2/3 Process Leader to start transfer.

4. Record beginning tank level and time on batch sheet.

5. IF receipt of liquid cannot be verified within 5 minutes of start of transfer,
THEN inform the Plant 2/3 Operator to stop the pump and investigate the problem.

6. WHEN the liquid level reaches the mark shown on indicator LI203,
THEN start the agitator.

7. WHEN the Tank F43-203 approaches full,
THEN open Tank F43-203A inlet valve HOV-213,
AND open Tank F43-203A inlet valve HOV-210,
AND close Tank F43-203 inlet valve HOV-203,
AND close Tank F43-203 inlet valve HOV-200,
AND verify flow into Tank F43-203A using level indicator.

NOTE 1: Plant 2/3 Operator will notify Plant 8 Operator when transfer is complete.

NOTE 2: Plant 2/3 Operator will notify Plant 8 Operator when rinse will start.

8. WHEN Plant 2/3 Operator notifies Plant 8 Operator that transfer is complete and rinse has started,
THEN verify rinse water flow into Tank F43-203A.

9. WHEN the rinse is complete as notified by Plant 2/3 Operator,
THEN close Tank F43-203 inlet valve HOV-213,
AND close Tank F43-203 inlet valve HOV-210.

10. Record final level in Tanks F43-203 and F43-203A on the batch sheet.

D. IF Tank F43-203A is the first receiving tank,
THEN follow Steps below:

1. Open valve HOV-210.

8.0 **PROCEDURE** (cont.)

2. Open valve HOV-213.

3. Inform Plant 2/3 Process Leader to start transfer.

4. Record beginning tank level and time on batch sheet.

5. IF receipt of liquid cannot be verified within 5 minutes of start of transfer,
THEN inform the Plant 2/3 Operator to stop the pump and investigate the problem.

6. WHEN the liquid level reaches the mark shown on indicator LI203A,
THEN start the agitator.

7. WHEN the Tank 203A approaches full,
THEN open Tank F43-203 inlet valve HOV-203,
AND open Tank F43-203 inlet valve HOV-200,
AND close Tank F43-203A inlet valve HOV-213,
AND close Tank F43-203A inlet valve HOV-210,
AND verify flow into Tank F43-203 using level indicator.

   NOTE 1: Plant 2/3 Operator will notify Plant 8 Operator when transfer is complete.

   NOTE 2: Plant 2/3 Operator will notify Plant 8 Operator when rinse will start.

8. WHEN Plant 2/3 Operator notifies Plant 8 Operator that transfer is complete and rinse has started,
THEN verify rinse water flow into Tank F43-203.

9. WHEN the rinse is complete,
THEN close Tank F43-203A inlet valve HOV-203,
AND close Tank F43-203A inlet valve HOV-200.

10. Record final level in Tanks F43-203A and F43-203 on the batch sheet.

8.1.2 **Routine East EIMCO Filter Start-up and Operation**

A. Prepare precoat per Section 8.3.1 and return to Step 8.1.2.B.

B. Position a tare-weighed, pre-marked, color-coded drum in the drumming station in accordance with Section 8.2 and return to Step 8.1.2.C.

C. Prepare the Filtrate Transfer System as per Section 8.1.3 and return to Step 8.1.2.D.

8.0 PROCEDURE (cont.)

D. Prepare the MDU Slurry Feed System per Section 8.1.4 and return to Step 8.1.2.E.

E. Precoat the East Filter in accordance with Section 8.3.2 through 8.3.6 and return to Step 8.1.2.F.

F. Start the transfer of MDU slurry to the filter as per Section 8.1.5 and return to Step 8.1.2.G.

G. Visually verify that the precoat is sealed with feed slurry.

H. Engage the manual clutch for the knife advance mechanism to ensure automatic advance of the knife at the desired speed.

I. Adjust the knife advance hand wheel for a light precoat cut.

J. Adjust the drum rotation speed using the hand wheel as necessary to maintain the filter cake at the desired consistency.

K. Adjust the filter feed pump speed (using air valve HOV-354) to maintain a liquid level in the filter basin that produces a damp filter cake.

L. IF the South Precoat pump was used,
THEN perform the following valve alignment:

1. Close valve PC1.
2. Close valve PC2.
3. Close valve PC3.
4. Close valve PC8.
5. Close valve PU12.

M. IF the North Precoat pump was used,
THEN perform the following valve alignment:

1. Close valve PC1.
2. Close valve PC4.
3. Close valve PC5.
4. Close valve PC7.
5. Close valve PC8.
6. Close valve PU13.

8.0 **PROCEDURE** (cont.)

NOTE: Spray is used to rinse soluble nitrate components from the filter cake.

N. IF directed by the Supervisor,
THEN open the water spray valve.

NOTE: High solids feed slurry will fill the product drum more quickly than low solids feed slurry.

O. Check the product drum as frequently as required for the material being filtered.

P. WHEN the product drum is full,
THEN replace the drum per Section 8.1.8,
AND return to Step 8.1.2.Q.

Q. Check the level in the feed tank in use every hour. (Feed tank level indicators are located on the Pump J-104 skid).

R. WHEN the feed tank is empty,
THEN change feed tank as per Section 8.1.6,
AND return to Step 8.1.2.S.

S. WHEN slop tank F-104 becomes full,
THEN feed the tank contents to the filter when possible per Sectic 8.1.7,
AND return to Step 8.1.2.T.

T. WHEN the filter precoat reaches the minimum acceptable thickness,
THEN perform Steps 1 or 2 below,
AND return to Step 8.1.2.U.

1. IF a complete precoat is to be performed,
THEN shut down and clean the filter per Section 8.1.11,
AND precoat the filter per Section 8.3.

2. IF the existing filter precoat is to be capped,
THEN clean the filter basin per Section 8.1.11.A thru 8.1.11.H

AND cap the filter using the precoat Section 8.3.

U. Check the level in the filtrate receiving Tank 25A every hour on the gauge in the Control Room.

V. WHEN the filtrate receiving Tank 25A is full,
THEN contact the Plant 2/3 Process Leader to verify if Plant 2/3 can receive filtrate.

8.0 PROCEDURE (cont.)

NOTE: Filtrate transfer to Plant 2/3 from Tank 25A can take place without sampling and while the filter is operating.

W. IF Plant 2/3 can receive filtrate,
THEN transfer in accordance with Section 8.6 and continue operating the filter.

X. IF Plant 2/3 cannot receive filtrate,
THEN follow Steps 1 - 5 below:

1. Place the filter in stand-by per Section 8.1.9.

2. Sample the filtrate tank per Section 8.4.1.

3. WHEN the filtrate analysis results are received,
THEN record results on the batch sheet.

4. IF the filtrate is in-specification,
THEN pump filtrate to the General Sump per Section 8.5.

5. IF the filtrate is out-of-specification,
THEN pump the filtrate to Plant 2/3 per Section 8.6 when Plant 2/3 is able to receive filtrate.

6. Restart the filter per Section 8.1.10 after the filtrate transfer has been completed.

8.1.3 **Preparing the Filtrate Transfer System**

NOTE: #7 Filtrate Pump is the primary filtrate pump for the East EIMCO filter. #8 Filtrate Pump is the secondary filtrate pump.

A. IF #7 filtrate pump is to be used,
THEN perform the following valve alignment:

1. Open valve FL8.

2. Open valve PU63.

3. Open valve FL10.

4. Open valve FL16.

B. IF #8 filtrate pump is to be used,
THEN perform the following valve alignment:

1. Open valve FL6.

2. Open valve FL17.

8.0 **PROCEDURE** (cont.)

3. Open valve PU65.

4. Open valve PU66.

5. Open valve FL18.

6. Open valve FL13.

7. Open valve FL15.

8.1.4 **Preparing the MDU Slurry Feed System**

A. IF feeding from Tank F43-203,
THEN follow Steps below:

1. Open valve EEF1.

2. Open valve HOV-219.

3. Open valve HOV-216.

4. Open valve HV-203D.

5. Open filter overflow valve HV-203C on Tank F43-203.

B. IF feeding from Tank F43-203A,
THEN follow Steps below:

1. Open valve EEF1.

2. Open valve HOV-219.

3. Open valve HOV-216.

4. Open valve HV-203B.

5. Open filter overflow valve HV-203A on Tank F43-203A.

C. Open air valve HOV-354.

D. Enter "99999" for the Totalizer (FQI104) as the batch setpoint.

8.1.5 **Starting the Transfer of MDU Slurry to East Filter using Pump J-104**

NOTE: The filter feed pump (J-104) will not start unless the discharge and overflow valves are both open on one filter feed tank and are both closed on the other filter feed tank.

A. Open valve UF2.

B. Start pump J-104 from the START/STOP switch (HS104) located on th pump skid control panel.

REMEDIATION SUPPORT OPERATIONS
TEMPORARY CHANGE NOTICE (TCN) - 6944

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1. **NOTE: TCN not valid without Supervisor signature, Manager initials and Operator signature (when required).**

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OPERATOR: James Kirby EXT: 6256 SIGNATURE: (Signature on File)

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2. EFFECTIVE DATE OF CHANGE: 01-13-95

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5. AFFECTED PAGE NUMBER 12

6. DOCUMENT ISSUE DATE: 12-28-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.4 C is revised to read as follows:

C. Open air Valve PU230.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TCN TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

8.0 **PROCEDURE** (cont.)

C. Audibly verify that the pump is running and visually verify that material is flowing into the filter basin.

D. IF pump is running but the flow is not seen at the basin within 3 to 5 minutes,
THEN follow the Steps 1 - 19 until the line is clear:

1. Stop pump J-104 using HS104.
2. Close valve HOV-216.
3. Connect 1" process water hose to Chicago fitting at valve HOV-206.
4. Open valve on the process water hose.
5. Open valve HOV-205.
6. Open valve HOV-206.
7. Flush water through the feed line into the Tank (either F43-203 or F43-203A) to clear the line.
8. Close valve HOV-206.
9. Close valve HOV-205.
10. Close valve on the process water hose.
11. Open the bleed valve on the process water hose.
12. Disconnect the process water hose from the Chicago fitting at valve HOV-206.
13. Close the bleed valve.
14. Connect 1" process water hose to Chicago fitting at valve HOV-218.
15. Open valve on the process water hose.
16. Open valve HOV-217.
17. Open valve HOV-218.
18. Flush water through the feed line to the East Filter to clear line.
19. Close valve HOV-218.
20. Close valve HOV-217.

8.0 **PROCEDURE** (cont.)

21. Close valve on the process water hose.

22. Open the bleed valve on the process water hose.

23. Disconnect the process water hose from the Chicago fitting at valve HOV-218.

24. Close the bleed valve.

25. Open valve HOV-216.

F. Adjust air valve HOV-354 at Pump J-104 to maintain level in the filter basin.

8.1.6 **Changing Feed Tank During Filtration**

NOTE: The filter feed pump J-104 cycle frequency will increase and LI203 will show low level when the tank is empty.

A. IF feed Tank F43-203 is empty and feed Tank F43-203A contains material,
THEN follow Steps 1 - 5 below:

1. Stop pump J-104 using HS104.

2. Close valve HV-203C.

3. Close valve HV-203D.

4. Open valve HV-203A.

5. Open valve HV-203B.

6. Start pump J-104 using HS104 to continue feeding the filter.

7. Verify flow at East EIMCO filter basin.

NOTE: The filter feed pump J-104 cycle frequency will increase and LI203A will show low level when the tank is empty.

B. IF feed Tank F43-203A is empty and feed Tank F43-203 contains material,
THEN follow Steps 1 - 7 below:

1. Stop pump J-104 using HS104.

2. Close valve HV-203A.

3. Close valve HV-203B.

4. Open valve HV-203C.

REMEDIATION SUPPORT OPERATIONS
TEMPORARY CHANGE NOTICE (TCN) -6944 1

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7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.5 F is changed to read as follows:

F. Open Valve PU231 at the Small EIMCO Filter.

2) Step 8.1.5 G and 8.1.5 H is added to read as follows:

G. Close Valve HOV-354.

H. Adjust air valve PU231 at filter to maintain level in the Filter Basin.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TCN TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

-6944

8.0 PROCEDURE (cont.)

5. Open valve HV-203D.

6. Start pump J-104 using HS104 to continue feeding the filter.

7. Verify flow at East EIMCO filter basin.

C. IF feed Tanks F43-203 and F43-203A are empty, THEN follow Steps 1 - 2 below:

1. Record totalizer (FQI104) reading on the batch sheet.

2. Place filter in stand-by per Section 8.1.9 or shut down filter per Section 8.1.11.

8.1.7 Feeding East EIMCO Filter from Tank F-104

CAUTION
Stop feeding from Tank D-105 before starting feeding from Tank F-104.

A. Check closed valve SF5.

B. Check closed valve SFS1.

C. Close valve SF8.

D. Open valve SFS4.

E. Open valve SFS3.

F. Open valve SF12.

G. Open air valve PU38 to start transfer with Sandpiper pump.

H. When the transfer is complete, perform the following:

1. Close valve PU38.

2. Close valve SF12.

3. Close valve SFS3.

4. Close valve SFS4.

I. Open valve SF8.

8.1.8 Removing and Replacing the Product Drum

A. Prepare a color-coded, premarked drum (Refer to RM-0005).

B. Place the drum on the drumming station conveyor.

8.0 **PROCEDURE** (cont.)

C. Remove the lid and lock ring from the drum.

D. Store the lid and ring near the drumming station.

E. Place plastic liner in drum.

F. Open the drumming station doors.

G. Slide the full product drum along the conveyor outside the drumming station.

H. Position the empty drum in the East EIMCO drumming station under the drumming chute.

I. Close the drumming station doors.

J. When each product drum is filled, sample filter cake per Sections 8.4.2 and 8.4.3.

K. Place absorbent pad in drum directly on solids.

L. Install a lid and lock ring on the product drum as per procedure 20-C-918.

M. Using a clean towel, remove all material from the outside of the drum.

N. Place the used towels in a drum that is color-code for contaminated trash (Refer to RM-0005).

NOTE: Several drums or skids of drums may be collected in a storage area prior to weighing.

O. Using a handstacker, move the drum(s) to the scale to be used for weighing filter cake.

P. Ensure the scale has been inspected per procedure 20-C-912.

Q. Weigh each drum.

R. Record the weight on a 65 card. (See Figure 3).

S. Using a handstacker, move the product drum onto a clean skid.

T. Notify the Supervisor that the drums are ready for storage.

U. Complete the 65 card.

V. Give the completed card to the Supervisor.

W. Move the loaded skid(s) to the storage area designated by the Supervisor.

-6944

8.0 PROCEDURE (cont.)

8.1.9 Placing the East EIMCO Filter System on Stand-by

NOTE: The East EIMCO Filter is placed on stand-by when it is desired to maintain the precoat at its current thickness while MDU Slurry is not being filtered.

A. IF pump J-104 is operating
THEN stop pump J-104 using HS104.

B. Close filter inlet valve UF2.

C. Close the appropriate feed tank outlet valve as follows:

1. IF Tank F43-203 is being used to feed the filter,
THEN close the tank outlet valve HV-203D.

2. IF Tank F43-203A is being used to feed the filter,
THEN close the tank outlet valve HV-203B.

D. Continue filtering liquid in the basin until the liquid reaches a low level.

E. Maintain vacuum on the filter to prevent precoat from falling off the drum while the filter is not in use.

F. Ensure that the filter basin agitator is on to prevent solids from settling in the filter basin.

G. WHEN the basin liquid level drops to the bottom of the filter drum,
THEN cut off the residual solids on the drum to expose the precoat.

H. Slow the drum rotation.

I. Disengage the manual clutch on knife and secure with winged bolt.

J. Retract the knife from the drum surface using the hand wheel.

K. IF using #7 filtrate pump,
THEN follow the Steps below:

1. Stop #7 filtrate pump.

2. Close the seal water valve PU63.

L. IF using #8 filtrate pump,
THEN follow the Steps below:

1. Stop #8 filtrate pump.

2. Close the seal water valve PU66.

8.0 PROCEDURE (cont.)

8.1.10 Restarting the East EIMCO Filter from Stand-by

A. Ensure the basin agitator is running.

B. Ensure the filter drum rotation and increase drum speed.

C. Open feed valve UF2.

D. Start feed to the EIMCO filter as follows:

1. IF using feed Tank F43-203,
THEN open the tank discharge valve HV-203D,
AND start Pump J-104 using HS104.

2. IF using feed Tank F43-203A,
THEN open the tank discharge valve HV-203B,
AND start Pump J-104 using HS104.

E. Observe feed flow into the filter basin.

F. IF pump is running but the flow is not seen at the basin within three (3) to five (5) minutes,
THEN follow the Steps 1 - 21 until the line is clear:

1. Stop pump J-104 using HS104.

2. Close valve HOV-216.

3. Connect 1" process water hose to Chicago fitting at valve HOV-206.

4. Open valve on the process water hose.

5. Open valve HOV-205.

6. Open valve HOV-206.

7. Flush water through the feed line into the Tank being used (either F43-203 or F43-203A) to clear the line.

8. Close valve HOV-206.

9. Close valve HOV-205.

10. Close valve on the process water hose.

11. Open the bleed valve on the process water hose.

12. Disconnect the process water hose from the Chicago fitting at valve HOV-206.

13. Close the bleed valve.

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6. DOCUMENT ISSUE DATE: 12-28-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.10 I is changed to read as follows:

I. Adjust air valve PU231 at filter to maintain level in the Filter Basin.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

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8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

8.0 **PROCEDURE** (cont.)

14. Connect 1" process water hose to Chicago fitting at valve HOV-218.

15. Open valve on the process water hose.

16. Open valve HOV-217.

17. Open valve HOV-218.

18. Flush water through the feed line to the East EIMCO Filter to clear the line.

19. Close valve HOV-218.

20. Close valve HOV-217.

21. Close valve on the process water hose.

22. Open the bleed valve on the process water hose.

23. Disconnect the process water hose from the Chicago fitting at valve HOV-218.

24. Close the bleed valve.

25. Open valve HOV-216.

26. Start pump J-104 using HS104.

27. Verify flow into East EIMCO filter basin.

G. IF using #7 filtrate pump,
THEN open valve PU63,
AND start #7 filtrate pump.

H. IF using #8 filtrate pump,
THEN open valve PU66,
AND start #8 filtrate pump.

I. Adjust air valve HOV-354 at Pump J-104 to maintain level in the filter basin.

J. Observe the flow of filtrate into the filtrate recovery Tank 25A.

K. IF no flow is observed within 5 minutes,
THEN contact the Process Supervisor.

L. Manually advance the knife drive to the surface of the drum using the hand wheel.

M. Engage the manual clutch for the knife advance mechanism to allow the knife to advance automatically.

8.0 **PROCEDURE** (cont.)

N. Return to routine operation of the EIMCO filter per Section 8.1.2.

8.1.11 **Normal Shutdown and Cleaning the East EIMCO Filter Drum and Basin**

A. Verify adequate capacity (greater than 3000 gallons) in Tank F-104 to receive residual slurry from the East EIMCO filter basin.

B. IF Pump J-104 is operating,
THEN stop Pump J-104 using HS104.

C. Close air valve HOV-354.

D. Close the feed tank outlet valve as follows:

1. IF Tank F43-203 is being used to feed the filter,
THEN close the tank outlet valve HV-203D.

2. IF Tank F43-203A is being used to feed the filter,
THEN close the tank outlet valve HV-203B.

E. Flush the MDU Slurry lines as follows:

1. Connect 1" process water hose to the Chicago fitting at valve HOV-206.

2. Open valve on the process water hose.

3. Open valve HOV-205.

4. Open valve HOV-206.

5. Verify flow into East EIMCO filter basin.

6. Run process water until flow is clear to flush the line to the East filter.

7. Close valve HOV-206.

8. Close valve HOV-205.

9. Close valve on the process water hose.

10. Open the bleed valve on the process water hose.

11. Disconnect the process water hose from the Chicago fitting at valve HOV-206.

12. Close the bleed valve.

F. Close filter feed valve UF2.

REMEDIATION SUPPORT OPERATIONS
TEMPORARY CHANGE NOTICE (TCN) -6944 1

ONLY ONE TCN CHANGE PERMITTED PER DOCUMENT PAGE

1. **NOTE: TCN not valid without Supervisor signature, Manager initials and Operator signature (when required).**

SUPERVISOR: Dennis WcWhorter EXT: 6256 SIGNATURE: (Signature on File)

OPERATOR: James Kirby EXT: 6256 SIGNATURE: (Signature on File)

DOCUMENT OWNER: D. Brettschneider SUPV. ORG.: RSO/OP CHARGE NUMBER: 3BPE1

2. EFFECTIVE DATE OF CHANGE: 01-13-95

3. EXPIRATION DATE OF CHANGE: 06-13-95 ***NOTE: Maximum effective period six months.***

4. AFFECTED DOCUMENT NUMBER: 08-C-608 NON-CONTROLLED COPY

5. AFFECTED PAGE NUMBER 20

6. DOCUMENT ISSUE DATE: 12-28-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.11 C is changed to read as follows:

C. Close air valves as follows:

1. Close Valve PU231.

2. Close Valve PU230.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TCN TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

8.0 **PROCEDURE** (cont.)

G. Perform the following valve alignment:

1. Close valve HOV-219.

2. Close valve HOV-216.

H. Clean basin per Section 8.1.12.

I. IF using #7 filtrate Pump,
THEN follow the Steps below:

1. Stop #7 filtrate pump.

2. Close the seal water valve PU63.

3. Close valve FL16.

4. Close valve FL10.

5. Close pump inlet valve FL8.

J. IF using #8 filtrate pump,
THEN follow the Steps below:

1. Stop #8 filtrate pump.

2. Close valve PU65.

3. Close valve PU66.

4. Close valve FL15.

5. Close valve FL13.

6. Close valve FL18.

7. Close valve FL6.

8. Close valve FL17.

K. IF the filtrate recirculating system is in use for seal water,
THEN stop the Filtrate Recirculating Seal Water pump,
AND close valve R2-E.

L. IF process water is in use for seal water,
THEN close valve PU92.

M. Stop drum drive.

N. Stop vacuum pump G43-114A.

8.0 **PROCEDURE** (cont.)

O. Jog the filter drum by pushing the filter drum on and off push buttons to cause the precoat to fall into the filter basin.

P. Perform the following valve alignment for the filter basin drain valves.

1. Open valve FD2.

2. Open valve EFD1.

Q. Verify flow into Tank F-104.

R. Open water valve PU72 as long as needed and as determined by the Process Operator to flush the filter basin.

S. Close valve PU72 after the basin is flushed.

T. Use a process water hose to wash the filter drum and basin.

U. IF the drain line is or becomes plugged,
THEN unplug the line as follows:

1. Close filter drain valve EFD2.

2. Open water valve PU95.

3. Open water valve PU97.

4. WHEN water flow is observed in the filter basin,
THEN open valve EFD2.

5. Close valve EFD1.

6. WHEN water flow is heard through the pipe to Tank F-104,
THEN open valve EFD1.

7. Close water valve PU97.

8. Close water valve PU95.

V. Close filter inlet valve EEF1.

W. WHEN draining of the East Filter Basin is complete,
THEN perform the following:

1. Close inlet valve FD2 to tank F-104.

2. Close drain valve EFD1.

8.0 PROCEDURE (cont.)

X. Close overflow valves as follows:

1. IF using tank F43-203,
THEN close valve HV-203C.

2. IF using tank F43-203A,
THEN close valve HV-203A.

Y. Stop the HEPA filter on drumming station.

8.1.12 **Cleaning the East EIMCO Filter Basin**

A. Perform the following valve alignment for the filter basin drain.

1. Open valve FD2.

2. Open valve EFD1.

B. Verify flow into Tank F-104.

C. Turn off the filter basin agitator.

D. Open water valve PU72 as long as needed and as determined by the Process Operator to flush the filter basin.

E. Close valve PU72 after the basin is flushed.

F. Use a process water hose to wash the filter basin.

G. IF the drain line is or becomes plugged,
THEN unplug the line as follows:

1. Close filter drain valve EFD2.

2. Open water valve PU95.

3. Open water water valve PU97.

4. WHEN water flow is observed in the filter basin,
THEN open valve EFD2.

5. Close valve EFD1.

6. WHEN water flow is heard through the pipe to Tank F-104,
THEN open valve EFD1.

7. Close water valve PU97.

8. Close water valve PU95.

8.0 PROCEDURE (cont.)

H. WHEN draining of the East Filter Basin is complete, THEN perform the following:

1. Close inlet valve FD2 to tank F-104.

2. Close drain valve EFD1.

I. Disengage the manual clutch on knife and secure with winged bolt.

J. Fully retract the knife from the drum surface using the hand wheel.

K. Open valve PU72.

L. WHEN water is near the drum surface, THEN close valve PU72.

M. IF shutting down the filter, THEN go to Section 8.1.11.I.

N. IF capping the precoat, THEN go to Section 8.3.

8.2 Prepare Product Drumming Station

8.2.1 Prepare a color-coded, premarked drum (Refer to RM-0005).

8.2.2 Place the drum on the drumming station conveyor.

8.2.3 Remove the lock ring and lid from the drum.

8.2.4 Store the lock ring and lid near the drumming station.

8.2.5 Place plastic liner in drum.

8.2.6 Start the portable HEPA vacuum.

8.2.7 Open the drumming station doors.

8.2.8 Position the empty drum in the East EIMCO drumming station under the drumming chute.

8.2.9 Close the drumming station doors.

8.3 Precoat the East EIMCO Filter

8.3.1 **Making-up Precoat**

NOTE: Check the Filter Cloth for tears or cuts prior to precoating. If more than two 3-inch tears exist, contact Maintenance to recloth filter.

A. Verify adequate space (greater than 4,000 gallons) in filtrate Ta. 25A for precoat filtrate and vacuum pump seal water.

8.0 PROCEDURE (cont.)

B. IF less than 4,000 gallons free space exists in Tank 25A, THEN transfer filtrate using Section 8.8 before proceeding with the precoat operation.

C. Open process water valve PU117.

D. Fill the Precoat Tank approximately 2/3 full with process water.

E. Close valve PU117.

F. Start the Precoat Tank Agitator.

G. Start the Precoat Tank Ventilation Exhaust Fan.

H. Verify differential pressure greater than 0.5 inch of H_2O vacuum.

WARNING

Wear the respiratory protection specified by Industrial Hygiene to prevent inhalation of precoat material.

I. Open and dump the required number of bags of precoat material (27 bags for full precoat, 12 bags for capping or as directed by Process Supervisor) in the precoat dumping station.

J. Fold empty bags at dumping station and place into plastic bag.

K. Stop the Precoat Tank Ventilation Exhaust Fan.

8.3.2 **Preparing to start the Precoat Pump**

NOTE: The Process Leader will direct which Precoat Pump is to be used.

A. IF transferring precoat to the East EIMCO Filter through the South Precoat Pump, THEN follow the Steps below:

1. Check closed valve PC6.

2. Open valve PC11.

3. Open valve PU12 to start seal water flow to the South Precoat Pump.

4. Open valve PC8.

5. Open valve PC3.

6. Open valve PC2.

7. Open valve PC1.

8.0 **PROCEDURE** (cont.)

B. IF transferring precoat to the East EIMCO Filter through the North Precoat Pump,
THEN follow the Steps below:

1. Check closed valve PC6.

2. Open valve PC11.

3. Open valve PU13 to start seal water flow to the North Precoat Pump.

4. Open valve PC8.

5. Open valve PC7.

6. Open valve PC5.

7. Open valve PC4.

8. Open valve PC1.

8.3.3 Starting the East EIMCO Filter for Precoat Application

A. Start basin agitator by pressing the AGITATOR START pushbutton (D43-106C) on the East and West EIMCO Filter control panel (See Figure 2).

B. Ensure that knife is fully retracted and manual clutch is disengaged.

C. Start the Knife Drive using the pushbutton labeled D43-106B on the control panel.

D. Start filter drum rotation by pressing the FILTER pushbutton (D43-106A) on the East and West EIMCO Filter control panel.

E. Adjust drum rotation to maximum using the handwheel.

8.3.4 Starting the East Vacuum Pump (G43-114A) Seal Water Recirculation System

NOTE: The vacuum pump cooling water recirculation system uses filtrate from Tank 25A to cool and seal the vacuum pump. This minimizes the amount of water used to cool and seal the vacuum pump. Use this system anytime Tank 25A contains more than 10 units of filtrate.

A. IF the level in Tank 25A is less than 10 units,
THEN open process water inlet valve PU92,
AND check flow into Tank 25A.

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8.0 **PROCEDURE** (cont.)

B. IF at anytime the Tank 25A level is 10 units or greater, as indicated by the level indicator located in the MCC room on the first floor,
THEN proceed as follows:

1. Open valve R2-E.

2. Start the Filtrate Recirculating Seal Water pump.

3. IF water inlet valve PU92 is open,
THEN close valve PU92.

4. Visually check for cooling water flow at the Tank 25A return line junction.

C. IF no flow is seen,
THEN follow Steps below:

1. Stop the recirculating pump.

2. Open valve PU92 to use process water to cool and seal the vacuum pump.

3. Close valve R2-E.

4. Inform the Process Supervisor about no flow in the recirculation system and investigate the problem.

5. WHEN the recirculation system is fixed,
THEN go to Step 8.3.4.B.

8.3.5 **Start Precoat Pump**

A. Wet the filter cloth using the spray bar.

B. Start the appropriate precoat pump.

C. Verify transfer of precoat to the filter basin.

D. Operate precoat pump, valve PU72, or valve PC11 throughout the precoat operation to maintain the liquid level in the basin and to keep precoat from overflowing into Tanks F43-203 or F43-203A.

E. IF a hole opens in the precoat,
THEN plug hole with a ball of tissue.

8.0 **PROCEDURE** (cont.)

CAUTION

Do not allow the Precoat Tank agitator blade to rotate freely above the liquid level; otherwise damage to the blade will occur.

F. WHEN the slurry level in the precoat tank reaches the top of the agitator blade (as verified visually) while transferring from the Precoat Tank,
THEN turn off the Precoat Tank Agitator.

G. WHEN the precoat slurry is 8 to 12 inches below the overflow,
THEN start East Vacuum Pump G43-114A.

H. Start the appropriate filtrate pump (#7 or #8) as prepared in Section 8.1.3.

I. Verify filtrate flow to Tank 25A.

8.3.6 **Preparing to Shutdown the Precoat System**

A. WHEN the precoat tank is empty,
THEN open the water valve PU117.

B. WHEN the Precoat feed to the basin becomes clear (visually verify at filter),
THEN close valve PU117.

C. IF using South Precoat Pump,
THEN stop pump,
AND close valve PC11.

D. IF using North Precoat Pump,
THEN stop pump,
AND close valve PC11.

8.4 Sample Plant 8 Filtrate Tanks

NOTE: Analytical sampling of filtrate is required prior to transfer to the General Sump.

8.4.1 **Sampling Filtrate for Analytical Lab**

A. WHEN filtrate Tank 25A > 80 % full,
THEN collect a grab sample from the top of the tank with the stainless steel dipper.

B. Transfer filtrate from the dipper to two 4 ounce sample jars and place a lid on each jar.

C. Wipe the jars and dipper with a towel.

8.0 **PROCEDURE** (cont.)

D. Dispose of the towel in the contaminated trash drum.

E. Deliver both sample jars to the sample station.

F. Secure the sample lids with tamper proof tape and initial the tape.

G. Complete the required sampling documentation.

H. Record the date, time, sample numbers and tank numbers on a "Sample Log", Form No. FMPC-OPR-1632. (See Figure 4).

I. Complete a "Site-Wide Analysis Request/23 Custody Record", Form No. FS-F-3361. (See Figure 5)

NOTE: For transfer to General Sump only, the uranium content shall be less than or equal to 0.048 g/l the copper (Cu) content shall be less than 1 ppm and the filtrate pH shall be 7.0 or greater.

J. Request analysis for U g/l, Cu ppm and pH measurement.

K. Complete a standard sample label, FMPC-PRO-303 for each sample jar.

L. Affix the prepared labels to the sample jars.

M. Deliver both samples and Site-Wide Analysis Request/Chain of Custody form to the Analytical Lab.

8.4.2 Filter Cake Sampling

WARNING

Wear respiratory protection issued by the Supervisor if the filter cake becomes dry at any point during this process, to prevent contamination. Minimum respiratory protection is a full-face air-purifying respirator equipped with magenta or magenta and yellow cartridge.

NOTE 1: Analytical sampling of the filter cake is required by waste packaging and waste shipping procedures.

NOTE 2: A composite sample will be collected for each lot of filter cake 60 drums or complete MDU batch, whichever is less. All samples from the lot will be placed in the same one (1) gallon sample jar.

A. Sample drums of filter cake.

1. Collect two teaspoons of filter cake from each drum and place into one (1) gallon glass jar.

2. Place the lid on the sample jar.

3. Rinse the sample spoon in clean water after collecting samples for each drum of filter cake.

4. Dry sample spoon with clean paper towels.

8.0 **PROCEDURE** (cont.)

5. Dispose of paper towel in contaminated trash drum.

6. Place an absorbent pad directly on the material in the full drum.

7. Install a lid and lock ring on the drum of filter cake per procedure 20-C-918.

8. Using a clean paper towel, remove all material from the outside of the drum.

9. Dispose of paper towel in contaminated trash drum.

B. Repeat Steps 8.4.2.A.1 - 9 until a 60-drum lot or MDU batch of filter cake is sampled.

C. Complete required sampling paperwork for both sample jars.

1. Record the date, time, sample number, and drum number on a "Sample Log", Form FMPC-OPR-1632 (See Figure 4).

NOTE 1: One form to request analysis for Percent (%) Uranium and Percent (%) Moisture. This sample will go to the Analytical Lab.

NOTE 2: One form to request "RCRA Analysis per Sampling Plan for UNH Sump Cake". This sample will go to RCRA Sampling Area.

2. Complete a "Site-Wide Analysis Request/23 Custody Record", Form FS-F-3361 (See Figure 5).

3. Complete standard sample label, FMPC-PRO-303 for the sample jar.

4. Affix a standard sample label to both one (1) gallon glass sample jars.

D. Deliver sample and Site-Wide Analysis Request/Custody Record form to Analytical Lab.

8.4.3 **Sampling for Waste Characterization**

A. Sample per procedure 20-C-806, "Waste Sampling for Identification".

1. Determine sample quantity for each characteristic from the sample matrix.

2. Complete required forms for each sample per sample matrix.

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8.0 PROCEDURE (cont.)

8.5 Transfer Tank 25A In-Specification Filtrate to the General Sump

NOTE: To be within specifications, the uranium content shall be less than or equal to 0.048 g/l the copper (Cu) content shall be less than 1 ppm and the filtrate pH shall be greater than 7.0.

8.5.1 Verify that the analytical results for the filtrate tank to be pumped are within specification.

8.5.2 IF the results are not within specification,
THEN do not proceed and notify the Process Leader.

8.5.3 **Transferring Tank 25A Filtrate to General Sump using North Transfer Pump**

NOTE: The Process Leader will determine which filtrate pump is to be used.

A. Contact the General Sump Operator and request permission to pump filtrate.

B. Check closed valve FLT-9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve HOV-131.

F. Check closed valve HOV-125.

G. Open valve FLTO-5.

H. Open valve FLTO-4.

I. Open valve FLT3.

J. WHEN permission to transfer is received from the General Sump Operator,
THEN open Tank 25A discharge valve FLT1.

K. Start the North Transfer Pump.

L. Contact the General Sump Operator to verify flow into the General Sump filtrate tank.

M. WHEN Tank 25A is at 10 units on tank level chart,
THEN stop the North Transfer Pump.

N. Close valve FLT1.

O. Notify the General Sump Operator that the transfer is complete.

8.0 **PROCEDURE** (cont.)

WARNING

The line from Plant 8 cannot be drained because of a check valve in the transfer line at the General Sump. Leaving water in this line during periods of cold weather will plug the line and can rupture gaskets.

P. IF the outside atmospheric temperature is less than 40°F, THEN follow Steps 1 - 3 below:

1. Notify General Sump that air is going to be used to clean the line.

2. Open process air valve PU2 to blow filtrate to the General Sump tank for 30 minutes.

3. Close valve PU2.

4. Close valve FLT3.

Q. Close valve FLTO-5.

R. Close valve FLTO-4.

8.5.4 **Transferring Tank 25A Filtrate to General Sump using South Transfer Pump**

A. Contact the General Sump Operator and request permission to pump filtrate.

B. Check closed valve FLT-9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve HOV-131.

F. Check closed valve HOV-125.

G. Open valve FLTO-5.

H. Open valve FLTO-4.

I. Open valve FLT6.

J. Open valve PU5.

K. WHEN permission to transfer is received from the General Sump Operator, THEN open Tank 25A discharge valve FLT4.

L. Start the South Transfer Pump.

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8.0 PROCEDURE (cont.)

M. Contact the General Sump Operator to verify flow into the General Sump filtrate Tank.

N. WHEN Tank 25A is at 10 units on tank level chart, THEN stop the South Transfer Pump.

O. Close valve FLT4.

P. Close valve PU5.

Q. Close valve FLT6.

R. Notify the General Sump Operator that the transfer is complete.

WARNING

The line from Plant 8 cannot be drained because of a check valve in the transfer line at the General Sump. Leaving water in this line during periods of cold weather will plug the line and can rupture gaskets.

S. IF the outside atmospheric temperature is less than 40°F, THEN follow Steps 1 - 3 below:

1. Notify General Sump that air is going to be used to clean the line.

2. Open FLT3.

3. Open process air valve PU2.

4. Blow filtrate to the General Sump Tank for 30 minutes.

5. Close valve PU2.

6. Close valve FLT3.

T. Close valve FLTO-5.

U. Close valve FLTO-4.

8.6 Transfer Filtrate to Plant 2/3

NOTE: All off-specification filtrate from Tank 25A will go to Plant 2/3. In-specification filtrate can also go to Plant 2/3. The Process Leader will decide which pump shall be used.

8.6.1 **Transferring Tank 25A Filtrate to Plant 2/3 with North Transfer Pump**

A. Contact the Plant 2/3 Process Leader to request permission to pump filtrate.

B. Check closed valve FLT9.

8.0 **PROCEDURE** (cont.)

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve FLTO-4.

F. Check closed valve HOV-124.

G. Verify that Operators are in place to monitor the filtrate pipe during the transfer (per Supervisor's instructions).

H. Open valve HOV-131.

I. Open valve FLT3.

J. WHEN permission to transfer is received from the Plant 2/3 Operator,
THEN open Tank 25A discharge valve FLT1.

K. Start the North Transfer Pump.

L. Contact the Plant 2/3 Operator to verify flow into the Plant 2/3 dilution/neutralization Tank.

M. WHEN Tank 25A is at 10 units on tank level chart,
THEN stop the North Transfer Pump.

N. Close valve FLT1.

O. Close valve FLT3.

P. Close valve HOV-131.

Q. Notify the Plant 2/3 Operator that the transfer is complete.

8.6.2 **Transferring Tank 25A Filtrate to Plant 2/3 with South Transfer Pump**

A. Contact the Plant 2/3 Process Leader to request permission to pump filtrate.

B. Check closed valve FLT9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve FLTO-4.

F. Check closed valve HOV-124.

G. Verify that Operators are in place to monitor the filtrate pipe during the transfer (per Supervisor's instructions).

8.0 **PROCEDURE** (cont.)

H. Open valve PU-5.

I. Open valve FLT6.

J. Open valve HOV-131.

K. WHEN permission to transfer is received from the Plant 2/3 Operator,
THEN open Tank 25A discharge valve FLT4.

L. Start the South Transfer Pump.

M. Contact the Plant 2/3 Operator to verify flow into the Plant 2/3 dilution/neutralization Tank.

N. WHEN Tank 25A is at 10 units on tank level chart,
THEN stop the South Transfer Pump.

O. Close valve FLT4.

P. Close valve PU5.

Q. Close valve FLT6.

R. Close valve HOV-131.

S. Notify the Plant 2/3 Operator that the transfer is complete.

8.7 Emergency Shutdown of the East EIMCO Filter for Plant 8 Evacuation

8.7.1 **Stop Pump J-104 Using Emergency Stop Button At Filter**

NOTE: The filter basin agitator, drum rotation and vacuum pump shall remain on.

8.7.2 **Stop Filter Drum and Knife Using Emergency Stop Button At Filter**

8.8 Start-up After Emergency Shutdown

8.8.1 Start pump J-104 using HS104.

8.8.2 Restart drum and knife by pressing Start button.

8.8.3 Return to routine operation of the EIMCO filter per Section 8.1.2.

8.9 Response to Emergency Conditions

8.9.1 **Leaks From Piping, Flanges, or Valves**

A. Stop any pump(s) that are operating in the leaking pipe system.

B. Collect leaking material in a portable bucket or container.

8.0 **PROCEDURE** (cont.)

8.9.2 **Leaks From Pumps**

A. Stop pump.

B. Close inlet and discharge valves closest to pump.

C. Take necessary actions to ensure leaking material is collected in a portable container or in a secondary containment area.

8.9.3 **High Level Warning Alarms**

A. Verify control valve FV203 or FV203A is closed.

B. Inform Supervisor of alarm.

C. Determine cause of alarm (See Table 1).

8.9.4 **High Level Alarm in Filter Basin**

A. Stop J-104 with Emergency Stop button or HS104.

B. Inform Supervisor of Alarm.

C. Determine cause of Alarm (See Table 1).

8.9.5 **High Level Alarm on Tank F43-203 and F43-203A**

A. Contact Plant 2/3 Operator to stop transfer.

B. Inform Supervisor of Alarm.

C. Determine cause of Alarm (See Table 1).

8.10 Troubleshooting

8.10.1 Refer to Table 4.

Alarm	Type	Cause	Corrective Action
High level alarm on filter feed Tank - LAH203	Warning	Excess flow from Plant 2/3 MDU Transfer pump.	(1) Ensure automatic control valve is closed.
High level alarm on filter feed Tank - LAH203A	Warning	Excess flow from Plant 2/3 MDU Transfer pump.	(1) Ensure automatic control valve is closed.
High level alarm on the EIMCO filter basin (LAH104A or LAH104B)	Emergency	(1) Pump J-104 flow rate is set too high. (2) Filter is inoperative. (3) overflow valve HOV-223 closed. (4) overflow line plugged.	(1) Stop pump J-104 and check pump flow rate. (2) Check EIMCO filter is operational. (3) Open valve HOV-223. (4) Unplug overflow line.
High level alarm on filter feed tank F43-203	Emergency		Stop Plant 2/3 transfer.
High level alarm on filter feed tank F43-203A	Emergency		Stop Plant 2/3 transfer.

RESPONSES TO ALARM CONDITIONS
Table 1

DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
East Filter inlet	EEF1	CLOSED		
East filter drain	EFD1	CLOSED		
Combined filter drain	EFD2	OPEN		
To floor sump	FD1	CLOSED		
Filter drain to Tank F-104	FD2	CLOSED		
Filtrate to receiver	FL3	OPEN		
Filtrate to receiver	FL4	OPEN		
To filtrate pumps	FL5	CLOSED		
To filtrate pumps	FL6	CLOSED		
Inlet to #7 filtrate pump	FL8	CLOSED		
Discharge from #9 filtrate pump	FL9	CLOSED		
Discharge from #7 filtrate pump	FL10	CLOSED		
Filtrate	FL11	CLOSED		
Filtrate	FL12	CLOSED		
Filtrate	FL13	CLOSED		
Filtrate	FL14	CLOSED		
Filtrate	FL15	CLOSED		
Filtrate	FL16	CLOSED		
Inlet to #8 filtrate pump	FL17	CLOSED		
Discharge from #8 filtrate pump	FL18	CLOSED		
Filtrate	FL19	CLOSED		
Filtrate	FL20	CLOSED		
Filtrate	FL26	CLOSED		
Inlet to North Transfer	FLT1	CLOSED		
Filtrate drain	FLT2	CLOSED		
North Transfer Pump discharge	FLT3	CLOSED		
Inlet to South Transfer Pump	FLT4	CLOSED		
Filtrate	FLT5	CLOSED		
South Transfer Pump discharge	FLT6	CLOSED		
Recycle to 25A (blinded)	FLT7	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 1 of 5)

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DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Filtrate discharge header	FLT8	OPEN		
To D-104	FLT9	CLOSED		
Filtrate discharge header	FLT11	OPEN		
Filtrate to Tanks 21A, 22A, and 28A	FLTO-1	CLOSED		
Filtrate header	FLTO-2	OPEN		
Filtrate to header	FLTO-3	CLOSED		
Filtrate header	FLTO-4	CLOSED		
Filtrate header	FLTO-5	CLOSED		
To General Sump	GS1	OPEN		
To Plants 5, 6, 9 and Tank Farm	GS2	CLOSED		
Filtrate to Plant 2/3	HOV-124	CLOSED		
Filtrate to General Sump	HOV-125	CLOSED		
Filtrate to Plant 2/3	HOV-131	CLOSED		
Inlet to Tank F43-203	HOV-200	CLOSED		
Hose connection	HOV-201	CLOSED		
Hose connection	HOV-202	CLOSED		
Inlet to Tank F43-203	HOV-203	CLOSED		
Hose connection	HOV-205	CLOSED		
Hose connection	HOV-206	CLOSED		
Pump J-104 suction	HOV-216	CLOSED		
Inlet to Tank F43-203A	HOV-210	CLOSED		
Hose connection	HOV-211	CLOSED		
Hose connection	HOV-212	CLOSED		
Inlet to Tank F43-203A	HOV-213	CLOSED		
Hose connection	HOV-214	CLOSED		
Hose connection	HOV-215	CLOSED		
Hose connection	HOV-217	CLOSED		
Hose connection	HOV-218	CLOSED		
Pump J-104 discharge	HOV-219	CLOSED		
Hose connection	HOV-220	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 2 of 5)

DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Hose connection	HOV-221	CLOSED		
Filter overflow	HOV-223	OPEN		
Hose connection	HOV-224	CLOSED		
Filter overflow return to Tank F43-203A	HV-203A	CLOSED		
Tank F43-203A outlet	HV-203B	CLOSED		
Filter overflow return to Tank F43-203	HV-203C	CLOSED		
Tank F43-203 outlet	HV-203D	CLOSED		
Air to pump J-104	HOV-354	CLOSED		
Precoat Tank outlet	PC1	CLOSED		
South precoat pump suction	PC2	CLOSED		
South precoat pump discharge	PC3	CLOSED		
North precoat pump suction	PC4	CLOSED		
North precoat pump discharge	PC5	CLOSED		
Precoat to Large EIMCO filter	PC6	CLOSED		
Precoat discharge	PC7	CLOSED		
Precoat to East and West EIMCO filters	PC8	CLOSED		
Precoat to East EIMCO filter	PC11	CLOSED		
Precoat to West EIMCO filter	PC12	CLOSED		
Plant air	PU1	OPEN		
Plant air	PU2	CLOSED		
Plant air	PU3	OPEN		
Plant air	PU4	OPEN		
Seal water to South Transfer pump	PU5	CLOSED		
Seal water to South Precoat pump	PU12	CLOSED		
Seal water to North Precoat pump	PU13	CLOSED		
Plant air to sandpiper pump	PU38	CLOSED		
Plant air to Transfer pumps	PU53	CLOSED		
Plant air to Transfer pumps	PU54	CLOSED		
Process water #7 filtrate pump	PU61	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 3 of 5)

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DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Process water #7 filtrate pump	PU62	CLOSED		
Seal water to #7 filtrate pump	PU63	CLOSED		
Process water #8 filtrate pump	PU64	CLOSED		
Process water #8 filtrate pump	PU65	CLOSED		
Seal water to #8 filtrate pump	PU66	CLOSED		
Process water #9 filtrate pump	PU68	CLOSED		
Recirculation Pressure Indicator	PU70	OPEN		
Hose connection in filtrate line (capped)	PU71	CLOSED		
Process water at East filter	PU72	CLOSED		
Hose connection on Process water	PU73	CLOSED		
Process water	PU74	OPEN		
Water to East vacuum pump G43-114A	PU92	CLOSED		
Recirculation to vacuum pump	PU93	CLOSED		
Process water	PU95	CLOSED		
Process water to filter drain	PU97	CLOSED		
Plant air	PU98	CLOSED		
Plant air	PU99	CLOSED		
Process water to vacuum pump	PU100	OPEN		
Hose connection to Plant air	PU101	CLOSED		
Hose connection to Plant air	PU102	CLOSED		
Air to filter drain	PU114	CLOSED		
Process water to Precoat Tank	PU117	CLOSED		
Plant air supply	PU149	OPEN		
Water to East vacuum pump G43-114A	PU171	OPEN		
Water to East vacuum pump G43-114A	PU172	OPEN		
Hose connection to East filter	PU186	CLOSED		
Instrument air supply	PU189	OPEN		
Instrument air to FV203	PU190	OPEN		
Instrument air to FV203A	PU191	OPEN		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 4 of 5)

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DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Inlet to filtrate recirculating pump	R1	OPEN		
Filtrate recycle to East vacuum pump G43-114A	R2-E	CLOSED		
Tank F-104 outlet	SF12	CLOSED		
Tank D-105 outlet	SF5	CLOSED		
Digester discharge header	SF8	OPEN		
To ALPHA and BRAVO pumps	SFB8	CLOSED		
To West EIMCO filter	SFODS7	CLOSED		
Inlet to West EIMCO filter	SFODS9	CLOSED		
Precoat to tank F-105	SFS1	CLOSED		
Sandpiper pump discharge	SFS3	CLOSED		
Sandpiper pump to East EIMCO filter	SFS4	CLOSED		
Slurry feed to West EIMCO filter	UF1	CLOSED		
Slurry feed to East EIMCO filter	UF2	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 5 of 5)

-6944

EQUIPMENT LOG	SWITCH LOCATION	SWITCH POSITION	VERIFIER Operator	VERIFIER Supervisor
F43-203 Agitator	East of Tank F43-203 on ground floor column	OFF		
F43-203A Agitator	West of Tank F43-203A on ground floor column	OFF		
#7 Filtrate Pump	On pump north of Tank 25A	OFF		
#8 Filtrate Pump	On pump north of Tank 25A	OFF		
#9 Filtrate Pump	On pump north of Tank 25A	OFF		
Feed Pump J-104	South of F43-203 on floor	OFF		
Vacuum Pump G43-113	Second floor, south of small Eimco filters	OFF		
Vacuum Pump G43-114A	Second floor, south of small Eimco filters	OFF		
Filter Basin Agitator	East EIMCO Filter Panel Board	OFF		
Filter Knife Drive	East EIMCO Filter Panel Board	OFF		
Filter Agitator	East EIMCO Filter Panel Board	OFF		
Filter Drum Drive	East EIMCO Filter Panel Board	OFF		
Drumming Station HEPA	On Portable HEPA Unit	OFF		
F104 Tank Agitator	Northeast of F104 on Platform	OFF		
Precoat Tank Agitator	Panel Board above Precoat Tank	OFF		
Precoat Dump Exhaust	Panel Board above Precoat Tank	OFF		

INITIAL POWER SUPPLY AND SWITCH POSITION VERIFICATION LOG
EAST EIMCO FILTER OPERATION
Table 3 (Sheet 1 of 2)

EQUIPMENT LOG	SWITCH LOCATION	SWITCH POSITION	VERIFIER Operator	VERIFIER Supervisor
North Precoat Pump	Panel north of Precoat Tank	OFF		
South Precoat Pump	Panel North of Precoat Tank	OFF		
Sandpiper Pump	N/A	OFF		
Filtrate Recirculating Seal Water Pump	Ground floor north of Tank 25A	OFF		
25A Tank Agitator	Panel North of Precoat Tank	OFF		
North Transfer Pump	Panel North of Precoat Tank	OFF		
South Transfer Pump	Panel North of Precoat Tank	OFF		

OPERATOR VERIFIER IDENTIFICATION:

Name (Print)	Initial	Badge No.	Date

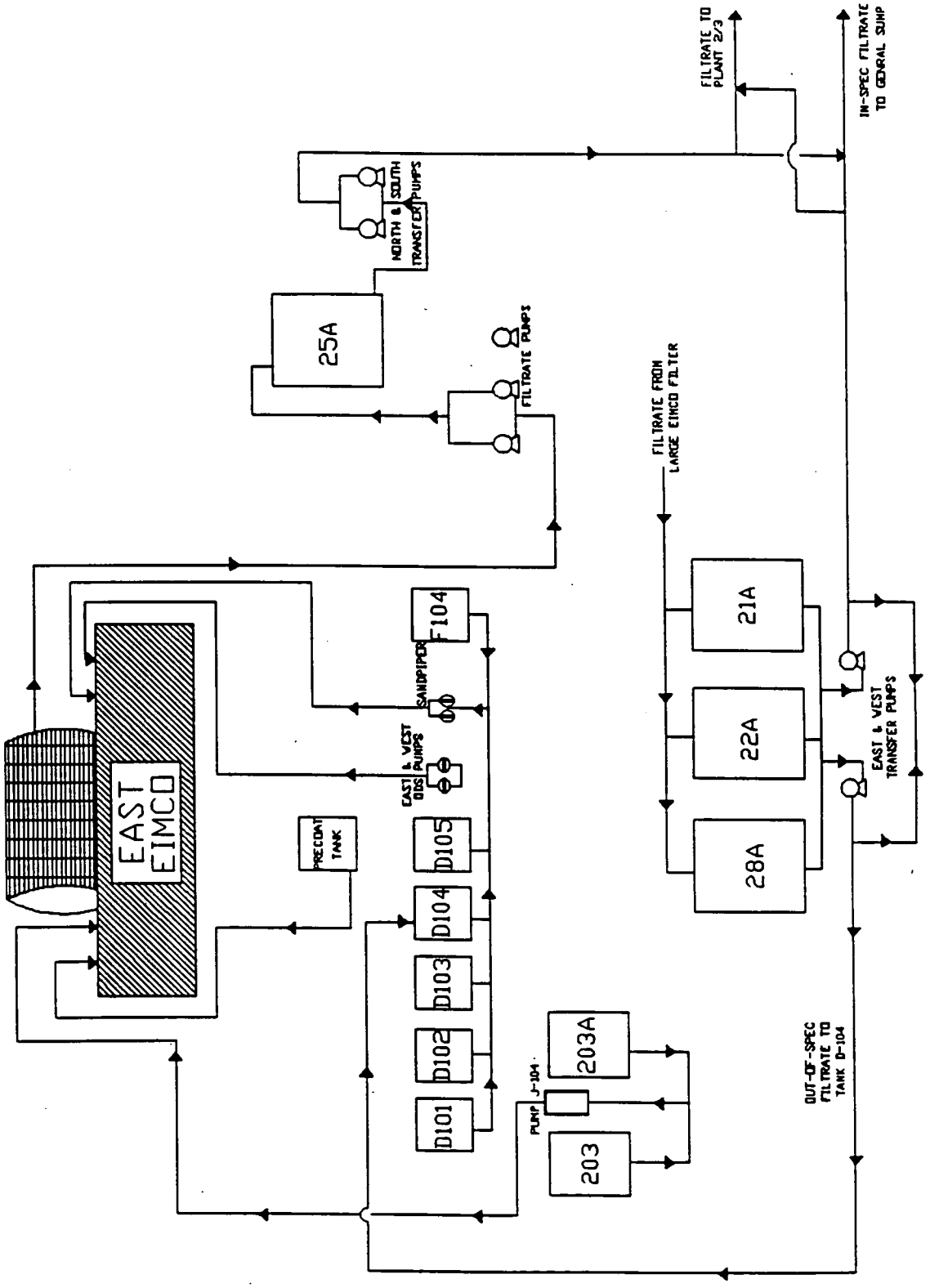
SUPERVISOR VERIFIER IDENTIFICATION

Name (Print)	Initial	Badge No.	Date

INITIAL POWER SUPPLY AND SWITCH POSITION VERIFICATION LOG
EAST EIMCO FILTER OPERATION
Table 3 (Sheet 2 of 2)

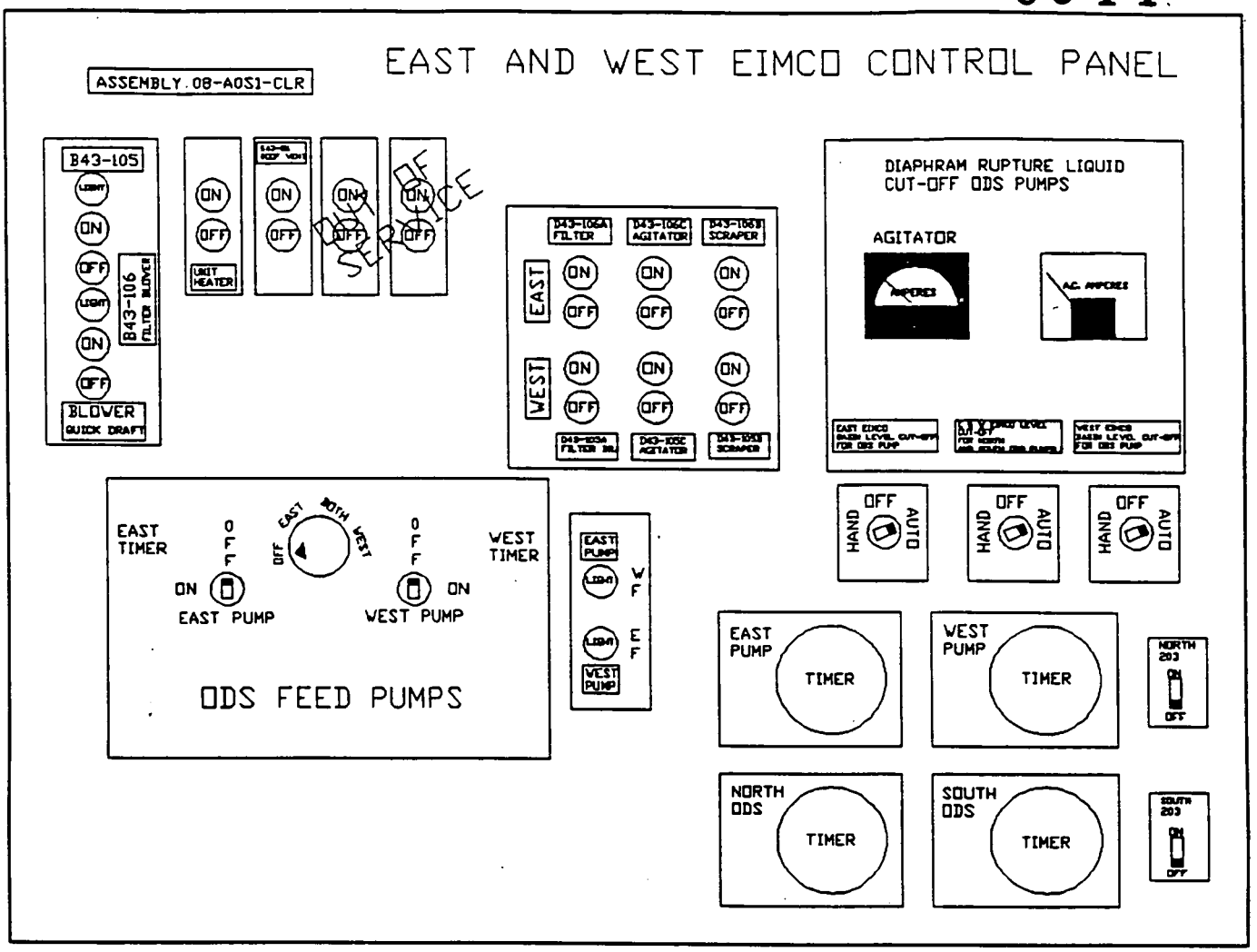
Malfunction	Cause	Corrective Action
Pump J-104 does not operate when Tank F43-203 is being used.	Valve alignment is wrong.	Check that valves HV-203C, HV-203D, HOV-216 are open and HV-203A and HV-203D are closed.
Pump J-104 does not operate when Tank F43-203A is being used.	Valve alignment is wrong.	Check that valves HV-203A, HV-203B, HOV-216 are open and HV-203C and HV-203D are closed.
Pump J-104 stops.	(1) Line plugged upstream of pump suction. (2) Valves closed upstream of pump suction. (3) Low level in Tank. (4) Totalizer set-point is reached. (5) Main diaphragm failure in pump.	(1) Unplug line upstream of pump suction. (2) Check valve alignment. (3) No action - tank is empty. (4) No action- Transfer complete. (5) Place the filter on stand-by or shutdown filter.
Pump J-104 stops due to high pressure.	(1) Line plugged downstream of pump discharge. (2) Valves closed downstream of pump discharge.	(1) Unplug line downstream of pump discharge. (2) Check valve alignment.

RESPONSES TO MALFUNCTIONS
Table 4

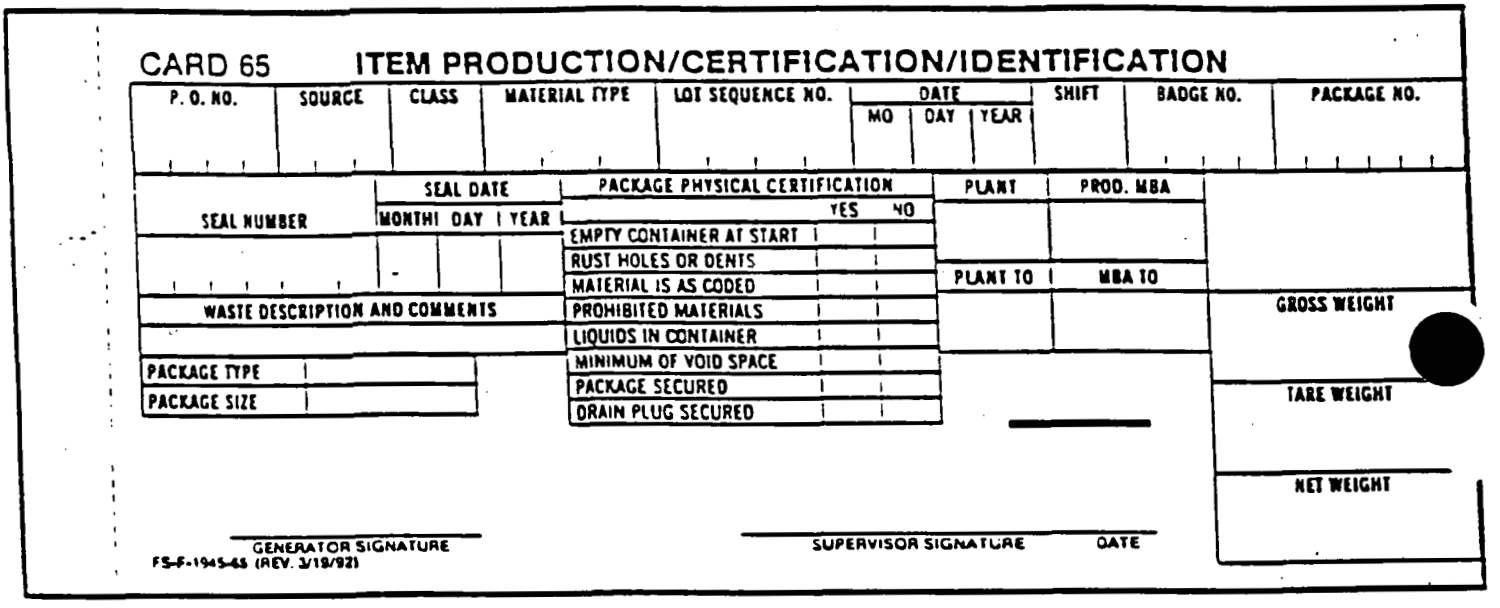


EAST EIMCO FILTER FLOW DIAGRAM
Figure 1

-6944



EAST AND WEST EIMCO FILTER CONTROL PANEL
Figure 2



CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR
	-		

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

65 CARD
ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FORM NO. FS-F-1945-XX
Figure 3

FEMP

RECOVERY PLANT - PLANT 8

SAMPLE LOG

(For Samples Submitted to Analytical Dept.)

SAMPLE NUMBER	TIME SAMPLE TAKEN	DATE	TANK, DIGESTER OR MATERIAL	ANALYSES			TIME ANALYSES RECEIVED

FEMP
RSO - ANALYTICAL

Form Number: ____ ____ ____

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page ____ of ____

PROJECT:

FOR SAMPLE RELATED PROBLEMS, CONTACT
ORGANIZATION:

☐ PLAN NO.: OR ☐ PROJECT NO.:

PROJECT MANAGER/ENGINEER:

NAME: PHONE:

SAMPLER: PHONE:

SAMPLER REMARKS:

CHARGE NUMBER: LOT MARKING CODE:

SAMPLER SIGNATURE/S:

SEND RESULTS TO:

CHECK FOR: ☐ S & A LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

ITEM NO.	SAMPLE NUMBER	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO. OF CONTAINERS	ANALYTE CODE - (UNITS CODE)	REMARKS
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO.	DISTRIBUTION OF COPIES
1	LABORATORY
2	REQUESTED
3	SAMPLER

FS-F-3361 (REV 3/94)

SITE-WIDE ANALYSIS REQUEST/23 CUSTODY RECORD
FORM NO. FS-F-3361
Figure 5

-6944

Date: _____

Batch # _____

Filter Used _____

MDU to be received _____ _____

Tank F43-203 level prior to MDU receipt

Tank F43-203A level prior to MDU receipt _____

Tank F43-203 level after MDU receipt _____

Tank F43-203A level after MDU receipt _____

Pump J-104 start time _____

Pump J-104 flow rate (gpm) _____

Final FQI104 reading _____
(Quantity transferred to Filter)

Filtrate (Tank 25A) Pump Log

a) Destination _____

b) Sample analysis results _____U(g/l)

Filter Cake Lot Numbers _____

_____

_____

Operator _____

Process Engineer _____

MDU FILTRATION BATCH SHEET
Attachment A

4660 -

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
05-31-94	0	Document required for East EIMCO Filter operation per Request No. P93-1287, initiated by C.A. Glassmeyer. SOP 08-C-608 in conjunction with SOP 08-C-609 replaces SOP 08-C-605.
10-04-94	1	Revised to update current procedure per Request No. P94-0495, initiated by T. Huey.
11-23-94	0	Reissued to current requirements and format per Request No. P94-0546, initiated by T. Arnold.
12-28-94	0	Reissued to update current procedure per Request No. P94-0632, initiated by T. Arnold.

REMEDIATION SUPPORT OPERATIONS PROCEDURE	West EIMCO Filter Operation	08-C-609 TECHNICAL PROCEDURE

(Signature on File) Authorization: D. Brettschneider, UNH Project Manager	Supersedes: 08-C-609 Dated: 11-23-94	Issue Date: 12-28-94

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1.0 PURPOSE

1.1 The purpose of this document is to establish procedures for safe operation of the Plant 8 West EIMCO filter.

2.0 SCOPE

2.1 The scope of this procedure consists of the following:

2.1.1 Filtering MDU slurry from Tanks F43-203 and F43-203A through the West EIMCO Filter in Plant 8.

2.1.2 Sampling the filtrate and filter cake.

2.1.3 Storing the filtrate.

2.1.4 Transferring the filtrate to the General Sump or Plant 2/3.

2.1.5 Drumming the filter cake for shipment and disposal.

3.0 APPLICABLE DOCUMENTS

3.1 Source Documents

3.1.1 M-116, "Facility Owner's Standing Orders for Plant 8 Filtration and Volatile Organic Compound (VOC) Treatment Systems"

3.1.2 D10-00-020, "Remediation Support Operations Division Document System"

3.1.3 RM-0012, "Quality Assurance Program Description"

3.1.4 D10-00-007, "RSO Division Conduct of Operations Policy"

3.2 Reference Documents

3.2.1 RM-0005, "FEMP Lot Marking and Color-Coding System"

3.2.2 20-C-807, "Inspection of Plant 2/3 (Refinery) and Plant 8 Safety Shower/Eye Bubbler Stations"

3.2.3 20-C-912, "Checking Scale Operation"

3.2.4 20-C-606, "Hazardous Material Spill Clean-up"

3.2.5 MS 08-BN/E-490-2, "Disposal of Waste Filtrate and Effluent"

3.2.6 20-C-918, "Install Lid and Ring on Product Drum".

3.2.7 SSOP-0719, "FERMCO LOCKOUT/TAGOUT (Hazardous Energy and Material Control) Procedure"

3.2.8 RSO-HSP-1005, "Project Specific Health and Safety Plan for the Neutralization and Stabilization of UNH Solutions at Plant 2\3 and 8."

3.0 APPLICABLE DOCUMENTS (cont.)

3.2.9 20-C-806, "Waste Sampling for Hazardous Identification"

4.0 DEFINITIONS

4.1 West EIMCO Filter - Rotary vacuum filter that is 6 feet in diameter and 10 feet long.

4.2 Feed Tanks - Tanks F43-203 and F43-203A used to hold MDU Slurry prior to filtration.

4.3 Precoat Material - A dry, powdered diatomaceous earth, such as Dicalite, that will be mixed with water and vacuumed onto the filter cloth to provide a surface for the collection of solids from waste water.

4.4 Filter Cake - Solids produced during filtration. The cake is scraped from the filter drum and is packaged in drums.

4.5 Filtrate - The clean water produced during filtration.

4.6 Filtrate Receiving Tank 25A - Tank located inside Plant 8, used to collect and hold filtrate from the East or West EIMCO filters during filtration of UNH.

4.7 Magnesium Diuranate - (MDU) - Compound produced by neutralization of uranyl nitrate with magnesium hydroxide.

4.8 Uranyl Nitrate Hexahydrate (UNH) - Uranium dissolved in nitric acid. Als referred to as UNH.

4.9 Ensure - Make certain that an activity has taken place or a condition exists per specified requirements (by action if necessary).

4.10 Verify - Confirm that a specified activity has occurred or a stated condition exists. If the activity or condition do not exist, the Process Leader shall be notified to investigate the condition.

5.0 RESPONSIBILITIES

5.1 Operations Manager

5.1.1 Coordination of all personnel and activities required for the safe processing of the site UNH inventory.

5.2 Process Engineer

5.2.1 See Manual M-116 for description of responsibilities. Additional responsibilities specific to the UNH project include the preparation of the batch sheets for use in operations.

5.0 RESPONSIBILITIES (cont.)

5.3 **Plant 8 Facility Owner**

5.3.1 See Manual M-116 for description of responsibilities.

5.4 **Process Leader**

5.4.1 See Manual M-116 for description of responsibilities.

5.5 **Process Supervisor**

5.5.1 See Manual M-116 for description of responsibilities.

5.6 **Operator**

5.6.1 See Manual M-116 for description of responsibilities.

6.0 GENERAL

6.1 Responses to Emergency Conditions are addressed in Section 8.9.

6.2 Warnings, Cautions and Notes shall precede the Item, Step, or Sub-Step, Section, or Sub-Section to which they apply.

6.3 "Initial Valve Position Log Sheet" (Table 2) identifies the normal position of the valves prior to operation and at any point that the process is shutdown. This log will be completed prior to the initial start-up of the UNH process.

6.4 "Initial Power Supply and Switch Position Verification Log" (Table 3) identifies the normal position of power supply and control switches prior to operation and at any point that the process is shutdown. This log will be completed prior to the initial start-up of the UNH process.

6.5 The scale used to weigh product drums shall be maintained as per procedure 20-C-912, "Checking Scale Operation."

6.6 Product drums prepared to receive filter cake shall be marked per RM-0005, "FEMP Lot Marking and Color-Coding System."

6.7 Filter cake shall be packaged in 55-gallons drums with plastic liners.

6.8 Tanks F43-203 and F43-203A shall be used to hold MDU Slurry prior to filtration.

6.9 Filtrate generated from filtration of MDU slurry shall be collected in Tank 25A only.

6.0 GENERAL (cont.)

6.10 Filtrate shall be pumped either to the General Sump or to Plant 2/3 Tank F1-25 or F1-26. The destination of filtrate depends on the Analytical sampling results and dilution/rinse water requirements in Plant 2/3.

6.11 Figure 1 is a simplified flow diagram for EIMCO filter operations.

6.12 RCRA samples will be taken per procedure 20-C-806, "Waste Sampling for Hazardous Identification".

7.0 HEALTH AND SAFETY REQUIREMENTS

7.1 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

7.2 Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submitting bioassay samples (e.g. blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

7.3 All Health and Safety requirements are addressed in the Project Specific Health and Safety Plan.

8.0 PROCEDURE

8.1 West EIMCO Filter Operation

8.1.1 **Receiving Magnesium Diuranate (MDU) Slurry from Plant 2/3**

NOTE: Plant 2/3 Process Leader will notify Plant 8 Process Leader by radio when to prepare to receive MDU slurry.

A. Obtain copy of batch sheet from Process Supervisor.

8.0 PROCEDURE (cont.)

NOTE: Quantity of MDU Slurry to be received is given on the batch sheet.

B. Verify quantity of MDU to be transferred with Plant 2/3 Process Leader.

NOTE: High level in either Tank F43-203 or F43-203A will sound an alarm and automatically close the inlet valve.

C. IF Tank F43-203 is the first receiving tank,
THEN follow Steps below:

1. Open valve HOV-200.

2. Open valve HOV-203.

3. Inform Plant 2/3 Process Leader to start transfer.

4. Record beginning tank level and time on batch sheet.

5. IF receipt of liquid cannot be verified within five (5) minutes of start of transfer,
THEN inform the Plant 2/3 Operator to stop the pump and investigate the problem.

6. WHEN the liquid level reaches the mark shown on indicator LI203,
THEN start the agitator.

7. WHEN the Tank F43-203 approaches full,
THEN open Tank F43-203A inlet valves HOV-213 and HOV-210,
AND close Tank F43-203 inlet valves HOV-203 and HOV-200,
AND verify flow into Tank F43-203A using level indicator.

NOTE 1: Plant 2/3 Operator will notify Plant 8 Operator when transfer is complete.

NOTE 2: Plant 2/3 Operator will notify Plant 8 Operator when rinse will start.

8. WHEN Plant 2/3 Operator notifies Plant 8 Operator that transfer is complete and rinse has started,
THEN verify rinse water flow into Tank F43-203A.

9. WHEN the rinse is complete as notified by Plant 2/3 Operator,
THEN close Tank F43-203A inlet valves HOV-213 and HOV-210.

10. Record final level in Tanks F43-203 and F43-203A on the batch sheet.

8.0 **PROCEDURE** (cont.)

D. IF Tank F43-203A is the first receiving tank, THEN follow Steps below:

1. Open valve HOV-210.

2. Open valve HOV-213.

3. Inform Plant 2/3 Process Leader to start transfer.

4. Record beginning tank level and time on batch sheet.

5. IF receipt of liquid cannot be verified within five (5) minutes of start of transfer, THEN inform the Plant 2/3 Operator to stop the pump and investigate the problem.

6. WHEN the liquid level reaches the mark shown on indicator LI203A, THEN start the agitator.

7. WHEN the Tank 203A approaches full, THEN open Tank F43-203 inlet valves HOV-203 and HOV-200, AND close Tank F43-203A inlet valves HOV-213 and HOV-210, AND verify flow into Tank F43-203 using level indicator.

   NOTE 1: Plant 2/3 Operator will notify Plant 8 Operator when transfer is complete.

   NOTE 2: Plant 2/3 Operator will notify Plant 8 Operator when rinse will start.

8. WHEN Plant 2/3 Operator notifies Plant 8 Operator that transfer is complete and rinse has started, THEN verify rinse water flow into Tank F43-203.

9. WHEN the rinse is complete, THEN close Tank F43-203A inlet valves HOV-203 and HOV-200.

10. Record final level in Tanks F43-203A and F43-203 on the batch sheet.

8.1.2 **Routine West EIMCO Filter Start-up and Operation**

A. Prepare precoat per Section 8.3.1 and return to Step 8.1.2 B.

B. Position a tare-weighed, pre-marked, color-coded drum in the drumming station in accordance with Section 8.2 and return to Step 8.1.2 C.

C. Prepare the Filtrate Transfer System as per Section 8.1.3 and return to Step 8.1.2 D.

0088

REMEDIATION SUPPORT OPERATIONS
TEMPORARY CHANGE NOTICE (TCN)

ONLY ONE TCN CHANGE PERMITTED PER DOCUMENT PAGE

1. **NOTE: TCN not valid without Supervisor signature, Manager initials and Operator signature (when required).**

SUPERVISOR: Dennis WcWhorter EXT: 6256 SIGNATURE: (Signature on File)

OPERATOR: James Kirby EXT: 6256 SIGNATURE: (Signature on File)

DOCUMENT OWNER: D. Brettschneider SUPV. ORG.: RSO/OP CHARGE NUMBER: 3BPE1

2. EFFECTIVE DATE OF CHANGE: 01-13-95

3. EXPIRATION DATE OF CHANGE: 06-13-95 ***NOTE: Maximum effective period six months.***

4. AFFECTED DOCUMENT NUMBER: 08-C-609

NON-CONTROLLED COPY

5. AFFECTED PAGE NUMBER 9

6. DOCUMENT ISSUE DATE: 12-28-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.2 K is revised to read as follows:

K. Adjust the filter feed pump speed (using air Valve PU231) to maintain a liquid level in the filter bas that produces a damp filter cake.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TC TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

8.0 **PROCEDURE** (cont.)

D. Prepare the MDU Slurry Feed System per Section 8.1.4 and return to Step 8.1.2 E.

E. Precoat the West Filter in accordance with Section 8.3.2 through 8.3.6 and return to Step 8.1.2 F.

F. Start the transfer of MDU slurry to the filter as per Section 8.1.5 and return to Step 8.1.2 G.

G. Visually verify that the precoat is sealed with feed slurry.

H. Engage the manual clutch for the knife advance mechanism to ensure that there is an automatic advance of the knife at the desired speed.

I. Adjust the knife advance hand wheel on the knife drive for a light precoat cut.

J. Adjust the drum rotation speed using the hand wheel as necessary to maintain the filter cake at the desired consistency.

K. Adjust the filter feed pump speed (using air valve HOV-354) to maintain a liquid level in the filter basin that produces a damp filter cake.

L. IF the South Precoat pump was used,
THEN perform the following valve alignment:

1. Close valve PC1.
2. Close valve PC2.
3. Close valve PC3.
4. Close valve PC8.
5. Close valve PU12.

M. IF the North Precoat pump was used,
THEN perform the following valve alignment:

1. Close valve PC1.
2. Close valve PC4.
3. Close valve PC5.
4. Close valve PC7.
5. Close valve PC8.
6. Close valve PU13.

8.0 PROCEDURE (cont.)

NOTE: Spray is used to rinse soluble nitrate components from th filter cake.

N. IF directed by the Supervisor,
THEN open the water spray valve.

NOTE: High solids feed slurry will fill the product drum more quickly than low solids feed slurry.

O. Check the product drum as frequently as required for the material being filtered.

P. WHEN the product drum is full,
THEN replace the drum per Section 8.1.8,
AND return to Step 8.1.2.Q.

Q. Check the level in the feed tank in use every hour. (Feed tank level indicators are located on the Pump J-104 skid).

R. WHEN the feed tank is empty,
THEN change feed tank as per Section 8.1.6,
AND return to Step 8.1.2.S.

S. WHEN slop tank F-104 becomes full,
THEN feed the tank contents to the filter when possible per Section 8.1.7,
AND return to Step 8.1.2.T.

T. WHEN the filter precoat reaches the minimum acceptable thickness,
THEN perform Steps 1 or 2 below,
AND return to Step 8.1.2.U.

1. IF a complete precoat is to be performed,
THEN shut down and clean the filter per Section 8.1.11,
AND precoat the filter per Section 8.3.

2. IF the existing filter precoat is to be capped,
THEN clean the filter basin per Section 8.1.12
AND cap the filter using the precoat Section 8.3.

U. Check the level in the filtrate receiving Tank 25A every hour on the gauge in the Control Room.

V. WHEN the filtrate receiving Tank 25A is full,
THEN contact the Plant 2/3 Process Leader to verify if Plant 2/3 can receive filtrate.

NOTE: Filtrate transfer to Plant 2/3 from Tank 25A can take place without sampling and while the filter is operating.

W. IF Plant 2/3 can receive filtrate,
THEN transfer in accordance with Section 8.6 and continue operat the filter.

8.0 PROCEDURE (cont.)

X. IF Plant 2/3 cannot receive filtrate,
THEN follow Steps 1 - 5 below:

1. Place the filter in stand-by per Section 8.1.9.

2. Sample the filtrate tank per Section 8.4.1.

3. WHEN the filtrate analysis results are received,
THEN record results on the batch sheet.

4. IF the filtrate is in-specification,
THEN pump filtrate to the General Sump per Section 8.5.

5. IF the filtrate is out-of-specification,
THEN pump the filtrate to Plant 2/3 per Section 8.6 when Plant 2/3 is able to receive filtrate.

6. Restart the filter per Section 8.1.10 after the filtrate transfer has been completed.

8.1.3 **Preparing the Filtrate Transfer System**

NOTE: #9 Filtrate Pump is the primary filtrate pump for the West EIMCO filter. #8 Filtrate Pump is the secondary filtrate pump.

A. IF #9 filtrate pump is to be used,
THEN perform the following valve alignment:

1. Open valve FL7.

2. Open valve PU68.

3. Open valve PU69.

4. Open valve FL9.

5. Open valve FL15.

B. IF #8 filtrate pump is to be used,
THEN perform the following valve alignment:

1. Open valve FL5.

2. Open valve FL17.

3. Open valve PU65.

4. Open valve PU66.

5. Open valve FL18.

8.0 **PROCEDURE** (cont.)

6. Open valve FL13.

7. Open valve FL15.

8.1.4 **Preparing the MDU Slurry Feed System**

A. IF feeding from Tank F43-203,
THEN follow Steps below:

1. Open valve WEF1.

2. Open valve UF-1.

3. Open valve HOV-219.

4. Open valve HOV-216.

5. Open valve HV-203D.

6. Open filter overflow valve HV-203C on Tank F43-203.

B. IF feeding from Tank F43-203A,
THEN follow Steps below:

1. Open valve WEF1.

2. Open valve UF-1.

3. Open valve HOV-219.

4. Open valve HOV-216.

5. Open valve HV-203B.

6. Open filter overflow valve HV-203A on Tank F43-203A.

C. Open air valve HOV-354.

D. Enter "99999" for the Totalizer (FQI104) as the batch setpoint.

8.1.5 **Starting the Transfer of MDU Slurry to West Filter using Pump J-104**

NOTE: The filter feed pump (J-104) will not start unless the discharge and overflow valves are both open on one filter feed tank and are both closed on the other filter feed tank.

A. Open valve SFOD9.

B. Start pump J-104 from the START/STOP switch (HS104) located on the pump skid control panel.

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1. **NOTE: TCN not valid without Supervisor signature, Manager initials and Operator signature (when required).**

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OPERATOR: James Kirby EXT: 6256 SIGNATURE: (Signature on File)

DOCUMENT OWNER: D. Brettschneider SUPV. ORG.: RSO/OP CHARGE NUMBER: 3BPE1

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5. AFFECTED PAGE NUMBER 12

6. DOCUMENT ISSUE DATE: 12-28-94 REVISION NUMBER: 0

7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.4 C is revised to read as follows:

C. Open air Valve PU230.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

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8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

8.0 **PROCEDURE** (cont.)

C. Audibly verify that the pump is running and visually verify that material is flowing into the filter basin.

D. IF pump is running but the flow is not seen at the basin within three (3) to five (5) minutes,
THEN follow the Steps 1 - 19 until the line is clear:

1. Stop pump J-104 using HS104.
2. Close valve HOV-216.
3. Connect 1" process water hose to Chicago fitting at valve HOV-206.
4. Open valve on the process water hose.
5. Open valve HOV-205.
6. Open valve HOV-206.
7. Flush water through the feed line into the Tank (either F43-203 or F43-203A) to clear the line.
8. Close valve HOV-206.
9. Close valve HOV-205.
10. Close valve on the process water hose.
11. Open the bleed valve on the process water hose.
12. Disconnect the process water hose from the Chicago fitting at valve HOV-206.
13. Close the bleed valve.
14. Connect 1" process water hose to Chicago fitting at valve HOV-218.
15. Open valve in on the process water hose.
16. Open valve HOV-217.
17. Open valve HOV-218.
18. Flush water through the feed line to the West EIMCO Filter to clear line.
19. Close valve HOV-218.

8.0 **PROCEDURE** (cont.)

20. Close valve HOV-217.

21. Close valve on the process water hose.

22. Open the bleed valve on the process water hose.

23. Disconnect the process water hose from the Chicago fitting at valve HOV-218.

24. Close the bleed valve.

25. Open valve HOV-216.

F. Adjust air valve HOV-354 at Pump J-104 to maintain level in the filter basin.

8.1.6 **Changing Feed Tank During Filtration**

NOTE: The filter feed pump J-104 cycle frequency will increase and LI203 will show low level when the tank is empty.

A. IF feed Tank F43-203 is empty and feed Tank F43-203A contains material,
THEN follow Steps 1 - 5 below:

1. Stop pump J-104 using HS104.

2. Close valves HV-203C.

3. Close valve HV-203D.

4. Open valves HV-203A.

5. Open valve HV-203B.

6. Start pump J-104 using HS104 to continue feeding the filter.

7. Verify flow at West EIMCO filter basin.

NOTE: The filter feed pump J-104 cycle frequency will increase and LI203A will show low level when the tank is empty.

B. IF feed Tank F43-203A is empty and feed Tank F43-203 contains material,
THEN follow Steps 1 - 5 below:

1. Stop pump J-104 using HS104.

2. Close Tank F43-203A HV-203A.

3. Close valve HV-203B.

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TEMPORARY CHANGE NOTICE (TCN)

-6944

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7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.5 F is changed to read as follows:

F. Open Valve PU231 at the Small EIMCO Filter.

2) Step 8.1.5 G and 8.1.5 H is added to read as follows:

G. Close Valve HOV-354.

H. Adjust air valve PU231 at filter to maintain level in the Filter Basin.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

8b. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN BUT DO NOT INCORPORATE. ALLOW TCN TO EXPIRE.

8c. ☐ EFFECTIVE PERIOD < 30 DAYS. DO NOT DISTRIBUTE. ALLOW TCN TO EXPIRE.

8.0 PROCEDURE (cont.)

4. Open valves HV-203C.

5. Open valve HV-203D.

6. Start pump J-104 using HS104 to continue feeding the filter.

7. Verify flow at West EIMCO filter basin.

C. IF feed Tanks F43-203 and F43-203A are empty, THEN follow Steps 1 - 2 below:

1. Record totalizer (FQI104) reading on the batch sheet.

2. Place filter in stand-by per Section 8.1.9 or shut down filter per Section 8.1.11.

8.1.7 **Feeding West EIMCO Filter from Tank F-104**

CAUTION

Stop feeding from Tank D-105 before starting feeding from Tank F-104.

A. Check closed valve SF5.

B. Check closed valve SFS1.

C. Close valve SF8.

D. Open valve SFS5.

E. Open valve SFS3.

F. Open valve SF12.

G. Open air valve PU38 to start transfer with Sandpiper pump.

H. When the transfer is complete, perform the following:

1. Close valve PU38.

2. Close valve SF12.

3. Close valve SFS3.

4. Close valve SFS5.

I. Open valve SF8.

8.0 **PROCEDURE** (cont.)

8.1.8 **Removing and Replacing the Product Drum**

A. Prepare a color-coded, premarked drum (Refer to RM-0005).

B. Place the drum on the drumming station conveyor.

C. Remove the lid and lock ring from the drum.

D. Store the lid and ring near the drumming station.

E. Place plastic liner in drum.

F. Open the drumming station doors.

G. Slide the full product drum along the conveyor outside the drumming station.

H. Position the empty drum in the West EIMCO drumming station under the drumming chute.

I. Close the drumming station doors.

J. When each product drum is filled, sample filter cake per Sections 8.4.2 and 8.4.3.

K. Place absorbent pad in drum directly on solids.

L. Install a lid and lock ring on the product drum as per procedure 20-C-918.

M. Using a clean towel, remove all material from the outside of the drum.

N. Place the used towels in a drum that is color-code for contaminated trash (Refer to RM-0005).

NOTE: Several drums or skids of drums may be collected in a storage area prior to weighing.

O. Using a handstacker, move the drum(s) to the scale to be used for weighing filter cake.

P. Ensure the scale has been inspected per procedure 20-C-912.

Q. Weigh each drum.

R. Record the weight on a 65 card. (See Figure 3).

S. Using a handstacker, move the product drum onto a clean skid.

8.0 PROCEDURE (cont.)

T. Notify the Supervisor that the drums are ready for storage.

U. Complete the 65 card.

V. Give the completed card to the Supervisor.

W. Move the loaded skid(s) to the storage area designated by the Supervisor.

8.1.9 **Placing the West EIMCO Filter System on Stand-by**

NOTE: The West EIMCO Filter is placed on stand-by when it is desired to maintain the precoat at its current thickness while MDU Slurry is not being filtered.

A. IF pump J-104 is operating
THEN stop pump J-104 using HS104.

B. Close filter inlet valve SFOD9.

C. Close the appropriate feed tank outlet valve as follows:

1. IF Tank F43-203 is being used to feed the filter,
THEN close the tank outlet valve HV-203D.

2. IF Tank F43-203A is being used to feed the filter,
THEN close the tank outlet valve HV-203B.

D. Continue filtering liquid in the basin until the liquid reaches a low level.

E. Maintain vacuum on the filter to prevent precoat from falling off the drum while the filter is not in use.

F. Ensure that the filter basin agitator is on to prevent solids from settling in the filter basin.

G. WHEN the basin liquid level drops to the bottom of the filter drum,
THEN cut off the residual solids on the drum to expose the precoat.

H. Slow the drum rotation.

I. Disengage the manual clutch on knife and secure with winged bolt.

J. Retract the knife from the drum surface using the hand wheel.

K. IF using #9 filtrate pump,
THEN follow the Steps below:

1. Stop #9 filtrate pump.

2. Close the seal water valve PU69.

8.0 PROCEDURE (cont.)

L. IF using #8 filtrate pump,
THEN follow the Steps below:

1. Stop #8 filtrate pump.

2. Close the seal water valve PU66.

8.1.10 **Restarting the West EIMCO Filter from Stand-by**

A. Ensure the basin agitator is running.

B. Ensure the filter drum rotation and increase drum speed.

C. Open feed valve SFOD9.

D. Start feed to the EIMCO filter as follows:

1. IF using feed Tank F43-203,
THEN open the tank discharge valve HV-203D,
AND start Pump J-104 using HS104.

2. IF using feed Tank F43-203A,
THEN open the tank discharge valve HV-203B,
AND start Pump J-104 using HS104.

E. Observe feed flow into the filter basin.

F. IF pump is running but the flow is not seen at the basin within three (3) to five (5) minutes,
THEN follow the Steps 1 - 21 until the line is clear:

1. Stop pump J-104 using HS104.

2. Close valve HOV-216.

3. Connect 1" process water hose to Chicago fitting at valve HOV-206.

4. Open valve on the process water hose.

5. Open valve HOV-205.

6. Open valve HOV-206.

7. Flush water through the feed line into the Tank being used (either F43-203 or F43-203A) to clear the line.

8. Close valve HOV-206.

9. Close valve HOV-205.

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7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.10 I is changed to read as follows:

I. Adjust air valve PU231 at filter to maintain level in the Filter Basin.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

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8.0 **PROCEDURE** (cont.)

10. Close valve on the process water hose.

11. Open the bleed valve on the process water hose.

12. Disconnect the process water hose from the Chicago fitting at valve HOV-206.

13. Close the bleed valve.

14. Connect 1" process water hose to Chicago fitting at valve HOV-218.

15. Open valve on the process water hose.

16. Open valve HOV-217.

17. Open valve HOV-218.

18. Flush water through the feed line to the West Filter to clear the line.

19. Close valve HOV-218.

20. Close valve HOV-217.

21. Close valve on the process water hose.

22. Open the bleed valve on the process water hose.

23. Disconnect the process water hose from the Chicago fitting at valve HOV-218.

24. Close the bleed valve.

25. Open valve HOV-216.

26. Start pump J-104 using HS104.

27. Verify flow into West EIMCO filter basin.

G. IF using #9 filtrate pump,
THEN open valve PU69,
AND start #9 filtrate pump.

H. IF using #8 filtrate pump,
THEN open valve PU66,
AND start #8 filtrate pump.

I. Adjust air valve HOV-354 at Pump J-104 to maintain level in the filter basin.

J. Observe the flow of filtrate into the filtrate recovery Tank 25A.

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8.0 **PROCEDURE** (cont.)

K. IF no flow is observed within five (5) minutes, THEN contact the Process Supervisor.

L. Manually advance the knife drive to the surface of the drum using the hand wheel.

M. Engage the manual clutch for the knife advance mechanism to allow the knife to advance automatically.

N. Return to routine operation of the West EIMCO Filter per Section 8.1.2.

8.1.11 **Normal Shutdown and Cleaning the West EIMCO Filter Drum and Basin**

A. Verify adequate capacity (greater than 3000 gallons) in Tank F-104 to receive residual slurry from the West EIMCO filter basin.

B. IF Pump J-104 is operating, THEN stop Pump J-104 using HS104.

C. Close air valve HOV-354.

D. Close the feed tank outlet valve as follows:

1. IF Tank F43-203 is being used to feed the filter, THEN close the tank outlet valve HV-203D.

2. IF Tank F43-203A is being used to feed the filter, THEN close the tank outlet valve HV-203B.

E. Flush the MDU Slurry lines as follows:

1. Connect 1" process water hose to the Chicago fitting at valve HOV-206.

2. Open valve on the process water hose.

3. Open valve HOV-205.

4. Open valve HOV-206.

5. Verify flow into West EIMCO filter basin.

6. Run process water until flow is clear to flush the line to the West filter.

7. Close valve HOV-206.

8. Close valve HOV-205.

9. Close valve on the process water hose.

10. Open the bleed valve on the process water hose.

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7. CHANGE (Use additional sheets of paper if necessary):
Enter each item number and associated change separately.

1) Step 8.1.11 C is changed to read as follows:

C. Close air valves as follows:

1. Close Valve PU231.

2. Close Valve PU230.

8. PROCEDURE ADMINISTRATION TCN ACTION REQUIRED (Check as Appropriate)

8a. ☐ EFFECTIVE PERIOD > 30 DAYS. DISTRIBUTE TCN AND INCORPORATE INTO AFFECTED DOCUMENT BEFORE TCN EXPIRES.

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8.0 **PROCEDURE** (cont.)

11. Disconnect the process water hose from the Chicago fitting at valve HOV-206.

12. Close the bleed valve.

F. Close filter feed valve SFOD9.

G. Perform the following valve alignment:

1. Close valve HOV-219.

2. Close valve HOV-216.

3. Close valve UF-1.

H. Clean basin per Section 8.1.12.

I. IF using #9 filtrate Pump,
THEN follow the Steps below:

1. Stop #9 filtrate pump.

2. Close the seal water valve PU69.

3. Close the seal water valve PU68.

4. Close valve FL15.

5. Close valve FL9.

6. Close pump inlet valve FL7.

J. IF using #8 filtrate pump,
THEN follow the Steps below:

1. Stop #8 filtrate pump.

2. Close valve PU65.

3. Close valve PU66.

4. Close valve FL15.

5. Close valve FL13.

6. Close valve FL18.

7. Close valve FL5.

8. Close valve FL17.

8.0 **PROCEDURE** (cont.)

K. IF the filtrate recirculating system is in use for seal water, THEN stop the Filtrate Recirculating Seal Water pump, AND close valve R4-W.

L. IF process water is in use for seal water, THEN close valve PU93.

M. Stop drum drive.

N. Stop vacuum pump G43-113.

O. Jog the filter drum by pushing the filter drum on and off push buttons to cause the precoat to fall into the filter basin.

P. Perform the following valve alignment for the filter basin drain valves.

1. Open valve FD2.

2. Open valve WFD1.

Q. Verify flow into Tank F-104.

R. Open water valve PU94 as long as needed and as determined by the Process Operator to flush the filter basin.

S. Close valve PU94 after the basin is flushed.

T. Use a process water hose to wash the filter drum and basin.

U. IF the drain line is or becomes plugged, THEN unplug the line as follows:

1. Close filter drain valve WFD2.

2. Open water valve PU95.

3. Open water valve PU91.

4. WHEN water flow is observed in the filter basin, THEN open valve WFD2.

5. Close valve WFD1.

6. WHEN water flow is heard through the pipe to Tank F-104, THEN open valve WFD1.

7. Close water valve PU91.

8. Close water valve PU95.

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8.0 PROCEDURE (cont.)

V. Close filter inlet valve WEF1.

W. WHEN draining of the West Filter is complete, THEN perform the following:

1. Close inlet valve FD2 to Tank F-104.

2. Close drain valve WFD1.

X. Close overflow valves as follows:

1. IF using tank F43-203, THEN close valve HV-203C.

2. IF using tank F43-203A, THEN close valve HV-203A.

Y. Stop the HEPA filter on drumming station.

8.1.12 **Cleaning the West EIMCO Filter Basin**

A. Perform the following valve alignment for the filter basin drain.

1. Open valve FD2.

2. Open valve WFD1.

B. Verify flow into Tank F-104.

C. Turn off the filter basin agitator.

D. Open water valve PU94 as long as needed and as determined by the Process Operator to flush the filter basin.

E. Close valve PU94 after the basin is flushed.

F. Use a process water hose to wash the filter basin.

G. IF the drain line is or becomes plugged, THEN unplug the line as follows:

1. Close filter drain valve WFD2.

2. Open water valve PU95.

3. Open water valve PU91.

4. WHEN water flow is observed in the filter basin, THEN open valve WFD2.

5. Close valve WFD1.

8.0 **PROCEDURE** (cont.)

6. WHEN water flow is heard through the pipe to Tank F-104, THEN open valve WFD1.

7. Close water valve PU91.

8. Close water valve PU95.

H. WHEN draining of the West Filter is complete, THEN perform the following:

1. Close inlet valve FD2 to Tank F-104.

2. Close drain valve WFD1.

I. Disengage the manual clutch on knife and secure with winged bolt.

J. Fully retract the knife from the drum surface using the hand wheel.

K. Open valve PU94.

L. WHEN water is near the drum surface, THEN close valve PU94.

M. IF shutting down the filter, THEN go to Section 8.1.11.I.

N. IF capping the precoat, THEN go to Section 8.3.

8.2 Prepare Product Drumming Station

8.2.1 Prepare a color-coded, premarked drum (Refer to RM-0005).

8.2.2 Place the drum on the drumming station conveyor.

8.2.3 Remove the lock ring and lid from the drum.

8.2.4 Store the lock ring and lid near the drumming station.

8.2.5 Place plastic liner in drum.

8.2.6 Start the portable HEPA vacuum.

8.2.7 Open the drumming station doors.

8.2.8 Position the empty drum in the West EIMCO drumming station under the drumming chute.

8.2.9 Close the drumming station doors.

8.0 PROCEDURE (cont.)

8.3 Precoat the West EIMCO Filter

8.3.1 Making-up Precoat

NOTE: Check the Filter Cloth for tears or cuts prior to precoating. If more than two 3-inch tears exist, contact Maintenance to recloth filter.

A. Verify adequate space (greater than 4,000 gallons) in filtrate Tank 25A for precoat filtrate and vacuum pump seal water.

B. IF less than 4,000 gallons free space exists in Tank 25A, THEN transfer filtrate using Section 8.8 before proceeding with the precoat operation.

C. Open process water valve PU117.

D. Fill the Precoat Tank approximately 2/3 full with process water.

E. Close valve PU117.

F. Start the Precoat Tank Agitator.

G. Start the Precoat Tank Ventilation Exhaust Fan.

H. Verify differential pressure greater than 0.5 inch of H_2O vacuum.

WARNING

Wear the respiratory protection specified by Industrial Hygiene to prevent inhalation of precoat material.

I. Open and dump the required number of bags of precoat material (27 bags for full precoat, 12 bags for capping or as directed by Process Supervisor) in the precoat dumping station.

J. Fold empty bags at dumping station and place into plastic bag.

K. Stop off the Precoat Tank Ventilation Exhaust Fan.

8.3.2 Preparing to start the Precoat Pump

NOTE: The Process Leader will direct which Precoat Pump is to be used.

A. IF transferring precoat to the West EIMCO Filter through the South Precoat Pump,
THEN follow the Steps below:

1. Check closed valve PC6.

2. Open valve PC12.

8.0 **PROCEDURE** (cont.)

3. Open valve PU12 to start seal water flow to the South Precoa Pump.

4. Open valve PC8.

5. Open valve PC3.

6. Open valve PC2.

7. Open valve PC1.

B. IF transferring precoat to the West EIMCO Filter through the North Precoat Pump,
THEN follow the Steps below:

1. Check closed valve PC6.

2. Open valve PC12.

3. Open valve PU13 to start seal water flow to the North Precoat Pump.

4. Open valve PC8.

5. Open valve PC7.

6. Open valve PC5.

7. Open valve PC4.

8. Open valve PC1.

8.3.3 **Starting the West EIMCO Filter for Precoat Application**

A. Start basin agitator by pressing the AGITATOR START pushbutton (D43-105C) on the East and West EIMCO Filter control panel (See Figure 2).

B. Ensure that knife is fully retracted and manual clutch is disengaged.

C. Start the Knife Drive using the pushbutton labeled D43-106B on the control panel.

D. Start filter drum rotation by pressing the FILTER pushbutton (D43-105A) on the East and West EIMCO Filter control panel.

E. Adjust drum rotation to maximum using the handwheel.

8.0 PROCEDURE (cont.) -6944

8.3.4 Starting the West Vacuum Pump (G43-113) Seal Water Recirculation System

NOTE: The vacuum pump cooling water recirculation system normally uses filtrate from Tank 25A to cool and seal the vacuum pump. This minimizes the amount of water used to cool and seal the vacuum pump. This system should be used anytime Tank 25A contains more than 10 units of filtrate.

A. IF the level in Tank 25A is less than 10 units,
THEN open process water inlet valve PU93,
AND check flow into Tank 25A.

B. IF at anytime the Tank 25A level is 10 units or greater, as indicated by the level indicator located in the MCC room on the first floor,
THEN proceed as follows:

1. Open valve R4-W.

2. Start the Filtrate Recirculating Seal Water pump.

3. IF water inlet valve PU93 is open,
THEN close valve PU93.

4. Visually check for cooling water flow at the Tank 25A return line junction.

C. IF no flow is seen,
THEN follow Steps below:

1. Stop the recirculating pump.

2. Open valve PU93 to use process water to cool and seal the vacuum pump.

3. Close valve R4-W.

4. Inform the Process Supervisor about no flow in the recirculation system and investigate the problem.

5. WHEN the recirculation system is fixed,
THEN go to Step 8.3.4.B.

8.3.5 Start Precoat Pump

A. Wet the filter cloth using the spray bar.

B. Start the appropriate precoat pump.

C. Verify transfer of precoat to the filter basin.

8.0 **PROCEDURE** (cont.)

D. Operate precoat pump, valve PU94, or valve PC12 throughout the precoat operation to maintain the liquid level in the basin and to keep precoat from overflowing into Tanks F43-203 or F43-203A.

E. IF a hole opens in the precoat,
THEN plug hole with a ball of tissue.

CAUTION

Do not allow the Precoat Tank agitator blade to rotate freely above the liquid level; otherwise damage to the blade will occur.

F. WHEN the slurry level in the precoat tank reaches the top of the agitator blade (as verified visually) while transferring from the Precoat Tank,
THEN turn off the Precoat Tank Agitator.

G. WHEN the precoat slurry is 8 to 12 inches below the overflow,
THEN start West Vacuum Pump G43-113.

H. Start the appropriate filtrate pump (#7 or #8) as prepared in Section 8.1.3.

I. Verify filtrate flow to Tank 25A.

8.3.6 Preparing to Shutdown the Precoat System

A. WHEN the precoat tank is empty,
THEN open the water valve PU117.

B. WHEN the Precoat feed to the basin becomes clear (visually verify at filter,
THEN close valve PU117.

C. IF using South Precoat Pump,
THEN stop pump,
AND close valve PC12.

D. IF using North Precoat Pump,
THEN stop pump,
AND close valve PC12.

8.4 Sample Plant 8 Filtrate Tanks

NOTE: Analytical sampling of filtrate is required prior to transfer to the General Sump.

8.4.1 Sampling Filtrate for Analytical Lab

A. WHEN filtrate Tank 25A > 80 % full,
THEN collect a grab sample from the top of the tank with the stainless steel dipper.

8.0 PROCEDURE (cont.)

B. Transfer filtrate from the dipper to two 4-ounce sample jars and place a lid on each jar.

C. Wipe the jars and dipper with a towel.

D. Dispose of the towel in the contaminated trash drum.

E. Deliver both sample jars to the sample station.

F. Secure the sample lids with tamper proof tape and initial the tape.

G. Complete the required sampling documentation.

H. Record the date, time, sample numbers and tank numbers on a "Sample Log", Form No. FMPC-OPR-1632 (See Figure 4).

I. Complete a Site-Wide Analysis Request/23 Custody Record", Form No. FS-F-3361 (See Figure 5).

NOTE: For transfer to General Sump only, the uranium content shall be less than or equal to 0.048 g/l the copper (Cu) content shall be less than 1 ppm and the filtrate pH shall be 7 or greater.

J. Request analysis for U g/l, Cu ppm and pH measurement.

K. Complete a standard sample label, FMPC-PRO-303 for each sample jar.

L. Affix the prepared labels to the sample jars.

M. Deliver both samples and Site-Wide Analysis Request/Chain of Custody form to the Analytical Lab.

8.4.2 Filter Cake Sampling

NOTE: Analytical sampling of the filter cake is required by waste packaging and waste shipping procedures.

WARNING

Wear respiratory protection issued by the Supervisor if the filter cake becomes dry at any point during this process, to prevent contamination. Minimum respiratory protection is a full-face air-purifying respirator equipped with magenta or magenta and yellow cartridge.

NOTE: A composite sample will be collected for each lot of filter cake 60 drums or complete MDU batch, whichever is less. All samples from the lot will be placed in the same 1-gallon sample jar.

A. Sample drums of filter cake.

8.0 **PROCEDURE** (cont.)

1. Collect two teaspoons of filter cake from each drum and place into 1-gallon glass jar.

2. Place the lid on the sample jar.

3. Rinse the sample spoon in clean water after collecting samples for each drum of filter cake.

4. Dry sample spoon with clean paper towels.

5. Dispose of paper towel in contaminated trash drum.

6. Place an absorbent pad directly on the material in the full drum.

7. Install a lid and lock ring on the drum of filter cake per procedure 20-C-918.

8. Using a clean paper towel, remove all material from the outside of the drum.

9. Dispose of paper towel in contaminated trash drum.

B. Repeat Steps 8.4.2.A.1 through 8.4.2.A.9 until a 60-drum lot or MDU batch of filter cake is sampled.

C. Complete required sampling paperwork for both sample jars.

1. Record the date, time, sample number, and drum number on a "Sample Log", Form FMPC-OPR-1632 (See Figure 4).

NOTE 1: One form to request analysis for Percent (%) Uranium and Percent (%) Moisture. This sample will go to the Analytical Lab.

NOTE 2: One form to request "RCRA Analysis per Sampling Plan for UNH Sump Cake". This sample will go to RCRA Sampling Area.

2. Complete a "Site-Wide Analysis Request/23 Custody Record", Form FS-F-3361 (See Figure 5).

3. Complete standard sample label, FMPC-PRO-303 for the sample jar.

4. Affix a standard sample label to both 1-gallon glass sample jars.

D. Deliver sample and Site-Wide Analysis Request/Custody Record form to Analytical Lab.

8.0 PROCEDURE (cont.)

8.4.3 **Sampling for Waste Characterization**

A. Sample per procedure 20-C-806 "Waste Sampling for Identification".

1. Determine sample quantity for each characteristic from the sample matrix.

2. Complete required forms for each sample per sample matrix.

8.5 Transfer Tank 25A In-Specification Filtrate to the General Sump

NOTE: To be within specifications, the uranium content shall be less than or equal to 0.048 g/l the copper (Cu) content shall be less than 1 ppm and the filtrate pH shall be greater than 7.0.

8.5.1 Verify that the analytical results for the filtrate tank to be pumped are within specification.

8.5.2 IF the results are not within specification,
THEN do not proceed and notify the Process Leader.

8.5.3 **Transferring Tank 25A Filtrate to General Sump using North Transfer Pump**

NOTE: The Process Leader will determine which filtrate pump is to be used.

A. Contact the General Sump Operator and request permission to pump filtrate.

B. Check closed valve FLT-9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve HOV-131.

F. Check closed valve HOV-125.

G. Open valve FLTO-5.

H. Open valve FLTO-4.

I. Open valve FLT3.

J. WHEN permission to transfer is received from the General Sump Operator,
THEN open Tank 25A discharge valve FLT1.

K. Start the North Transfer Pump.

L. Contact the General Sump Operator to verify flow into the General Sump filtrate tank.

8.0 PROCEDURE (cont.)

M. WHEN Tank 25A is at 10 units on tank level chart, THEN stop the North Transfer Pump.

N. Close valve FLT1.

O. Notify the General Sump Operator that the transfer is complete.

WARNING

The line from Plant 8 cannot be drained because of a check valve in the transfer line at the General Sump. Leaving water in this line during periods of cold weather will plug the line and can rupture gaskets.

P. IF the outside atmospheric temperature is less than 40°F, THEN follow Steps 1 - 3 below:

1. Notify General Sump that air is going to be used to clean the line.

2. Open process air valve PU2 to blow filtrate to the General Sump tank for 30 minutes.

3. Close valve PU2.

4. Close valve FLT3.

Q. Close valve FLTO-5.

R. Close valve FLTO-4.

8.5.4 **Transferring Tank 25A Filtrate to General Sump using South Transfer Pump**

A. Contact the General Sump Operator and request permission to pump filtrate.

B. Check closed valve FLT-9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve HOV-131.

F. Check closed valve HOV-125.

G. Open valve FLTO-5.

H. Open valve FLTO-4.

I. Open valve FLT6.

J. Open valve PU5.

8.0 PROCEDURE (cont.) -6944

K. WHEN permission to transfer is received from the General Sump Operator,
THEN open Tank 25A discharge valve FLT4.

L. Start the South Transfer Pump.

M. Contact the General Sump Operator to verify flow into the General Sump filtrate Tank.

N. WHEN Tank 25A is at 10 units on tank level chart,
THEN stop the South Transfer Pump.

O. Close valve FLT4.

P. Close valve PU5.

Q. Close valve FLT6.

R. Notify the General Sump Operator that the transfer is complete.

WARNING

The line from Plant 8 cannot be drained because of a check valve in the transfer line at the General Sump. Leaving water in this line during periods of cold weather will plug the line and can rupture gaskets.

S. IF the outside atmospheric temperature is less than 40°F,
THEN follow Steps 1 - 3 below:

1. Notify General Sump that air is going to be used to clean the line.
2. Open FLT3.
3. Open process air valve PU2.
4. Blow filtrate to the General Sump Tank for 30 minutes.
5. Close valve PU2.
6. Close valve FLT3.

T. Close valve FLTO-5.

U. Close valve FLTO-4.

8.0 PROCEDURE (cont.)

8.6 Transfer Filtrate to Plant 2/3

NOTE: All off-specification filtrate from Tank 25A will go to Plant 2/3. In-specification filtrate can also go to Plant 2/3. The Process Leader will decide which pump shall be used.

8.6.1 Transferring Tank 25A Filtrate to Plant 2/3 with North Transfer Pump

A. Contact the Plant 2/3 Process Leader to request permission to pump filtrate.

B. Check closed valve FLT9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve FLTO-4.

F. Check closed valve HOV-124.

G. Verify that Operators are in place to monitor the filtrate pipe during the transfer (per Supervisor's instructions).

H. Open valve HOV-131.

I. Open valve FLT3.

J. WHEN permission to transfer is received from the Plant 2/3 Operator,
THEN open Tank 25A discharge valve FLT1.

K. Start the North Transfer Pump.

L. Contact the Plant 2/3 Operator to verify flow into the Plant 2/3 dilution/neutralization Tank.

M. WHEN Tank 25A is at 10 units on tank level chart,
THEN stop the North Transfer Pump.

N. Close valve FLT1.

O. Close valve FLT3.

P. Close valve HOV-131.

Q. Notify the Plant 2/3 Operator that the transfer is complete.

8.0 PROCEDURE (cont.)

8.6.2 Transferring Tank 25A Filtrate to Plant 2/3 with South Transfer Pump

A. Contact the Plant 2/3 Process Leader to request permission to pump filtrate.

B. Check closed valve FLT9.

C. Check closed valve FLTO-1.

D. Check closed valve FLTO-3.

E. Check closed valve FLTO-4.

F. Check closed valve HOV-124.

G. Verify that Operators are in place to monitor the filtrate pipe during the transfer (per Supervisor's instructions).

H. Open valve PU-5.

I. Open valve FLT6.

J. Open valve HOV-131.

K. WHEN permission to transfer is received from the Plant 2/3 Operator,
THEN open Tank 25A discharge valve FLT4.

L. Start the South Transfer Pump.

M. Contact the Plant 2/3 Operator to verify flow into the Plant 2/3 dilution/neutralization Tank.

N. WHEN Tank 25A is at 10 units on tank level chart,
THEN stop the South Transfer Pump.

O. Close valve FLT4.

P. Close valve PU5.

Q. Close valve FLT6.

R. Close valve HOV-131.

S. Notify the Plant 2/3 Operator that the transfer is complete.

8.0 **PROCEDURE** (cont.)

8.7 Emergency Shutdown of the West EIMCO Filter for Plant 8 Evacuation

8.7.1 Stop pump J-104 using Emergency Stop button at filter.

NOTE: The filter basin agitator, drum rotation and vacuum pump shall remain on.

8.7.2 Stop filter drum and knife using Emergency Stop button at filter.

8.8 Start-up after Emergency Shutdown

8.8.1 Start pump J-104 using HS104.

8.8.2 Restart drum and knife by pressing Start button.

8.8.3 Return to routine operation of the EIMCO filter per Section 8.1.2.

8.9 Response to Emergency Conditions

8.9.1 **Leaks from Piping, Flanges, or Valves**

A. Stop any pump(s) that are operating in the leaking pipe system.

B. Collect leaking material in a portable bucket or container.

8.9.2 **Leaks from Pumps**

A. Stop pump.

B. Close inlet and discharge valves closest to pump.

C. Take necessary actions to ensure leaking material is collected in a portable container or in a secondary containment area.

8.9.3 **High Level Warning Alarms**

A. Verify control valve FV203 or FV203A is closed.

B. Inform Supervisor of alarm.

C. Determine cause of alarm (See Table 1).

8.9.4 **High Level Alarm in Filter Basin**

A. Stop J-104 with Emergency Stop button or HS104.

B. Inform Supervisor of Alarm.

C. Determine cause of Alarm (See Table 1).

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8.0 **PROCEDURE** (cont.)

8.9.5 **High Level Alarm on Tank F43-203 and F43-203A**

A. Contact Plant 2/3 Operator to stop transfer.

B. Inform Supervisor of Alarm.

C. Determine cause of Alarm (See Table 1).

8.10 Troubleshooting

8.10.1 Refer to Table 4 for appropriate responses to malfunctions.

Alarm	Type	Cause	Corrective Action
High level alarm on filter feed Tank - LAH203	Warning	Excess flow from Plant 2/3 MDU Transfer pump.	(1) Ensure automatic control valve is closed.
High level alarm on filter feed Tank - LAH203A	Warning	Excess flow from Plant 2/3 MDU Transfer pump.	(1) Ensure automatic control valve is closed.
High level alarm on the EIMCO filter basin (LAH104A or LAH104B)	Emergency	(1) Pump J-104 flow rate is set too high (2) Filter is inoperative (3) overflow valve HOV-223 closed (4) overflow line plugged	(1) Stop pump J-104 and check pump flow rate. (2) Check EIMCO filter is operational. (3) Open valve HOV-223 (4) Unplug overflow line.
High level alarm on filter feed tank F43-203	Emergency		Stop Plant 2/3 transfer
High level alarm on filter feed tank F43-203A	Emergency		Stop Plant 2/3 transfer

RESPONSES TO ALARM CONDITIONS
Table 1

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DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
To floor sump	FD1	CLOSED		
Filter drain to Tank F-104	FD2	CLOSED		
Filtrate to receiver	FL1	OPEN		
Filtrate to receiver	FL2	OPEN		
To filtrate pumps	FL5	CLOSED		
To filtrate pumps	FL6	CLOSED		
Inlet to #9 filtrate pump	FL7	CLOSED		
Discharge from #9 filtrate pump	FL9	CLOSED		
Filtrate	FL11	CLOSED		
Filtrate	FL12	CLOSED		
Filtrate	FL13	CLOSED		
Filtrate	FL14	CLOSED		
Filtrate	FL15	CLOSED		
Filtrate	FL16	CLOSED		
Inlet to #8 filtrate pump	FL17	CLOSED		
Discharge from #8 filtrate pump	FL18	CLOSED		
Filtrate	FL19	CLOSED		
Filtrate	FL26	CLOSED		
Inlet to North Transfer	FLT1	CLOSED		
Filtrate drain	FLT2	CLOSED		
North Transfer Pump discharge	FLT3	CLOSED		
Inlet to South Transfer Pump	FLT4	CLOSED		
Filtrate	FLT5	CLOSED		
South Transfer Pump discharge	FLT6	CLOSED		
Recycle to 25A (blinded)	FLT7	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 1 of 5)

DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Filtrate discharge header	FLT8	OPEN		
To D-104	FLT9	CLOSED		
Filtrate discharge header	FLT11	OPEN		
Filtrate to Tanks 21A, 22A, and 28A	FLTO-1	CLOSED		
Filtrate header	FLTO-2	OPEN		
Filtrate to header	FLTO-3	CLOSED		
Filtrate header	FLTO-4	CLOSED		
Filtrate header	FLTO-5	CLOSED		
To General Sump	GS1	OPEN		
To Plants 5, 6, 9 and Tank Farm	GS2	CLOSED		
Filtrate to Plant 2/3	HOV-124	CLOSED		
Filtrate to General Sump	HOV-125	CLOSED		
Filtrate to Plant 2/3	HOV-131	CLOSED		
Inlet to Tank F43-203	HOV-200	CLOSED		
Hose connection	HOV-201	CLOSED		
Hose connection	HOV-202	CLOSED		
Inlet to Tank F43-203	HOV-203	CLOSED		
Hose connection	HOV-205	CLOSED		
Hose connection	HOV-206	CLOSED		
Inlet to Tank F43-203A	HOV-210	CLOSED		
Hose connection	HOV-211	CLOSED		
Hose connection	HOV-212	CLOSED		
Inlet to Tank F43-203A	HOV-213	CLOSED		
Hose connection	HOV-214	CLOSED		
Hose connection	HOV-215	CLOSED		
Pump J-104 suction	HOV-216	CLOSED		
Hose connection	HOV-217	CLOSED		
Hose connection	HOV-218	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 2 of 5)

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DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Pump J-104 discharge	HOV-219	CLOSED		
Hose connection	HOV-220	CLOSED		
Hose connection	HOV-221	CLOSED		
Filter overflow	HOV-223	OPEN		
Hose connection	HOV-224	CLOSED		
Air to pump J-104	HOV-354	CLOSED		
Filter overflow return to Tank F43-203A	HV-203A	CLOSED		
Tank F43-203A outlet	HV-203B	CLOSED		
Filter overflow return to Tank F43-203	HV-203C	CLOSED		
Tank F43-203 outlet	HV-203D	CLOSED		
Precoat Tank outlet	PC1	CLOSED		
South precoat pump suction	PC2	CLOSED		
South precoat pump discharge	PC3	CLOSED		
North precoat pump suction	PC4	CLOSED		
North precoat pump discharge	PC5	CLOSED		
Precoat to Large EIMCO filter	PC6	CLOSED		
Precoat discharge	PC7	CLOSED		
Precoat to East and West EIMCO filters	PC8	CLOSED		
Precoat to East EIMCO filter	PC11	CLOSED		
Precoat to West EIMCO filter	PC12	CLOSED		
Plant air	PU1	OPEN		
Plant air	PU2	CLOSED		
Plant air	PU3	OPEN		
Plant air	PU4	OPEN		
Seal water to South Transfer pump	PU5	CLOSED		
Seal water to South Precoat pump	PU12	CLOSED		
Seal water to North Precoat pump	PU13	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 3 of 5)

DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Plant air to sandpiper pump	PU38	CLOSED		
Plant air to Transfer pumps	PU53	CLOSED		
Plant air to Transfer pumps	PU54	CLOSED		
Process water #7 filtrate pump	PU61	CLOSED		
Process water #7 filtrate pump	PU62	CLOSED		
Seal water to #7 filtrate pump	PU63	CLOSED		
Process water #8 filtrate pump	PU64	CLOSED		
Process water #8 filtrate pump	PU65	CLOSED		
Seal water to #8 filtrate pump	PU66	CLOSED		
Process water to #9 filtrate pump	PU67	CLOSED		
Process water #9 filtrate pump	PU68	CLOSED		
Seal water #9 filtrate pump	PU69	CLOSED		
Recirculation Pressure Indicator	PU70	OPEN		
Hose connection in filtrate line (capped)	PU71	CLOSED		
Process water to filter drain	PU91	CLOSED		
Recirculation to vacuum pump	PU93	CLOSED		
Process water to West filter	PU94	CLOSED		
Process water	PU95	CLOSED		
Process water	PU96	OPEN		
Plant air	PU98	CLOSED		
Process water to vacuum pump	PU100	OPEN		
Hose connection to Plant air	PU103	CLOSED		
Hose connection to Plant air	PU105	CLOSED		
Air to filter drain	PU114	CLOSED		
Process water to Precoat Tank	PU117	CLOSED		
Plant air supply	PU149	OPEN		
Water to West vacuum pump G43-113	PU174	OPEN		
Water to West vacuum pump G43-113	PU175	OPEN		
Hose connection to West filter	PU187	CLOSED		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 4 of 5)

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DESCRIPTION	VALVE NUMBER	NORMAL POSITION	POSITIONER Operator	VERIFIER Supervisor
Instrument air supply	PU189	OPEN		
Instrument air to FV203	PU190	OPEN		
Instrument air to FV203A	PU191	OPEN		
Inlet to filtrate recirculating pump	R1	OPEN		
Filtrate recycle to West vacuum pump G43-113	R4-W	CLOSED		
Tank F-104 outlet	SF12	CLOSED		
Tank D-105 outlet	SF5	CLOSED		
Digester discharge header	SF8	OPEN		
To ALPHA and BRAVO pumps	SFB8	CLOSED		
To West EIMCO filter	SFODS7	CLOSED		
Inlet to West EIMCO filter	SFODS9	CLOSED		
Precoat to tank F-105	SFS1	CLOSED		
Sandpiper pump discharge	SFS3	CLOSED		
Sandpiper pump to West EIMCO filter	SFS5	CLOSED		
Slurry feed to West EIMCO filter	UF1	CLOSED		
Slurry feed to East EIMCO filter	UF2	CLOSED		
West filter inlet	WEF1	CLOSED		
West filter drain	WFD1	CLOSED		
Combined filter drain	WFD2	OPEN		

INITIAL VALVE POSITION LOG SHEET
Table 2 (Sheet 5 of 5)

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EQUIPMENT LOG	SWITCH LOCATION	SWITCH POSITION	VERIFIER Operator	VERIFIER Supervisor
F43-203 Agitator	East of Tank F43-203 on ground floor column	OFF		
F43-203A Agitator	West of Tank F43-203A on ground floor column	OFF		
#7 Filtrate Pump	On pump north of Tank 25A	OFF		
#8 Filtrate Pump	On pump north of Tank 25A	OFF		
#9 Filtrate Pump	On pump north of Tank 25A	OFF		
Feed Pump J-104	South of F43-203 on floor	OFF		
Vacuum Pump G43-113	Second floor, south of small Eimco filters	OFF		
Vacuum Pump G43-114A	Second floor, south of small Eimco filters	OFF		
Filter Basin Agitator	East EIMCO Filter Panel Board	OFF		
Filter Knife Drive	East EIMCO Filter Panel Board	OFF		
Filter Agitator	East EIMCO Filter Panel Board	OFF		
Filter Drum Drive	East EIMCO Filter Panel Board	OFF		
Drumming Station HEPA	On Portable HEPA Unit	OFF		
F104 Tank Agitator	Northeast of F104 on Platform	OFF		
Precoat Tank Agitator	Panel Board above Precoat Tank	OFF		
Precoat Dump Exhaust	Panel Board above Precoat Tank	OFF		

INITIAL POWER SUPPLY AND SWITCH POSITION VERIFICATION LOG
WEST EIMCO FILTER OPERATION
Table 3 (Sheet 1 of 2)

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EQUIPMENT LOG	SWITCH LOCATION	SWITCH POSITION	VERIFIER Operator	VERIFIER Supervisor
North Precoat Pump	Panel north of Precoat Tank	OFF		
South Precoat Pump	Panel North of Precoat Tank	OFF		
Sandpiper Pump	N/A	OFF		
Filtrate Recirculating Seal Water Pump	Ground floor north of Tank 25A	OFF		
25A Tank Agitator	Panel North of Precoat Tank	OFF		
North Transfer Pump	Panel North of Precoat Tank	OFF		
South Transfer Pump	Panel North of Precoat Tank	OFF		

OPERATOR VERIFIER IDENTIFICATION:

Name (Print)	Initial	Badge No.	Date

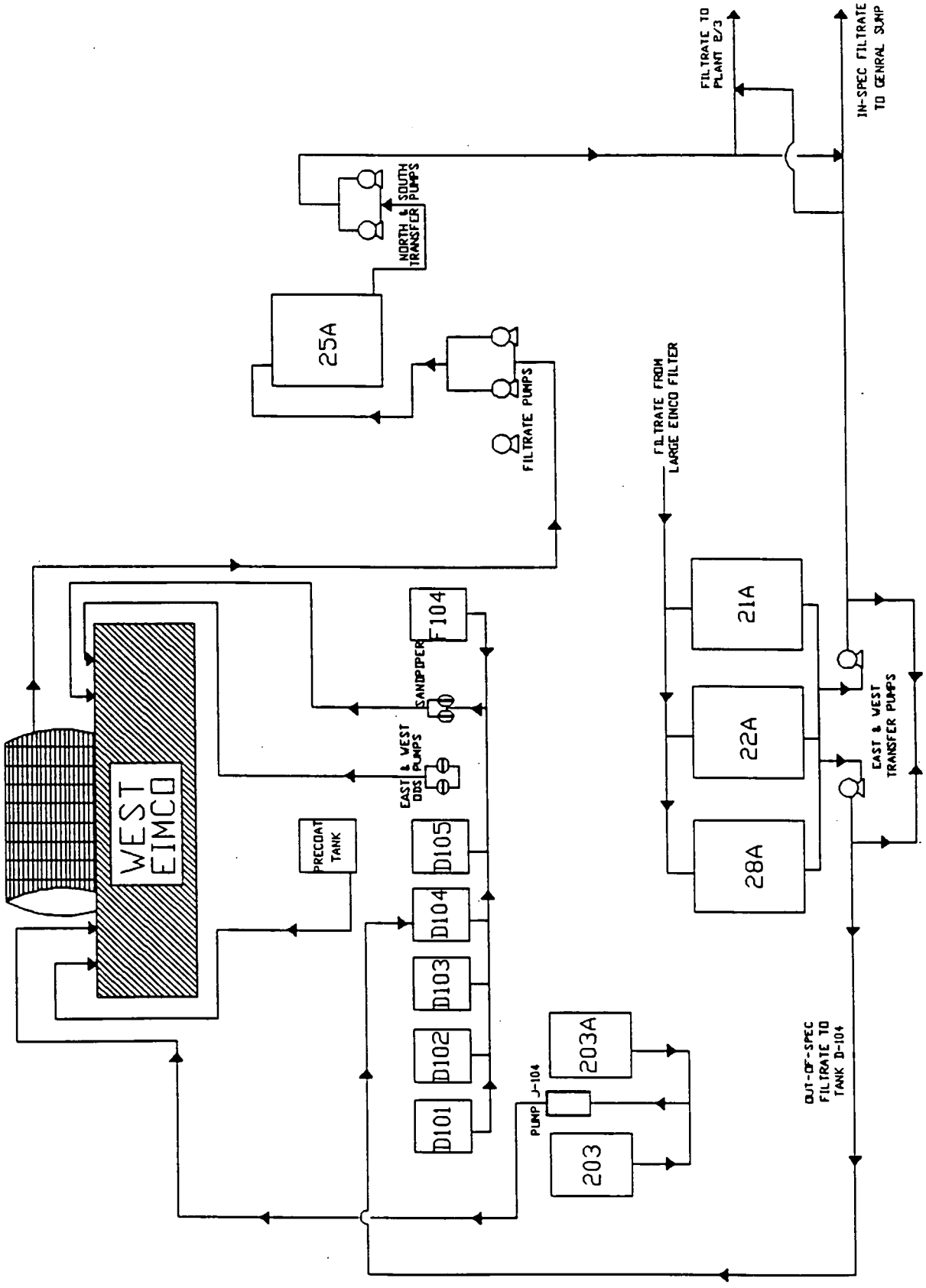
SUPERVISOR VERIFIER IDENTIFICATION

Name (Print)	Initial	Badge No.	Date

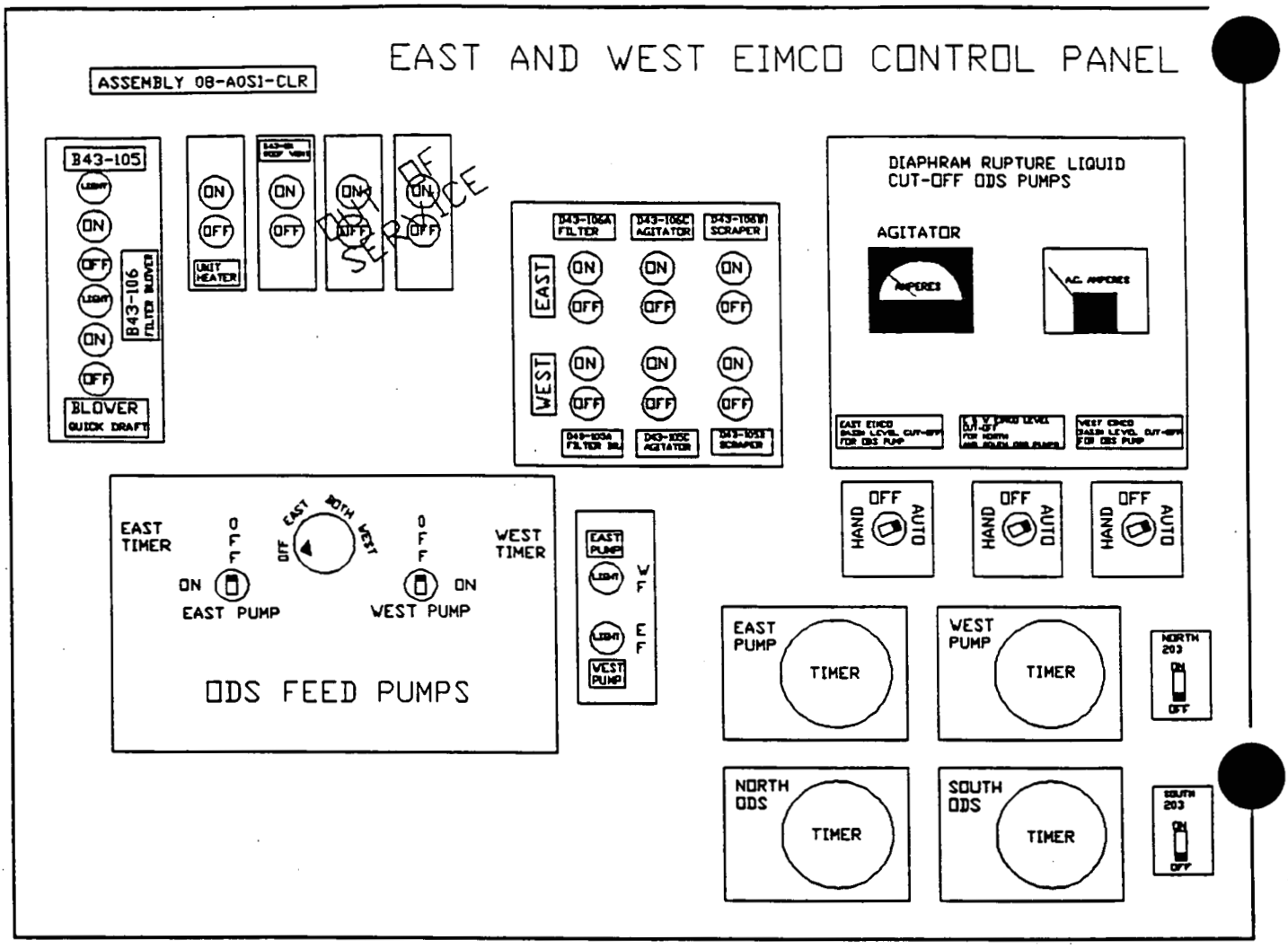
INITIAL POWER SUPPLY AND SWITCH POSITION VERIFICATION LOG
WEST EIMCO FILTER OPERATION
Table 3 (Sheet 2 of 2)

Malfunction	Cause	Corrective Action
Pump J-104 does not operate when Tank F43-203 is being used	Valve alignment is wrong.	Check that valves HV-203C, HV-203D, HOV-216 are open and HV-203A and HV-203D are closed
Pump J-104 does not operate when Tank F43-203A is being used	Valve alignment is wrong.	Check that valves HV-203A, HV-203B, HOV-216 are open and HV-203C and HV-203D are closed
Pump J-104 stops	(1) Line plugged upstream of pump suction. (2) Valves closed upstream of pump suction. (3) Low level in Tank. (4) Totalizer set-point is reached. (5) Main diaphragm failure in pump.	(1) Unplug line upstream of pump suction (2) Check valve alignment (3) No action - tank is empty (4) No action- Transfer complete. (5) Place the filter on stand-by or shutdown filter
Pump J-104 stops due to high pressure	(1) Line plugged downstream of pump discharge. (2) Valves closed downstream of pump discharge.	(1) Unplug line downstream of pump discharge (2) Check valve alignment

RESPONSES TO MALFUNCTIONS
Table 4



WEST EIMCO FILTER FLOW DIAGRAM
Figure 1



EAST AND WEST EIMCO FILTER CONTROL PANEL
Figure 2

-6944

CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-65 (REV. 3/19/92)

65 CARD
ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FORM NO. FS-F-1945-XX
Figure 3

FEMP

RECOVERY PLANT - PLANT 8

SAMPLE LOG

(For Samples Submitted to Analytical Dept.)

SAMPLE NUMBER	TIME SAMPLE TAKEN	DATE	TANK, DIGESTER OR MATERIAL	ANALYSES			TIME ANALYSES RECEIVED

-6944

FEMP
RSO - ANALYTICAL

Form Number: ____ ____ ____

SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page ____ of ____

PROJECT:

FOR SAMPLE RELATED PROBLEMS, CONTACT

☐ PLAN NO.: OR ☐ PROJECT NO.:

ORGANIZATION:

PROJECT MANAGER/ENGINEER:

NAME: PHONE:

SAMPLER: PHONE:

SAMPLER REMARKS:

CHARGE NUMBER: LOT MARKING CODE:

SAMPLER SIGNATURE/S:

SEND RESULTS TO:

CHECK FOR: ☐ S & L LAB ☐ SIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

ITEM NO	SAMPLE NUMBER	CUSTOMER NUMBER	SAMPLE POINT	MATRIX CODE	COLLECTED DATE	COLLECTED TIME	CONTAINER/ VOLUME	COMPOSITE	GRAB	NO OF CONTAINERS	ANALYTES CODE - (UNITS CODE)	REMARKS
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME	ITEM/REASON	RELINQUISHED BY	RECEIVED BY	DATE	TIME

NO	DISTRIBUTION OF COPIES
1	LABORATORY
2	PROJECT FILE
3	SAMPLER

SITE-WIDE ANALYSIS REQUEST/23 CUSTODY RECORD
FORM NO. FS-F-3361
Figure 5

Date: _____

Batch # _____

Filter Used _____

MDU to be received _____ _____

Tank F43-203 level prior to MDU receipt

Tank F43-203A level prior to MDU receipt _____

Tank F43-203 level after MDU receipt _____

Tank F43-203A level after MDU receipt _____

Pump J-104 start time _____

Pump J-104 flow rate (gpm) _____

Final FQI104 reading _____
(Quantity transferred to Filter)

Filtrate (Tank 25A) Pump Log

a) Destination _____

b) Sample analysis results _____U(g/l)

Filter Cake Lot Numbers _____

_____

_____

Operator _____

Process Engineer _____

MDU FILTRATION BATCH SHEET
Attachment A

-6944

RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-03-94	0	Document required for West EIMCO Filter operation per Request No. P93-1288, initiated by C.A. Glassmeyer. This document together with SOP 08-C-608 supersede the information in SOP 08-C-605.
10-04-94	1	Revised to update current procedure per Request No. P94-0496, initiated by T. Huey.
11-23-94	0	Reissued to update procedure current requirements and format per Request No. P94-0547, initiated by T. Huey.
12-28-94	0	Reissued to update procedure per Request No. P94-0633, initiated by T. Arnold.

-6944

NON-CONTROLLED COPY

NON-CONTROLLED COPY

CONTROL NO. FER-0018
SITE PROCEDURE PT-0001 (SSOP-0003)
REVISION NO. 1

RECEIVING, ON-SITE MOVEMENT AND OFF-SITE SHIPMENT OF NONRADIOACTIVE HAZARDOUS MATERIAL

Effective Date: 04-30-92

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: MLWest 2/15/95
Michael L. West, Manager of Packaging and Transportation — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

CONTROL NO. FER-0018
SITE PROCEDURE EW-0012 (SSOP-1025)
REVISION NO. 0

TANK/SUMP CONTENTS REMOVAL

Effective Date: 06-09-94

NON-CONTROLLED COPY

Originator (Subject Expert): _____ Date

Checker Concurrence: _____ Date

APPROVED BY: _____ 2/15/95
Terence D. Hagen, Manager of Environmental Restoration and Waste Management — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

CONTROL NUMBER _____ -6944

SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-1025
REVISION NO. 0

TANK/SUMP CONTENTS REMOVAL

NON-CONTROLLED COPY

SSOP-1025

Effective Date: 06-09-94

AUTHORIZED BY: _____ 5/27/94
D. Ofte, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-09-94	0	New procedure needed to cover removal of tank/sump contents initiated by J. W. Ogg per Site Request No. S93-177.

1.0 PURPOSE

This document provides the procedure for removing the contents of tanks/sumps located at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This Fernald Environmental Restoration Management Corporation (FERMCO) procedure applies to the pumping of contents from all tanks and sumps located at the FEMP into receiving containers.

For tanks/sumps designated as Hazardous Waste Management Units (HWMU), additional requirements may be specified in a closure plan.

3.0 DEFINITIONS

Compatible Container - A container, usually a drum, that is approved by Logistics Administration to be compatible with the material to be accumulated.

End of Day - Time when work ceases; end of first, second, or third shift.

Work Zone - An area established around the area of work that controls personnel access.

Hazardous Waste - A material which is listed on the Environmental Protection Agency Hazardous Waste List or exhibits any of the following four characteristics: ignitability, corrosivity, reactivity, or exceeds Toxicity Characteristic Leaching procedure limits. Both "listed" and "characteristic" wastes are regulated under RCRA.

Receiving Container - A drum or other type of vessel used to contain material. A receiving container must be empty or contain only waste or residue of the same type it is intended to receive.

Release - Any unplanned event involving spilling, leaking, pumping, pouring, injecting, escaping, emitting, emptying, leaching, releasing, dumping, discharging, or disposing of hazardous waste onto the ground, into water, or into the air, within or beyond the boundaries of the FEMP.

Resource Conservation and Recovery Act (RCRA) - The Congressional Act which establishes safe and environmentally acceptable management practices for specific wastes. RCRA requires strict "cradle to grave" control and proper management of hazardous wastes.

4.0 RESPONSIBILITIES

Operators

- Perform required operations of this procedure.
- Follow all posted safety requirements.
- Wear protective clothing and respiratory equipment as provided by the supervisor.

Assigned Supervisor

- Coordinates and/or notifies all support organizations of assistance required per this procedure and referenced procedures.
- Coordinates the transfer of tank/sump contents and drumming of tank/sump contents into proper containers per this procedure.
- Ensures only trained personnel perform work related to this procedure.
- Obtains content removal equipment.
- Immediately reports a spill or other abnormal event to the Assistant Emergency Duty Officer (AEDO) and submits Supervisor's Report of Injury (FS-F-170).
- Contacts Industrial Hygiene and Radiological Safety to determine the appropriate respiratory protection and/or additional protective clothing for the process being performed.
- Requests a radiological survey of area and equipment before operation to establish proper radiological controls for the job.
- Provides operators with the required respiratory protection and protective clothing.
- Ensures that flash point and final disposition samples of tank/sump liquid have been taken if a Material Evaluation Form does not exist for the material.
- Ensures compliance with the Task Specific Health & Safety Plan for this task, if applicable.
- Determines whether tanks/sumps are empty.

4.0 **RESPONSIBILITIES** (cont.)

Industrial Hygiene Section

- Monitors for organic vapors including personal air sampling as appropriate.
- As requested, determines if a Task Specific Health and Safety Plan is required to perform the task and assist in the development of the plan.

Radiological Control Section

- Provides support for the project by reviewing work packages and ensuring work plans incorporate controls necessary for compliance with site radiation safety standards.
- Provides radiological surveillance of job site and equipment as required.
- Issues a Radiological Work Permit, if necessary, based on pre-job surveys.
- As requested, determines if a Task Specific Health and Safety Plan is required to perform the task and assist in the development of the plan.

Safety and Fire Field Services and Safety and Fire Protection Engineering

- Provides support for the project by assuring that all work is performed in a safe manner and in compliance with all applicable FEMP Safety and Fire Regulations.
- Provides all fire prevention equipment and materials.
- Provides fire fighting equipment (if necessary).
- Performs field inspections as necessary to verify safety and fire regulation compliance at the job site. Reports any violations to the supervisor and the involved FERMCO organization(s).
- Monitors for air contaminates or explosive gas concentrations when the cap is removed from the tanks/sumps.
- Assists in development of training requirements.

Transportation provides containers as specified by Logistics Administration and Transportation Regulatory Compliance in accordance with Department of Transportation (DOT) regulations.

4.0 **RESPONSIBILITIES** (cont.)

Materials Control and Accountability (MC&A) provides barcode labels, as applicable and performs inventory tracking of the materials generated.

Remediation Support Operations (RSO)

- Obtains characterization results to determine final disposition of contents in tank/sump.
- Disposes of tank/sump contents.
- Disposes of detergent waste from cleaning of transfer equipment.

Waste Programs Management

- Determines storage locations of drummed waste per applicable procedures.
- Specifies, in consultation with Transportation Regulatory Compliance, receiving containers compatible with tank/sump contents.
- Determines disposition of detergent waste from cleaning of transfer equipment.

5.0 **GENERAL**

The content of some tanks/sumps may have radioactive as well as hazardous constituents.

6.0 **PREREQUISITES**

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

1. All actions of this procedure shall be in compliance with the Task Specific Health and Safety Plan applicable to the specific tank/sump.
2. The contents of detergent waste containers resulting from the cleaning of transfer equipment shall be handled as potentially radioactive and/or hazardous waste.
3. All removed contents shall remain onsite until final disposition requirements are defined.
4. A defined safety system is not involved.
5. Safety glasses shall be worn unless otherwise specified by ES&H.

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

6. Respiratory protection provided by the supervisor shall be worn when required.

7. Face shields shall be worn when removing bungs from containers with hazardous liquids. Goggles or face shields shall be worn during operations where a possibility exists of personnel being splashed with hazardous liquids.

8. A rubber apron or splash suit shall be worn if there is a possibility of being splashed with caustic, acids, or any other chemical which could cause skin damage upon contact.

9. Leather-palm gloves shall be worn when handling drums, operating equipment, and when handling rough, sharp-edged, or contaminated materials.

10. Neoprene rubber gloves shall be worn when handling hazardous chemical waste where skin contact is possible.

11. For any spill, take immediate steps to minimize or contain, and notify supervisor. If a spill is determined to be hazardous waste, the spill shall be handled per SOP 20-C-606.

12. Any spill of tank/sump contents or detergent waste will require the AEDO, Safety & Fire Inspector, and Radiation Safety to be immediately notified. Radiological Safety will perform a survey, assist in establishing a barricaded area, and post the area as necessary.

13. Personnel safety equipment (eyewashers, fire extinguishers, safety showers) shall be operational and readily available for emergencies.

14. Portable eyewashers shall have a sticker attached indicating last flush/fill is not over six months old.

15. All transfers of flammable liquids shall have all the containers banded together and grounded.

16. Drum lids shall have bung openings.

6.1 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS (cont.)

17. Any circumstance which could have resulted in an intake of radioactive/hazardous waste materials by inhalation, ingestion, or absorption, shall immediately be reported to a supervisor or in the supervisor's absence, the AEDO. The supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control and Industrial Hygiene Departments for evaluation and any immediate action such as decontamination. The involved employees shall report to Medical Services at the end of their shift or as directed to submit a urine sample and again report at the start of their next shift to submit another urine sample.

6.2 PERSONNEL REQUIREMENTS

Personnel shall be certified in the use of Personal Protective Equipment (PPE) and shall be trained in the handling of contaminated liquids.

6.3 HEALTH AND SAFETY PLAN

Radiological Control and Industrial Hygiene shall be notified by the assigned supervisor to determine if a Task Specific Health and Safety Plan is required to perform this task.

6.4 TOOLS AND MATERIALS REQUIRED

- Air or electrical pump (non-sparking, as applicable)
- Weighted hose
- Check valve and suction strainer
- Secondary containment vessel
- Container labelling supplies
- Container with detergent solution
- Indelible ink marker
- Black paint, red paint, white paint (as applicable)
- Applicable drum labels
- Lab label tape and dispenser

6.5 WORK ZONE

Prior to the start of work, the work zone shall be constructed and its control established using barriers and caution signs.

6.6 WASTE CHARACTERIZATION

1. The supervisor shall submit a Material Evaluation Form (MEF) verification form to Waste Characterization for the waste being removed.

2. A Material Evaluation Form (MEF) shall be completed to categorize the liquid as RCRA or Non-RCRA.

   NOTE: A numbered MEF may be obtained from Waste Management Records and initiated per SSOP-0002, "Completing the Material Evaluation Form."

3. ES&H shall be given a copy of the sample results for development of a Health and Safety Plan, as applicable.

4. A sample may be required for radionuclides as determined by supervision.

7.0 PROCEDURE

NOTE: Within this section, Warnings and Cautions precede the step to which they apply. Notes follow the step to which they apply.

7.1 PREPARING FOR THE TRANSFER OF MATERIALS FROM TANKS/SUMPS TO CONTAINERS

SUPERVISOR

1. Check that the material has been characterized and the disposition of the material determined.

   NOTE: Any unknown material that has not been characterized before removal shall be transferred to the 90 day holding area for characterization after removal.

2. If the tank/sump is designated as a HWMU, obtain the closure plan and implement any additional requirements.

3. Ensure appropriate storage is available for receiving containers.

   NOTE: Adequate storage area shall be identified before receiving containers can be filled.

4. Ensure barricades and caution signs have been placed around work zone.

7.1 PREPARING FOR THE TRANSFER OF MATERIALS FROM TANKS/SUMPS TO CONTAINERS (cont.)

OPERATORS

CAUTION

USE OF DIRTY PUMPS, TRANSFER EQUIPMENT, AND TANK/SUMP EXIT NOZZLES CAN CAUSE CROSS CONTAMINATION.

5. Check that pumps, transfer equipment, and tank/sump exit nozzle are clear of loose contamination; if not clear, notify supervisor.

6. Contact Radiological Safety to survey the area, equipment, and the nozzle through which the tank/sump contents will flow.

7. Notify Transportation to deliver compatible receiving containers.

7.2 DAILY TRANSFER OF MATERIAL FROM TANKS/SUMPS TO CONTAINERS

SUPERVISOR

1. Complete the following checklists (Attachments A through D):

   - FS-F-3703, "Tank/Sump Content Removal-Authorized Personnel List"
   - FS-F-3704, "Tank/Sump Content Removal-Supervisor's Daily Startup Checklist"
   - FS-F-3705, "Tank/Sump Content Removal-Equipment Checklist"
   - FS-F-3706, "Tank/Sump Content Removal-Container Area Checklist"

2. Notify Quality Control prior to startup of tank/sump content removal task.

OPERATORS

3. Fill out an "Item Production/Certification/Identification" card, Form FS-F-1945-XX (see Attachment E) as follows:

   a. Record the FEMP Lot Marking Code per RM-0005 in the areas titled "P.O. No.", "Source", "Material Class", and "Material Type".

7.2 DAILY TRANSFER OF MATERIAL FROM TANKS/SUMPS TO CONTAINERS (cont.)

OPERATORS

b. Record a general description of the waste in the area titled "Waste Description and Comments".

CAUTION

LIQUID MUST BE CHARACTERIZED, FLASH POINT ESTABLISHED, AND ADEQUATE STORAGE SPACE IDENTIFIED BEFORE PUMPING OPERATION CAN COMMENCE.

4. Ensure the flash point of tank/sump liquid has been listed on Supervisor's Daily Startup Checklist. If not, notify supervisor.

5. Obtain receiving containers and prepare empty container as follows:

   a. If the liquid is not hazardous, prepare container per SSOP-0075.

   b. If the liquid is hazardous, prepare container per SSOP-0035.

6. Using indelible ink, mark the FEMP Lot Marking Code in accordance with RM-0005 on the receiving container.

7. Place receiving container and pumping equipment in secondary containment.

   NOTE: Secondary containment shall be large enough to contain the receiving container.

8. Ensure the liquid has been characterized, the flash point established, and adequate storage space identified before starting pumping operation.

9. Open receiving container and remove the bung plug from the bung hole.

10. Connect a grounding cable from the drum to a "good grounding point" on the tank/sump being emptied or its piping.

7.2 DAILY TRANSFER OF MATERIAL FROM TANKS/SUMPS TO CONTAINERS (cont.)

OPERATORS

CAUTION

DO NOT EXCEED PUMP RATED AIR OR ELECTRIC SUPPLY.

11. Connect electric or air supply to pump.

    NOTE: Plant electric or air supply may be used if in close proximity of the pumping operation. A generator or air compressor will be needed if a remote operation is performed.

12. Clean around the exit nozzle to ensure that debris does not enter the tank/sump when the tank/sump is opened.

13. Remove or open cap from the tank/sump, as required.

SUPERVISOR

14. Request Fire & Safety of the ES&H Division to perform monitoring for air contaminates and explosive gas concentrations prior to pumping and to perform a field inspection to verify Safety and Fire regulation compliance.

OPERATORS

15. Place liquid intake hose from pump into tank/sump assuring that hose reaches bottom of tank/sump.

    NOTE: A check valve should be installed in intake hose.

16. Place liquid discharge hose from pump into bung opening of receiving container.

17. Tightly fasten all air or electrical connections and liquid hoses.

7.2 DAILY TRANSFER OF MATERIAL FROM TANKS/SUMPS TO CONTAINERS (cont.)

OPERATORS

CAUTION

BE ALERT TO THE POSSIBILITY OF SPILLS.

18. If spill occurs, notify supervisor.

CAUTION

OPERATE PUMP AT A MODERATE SPEED TO AVOID SPLASHING. IF AIR OPERATION IS PERFORMED, OPEN AIR SUPPLY NOZZLE SLOWLY UNTIL PUMP IS PRIMED.

19. Start pump and transfer contents from the tank/sump into receiving container(s). If container starts to bulge, stop operation and notify supervisor.

    NOTE: Bulging containers shall be handled under direct supervision of the supervisor-in-charge and Fire and Safety.

20. When the waste level in a receiving container is approximately three inches from the top, shut off the pump.

21. If a receiving container is overfilled, transfer contents into the next receiving container until the level in the container is approximately three inches from the top.

22. Seal a receiving container by screwing bung plug into bung hole evenly.

23. Continue removal of tank/sump contents until the end of the day or when the tank/sump is empty and then complete steps in section 7.3.

7.3 CLOSURE OF PUMPING OPERATION

OPERATORS

1. Weigh, secure, and label filled containers per SSOP-0075 or SSOP-0035, as applicable.

7.3 CLOSURE OF PUMPING OPERATION (cont.)

OPERATORS

CAUTION

BE ALERT TO THE POSSIBILITY OF SPILLS. IF A SPILL OCCURS, IMMEDIATELY NOTIFY THE SUPERVISOR.

2. Drain as much residue as possible from pump and hoses into a receiving container.

3. Carefully remove hoses from receiving container and tank/sump so as not to spill any residue.

4. Seal the receiving container by screwing bung plug into bung hole evenly.

5. Remove ground cable from receiving container.

6. Replace or close cap from tank/sump.

7. Transfer receiving containers from secondary containment vessel (metal trough) to container staging area.

8. Fill out an "Item Production/Certification/Identification" card per steps 2a and 2b of Section 7.2.

9. Obtain an empty container to hold the detergent waste and prepare container per SSOP-0075 or SSOP-0035, as applicable.

10. Place detergent waste container in secondary containment.

11. Connect a grounding cable from the tank/sump to the detergent drum and from the detergent drum to the detergent waste container.

12. Remove bungs from detergent drum and detergent waste container.

13. Place intake hose from pump into detergent drum bung opening and discharge hose from pump into detergent waste container bung opening. Ensure intake hose is below detergent level.

7.3 CLOSURE OF PUMPING OPERATION (cont.)

OPERATORS

CAUTION

CLEAN PUMP AND HOSES AT A MODERATE SPEED TO AVOID SPLASHING OR BUBBLING OF DETERGENT. IF AIR OPERATION IS PERFORMED, OPEN AIR SUPPLY NOZZLE SLOWLY UNTIL PUMP IS PRIMED.

14. Transfer entire contents of detergent drum to detergent waste container.

15. At end of cleaning operation, slowly close air supply nozzle (if applicable) to stop the pumping operation.

16. Drain as much residue as possible from hoses and pump into detergent waste container.

17. Carefully remove hoses from detergent drum and detergent waste container. Cap off hoses.

18. Seal the detergent drum and detergent waste container by screwing bung plugs into bung holes evenly.

19. Remove ground cable from containers and tank/sump.

20. Transfer detergent waste container from secondary containment to staging area.

21. Complete Form FS-F-614, "Interplant Nuclear Material Transfer Record" (Attachment F).

22. Notify Transportation that receiving containers are ready for shipment.

23. Notify RSO of detergent waste containers location.

    NOTE: RSO shall dispose of detergent waste.

24. Store empty detergent drum, pump, hoses, etc., as appropriate in a sea/land container and/or underground sump/tank (UST) box.

25. If releases have not occurred, store spill containment equipment in a sea/land container and/or a UST box.

7.3 CLOSURE OF PUMPING OPERATION (cont.)

OPERATORS

26. If releases have occurred, handle and clean spill containment equipment per SOP 20-C-606. Contact Radiological Safety to perform a survey.

27. Barricade and post the area if necessary.

28. Contact Radiological Safety to survey the cleaned equipment.

29. Complete FS-F-3707, "Tank/Sump Content Removal - Container Activity Completed Checklist" (FS-F-3707), Attachment G.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- 29 CFR 1910.1200, "Occupational Safety and Health Administration (OSHA) Hazard Communication Standard"
- 40 CFR Part 261, "Identification and List of Hazardous Waste"
- 40 CFR Part 302.4, "List of Hazardous Substances and Reportable Quantities"
- 40 CFR Part 355, Environmental Protection Agency: Emergency Planning Notification, Appendix A - "The List of Extremely Hazardous Substances and their Threshold Planning Quantities"
- 40 CFR Part 370, Environmental Protection Agency: "Hazardous Chemical Reporting - Community Right-to-Know"
- 40 CFR Part 372, Environmental Protection Agency: "Toxic Chemical Release Reporting - Community Right-to-know - Subpart D, Specific Toxic Chemical Listing"
- API-1604, "Removal and Disposal of used Underground Petroleum Storage Tanks"
- API-2015, "Cleaning Petroleum Storage Tanks"

8.2 REFERENCES

- SOP 20-C-606, "Hazardous Material Spill Cleanup"
- SSOP-0002, "Completing the Material Evaluation Form"

8.0 **APPLICABLE DOCUMENTS** (cont.)

- SSOP-0075, "Packaging Low-Level Radioactive Waste (LLRW) in Drums for Offsite Shipment"
- RM-0005, "FEMP Lot Marking and Color Coding System"

ATTACHMENT A

FEMP
TANK/SUMP CONTENT REMOVAL - AUTHORIZED PERSONNEL LIST

WORK LOCATION:	STORAGE TANK NUMBER:	DATE:
ACTIVITY OF DAY (Enter Appropriate Activity):		

WORK CREW MEMBER	BADGE NUMBER	DATE

COGNIZANT SUPERVISOR:	

COMMENTS OR ADDITIONS:

ATTACHMENT B

TANK/SUMP CONTENT REMOVAL - SUPERVISOR'S DAILY STARTUP CHECKLIST

STORAGE TANK NUMBER;	FLASH POINT OF CONTENTS:	DATE:

NO.	ACTIVITY	BADGE NUMBER	INITIALS
1.	Shift work scope briefing completed.		
2.	Permits Updated and Approved. - Industrial Hygiene/FMPC-516 (FS-F-2939)		
	- Fire and Safety/FMPC-516 (FS-F-2939)		
	- Radiological Safety/FS-F-1992-1		
3.	Authorized Personnel List posted.		
4.	Equipment Checklist/FS-F-2414 completed.		
5.	Container Area Checklist completed.		
6.	Container Activity Checklist completed (provided at end of shift).		
7.	Container storage space availability confirmed.		
8.	No evidence of release.		
9.	Excavation area free of water.		

COMMENTS OR ADDITIONS:

COGNIZANT SUPERVISOR:	BADGE NUMBER:

Records kept in _____ files.

ATTACHMENT C

TANK/SUMP CONTENT REMOVAL - EQUIPMENT CHECKLIST

STORAGE TANK NUMBER:		DATE:	
NO.	ITEMS TO CHECK	BADGE NUMBER	INITIALS
1.	Air Compressor Checksheet - FS-F-2414 completed.		
2.	Condition of Pump and Hoses satisfactory.		
3.	Safety Equipment satisfactory: - Pigs		
	- Absorbent Pads		
	- Respirators		
	- Eye Wash		
	- Gloves		
	- PPE		
	- Fire Extinguishers		
	-		
	-		
4.	Fork Lift - Checksheet FS-F-2414 completed.		
5.	List of Materials Requiring Restocking: _____ _____ _____		
6.	Comments: _____ _____ _____		

FCF 3705 1/24/94

ATTACHMENT D

TANK/SUMP CONTENT REMOVAL - CONTAINER AREA CHECKLIST

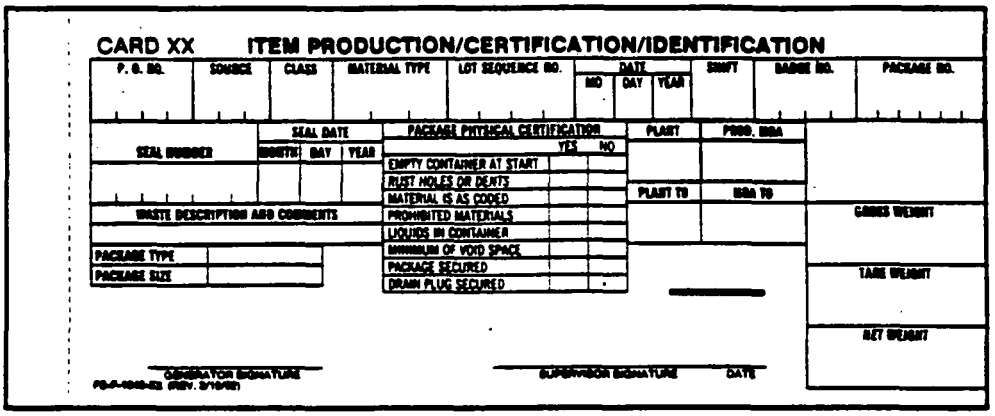
STORAGE TANK NUMBER:	DATE:

NO.	ITEMS TO CHECK	BADGE NUMBER	INITIALS
1.	Secondary containment satisfactory.		
2.	Absorbent pads present.		
3.	Area barrier in place (tarp).		
4.	Containers available and coded.		
5.	Comments: _____ _____ _____		

-3706 (1/25/94)

ATTACHMENT E

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION



CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. BBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS			PLANT TO	BBA TO
WASTE DESCRIPTION AND COMMENTS				MATERIAL IS AS CODED				
				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

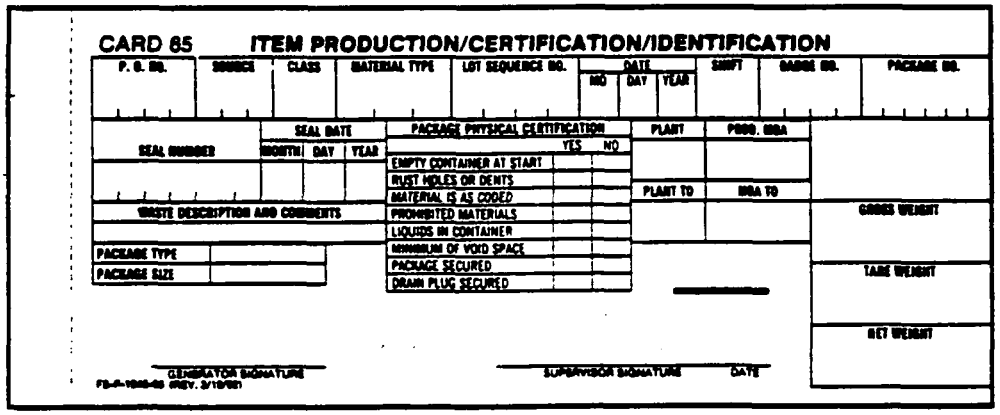
GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-A-1048-93 (REV. 3/19/93)



CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. BBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS			PLANT TO	BBA TO
WASTE DESCRIPTION AND COMMENTS				MATERIAL IS AS CODED				
				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

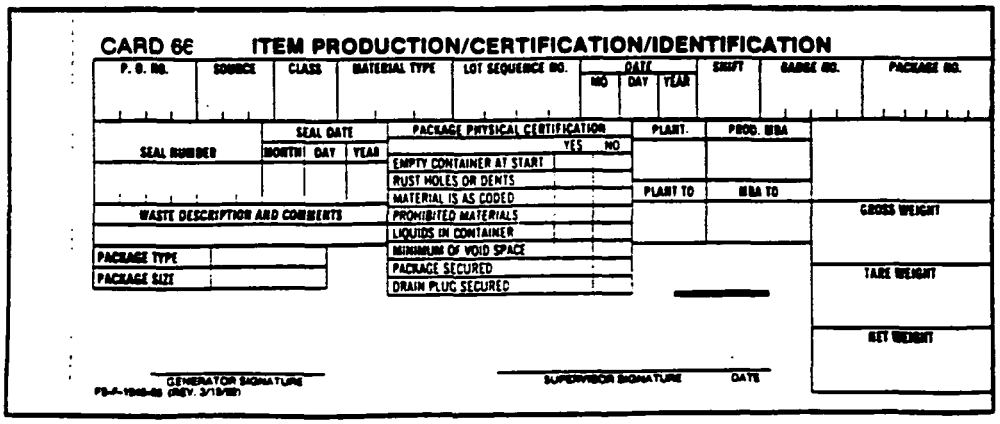
GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-A-1048-93 (REV. 3/19/93)



CARD 66 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR	PACKAGE PHYSICAL CERTIFICATION	YES	NO	PLANT	PROD. BBA
				EMPTY CONTAINER AT START				
				RUST HOLES OR DENTS			PLANT TO	BBA TO
WASTE DESCRIPTION AND COMMENTS				MATERIAL IS AS CODED				
				PROHIBITED MATERIALS				
				LIQUIDS IN CONTAINER				
PACKAGE TYPE				MINIMUM OF VOID SPACE				
PACKAGE SIZE				PACKAGE SECURED				
				DRAIN PLUG SECURED				

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE SUPERVISOR SIGNATURE DATE

FS-A-1048-93 (REV. 3/19/93)

ATTACHMENT F

INTERPLANT NUCLEAR MATERIAL TRANSFER RECORD

FEMP
INTERPLANT NUCLEAR MATERIAL TRANSFER RECORD

No. _____

Date of Transfer _____

TRANSFER: From Plant _____ To Plant _____

ACCOUNT		QUANTITY	TYPE OF MATERIAL	LOT NUMBER	ITEM NO.	WEIGHT			P.O. NO.
FROM	TO					GROSS	TARE	NET	
			TOTAL						XXX

Remarks _____

NO.	DISTRIBUTION OF COPIES
1	(White) Receiver-Materials Control & Accountability (RECORD COPY)
2	(Pink) Receiver
3	(Blue) Originator
4	(Yellow) Materials Control & Accountability (RECORD COPY)

FS-F-614 (REV 4/14/92)

Shipped By _____

Received By _____

Hour & Date Received _____

ATTACHMENT G

TANK/SUMP CONTENT REMOVAL - CONTAINER ACTIVITY COMPLETED CHECKLIST

STORAGE TANK NUMBER:	DATE:

NO.	ITEMS TO CHECK	BADGE NUMBER	INITIALS
1.	Container coding checked		
2.	Number of Containers: - Processed		
	- Transferred		
	- Weighed		
	- Stored		
3.	Pump cleaned and equipment stored.		
4.	Barriers back in place and area secured.		
5.	Comments: _____ _____ _____		

FS-F-3707 (1/25/94)

CONTROL NO. FER-0018
SITE PROCEDURE EW-0013 (SSOP-1026)
REVISION NO. 0

NON-CONTROLLED COPY

TANK/SUMP REMOVAL OR ABANDONMENT

Effective Date: 06-09-94

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: _____ 2/15/95
Terence D. Hagen, Manager of Environmental Restoration and Waste Management — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

-6944

CONTROL NUMBER:_____
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-1026
REVISION NO. 0

TANK/SUMP

REMOVAL OR ABANDONMENT

SSOP-1026

Effective Date: 06-09-94

AUTHORIZED BY: _____ 5/27/94
D. Ofte, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

000520

Fernald Environmental Restoration Management Corporation	Title: TANK/SUMP REMOVAL OR ABANDONMENT	
	DOCUMENT NO: SSOP-1026 REVISION NO: 0	
	Effective Date: 06-09-94	Page 1 of 33

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
06-09-94	0	New procedure required to cover removal or abandonment of tanks and sumps per Request No. S93-178 initiated by J. W. Ogg.

1.0 PURPOSE

This procedure provides the instructions for either removal or abandonment-in-place of tanks and/or sumps located at the Fernald Environmental Management Project (FEMP).

2.0 SCOPE

This Fernald Environmental Restoration Management Corporation (FERMCO) procedure applies to all tanks and sumps located at the FEMP.

3.0 DEFINITIONS

Cold Cut - The cutting of a tank/sump with a non-flame cutting tool.

End of Day - Time when work ceases; end of first, second, or third shift.

Hazardous Waste - A material which is listed on the Environmental Protection Agency Hazardous Waste List or exhibits any of the following four characteristics: ignitability, corrosivity, reactivity, or exceeds Toxicity Characteristics Leaching procedure limits. Both "listed" and "characteristic" wastes are regulated under the Resource Conservation and Recovery Act (RCRA).

Lower Flammable Limit (LFL) - This is the minimum concentration of vapor in air or oxygen below which propagation of flame does not occur on contact with a source of ignition. The direct meter readings shall be adjusted per manufacturer's specification of the specific material monitored.

Release - Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous or toxic chemical or extremely hazardous substance.

Work Zone - An area established around the excavation and dismantling areas to control access of personnel.

4.0 RESPONSIBILITIES

Operators/Maintenance Workers

- Perform required operations of this procedure.
- Wear protective clothing and respiratory equipment as provided by the supervisor.
- Follow all posted safety requirements.

4.0 **RESPONSIBILITIES** (cont.)

Operators/Maintenance Workers

- Read, sign, and follow the job specific Radiation Work Permit (RWP), Health and Safety Plan and work plan.

Project Supervisor

- Ensure all workers are given the Hazardous Communications Briefing related to the work area.
- Contact Environmental Safety & Health (ES&H) to determine the appropriate respiratory protection and protective clothing for the process being performed.
- Provide personnel with the required respiratory protection and protective clothing.
- Ensure personnel are qualified according to the established training requirements identified by the Department/Staff Manager responsible for activities in this procedure.
- Provide Material Safety Data Sheets (MSDS) for all chemicals and hazardous materials to be encountered to the workers involved with tank/sump removal tasks.
- Coordinate and/or notify all applicable organizations of assistance required for this procedure and referenced procedures.
- Perform inspections of the work area to ensure that all known deficiencies are corrected prior to start of work and during work performance.
- Assure all work is performed in a safe manner and in compliance with all applicable site safety requirements.
- Obtain all required work permits per this procedure.
- Obtain an approved Hoisting/Rigging Plan from Engineering and Maintenance for any hoisting/rigging operations.
- Obtain waste characterization results prior to excavation of tank/sump.

4.0 **RESPONSIBILITIES** (cont.)

Safety and Fire Field Services and Safety and Fire Protection Engineering

- Provide support for project by assuring that all work is performed in a safe manner and in compliance with all applicable FEMP Safety and Fire Regulations.
- Ensure that barricades, signs, or other pedestrian and vehicular traffic control measures are in compliance with FEMP regulations.
- Perform field inspections as necessary to verify safety and fire regulation compliance at the jobsite. Report any violations to the supervisor and the involved FERMCO organization.
- Monitor explosive gas concentrations around tanks and sumps and at tank/sump openings, as requested.
- Verify the flammable vapor concentration of tank/sump, associated piping, and excavation area, as requested.
- Issue work permits as requested.

Industrial Hygiene

- Perform inspections as necessary to verify compliance with Industrial Hygiene regulations.
- Issue confined space entry permits as requested.
- Verify tank/sump vapor concentration prior to tank entry.
- Monitor and identify organic vapors from soil at excavation site.

Industrial Safety and Health

- Review and approve hoisting and rigging plans.

Radiological Control

- Perform periodic inspections of the job area to ensure that all known deficiencies are identified prior to work start and during work performance.
- Perform radiological surveys to allow proper handling of materials and equipment, and provide documentation of these surveys to the supervisor.
- Issue Radiation Work Permits (RWPs).

4.0 **RESPONSIBILITIES** (cont.)

Radiological Control

- Ensure radiation monitoring is performed during excavation to determine soil disposition.

Project Engineer

- Provides approval to Project Supervisor to backfill.

Waste Programs Management

- Determines disposition location for non-RCRA scrap metal.
- Determines waste container type.

5.0 **GENERAL**

None

6.0 **PREREQUISITES**

6.1 INDUSTRIAL SAFETY AND HEALTH REQUIREMENTS

1. Levels of personal protective equipment for personnel within the work zone will be as follows unless otherwise specified by Environmental Safety and Health (ES&H), work permits, or Task Specific Health and Safety Plans:

   a. Safety shoes, safety glasses with rigid side shields are required on site, and a hard hat with brim over the eyes shall be worn at all times. Rubber boots shall be used for spill cleanup, if necessary.

   b. Leather-palmed gloves shall be worn when handling drums, operating equipment, and when handling rough, sharp-edged, or contaminated materials.

   c. Respiratory protection provided by the supervisor shall be worn when required. (Industrial Hygiene and Radiological Assessment shall be contacted to determine appropriate respirators to be worn.)

   d. Personnel shall not enter tank/sump without a Confined Space Entry Permit.

6.0 **PREREQUISITES** (cont.)

e. Face shields and acid-type goggles shall be worn when removing lids or bungs from containers with liquids. Goggles and face shields shall be worn during operations where the possibility exists of personnel being splashed with liquids.

f. A rubber apron or splash suit shall be worn if there is a possibility of being splashed with diesel, kerosene, gasoline, or any material containing tetraethyl lead sludge. It shall also be worn during spill cleanup.

g. Personnel safety equipment (eyewashers, fire extinguishers, safety showers) shall be operational and readily available for emergencies.

h. Portable eyewash shall have a sticker attached indicating last flush/fill is within the last three months.

i. Neoprene rubber gloves shall be worn when handling hazardous chemicals or waste where skin contact is possible, such as skin contact with tetraethyl lead contaminated sludge.

j. Neoprene rubber gloves shall be worn with a second pair of gloves when handling contaminated materials.

k. All personnel involved with the handling of chemicals or hazardous materials shall be provided the MSDS for each material to be encountered.

2. A defined safety system is not involved.

3. Any release of hazardous waste shall be handled per SOP 20-C-606.

4. The work zone and its control shall be established prior to the beginning of work.

5. Each tank or sump removal/abandonment project shall be reviewed by Radiological Engineering for appropriate radiological controls.

6. A Radiological Work Permit shall be used to specify radiological controls for any work involving radioactive materials.

7. All work shall be performed under guidance of a FERMCO Work Permit. Other permits shall be issued as required.

6.0 **PREREQUISITES** (cont.)

8. Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a supervisor. The supervisor shall immediately report the circumstance of possible radioactive materials intake to ES&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a followup urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified by the Radiological Control Section.

9. Any circumstance which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR) (Form No. FS-F-1458), and submission of bioassay samples (e.g., blood, urine). Employees are responsible for complying with any additional requirements as specified by ES&H.

6.2 PERSONNEL REQUIREMENTS

Personnel shall complete Radiation Worker Training and be trained in accordance with this procedure.

6.0 **PREREQUISITES** (cont.)

6.3 TOOLS AND MATERIALS

NOTE: Applicable tools and materials shall be obtained as directed by the supervisor.

- "DO NOT ENTER" yellow tape
- Non-flame cutting tool
- Backhoe equipment
- Dipstick
- Excavation hand tools
- Certified break-away torque wrench
- Portable gas flame cutting equipment
- Absorbent cleaning compound
- Cleaning rags
- Grounding straps
- Holddown straps
- Non-sparking scraper
- Fire safety equipment
- Shovels
- Concrete mix or sand
- Chalk blocks
- Hoisting/rigging equipment
- Pumps and hoses
- Herculite
- Waste Containers
- Caps

6.4 PROJECT PLANNING AND WASTE CHARACTERIZATION

1. SSOP-0044, "Management of Excess Soil, Debris and Waste from a Project" shall be followed for the planning and management of any soil, debris, or waste generated from any project.

2. A work plan should be prepared for each project detailing what and how work will be performed.

3. The Heavy Equipment Supervisor shall prepare a hoisting and rigging plan and obtain Industrial Safety and Health approval of the plan.

4. A hoisting/rigging plan shall be obtained by the Project Supervisor from Engineering and Maintenance.

7.0 PROCEDURE

WARNING

IT IS MANDATORY THAT THE FOLLOWING PRECAUTIONS ARE TAKEN AT THE EXCAVATION AND DISMANTLING SITE:

- **Eliminate all potential sources of ignition from the area (for example, smoking materials and all electrical and internal combustion equipment).**
- **Prevent the discharge of static electricity during venting of flammable vapors.**
- **The accumulation of vapors shall be monitored at ground level and in the excavated area.**
- **All open flame and spark-producing equipment within the vapor hazard area shall be shut down.**
- **Electrical Equipment (for example, pumps and portable hand tools) used in the area must be explosion-proof in accordance with NFPA 70B Class I, Division I, Group D, or otherwise approved for use in potentially explosive atmospheres. This would also include radios in the excavation pit.**

7.1 PREPARING WORK ZONE

SUPERVISOR

1. Using applicable drawings/sketches, identify the location of the tanks/sump, associated piping, and other equipment to personnel. If changes to drawings/sketches are made, notify Engineering/Drafting of the changes.
2. Prepare a FEMP Work Permit per FMPC-516.
3. Request Radiation Safety Technician to survey identified excavation/dismantling area.
4. Notify Radiological Engineering to review the project to determine radiation controls for appropriated zones.

7.1 PREPARING WORK ZONE (cont.)

SUPERVISOR

5. Obtain an approved Penetration Permit per FMPC-516.

6. Determine if the tank/sump is to be removed or abandoned-in-place.

   a. If a tank/sump is to be abandoned-in-place, proceed to Section 7.9.

   b. If the tank/sump is to be removed, proceed to step 7 of Section 7.1.

OPERATORS/SUPERVISOR

7. Ensure a waste characterization has been completed per SSOP-0044 and results received for excess soils, debris, or waste generated.

   NOTE: Supervisor shall provide characterization results to ES&H for aid in determining health and safety requirements.

8. Ensure all tools used in Contamination or Airborne Radioactivity Areas are decontaminated and surveyed by a Radiological Control Technician prior to leaving the area.

9. After radiological survey is received from Radiation Safety, construct a work zone to encompass the excavation and dismantling areas as follows:

   a. Remove any obstacles from the identified work zone that could cause unsafe working conditions prior to and during work activities.

   b. Using a barrier, establish the work zone with appropriate signs to encompass all work activity.

   c. Set up one point of entry and exit to regulate personnel access.

10. Within the work zone, establish the excavation area by surrounding this area with yellow "DO NOT ENTER" tape and posting with applicable signs.

    NOTE: Work shall be performed on the upwind side of tank/sump and associated equipment as much as possible.

7.1 PREPARING WORK ZONE (cont.)

11. Set up a dismantling area in the work zone by placing herculite or comparable material over the designated area allowing a three-foot minimum working area around tank. Ensure the area also includes temporary diking around tank/sump.

    NOTE: Dismantling area should be adjacent to the excavation area.

12. Place herculite or comparable material on the ground between excavation area and dismantling area to catch any material and/or substances.

7.2 REMOVING LIQUID FROM EXPOSED TANK/SUMP

SUPERVISOR/OPERATORS

1. Prior to opening tank, obtain a Hazardous Material Work Permit per FMPC-516 from Industrial Hygiene.

2. If tank/sump is not exposed, proceed to 7.3 to prepare for excavation.

3. If tank/sump is exposed, check for material in associated piping and tank/sump interior as follows:

    a. As needed, request an air contaminant test by Industrial Hygiene to determine if material is present.

    b. Using a dipstick, check tank/sump interior for liquid at both ends of tank/sump through openings in top of tank/sump. Wipe end of dipstick with a rag to remove contamination and place rag on the herculite area.

    c. Using portable lighting, perform visual inspection of tank/sump floor.

4. If material is contained in associated piping, drain into tank/sump.

5. If liquid needs to be pumped from tank/sump, perform work per SSOP-1025, "Tank/Sump Contents Removal". After tank/sump is empty, proceed to 7.3.

7.3 PREPARING TO EXCAVATE TANK/SUMP

SUPERVISOR

1. Complete FS-F-3709, "Tank/Sump Removal or Abandonment - Authorized Personnel List" (see Attachment A) and post in work zone.

2. Perform a visual walk-over of the site looking for obvious signs of past or present operational problems (i.e., concrete patchwork, surface staining, and areas where piping and pump islands were previously located).

SUPERVISOR/OPERATORS

3. Lock and tag electrical service or other utilities within 15 feet of identified locations noted in sketches, procedures, and drawings per SSOP-0719.

SUPERVISOR

4. Request Radiation Safety Technician to perform soil monitoring during excavation.

5. Prior to excavation, request Utility Engineer to ensure all underground utilities have been identified.

6. Complete work scope briefing to personnel.

7. Complete FS-F-2414, "Gas, LPG or Diesel Fueled Equipment Operator's Checklist" (see Attachment B).

7.4 EXCAVATING TANK/SUMP

SUPERVISOR

1. Using FS-F-3710, "Supervisor's Daily Checklist" (see Attachment C), perform a startup check before proceeding with the excavation activities by filling out Section 1 of the checklist. Complete checklist during excavation activities.

2. Prior to startup of excavation activities, notify Quality Control for required Quality Control verifications.

7.4 EXCAVATING TANK/SUMP (cont.)

WARNING

UNIDENTIFIED MATERIALS OR UTILITY LINES MAY BE FOUND DURING EXCAVATION.

WARNING

RADIATION SAFETY TECHNICIAN IS REQUIRED TO BE PRESENT DURING EXCAVATION FOR SOIL MONITORING.

WARNING

MANUAL TOOLS SHALL BE USED TO EXCAVATE SOILS WITHIN THREE FEET OF ANY UTILITIES.

CAUTION

AVOID SCRAPING TANK/SUMPS WITH EXCAVATION EQUIPMENT.

OPERATORS

3. Using a backhoe or comparable equipment, excavate to top of tank/sump.

SUPERVISOR/OPERATORS

4. Prior to opening tank, obtain a Hazardous Material Work Permit per FMPC-516 from Industrial Hygiene.

5. Check for material in associated piping and tank/sump interior as follows:

   a. As needed, request an air contaminant test by Industrial Hygiene to determine if material is present.

   b. Using a dipstick, check tank/sump interior for liquid at both ends of tank/sump through openings in top of tank/sump.

7.4 EXCAVATING TANK/SUMP (cont.)

c. Using portable lighting, perform visual inspection of tank/sump floor if possible.

6. If material is contained in associated piping, drain into tank/sump.

7. If liquid needs to be pumped from tank/sump, perform work per SSOP-1025, "Tank/Sump Contents Removal".

8. When tank/sump is empty, slope and maintain excavation walls as follows:

   a. Place all excavated soil or other material at least two feet from edge of excavation.

   b. If the excavation depth is four feet or greater, install a cave-in protection system (shoring, sloping, or benching) as directed by supervisor and use at least one ladder for access.

      NOTE: Supervisor shall contact Occupational Safety and Health to determine adequate system.

9. Continue excavating soil in the area of the tank/sump in a manner which will expose the tank/sump and associated piping to allow approved personnel to safely enter the excavation for inspection, monitoring of tank/sump, and/or installing hoisting/rigging equipment.

SUPERVISOR/OPERATORS

10. If the excavation depth is greater than 4 feet, obtain a Confined Space Entry Permit prior to entering the excavation.

11. Using manual tools, excavate soils within three feet of any existing utility lines by hand.

12. Remove any free-standing liquid, as directed by the supervisor, from the excavated area.

    NOTE: The supervisor shall contact the Project Engineer to determine if liquid in excavation area is to be removed.

13. Request Industrial Hygiene to check confined space for air contaminants and oxygen displacement to determine if area is safe to enter.

7.4 EXCAVATING TANK/SUMP (cont.)

MAINTENANCE/SUPERVISOR

14. Before any piping is disconnected, ensure the tank and source of material has been isolated.

15. Disconnect and remove all associated piping.

16. Remove all caps or plugs from ports of tank/sump for air contaminant testing of tank/sump.

17. Allow atmosphere in tank to stabilize for at least 15 minutes.

SUPERVISOR

18. Request Safety and Fire or Industrial Hygiene to monitor tank/sump at all available openings and associated piping for air contaminants.

    a. If readings are less than 20 percent of the lower flammable limit and have been maintained for one hour, proceed to step 19.

    b. If readings are more than 20 percent of the lower flammable limit, proceed as follows:

        (1) Perform a nitrogen purge per 7.10 or flush with water, as directed by supervisor, to remove any pooled material and/or dislodge scale or sludge.

        (2) Repeat Step 18b, substep (1) until vapor readings are less than 20 percent of the lower flammable limit and have been maintained for one hour.

        (3) If Step 18b, substep (2) cannot be accomplished, proceed as directed by Fire Protection Engineering.

19. Install compatible plug/cap to all openings. If tank appears to be airtight, install one plug in top of tank with 1/8-inch vent opening.

20. Prior to removal, ensure Safety and Fire or Industrial Hygiene has approved the current condition of the tank/sump.

7.4 EXCAVATING TANK/SUMP (cont.)

HEAVY EQUIPMENT OPERATORS

21. Complete the excavation as necessary to remove tank/sump from the ground.

    NOTE: The supervisor must ensure that an approved Hoisting/Rigging Plan is being followed during the hoisting/rigging operation.

22. Attach hoisting/rigging fixtures to tank/sump, remove from the ground, and place in diked dismantling area.

23. Obtain chock blocks and block tank/sump to prevent movement. Secure tank or sump so that cap with the 1/8-inch vent hole is located at the uppermost point on the tank/sump.

HEAVY EQUIPMENT SUPERVISOR

24. As directed by supervisor, backfill excavated area.

7.5 COLD CUTTING ACCESS PORT TO TANK/SUMP

SUPERVISOR

1. Request ES&H (Radiation Safety Technician and Fire Protection Engineer) to check dismantling area for air contaminants and radionuclides and to review and approve the current condition of tank/sump.

2. Obtain approved Radiation Work Permit and Confined Space Permit per FMPC-516 for cold cut operation.

    NOTE: No cutting of the tank or sump shall be permitted until the permits are granted. Additional precautions may be required before permitting the cut.

WARNING

COLD CUT IMMEDIATELY AFTER MAINTAINING FUMES FOR ONE HOUR THAT ARE LESS THAN 20 PERCENT OF THE LOWER FLAMMABLE LIMIT.

7.5 COLD CUTTING ACCESS PORT TO TANK/SUMP (cont.)

MAINTENANCE

3. If air contaminants are less than 20 percent of the lower flammable limit for one hour or the FERMCO Fire Protection Engineer has approved, immediately cold cut an access port at each end of the tank/sump large enough (approximately 4 ft. X 4 ft.) to allow personnel entry.

   NOTE: Additional vapor may be released from liquid in the scale or sediment of tank during the one hour period.

4. If air contaminants are more than 20 percent of the lower flammable limit, perform a nitrogen purge per 7.10. Repeat purging until vapor readings are less than 20 percent of the lower flammable limit for one hour.

5. If the desired air level cannot be achieved, proceed at the direction of the Fire Protection Engineer.

OPERATORS/MAINTENANCE

6. Immediately after access ports have been cut, place an exhauster at one end of the tank/sump as required.

   NOTE: This will provide ventilation to prevent vapor levels from rising and also provide additional air for tank or sump cleaners.

7. After tank is immobilized and access ports cut, if directed by supervisor, visually inspect tank interior for residuals. If residuals are not present, dismantle per 7.8.

7.6 PREPARING TO ENTER TANK/SUMP FOR CLEANING

SUPERVISOR

1. Request Radiation Safety Technician to perform radiological contamination survey.

2. Request Industrial Hygiene to perform monitoring to ensure that the tank or sump internal oxygen content and hazardous vapors concentration remain at the acceptance level.

7.6 PREPARING TO ENTER TANK/SUMP FOR CLEANING

OPERATORS

a. If the flammable vapor concentration is less than 20 percent of the lower flammable limit and the oxygen content is more than 19.5 percent, proceed to step 3 of Section 7.6.

b. If the desired ranges are not met, operate exhauster until range is obtained.

c. If the desired ranges are not met after operation of exhauster, proceed as directed by supervisor.

3. Ensure an approved Confined Space Entry Permit and a Radiation Work Permit are posted in the area prior to entering tank/sump.

4. Contact Waste Programs Management for determination of waste container type.

SUPERVISOR

5. Inspect the interior of the tank/sump for physical hazards, such as loose rafters, angle irons, or columns and other materials that could fall.

6. Obtain the following items for cleaning:

- Shovels and scraper (non-sparking)
- Absorbent sweeping (cleaning) compound
- Compatible waste containers for collecting solid tank/sump waste

7.7 CLEANING TANK/SUMP

WARNING

IF CLOTHING BECOMES PERMEATED WITH TANK OR SUMP SLUDGE, IMMEDIATELY CONTACT RADIATION SAFETY TECHNICIAN TO SUPERVISE PERSONNEL DECONTAMINATION.

7.7 CLEANING TANK/SUMP (cont.)

WARNING

ONLY NON-SPARKING TOOLS SHALL BE USED FOR TANKS/SUMPS CONTAINING FLAMMABLE MATERIAL.

CAUTION

BECAUSE ABSORBENTS DO NOT CHANGE THE HAZARDOUS PROPERTIES OF A SPILLED SUBSTANCE, USE CAUTION DURING CLEANUP AND DISPOSAL.

OPERATORS

1. Fill out FS-F-3712, "Cleaning and Dismantling Checklist" (see Attachment D) to ensure preparation for cleaning has been completed.

2. Prepare empty waste container per SSOP-0075 for drums, SSOP-0078 for metal boxes, or SSOP-0079 for sea/lands, as applicable.

3. Place waste container at open port end of tank/sump.

4. Wearing approved personnel protective equipment per Radiation Work Permit and/or Confined Space/Chemical Hazard Permit, enter tank/sump at open port end.

5. Using scrapers and absorbent sweeping compound, start cleaning tank/sump interior at open port end (as opposed to exhauster end) per the Confined Space Entry work permit.

6. Remove lid and fill waste container with material from tank/sump as follows:

   a. Using a shovel, scoop up saturated absorbent material and place in compatible waste container.

   b. Fill container until waste level is approximately three inches from the top.

7. Place lid on waste container.

8. Weigh and secure filled waste container per SSOP-0075, SSOP-0078, or SSOP-0079, as applicable.

7.7 CLEANING TANK/SUMP (cont.)

OPERATORS

9. Label waste container as follows:

   a. If the container is for low-level radioactive waste, label container in accordance with SSOP-0075, SSOP-0078, or SSOP-0079.

   b. If the container is for hazardous waste, label in accordance with SSOP-0035.

10. Repeat operation of filling containers until end of day or tank/sump has been cleaned.

11. At end of day or after last waste container is used, clean tools using rag(s) and/or an approved detergent solution. Deposit rag(s) into last drum before closing drum.

12. Complete an "Item Production/Certification/Identification" card (see Attachment E) prior to transport and send to Materials Control and Accountability (MC&A).

13. Transport waste containers to applicable building or warehouse for weighing.

7.8 DISMANTLING TANK/SUMP

NOTE: Dismantling may occur at dismantling area or the decontamination facility.

SUPERVISOR

1. Request Safety and Fire Inspector to vapor test tank/sump and associated piping.

   a. If readings are more than 10 percent of the lower flammable limit, locate source of vapor and clean area.

   b. Continue vapor testing and cleaning cycle until all readings are less than 10 percent of the lower flammable limit.

   c. Once readings are less than 10 percent of the lower flammable limit, proceed to step 2 of 7.8.

   d. If Step 1c of 7.8 cannot be achieved, proceed at the direction of the Fire and Safety Protection Engineer.

7.8 DISMANTLING TANK/SUMP

SUPERVISOR

2. Obtain and post approved Flame Work Permit.

3. Ensure the following tools and equipment are provided to operators for dismantling tank/sump:

   - Portable gas flame cutting equipment - torch, tanks, hoses
   - Fire safety equipment as instructed by the Fire and Safety Engineer

OPERATORS

4. Wear respiratory equipment as specified on Flame Work Permit.

5. Using the welding torch, cut tank/sump and associated piping into scrap metal.

   NOTE: Finished scrap sizes must meet the approval of the Decontamination Supervisor.

SUPERVISOR

6. Complete an "Item Production/Certification/Identification" form card (see Attachment E) and send to MC&A.

SUPERVISOR/OPERATORS

7. Prior to moving scrap metal from dismantling area, complete Form FS-F-3464, Materials Evaluation and Container Information - Metal" per SOP 20-C-625 to verify scrap metal is non-RCRA.

   a. If metal is non-RCRA, request a radiation survey.

      (1) If the non-RCRA metal is contaminated, move metal to Building 69.

      (2) If the non-RCRA metal is not contaminated, place metal in compatible container and proceed to step 8 of 7.8.

   b. If metal is RCRA, request radiation survey and move metal to Decontamination (Building 69) for further cleaning.

7.8 DISMANTLING TANK/SUMP (cont.)

SUPERVISOR/OPERATORS

8. Secure non-RCRA scrap metal on truck or other suitable transportation equipment for transport to location as determined by Waste Programs Management.

9. Obtain permission from Project Engineer to backfill excavated area, as applicable.

10. When permission is obtained, backfill excavation site to existing grade and contour.

7.9 PREPARING TANK/SUMP TO BE ABANDONED-IN-PLACE

SUPERVISOR/OPERATORS

1. Construct a work zone to encompass the work area as follows:

   a. Remove any obstacles from the identified work zone that could cause unsafe working conditions prior to and during work activities.

   b. Use a barrier with appropriate signs to encompass all work activities.

      NOTE: Work shall be performed on the upwind side of tank/sump and associated equipment as much as possible.

   c. Set up one point of entry and exit to institute control personnel access as approved by Radiation Safety.

2. Complete FS-F-3709, "Authorized Personnel List" (refer to Attachment A) and post in work zone.

3. If tank/sump is not exposed, prepare to excavate per Section 7.3 and then excavate tank/sump per steps 1 through 2 of Section 7.4.

4. Obtain a Hazardous Material Work Permit per FMPC-516 from Industrial Hygiene.

5. Remove manhole, as applicable, and verify tank is empty.

6. If material is contained in associated piping, drain into tank/sump.

7.9 PREPARING TANK/SUMP TO BE ABANDONED-IN-PLACE (cont.)

SUPERVISOR/OPERATORS

7. If liquid needs to be pumped from tank/sump, perform work per SSOP-1025, "Tank/Sump Contents Removal." After tank/sump is empty, proceed to step 8.

8. Request Safety and Fire or Industrial Hygiene to monitor tank/sump at all available openings and associated piping for air contaminants.

   a. If readings are less than 20 percent of the lower flammable limit for one hour, proceed to step 9.

   b. If readings are more than 20 percent of the lower flammable limit, proceed as follows:

      (1) Perform a nitrogen purge per 7.10 or flush with water, as directed by the supervisor, to remove any pooled material and/or dislodge scale or sludge.

      (2) Repeat step 8b, substep (1), until vapor readings are less than 20 percent of the lower flammable limit for one hour.

      (3) If the desired vapor reading cannot be achieved, proceed as directed by the Fire Protection Engineer.

9. Pump a light-weight concrete mixture or sand through the holes in the top of the tank or sump. Fill tank/sump until concrete mixture or sand flows from all holes.

10. After the tank or sump is filled with concrete mixture or sand, disconnect and cap vent line at tank/sump.

7.10 PURGING TANK/SUMP

SUPERVISOR/OPERATORS

1. Assemble all trained personnel for purging and the following materials:

   - Portable Nitrogen Tank
   - Grounding rod
   - Grounding straps
   - Nitrogen Discharge Hose and Discharge Leg Piping
   - Personnel Protective Equipment

SUPERVISOR

2. Review the following steps with personnel who will be performing the purging operation or, as applicable, the instructions for purging with nitrogen in the Task Specific Health and Safety Plan.

SUPERVISOR/OPERATORS

3. Visually inspect each piece of equipment and correct any problems.

4. Request Safety and Fire to inspect and approve purging equipment arrangement before starting purging operation.

WARNING

TANK OR SUMP MAY CONTINUE TO BE A SOURCE OF FLAMMABLE VAPORS EVEN AFTER FOLLOWING THE PURGING PROCEDURES. DURING THE PURGING OPERATION, THE PRESENCE OF PERSONNEL IN OR ADJACENT TO THE TANK OR SUMP AREA SHOULD BE LIMITED.

WARNING

FLAMMABLE VAPORS RELEASED NEAR GROUND MAY TRAVEL ALONG GROUND A CONSIDERABLE DISTANCE FROM THE TANK/SUMP.

5. Request Fire and Safety to check flammable gas concentrations at the exhaust outlet during nitrogen purges to determine when tank/sump vapors have reached desired levels and to verify that the vapors remain at the appropriate levels for a specified time period. Record results on the Hazardous Material Work Permit.

7.10 PURGING TANK/SUMP (cont.)

SUPERVISOR/OPERATORS

6. Request Fire and Safety to continue testing tank/sump atmosphere and the excavation area for flammable or combustible vapor concentrations until the tank/sump has been dismantled.

7. Drive an electrical grounding rod into the ground in the vicinity of the tank. Locate the rod near enough to the tank to assure that the grounding straps will reach respective connection points.

8. Attach a grounding strap between the portable nitrogen tank and the tank into which nitrogen is being introduced.

9. Attach a grounding strap between the portable nitrogen tank and the nearest grounding rod.

10. Insert the drop leg piping on the end of the nitrogen supply hose into the tank so that the end of the piping is at the bottom of the tank.

    NOTE: The drop leg piping shall be inserted in the port at the end of the tank which is opposite to the exhaust ducting.

11. Open the nitrogen evaporator venting valve (1/4-turn valve at the nitrogen supply tank) and vent the evaporator. Close the valve when vented.

12. Slowly open the main nitrogen supply valve.

13. Adjust the nitrogen regulator to a 10 psi gauge reading.

14. Slowly open the 1/4-turn line valve, and begin to time the purging operation.

15. Flow nitrogen into tank for time durations per Table 1.

TABLE 1

TANK CAPACITY (gallons)	TIME DURATION (minutes)
1000	15
1500	25
3000	45
12250	180

7.10 PURGING TANK/SUMP (cont.)

SUPERVISOR/OPERATORS

16. When the proper time has elapsed, close the main tank valve securely, and close the 1/4-turn valve at the hose connection.

17. Remove the hose and drop leg piping.

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- 29 CFR 1926 Subpart P, "Safety and Health Regulation for Construction - Excavations"
- SW-846 - U.S. EPA Document, "Test Methods for Evaluating Solid Wastes - Physical/Chemical Methods"
- 600/4-79-020 - U.S. EPA Document, "Manual for Chemical Analysis of Water and Wastes"
- API-1604, "Removal and Disposal of Used Underground Petroleum Storage Tanks"
- API-2015, "Cleaning Petroleum Storage Tanks"
- RM-0007, "FEMP Respiratory Protection Requirement Manual"

8.2 REFERENCES

- SOP 20-C-625, "Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment"
- SOP 20-C-606, "Hazardous Material Spill Cleanup"
- SSOP-0719, "Energy Control Procedure (Lockout and Tagout)"
- FMPC-0516, "Control of Permits for Accomplishing Hazardous Work"
- SSOP-0035, "Satellite Accumulation Areas and Interim Containers for Hazardous Wastes"
- SSOP-0044, "Management of Soil, Debris, and Waste from a Project"
- SSOP-0075, "Packaging Low Level Radioactive Waste (LLRW) in Drums for Offsite Shipment"

8.2 REFERENCES (cont.)

- SSOP-0078, "Packaging Low Level Radioactive Waste (LLRW) into ISO Containers for Offsite Shipment"
- SSOP-0079, "Packaging Low Level Radioactive Waste (LLRW) in Metal Boxes for Offsite Shipment"
- SSOP-1025, "Tank/Sump Content Removal"

ATTACHMENT A

FEMP
TANK/SUMP REMOVAL OR ABANDONMENT - AUTHORIZED PERSONNEL LIST

WORK LOCATION	STORAGE TANK NUMBER	DATE

ACTIVITY OF DAY (Enter Appropriate Activity):

WORK CREW MEMBER	BADGE NUMBER	DATE

COGNIZANT SUPERVISOR	BADGE NUMBER

COMMENTS OR ADDITIONS:

ATTACHMENT B

GAS, LPG OR DIESEL FUELED EQUIPMENT OPERATOR'S CHECKLIST

Fernald Site

GAS, LPG OR DIESEL FUELED EQUIPMENT OPERATOR'S CHECKLIST

SEE REVERSE SIDE FOR INSTRUCTIONS

Shift _____ Date: _____

EQUIPMENT NUMBER:	OPERATOR'S NAME:	PLANT LOCATION:	SUPERVISOR'S SIGNATURE:

HOUR METER/SPEEDOMETER READING — _____ HOURS/MILES

Check (✓) boxes accordingly ☐ OK ☐ Needs attention or repair

	VISUAL CHECKS:		OPERATIONAL CHECKS:
	Engine oil level		Horn
	Radiator water level when cold		Steering
	Fuel level		Service brakes
	Obvious damage and leaks		Parking brake
	Tire condition		Hydraulic controls
	Head and tail lights		Directional signals
	Warning lights		Backup alarm
	Hour meter/speedometer		
	Other gauges and instruments		
	Current maintenance sticker		

Due for PMP based on ☐ Hrs./Miles ☐ Date

Comments: (Explain all items needing attention or repair.) _____

FS-1-2616 (REV. 11-93)

Fernald Environmental ERMCO Restoration Management Corporation	Title: TANK/SUMP REMOVAL OR ABANDONMENT	
	DOCUMENT NO: SSOP-1026 REVISION NO: 0	
	Effective Date: 06-09-94	Page 31 of 33

ATTACHMENT C

FEMP
TANK/SUMP REMOVAL - SUPERVISOR'S DAILY CHECKLIST

STORAGE TANK NUMBER:		DATE:	
NO.	**ACTIVITY**	**BADGE NUMBER**	**INITIALS**
	SECTION I		
1.	Work scope briefing completed.		
2.	Permits obtained. - Industrial Hygiene/FMPC-516 (FS-F-2939)		
	- Fire and Safety/FMPC-516 (FS-F-2939)		
	- Radiological Safety/FS-F-1993-1		
3.	Authorized Personnel List posted.		
4.	Equipment Checksheet,FS-F-2414 completed.		
5.	Confirm Emergency Cleanup supplies and water pumping equipment are available.		
6.	Visual inspection of excavation and dismantling areas completed.		
7.	Fire and Safety excavation inspection completed.		
	Section II		
1.	Plastic is in place on the ground.		
2.	Diking is in place forming a containment area.		
3.	All soil piles and disposal materials covered and secured at conclusion of work day.		
4.	Work Zone secured at conclusion of work day.		

COMMENTS OR ADDITIONS:

_____

_____

_____

_____

_____

_____

_____

ords kept in _____ files.

Supervisor's Signature _____ Date ____

S-F-3710 (1/20/94)

ATTACHMENT D

FEMP
TANK/SUMP CLOSURE - CLEANING AND DISMANTLING CHECKLIST

STORAGE TANK NUMBER:		DATE:	
NO.	**ITEMS TO CHECK**	**BADGE NUMBER**	**INITIALS**
1.	Assure all tools and equipment are on hand. 1.1 Portable gas flame cutting equipment; torch, tanks, hoses.		
	1.2 Transportation carts and holddown straps.		
	1.3 Chalk blocks to prevent tank/sump from rolling.		
	1.4 Fire Safety equipment as instructed by the Fire Safety Engineer.		
	1.5 Shovels and scraper (non-sparking).		
	1.6 Absorbent sweeping (cleaning) compound.		
2.	Drums containing material removed from tanks.		
3.	Detergent solution in a drum for tool cleaning.		
4.	Confined Space Entry Permit/FMPC-516 obtained.		
5.	Flame Permit/FMPC-516 obtained.		
6.	RWP obtained if required.		

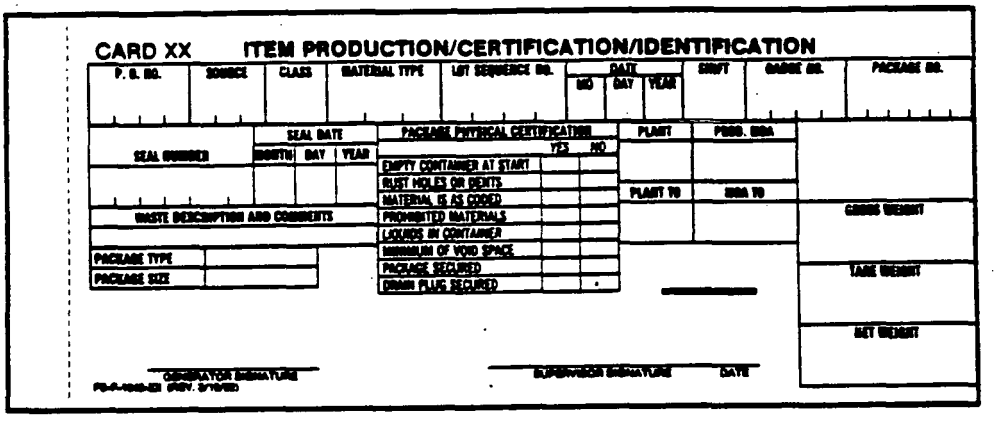
COMMENTS OR ADDITIONS:

Supervisor's Signature _____ Date _____

FS-F-3712 (1/20/94)

ATTACHMENT E

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION



CARD XX ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO DAY YEAR) | SHIFT | GARGE NO. | PACKAGE NO.

SEAL NUMBER | SEAL DATE (MONTH DAY YEAR)

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION — YES / NO

- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED

PLANT | PROD. BBA

PLANT TO | BBA TO

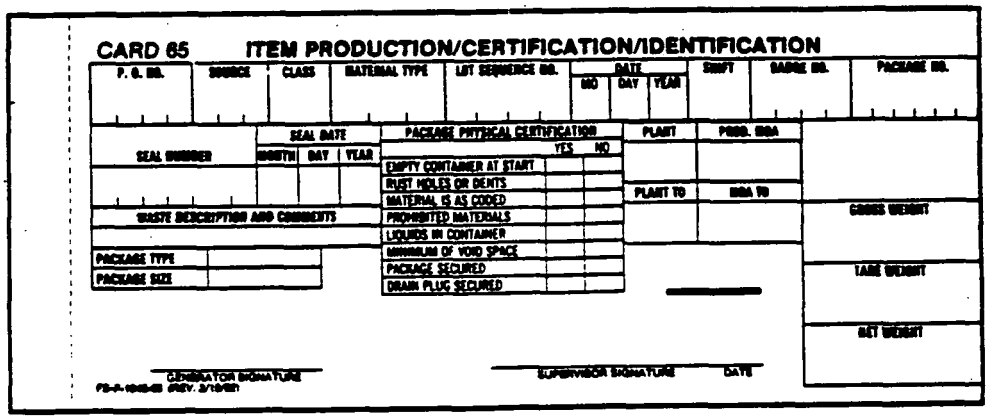
GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE



CARD 65 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO DAY YEAR) | SHIFT | GARGE NO. | PACKAGE NO.

SEAL NUMBER | SEAL DATE (MONTH DAY YEAR)

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION — YES / NO

- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED

PLANT | PROD. BBA

PLANT TO | BBA TO

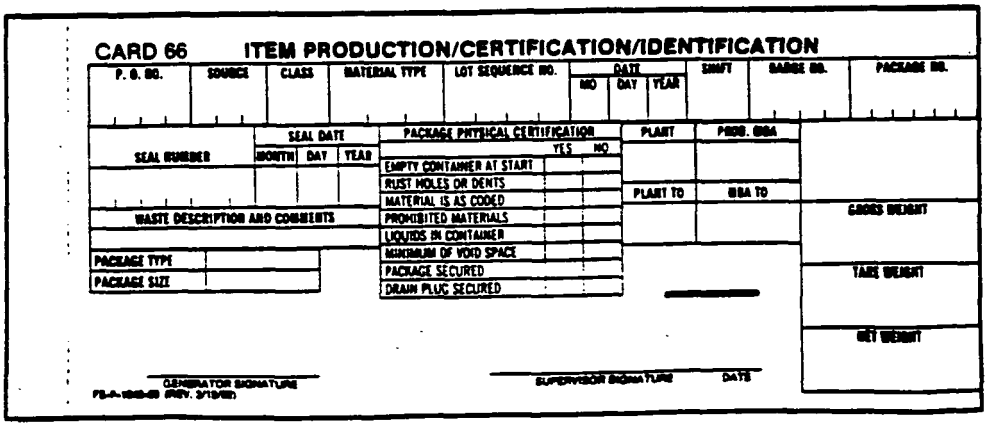
GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE



CARD 66 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE (MO DAY YEAR) | SHIFT | GARGE NO. | PACKAGE NO.

SEAL NUMBER | SEAL DATE (MONTH DAY YEAR)

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE

PACKAGE SIZE

PACKAGE PHYSICAL CERTIFICATION — YES / NO

- EMPTY CONTAINER AT START
- RUST HOLES OR DENTS
- MATERIAL IS AS CODED
- PROHIBITED MATERIALS
- LIQUIDS IN CONTAINER
- MINIMUM OF VOID SPACE
- PACKAGE SECURED
- DRAIN PLUG SECURED

PLANT | PROD. BBA

PLANT TO | BBA TO

GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

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NON-CONTROLLED COPY

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RECORD OF ISSUE/REVISIONS

DATE	REV. NO.	DESCRIPTION AND AUTHORITY
03-06-91	0	Requirement for a new procedure for overpacking defective containers per Request No. P91-058 initiated by J. W. Ogg.
09-11-91	1	Revised to replace Figure 1 with current form per Request No. P91-404, initiated by J. Ogg.
08-09-93	2	Revised to incorporate CIOs C93-129 (P93-768), C93-525 (P93-817), C93-526 (P93-818), C93-528 (P93-819), and update to conform with Procedure Program requirements. Supersedes 01-C-804, dated 06-10-88.
02-24-95	0	Reissued for update of content and to incorporate TCN No. 0158 per Request P94-0491, initiated by K. Belgrave. The document format does not conform to current RSO SOP format per D10-00-20, format changed at the request of the 20-C-600 document owner.

1.0 PURPOSE

The purpose of this document is to establish the procedure for overpacking defective drums and smaller containers which can be overpacked using drums.

2.0 SCOPE

This procedure shall apply to all drums and smaller material containers which are defective and unacceptable for storage.

3.0 RESPONSIBILITY

3.1 Supervisors shall be responsible for the following:

- Ensuring that personnel have completed On The Job Training (OJT) for the applicable procedures.
- Making the final determination to overpack a container.
- Ensuring that defective containers hold compatible materials when multiple containers are to be overpacked into a single overpack drum.
- Ensuring the overpack drums are vented when vented defective containers are placed in the overpack drums.
- Designating appropriate lifting device(s).
- Supplying the Material Control & Accountability (MC&A) specialist with recorded information taken from the defective container(s).
- Contacting Industrial Hygiene or Radiological Control to determine the appropriate respiratory protection and PPE for the work being performed.
- Issuing the required respiratory protection and PPE to personnel as specified in the applicable permits.
- Immediately notifying the Assistant Emergency Duty Officer (AEDO) in the event of a hazardous material spill or abnormal event.
- Reviewing applicable Material Safety Data Sheets (MSDS) and Material Evaluation Forms (MEF) with personnel.

3.2 Operators shall be responsible for the following:

- Complying with this procedure.
- Immediately reporting a spill or release of hazardous materials to Supervisor in accordance with SOP 20-C-606, "Hazardous Material Spill Clean-Up".

3.3 Waste Operations Support shall be responsible for providing guidance to the Supervisor concerning material compability.

4.0 SAFETY REQUIREMENTS

- Safety glasses with side shields shall be worn unless other eye protection is specified by Industrial Hygiene or Radiological Control.
- Respiratory protection issued by the Supervisor shall be worn when required by IH and/or Radiological Control.
- Leather-palm gloves shall be worn to protect the hands from rough or sharp edged material and possible contamination.
- A NILFISK HEPA type filter vacuum cleaner shall be used in accordance with SOP 20-C-602, "Inspection and Operation of NILFISK Portable Vacuum Units" or a vacuum system approved by S&H.
- As applicable, nuclear safety requirements of SOP 20-C-904 shall be followed in the handling of depleted, normal, and/or enriched material.
- Any release of hazardous material shall be reported immediately per SOP 20-C-606, "Hazardous Material Spill Clean-Up".
- Operators shall have reviewed and be familiar with MSDSs for hazardous materials/chemicals that may be used or encountered.
- Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion, or absorption shall immediately be reported to a Supervisor. The Supervisor shall immediately report the circumstance of possible radioactive materials intake to S&H Radiological Control Department for evaluation. When the suspect isotope is uranium, the involved personnel shall report to the Urine Sampling Station at the end of their shift to complete an Incident Investigation Report (IIR)(Form No. FS-F-1458), and submit an incident urine sample. The involved personnel shall also report to the Urine Sampling Station at the start of their next shift to submit a follow up urine sample. When the suspect isotope is other than uranium, the involved personnel shall report to the Dosimetry Section of the Radiological Control Department for further determination of actions. Employees are responsible for complying with additional requirements as specified as specified by the Radiological Control Section.
- Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to a Supervisor or to the Assistant Emergency Duty Officer (AEDO), who will immediately report the circumstances to Medical and Industrial Hygiene. The involved personnel shall be directed by the Supervisor or AEDO as to when and where to report for medical evaluation, completion of an Incident Investigation Report (IIR)(Form No. FS-F-1458), and submitting bioassay samples (e.g., blood, urine). Employees are responsible for complying with any additional requirements as specified by S&H.
- All personnel performing duties covered by this procedure shall adhere to all sign postings and requirements including but not limited to RWP's.

5.0 PROCEDURE

5.1 General Instructions

5.1.1 Additional information, Warnings, Cautions, and Notes are included in bold type in the Step to which they apply.

5.1.2 Operations Supervisor shall assign personnel to the various tasks.

5.2 Overpacking Into Drums

5.2.1 Operations personnel select defective container(s) to be overpacked. **If multiple containers are to be overpacked into a single overpack drum, the Supervisor shall ensure that the materials to be combined are compatible and are compatible with the overpacking container. Contact Waste Operations Support for guidance concerning compatibility. If defective containers are vented, then overpack drums shall also be vented.**

5.2.2 Carefully load the defective container(s) onto a pallet for transport.

5.2.3 Move the defective container(s) to the loading area specified by the Supervisor per the applicable procedure, SOP 20-C-111, "Transport of Low Level Radioactive Waste and Nuclear Material," or SOP 20-C-017, "Movement of Hazardous/Mixed Waste."

5.2.4 Complete "Overpack Record," Form FS-F-2987-1 (See Figure 1) with data from defective container(s), except the inventory number. If a new inventory number does not exist on the overpack container, contact the MC&A specialist for a new inventory number assignment.

a. If the information which appears on the defective container(s) is illegible and/or non-existent, contact Supervisor. **Supervisor shall contact MC&A, S&H, and/or transportation for assistance in identifying material/container markings.**

5.2.5 Take the "Overpack Record" form to the MC&A Specialist's office for verification.

a. Correct any discrepancies with assistance from MC&A per SOP 20-C-001, "Changes To Form Entries".

5.2.6 Prepare new markings/labels for the overpack drum(s) by using the identification from the markings/labels on the defective container(s), except the inventory number. If a new inventory number does not exist on the overpack container, contact the MC&A specialist for a new inventory number assignment.

a. If any discrepancies were corrected per 5.2.5 a of this procedure, use the corrected data.

5.2.7 Obtain required quantity of acceptable overpack drums according to material compatibility and defective container size.

5.2.8 Obtain the tare weight of the empty overpack drum.

5.0 PROCEDURE (cont.)

5.2.9 Record the overpack tare weight(s) on the "Overpack Record," Form FS-F-2987-1 (See Figure 1).

5.2.10 Overpacking shall be preformed in a containment area as follows:

a. Perform overpacking in a prepared, designated area or,

b. Prepare a containment area near the container using herculite, heavy plastic or other suitable material, by wraping the sides of the herculite, heavy plastic, etc. around plastic pipe to form a dike. **Any spills shall be handled per SOP 20-C-606, "Hazardous Material Spill Clean-Up".**

5.2.11 Move overpack drum(s) to the loading area per SOP 20-C-111, "Transport of Low Level Radioactive Waste and Nuclear Material."

5.2.12 Place an overpack drum on the prepared surface and remove bolt, locking ring, lid, and gasket.

5.2.13 Ensure that the forklift or hoist/lifting device specified by the Supervisor has been inspected (checked) per SOP 20-C-111, "Transport of Low Level Radioactive Waste (LLRW) and Nuclear Material (NM), (See Figure 2 for typical lifting device).

5.2.14 Using the specified forklift/hoist and lifting device, carefully place defective container(s) into the overpack drum. **Keep fingers out of pinch points while lowering container into overpack.**

5.2.15 Check condition of gasket, lid, and lock ring.

a. Replace any damaged items.

5.2.16 Set gasket and lid evenly on overpack drum.

5.2.17 Place the locking bolt ring around the drum and lid ensuring the bolt lugs are pointing downward and positioned no more than six (6) inches from the seam of the overpack drum.

5.2.18 Install locking bolt shaft through the unthreaded lug, locking nut, and the threaded lug (See Figure 3) so that the locking bolt head rests against unthreaded lug.

5.2.19 Using a wrench, tighten the locking bolt.

5.2.20 Manually tighten the locking nut against the threaded lug.

5.2.21 Using a wrench, tighten the locking nut against the threaded lug an additional 1/4 turn.

5.2.22 Weigh the completed overpack drum and record the overpack gross weight on "Overpack Record," Form FS-F-2987-1. (See Figure 1).

5.0 PROCEDURE (cont.)

5.2.23 Determine the overpack drum tare weight by adding the tare weights of the defective container(s) to the tare weight of the overpack drum and record on "Overpack Record," Form FS-F-2987-1. (See Figure 1).

5.2.24 Determine net weight of overpack drum by subtracting the tare weight as determined in Step 5.2.23 from the overpack gross weight and record on "Overpack Record," Form FS-F-2987-1. (See Figure 1).

5.2.25 Using information from "Overpack Record," Form FS-F-2987-1, stencil/paint the required identification per Figure 4, applicable section number. **Stencil shall be legible block letters 1 1/2-inches in height (minimum).**

a. If the overpack drum contains non-RCRA material or uncharacterized material, stencil/paint the "FEMP Lot Marking Code" followed by the drum number using two (2) lines (See Figure 4, Section 1).

b. If the overpack drum contains RCRA material, stencil/paint the "FMPC Lot Marking code" followed by the drum number using one (1) line (See Figure 4, Section 2).

5.2.26 Affix all markings/labels previously prepared per Section 5.2.6 of this procedure to the overpack drum as in Figure 4 (Section 2 for RCRA, Section 3 for vented, Section 5 for 55-gallon).

5.2.27 Complete and sign "Item Production/Certification/Identification" Card 65-1, Form FS-F-1945-1. (See Figure 6).

5.2.28 Have Supervisor review completed "Item Production/Certification/Identification" and obtain Supervisor's signature.

5.2.29 Move the overpack(s) into storage locations as instructed by Supervisor per the applicable procedure, SOP 20-C-111, "Transport of Low Level Radioactive Waste and Nuclear Material" or SOP 20-C-017, "Movement of Hazardous/Mixed Waste."

5.2.30 Record location and other information requested in the "Permanent Inventory Record," Form FMPC-CONT-367. (Figure 5).

5.2.31 Transmit "Overpack Record," 65-1 Card, and "Permanent Inventory Record," to MC&A Specialist's office.

5.3 Overpacking Into Vented Single Lidded Drums

5.3.1 Complete Steps 5.2.1 through 5.2.12 of this procedure.

5.3.2 If the overpack drum is to be stored inside or under shelter, proceed as follows:

a. Using the method specified by Supervisor make 1/4-inch to 1-inch holes (180 degrees apart) in the side of the drum approximately 1-inch below the top rim of the overpack drum ensuring vent holes do not interfere with the lock ring assembly. (See Figure 4, Section 3).

5.0 PROCEDURE (cont.)

5.3.3 If the overpack drum is to be stored outside, proceed as follows:

a. Obtain a bung type lid and NUC-FIL 013 vent plug from the Supervisor.

b. Install the vent plug in the bung hole.

5.3.4 Using a stencil and white paint, stencil the side of the drum with the word "VENTED" to indicate the drum has been vented. **The word "VENTED" shall be 1 1/2 to 2-inches high and located under the bottom chime at the drum seam (drum centerline)(See Figure 4, Section 3).**

5.3.5 Record the required information on the "Drum Venting Record Form FMPC-OPR-3228 (See Figure 7).

5.3.6 Complete Steps 5.2.13 through 5.2.31 of this procedure.

6.0 DEFINITIONS

- Defective Container - A can or drum with holes, dents, bulges, and/or corrosion which is unacceptable for storage of material and has the potential to cause a leak or spill.
- Overpack Drum - A drum into which one (1) or more smaller defective containers are placed.
- Overpack Tare Weight - The sum of the tare weights from the defective container(s) plus the tare weight of the overpack drum.
- Overpack Gross Weight - The total weight of the completed overpack drum.
- Overpack Net Weight - The weight after subtracting overpack tare weight (as defined in 6.3) from overpack gross weight (as defined in 6.4).

7.0 APPLICABLE DOCUMENTS

7.1 Drivers

- DOE Order 5480.19
- FEMP, "Drum Management Plan"

7.2 References

- RM-0005, "FEMP Lot Marking and Color Coding System"
- SOP 20-C-904, "General Nuclear Safety Requirements"

7.0 APPLICABLE DOCUMENTS

- SOP 20-C-606, "Hazardous Material Spill Clean-Up"
- SOP 20-C-912, "Checking Scale Operation"
- SOP 20-C-111, "Transport of Low Level Radioactive Waste and Nuclear Materials"
- SOP 20-C-001, "Changes To Form Entries"
- SOP 20-C-602, "Inspection and Operation of NILFISK Portable Vacuum Units"
- SOP 20-C-017, "Movement of Hazardous/Mixed Waste"

FIGURE 1

OVERPACK RECORD
Form FS-F-2987-1

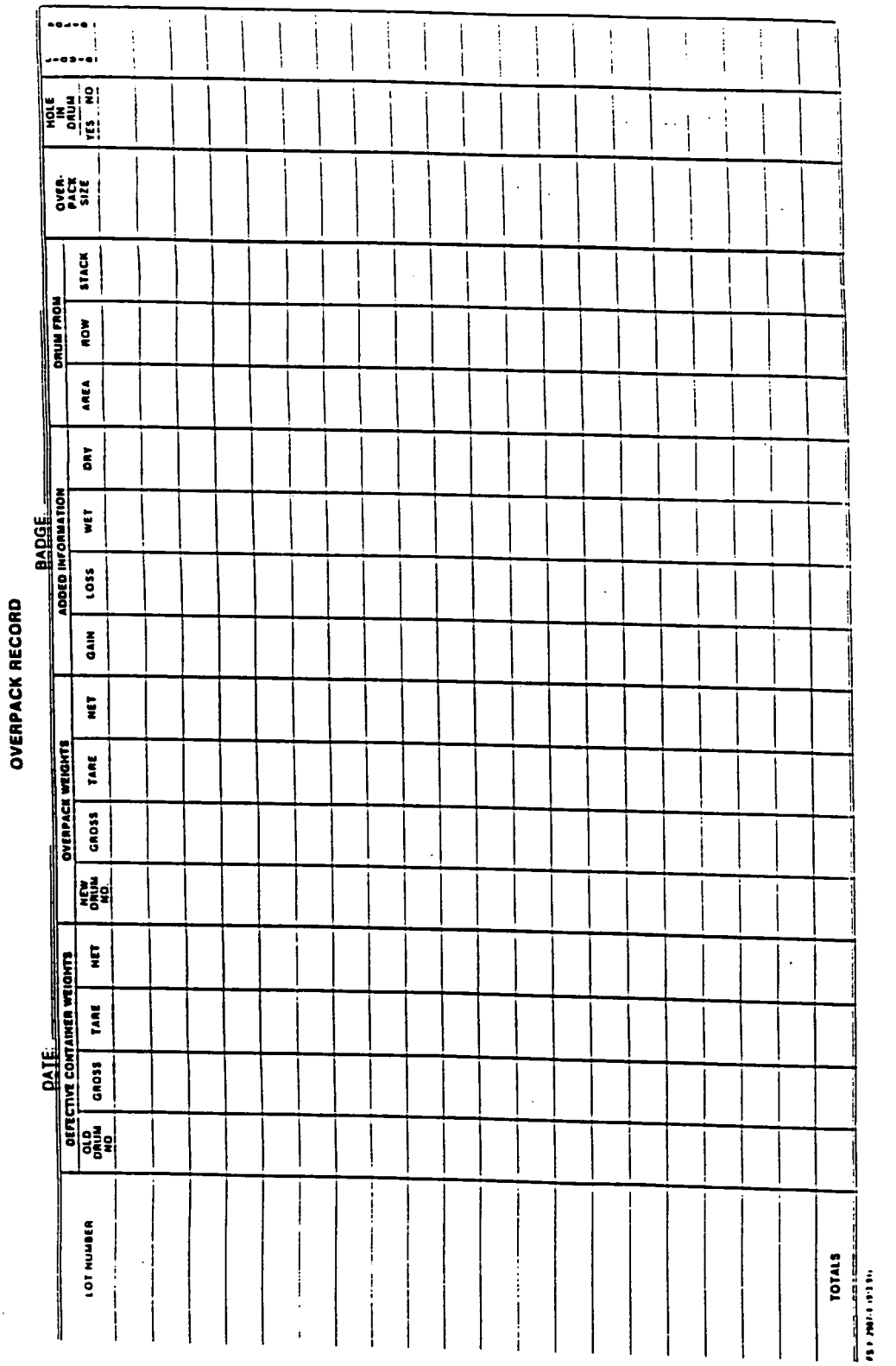
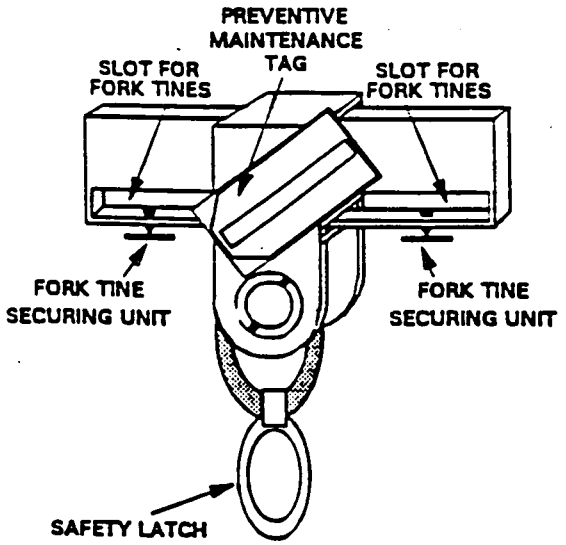


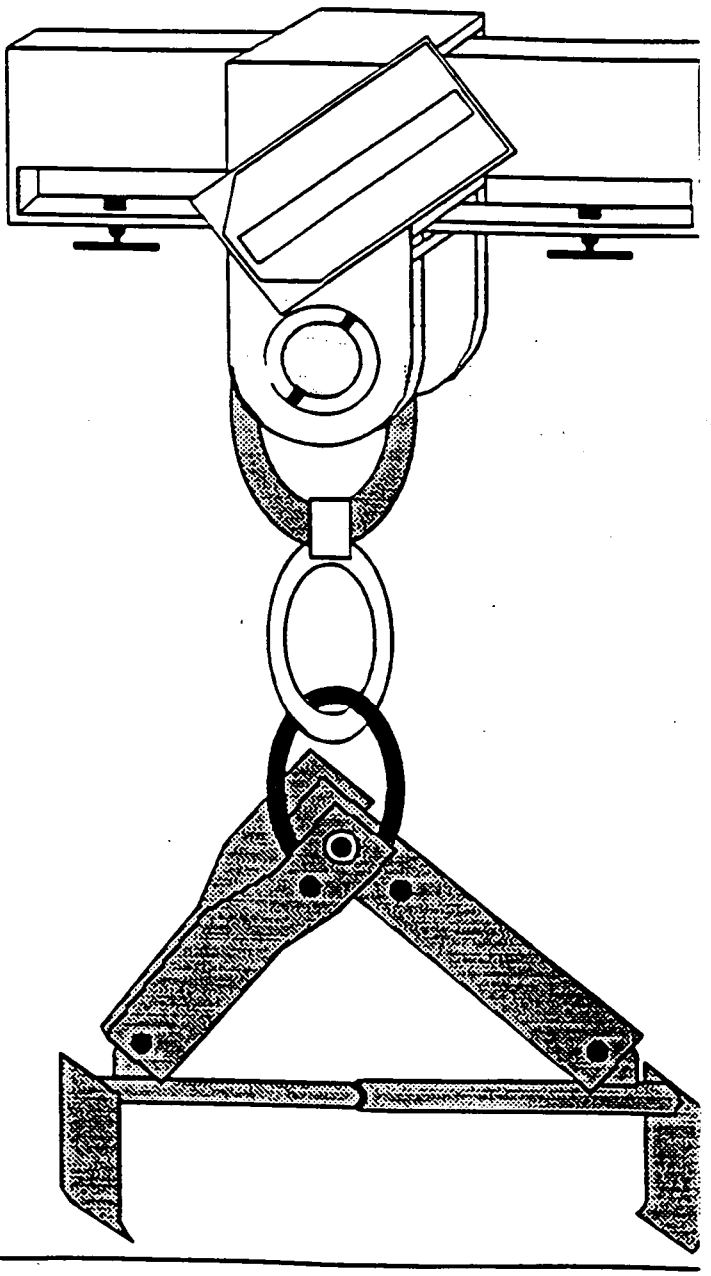
FIGURE 2

TYPICAL LIFTING/HANDLING EQUIPMENT

LIFTING/HANDLING FIXTURE



LIFTING/HANDLING SETUP FOR FORKTRUCK/HANDSTACKER



DRUM LIFTING DEVICE

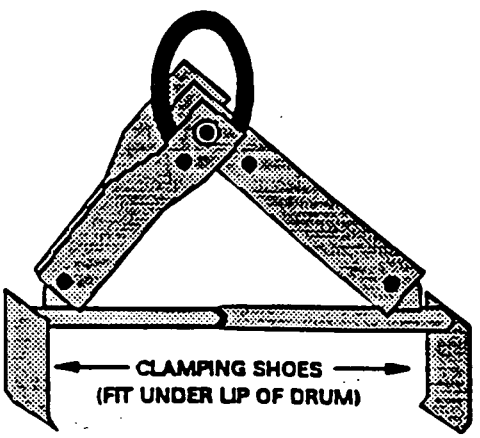


FIGURE 3

INSTALLATION OF BOLT-TYPE LOCKING RING

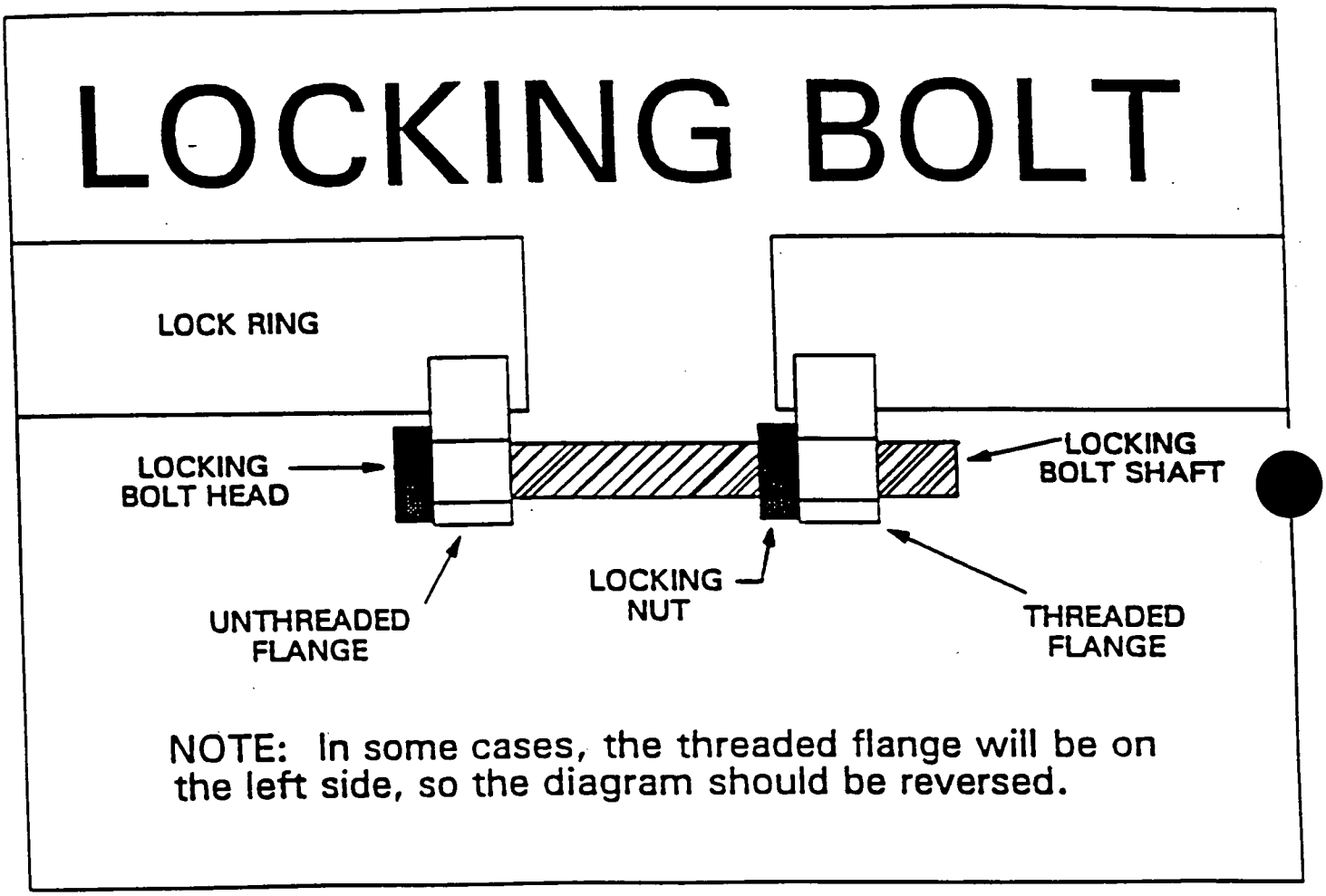


FIGURE 4

DIAGRAM OF OVERPACK/DEFECTIVE CONTAINER IDENTIFICATION

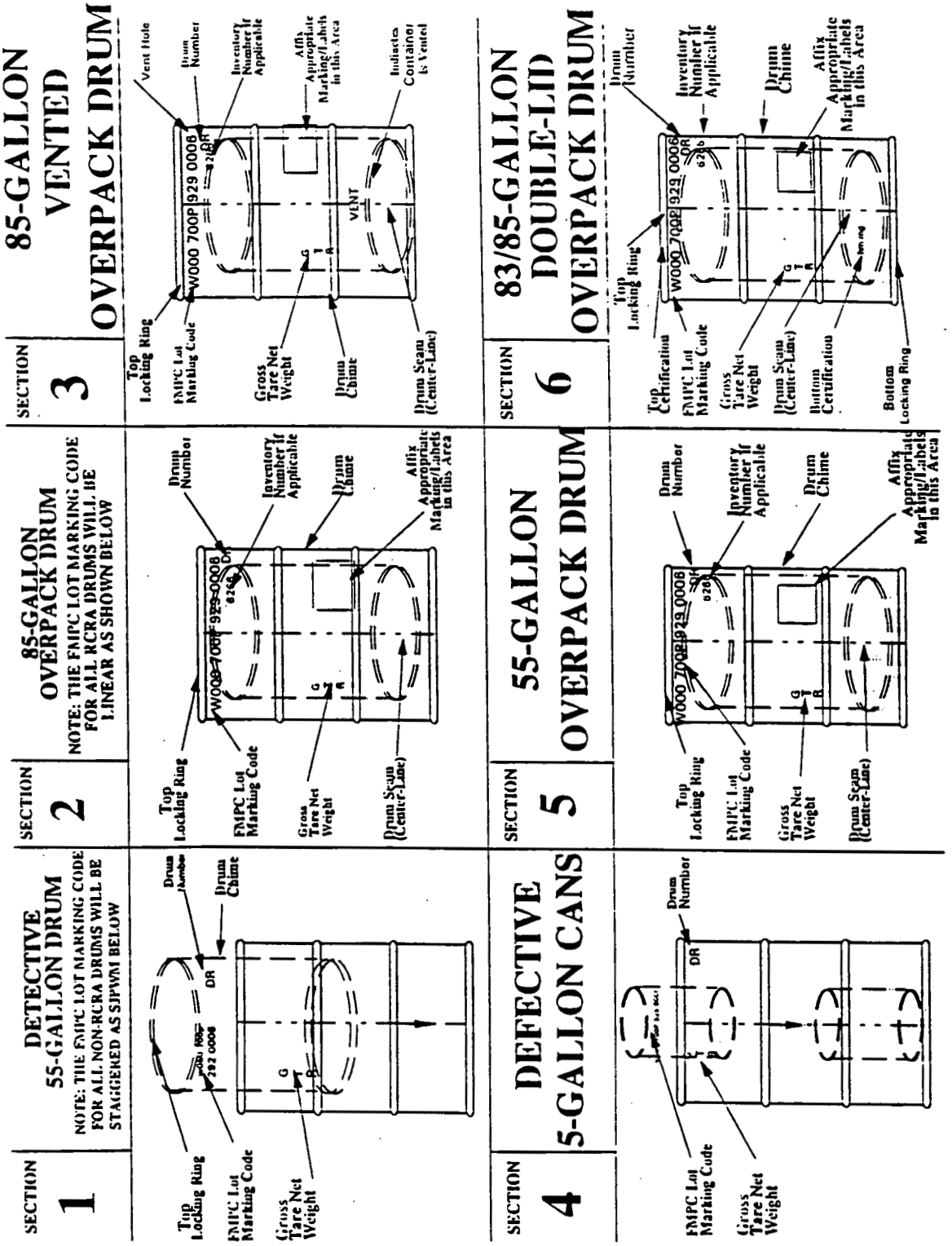


FIGURE 5

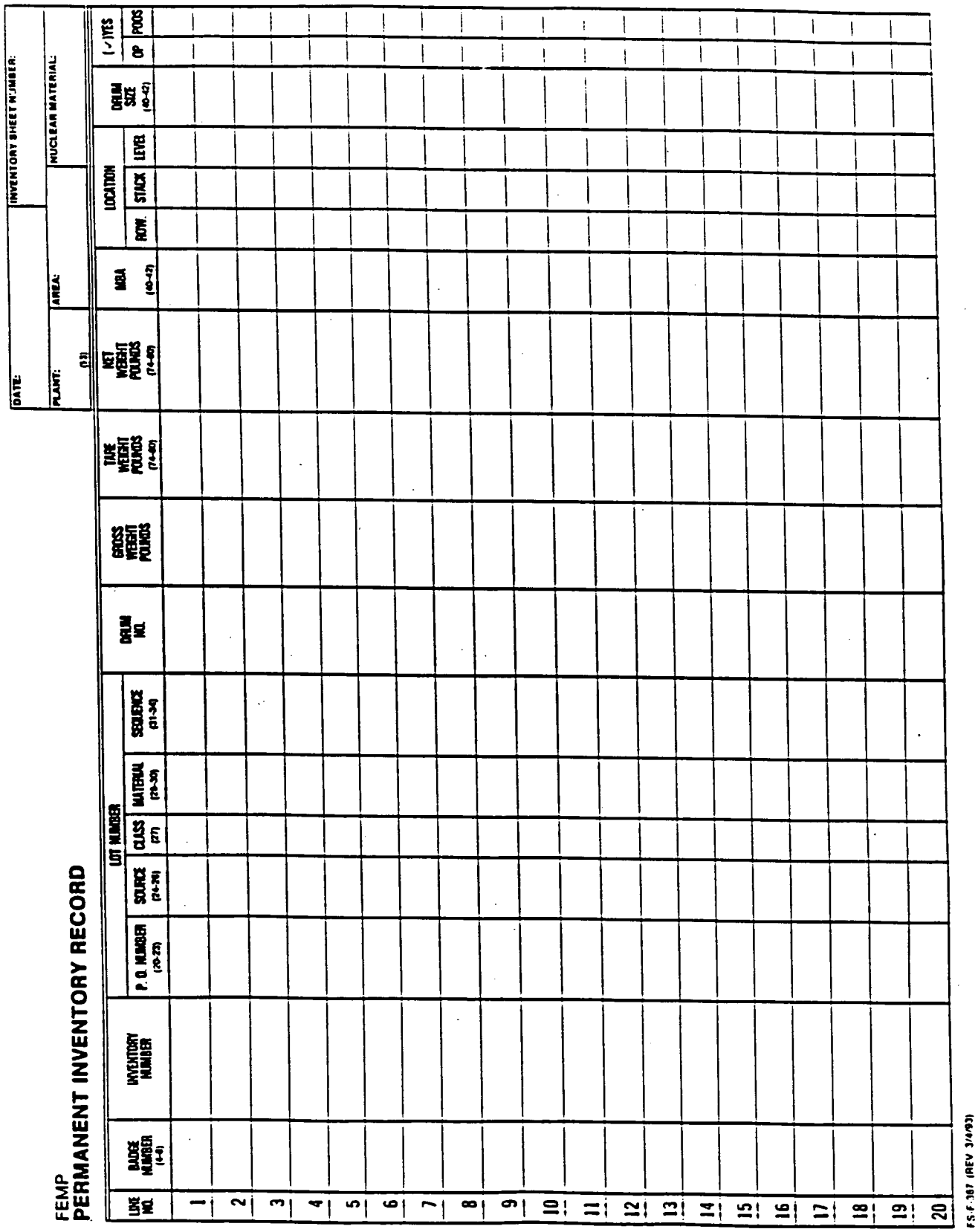

FEMP
PERMANENT INVENTORY RECORD
DATE:
PLANT:
AREA:
INVENTORY SHEET NUMBER:
NUCLEAR MATERIAL:
LOT NUMBER
LOCATION
LINE NO.
BADGE NUMBER
INVENTORY NUMBER
P. O. NUMBER
SOURCE
CLASS
MATERIAL
SEQUENCE
DRUM NO.
GROSS WEIGHT POUNDS
TARE WEIGHT POUNDS
NET WEIGHT POUNDS
MBA
ROW
STACK
LEVEL
DRUM SIZE
OP
PODS
FS-F-187 (REV 3/93)

FIGURE 6

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
Form FS-F-1945-1

CARD 65- **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION** INV. NO.:

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	CONT. NO.	SERIAL NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	
PROJECT	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		
OVERPACK		
REPACK		

PLANT	PROD. MBA	MEF NO.

DCAR	SURV. NO.	GROSS WEIGHT

TARE WEIGHT

NET WEIGHT

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1945-1 (REV. 11/20/92)

FIGURE 7

DRUM VENTING RECORD
Form FMPC-OPR-3228

FMPC
DRUM VENTING RECORD

Plant: _____

DRUM NUMBER	LOT NUMBER	MTC/SRC	DAMAGED/DEFORMED		DRUM VENTED		DATE	OPERATOR NAME AND BADGE NUMBER	OVERPACK	
			YES	NO	YES	NO			YES	NO

REMARKS: _____

FMPC-OPR-3228 (2-12/91)

CONTROL NO. FER-0014
SITE PROCEDURE PM-0001 (SSOP-1044)
REVISION NO. 5

MANAGEMENT OF GOVERNMENT PROPERTY

Effective Date: 08-31-94

NON-CONTROLLED COPY

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: Gail Phillips 2/20/95
Gail Phillips, Manager of Property Management — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

CONTROL NUMBER FER-0018
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-1044
REVISION NO. 5

MANAGEMENT OF GOVERNMENT PROPERTY

NON-CONTROLLED COPY

SSOP-1044

Effective Date: 08-31-94

AUTHORIZED BY: _____ 8/31/94
D. Ofte, President — Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

Fernald Environmental FERMCO Restoration Management Corporation	Title: MANAGEMENT OF GOVERNMENT PROPERTY
	DOCUMENT NO: SSOP-1044 REVISION NO: 5
Effective Date: 08-31-94	Page 1 of 10

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Fernald Environmental FERMCO Restoration Management Corporation	Title: MANAGEMENT OF GOVERNMENT PROPERTY	
	DOCUMENT NO: SSOP-1044 REVISION NO: 5	
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
09-30-93	0	New document required by DOE to establish a site procedure on the Management of Government Property per Request No. S93-216, initiated by Steve Klemko. This procedure supersedes FMPC-0303, Management of Government Property, dated 02-15-89.
03-24-94	1	Addition to the document required by DOE per Request No. S93-312, initiated by Steve Klemko. This section of the document supersedes PP-0309, Management of WEMCO Site Precious Metals, dated 05-19-92, Rev. 0.
04-29-94	2	Addition to the document to include information on Real Property management and minor modifications to previously published text as required by DOE per Request No. S94-055, initiated by Steve Klemko.
06-29-94	3	Addition to the document to include information Receiving, Warehousing, and Inventory Control, and Automatic Data Processing Equipment per request S94-078, initiated by Steve Klemko.
06-29-94	4	Addition to the document to include information on Vehicle Management as required by Request No. S94-109, initiated by Steve Klemko. This revision to this document replaced PL-3033, Revision 0, 02-28-94.
08-31-94	5	Changes to the document based upon updated information and addition of the Cannibalization Section and the Management of Equipment Held for Future Projects as required by Request No. S94-141, initiated by Steve Klemko.

1.0 PURPOSE

This document provides procedures for Fernald Environmental Restoration Management Corporation (FERMCO) personnel to adhere to in the disposition of Government property. This procedure does not supersede contract specified procedures approved by the contracting officer.

2.0 SCOPE

These procedures apply to all FERMCO personnel.

3.0 DEFINITIONS

Abandoned-In-Place Property - Property that has no commercial material value, or the estimated cost of its continued care and handling would exceed the estimated proceeds from its sale. This classification requires DOE approval.

Administratively Controlled Items - Plant Equipment with an acquisition value greater than $500.00, but less than $5000.00 and not classified as a sensitive item.

C&A - Contracts and Acquisitions

Capital Equipment - As defined by DEAR 945.101, personal property items having a unit acquisition cost of $5,000 or more and an anticipated service life in excess of 2 years, regardless of type of funding, and having the potential for maintaining their integrity as capital items; i.e., not expendable due to use.

CFR - Code of Federal Regulations

Contractor Acquired Property (CAP) - Property procured by or otherwise provided by FERMCO and/or FERMCO subcontractors for the performance of the prime contract, title to which under terms of the contract is vested in the government. This type of property would be the normal day-to-day non-expendable and consumable property processed through the system for accountability purposes.

CMMS - Computer Material Management System

CPPM - Computer Protection Program Manager

DEAR - Department of Energy Acquisition Regulation

ESD - Electrostatic Discharge

Excess - Government property no longer required for the performance of the prime contract.

3.0 **DEFINITIONS** (cont.)

FAR - Federal Acquisition Regulation

FEMP - Fernald Environmental Management Project

FERMCO - Fernald Environmental Restoration Management Corporation

FERMCO Property - Property procured/owned by FERMCO for use other than in support of the prime contract.

FN - Fernald

FPMR - Federal Property Management Regulation

Government Furnished Property (GFP) - Property in the possession of, acquired directly by the Government and subsequently delivered or otherwise made available to, FERMCO in support of the prime contract. Accountability, not ownership, is transferred to FERMCO. This type of property is not accompanied by a FERMCO purchase order, but would be supported by a Transfer Order Excess Personal Property form, SF122, equivalent form upon delivery. The project property administrator will control this type of property through the use of Equipment Custodian accounts.

IC&W - Inventory Control and Warehousing

Major Item of Equipment - Any equipment project costing one million dollars or more (acquisition plus installation) that is funded from the capital-equipment-not-related-to-construction portion of the plant and capital equipment budget and that involves installation costs of over $250,000.

Material - As defined in FAR 45.301, property that may be incorporated into or attached to a deliverable end item or that may be consumed or expended in performing a contract. It includes assemblies, components, parts, raw and processed materials, and small tools and supplies that may be consumed in normal use in performing a contract.

MMICS - Maintenance Management Inventory Control System.

MSO - Miscellaneous Shipping Order.

Nuclear Materials - At the Fernald Site this refers to uranium and thorium.

3.0 DEFINITIONS (cont.)

PAC - Property Account Center Representation

Personal Property - As defined by DEAR 945.101, property of any kind or interest therein, except real property, records of the Federal Government, atomic weapons, and by-product materials.

Plant and Equipment Classified as Held for Future Projects - All personal property that is retained for a known future project or for a potential use based on approved economic or programmatic justification. Justification is to be documented specifying the future project and approved by the appropriate department manager.

Plant and Equipment Classified as In-Standby - Personal property including capital equipment as well as stores items which is neither currently in use nor declared excess and for which there is a potential for future use. Property to be declared as in-standby should be identified as significant segments of Plant and Equipment, such as a complete plant or section of a plant.

Property Disposal Request (Form FS-F-563) - The form required whenever Government property is to be disposed of as excess, salvage, or scrap.

PMR - Property Management Regulation

Real Property - Buildings, land, and land improvements.

REAPS - Reportable Excess Automated Property System

Salvage - Property that, because of its worn, damaged, deteriorated, or incomplete condition or specialized nature, has no reasonable prospect of sale or use as serviceable property without major repairs, but has some value in excess of its scrap value.

Scrap - Personal property that has no value except for its basic material content.

Sensitive Items - DOE PMR 109-1.5101 defines sensitive items as those items of property, regardless of value, which are considered to be susceptible to being appropriated for personal use or which can be readily converted to cash, for example: firearms, portable photographic equipment, binoculars, portable tape recorders, portable calculators, and portable power tools.

4.0 RESPONSIBILITIES

All property at the FEMP is owned by the U. S. Government. FERMCO, as a contractor, is accountable to the Government for that property.

Property Management, in partnership with Division Managers, is responsible for accounting to the Government for both Government furnished property (GFP) and contractor acquired property (CAP). Accountability will be in accordance with Federal Acquisition Regulations (FARs) and prime contract requirements.

All employees (DOE, FERMCO, and subcontractors) have responsibilities for assigned Government property, even if they are not the custodian of that property. The responsibilities are:

- To follow the FERMCO property management policies and procedures.
- To provide oversight and reasonable care for all Government property.
- To report and/or cooperate in the investigation of lost, damaged, or stolen property.
- To use Fernald property for official Government business only.

Division Manager is the prime person in the chain of property accountability and responsibility within her/his division. The Division Manager will designate one person as Division Property Representative for that division.

NOTE: Each division may have one or more Property Account Center (PAC) under that division for the administration of the property which is part of that account.

Division Property Representative (DPR) will assign each PAC a Property Account Center Representative. The DPR may be a PAC Representative for one or more PACs.

Property Account Center Representative (PAC) will administer and record property transactions, including the following:

- Direct responsibility and accountability for capital, sensitive and administratively controlled items.
- Assignment of the initial custodian for sensitive property when such property is acquired. The PAC may also assign capital and administratively controlled items to a custodian.

4.0 **RESPONSIBILITIES** (cont.)

- Processing changes in the status of property, such as changes of custodian or location. Changes will be made directly into the Computerized Materials Management System (CMMS) no later than 24 hours after the change in states.
- Maintaining records for the property under her/his jurisdiction.
- Issuing short term property passes.
- Participating in property inventories and storage reviews.
- Maintaining custodial records on individuals assigned personal property.
- Reporting lost, damaged, or missing property to both Security and Property Management.

Custodian is assigned for each capital, sensitive, and administratively controlled item. The Custodian is directly responsible and accountable for that property until a replacement custodian has been assigned and the new custodian's name is recorded in the CMMS. For each item of property assigned, the Custodian:

- Must know the location of the property.
- Is accountable for the condition and physical security of the item(s), and must ensure that it is properly maintained.
- Must sign a Property Addition/Change/Relocation Request Form for sensitive item to formally acknowledge acceptance of custody of the item.
- Must notify the PAC of any change in status of the item such as changing location or transferring the item to a different custodian.

5.0 **GENERAL**

Property management is the focal point for all property matters relating to the prime contract. Basic property management functions include acquisition, receiving, property records, storage and movement, consumption, utilization, maintenance, physical inventories, subcontractor control, disposition, and reports.

5.1 PROTECTION OF GOVERNMENT PROPERTY

For information pertaining to the protection of property see Attachment A.

5.0 GENERAL (cont.)

5.2 ACQUISITION OF PROPERTY

For information pertaining to the acquisition of property see Attachment B.

5.3 RECEIVING

For information pertaining to the receipt of property see Attachment C.

5.4 PROPERTY RECORDS

For information pertaining to maintaining property records see Attachment D.

5.5 STORAGE AND MOVEMENT

For information pertaining to storing and moving property, see Attachment E.

5.6 CONSUMPTION

For information pertaining to the consumption of property, see Attachment F.

5.7 UTILIZATION

For information pertaining to the utilization of property, see Attachment G.

5.8 MAINTENANCE

For information pertaining to the maintenance of property, see Attachment H.

5.9 PHYSICAL INVENTORIES

For information pertaining to taking physical inventories, see Attachment I.

5.10 SUBCONTRACTOR CONTROL

For information pertaining to the control of property being used by subcontractor, see Attachment J.

5.0 GENERAL (cont.)

5.11 DISPOSITION

For information pertaining to the disposition of property, including Property Condition Codes, see Attachment K.

5.12 REPORTS

For information pertaining to required property reports, see Attachment L.

5.13 SENSITIVE ITEMS OF PROPERTY

For information pertaining to the control of items of property identified as sensitive by DOE PMR 109-1.5106.4, see Attachment M.

5.14 MANAGEMENT ASSISTANCE REVIEWS

For information pertaining to management assistance reviews of property management areas, see Attachment N.

5.15 MANAGEMENT OF PRECIOUS METALS

For information pertaining to management of precious metals, see Attachment O.

5.16 REAL PROPERTY MANAGEMENT

For information pertaining to the management of real property, see Attachment P.

5.17 INVENTORY MANAGEMENT

For information pertaining to receiving, warehousing, and inventory control, see Attachment Q.

5.18 VEHICLE MANAGEMENT

For information pertaining to vehicle management, see Attachment R.

5.19 CANNIBALIZATION OF EQUIPMENT

For information pertaining to vehicle management, see Attachment S.

5.20 AUTOMATED DATA PROCESSING EQUIPMENT (ADPE)

For information pertaining to ADPE, see Attachment T.

5.21 MANAGEMENT OF EQUIPMENT HELD FOR FUTURE PROJECTS

For information pertaining to management of equipment held for future projects, see Attachment U.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

The procedures are contained within the specific attachments.

8.0 **APPLICABLE DOCUMENTS**

8.1 DRIVERS

- FAR 45.5/DEAR 945.5, Management of Government Property in the Possession of Contractors
- FAR 45.6/DEAR 945.6, Reporting, Redistribution, and Disposal of Contractor Inventory
- Federal Property Management Regulation (41 CFR 101)
- DOE Property Management Regulation (41 CFR 109)

8.2 REFERENCES

- FAR 14.4/DEAR 914.4, Opening of Bids and Award of Contract
- FAR 4.7, Contractor Records Retention

PROTECTION OF GOVERNMENT PROPERTY

1.0 GENERAL

Property protection shall be accomplished by implementation of measures to guard against accidental damage, vandalism, sabotage, theft, and loss. The degree of control or effort expended to afford protection shall depend upon sensitivity, value, and susceptibility to loss or damage.

RESPONSIBILITY	ACTION
PROPERTY CONTROL	A. Periodically issues a site-wide guideline which lists items that are to be considered sensitive. Responds to questions from FERMCO managers about questionable items that should be considered for possible inclusion in the site list.
DEPARTMENT MANAGER	B. Appoints a Property Account Custodian for the division.
	C. Ensures that employees are informed of their responsibility to protect Government property.
	D. Provides facilities for safekeeping sensitive items.
	E. Authorizes select individuals to acquire items from IC&W.
	F. Approves (or disapproves) purchase requisition or gives this authority to a designee.
PROPERTY ACCOUNT CUSTODIAN	G. Prepares Property Addition/Change/Relocation Request form, FS-F-3126, as a record of the sensitive, capital, and administratively controlled property and who has custody of the item(s). Maintains property records.
	H. Monitors usage rates of sensitive items to ensure usage is consistent with operating requirements and to detect indications of misappropriation.

RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN (cont.)	I. Upon notification by Property Control, performs physical inventories to verify that all capital and/or sensitive property items, for which he or she is responsible, are accounted for. Determines if inventory items are listed on the Property Account Custodian's listing and in the possession of the employees to whom the item(s) was assigned.
	J. Reports and records any lost, damaged, or stolen item(s); reports findings to staff manager; and reports the missing items to Security, Property, and Internal Audit.
	K. Writes a letter to the Manager, Property Control, verifying taking of the physical inventories and reporting any missing, damaged or stolen item(s).
	L. Upon termination of employment of a person possessing Government property, recalls and accounts for all items issued to the terminating employee. Upon verification of these items, approves Clearance For Final Pay form.
FERMCO PROPERTY ADMINISTRATOR	M. Requests a site-wide review by Property Account Custodians for any items that are reported missing.
	N. Reports to the DOE any missing, damaged, or lost property items.
SECURITY	O. Displays signs in various areas on site to keep employees informed of the seriousness of taking or abusing Government property.

RESPONSIBILITY	ACTION
SECURITY (cont.)	P. Conducts periodic inspections of lunch boxes, briefcases, and other packages removed from the site to make employees aware of the ongoing efforts to control Government property.

ACQUISITION OF PROPERTY

1.0 GENERAL

All direct charge property purchased by FERMCO in support of the prime contract will be supported by a FERMCO purchase order initiated by the Purchasing Department.

2.0 CONTRACTOR ACQUIRED PROPERTY

2.1 To ensure that all direct charge property is properly screened, controlled, and accounted for, all purchased requests will be processed through the Warehouse Manager.

2.2 Property Control will screen the receiving copy of the purchase order generated by the Acquisition Department. If equipment is ordered that meets the barcoding requirements of Attachment C, Paragraph 2, the item will be flagged and a copy of the purchase order placed in the equipment due-in file.

3.0 GOVERNMENT FURNISHED PROPERTY

3.1 Receipt of GFP will be in accordance with the requirements outlined in Attachment C of this procedure.

3.2 Property Control will ensure that GFP pricing data is accurate. If the pricing data is omitted from the SF122, Property Control will request the price data from the Government Property Administrator.

4.0 ACQUISITION OF GOVERNMENT PROPERTY

4.1 Items of property are required for many reasons, e.g., to support newly authorized programs or projects, to expand existing activities, to replace worn-out or obsolete facilities and equipment, or to replenish consumable items.

4.2 Government property can be obtained from many sources. Some of the potential sources are: IC&W, storage, idle equipment, FEMP Excess, Reportable Excess Automated Property System (REAPS) for transfers from other facilities or Government sources, loans, leases, rentals, or purchases.

4.3 Managers and Property Custodians have a responsibility to ensure that reviews aimed at acquiring needed property from alternative sources are conducted prior to resorting to new purchases.

RESPONSIBILITY	ACTION
REQUESTOR	A. Identifies the need for facilities, equipment, materials, spare parts, or supplies.
	B. Determines if item(s) is available at this site, in inventory or excess, or, with the help of Property Management, can be obtained from DOE or from another Government facility.
	C. Arranges with Property Management personnel to acquire available Government-owned facilities, equipment, or materials.
	D. Considers renting or leasing equipment as an alternative to purchasing. Discusses the alternatives with Purchasing.
	E. Prepares a Requisition for Material and Service form, FS-F-2126. Obtains Staff Manager's and, if renting or leasing, the Controller's written approval.
	F. Takes actions accordingly to acquire excess property or to purchase item(s), depending on cost.

RECEIVING

.0 GENERAL

1.1 The Receiving Section is responsible for verifying the physical condition of property and the quantities delivered/shipped by vendors as authorized by the FERMCO Acquisition Department. A determination will be made as to which items require technical inspection, warranty, hazardous, sensitive/pilferage, electrostatic and classified material processing, property ownership, and distribution.

1.2 Basic receiving functions are unpacking material, checking material against the corresponding purchase order and invoice/packing list, ensuring the necessary inspections are performed, completing appropriate receiving and inspection reports, making the necessary data entry inputs, and ensuring materials are distributed to the responsible sections.

2.0 BARCODING CONTRACTOR ACQUIRED PROPERTY

2.1 Property Control will notify the Receiving Section of items on order that are required to be barcoded upon receipt.

2.2 Property Control will furnish the barcoding information to the Receiving Section for the barcoding of equipment.

2.3 Property Control will affix the appropriate barcode to equipment in a location where it can readily be seen, record the barcode number on the receiving/inspection report, and forward a copy of the form to be filed in the Property records.

3.0 BARCODING GOVERNMENT FURNISHED PROPERTY

3.1 Government furnished property will be received and barcoded. The Government representative will coordinate delivery of GFP with the FERMCO Property Management Representative.

3.2 The Government representative will provide a copy of the Transfer Order Excess Personal Property form, SF122, (or equivalent form) for all deliveries of GFP. The project property management representative will:

3.2.1 Verify quantities, national stock number and condition of GFP.

3.2.2 Store the GFP in a secure area until barcoding and issue is complete.

3.2.3 Barcode the GFP with the appropriate barcode (Capital, administratively controlled, or Sensitive).

3.2.4 Document barcode numbers in the GFP barcode log.

3.2.5 Prepare the Government accountable property record.

3.2.6 Document the automated property management records.

4.0 RECEIVING GOVERNMENT CREDIT CARD PURCHASES

4.1 All Government Credit Card Purchases will be delivered to and received through Receiving and Incoming Materials Inspection Area (RIMIA) at the FEMP, unless other authorized arrangements are made prior to the purchases being made.

4.2 The credit card holder can purchase items and hand-carry them to his or her place of business at their discretion.

4.3 All items marked "Credit Card Purchase" will be signed for at the RIMIA by the receiving clerk and placed on the distribution dock for delivery throughout the site.

4.4 The motor vehicle operator and his helper will fill out a delivery ticket, deliver the item and have the requester sign for it.

4.5 A complete audit trail exists for all credit card purchases, whether they are delivered to the site or carried to the site by the credit card holder. The trail consists of credit card receipts, credit card purchase logs, monthly invoices, and monthly summary logs.

PROPERTY RECORDS

1.0 GENERAL

Property Control is responsible for the preparation and maintenance of property records for the prime contract. Property records consist of the Government accountable property record.

2.0 GOVERNMENT ACCOUNTABLE PROPERTY RECORD

Property Control is responsible for preparing a Government accountable property record form for each direct charge equipment item that is received and barcoded. Upon receipt of the receiving/inspection report from the Receiving Section, Property Control will:

2.1 Enter the barcode number used in the appropriate barcode log, i.e., GFE, CAP, or FERMCO.

2.2 Prepare the Government accountable property record Property Addition/Change/Relocation Request form, FS-F-3126, per the following instructions:

2.2.1 Line number: Enter the appropriate line item number as the form is designed for multiple entries from the purchase order.

2.2.2 Transaction Date: The current date (month, day, and year).

2.2.3 Noun, Item Description and Part/Model Number and Serial Number: Obtain the appropriate data from the purchase order and receiving report.

2.2.4 Manufacturer or Vendor: Obtain from the purchase order or receiving report.

2.2.5 National Stock Number: Obtain from the Warehouse Manager, if required.

2.2.6 Quantity: Obtain from the purchase order and receiving report.

2.2.7 Unit of Issue: Obtain from the purchase order and receiving report.

2.2.8 Acquisition or Transaction Document: Normally the purchase order number.

2.2.9 Transaction Date: Date of last transaction.

2.2.10 Barcode Number: Obtain from the receiving report.

2.2.11 Location: Enter the name of the Equipment Custodian and account number based on the requester block in the purchase order.

2.2.12 Acquisition Cost: Normally the unit price on the Purchase Order. However, depending on the value, may include the installation and freight costs.

2.0 **GOVERNMENT ACCOUNTABLE PROPERTY RECORD** (cont.)

2.3 File the Property Addition/Change/Relocation Request form, FS-F-3126, in the designated file in barcode number sequence.

3.0 **PROPERTY ACCOUNT CUSTODIANS (PAC)**

3.1 It is FERMCO policy that all property, including Government furnished property (GFP), or contractor acquired property (CAP) purchased as a direct charge to the contract be assigned to a designated Property Account Custodian. Each division/functional manager is responsible for the appointment of Property Account Custodians to manage and control accountable property within their areas of responsibility. Appointments will be made in writing. Specific duties of the designated Property Account Custodians are:

3.1.1 Protecting the equipment under their control from loss, theft, or destruction. Ensure that the equipment is used in such a manner to preclude damage or deterioration, other than normal fair wear and tear.

3.1.2 Ensuring that the property administration section is notified upon the transfer of, or relocation of, property so the accountable records may be adjusted. Provide Property Management with a completed Property Addition/Change/Relocation Request. Upon receipt of a completed and signed Property Account Custodian Transfer Request, Property Management will move the item(s) to the gaining Custodian's account within Property Management. Both custodians will be notified of completed action and furnished copies of supporting documentation.

3.1.3 Assist in the performance of annual inventories and, as required, utilization reviews of equipment assigned to their account. Excess or unserviceable equipment will be reported to Property Management by submittal of a property disposal request.

3.1.4 Ensuring that all required inspections, maintenance, and calibration of Government property is performed and the appropriate records are maintained.

3.1.5 Preparing and submitting statements/reports regarding any loss, theft, or damage of property which is under their control.

3.1.6 Approves final clearance on terminated employees. Ensures all property assigned to or on Property Pass to the employee is physically accounted for prior to approval of final termination clearance.

3.1.7 Responsible for maintenance of the Property Pass System for items assigned on the Property Account Custodian records. (See Attachment E, paragraph 5.1).

3.0 **PROPERTY ACCOUNT CUSTODIANS (PAC)** (cont.)

3.2 Department managers are responsible for ensuring that the property administration function is notified of any changes in Property Account Custodians as a result of employee transfer, resignation, or termination. Replacement Property Account Custodians must be designated in writing and a inventory transfer between the old and new custodian accomplished.

4.0 **RECORDS OF MATERIAL**

Material records are a part of the MMICS and as such, detailed procedures relating to acquisition, receipt, issue, storage, turn-in, consumption, and utilization are contained in the receiving, warehouse and stock control procedures.

5.0 **RECORDS OF SCRAP AND SALVAGE**

A Property Disposal Request form, FS-F-563, is prepared for scrap/salvage processed through the Contracting Officer and/or Government Property Administrator for disposal instructions. A copy of the Property Disposal Request will be filed in the scrap and salvage files by fiscal year.

6.0 **RESPONSIBILITIES FOR PROPERTY CONTROL**

The FERMCO Property Administrator is charged with the overall responsibility for the establishment and maintenance of property controls. In addition, the FERMCO Property Administrator serves as the liaison with the Government Property Administrator to ensure that the procedures and controls prescribed herein are adequate and properly implemented.

7.0 **RECORDS RETENTION**

7.1 Records pertaining to the acquisition, receipt, fabrication, shipment, or disposal of Government furnished or contractor acquired property will be filed, stored and safeguarded as specified in the FAR, Subpart 4.7.

7.2 Accountable property records for the prime contract will be retained for 4 years from the end of the fiscal year in which the last transaction was posted to the records.

STORAGE AND MOVEMENT

1.0 GENERAL

1.1 Storage is the accumulation of supplies, materials and/or equipment, broadly classified as property, in a designated area. Normally, it is the activity that takes place between receiving acceptance and issue for consumption, modification, use, or disposition. This may include anything from material waiting to be issued to individually identified items of equipment which are being held for future requirements. The primary characteristics of storage are the preservation, location, costs, and periodic evaluations or justification for further need.

1.2 Movement of property must be predicated on proper authorization and move orders generated to direct this activity. Move orders will include shipping documents and various internal material release documents. The move order must be posted to the property records and retained in file as backup documentation.

2.0 STORAGE AND ISSUE

Detailed procedures relating to the warehouse storage plan, warehouse location system, protection of assets, shelf life, flammable storage, general safety precautions, electrostatic discharge (ESD), sensitive/ pilferage items, and serialized items are contained in the warehouse procedures.

3.0 MOVEMENT OF PROPERTY

Property procedures must be followed in order to maintain adequate documentation and control over the movement, relocation, and shipment of Government property as required by the prime contract. These procedures are applicable to the control of Government property involving any of the following transactions:

3.1 Internal movements within the FERMCO work locations or storage areas.

3.2 The Miscellaneous Shipping Order (MSO) form, FS-F-871, is used to ship Government property from the site. MSOs shall include the following information: description of item(s), barcode number, serial/model number, manufacturer's name, estimated value of property, expected return date, applicable purchase order or subcontract number, reason for shipment, etc.

RESPONSIBILITY	ACTION
INITIATOR	A. Prepares MSO, obtains management approval.
	B. Delivers form to Purchasing.
PURCHASING	C. Reviews and approves form, ensuring that the purchase order/subcontract agree with the information on the MSO. Return the form to the Initiator.

RESPONSIBILITY	ACTION
INITIATOR	D. Takes MSO and property to Receiving.
RECEIVING	E. Assigns MSO number to the form.
	F. Makes distribution of copies of MSO. Gives two copies to the shipper to be used for security verification upon exit from the plant.
SECURITY	G. Checks vehicle exiting the plant to ensure that only equipment documented with an approved MSO is being taken.
	H. Signs salmon copy of MSO and forwards it to Property Control.

3.3 Shipments to Government installations and/or destinations provided by the Government and/or FERMCO.

3.4 Use the Transfer Order Excess Personal Property form, SF122, for shipments to government installations and/or destinations provided by the Government and/or FERMCO. See DOE and Federal Property Management Regulations for process requirements for these shipments.

4.0 STORAGE OF GOVERNMENT PROPERTY

Equipment assigned to FERMCO which does not have immediate application may be retained in storage, under controlled conditions, in anticipation of future project use. Materials and supplies are also to be stored and controlled considering the potential urgency of demand, ordering/usage pattern economics, scarcity of supply, availability from surplus at reduced costs, etc.

RESPONSIBILITY	ACTION
IC&W	A. Requires that all stored items are adequately protected and accounted for to maintain them in good condition and ready for use when required.
	B. Periodically reviews IC&W inventory to avoid accumulation of items for which retention cannot be justified.
PROPERTY ACCOUNT CUSTODIAN	C. Identifies property items in his or her custody which are not in current use and determines if retention can be justified.

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RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN (cont.)	D. Provides Property Control with details of unused items to be retained in storage for which disposition shall be changed.
PROPERTY CONTROL	E. Reviews justification of item retention.
	F. Retains records of items in storage and provides listings for management review and rejustification for retention of items classified as Standby and Equipment Held for Future Use.
PROPERTY ACCOUNT CUSTODIAN	G. Ensures compliance with safe storage practices in areas under their cognizance.
PROPERTY CONTROL	H. Observes operation of storage facilities during walk-throughs and storage reviews to confirm compliance with DOE regulations. Reports results to FERMCO management.
	I. Updates information to FERMCO property records to correctly reflect the location and status of stored items.

5.0 MOVEMENT AND REMOVAL OF GOVERNMENT PROPERTY

All movements, either on site or off site, shall require documentation and be reported to Property Control. Government-owned property shall be removed from the site by employees or subcontractors, for official use only, upon receipt of the proper approvals.

5.1 In order to obtain a FERMCO Recurring Removal Pass, FS-F-3014, to remove U.S. Government Property from on-site or off-site access points and off-site FERMCO locations, a FERMCO employee must complete an Employee Property Pass Request, FS-F-3013 (Rev 5-11-93). The pass request requires the approvals of management personnel of the employee's department and the employees department Property Account Custodian (PAC). The removal of computer equipment/software also requires the approval of the Computer Protection Program Manager (CPPM).

5.2 Red colored property Recurring Removal Passes, FS-F-3014, are issued by the Property Account Custodian to employees for equipment necessary to perform the employees day to day work duties. Such equipment includes two-way radios, cellular phones, radiation monitoring, and training equipment. This pass is usually laminated and issued in the name of the department responsible for the equipment.

5.3 Green colored property Recurring Removal Passes are issued by the Property Account Custodian to requesting department employees for equipment being borrowed for specific periods. If the borrowing period exceeds 14 days, the FERMCO Property Administrator must approve both the Employee Property Pass Request, FS-F-3013, and the green colored Property Recurring Pass. Portable computers are a example of the equipment listed in the requests for passes.

The following items do not need authorization to be removed from the site:

- Stationery items such as pens and pencils
- Work papers and binders
- Briefcases
- Radio pagers
- Cellular telephones
- Books
- Audio and video cassettes

RESPONSIBILITY	ACTION
BORROWER	A. Completes form FS-F-3013 and obtains the indicated necessary signatures of approval.
	B. Sends approved form to Property Account Custodian.
PROPERTY ACCOUNT CUSTODIAN	C. Reviews request for recurring pass. If acceptable, prepares pass and returns the request to the borrower. If denied, notifies the employee and provides the reason for denial.
BORROWER	D. Shows pass, along with property being removed or returned, to the Security Officer.

5.4 To remove Government property from areas outside the FEMP Security perimeter, such as the Showcase Center, Springdale Center, Joint Information Center, etc., and in the absence of a Security Officer, the authorized FERMCO manager who approves the pass and the Property Account Custodian shall be responsible for property removed and returned, and for signing and distributing copies of the pass.

5.5 Miscellaneous Shipping Orders (MSO) are not necessary when passes are used to remove Government property from FERMCO.

5.6 Terminating FERMCO employees and DOE personnel who have possession of Government property shall be responsible for returning all property and Property Passes to the responsible Property Account Custodian prior to termination. Property Account Custodians will verify that all passes for equipment are returned by approving the Clearance for Final Pay form.

RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN	A. Completes form FS-F-17 and obtains all necessary approvals, including DOE approval if the loan is not covered under a purchase order or subcontract.
PURCHASING	B. Ensures that, for each purchase order that agrees to the loan of Government property, there is an approved Loaned Personal Property Agreement. Forwards a copy of the completed form to Property Control.
PROPERTY CONTROL	C. Notifies the vendor of the need to conduct an annual inventory of the Government property in their possession and to submit the inventory list to FERMCO.
PROPERTY CONTROL	D. Verifies the inventory list against FERMCO Property records to ensure all items are accounted for.
PURCHASING	E. Ensures, with Property Control, that all Government Property is returned prior to the close-out of the purchase order.

CONSUMPTION

1.0 GENERAL

In Government contracting, consumption is, by definition, limited to material. The Federal Acquisition Regulation (FAR) defines consumption as property that may be incorporated into or attached to an end item, or that may be consumed in the performance of a contract. It is the responsibility of FERMCO to ensure reasonable quantities of material and supplies are requested for the work required under the contract and associated subcontracts. Accountable records of consumption will be maintained. Directors, managers, and supervisory personnel are responsible for ensuring the following:

1.1 Requirements records are prepared and kept on file in advance or concurrent with, the receipt and use of material and supplies for a given work requirement under the prime contract.

1.2 Consumption by project or work order reference number are maintained to provide an audit trail and to substantiate authorized use.

1.3 All serviceable excess material and supplies left over from a task or work order are returned to material management for restocking and reissue as required.

1.4 General records of scrap.

UTILIZATION

1.0 GENERAL

FERMCO and its subcontractors shall endeavor to ensure that optimum and economic use of Government property in its possession and control is realized and that the tenets of contractually authorized use are not violated.

2.0 UTILIZATION OF GOVERNMENT PROPERTY

2.1 Government property is to be used only to the extent, and within the limits, authorized in the performance of the contract. For use on a contract other than the one covering the use of the equipment, a request for deviation will be formally submitted to the FERMCO Contracts Department for transmittal to the cognizant contracting officer for approval. Copies of the request are to be provided to the Property Management section. The requests should be in sufficient detail to permit evaluation and determination of the requirement.

Pending the approval of such requests, operating departments or other organizational activities will **not** permit unauthorized use of the property involved.

2.2 Coordinated surveillance of Government property by all individuals concerned will assure that items of material and equipment are utilized to the maximum extent possible. Each director, department head, manager and supervisor shall review equipment usage on a quarterly basis. Equipment not needed will be processed for turn-in according to the procedures in Attachment K.

3.0 UTILIZATION OF GOVERNMENT PROPERTY

Maximum asset utilization at a minimum investment is an objective of FERMCO management. Each FERMCO organization is responsible for carrying out the Property Management function to maximize equipment utilization.

RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN	A. Returns unused items to Inventory Control and Warehousing (IC&W) and excesses unused equipment to the Excess and Disposal section.
	B. Reports intra-plant transfers of equipment between areas, buildings, or departments.
	C. Reports to the FERMCO Property Administrator the occurrences of loss, damage, or destruction of equipment.
	D. Forecasts needs for replacement and/or additional equipment.

RESPONSIBILITY	ACTION
PROPERTY ACCOUNT CUSTODIAN (cont.)	E. Keeps accurate property records, using listings supplied by Property Control.
	F. Promotes the use of Government property for official use only.
	G. Reports all occurrences of improper use, alteration, unauthorized disclosure, or other improper acts to any computer equipment and software to the CPPM and FERMCO Property Administrator.
	H. Optimizes property utilization.
RESPONSIBLE MANAGER	I. Performs inspection tours or walk-throughs at least once every two years (usually in April) to promote better use of equipment and to identify property that should be considered for reassignment or removed for disposal (excess).
	J. Shall promote the reuse of equipment by allowing redistribution of assets throughout the facility.

MAINTENANCE

1.0 GENERAL

To provide adequate procedures and general guidelines for corrective and preventive maintenance of Government-owned property furnished to or acquired by FERMCO. It is the policy of FERMCO that Government property will be maintained in accordance with sound industrial practice and/or appropriate Government technical publications.

2.0 MAINTENANCE OF EQUIPMENT

2.1 Maintenance of equipment will be in accordance with the manufacturer's suggested procedures and other technical data that is available. The maintenance management program shall include, but not be limited to, the following:

2.2.1 Scheduled regular maintenance, cleaning, calibration, and repair.

2.2.2 Records reflecting maintenance and work accomplished and in sufficient detail to disclose the need for replacement.

3.0 MAINTENANCE OF GOVERNMENT PROPERTY

Government-owned facilities and equipment shall be maintained in good operating condition in order to effectively perform their intended functions in accordance with Federal and DOE Property Management Regulations and sound business practices. Government equipment shall be kept in good condition through a program of preventive maintenance, calibration, or by other means as is applicable to each particular item.

RESPONSIBILITY	ACTION
RECEIVING	A. Forwards manufacturer's recommendations and specifications to Maintenance so that maintenance schedules can be established.
MAINTENANCE	B. Identifies item(s) requiring preventative maintenance and/or calibration and establishes service frequencies.
	C. Services the property, and documents the actions taken in the MMICS, where cost are accumulated for each unit. The system will be reviewed periodically to identify high cost maintenance items.

RESPONSIBILITY	ACTION
MAINTENANCE (cont.)	D. Maintains a computerized preventative maintenance schedule and a maintenance history of equipment included in the program.
	E. Attaches special barcodes to the equipment for identification and maintenance purposes.
PROPERTY ACCOUNT CUSTODIAN	F. Arranges for repairs to Government property including items under warranty, and items for which maintenance policies have been purchased. **NOTE:** Exceptions may be made with the approval of the FERMCO Property Manager.
INFORMATION SYSTEMS	G. Arranges for maintenance and repairs of computer equipment.

PHYSICAL INVENTORIES

1.0 GENERAL

1.1 FERMCO and its subcontractors will perform periodic physical inventories of Government property acquired or assigned to the prime contract consistent with inventory schedules coordinated with the cognizant Contracting Officer and/or Government Property Administrator.

1.2 Physical inventories consist of sighting, barcoding or marking, describing, recording, reporting, and reconciling the property with the records.

2.0 INVENTORY SCHEDULES

On September 30 of each year, Property Management will prepare a schedule of property to be inventoried. Inventory requirements will be coordinated with the Warehouse Manager and the Contracting Officer and/or Government Property Administrator. When the schedule is complete, a copy will be submitted to the Contracting Officer and/or Government Property Administrator.

3.0 TYPES OF INVENTORIES

The following types of inventories will be accomplished on the prime program:

3.1 **Complete:** Property stored in the warehouse will be completely inventoried utilizing the procedures in the warehouse procedures. A warehouse validation will be accomplished prior to the start of inventory of each type property.

3.2 **In-Use Equipment:** Equipment assigned to, and in the possession of, a designated Property Equipment Custodian will be inventoried on an annual basis. Inventory of Equipment Custodian accounts will be spread over the entire year.

3.3 **Termination/Completion:** Immediately upon termination or completion of a contract, Property Administration will arrange for a physical inventory adequate for disposal purposes of all Government property applicable to the terminated or completed contract.

3.4 **Special:** The situation may arise to perform special inventories of particular types of property on an as-required basis. Requests for special inventories will be submitted to the Property Management and provide the type property to be inventoried and the reason for inventory.

4.0 INVENTORIES OF GOVERNMENT PROPERTY

FERMCO is responsible under its prime contract with DOE to manage Government-owned property assigned to the FEMP. This includes physically inventorying equipment and facilities assigned to the site. This procedure does not cover the inventorying of stores or expense items (MMICS provides control over these items).

4.0 **INVENTORIES OF GOVERNMENT PROPERTY** (cont.)

RESPONSIBILITY	ACTION
PROPERTY CONTROL	A. Sends inventory letter of instructions to Property Account Custodians specifying what is to be inventoried and the date by which the inventory is to be completed.
PROPERTY ACCOUNT CUSTODIAN	B. Takes physical inventories as required.
PROPERTY CONTROL	C. Reviews inventory listings and performs random sample test checks of the units inventoried.
	D. Organizes a plant-wide search for missing items. Searches may include physical searches, e-mail notices, etc.
	E. Reconciles the inventory with records. Missing items are listed as write-offs.
FERMCO PROPERTY ADMINISTRATOR	F. Reports to the Contracting Officer and/or Government Property Administrator the results of the inventories.

4.1 Physical Inventory Frequency

The frequency of physical inventories shall be as follows:

a. Permanently Affixed Plant: All items which are installed in a rigid or permanent manner such as buildings, utilities, fences, etc. Not less frequent than every 10 years.

b. Installed Process Equipment: All items which are affixed in such a way that movement from place to place is difficult or items whose size or other characteristics made movement difficult. (Restricted to DOE asset Type 735.) Not less frequently than every 5 years.

c. Moveable Capital Equipment: All items with an acquisition value of $5,000.00 or more which are self-contained and operate as complete units and can be readily moved from place to place. For example, those attached only by power supply. Not less frequently than every 2 years.

4.1 Physical Inventory Frequency (cont.)

d. Administratively Controlled Items: Same as subparagraph c above except items which are not sensitive and have an acquisition value greater than $500.00, but less than $5000.00. There is no formal DOE-wide requirement for the performance of physical inventories of administratively controlled items of personal property.

e. Sensitive Items: Not less frequently than every 12 months.

f. Stores Inventories: Not less frequently than every 12 months.

g. Precious Metals: Not less frequently than every 6 months.

5.0 INVENTORY PROCEDURES

The following procedures apply to the various types of inventories performed:

5.1 Complete Inventories:

5.1.1 The Warehouse Supervisor will schedule the inventory of all assets stored in the warehouses.

5.1.2 Inventory of property will be performed by storage and issue personnel.

5.1.3 The inventory count will be annotated on the listing, along with the initials of the person performing the inventory.

5.1.4 Upon completion of the inventory, the Warehouse Supervisor will sign the inventory listing and forward to stock control for processing in accordance with the warehouse procedures.

5.1.5 Upon resolution of discrepancies, submit results of the inventory to the Manager, Property Control.

5.2 In-Use Equipment:

5.2.1 By September 30 of each year, the Property Control Section will schedule inventories to be conducted during the course of the next year.

5.2.2 Property Control will provide the equipment inventory listing which will be used as a guide to perform the inventory.

NOTE: Federal Acquisition Regulations normally prohibit FERMCO Property Administration personnel or property custodians from performing equipment inventories.

5.2.3 If possible, disinterested third-party personnel will be selected to perform the inventory. The designated Property Account Custodian will be available during the course of the inventory effort to assist in locating equipment. The inventory effort will be supervised by FERMCO Property Management personnel.

5.2.4 Upon completion of the inventory, the Property Account Custodian will sign and date the listing in the space provided and return two copies of the listing to the Property Control Section.

5.2 **In-Use Equipment:** (cont.)

5.2.5 Property Control will update the master property records.

5.2.6 Property Control will file the original copy of the signed equipment inventory listing in the Property Account Custodian account file.

5.3 **Termination/Completion:**

5.3.1 The FERMCO Contracts Department will notify the Property Administration Section of termination inventory requirements.

5.3.2 Termination inventories will be conducted in accordance with the requirements of the FAR, Parts 45 and 49, and DEAR 945 and 949.

5.3.3 Contract completion inventory requirements will be coordinated with the Contracting Officer and/or Government Property Administrator prior to contract completion.

5.4 **Special Inventories:**

Special inventory procedures will be provided by the Property Control Section depending on the type of inventory required and the property to be inventoried.

6.0 INVENTORY DISCREPANCIES

The following actions will be taken to research/resolve inventory discrepancies:

6.1 **Complete Inventories:**

6.1.1 Stock control will notify the Warehouse Supervisor of those assets that the inventory count and serviceable balance are not in agreement.

6.1.2 The warehouse supervisor will perform a recount of out-of-balance assets.

6.2 **In Use Equipment:**

The Property Custodian will notify the Property Management in the event of loss, destruction or damage involving Government property. Depending on the circumstances, the Property Account Custodian may be required to prepare a report describing the discrepancy in accordance with the requirements of Attachment L, Paragraph 2.0.

6.3 **Substores:**

Inventory discrepancies will be researched and resolved by the Stock Control Section.

6.4 **Termination/Completion:**

Inventory discrepancies will be processed in accordance with the requirements of the FAR, Parts 45, and DEAR 945.

6.5 **Special Inventories:**

Special inventory discrepancies will be researched and resolved by the Property Administration Section and other personnel as necessary depending on the type property inventoried.

7.0 **INVENTORY REPORTS**

The Property Control Section will prepare the inventory results in accordance with the FAR, Part 45, Sub-part 45.5, Paragraph 45.508-2. A copy of the report will be forwarded to the Contracting Officer and/or Government Property Administrator.

SUBCONTRACTOR CONTROL

1.0 **FERMCO SPECIFIC RESPONSIBILITIES**

The following responsibilities will be accomplished by the functional departments so designated:

1.1 **FERMCO** through the FERMCO Property Management function is responsible for maintaining effective control of the acquisition, transfer, inventory, and disposition of accountable Government property assigned to the prime contract in the possession of subcontractors/vendors.

1.2 **The FERMCO Subcontracts Administrator** shall furnish the Property Control Section with copies of subcontracts, agreements, and changes thereto that include the use or assignment of Government property. The terms of the subcontract must be written to ensure compliance with the Government property control system of the contract.

1.3 **The Property Control Section** will conduct periodic examinations of subcontractors property records when this effort is not performed by a secondary Contracting Officer and/or Government Property Administrator, or when the subcontractor does not have a property system approved by the Government. Records of the periodic examinations will be maintained by the Property Control Section.

2.0 **RECORDS AND PROCEDURES**

2.1 Accountable property records, procedures, and requirements shall be the same for FERMCO subcontractors as that of the prime contract. If the subcontractor's property records are to be utilized as the official property records, the cognizant Contracting Officer and/or Government Property Administrator will be so advised.

2.2 Subcontractors having possession of Government property under the cognizance of the prime contract shall be required to maintain an approved Government Property Control System in conformity with the FAR Part 45.5 and 45.6, DEAR 945.5 and 949.6.

3.0 **SUBCONTRACTOR/VENDOR CONTROL**

Government-owned property acquired or furnished by FERMCO but in the possession of subcontractors or vendors, both on site and off site shall be protected and controlled in the best interest of the Government. FERMCO is responsible for ensuring that this property is managed in accordance with Federal and DOE Property Management Regulations.

RESPONSIBILITY	ACTION
ACQUISITION	A. Places contracts with subcontractors to provide materials, equipment and services for FERMCO in support of FEMP projects and programs.
	B. Ensures that contracts are written to identify Government-owned property to be provided and dates when property is the responsibility of the subcontractor.

RESPONSIBILITY	ACTION
ACQUISITION (cont.)	C. When Government property is loaned to subcontractors on a subcontract, ensures that a Miscellaneous Shipping Order (MSO) form, FS-F-871; and a DOE Property Transfer or Turn-in Form (HQF 1400.18) is completed, approved, and a copy given to Property Control prior to the equipment being shipped to the subcontractor.
PROPERTY CONTROL	D. Requires subcontractor to keep Government property separate from supplier owned property and to protect and maintain Government-owned property in their possession. Requires subcontractor to appoint a Property Administrator in writing to the FERMCO Property Control Section. Require subcontractors to report missing, stolen, and damaged property to the FERMCO Property Administrator so he/she may notify the Government Property Administrator. **NOTE:** Depending on the length of possession, subcontractors may be required to supply physical inventory data and verification that they still have the Government equipment assigned to them.
	E. Requires a final inventory of property in conjunction with contract close out. Determine if the property that has been returned is deteriorated beyond normal wear and tear. Coordinate any required financial adjustments with the Subcontract Administrator.
	F. Maintains property records of items purchased for or provided subcontractor by FERMCO.
	G. Reviews and approves subcontractor performance in management of Government-owned property in their possession.

DISPOSITION

1.0 POLICY

The disposition of Government property will be in conformance with the FAR 45.6, Reporting, Redistribution and Disposal of Contractor Inventory, FPMR, DOE, PMR, or as directed by the Contracting Officer and/or Government Property Administrator.

2.0 DEFINITIONS

The following terms will be used throughout the section:

2.1 **Plant Clearance** - Actions relating to the screening, redistribution and disposal of contractor inventory.

2.2 **Plant Clearance Officer** - An authorized representative of the Contracting Officer who is assigned the responsibility for plant clearance.

2.3 **Plant Clearance Period** - The period beginning on the effective date of contract completion or termination and ending 90 days (or such longer period as may be agreed to) after receipt by the Contracting Officer of acceptable inventory schedules for each property classification.

2.4 **Reportable Property** - Contractor inventory that must be reported for screening in accordance with FAR, Sub-part 45.6. and DOE PMR 109-43.311-1-50.

2.5 **Surplus Property** - Contractor inventory not required by any Federal Agency.

2.6 **Contractor Inventory** -

2.6.1 Any property acquired by and in the possession of FERMCO or a subcontractor under the prime contract for which title is vested in the Government and which exceeds the amounts needed to complete full performance under the entire contract.

2.6.2 Any property that the Government is obligated or has the option to take over under any type of contract as a result either of any changes in the specifications or plans thereunder or of the termination of the contract (or subcontract thereunder), before completion of work, for the convenience or at the option of the Government.

2.6.3 Government-furnished property that exceeds the amounts needed to complete full performance under the entire contract.

2.7 **Salvage** - Property that, because of its worn, damaged, deteriorated, or incomplete condition or specialized nature, has no reasonable prospect of sale or use as serviceable property without major repairs, but has some value in excess of its scrap value.

2.8 **Scrap** - Personal property that has no value except for its basic material content.

2.9 **Personal Property** - Property of any kind, or interest in it, except real property.

2.10 **Nonconforming Material** - Any item, part, or product with one or more characteristics which depart from contract requirements, specifications, standards, drawings, or other approved product description.

2.0 **DEFINITIONS** (cont.)

2.11 **Excess** - Government property no longer required for the performance of the instant primary contract.

3.0 **DISPOSAL REQUIREMENTS**

Government property assigned to, but not required for performance of the prime contract, must be reported to the cognizant Contracting Officer and/or Government Property Administrator for disposition consistent with disposal requirements set forth in the prime contract. The FAR and DEAR referenced in the prime contract prescribe the general methodology for disposition of excess and surplus property, including salvage and scrap. The disposal methods described as follows are consistent with the FAR and DEAR requirements related to excess and surplus property and will be used for property disposal under the prime contract.

3.1 Disposal Methods

3.1.1 Excess and Surplus Property

Property Management will arrange for accomplishing disposal of excess and surplus property by selecting one or a combination (if feasible and practical) of the following methods in order of descending priority shown. In selecting the method(s) of disposal, the lot sizes and the composition of property groups will be adjusted to reflect the condition and desirability of the property in order to realize the maximum benefit of any sale. Method G will not be used until every effort is made to dispose of the property by another method or by a combination of Methods A through F.

Method A: Purchase or retention at cost by FERMCO or FERMCO subcontractors of property acquired under the prime contract.

Method B: Return of property acquired under the prime contract to suppliers for credit of at least 75% of acquisition costs including restocking charges.

Method C: Transfer to other Federal agencies.

Method D: Donation to eligible State or local Government agencies.

Method E: Public sales of property and/or retention by FERMCO or FERMCO subcontractors at less than acquisition cost of the property.

Method F: Donation to public bodies.

Method G: Destruction or abandonment.

3.1.2 Scrap and Salvage

Excess property classified as scrap and salvage property will be processed through Property Management to the DOE Contracting Officer and/or Government Property Administrator. Scrap metal processed for turn in must be segregated into the following categories (or as required by specific agency's requirements):

A. Light Steel - Under one-eighth inch thick, any dimension.

3.1.2 Scrap and Salvage (cont.)

B. Short Heavy Steel - At least one-eighth inch thick, under 36 inches in length.

C. Heavy Steel - At least one-eighth inch thick, 3 feet or more in length.

D. Aluminum - Any size.

E. Copper Wire

F. Copper and Steel Wire

G. Stainless Steel - Any size.

3.1.3 Precious Metal Recovery

It is the responsibility of the individual/department declaring property excess to notify Property Control if property contains precious metals that may be recovered. Property Control will indicate on the Property Disposal Request form, SF120 or FS-F-563, that the property being disposed of contains precious metals.

3.2 Disposition Procedures

3.2.1 Excess property reporting

FERMCO organizations are responsible for reviewing equipment and other property items under their control for utilization and need. Items no longer needed or suitable for performance of contract requirements will be reported as excess on the Report of Excess Personal Property form, SF120, or other approved form. The report must contain a description of the property and be forwarded to the Property Excess and Disposal Section for processing. Excess personal property groups and classes must be reported and screened by entering items onto the Reportable Excess Automated Property System (Reportable Excess Automated Property System (REAPS)) in accordance with DOE PMR 109-43.311-1-50 DOE utilization screening.

3.2.2 Excess property storage

Property reported as excess will normally be directed to a designated excess property storage area if available. However, if the property requires special equipment for movement or requires special handling devices used by the operating department for maintenance, repairs, or if removal of the property is not considered advisable or feasible, it may be designated by the FERMCO Property Administrator to be stored in place until disposition action is completed. All property designated for disposition, except for items excess and stored in place, will be stored apart from active FERMCO inventories until disposition has been accomplished.

3.2.3 Scrap and salvage storage

Scrap will be sorted and stored separately from other excess or surplus property pending disposition instructions which will be provided by the Property Excess and Disposal Section.

3.2.4 Internal handling procedure (excess material)

A. When it is determined that personal property is no longer of any use for current operational requirements, a Property Disposal Request form, SF120 or FS-F-563, is initiated and processed.

B. All material is required to be checked by a Radiological Technician. The Radiological Technician will note the readings, if any, on the Radiation Monitoring Record.

C. After the Radiation Monitoring Record has been completed, one copy will be attached to the Property Disposal Request form and remain on file for future reference.

D. If the material was found to be contaminated and it is later decided by the Property Excess and Disposal Section that the material does have an economical value, i.e., transfer to other Government agencies or public sale, the material would be moved to Decontamination where it would be decontaminated. After completion of the decontamination, the Radiological Technician should be asked to monitor the material and complete the second stage (Approve for Disposal) of the Radiation Monitoring Record. If no contamination is found, disposal should be made as indicated above.

E. Contaminated personal property can be disposed of as directed by the Waste Operations Section after all other methods have been considered for disposal and notification by the Property Excess and Disposition Section.

F. Before removal from the originating area, the material is inspected and classified into type (Excess, Salvage, Scrap) and proper classification per condition code (Attachment K, Page 20).

G. After the material has been received at the storage location, the Property Excess and Disposal Section prepares a Report of Excess Personal Property form, SF120, and sends a copy to all Division managers concerned for the purpose of ascertaining if the material is still required at this installation in some place other than the originating Division.

H. If material listed on Report of Excess Personal Property is still required at this installation, a transfer of material is effected by initiating a Property Addition/Change/Relocation Request giving all applicable information. Items transferred are then deleted from the Property Disposal Request and the transfer authority. Property Addition/Change/ Relocation Request form, FS-F-3126, is filed with the Property Disposal Request form to support the deletion. A memorandum is sent to the Property Control Section by the Excess Clerk listing all withdrawals. The Property Excess and Disposal Section arranges for the transportation, handling, and delivery of materials issued from the excess-disposal area.

I. If no response is received within a reasonable amount of time (10-12 working days) after the Report of Excess Personal Property is circulated plant wide, the forms are mailed to all installations specified by the Contracting Officer and/or Government Property Administrator.

J. Requirements for formal circularization with DOE are outlined in the DOE Property Management and Procurement Instructions, Subchapter H, Utilization and Disposal. Excess items will be placed on circularization lists normally within 30 days after an item is declared as excess.

K. Certain classes of personal property require only informal circularization before disposal and are not required to be listed for formal circularization or reported as outlined in the DOE Property Management and Procurement Instructions, Subchapter H, Utilization and Disposal.

1. Circularization Procedure

a. The Federal Property Management Regulations, Part 101-43, sets guidelines for classifying approximately ninety-nine excess items.

b. The Federal Supply Classification Schedule indicates which items are reportable to GSA according to the disposal condition.

c. Formal Circularization: Consists of items worth over $1,000.00 and entered into the Reportable Excess Automated Property System (REAPS) ($500 for furniture items).

d. Items to be circularized are submitted on a Property Disposal Request form, SF120, to Washington, D.C. Catalogs of available items are generated monthly.

e. Informal Circularization: Consists of items totaling less than $1000.00. These lists are submitted to the Limited Distribution addresses (various DOE facilities).

f. Vehicles - All vehicles excess to our needs on site are to be reported through DOE - Fernald Property Management to Oak Ridge, Fleet Management. Oak Ridge will report all vehicles to the General Services Administration (GSA). (Reference 41 CFR, Part 101-43.4801.)

2. Informal circularization:

Items of small cost, obsolete or special made, that are declared excess to our requirements, will be subject to the following procedure:

a. Informal lists will be prepared listing quantity, brief description, unit cost, and total value. The Excess Section will provide copies of these informal lists to Acquisition of excess equipment to include automatic data processing equipment and other equipment to enhance on-site screening.

b. Circularization will be to known DOE Contractors in a geographical area where freight factors will not be a consideration.

c. After 15 days, items remaining will be included in circularizations to the General Services Administration.

d. Items then remaining from the above circularization will be offered for public sale to the highest bidder in accordance with established DOE procedures.

L. If any authorized DOE installation is interested in the transfer of property listed on the Report of Excess Personal Property during the authorized circularization period, a copy of the purchase order is mailed to Property Control.

M. FERMCO is authorized to transfer any material listed on an approved Report of Excess Personal Property to any installation.

N. The Excess Clerk is responsible for the preparation of Shipping Orders and Job Orders for packing.

O. All transfer data are filed with the Property Control Section, together with shipping orders and supporting data.

P. Material which has been processed through formal channels of disposal and not transferred to DOE and/or Federal agencies may be:

1. donated for purposes of education, public health, and civil defense

2. donated to public agencies

3. offered for public sale

4. abandoned or destroyed after release from DOE.

3.2.5 Internal handling procedure (scrap metal - uncontaminated)

A. Uncontaminated scrap metal is accumulated in a prescribed area.

B. As required, the Property Excess and Disposal Section estimates the amount of scrap and arranges disposition by competitive bidding in accordance with the DOE Property Management and Procurement Instructions, Subchapter H, Utilization and Disposal.

4.0 INVENTORY SCHEDULE REQUIREMENTS

Excess or surplus property being disposed of by methods A or B (retention by FERMCO or its subcontractors at cost), or method B (by returning the property to suppliers for credit if the supplier's restocking charges do not exceed 25% of the acquisition cost) will not be listed on inventory schedules. All other excess property will be listed on the appropriate inventory schedules for subsequent transmittal to the Contracting Officer and/or Government Property Administrator for approval and establishment of the Plant Clearance cycle.

4.1 Inventory Schedule Guideline

4.1.1 The following guidelines will be adhered to in the preparation of inventory schedules. Separate schedules will be prepared and submitted for the following types of property:

A. Serviceable Property (Condition Codes 1, 2, 4, 5, 7, and 8)

B. Material

C. Property bearing a security classification regardless of condition or cost

4.1.2 The condition codes to be utilized in reporting excess property are included on Attachment K, Page 20, and will be indicated on the Property Disposal Request and inventory schedules for each line item entry.

4.2 Submission of Inventory Schedules

Line items of excess property will be grouped and listed on inventory schedule forms for submission to the Contracting Officer and/or Government Property Administrator as follows:

4.2.1 Classified Property: This category includes all property bearing a security classification, regardless of acquisition cost.

4.2.2 Government-Furnished Property: This category should be subdivided into the same categories as unclassified property.

4.2.3 Unclassified Property: Unclassified property will be subdivided as follows:

A. Scrap, regardless of acquisition cost.

B. Salvage, regardless of acquisition cost.

4.3 Plant Clearance Period

Upon notice of acceptance of the applicable inventory schedules by the Plant Clearance Officer, a plant clearance action will begin for the normal 90-day period for disposition of the property to other activities. This 90-day period does not include local on-site screening.

5.0 SHIPMENTS OF PLANT CLEARED PROPERTY

5.1 Property being acquired by Government agencies or donee will be shipped in accordance with instructions issued by the Plant Clearance Officer.

5.2 Costs of packing, crating and shipping plant clearance items will be charged to the respective contract or subcontract.

6.0 PROPERTY DISPOSITION RECORDS

Property Management will maintain disposition records for all categories of excess property. Records of disposal of property will contain the following information and be filed by contract and plant clearance case(s) as applicable.

6.1 Excess and Surplus Property

6.1.1 Plant clearance case number/control number

6.1.2 Method of disposal

6.1.3 Bid list/bidders

6.1.4 Inventory schedules

6.1.5 Plant clearance disposition instructions

6.1.6 Shipping/transfer documents

6.2 Salvage and Scrap

6.2.1 Contract number

6.2.2 Description of salvage items

6.2.3 Description of scrap items

6.2.4 Quantities

6.2.5 Listing of bidders (if applicable)

6.2.6 Sales records and dates of transactions (if applicable)

6.2.7 Disposition (agencies documents)

7.0 SALES OF GOVERNMENT PROPERTY

7.1 Disposal of Government Property Via Public Sale

7.1.1 Upon release from GSA and with the approval of the DOE Contracting Officer and/or Government Property Administrator material may be considered available for sale to the public in accordance with the provisions of the FPMR 101-45.304.

7.1.2 Factors for Determination of Sale Method:

A. The Upset Price value of the material.

B. The homogeneous nature of the material to be sold.

C. The relative cost of selling the material versus the expected return.

D. The physical condition of the material.

7.1.3 After the selection of a method for disposal has been reached, the details leading to the selection require the approval of the DOE Contracting Officer and/or Government Property Administrator. In the event formal advertising is utilized as a supplement to bid solicitation or in lieu of a bid mailing, prior approval must be obtained from the DOE Contracting Officer and/or Government Property Administrator.

7.1.4 The procedures established in FAR 14.4 and DEAR 914.4 shall be complied with and applicable to execution, receipt, safeguarding, opening, abstracting, and evaluation of bids, and awarding contracts, disposal under conditions most advantageous to the Government based on high bids received shall be the determining factor. For mistakes in bids, in addition to the above references see FPMR 101-45.8.

7.2 Competitive Bid Sales

7.2.1 Except as provided in FPMR 101-45.304-2, property shall be sold by competitive bid sales after advertising, in at least one newspaper, in accordance with FPMR 101-45.304-1. Competitive bid sales include Sealed bid sales, Spot bid sales, and Auction sales.

7.2.2 Competitive Process

A. For the purpose of maintaining fair competition and deriving the maximum possible return from material available to be sold, the Excess and Disposal Section will maintain a bid list of interested firms and individuals.

B. Upset Prices (Fair Market Value)

1. The following yardstick will be used to determine a fair and reasonable amount of return on sales:

PROPERTY CONDITION CODE	% OF ACQUISITION PRICE
Unused Good	45%
Unused Fair	40%
Unused Poor	35%
Used Good	30%
Used Fair	25%
Used Poor	20%
Repairs Required Good	15%
Repairs Required Fair	10%
Repairs Required Poor	5%
Salvage, scrap, or obsolete technology	3%

2. These percentages are guidelines only and other factors must be considered when available. Upset Prices are not to be released outside FERMCO. The Upset Price will be used to determine reasonableness of bids and fair market value. The Upset prices will be posted to the bid abstract as the in-house estimate.

C. Names for the bid list will be obtained from voluntary requests by potential buyers and published lists of trade magazines, directories, and responses from newspaper advertisements.

D. Bid will be mailed to potential buyers on the appropriate Sale of Government Property - Bid and Award form, SF114, complete with Sale Terms and Conditions. Any changes to the solicitation must be approved by the DOE Contracting officer and/or Government Property Administrator.

E. Interested bidders must fill out a SF114 and return the completed copies to FERMCO with a 20 percent deposit enclosed in check or money order, payable to the U. S. Treasury. The net proceeds may be authorized contractually to be credited to the cost of the work. If the Contracting Officer authorized credit to the work, checks will be made payable to FERMCO instead of the U. S. Treasury.

F. Provisions for the bid opening and removal of material are contained on the SF114.

1. All bids received will be date stamped upon receipt and opened on the date, time, and place specified in the solicitation for bid.

2. A representative from the FERMCO Finance Department will witness bid openings.

3. The finance representative will gather all deposits. These deposits will be prelisted and a copy maintained in the solicitation file.

4. In the event deposit is made in currency, the finance and property representatives will jointly count and record the dominations received. Each representative will sign as to the exact amount received.

5. All money and checks will be delivered to the Finance in a money pouch. Checks made payable to the US Treasury will be held in secure file.

6. All such funds will be transmitted to Fluor Daniel, Inc., Irvine, California, by the Finance Department for deposit in the usual way (cash will be deposited in the Credit Union in return for a cashier's check). Deposits will be booked by debiting the Fluor Daniel, Inc., Inter-Company account for cash and crediting deposits payable. There will be a manual subsidiary ledger of all deposits payable maintained, which will be balanced and checked to agree with the general ledger control account at the end of each month.

7. The Property Management Department will determine the successful bidder and will advise the Finance Department. Once the Finance Department is aware of the unsuccessful bidders, then FERMCO company checks will be prepared as return of the deposit, the corresponding journal entry will be to debit the deposits payable account and credit the related Fluor Daniel, Inc., Inter-Company account.

   Checks made payable to the U.S. Treasury will be returned to sender upon notification by Property Management.

8. For the successful bidder, the Finance Department will prepare an invoice that will be used to journalize the sale, a copy will be given to the successful bidder, and a copy will be given to Property Management. If checks are payable to the U.S. Treasury, it be delivered to the Contracting Officer. If the check is made payable to FERMCO the sale will be entered into the journal as follows:

   FERMCO will credit the proper stores cost account if it is an operating item, and will credit the appropriate program if it is capital based on FERMCO's November 30, 1992 Property Records. The corresponding debit will be to Miscellaneous Receivables.

9. The successful bidder will be instructed to send the balance of the bid to the Finance Department prior to possession of Property. The Finance representative will transmit this amount for deposit as before and provide a receipt to the successful bidder. The amount will be entered into the journal as follows: debit the Inter-Company account for the amount of proceeds received; debit Deposit is Payable for the initial deposit; and credit Miscellaneous Accounts Receivable.

G. Bids will be numbered consecutively with the prefix "SD" and remain sealed until the time of opening.

H. Employees wishing to bid on surplus property are required to sign Sale of Surplus Government Property form, PUR-813.

I. After bid opening, bids are abstracted and the complete file and documentation is forwarded to the DOE Contracting Officer and/or Government Property Administrator for signature and award approval.

J. Upon approval the successful bidder or bidders will be formally notified.

K. Deposits received from successful bidders will be applied against the total price of the material purchased; deposits from unsuccessful bidders will be returned via certified mail.

L. Upon notification by the successful bidder(s) as to removal of the material, the Excess and Disposal Section will issue a Miscellaneous Shipping Order on the basis of where-is and as-is shipment. The successful bidder is responsible for all cost to remove the material.

M. Successful bidders will have a maximum of 10 days to remove material from FERMCO unless otherwise stipulated. Failure to remove the material in the allowed time is covered in the Terms and Conditions of the Sale. Payment must be made in full prior to material being removed.

7.3 Auction Sales

7.3.1 Public auctioneers shall be utilized to conduct auction sales.

7.3.2 Terms and conditions of sale shall be announced prior to commencement of the sale and will be made available in written form to all prospective bidders.

7.3.3 Such offerings shall reserve the right to accept or reject any or all bids and shall include a requirement for appropriate bid deposit at the time of award.

7.3.4 Lots for which all offers have been rejected may be re-offered later at the same sale to secure acceptable bids.

7.3.5 Newspaper advertising procured in accordance with the FPMR shall be used in addition to other written notice if deemed appropriate and approved by the DOE Contracting Officer and/or Government Property Administrator. Final payment shall be made before removal of the material from FERMCO.

7.3.6 Since auction sales are usually employed in disposing of relatively large amounts of property, every practicable means of notifying a maximum number of prospective bidders shall be used and adequate safeguards, designed to insure accurate accounting for all property sold and for the proceeds of sale, shall be maintained.

7.3.7 Proceeds from auction sales will be sent directly to the FERMCO Finance Department.

7.4 Negotiated Sales

7.4.1 All sales via negotiation will be handled on a, Sale of Government Property Negotiated Sales Contract form, SF114E.

7.4.2 When competitive bidding has failed to yield a bidder or price above the Upset Price or when there is a reason to believe there is no other known method of disposal that will yield a greater return, the above method would be used.

7.5 State Sales Tax

State sales tax will be collected as prescribed by the State of Ohio on all sales if applicable.

7.6 Documentation

7.6.1 The disposal file must contain the following if applicable:

A. Authorization for disposal

7.6.1 The disposal file must contain the following if applicable: (cont.)

B. Justification for negotiation
C. Copy of Invitation to Bid
D. Authorization of sale
E. Copies of offers by bidder or bidders
F. Statement of advertising, including cost
G. Statement of the number of bids solicited
H. Shipping reference
I. Copy of Auctioneer's brochure and catalogue
J. Original acquisition cost of each item or "lot" sold other than salvage and scrap
K. Gross revenue of each item or "lot" sold
L. Copy of Abstract of Bids, including the names and addresses of responding bidders.
M. Copy of Negotiated Sales Contract

7.6.2 The above information will be provided to the DOE Contracting Officer and/or Government Property Administrator for approval prior to notifying successful bidder.

7.7 Utilization of Excess Property from other Government Agencies

7.7.1 It is FERMCO policy to utilize Government excess property, to the extent practicable, as the first source of supply in fulfilling property requirements.

7.7.2 Requestors will submit current and future requirements for personal property (i.e., office equipment and furniture) to the Manager, Excess and Disposal Section, for review prior to procurement to assure that the material is not available through Government excess channels.

REQUISITIONING EXCESS PROPERTY

RESPONSIBILITY	ACTION
REQUISITIONER/BUYER	A. Requests the Excess and Disposal Section to screen REAPS for the type equipment needed.
EXCESS PROPERTY SECTION	B. Screens for item(s) requested.
	C. Investigates whether item(s) available from excess are economical to requisition.
	D. Advises the requisitioner if the item(s) appear to meet requirements.
	E. Determines availability, places on "hold" item(s) required, and advises requisitioner of item(s) on hold. The maximum hold period is 30 days.
REQUISITIONER/BUYER	F. Determines feasibility of use of excess property.

PROPERTY CONDITION CODES

CODE 1. **UNUSED-GOOD**
Unused property that is unusable without repairs and identical or interchangeable with new items from normal supply sources.

CODE 2. **UNUSED-FAIR**
Unused property that is usable without repairs, but is deteriorated or damaged to the extent that utility is somewhat impaired.

CODE 3. **UNUSED-POOR**
Used property that is usable without repairs, but is considerably deteriorated or damaged. Enough utility remains to classify the property better than salvage.

CODE 4. **USED-GOOD**
Used property that is usable without repairs and most of its useful life remains.

CODE 5. **USED-FAIR**
Used property that is usable without repairs, but is somewhat worn or deteriorated and may soon require repairs.

CODE 6. **USED-POOR**
Used property that may be used without repairs, but is considerably worn or deteriorated to the degree that remaining utility is limited or major repairs will soon be required.

CODE 7. **REPAIRS REQUIRED-GOOD**
Required repairs are minor and should not exceed 15% of the original acquisition cost.

CODE 8. **REPAIRS REQUIRED-FAIR**
Required repairs are considerable and are estimated to range from 16% to 40% of original acquisition cost.

CODE 9. **REPAIRS REQUIRED-POOR**
Required repairs are major because property is badly damaged, worn, or deteriorated, and are estimated to range from 41% to 65% of original acquisition cost.

CODE X. **SALVAGE**
Property that has some value in excess of its basic material content, but repair or rehabilitation to use for the originally intended purpose is clearly impractical. Repair for any use would exceed 65% of the acquisition cost.

CODE S. **SCRAP**
Material that has no value except for its basic material content.

REPORTS

1.0 REPORTS OF GOVERNMENT PROPERTY

1.1 FERMCO shall provide annually (or as directed by the contract) the total acquisition cost of property in the following categories:

1.1.1 Capital Equipment

1.1.2 Administratively Controlled Items

A. Government-Furnished Equipment

B. Contractor-Acquired Property

1.1.3 Government Material (Government Furnished)

1.1.4 Government Material (Contractor Acquired)

1.1.5 Real Property

1.2 The report shall be prepared or as specified by contract and furnished to the Contracting Officer and/or Government Property Administrator.

2.0 LOST, DAMAGED OR DESTROYED PROPERTY

2.1 Lost, damaged, or destroyed property shall be reported immediately to the Property Administration Section. When Government property is lost, damaged, or destroyed by causes other than fair wear and tear, the Property Administration Section shall take the administrative actions necessary to determine the facts concerning the loss and amount of the loss to the Government. An investigating officer may be assigned to ascertain the liability for the loss, damage, or destruction of the property.

2.2 The Property Administration Section shall prepare all reports surrounding the loss, damage, or destruction of Government property and forward them to the Contracting Officer and/or Government Property Administrator. Reports shall contain the following information as a minimum:

2.2.1 Date of report

2.2.2 Date of incident

2.2.3 Contract number and type

2.2.4 Description of property

2.2.5 Location of property

2.2.6 Acquisition cost

2.2.7 Estimated scrap proceeds (when applicable)

2.2.8 Repair direct labor hours and material costs

2.2.9 Estimated cost to repair (when applicable)

2.2.10 Total cost of incident

2.2.11 Identification of the contract provision under which relief is sought. Identify the peril causing the loss, damage, or destruction. Provide a short narrative of the incident.

2.2.12 Corrective action taken or to be taken to prevent recurrence.

2.2.13 Copies of any supporting documentation such as investigation reports.

2.2.14 Copies of any Police Report(s) that may be required.

3.0 REPORT OF RESULTS OF INVENTORIES

Property Administration will prepare and submit to the Contracting Officer and/or Government Property Administrator reports outlining results of inventories (overages/shortages) as required by the FAR, Part 45, Sub-part 45.5, Paragraph 45.508-2).

SENSITIVE ITEMS OF PROPERTY

1.0 POLICY

The Property Control Manager will maintain custodial records for the control and accountability of all items of property identified as sensitive in accordance with DOE Property Management Regulation 109-1.5106-4. All sensitive items will be signed for by the Property Account Custodian (PAC) who assumes responsibility for the control, protection, and security of the property.

2.0 DEFINITION

DOE PMR 109-1.5101 defines sensitive items as those items of property, regardless of value, which are considered to be susceptible to being appropriated for personal use or which can be readily converted to cash, for example: firearms, portable photographic equipment, binoculars, portable tape recorders, portable calculators, and portable power tools.

3.0 RESPONSIBILITY

3.1 The Property Control Section will coordinate with Property Account Custodians to establish, maintain, and verify custodial property records for all sensitive items.

3.2 Items of Capital Equipment or administratively controlled items which are also designated as sensitive items will be controlled as sensitive items and as Capital or administratively controlled items.

3.3 Property identified as sensitive items will be barcoded with a barcode assigned to a Property Account Custodian and recorded in the Master Project Record. All procedures for controlled property shall apply to these items.

4.0 LIST OF SENSITIVE ITEMS

Portable computers including lap tops/modems (if accessible)
Binoculars
Calculators (with an acquisition value of more than $25.00*)
Cameras (movie, still, television, and accessories)
Cellular phones
Chain Saws
Edgers (gas and electric)
Generators, portable
Portable Power Tools (with an acquisition value of more than $25.00*)
Lawn Mowers
Microwave Ovens
Monitors/Terminals
Printers
Personal Computers (peripherals)
Power Supplies
Players, audio and Video cassette
Projectors, slide/motion picture
Radios, Receivers, Transmitters and Transceivers (Walkie-Talkies)
Recorders, audio/video
Telescopes, portable
Television
Weedeaters (gasoline and electric)

NOTE: Additional items may be added to the list as required.

* This dollar amount is a guide only.

5.0 CLEARANCE

The Human Resources will obtain written clearance from the Property Account Custodian to ensure that all sensitive property items are turned in, reassigned, or otherwise accounted for before a FERMCO Employee is transferred or terminated.

MANAGEMENT ASSISTANCE REVIEWS

.0 PURPOSE

The purpose of this section is to establish a policy for periodic management reviews of property management areas and supply activities to be conducted to assist management in evaluating and maintaining a more efficient operation.

2.0 RESPONSIBILITY

2.1 FERMCO Managers who have Property Account Custodians shall monitor all phases of property control. This includes checks for prompt declaration of excess property surveillance to ensure that property is properly maintained and is used for authorized purposes only, and that all receipts, movement and excess actions are authorized and properly documented.

2.2 FERMCO Internal Audit shall provide personnel to conduct audits, inspections, surveys,and reviews of supply activities and the Property Control System.

3.0 PROPERTY SURVEY SCHEDULE

3.1 All aspects of the FERMCO Property Control System shall be reviewed, tested, analyzed, and evaluated at least once each year. The FERMCO Property Administrator will schedule surveys and notify the affected managers of the dates and areas to be covered.

3.2 Use of random sampling techniques will provide a basis for performing audits and advising management of the status of material received, stored, and issued or shipped.

3.3 Between annual surveys, spot checks will be conducted during property compliance reviews.

3.4 This Management of Government Property manual will be the controlling document for audits.

4.0 AUDITING AND INSPECTING

4.1 During reviews of specific property control activities, a team will spot check balances on hand against property records. The locator system and general condition of the storage area will also be reviewed.

4.2 Upon completion of the review, the Manager, Property Control, will prepare a comprehensive report of the findings which will be sent to the FERMCO Property Administrator. The Manager, Property Control, will be responsible for ensuring that any required corrective action is completed in a timely manner.

4.3 The Manager, Property Control, will maintain a complete file of all audits, reviews, work sheets, memoranda, and corrective action completed. Copies will be routed to the FERMCO Property Administrator and the Manager of the area audited.

4.4 Periodic audits, on a consumption analysis basis, will be performed, addressing non-accountable/consumable items.

5.0 CATEGORIES

Categories of property activities that will be examined during reviews and audits are listed below:

5.1 Records

5.2 Storage and movement

5.3 Consumption

5.4 Utilization

5.5 Maintenance

5.6 Physical records

6.0 ANNUAL SUMMARY

At the conclusion of all scheduled surveys, the Manager, Property Control, will prepare a summary report, based on the surveys, of the effectiveness of the Property Control System. The report will be submitted to the FERMCO Property Administrator for distribution.

MANAGEMENT OF PRECIOUS METALS

PURPOSE

The purpose of this attachment is to provide policies, principles, and guidelines to be used in the management of DOE-owned precious metals by FERMCO.

2.0 DEFINITION

DOE PMR 109-27-5301 defines precious metals as uncommon and highly valuable metals characterized by their superior resistance to corrosion and oxidation. Included are gold, silver, and the platinum group metals; platinum, palladium, rhodium, iridium, ruthenium, and osmium.

3.0 RESPONSIBILITY

3.1 In accordance with DOE PMR 109-27.5303, the FERMCO Senior Manager of Material Management assigned to the Remediation Support Operation Division is responsible for assigning a FERMCO Precious Metals Control Officer. This individual shall be functionally responsible to the FERMCO Property Administrator and will be FERMCO's primary point of contact concerning precious metals control and management.

3.2 The FERMCO Precious Metals Control Officer is responsible for the following:

3.2.1 Assure that FERMCO precious metals activities are conducted in accordance with the requirements of this attachment, the FPMR, and DOE PMR.

3.2.2 Maintain an accurate list of the names of Precious Metals Custodians as they are designated by the Department Managers.

3.2.3 Provide instructions and training to Precious Metals Custodians and/or users, as necessary, to assure compliance with regulatory responsibilities.

3.2.4 Assist the Property Management Department to ensure that physical inventories are performed as required by, and in accordance with, the DOE PMR.

3.2.5 Witness physical inventories.

3.2.6 Assist the Property Management Department in the performance of periodic unannounced inspections of custodians' precious metals inventories and records.

3.2.7 Conduct an annual review of precious metals holdings to determine excess quantities, if any.

3.2.8 Prepare and submit the annual forecast of anticipated withdrawals from, and returns to, the DOE precious metals pool.

3.2.9 Conduct a program for the recovery of silver from used hypo solution and scrap film in accordance with FPMR 101-42.3 and DOE PMR 109-42.3.

3.2.10 Prepare and submit the annual report on recovery of silver from used hypo solution and scrap film as required by DOE PMR 109-42.301-1.

3.2.11 Develop, maintain, and issue current authorization lists of persons authorized by management to withdraw precious metal from stock.

3.2.12 Approve all requisitions for precious metals and obtain the DOE Precious Metals Control Officer's approval prior to the requisition being submitted to the Acquisitions Department.

4.0 PROCEDURE

4.1 ACQUISITION OF PRECIOUS METALS

RESPONSIBILITY	ACTION
REQUISITIONERS	A. Contact the Precious Metals Control Officer to determine availability of precious metals from the DOE Precious Metals Pool.
PRECIOUS METALS CONTROL OFFICER	B. Contact the Acquisitions Department to determine the availability of the necessary precious metals from the DOE Precious Metals Pool.
FERMCO PRECIOUS METALS BUYER	C. Contact the DOE Precious Metals Pool Manager to determine the availability of precious metals prior to acquisition on the open market.
REQUISITIONER	D. With information provided by the Precious Metals Control Officer on availability and DOE recommended fabricator, shall prepare a Purchase Requisition. A second requisition shall be prepared for the fabrication of the items (such as platinum crucibles with lids or wire), if necessary.
PRECIOUS METALS CONTROL OFFICER	E. Review the requisition(s) to ensure the correct account is charged, approve the requisition, and obtain approval of the DOE Precious Metals Control Officer prior to submission to Acquisitions.

4.2 TRAINING

RESPONSIBILITY	ACTION
PRECIOUS METALS CONTROL OFFICER	A. Develop and provide training that complies with DOE PMR 109-27.53.

4.3 SILVER RECOVERY PROGRAM

RESPONSIBILITY	ACTION
PRECIOUS METALS CONTROL OFFICER	A. Develop and implement a silver recovery program per DOE PMR 109-27.5303 (i) that is in accordance with FPMR 101-42.3 and DOE PMR 109-4.2.3.

RESPONSIBILITY	ACTION
PRECIOUS METALS CONTROL OFFICER	B. Prepare and submit an annual report per DOE PMR 104-27.5303 (j).

4.4 ANNUAL REVIEW AND FORECAST FOR PRECIOUS METALS

RESPONSIBILITY	ACTION
PRECIOUS METALS CONTROL OFFICER	A. Conduct an annual review of precious metal holdings per DOE PMR 109-27.5303 (g).
	B. Complete an annual forecast of precious metal withdrawals and returns per DOE PMR 109-27.5303 (j).

5.0 DESIGNATION OF CUSTODIANS

Division Manager shall designate responsible individuals in writing as precious metals custodians. Letters of designation will be sent to the FERMCO Precious Metals Control Officer with a copy to the Property Management Department. Custodians shall be responsible for proper control and safeguarding of the precious metals when issued for use.

6.0 PHYSICAL PROTECTION AND STORAGE

Precious metals shall be afforded physical protection from time of receipt until disposition. In accordance with DOE PMR 109-27.5304-3, precious metals not in use shall be stored in a noncombustible, combination locked repository with access limited to the custodian and an alternate. When there is a change of custodian or alternate having access to the repository, the combination shall be changed immediately.

7.0 PHYSICAL INVENTORIES

7.1 Physical inventories shall be conducted semiannually as scheduled by the Property Management Department and shall be witnessed by the Precious Metals Control Officer.

7.2 Precious metals not in use shall be inspected and weighed on calibrated scales. The inventoried weight and form shall be recorded on the physical inventory sheets by class of metal. Metals in use in an experimental process, or which are contaminated and therefore cannot be weighed, shall be listed on the physical inventory sheet as observed and/or not observed as applicable.

7.3 Any idle or damaged metals should be recorded during the physical inventory. Justification for further retention of idle materials shall be required from the custodian or disposed of in accordance with this section.

7.4 Inventory discrepancies shall be documented and shall identify the total grams over or short and the dollar value based on average cost per gram. Any adjustment shall be supported by an appropriate adjustment report and approved by the Manager, Property Management.

8.0 STOCK ISSUES

8.1 Metals in stock are metals held in a central location and later issued to authorized individuals when authorized requests are received. The Inventory custodian is responsible for maintaining metals in stock. The following control procedures shall be followed for such metals.

8.1.1 Stocks shall be held to a minimum consistent with effective and economical support for requirements.

8.1.2 The name and organization of each individual authorized to withdraw precious metals and the type(s) and form(s) of metal that may be withdrawn shall be prominently maintained in the stock control location. This authorization shall be issued by the Precious Metals Control Officer and updated semiannually. The Inventory Custodian shall issue precious metals only to authorized persons.

8.1.3 Accurate records of all movements (receipts, issues, returns, and disposal) shall be developed by, and maintained in, the central stock control location.

8.1.4 Receipts for metal issues and returns to stock shall be provided to users. Such receipts, signed by the authorized requesting individual and the Inventory Custodian, shall list the requesting organization, type and form of metal, quantity, and date of transaction.

8.2 Control by Using Organization

8.2.1 After receipt, the using organization shall provide the necessary controls for the precious metal. Materials shall be stored in a locked repository at all times except for small quantities at the actual point of use.

8.2.2 Each using organization shall maintain a log showing the individual user, type and form of metal, and the time, place, and purpose of each use. The log shall be kept in a locked repository when not in use.

8.2.3 The logs, which must be maintained in a securely locked storage facility, are subject to review by the Precious Metals Control Officer, Management Review Team Members, and other audit or review staffs as required.

8.2.4 Cognizant Department Managers are responsible for assuring that minimum quantities of precious metals are withdrawn consistent with work requirements and that quantities in excess of requirements are promptly returned to the Inventory Custodian.

8.2.5 Employee termination procedures shall include clearance for precious metals possession by the cognizant Property Account Manager.

9.0 DISPOSITION

9.1 All precious metals which have become excess to the needs of FERMCO shall be reported to the DOE Precious Metals Pool for recovery and subsequent redistribution within DOE.

9.2 All precious metals in their pure form are accepted for deposit to the DOE Pool Account. With the exception of silver, all precious metals in a scrap form which for all practical purposes are unusable and unserviceable, are accepted into the pool in their current state and are rehabilitated for redistribution within DOE. Only high grade nonradioactively contaminated silver will be included.

9.3 The custodian will gather information on specific quantities of precious metals being excessed and, therefore, are available for turn-in. The custodian will complete and submit to the Precious Metals Control Officer, a Form UNC-17368, Application for Disposal of Precious Metals and Scrap Having Predominant Precious Metals Content, in original and two copies. In the event that the precious metals contain elements that may be environmentally hazardous, the custodian must complete and forward a Material Safety Data Page (MSDS) with the Form UNC-17368.

9.4 The Precious Metals Control Officer will transmit the Form UNC-17368(s) to the DOE Property Administrator for signature. After obtaining the DOE Property Administrators signature, the Form UNC-17368(s) will be sent to the FERMCO Property Administrator to be forwarded to the DOE Precious Metals Pool Manager at Oak Ridge.

10.0 LOST, DAMAGED, MISSING PROPERTY REPORTING

If any item of or containing precious metal(s) is lost, damaged, or missing, the custodian shall contact the Precious Metals Control Officer, Property Management Department, and Security **IMMEDIATELY**.

REAL PROPERTY MANAGEMENT

1.0 PURPOSE

This document provides procedures for the Fernald Environmental Restoration Management Corporation (FERMCO) personnel to adhere to in the acquisition, management and disposal of real property interests. This procedure does not supersede contract specified procedures approved by the contracting officer. This procedure will apply to the acquisition, management, and disposal of all real property interests both on and off the FEMP site.

2.0 SCOPE

2.1 This procedure applies to all offsite activities; offsite real estate interests acquired or managed by FERMCO; the construction and disposal of structures on the site; and real estate licenses on the site.

2.2 This procedure will support FERMCO's mission by assuring that real estate interests are acquired properly and in a timely manner.

2.3 The procedures in this section adhere to directions contained in:

- DOE Order 4300.1C, Real Estate Management
- FPMR Temporary Regulation D-76, Federal Property Management Regulations
- DOE Leasing Handbook

3.0 DEFINITIONS (For use in this Attachment, in addition to those contained in the basic document.)

3.1 Agreement - as used in this procedure, refers to right-of-entry agreements, easements, licenses, or leases.

3.2 Easement - The right to use land belonging to another for a specific purpose, with the owner retaining title to the underlying fee. The owner's use of the easement is restricted to activities that will not interfere with the purposes for which the easement was granted. An easement deed is given by the landowner and recorded with the county in which the land is located. An easement is normally a permanent interest in the land of another. The owner is paid for the easement.

3.3 ES&H - Environmental Safety and Health.

3.4 Facility - A general term used to describe any and all types of fixed site improvements, including buildings, structures, and utilities.

3.5 Fair Rental Value - The rental value under the proposed terms and conditions that the use of the real property commands in a competitive market.

3.6 Instant Lease - A lease where the total cost of the lease, over the entire term of the lease including options and lump sum items, will not exceed $25,000.

3.7 Lease Agreement - An agreement, which gives exclusive possessory interest in the property for a specified time, in exchange for payment of rent to the owner.

3.8 License Agreement - A privilege to use or pass over property for a specified purpose. Usually used for longer duration agreements. This type of agreement often involves work that is ground disturbing in nature or restricts the land owner's use of the land to a limited extent. The owner is normally paid for the agreement.

3.0 **DEFINITIONS** (cont.)

3.9 Real Estate Interest - Real estate interests include real estate leases, licenses, Right-Of-Entry (R-O-E), rental agreements, fee, and easements.

3.10 Real Property Inventory System (RPIS) - A data base developed by DOE for tracking all real estate interests acquired by DOE.

3.11 Right-of-Entry (R-O-E) Agreement - A short duration agreement that allows access to private property for a specific task under certain conditions. Usually there is no construction done under a right-of-entry and money is only paid to the land owner if the property is damaged. This agreement is usually less than one year in duration.

3.12 Small Lease - A lease over $25,000, but less than 10,000 net useable square feet.

3.13 Temporary Lease - A lease not to exceed 6 months.

4.0 **RESPONSIBILITIES**

The FERMCO Acquisition and Finance Division, Contracts Department, Real Estate Section, is responsible for the acquisition, modification, and disposal of all real estate interests, both on and off the site.

For specific responsibilities, see the information included in each Exhibit.

EXHIBIT 1 - ACQUISITION OF LEASED PROPERTY

EXHIBIT 2 - MODIFICATIONS TO LEASED FACILITIES

EXHIBIT 3 - SHORT TERM RENTAL OF CONFERENCE ROOMS AND MEETING FACILITIES

EXHIBIT 4 - ACCESS TO OFFSITE PROPERTY

EXHIBIT 5 - ACCESS TO ONSITE PROPERTY UNDER LICENSE AND LICENSE PROCEDURES

EXHIBIT 6 - ACQUISITION OF FEE AND EASEMENTS

EXHIBIT 7 - CONSTRUCTION OR REMOVAL OF REAL ESTATE IMPROVEMENTS ON SITE

EXHIBIT 1

ACQUISITION OF LEASED PROPERTY

1.0 GENERAL

1.1 All real estate leases acquired by FERMCO in support of the prime contract will be supported by a requisition initiated by Facilities Engineering and Office Planning (Facilities).

1.2 Facilities has the responsibility for initiating all lease actions and all lease modifications.

1.3 The Real Estate Section has the responsibility for preparing the Solicitation For Offer (SFO) and the lease. In order to insure that the lease facility will meet FERMCO's needs, the Real Estate Section will obtain support from the end user, Facilities, Security, ES&H and others, as necessary.

1.4 The Real Estate Section will be FERMCO's point of contact with the lessor. The Real Estate Section will have the responsibility for enforcing the terms and conditions of the lease with the lessor.

RESPONSIBILITY	ACTION
REQUESTOR	A. Identifies his/her needs to Facilities in a timely manner.
	NOTE: The leasing process can take up to nine months to complete.
	B. Identifies the need for the space, including any special requirements needed to accomplish the mission.
	C. Works with Facilities on refining the space requirements.
FACILITIES	D. Reviews the requestor's needs and determines if they can be met with existing facilities. If the needs cannot be met with existing facilities, then Facilities will work with the requestor and the Real Estate Section on developing the technical specifications.
	E. Prepares a requisition and sends it to the Real Estate Section. The requisition will have adequate funding to cover the anticipated firm term of the lease. The requisition will also have the types and square footage of space (office, and special purpose) needed.

RESPONSIBILITY		ACTION
REAL ESTATE SECTION	F.	Prepares the Preliminary Real Estate Plan, (PREP) and sends it to DOE Oak Ridge Real Estate through DOE Fernald for approval. The Solicitation For Offer or lease will not be distributed to any potential lessors until the PREP has been approved by DOE.
	G.	Prepares a Solicitation For Offer (SFO), the Small Lease Package, the Temporary Lease Package, or the Instant Lease Package.
REAL ESTATE SECTION, REQUESTOR, FACILITIES, SECURITY, ES&H	H.	Conducts a market survey to locate appropriate space. If the space exceeds 10,000 square feet, an advertisement will be placed in the newspaper seeking potential lessors. A representative from Facilities, the requestor, Security, and Environmental Safety and Health (ES&H) will accompany the Real Estate Representative during the physical inspection of the potential sites. These representatives will prepare a report on all of the potential sites and list any deficiencies noticed during the inspection. This report will be given to the Real Estate Representative.
REAL ESTATE SECTION, FACILITIES AND THE REQUESTOR	I.	Determines if the potential site is acceptable. These representatives shall rely upon the representatives from Security and ES&H to determine if the space meets, or can be modified to meet, DOE's security and ES&H requirements. The reason for rejecting a site shall be documented in the real estate file.
REAL ESTATE SECTION	J.	Gives a copy of the SFO to the owners of those facilities which were determined to be acceptable. If the leasing action is for a temporary lease, an instant lease, or a small lease; a copy of the lease is given to the owner instead of the SFO. The lease is explained to the owner and negotiations are conducted at this time. Facilities will be involved in the negotiations if there are questions relating to

RESPONSIBILITY	ACTION
REAL ESTATE SECTION (cont.)	technical specifications. If deficiencies were found by either ES&H or Security, these deficiencies are put in the lease for the lessor to correct before FERMCO takes occupancy. If it is an SFO, the deficiencies are set forth in a letter to the property owner.
	K. Receives initial offers from the SFO and conducts negotiations with the Offerors. Facilities will be involved in the negotiations if there are questions relating to technical specifications. If there are a significant number of offerors, a competitive range will be determined. If it is an expedited leasing action, the Real Estate Section will review the proposed lease and contact the land owner if there are issues in the lease which need clarification.
	L. Obtains an appraisal of the properties. This appraisal may be done before or after the Best and Final Offers are submitted by the Offerors.
	M. Requests Best and Final Offers from the responsible Offerors.
	N. Evaluates the Best and Final Offers and determines which offer is most favorable based upon the criteria listed in the SFO.
	O. Forwards the consent package to DOE/OR for review and approval. If the per annum lease exceeds $500,000, the package must be forwarded by DOE-OR to DOE Headquarters for approval.
	P. After DOE approval is received, ensures the funds are entered into the accounting system using a Purchase Order. The purpose of using the PO is to obligate the payment of the rent under the lease. The actual contractual document between FERMCO and the Lessor is the Lease.

RESPONSIBILITY		ACTION
REAL ESTATE SECTION (cont.)	Q.	Execute the lease on behalf of FERMCO and mail a copy to the Lessor. The Lessor is authorized to proceed with the modifications required under the lease.
	R.	Accompanied by Facilities, make a physical inspection of the facility after the Lessor has completed any modifications to the facility. The purpose of the inspection is to insure that the leased facility meets the terms and conditions of the lease. If there are minor deficiencies, a list will be made of the deficiencies and this list will be given to the Lessor for correction. The property may be accepted for occupancy with minor deficiencies. Acceptance of the facility may be delayed if there are significant deficiencies to the facility.
	S.	Turn the property over to Facilities and the requestor for use by FERMCO.
	T.	Enforce the terms and conditions of the lease. If the Lessor is not complying with the terms and conditions of the lease, the Real Estate Section will take the appropriate action against the Lessor.

EXHIBIT 2

MODIFICATIONS TO LEASED FACILITIES

1.0 **GENERAL**

1.1 From time to time there will be a need to modify a leased facility in order to meet the mission requirements. When the occupant of a leased facility needs to have it modified, the request for modification will go through Facilities to the Real Estate Section.

1.2 The modification to the facility may be accomplished by either a modification to the lease or a Purchase Order. For this section the terms "modification to the lease", "lease modification" and "Purchase Order" may be used interchangeably.

RESPONSIBILITY		ACTION
REQUESTOR	A.	Identifies to Facilities the need for the modification, including any special requirements needed to accomplish the mission.
	B.	The requestor or Facilities will prepare and sign a justification for the modification. The justification will accompany the requisition or be written at the bottom of the requisition. The justification will state why the modification is needed.
REQUESTOR, FACILITIES	C.	The requestor will contact Facilities and describe the change. Facilities will work with the requestor on determining the requirements for the modifications. For unusual or complex requests, the Real Estate Section will be included in the preparation of the request. A drawing showing the type and location of the modification will accompany the requisition.
FACILITIES	D.	Facilities will coordinate with Security and ES&H to ensure the proposed change meets FERMCO and DOE's requirements.
	E.	Facilities will provide the Real Estate Section with an estimate for the cost of completing the work. The cost estimate is not needed if the price for the particular item is listed in the lease. A detailed cost estimate is needed for all items over $5,000, for whenever the estimate is significantly lower than the quote provided by the lessor.

RESPONSIBILITY		ACTION
FACILITIES (cont.)	F.	Facilities will send the requisition, justification, drawings and estimate to the Real Estate Section.
REAL ESTATE SECTION	G.	The Real Estate Section will send the requirement to the lessor and request a proposal for constructing the modifications. If the lessor's proposal is above the estimate, the Real Estate Section will attempt to negotiate a reasonable proposal from the lessor. If the proposal is at or below the estimate, a modification to the lease will be sent to the lessor for signature.
	H.	After the lessor returns the lease modification, it will be forwarded to DOE for approval. The lease modification package will include the lease modification, the justification and the estimate. The lease modification does not have to be forwarded to DOE if one of the following conditions are met: • DOE Oak Ridge Real Estate, with the concurrence of the Vice President of [redacted], may designate particular individuals to approve lease modifications up to a specified amount without having the modification sent to DOE Oak Ridge for approval. • The price of the modification is already contained in the lease.
	I.	After DOE approves the lease modification, the lease modification will be executed by the appropriate official in Acquisition and Finance. The executed lease modification and/or an order to proceed with the work will be sent to the lessor, and DOE.
REAL ESTATE SECTION, FACILITIES	J.	After the work is completed, Facilities shall check to determine if the work meets the terms and conditions of the modification. If the work is satisfactory, Facilities will send the Real Estate Section an Inspection Report approving the work. If the work is not

RESPONSIBILITY	ACTION
REAL ESTATE SECTION, FACILITIES (cont.)	satisfactory, Facilities will send Real Estate the Inspection Report listing the deficiencies. If there are deficiencies, the Real Estate Section will work with the Lessor to correct the problems. After the deficiencies are corrected, Facilities will re-inspect the work and resubmit the Inspection Report. After the work is accepted, the lessor will be paid in accordance with the lease modification.

EXHIBIT 3

SHORT TERM RENTAL OF CONFERENCE ROOMS AND MEETING FACILITIES

1.0 **GENERAL**

1.1 From time to time there will be a need to rent conference rooms or meeting facilities to accomplish mission requirements. The acquisition of these facilities may be done on a Purchase Order.

1.2 The payment for the use of these facilities shall include the payment for the services and furnishings provided. These services and furnishings would include chairs (already placed as requested by the user), podium, tables, chairs, posting of notices on appropriate bulletin boards, amplifier system, screen, projectors, and other special equipment needed by the user.

1.3 The use of the facility may not exceed 180 days. Any need for a conference room or meeting rooms exceeding 180 days shall be accomplished through a real estate leasing action.

RESPONSIBILITY		ACTION
REQUESTOR	A.	Identifies the need for the meeting space or conference rooms, including any special requirements needed to accomplish the mission.
	B.	Checks with the appropriate persons on the site and at the offsite locations to determine whether there is a conference room available which would meet their needs. If a conference room is not available, submits their requisition to A&F, Acquisitions - Procurement for processing. The requisition will state what the short term space will be used for.
PROCUREMENT	C.	E-mails the request to the Real Estate Manager or the designated representative and provides the following information:
	D.	Type and size of space needed.
	E.	Length of time the space is needed.
	F.	Who needs the space and why it is needed.
REAL ESTATE SECTION	G.	The Real Estate Section may approve short term requests up to one week in length.
	H.	The Real Estate Section will forward all requests exceeding one week to DOE Oak Ridge for approval.

RESPONSIBILITY		ACTION
REAL ESTATE SECTION (cont.)	I.	The Real Estate Section will notify Procurement after the request is approved or denied by DOE Oak Ridge.
	J.	The Real Estate Section will keep a log of all short term requests for conference rooms.
PROCUREMENT	K.	Will notify the Real Estate Section of the site selected.

EXHIBIT 4

ACCESS TO OFFSITE PROPERTY

1.0 **GENERAL**

Any time FERMCO personnel or FERMCO's subcontractors perform work on property not controlled by FERMCO, they must have the proper written permission from the property owners before going onto private or public property. This written permission must be obtained through the FERMCO Real Estate Section. Any activity that takes place at a non-FERMCO controlled location before the appropriate agreement is acquired is considered trespassing.

2.0 **SAMPLING BY ENVIRONMENTAL MONITORING AND SURVEILLANCE (EMS)**

RESPONSIBILITY		ACTION
EMS	A.	Is contacted by landowners who want to have their wells, crops, etc., tested for possible contamination.
	B.	Contacts the Real Estate Section and requests a Right-Of-Entry (R-O-E). Provides the property's owners name, mailing address, sampling address, telephone number and duration of the R-O-E.
REAL ESTATE SECTION	C.	Verifies property ownership with the County.
	D.	Prepares the R-O-E.
	E.	The Real Estate Representative will explain the terms and conditions of the R-O-E to the landowner and answer any questions the land owner may have concerning the R-O-E.
EMS	F.	After the R-O-E is signed, EMS will demonstrate to the owner how and where the samples will be taken.
REAL ESTATE SECTION	G.	Send the R-O-E to DOE Oak Ridge Real Estate for review and approval. DOE Oak Ridge will execute the R-O-E and return it to the FERMCO Real Estate Section.
	H.	A copy of the R-O-E is sent to the property owner, EMS and the file.

2.1 **OFFSITE WORK BY CONSTRUCTION DEPARTMENT**

The Construction Department shall follow the real estate procedures in the Construction Division Procedures entitled Private Property Access Permits For Construction and NEPA Compliance Reviews.

2.2 ALL OTHER OFFSITE ACTIVITIES

2.2.1 All other activities conducted on non-FERMCO controlled sites must be approved by the Real Estate Section before any FERMCO employee or subcontractor can go onto the site.

2.2.2 The type of document the Real Estate Section will need to obtain from the land owner will be determined by the activity needed to be performed at the non-FERMCO controlled location.

RESPONSIBILITY	ACTION
REQUESTOR	**A.** Contacts the Real Estate Section and describes the work.
	B. Prepares any technical specifications needed by the Real Estate Section.
REAL ESTATE SECTION	**C.** Works with the requestor on determining the needs of the project. The Real Estate Section will explore various alternatives with the requestor to insure that the proper real estate document is obtained for the project.
	D. Prepares the proper real estate documents and obtain the proper approvals.
	E. Notifies the requestor of the approval and informs the requestor of the terms and conditions of the real estate document.
REQUESTOR	**F.** Is responsible for complying with the terms and conditions of the real estate document. If the requestor needs to change the terms and conditions of the document or cannot comply with the terms and conditions of the document, they will notify the Real Estate Section and work with them on resolving the problem.

EXHIBIT 5

ACCESS TO ONSITE PROPERTY UNDER LICENSE AND LICENSE PROCEDURES

1.0 **GENERAL**

There are approximately 400 acres of pasture land at the Fernald Site which is licensed to private individuals. These licenses generate income to the Government and reduce the maintenance of the pasture areas. The licensed areas may be used by the Government and FERMCO for project purposes. The licensee is entitled to be notified of the activity before any work is conducted in these areas.

2.0 **ACCESS TO PROPERTY UNDER LICENSE**

RESPONSIBILITY		ACTION
REQUESTOR	A.	Identifies the portion of the licensed area needed for project purposes.
	B.	Contacts the Real Estate Section and describes the work to be done, the pasture land affected, and the amount of time the area will be used.
	C.	Works with the Real Estate Section on exploring alternatives to lessen the impact on the licensed pasture land.
REAL ESTATE SECTION	D.	Describes the project to the licensee.
	E.	The Real Estate Section prepares a modification to the license if there a significant impact on the licensee's use of the pasture land.
	F.	The proposed modified license is sent to DOE Oak Ridge Real Estate Office for approval. After the modification is approved, it is executed by the licensee and sent to DOE Oak Ridge for signature. An executed copy of the license is sent to the licensee.
	G.	The requestor is notified to proceed with the project in the licensed area.
REQUESTOR	H.	Restores the pasture area after the project is completed and notifies the Real Estate Section.
REAL ESTATE SECTION	I.	The licensee will be notified that the work in the pasture area is completed. Modifies the license, if this is needed.

3.0 PASTURE LICENSE PROCEDURE

3.1 The FERMCO Real Estate Section has the responsibility for licensing the FEMP Site pasture land on behalf of the Oak Ridge Department of Energy Real Estate Office. The FERMCO Real Estate Section will follow DOE Oak Ridge Real Estate directions, and guidelines in the establishment and processing of pasture licenses on land located at the Fernald Site. All licenses will be executed by the DOE Oak Ridge Real Estate Office and the licensor.

RESPONSIBILITY	ACTION
REAL ESTATE SECTION	The FERMCO Real Estate Section will assist the DOE Oak Ridge Real Estate Office in licensing property on the FEMP Site. This assistance will include, but is not limited to, obtaining a list of persons interested in bidding on the property, appraisals, negotiations, and preparation of the necessary license documents.

EXHIBIT 6

ACQUISITION OF FEE AND EASEMENTS

1.0 GENERAL

1.1 There may be a need to purchase fee or easements in order to accomplish a long term project objective. It is essential that the requestor allow for a sufficient amount of time in the planning process for the acquisition of the fee or easement. The acquisition process for a fee or easement may take over a year. The requestor must remember that the design for the project must be substantially completed before the property can be acquired. If there are changes in the boundary lines or changes in the terms and conditions of the easement, the acquisition process must start from the beginning.

1.2 The requestor and the Real Estate Section must work closely together from the beginning of the project. Small changes in the type of real estate interest to be acquired or its location can result in a significant amount of time and/or money being saved on the project.

1.3 The acquisition of the permanent real estate interest will be accomplished by the Army Corps of Engineers, Louisville District. The FERMCO Real Estate Section will be the point of contact between FERMCO and the Corps of Engineers.

RESPONSIBILITY	ACTION
REQUESTOR	A. Identifies the need for the off-site property.
	B. Discusses the need with the Real Estate Section to determine the best course of action to follow. A field trip to investigate various alternatives may be warranted.
	C. Prepares plans, justification and legal descriptions for the project and sends them to the Real Estate Section.
REAL ESTATE	D. Prepares the Preliminary Real Estate Plan and sends it to DOE Oak Ridge Real Estate for approval.
	E. After the Preliminary Real Estate Plan is approved by DOE, Real Estate will coordinate the acquisition of the real estate interest with the requestor and the Corps of Engineers.

EXHIBIT 7

CONSTRUCTION OR REMOVAL OF REAL ESTATE IMPROVEMENTS ON SITE

1.0 **GENERAL**

1.1 The FERMCO Real Estate Section has the responsibility for maintaining an inventory of all real estate interests acquired or controlled at the Fernald Site. This information is stored in a DOE data base system called Real Property Inventory System (RPIS).

1.2 Any real estate structure built or removed by FERMCO must be entered into the RPIS.

2.0 **CONSTRUCTION OF IMPROVEMENTS ON SITE**

RESPONSIBILITY	ACTION
CERCLA/RCRA UNIT (CRU) OR REMEDIATION SUPPORT OPERATIONS (RSO)	A. When the construction of a structure is substantially completed, the Director for the CRU or the RSO responsible for constructing the structure, will notify the Real Estate Section of the anticipated date of completion. After the construction of the structure is completed, the Director will notify the Real Estate Section of the cost of the facility, gross and occupiable square feet, construction type, predominant usage, and any hazards.
REAL ESTATE SECTION	B. Updates the RPIS after the structure is constructed.
	C. Notifies DOE Oak Ridge Real Estate of the construction and occupancy of the facility.

3.0 **REMOVAL OF IMPROVEMENTS ON SITE**

RESPONSIBILITY	ACTION
CRU OR RSO DIRECTOR, REAL ESTATE SECTION	A. When FERMCO is planning on demolishing a structure, the CRU or RSO Director responsible for removing the structure will notify the Real Estate Section of the proposed demolition of the structure. Prior approval from DOE Oak Ridge Real Estate must be obtained before a contract can be awarded to remove the structure.
	B. Provides the Real Estate Section with the forms needed to justify the demolition of the structure.

RESPONSIBILITY	ACTION
REAL ESTATE SECTION	C. Review the forms needed to remove the structure and forwards them to DOE Oak Ridge Real Estate for approval.
	D. Notifies the Director after approval is received from DOE.
CRU or RSO	E. Notifies the Real Estate Section when the structure is demolished and obtains the proper signatures for certification that the structure was disposed of in the manner approved.
REAL ESTATE SECTION	F. Sends a copy of the certification to DOE Oak Ridge Real Estate.
	G. Updates the RPIS after the structure is demolished.

INVENTORY MANAGEMENT

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1. RECEIVING AND INCOMING MATERIALS INSPECTION AREA

1.1 PURPOSE AND SCOPE

1.1.1 This section of the document contains procedures for the conduct of operations in the Receiving and Incoming Materials Inspection Area (RIMIA) Facility.

1.1.2 RIMIA, normally referred to as Receiving, is located on the eastern perimeter of the Fernald complex. This location is intended to minimize the possibility of transfer of hazardous materials off the Fernald Environmental Management Project (FEMP) complex.

1.1.3 Shipments may be routed to the receiving dock for receipt or a Storeroom Attendant may be dispatched to the receiving location to process a receiving document. This facilitates the flow of paperwork and allows prompt payment of invoices.

1.1.4 The facility is designed to expedite the receipt and movement of materials to the Inspection Department for items requiring inspection before acceptance. Housing both functions in the same facility improves the receiving and quality assurance inspection interface and the transportation of materials is reduced.

1.1.5 It is important that all FEMP personnel who purchase material for use onsite follow proper receiving procedures. This includes having a Storeroom Attendant from the Receiving Section process a Receiving Report for all material receipts against an open purchase order, whether received in the Receiving facility or any other receiving location.

NOTE: Due to the lack of warehouse space, anyone requisitioning materials must provide a location for items to be delivered upon receipt. Facilities are not available to store material awaiting use.

1.1.6 The facility is classified as a clean area. Employees may wear personal clothing and follow the same guidelines as in other clean areas. The facility has a separate drive entrance and is guarded by FERMCO Security personnel.

1.2 ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES

RESPONSIBILITY	ACTION
RIMIA	A. Verify the physical condition of incoming property and the quantities shipped/ delivered by vendors as authorized by the Acquisition Department.

1.2 **ORGANIZATIONAL RESPONSIBILITIES** (cont.)

RESPONSIBILITY		ACTION
RIMIA	B.	Determine from the checker worksheet which items require technical inspection, warranty, hazardous, sensitive/ pilferage, electrostatic and classified material processing, property ownership, and distribution.
	C.	Receive and unpack material, check the condition of the material, and check items against corresponding purchase order and invoice/packing list(s).
	D.	Ensure the necessary inspections are performed.
	E.	Complete the appropriate receiving and inspection reports.
	F.	Make the required data entry inputs.
	G.	Ensure materials are distributed to the responsible sections.
MATERIALS MANAGEMENT	A.	Manage overall operation of the RIMIA facility.
RECEIVING SUPERVISOR	A.	Direct the RIMIA Receiving Section.
	B.	Direct the packing, preparation for shipment, and shipping of materials as required by Miscellaneous Shipping Orders (MSOs).
RIMIA	A.	Receive all incoming materials before distribution to all departments, on and offsite.
WAREHOUSE SUPERVISOR	A.	Assign a Storeroom Attendant to assist the Transportation Supervisor in the receipt of bulk rail shipments and the receipt of Source and Special Nuclear materials.
TRANSPORTATION	A.	Provide transportation of material from RIMIA to its final destination.
QUALITY CONTROL	A.	Conduct all material inspection activities at RIMIA.

ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES (cont.)

RESPONSIBILITY	ACTION	
ENVIRONMENTAL and RADIOLOGICAL SAFETY	A.	Monitor deliveries and fork trucks coming from the former Process area.

1.2.1 Personnel assigned to RIMIA are the Receiving Supervisors, Storeroom Attendants, and Clerical Support Personnel.

RESPONSIBILITY	ACTION	
RECEIVING SUPERVISOR(S)	A.	Supervise all Receiving Section operations.
	B.	Ensure that a Checker Worksheet is correctly completed for each receipt of material at Fernald, and that the data is entered into the CMMS database.
	C.	Designate the individual to receive, and the method to be used, to receive material and to complete a Checker Worksheet.
	D.	Direct unloading of items received and loading of all items to be delivered.
	E.	Periodically spot check the Checker Worksheets completed by the Storeroom Attendants.
	F.	Check the damaged items that are reported by the Storeroom Attendants and initiate proper action including freight bill notations.
	G.	Assure that the inspection of items produced by vendors to meet FEMP drawings and specifications are performed by Quality Assurance personnel.
STOREROOM ATTENDANT(S)	A.	Check incoming material for quality, identity, quantity, and condition.
	B.	Check the material received against the Checker Worksheet, the packing slip, and the shipping document.

1.2 ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES (cont.)

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT(S)	C.	Complete a Checker Worksheet on all items received except those noted in Paragraph 1.7, "Exceptions", noting all discrepancies.
	D.	Unload, or assist the assigned Motor Vehicle Operator to load and unload, trucks as directed by the Receiving Supervisor at the receiving dock.
	E.	Check and prepare for shipment all outbound materials passing through RIMIA for shipment offsite.
	F.	After the Storeroom Attendant(s) perform their receiving check and all documents are complete, place all sensitive items such as computers, portable calculators, and others (as noted on the worksheet) in an area designated as a hold area, until a representative from the Property Department Management can affix a barcoded property tag on the item as directed by DOE.PMR109-1.5101.
QUALITY ASSURANCE CHECKER	A.	Check all materials that require Quality Assurance such as shipping containers, skids, and others.
	B.	Fill out all papers and reports required to track the materials.
	C.	Work with Quality Assurance personnel to complete the required forms.
	D.	Perform other miscellaneous duties as specified by management.
CLERICAL SUPPORT PERSONNEL	A.	Prepare Move Tickets and Checker Worksheets, as required.
	B.	Enter data into the CMMS database.
	C.	Provide maintenance for the Haz-Trac System when it is implemented.

ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES (cont.)

RESPONSIBILITY		ACTION
CLERICAL SUPPORT PERSONNEL	D.	Perform other duties as specified by Management.
	E.	File all Checker Worksheets in numerical sequence by Purchase Order number.
		NOTE: The file should contain completed Checker Worksheets and follow-on copies of each Checker Worksheet together with allied documents; i.e., Packing Slips, Shipping Documents, and Quality Control Inspection Reports.

1.3 RECEIPT OF MATERIAL TO BE INSPECTED FOR QUALITY

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	As an item that requires an inspection for quality is received, a Hold for Inspection Tag should be placed on the material.
	B.	Move the item to the RIMIA Inspection Area, or in the case of incoming metal shipping container, send the Inspector to the Storage Site.
QUALITY ASSURANCE CHECKER	C.	If acceptable, tag the item with a Quality Acceptance Tag, FS-F-2707.
	D.	Send the item to the requisitioner or to the Storeroom Attendant for storage.

1.3.1 The RIMIA Receiving Section is notified of acceptance or rejection of an item.

RIMIA INSPECTION AREA	A.	If an item has been rejected, notify the Receiving Supervisor.
RIMIA INSPECTION OR QUALITY CONTROL SECTION	B.	Hold the item until a Miscellaneous Shipping Order is submitted by the requisitioner or by Procurement.

1.4 RECEIVING REPORT FORMS

1.4.1 All Checker Worksheets are channeled through the RIMIA facility Receiving Section even though the material may go directly to the requisitioner or to a storage location.

RESPONSIBILITY	ACTION
WAREHOUSE ATTENDANT	A. Complete the Master Receiving Report, Checker Worksheet, and Move Ticket for purchased material received at the FEMP.
	B. Complete the following items on the Checker Worksheet and the Move Ticket, if applicable: • Amount received • Date received • Number of cartons • Via • Shipper's number • Pro number • Gross net and tare • Amount • Any damage or discrepancy • Signature of checker • Date material checked • If subject to special inspection, the signature of the individual completing the testing • Serial numbers of major computer components and vehicle serial numbers
	C. Distribute a copy of the receiving reports to the Requisitioner, Procurement, Accounting, and RIMIA file.
	D. Distribute receiving reports on bulk receipts is the same as normal distribution except: Vehicles — Six copies to Transportation Supervisor Coal — One copy to the Power Plant Superintendent One copy to the Boiler Plant Clerk One copy to the IC&W Clerk

RECEIVING REPORT FORMS (cont.)

RESPONSIBILITY	ACTION	
WAREHOUSE ATTENDANT	Chemicals	One copy to Quality Control
	Diesel Fuel	One copy to the Power Plant Section

E. To eliminate the possibility of damage to material being transported from the receiving location to the final destination, maintain original packing whenever possible except for items selected for the Waste Minimization program.

F. Take materials not considered fragile or hazardous out of the cartons at RIMIA to support the Waste Minimization program. When cartons are removed at RIMIA, the material is transported to the requisitioner in plastic containers that are monitored by a Radiological Technician and returned to RIMIA.

1.4.2 Nuclear Material Receiving Report Form, FS-F-0613

RESPONSIBILITY	ACTION
STOREROOM ATTENDANTS	A. Complete this form for all receipts of Nuclear Materials at the FEMP.
	B. After checking the material, complete the following, as applicable:

- Nuclear Material Receiving Report Number
- Date received
- Received from (shipper)
- Carrier
- Date unloaded
- Car number
- Seal number
- Freight bill number
- Bill of Lading number
- Number of items received
- Type of items received
- Material described per billing
- Checkers signature
- Received by (destination)

1.4 **RECEIVING REPORT FORMS** (cont.)

RESPONSIBILITY	ACTION
STOREROOM ATTENDANTS	• Lot number, quantity weight, and description of material • Remarks: i.e., damage and/or discrepancies

C. Distribution of copies:

White	-	Receiving
Yellow	-	Requisitioner
Pink	-	Site Source Control
Canary	-	Traffic
Blue	-	Material Control and Accountability
Green	-	Material Control and Accountability
Light Yellow	-	Material Control and Accountability

1.5 **DISCREPANCIES IN RECEIPTS**

1.5.1 Overages

RESPONSIBILITY	ACTION
STOREROOM ATTENDANT	A. When material is received that is in excess of the quantities ordered, note on the Checker Worksheet that there is an excess and a Discrepancy Report will be generated by the Storeroom Attendant. B. Return to the vendor all overages received which are not specifically authorized to be retained by the requisitioner using the method directed by Acquisitions. **NOTE**: An exception may be made if it is determined that it is in the best interest of the site to retain the overshipment.

DISCREPANCIES IN RECEIPTS (cont.)

1.5.2 Material not in accordance with the purchase order

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Upon receipt of material not meeting the specification shown on the purchase order, note the deficiency on the Checker Worksheet, generate a Discrepancy Report, and inform the Receiving Supervisor of the situation.
	B.	If the originator of the purchasing requisition agrees that the material received is of equal or better value, and the billing does not exceed the original quoted price, the material may be sent to the proper destination.
	C.	If the material is not acceptable, return it to the vendor per the shipping instruction issued by Acquisitions.
	D.	If time is a major factor, the requisitioner or Procurement may initiate a MSO and forward the MSO to the Receiving Supervisor or may instruct the Receiving Supervisor on how to execute the MSO.
RECEIVING SUPERVISOR	E.	For reference, maintain a log book listing all MSO shipments.

1.5.3 Shortages

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Upon receipt of a shipment which is less than the piece count shown on the carrier's delivery slip, note the shortage on the Checker Worksheet, or on the freight bill if the shipment arrived by common carrier.

1.5 DISCREPANCIES IN RECEIPTS (cont.)

RESPONSIBILITY		ACTION
	B.	In the case of GSA shipments, request the Inventory Control Section Clerk to make an adjustment by shipping the additional material back to GSA or by adjusting the invoice to agree with the quantities. **NOTE**: GSA does not always ship what has been ordered. **NOTE**: The amount must be over $100.00 before adjustments can be made on Government Services Agency (GSA) orders. A Discrepancy Report will be generated by the Inventory Control Clerk.

1.5.4 Damages

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Note all obvious damage in shipments at the time the material is received. The carrier's delivery slip will be marked to indicate the extent of damage and the Traffic Section will be notified.
	B.	Report concealed damages discovered at the time the material is uncrated to Procurement and the Traffic Section at once, and note the information on the Checker Worksheet.
	C.	Check large, heavy cartons for a "Tip and Tell" marker to determine if the carton has stayed in the correct position before arrival. If the "Tip and Tell" marker indicates that the carton has been tilted, give special care in checking the items.
	D.	Note any tipping indication in the Checker Worksheet, notify the Receiving Supervisor and generate a Discrepancy Report.

DISCREPANCIES IN RECEIPTS (cont.)

1.5.5 Special Handling Requirements

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Unload heavy items with a container weighing more than 5,000 pounds with heavy equipment only.
	B.	Large, bulky containers larger than 5 feet in any dimension may require heavy equipment to unload. The Receiving Supervisor and the driver will decide on any needed equipment.
	C.	Give any material arriving in an air ride van special unloading consideration. Ask the van driver if there are any special handling instructions before unloading.

1.5.6 Damage Claims

RESPONSIBILITY		ACTION
TRAFFIC SECTION	A.	File a damage claim against the carrier if a shipment does not pass inspection at the point the truck is being unloaded, usually at the RIMIA.
RECEIVING SUPERVISOR	B.	Authorize the vendor to ship replacement items and render a billing in accordance with Procurement procedures if replacement of damaged material is required . NOTE: Any claim for damages of a shipment where title passes at destination will be the responsibility of the vendor.
PROCUREMENT	C.	Request the vendor to replace, and furnish disposition for, damaged material.

1.6 EXCEPTIONS

1.6.1 In order to avoid duplication and excessive handling of material, the receipt of materials may be performed by groups other than Receiving Section. The same procedures followed by Receiving Section personnel shall be followed. The materials that may be received offsite are:

- Books, periodicals, Journals
- Materials purchased by credit card

1.6.2 The procedure for receiving books, periodicals, and journals is as previously stated but with the following exceptions:

1. The items received by the requisitioner via mail.
2. All receipts are recorded by the requisitioner on a Receiving Report or per notations and signatures on the vendor's invoice.
3. All receiving documents are forwarded to RIMIA.

1.6.3 The following is the procedure for receiving materials and services offsite:

RESPONSIBILITY		ACTION
PROCUREMENT EMPLOYEE	A.	Notify the Receiving Section of material or service received and forward a packing list and freight bill with receipt notation, signature, and date.
STOREROOM ATTENDANT	B.	Process the receipt as usual and note the name of the person offsite who signed for the material, the location, and the date.
DESIGNATED RECEIVER at Showcase or Springdale	C.	Use the CMMS System to receive and check material(s) following Receiving Section procedures. NOTE: The designated Receiver will be trained in the use of the CMMS receiving System.
	D.	Enter the receipt into the CMMS receiving system.

AREAS OF SPECIAL CONSIDERATION

1.7.1 Trucks making deliveries that require a weight check will be weighed on the RIMIA facility truck scale. Checker Worksheets for bulk material received by truck are based on the gross and net weights as determined by the FEMP truck scale. Purchase Orders will indicate that the FEMP truck scale weights shall be the final, determining weight.

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	For bulk deliveries such as liquid fuels or other tanker trucks, examine the vendor's shipping papers to identify the material being delivered.
	B.	Go to the point of delivery and make personal contact with the operator at the final unloading destination.
TRANSPORTATION SUPERVISOR and **STOREROOM ATTENDANT**	C.	At destination, shall examine the vendor's shipping papers. Unloading shall not start until mutual agreement is reached on any question concerning the material being received and that the material is being placed in the correct tank.
	D.	The statement "I certify that the material was stored in the proper tank." shall be written on the Checker Worksheet. Both the Transportation Supervisor and the Storeroom Attendant shall sign below the statement to show their agreement.
	E.	Unload trucks making deliveries on a first come, first served basis. **NOTE**: Priority may be given, for example, to express delivery services as granted by the Receiving Supervisor.
	F.	Direct trucks, which for some reason can not be unloaded upon entry to the RIMIA facility, to be temporarily parked in the staging area.
	G.	Utilize the covered dock on the north side of RIMIA to unload bulky materials and flammable, hazardous materials.

1.7 AREAS OF SPECIAL CONSIDERATION (cont.)

RESPONSIBILITY		ACTION
TRANSPORTATION SUPERVISOR and STOREROOM ATTENDANT	H.	Receive, inspect, and handle all flammable, hazardous materials outside the building (the covered dock area on the north side).
	I.	Give priority to expediting the delivery of all flammable, hazardous materials received at RIMIA to their final destination.
	J.	Secure all non-flammable, hazardous materials received inside the building within the diked area designed for such temporary storage.
ALL PERSONNEL	K.	During the unloading or handling of hazardous materials (flammable and non-flammable), if a spill occurs, first "CLOSE" the manual valve to the dock pit and then immediately report the incident to the AEDO (extension 6431) or to the Communication Center (extension 6295). Next, notify the Receiving Supervisor and the IC&W Manager of the spill.
	L.	Position the manual shutoff valve in "OPEN" at all other times except for testing and performance of maintenance. (Also see Paragraph 1.8, "Non-Radioactive Hazardous Materials".)
TRANSPORTATION DRIVER	M.	When delivering material from RIMIA; sign, give badge number, and date the move ticket date.
MATERIAL RECIPIENT	N.	Sign the move ticket and give badge number and date. When input, the CMMS will automatically number the move ticket.
		NOTE: This information is entered into the system upon return of the signed move ticket by Transportation.

AREAS OF SPECIAL CONSIDERATION (cont.)

1.7.2 Inspection Plans

RESPONSIBILITY		ACTION
PROCUREMENT SECTION	A.	State on the receiving copy of the purchase order if items are subject to inspection.
RECEIVING SECTION	B.	Inspect the items specified by the Procurement Section before release to the requisitioner or to storage.
STOREROOM ATTENDANT	C.	Upon receipt, place Hold for Inspection tags on the items and notify the Quality Control Inspector.
QUALITY CONTROL CHECKER	D.	Inspect the item.
	E.	After the inspection is complete, sign the Checker Worksheet noting acceptance or rejection. If rejected, the reason(s) will be written on the Checker Worksheet.
STOREROOM ATTENDANT	F.	If accepted, remove the HOLD FOR INSPECTION tag(s) and place an accepted tag on the material.
	G.	Arrange for delivery of the item(s) to the requisitioner or to storage.
	H.	If rejected, replace the HOLD FOR INSPECTION tag(s) with RETURNED GOODS tag(s).
	I.	Inform the Receiving Supervisor of any rejection.
RECEIVING SUPERVISOR	J.	Notify the Procurement Section Buyer and request a MSO for the rejected item(s).

1.7 **AREAS OF SPECIAL CONSIDERATION** (cont.)

1.7.3 Cylinders Containing Gases

Cylinders containing gases are subject to Interstate Commerce Commission Rules and Regulations in that each cylinder must be hydrostatically tested at stated intervals, depending upon the type of gas. The schedule to test cylinders for typically stocked gases is:

Five Years	10 Years	Other
Carbon Dioxide Anhydrous Ammonia Chlorine Hydrofluoric Acetogen (cutting gas)	Helium Hydrogen Nitrogen Oxygen Test Gases	Acetylene - no testing required

RESPONSIBILITY	**ACTION**
STOREROOM ATTENDANT	A. Upon receipt of the delivery, check the test dates stamped near the neck of each cylinder.
	B Reject any cylinder(s) exceeding the test date and return to the vendor for replacement.
	C. Record the test date of each cylinder on a tag and affix the tag to the cylinder near the neck area.

1.7.4 Control of Sensitive Items - Non-Stores (As required by DOE PMR 109-1.5106.4)

A. Due to function, aesthetic appeal, or high unit value, certain items require special handling from the time of receipt until delivery is complete. These items are relatively small in size and easily concealed.

B. Items requiring special handling are pocket calculators, small desk top calculators, cameras, radios, wrist watches, stop watches, service awards, direct ordered pen sets including ball point pens and refills, leather dress gloves for Security Officers, thermometers, and special hand tools.

AREAS OF SPECIAL CONSIDERATION (cont.)

RESPONSIBILITY		ACTION
PROPERTY MANAGEMENT	A.	Barcode items received that are designated by the Property Management Department as sensitive, before being delivered by Transportation.
TRANSPORTATION DRIVER	B.	Receive the item along with two copies of the Move Ticket to be delivered to the Requisitioner.
REQUISITIONER	C.	Upon receipt, sign one copy of the Move Ticket and retain the other. Return the signed copy to Receiving for file and record purposes.

1.7.5 Control of Sensitive Items - Inventory Control Stocked

A. Examples of Inventory Control Stocked items are: flashlights, dry cell batteries, some clothing articles, screwdrivers, wrenches, pliers, putty knives, pocket knives, and other small hand tools.

B. The storage locations for these items are the padlocked, secured metal cabinets in the main storeroom and the padlocked cabinet in the paint room.

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Upon receipt of sensitive items, place the item and two copies of the Move Ticket in a designated area.
	B.	Retain the sensitive items until Transportation Driver can pick them up.
TRANSPORTATION DRIVER	C.	Pick up and hand deliver the items to the Warehouse Supervisor.
WAREHOUSE SUPERVISOR	D.	Assign a Storeroom Attendant to stock the proper location.
STOREROOM ATTENDANT	E.	Issue items as directed by an approved Requisition to Storekeeper card.
WAREHOUSE SUPERVISOR	F.	Inventory 100% of sensitive stores items annually.

1.7 **AREAS OF SPECIAL CONSIDERATION** (cont.)

1.7.6 Express Delivery Services

RESPONSIBILITY	ACTION
STOREROOM ATTENDANT	A. For deliveries, enter item(s) received via express delivery services on the Daily Delivery Log.
	NOTE: Letters and envelopes should be delivered to the mailroom by the express delivery service driver. RIMIA receives and processes cartons only.
	B. For pick up(s), enter the time the request(s) for pick up was called in, the pick up time, and (later) the delivery time to the addressee, along with the signatures of the person making the delivery and the recipient.
	NOTE: The log provides a trackable record for these important packages.

1.7.7 Radioactive Materials

Radioactive materials delivered to the RIMIA shall be identified by labels on the packing and/or notations on the shipping document.

A. Large quantities:

NOTE: Large quantities of low level radioactive materials are not to be unloaded at RIMIA.

RESPONSIBILITY	ACTION
STOREROOM ATTENDANT	A. Have large quantities of radioactive materials delivered directly to the addressee or to the Hold Area of Stores located in Building 12.
	B. If radioactive materials go to Building 12, have them unloaded and placed in an area designated for radioactive materials.

AREAS OF SPECIAL CONSIDERATION (cont.)

RESPONSIBILITY		ACTION
RECEIVING SUPERVISOR	C.	Request a Radiological Safety Technician to go to the delivery site to monitor the outside of the packages. Monitoring should be done within three hours of receipt.
WAREHOUSE SUPERVISOR	D.	If the material consists of radioactive samples, call Transportation to schedule the delivery of the shipment to Sample Storage.
	E.	Call Sample Storage to notify them of the any anticipated delivery.
	F.	Enter the description of the materials on a Nuclear Material Receiving Report, and a Checker Worksheet if the item was ordered on a Purchase Order through Purchasing.

B. Deliveries by Express Delivery Services - Small individual packages of low level radioactive materials that are shipped by UPS, Federal Express, or other express delivery methods are received at RIMIA.

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Notify the Receiving Supervisor of the receipt of radioactive materials from rapid delivery services.
RECEIVING SUPERVISOR	B.	Request a Radiological Safety Technician to go to the delivery site to monitor the outside of the packages. Monitoring should be done within three hours of receipt.
	C.	After the material is monitored, direct Transportation to deliver the carton to either the addressee, if known, or, if not known, to take the carton to the Hold Area of Stores in Building 12.
WAREHOUSE SUPERVISOR	D.	If the material consists of samples, call Sample Storage to notify them of any anticipated delivery.

1.7 **AREAS OF SPECIAL CONSIDERATION** (cont.)

1.7.8 Damaged Radioactive Materials

Radioactive materials received in questionable condition such as having deformed or mashed packaging, shall be placed in the diked area at RIMIA.

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Enter a description of the visible damage on the truck driver's delivery bill.
RECEIVING SUPERVISOR	B.	Call for a Radiological Safety Technician to monitor the shipment and the area.
	C.	Call for the Utility Engineer. Further actions taken will be as directed by the Utility Engineer.
STOREROOM ATTENDANT	D.	Note the damage on the Nuclear Materials Receiving Report and on the delivery bill, when the report is written.

1.8 **NON-RADIOACTIVE HAZARDOUS MATERIALS**

1.8.1 All purchase orders issued for hazardous materials must contain a provision requiring compliance with appropriate packaging, marking, and labeling requirements.

RESPONSIBILITY		ACTION
RIMIA	A.	Ensure that hazardous materials delivered to the Receiving Section are identified by labels on the packaging, notations on the Bill of Lading, a note on the Checker Worksheet, and by a list of known hazardous materials posted in the Receiving Office.
		NOTE: All suppliers must ship nonradioactive hazardous materials in approved containers that are marked and labeled in accordance with DOT 49 CFR regulations. This includes the appropriate Material Safety Data Sheet (MSDS) for each hazardous material.

NON-RADIOACTIVE HAZARDOUS MATERIALS (cont.)

RESPONSIBILITY		ACTION
RIMIA	B.	Bids and Purchase Orders for all Pure Chemicals must include a statement requiring Certificate of Analysis.
STOREROOM ATTENDANT	C.	Upon inspection of the material, attach a copy of the MSDS to the material if the complete shipment is being delivered to one location onsite. If the material is going to different locations, a MSDS must go to each location.
	D.	If damage to a hazardous material is found, immediately notified the Receiving Supervisor. This applies to FEMP materials and/or materials on a carrier's truck bound for another destination.
	E.	Note the damage on both the driver's paper work and the FEMP copy of the checker worksheet.
RECEIVING SUPERVISOR	F.	Direct action(s) to control any potential for spillage or leaking; secure and vacate the area as needed; notify the Assistant Emergency Duty Officer (AEDO); get support for appropriate identification of hazards, material(s), and cleanup operation(s); and close Shutoff Valve.
	G.	After notifying the AEDO, notify the appropriate Managers.
	H.	Follow the AEDO instructions according to the classification of the event and prepare the Occurrence Report as required.

1.8.2 Procedure - Non-Radioactive Hazardous Materials

RESPONSIBILITY		ACTION
RECEIVING SUPERVISOR	A.	Determine whether a non-radioactive hazardous material shall be unloaded at the Receiving dock, designated outside storage area, or at the designated onsite delivery point.

1.8 NON-RADIOACTIVE HAZARDOUS MATERIALS (cont.)

RESPONSIBILITY		ACTION
RECEIVING SUPERVISOR	B.	Ensure that flammable materials are placed in the designated location of the receiving area.
	C.	Report and handle spills and leaks of nonradioactive hazardous materials in accordance with the requirements of SOP 20-C-606.
RECEIVING SECTION PERSONNEL	D.	Locate nonradioactive hazardous materials, which must be segregated, at least 20 feet from other nonradioactive hazardous materials or place them in a designated outside storage area.
	E.	Locate nonradioactive hazardous materials, which must be separated, at least 40 inches or one pallet's width from other nonradioactive hazardous materials.
	F.	Locate non-radioactive hazardous materials which must be separated so that they are not physically adjacent either horizontally, vertically, or diagonally.
	G.	Obtain copies of the freight bills and packing slips from the carrier and sign the delivery receipt at the time material is delivered.
	H.	Determine the hazard class of the material by checking the shipping documents or looking for the U.S. Department of Transportation (DOT) Hazardous Materials Warning Label(s) on the package.
	I.	Offload all incoming materials in designated locations of the Receiving area to ensure that they are segregated and separated according to the requirements of the DOT Hazardous Materials Segregation/ Separation Chart.
	J.	Record the P.O. number, vendor name, and carrier name on the Daily Truck Log form.

NON-RADIOACTIVE HAZARDOUS MATERIALS (cont.)

RESPONSIBILITY		ACTION
RECEIVING SECTION PERSONNEL	K.	Visually inspect the shipment for damage or leaks in accordance with the guidelines provided in the Transportation Guide.

WARNING

IF A SHIPMENT IS DAMAGED OR LEAKING, IMMEDIATELY NOTIFY THE RECEIVING SUPERVISOR AND LOGISTICS ADMINISTRATION SECTION WHO WILL ACT IN ACCORDANCE WITH THE REQUIREMENTS OF SOP-20-C-606.

L. Ensure that each package is identified with a printed or embossed DOT specification number, if required.

NOTE: Immediately notify the Receiving Supervisor and the Logistics Administration Section if a package is not identified with a DOT specification number.

M. Compare the shipment received against the packing slip and carrier shipping document, and complete the FEMP Receiving Checker Worksheet.

N. Check the Receiving Checker Worksheet to determine the quality level of the material and notify Sitewide Quality Control if the quality level of the material is a 1, 2, 3, or 4.

NOTE: A receiving inspection may be required if the material is a quality level 1, 2, or 3 item.

O. Ensure that a Material Safety Data Sheet (MSDS) for each different material is included in the shipment.

NOTE: Notify Procurement or the vendor immediately if the MSDS is missing.

P. Check the MSDS to determine the toxicity, reactivity, corrosivity, ignitability, or other specific hazards associated with the material.

1.8 **NON-RADIOACTIVE HAZARDOUS MATERIALS** (cont.)

RESPONSIBILITY		ACTION
RECEIVING SECTION PERSONNEL	Q.	Handle the material in accordance with the instructions provided on the MSDS or other attached notification.
	R.	Sign and date a Non-radioactive Hazardous Materials Shipment Approval Tag form, FMPC-OPR-2947, and attach it to the package of material.
	S.	Distribute copies of the Checker Worksheet to applicable departments.
	T.	Submit the freight bills and packing slips to the Receiving Supervisor.

1.8.3 Hazardous Material Spill Cleanup

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Should any damage to a hazardous material be found, immediately notify the Receiving Supervisor. This applies to materials already delivered to the FEMP and/or materials on a carrier's truck bound for another destination.
RECEIVING SUPERVISOR	B.	Direct action to control any potential for spillage or leaking; secure and vacate the area as needed; notify the Assistant Duty Officer (AEDO); get any needed support for appropriate identification of hazards, materials, cleanup operations; and close shutoff valve.
	C.	After notifying the AEDO, the IC&W and the Logistics Administration will be notified.
	D.	Follow the AEDO's instructions according to the classification of the event and prepare any reports as required.
	E.	Follow all procedures in SOP-20-C-606, "Hazardous Materials Spill Cleanup", will be followed.

NON-RADIOACTIVE HAZARDOUS MATERIALS (cont.)

1.8.4 Onsite Transfer and Movement of Hazardous Materials

See SSOP-0003, "Receiving, Onsite Movement and Offsite Shipment of Nonradioactive Hazardous Material".

1.8.5 Computer Equipment

Major pieces of computer equipment such as monitors, plotters, printers, disk drives, terminals, etc., require special tracking.

RESPONSIBILITY	ACTION
STOREROOM ATTENDANT	A. Note the serial numbers of equipment on the Receiving Report and forward a copy of the report to the Information Systems Section to track equipment for maintenance contracts.
	B. Forward the barcoded tag number to the Property Department.
	C. Hold the equipment in a designated area until barcode numbers are affixed by a Property representative.

MISCELLANEOUS SHIPMENTS FROM FERNALD TO OFFSITE DESIGNATIONS

1.9.1 The Receiving Section is responsible for offsite shipments of miscellaneous items. Among these are:

A. Overshipments not accepted and being returned to the vendor.

B. Defective materials, damaged materials, or materials not meeting specifications returned to the vendor for correction or replacement.

C. Items offered for trade-in on similar items.

D. Items (FEMP property) being sent offsite for repair or overhaul and return.

E. Items (FEMP property) to be used by a vendor as a gage, pattern, or incorporation into a structure, system or a piece of equipment and to be returned.

1.9.2 Excess materials being shipped offsite are under the direction of the Property Control Department.

1.9 **MISCELLANEOUS SHIPMENTS FROM FERNALD TO OFFSITE DESIGNATIONS** (cont.)

1.9.3 All miscellaneous items being shipped offsite are shipped against an approved Miscellaneous Shipping Order or Shipping Pass. See the latest Logistics Administration directive for current approvals.

1.9.4 Prior to shipment, the following shall be performed:

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Check the Miscellaneous Shipping Order (MSO) for:
		1. Correct MSO number from the Log of Miscellaneous Shipping Order numbers.
		2. Correct vendor's name and address
		3. Name of originator
		4. Quantity and description of item(s) agrees with the physical inspection.
		5. Reason for offsite shipment (clear and concise wording is required).
		6. Item(s) to be delivered to the Shipping Section if located elsewhere.
		7. Accounting charge entered.
		8. Proper approvals.
	B.	Package the item(s) for shipment and:
		1. Some item(s) due to size, value or configuration will require special packaging. Obtain special packaging from other onsite facilities or vendors such as a container, skid, or functional bracing.

MISCELLANEOUS SHIPMENTS FROM FERNALD TO OFFSITE DESIGNATIONS
(cont.)

1.9.4 Prior to shipment, the following shall be performed: (cont.)

RESPONSIBILITY	ACTION
STOREROOM ATTENDANT	2. Secure from the Traffic Section the method of shipment based on weight, physical dimensions, or value of the package.
	3. In certain instances, the vendor will provide shipping instructions and return goods tags. Follow the shipping instructions and affix return goods tags to the shipping container, when provided.
	4. Forward shipments either prepaid or collect based on information provided on the MSO.
	5. Obtain the bill of lading numbers from the Traffic Section, when required.
	C. Offsite shipments
	1. All miscellaneous item(s) being shipped offsite must be monitored or reviewed for possible radioactive contamination. This activity is coordinated by the Receiving Supervisor.

A. Every item prepared for shipment will be monitored by a Radiological Technician unless it is determined monitoring is not required.

1. When monitoring is performed and the item is approved for shipment, the Radiation Technician will record on the Radiological Survey Record Form the contamination level readings (if any) and, if appropriate, indicate "Approved For Shipment". A copy must be attached to the MSO.

2. Special Source (SS) Material shipments are made on the Shipping Order for nuclear SS material in accordance with Traffic Section procedures. A Storeroom Attendant is assigned to the Transportation Supervisor to handle the incidental paperwork. This procedure is not intended to cover shipments of SS material.

1.10 **RIMIA EQUIPMENT AND MATERIALS SHIPPING PASS**

The exception to the required MSO is the Equipment and Materials Shipping Pass. That form is used instead of an MSO for materials shipping from Stores to the various offsite locations and for material coming into RIMIA for offsite locations. These are materials delivered by Fernald truck drivers or by a contracted carrier.

1.11 **RIMIA FACILITY**

1.11.1 The RIMIA Facility is operated as a clean area; therefore, it is designed to operate to prevent the spread of hazardous, flammable, and U-metal contaminants into a clean area. The building is equipped with a monitor so that those entering from the controlled area may be monitored before entering.

1.11.2 All employees working in the RIMIA Facility will be trained in the health and safety aspects related to their work as applies in the Project-Specific Health and Safety Plan/Matrix.

1.12 **RECEIVING AND INSPECTION INTERFACE**

1.12.1 Inspection of materials at a vendor's site

RESPONSIBILITY		ACTION
QUALITY ASSURANCE	A.	Inspect some materials at the Vendor's site per Quality Assurance Procedure QP-7.09, "Source Surveillance".
	B.	Following the inspection at the vendor's site, prepare a record of the surveillance.
	C.	Send a copy of the record of surveillance to the Receiving Section.

1.12.2 Inspection of materials in-house

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	On items to be inspected in-house as noted on the Checker Worksheet, place an inspection tag on the material and move the material to the RIMIA Inspection Area.
QUALITY ASSURANCE CHECKER	B.	Check the material against a drawing or specification. If acceptable, the item is tagged with a quality acceptance tag by Quality Control personnel and sent to the requisitioner via the Receiving section.

RECEIVING AND INSPECTION INTERFACE (cont.)

RESPONSIBILITY		ACTION
QUALITY ASSURANCE CHECKER	C.	Inform the RIMIA Receiving Section of acceptance or rejection by use of an Incoming Materials Disposition Report.
RIMIA INSPECTION AREA PERSON	D.	If rejected, notify the Receiving Supervisor of the item.
	E.	Hold the item in the Inspection area of the building until a Miscellaneous Shipping Order (MSO) is written by the requisitioner or by Purchasing.

2. WAREHOUSING

2.1 PURPOSE AND SCOPE

2.1.1 The Warehouse (also referred to as Storage) function is responsible for the maintenance and proper storage of material designated as Inventory Control Items. Warehousing function activities include the storage and issue of spare parts, spare equipment, general maintenance, departmental operating supplies, and office supplies as defined in 41 CFR 109-27 and -28.

2.1.2 It is the responsibility of the Warehousing Section to assure that all stores items are adequately protected and accounted for, to maintain them in good condition and ready for use when required, and to periodically review inventory to avoid accumulation of items for which retention cannot be justified.

2.2 ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES

All storage functions described herein are under the direction of the Warehouse Supervisor who reports to the Inventory Control and Warehousing Manager.

RESPONSIBILITIES	ACTION
IC&W MANAGER	Manage all general Warehousing (Stores) functions.
WAREHOUSE SUPERVISOR	A. Assign work to section personnel.
	B. Check physical inventory discrepancies.
	C. Check issue of stores.
	D. Check and directs proper work methods.
	E. Work with all personnel on material problems.
	F. Conduct Storeroom Attendant training programs and safety meetings.
	G. Maintain accurate stock locations in CMMS.
	H. Maintain good housekeeping and safety in general storeroom areas.

ORGANIZATIONAL RESPONSIBILITIES (cont.)

RESPONSIBILITIES		ACTION
WAREHOUSE SUPERVISOR	I.	Secure building at end of shift.
	J.	Conduct audits of warehouse performance.
STOREROOM ATTENDANT	A.	Receive all general Inventory Control material at the storage areas.
	B.	Check in material by comparing the Move Ticket against the CMMS computer database for correct description, stock number and storage location, and provide database maintenance information as needed to the Warehouse Supervisor.
	C.	Count, measure, or weigh-in stock.
	D.	Mark stock with proper stock number when appropriate.
	E.	Place stock in proper storage area.
	F.	Check the Move Ticket to verify that the correct amount of material was received, the correct stock number was placed on the items, and that the material was placed in the correct storage location.
	G.	Issue material from the warehouse upon receipt of an authorized Requisition To Storekeeper Form, or pick list, noting all information required by the form to assure a correct issue. Forward the completed form to Inventory Control personnel or on the database in a portable terminal.
	H.	Accept returned material upon receipt of an approved Returned Stores Credit Memo Form and forward the forms to Inventory Control personnel.
	I.	Keep area clean and the stock in good order in conjunction with the good housekeeping methods prescribed by the Supervisor.
	J.	Load and unload materials as directed by the Supervisor.

2.2 **ORGANIZATIONAL RESPONSIBILITIES** (cont.)

RESPONSIBILITIES		ACTION
STOREROOM ATTENDANT	K.	Take physical inventories.
	L.	Perform other duties as assigned.
	M.	Check all outbound trucks leaving the site for any reason, working under the direction of the Transportation Supervisor.
		NOTE: These duties are interchangeable with the Storeroom Attendants assigned to RIMIA.
VEHICLE OPERATORS	A.	Move material by fork truck as directed by the supervising personnel.
	B.	Perform other duties as assigned.

2.3 **STORAGE AND PROTECTION OF MATERIAL**

2.3.1 All supplies and equipment are stored to effect the most efficient utilization of space.

2.3.2 The storage plan shall also take into consideration both accessibility and a flexible arrangement for the most efficient method of taking physical inventories.

2.3.3 Material must be stored in a safe manner to reduce the possibility of damage from fire, rust, corrosion, deterioration, evaporation, dust, weather, heat and cold.

2.3.4 Stores material must be protected from theft by allowing only authorized or escorted personnel to enter storage area.

2.4 **GENERAL STORES**

2.4.1 All materials stored and charged to General Stores must be justified by an approved Request For New Inventory Item Form. Adjustments in stock levels due to increased or decreased usage are made by the Inventory Control Department. Specification changes as well as cancellations are approved by the Inventory Control Manager. All new items are approved by the originating Manager, Quality Control, and the Inventory Control Manager.

2.4.2 The function of the Storeroom Attendant is to accept, check, mark, inventory and issue all materials classed as general Inventory Control items.

TYPES OF MATERIAL STOCKED

Material stocked in general Stores is classified as maintenance and departmental operating supplies, and as spare parts. For the purpose of control, items stocked are divided into commodity groupings as follows:

Commodity Group	Description Of Material
A	Building and Road Supplies
B	Hardware and Small Tools
C	Chemicals and Chemical Compounds
D	Metal and Metal Alloys
E	Electrical Materials and Supplies
EZ	Electrical Spare Parts
F	Electronic Materials and Supplies
FZ	Electronic Spare Parts
G	Mechanical Materials and Supplies
GZ	Mechanical Spare Parts
H	Custodial Materials and Supplies
K	Office Materials and Supplies
L	Fuels and Lubricants
M	Clothing and Safety Materials
N	Motor Vehicle Repair Part
P	Laboratory Supplies
Q	Capital Spares
S	Miscellaneous Materials and Supplies

STOCK NUMBER SYSTEM

2.6.1 Each size and type of stock is assigned a permanent number with a letter prefix designating the commodity classification of material. Example: A-239, H-1.

2.6.2 Each time material is purchased, received stocked or issued, it is identified by the number assigned when originally set up as a stock item.

2.7 STOCK LOCATOR SYSTEM

2.7.1 In order to promptly locate stock items, a stock locator system has been established. Under this system, a database on the CMMS is maintained denoting the description, unit of measure, stock number, and up to three locations of the material in the warehouse(s).

2.7 **STOCK LOCATOR SYSTEM** (cont.)

2.7.2 The alphabetical stores catalogs are used for locating any item called for by name. The CMMS system database is accessed by a terminal to check the description and stock numbers of material to quickly ascertain the storage locations. All bins, sections and drawers, and bulk storage areas are numbered and Bar Code Labeled. (Reference: Paragraph 2.5, Commodity Groups/Standard List of Locations Abbreviations.)

2.7.3 Catalog Of General Stores - (As required by 41 CFR 109-27.5008) In order to provide information to the various departments being serviced by the general storeroom, an alphabetical catalog of Inventory Control Items has been established. Changes to the catalog are accumulated and new catalogs are printed and sent sitewide.

2.8 **ORDERING INVENTORY CONTROL MATERIAL AND MAINTAINING THE INVENTORY RECORD**

All stores material are requisitioned, and records of all requisitions, are kept by the Inventory Control Section.

2.8.1 Procedure for Receiving Material

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Upon the receipt of material from the Receiving Section, check packages, crates, etc., ascertain that a Move Ticket has been received for each shipment and that all Move Tickets are accompanied by material.
	B.	Place the material in the commodity suspense area where it should remain until checked and marked, and is ready for stocking.
	C.	Verify that the Move Ticket contains a correct description, piece count, weight, and stock number of the material in the commodity suspense area, then enter the storage location on the Move Ticket.

ORDERING INVENTORY CONTROL MATERIAL AND MAINTAINING THE INVENTORY RECORD (cont.)

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	D.	Locate the material in the area specified in the CMMS database. If changes are required, immediately give the new location to the Warehouse Supervisor for entry into the database.
WAREHOUSE SUPERVISOR	E.	Enter the revised location of the material into the database.
	F.	If the material is not accepted, return the material to the Receiving Section with a copy of the Move Ticket. Note the reasons for rejection on the move ticket to aid in preparing the MSO for return to the vendor.
RECEIVING SECTION	G.	Amend the Checker Worksheet, noting what action has been taken, or coordinate with Purchasing to return material to the vendor.

2.8.2 Procedure for Issuing Material - (As required by 41 CFR 109-27.5304-6)

The only valid authorities for withdrawal of Inventory Control materials are a properly completed Requisition To Storekeeper form and the Pick List sheet for job orders other than withdrawal from designated self-service storage bins. The Warehouse Supervisor may, in critical situations, issue material while the Requisition To Storekeeper Form is being prepared.

RESPONSIBILITY		ACTION
REQUISITIONER	A.	Complete the Requisition To Storekeeper form by entering the cost center or job order number, date, description of the material, amount in pounds, gallons, pieces, measurement, etc., unit of issue, person receiving the material, person issuing material and stock number.

2.8 ORDERING INVENTORY CONTROL MATERIAL AND MAINTAINING THE INVENTORY RECORD (cont.)

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	B.	Thoroughly screen the Requisition To Storekeeper Forms for complete and correct data.
		NOTE: Changes of quantity and unit of issue will be permitted when needed to comply with a standard package size. A quantity change will also be permitted when on-hand stock is a factor. (Example: 4 each requested, stock balance is 3.)
	C.	Add items or make changes to the Requisition for the convenience of the requisitioner. Such changes by the Storeroom Attendant will require the approval of the Warehouse Supervisor or the Inventory Control Manager. Every effort will be made to obtain approval at the time of issue.
	D.	Prior to issue and after verifying the changes, initial all changes on the Requisition to Storekeeper Forms.
IC&W CLERK	E.	Prior to issue and after verifying the changes, initial all changes on the Requisition to Storekeeper Forms.
WAREHOUSE ATTENDANT	F.	Issue hazardous and flammable materials in the containers in which the materials are received and stored. No "break-bulk" operations are authorized.
	G.	Move materials onsite in the DOT approved containers in which they were purchased.
IC&W CLERK	H.	Screen all prior day's requisitions for changes and additions. Report all changes and additions to the Receiving Supervisor for approval.

ORDERING INVENTORY CONTROL MATERIAL AND MAINTAINING THE INVENTORY RECORD (cont.)

2.8.3 Procedure for Returning Material

RESPONSIBILITY		ACTION
REQUISITIONER	A.	After receiving verbal approval from the Warehouse Supervisor, return material to the general storeroom for credit upon completion of any job.
STOREROOM ATTENDANT	B.	Prepare a Returned Stores Credit Memo Form for any material returned. Enter the cost center or job order number, date, description of material, amount in pounds, gallons, pieces measurement, etc., unit of issue, person returning the material, person receiving the material and stock number.
WAREHOUSE SUPERVISOR or IC&W MANAGER	C.	Following receipt of the material, sign or the Returned Stores Credit Memo Form for any returned item for which you have given permission.

2.9 MATERIAL STORAGE AND HANDLING FACILITIES

2.9.1 For the purpose of safe and efficient storage, the following facilities have been provided:

A. Bin Storage - used for the storage of small parts and materials.

B. Pipe Racks - used for the storage of pipe, flat and round stock, tubing, shafts and hose.

C. Pallet Racks - used for the storage of large bulky material which lend themselves to pallet or wire basket type storage.

D. Cylinder Storage Shed - used for storage of compressed gas cylinders equipped with chain facilities.

1. Upon receipt of compressed gas cylinders, they are stored by product in the FEMP cylinder shed.

2. Cylinders must have caps on at all times when not in use and must be secured with a heavy chain at the mid-section of the cylinder with the chain tightened to take out the slack. Both full and empty cylinders are handled in this fashion.

2.9 **MATERIAL STORAGE AND HANDLING FACILITIES** (cont.)

3. When cylinders are being moved or loaded, they are rolled only far enough to be placed on a wheeled cart. When moved from place to place onsite, they must be transported in a special cylinder rack that is equipped with a chain and tension device to hold the cylinder erect.

2.9.2 Handling equipment available in the general storeroom consists of hand trucks, push carts, and a fork truck.

2.10 **CONTROL OF SHORT SHELF LIFE ITEMS** - (As required by 49 CFR 109-27.202) Numerous items stocked have a short shelf life. Smaller quantities are ordered and periodically inspected to prevent stock loss.

2.10.1 Generally the following types of materials are considered to have a limited shelf life:

Cements	Special Printing Supplies
Epoxies	Dry Cell Batteries
Sealants	Rubber Goods
Glues	Selected Office Supplies
Putties	Adhesive Tapes
Photographic Supplies	

2.10.2 The following precautions are taken:

A. Order quantities limited to conform to usage pattern and shelf life experience.

B. Stock is dated when received and is placed in back of oldest stock. Issue is on first-in, first-out basis. Bin labels are printed in red ink to highlight short shelf life items.

C. The stock is physically examined annually to determine condition.

2.10.3 Follow Up Procedures

A. All Inventory Control items having a limited shelf life are identified on a master list for easy reference. The Inventory Control Manager and Warehouse Supervisor are jointly charged with the responsibility of physically inspecting all items annually to ascertain that the stock is in usable condition and is being properly rotated.

2.10 **CONTROL OF SHORT SHELF LIFE ITEMS** (cont.)

B. During these periodic inspections, suspected defective stock will be listed and brought to the attention of the known users for test evaluation and recommended disposition. Every effort will be made to use this material onsite or return it to the vendor for credit or exchange for new material. The Warehouse Supervisor will direct a Property Disposal Request be made for formal disposition of the material if it cannot be used.

2.11 **WORK ORDERS**

2.11.1 When Stores items are needed for Work Orders, a computer printout is furnished by the Maintenance Department. Items are pulled and delivered to the required location as the work is scheduled.

2.12 **HAZARDOUS MATERIALS STORAGE INSPECTION**

2.12.1 The Inventory Control Section maintains storage of numerous hazardous materials which are stored by different methods and in different areas.

2.12.2 The materials are inspected during the "Walk Your Spaces" inspections by either the Warehouse Supervisor, or IC&W Manager or designee. Problems to look for are leaks, holes in bags of dry chemicals, safe storage methods, and Material Safety Data Sheets (MSDS).

2.13 **HAZARDOUS MATERIALS COMPATIBILITY**

This section identifies some general principles of compatibility.

2.13.1 Highly flammable materials such as powdered metals or flammable liquids shall be stored in areas cool enough to prevent accidental ignition,but with adequate ventilation.

2.13.2 Materials are stored in approved shipping and storage containers and are not switched to other containers or mixed with other agents.

2.13.3 When hazardous materials are received, the move ticket identifies them as hazardous. This alerts Attendants to use caution. All of the FEMP storage locations have been approved by Fernald Industrial Hygiene and Safety. These locations are in the computer to assist Attendants when storing.

2.13.4 Spills and/or releases of hazardous materials shall immediately be reported to the supervisor of the area, who will notify the AEDO. The AEDO will make the classification of the event if any.

2.14 SUB-STORES/BENCHSTOCK

2.14.1 Sub-stores are located in the laundry, garage, laboratory, at construction, and, possibly, in some of the maintenance shops.

2.14.2 All sub-store transactions will be regulated by the same procedures as the main store by using the CMMS.

2.14.3 A Supervisor or Coordinator will review all activities and will direct and audit as required.

3. INVENTORY CONTROL

3.1 PURPOSE AND SCOPE

3.1.1 The Inventory Control Section plans and performs inventories in accordance with the FERMCO Inventory Schedule, and controls inventories of materials to support sitewide needs. A key function of Inventory Control is to maintain records and forward the necessary detailed information to accounting, purchasing, and the various material users. Other responsibilities of the Inventory Control Section include maintaining an Inventory Control Catalog, preparing documents for physical inventories taken in warehouse locations, and maintaining necessary supporting information to keep the control records current and in order.

3.2 ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES

3.2.1 The Inventory Control Section is under the direction of the Inventory Control Manager, who in turn reports to the Manager of Logistics Administration.

3.2.2 Personnel assigned to Inventory Control consist of a Manager who is responsible for all activities relating to the Inventory Control office, Warehousing, and Receiving; a person responsible for installation and testing of new software programs and who serves as general troubleshooter for the database system; and others listed below whose duties are interchangeable and may be combined in various groupings.

3.2.3 All personnel use and enter data in the CMMS. (Refer to the "CMMS Manual" for instructions on data entry and screen configurations.) Specific activities can also use a paperwork system that sometimes duplicates the automated computer system (see Paragraph 3.11, "Computer Malfunction - Emergency Procedure").

RESPONSIBILITY	ACTION
INVENTORY CONTROL CLERK	Responsible for activities relating to current use direct materials, installing new items, employee time records, personnel records and requisition withdrawals.
RECEIPT ENTRY CLERK	Responsible for activities relating to receipt of material from vendors.
ORDER CLERK	Responsible for activities relating to the ordering of "A" Stores material from vendors by Purchasing. Serves as department secretary.
ISSUE AND DATA ENTRY	Responsible for activities relating to data entry of storeroom issues to site users of material, performs general activities such as typing, filing, and database maintenance.

3.2 **ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES** (cont.)

RESPONSIBILITY	ACTION
GENERAL CLERICAL TASKS	A. Process requests for setting up new stock items in the stores inventory.
	B. Perform data entry to CMMS.
	C. Maintain personnel records, including time cards, overtime, vacation time, etc., in coordination with the Payroll Section.
	D. Coordinate on-going "Slow Mover" Review and process associated paperwork and data entry.
	E. Receive and file Inventory Control forms and documents.
	F. Prepare work requests, Miscellaneous Shipping Orders, Print Shop Requests, etc.
	G. Coordinate information between purchasing and the material user on problem items such as obsolete products, vendors out of business, descriptions, specifications, etc.
	H. Perform special clerical or analytical projects as assigned by supervisory personnel.
	I. Review end of month reports for accuracy of dollar value and reconcile accounts with accounting for Inventory Control items and excess material.
	J. Collect all completed Requisitions to Storekeeper and Return to Stores Credit Memos from the warehouses. Edit and perform data entry to CMMS or database portable terminal to upload to main frame.
	K. Review exception reports and stock outages daily, make database adjustments, and expedite purchasing for needed materials.

ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES (cont.)

RESPONSIBILITY		ACTION
GENERAL CLERICAL TASKS	L.	Review and process the suggested buy report from CMMS, adjust reorder and safety stock levels, compute order quantities, and send Purchase Requisitions generated automatically through the CMMS System.
	M.	Prepare monthly report on returnable containers per 41 CFR 109-27.5011. Containers furnished by Vendors shall be administratively and physically controlled. Prompt action shall be taken to Vendor for credit.
	N.	Process requests to change stock item specifications or descriptions and stock levels.
	O.	Prepare blanket purchase order requisitions as needed. Communicate with vendors to assure delivery of proper material on schedule.
	P.	Maintain and prepare all orders for material ordered from the General Services Administration (GSA).
	Q.	Maintain CMMS database and improve its accuracy by addition of new data files as required.
	R.	Support physical inventory activities by database maintenance; coordination of results with Warehouse Supervisor; and releasing of necessary adjustments to data base.
	S.	Process Excess and Disposal Materials identified by 563 forms, edit, and forward the forms to Accounting.
	T.	Prepare Property Reclassification Requests as required.
	U.	Generate month-end reports.

3.3 DIVISION OF INVENTORY CONTROL PURCHASE FILE AND CMMS DATABASE

3.3.1 The "A" Stores Current Use Purchase Records are divided into the same sequence as Storage functions (see Paragraph 2.7).

3.3.2 Bulk Chemicals and Fuels Commodity Groups - Current Use - Direct Materials.

Commodity Group	Description of Material
CB	Chemicals and Compounds
LB	Fuels

3.4 PROCEDURE

3.4.1 Use of a "A" Stores Receipt for Reconditioned Items

RESPONSIBILITY	ACTION
REQUISITIONER	A. Forward receipts for reconditioned items that are received with the material in the Storeroom to the Inventory Control Office.
	B. Edit the receipts and enter the data into the CMMS database.

3.4.2 Use of a Requisition to Storekeeper or Returned Stores Credit Memo

RESPONSIBILITY	ACTION
INVENTORY CONTROL CLERK	A. Issue material from Inventory Control per a Requisition to Storekeeper card or by the database portable terminal.
	B. Number and enter requisition(s) into the CMMS database daily.
	C. Handle Returned to Stores Credit Memos in the same manner as requisitions except that Stores Credit Memos debits the Stores Inventory Account and credits the appropriate accounting charge.

PROCEDURE (cont.)

3.4.3 Use of a Miscellaneous Shipping Order

RESPONSIBILITY		ACTION
RECEIVING CLERK	A.	Ship materials offsite using a Miscellaneous Shipping Order. MSOs must be signed by the appropriate managers, Environmental Compliance, and Radiation Safety.
RECEIVING DATA DEPARTMENT	B.	Show a stores item being shipped back to the vendor for rework or replacement, as offsite on the MSO until it is returned.

3.4.4 Use of the Suggested Buy Report

INVENTORY CONTROL CLERK	A.	Generate a Suggested Buy Report (SBR) daily from the CMMS. The SBR indicates the suggested quantity of material to be ordered.
	B.	Review the items for usage, both minimum and maximum, and make a recommendation on the amount to be ordered based on dollar value and historical usage.
	C.	Review the selected order quantity per all factors stated in 41 CFR 109-27.102.2.
CLERK	D.	If other than the suggested quantity is ordered, note that information on the SBR.
	E.	Enter the data into the CMMS for the attention of Purchasing.
INVENTORY CONTROL MANAGER	F.	Approve the items to be ordered. Approvals must be made in the computer before the computer will send them to Purchasing.

3.4.5 Use of a Physical Inventory Count Sheet (see Section 4, "Physical Inventories" for further information)

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	A.	Obtain the Physical Inventory Count Sheets (which provide the following information: stock number, location, unit of issue, card number and description).

3.4 **PROCEDURE** (cont.)

RESPONSIBILITY		ACTION
STOREROOM ATTENDANT	B.	Count the material and enter the quantity counted on the Physical Inventory Count Sheet.
CLERK	C.	On a daily basis, generate an Exception Report for all items with receipts and issues on the previous day.
	D.	Check the report for differences and give it to the Warehouse Supervisor for rechecking.
WAREHOUSE SUPERVISOR	E.	Perform a recheck of the Exception Report.
CLERK	F.	After the recheck is performed, differences note on the sheets and enter the information into the CMMS. A Formal Inventory Adjustment Sheet is generated on all non-balancing items.
	G.	After the approvals, release the numbers to Accounting to be adjusted.

3.5 **REPORTS**

3.5.1 The following reports are available on the subject of Distribution of Stores Issues:

A. Daily Stores Issues by Stock Number generated by the CMMS for use by the Inventory Control Section.

B. Distribution of Stores generated by the Commodity Group for use by the Inventory Control Section. This report is consolidated on a monthly basis by the commodity groups.

3.5.2 The following report is available on the subject of Monthly Stock Status:

A Monthly Stock Status Report is prepared by the MIS Section on the last working day of the month and forwarded to the Inventory Control Section. This report reflects the monthly usage for the past month, the usage for each of the past twelve months, balance on hand, unit cost, total dollar value for each item, commodity group, and total value for the account. The report is used for the review of slow or non-moving Inventory Control items.

REPORTS (cont.)

3.5.3 The following report is available on the subject of Returnable Containers:

The Detailed control account on vendor-owned returnable containers is maintained by the Inventory Control Section. The Returnable Container Report is submitted each month to the Accounting Section and denotes the dollar value of deposits pending by vendor. Credits are made to this account on the basis of a Miscellaneous Shipping Order. Debits are made on the basis of a receiving report and an invoice.

3.5.4 The following report is available on the subject of Formal Inventory Adjustment:

The Formal Inventory Adjustment Report is generated based on the physical inventory. The report contains the amount, by line item, to be credited or debited to the cost account as a result of the physical inventory. The Formal Inventory Adjustment Report is approved by the Inventory Control Manager, Logistics Manager, and the Accounting Manager. Adjustments are automatically generated after release by the Clerk upon receipt of the approved document from Accounting.

3.5.5 The following information is available on the Informal Inventory Adjustment Card:

Informal inventory adjustments with values of less than $50.00 are necessary as a result of normal warehouse activities. Inventory differences which are detected at times other than during the physical inventory are entered in CMMS by an Informal Inventory Adjustment Card approved by the Inventory Control Manager.

3.5.6 The following information is available on the Monthly Detailed Listing of Receipts by Stock Number:

A detailed listing of receipts by stock number for a given month is forwarded to Inventory Control from the MIS Section. This listing contains the following: Stores Stock Number, Purchase Order Number, Date Received, Unit Cost, Quantity Received and Total Value.

3.6 **FILING AND FORMS**

3.6.1 Checker Worksheets

Completed Checker Worksheets are filed numerically in the completed Checker Worksheets file, aged for one year or more and discarded.

3.6.2 Request for New Inventory Item and Request for Change of Stock Status

Request for New Inventory Item Forms and Request for Change of Stock Status Form are permanently filed, by assigned stock number within commodity groupings, after proper execution including approvals by Site Engineering, Quality Control, and the Inventory Control Manager.

3.6.3 Material will be ordered for stocking per the fully approved form. It is the policy of IC&W to stock only the materials established by completing Form FMPC-ADMS-105, Request For New Inventory Item, and ordered by the request of IC&W. Materials purchased directly by other departments on the Requisition/ Purchase Order form, FMPC-PUR-2136, for Non-IC&W material will NOT be accepted for stocking in the Warehouse.

3.6.3 Miscellaneous Shipping Order (IC&W)

The IC&W copy of Miscellaneous Shipping Orders are permanently filed, by the MSO number.

3.6.4 Distribution of Monthly Issues and Distribution of Monthly Receipts - An informational report.

3.7 **RECORDS** - The Inventory Control Section conducts reviews of slow movers and reorder justifications. There are two categories of items to consider and these are defined as:

3.7.1 Reviews of Stores Items (Slow Mover, Long Supply, and Reorder Justification)

A. Slow Movers - Line items for which there have been no withdrawal activity in the previous twelve months.

B. Reorder Justification - Line items that have not been ordered in the past five years that now have reached the reorder point.

3.7.2 The Inventory Control Manager can delete an item from review which has an inventory value of $5000.00 or less if usage in the past two years equals a twelve month supply or less and if there are probable needs for the item in the foreseeable future.

RECORDS (cont.)

3.7.3 Slow Mover Review (SMR)

The Inventory Control Section conducts a review of slow mover items. Slow mover items are defined as line items for which there has been no withdrawal activity in the previous twelve months. The Clerk requests a SMR Report for the commodity category being reviewed or can run inquiries from visual aids on computer reports. From these, it is determined if we need to reorder.

3.8 ECONOMIC ORDER QUANTITY (EOQ)

3.8.1 The Inventory Control items that are set up on EOQ follow the basic procedures as outlined in FMPR-101-27.1, "The Economic Order Quantity Principle and Applications", a General Services Administration Handbook.

3.8.2 All EOQ items are set up in the computer on a 75 percent confidence level which is approximately a four months supply. In some instances, the supply is extended to no more than six months.

3.8.3 A continuous update review is maintained as individual item reorder points are reached. The Output Clerk determines the average monthly usage based primarily on the last six months' usage. The average monthly usage is then multiplied by the current unit price to determine the dollar value of a month's supply. The dollar amount is then used to determine the supply that can be ordered using the EOQ Table with the four months, level as the base.

3.8.4 Other factors considered at reorder time are current requirements, current plant activity levels, known material commitments, and standard packaging, if applicable.

3.8.5 Order quantities may be readjusted with each order. Items may be deleted from the EOQ system if annual usage and quantities on hand do not justify retention. New items are added when a usage pattern is established over a minimum of a one year period, with usage of at least one unit per month.

3.9 COMPUTER SYSTEM SECURITY AND DISASTER PREPAREDNESS

3.9.1 The IC&W Section uses a Hewlett Packard 3000 system controlled and operated by the Information Systems Department (ISD). The system keeps track of inventory values and locations, and all associated accounting type records.

A. Security: To assure proper use of the resource and protect the database, the section operates under the ISD computer System Security Procedure. This provides control access to the system and user passwords with routine changes.

3.9 **COMPUTER SYSTEM SECURITY AND DISASTER PREPAREDNESS** (cont.)

B. System disaster - The ISD Section coordinates the site plan while the IC&W Section takes the following actions:

1. Maintenance of printout to record stock value and location(s) monthly and weekly.

2. Maintenance of copies of Checker Worksheets in receiving to continue manual operations.

3. Maintenance and selection of local equipment to provide backup support in case of system failure.

4. All barcoded documents also indicate information in human readable format.

3.10 **COMPUTER MALFUNCTION - EMERGENCY PROCEDURE**

3.10.1 Primary responsibility for computer operations belongs to the Information Resource Management who maintains a disaster plan. The following information is for IC&W Department operations only.

3.10.2 In the event of total computer failure, daily entries must continue. A hard copy of Receiving Reports will be obtained from Purchasing. Inbound Shipments will be checked by Storeroom Attendants and pertinent information noted. Copies will be reproduced and distributed to Purchasing, Accounts Payable, Property, Accounting, Inventory Control, and any additional sections as necessary. Copies shall be kept in the IC&W office to use in conjunction with the latest month end Stock Status and Daily Change sheets.

3.10.3 The issues from the warehouse will be logged each day into a log sheet to use with the latest month end Stock Status and Daily Change Sheets.

3.10.4 The Pick List from Maintenance will be unavailable; therefore, Maintenance will submit requisitions for the required material.

3.10.5 Upon resumption of computer operations, manually enter receipts into the system first, then enter the information that will allow the system to a change current status.

4. PHYSICAL INVENTORIES

PURPOSE AND SCOPE

A physical inventory is conducted at a minimum of one each calendar year for items stocked by IC&W.

4.2 ORGANIZATIONAL AND PERSONNEL RESPONSIBILITIES

4.2.1 Organizations with Inventory Control items under their control are responsible for taking the physical inventory in their area.

4.2.2 The Warehouse Supervisor is responsible for test checking "A" Stores physical inventories and the Property Section of Accounting is responsible for auditing the Formal Inventory Adjustment documents. The Cost Accounting Section is responsible for test checking the total inventory.

4.3 DEFINITIONS (For use in this Attachment, in addition ot those contained in the basic document.)

"A" Stores - Supplies, spare parts, and other materials which are normally stored in the warehouse or substore.

Bulk Chemicals and Fuels - Items which are primarily in bulk such as bagged lime.

Commodity Groups - The orderly grouping of items as to use, similarity, etc., in order to gain more control of the inventory account.

Inventory List - The list used to record the physical inventory count of an item and any adjustments necessary.

Inventory Taker - A person who makes the physical count of a certain number of "A" Stores items, independent of the cognizant Inventory Control Clerk.

Item - An article of stores such as a bolt, wire, pencil, paper, a chemical or fuel, etc.

Location - A particular area or areas where an item is stored, such as a bin, shelf, etc. An item may have more than one location due to quantity.

Physical Inventory Count - The number of units of an item in the warehouse as determined by actually counting, weighing, or measuring the units (the quantity of an item).

4.3 **DEFINITIONS** (cont.)

Unit of Issue - Quantity of an item which is used as a measurement for issue purposes, such as one box, one gross, one gallon, etc.

Unit of Measurement - A measure for each type of item, such as each broom, a foot of wire, a box of pencils, a carton of paper, a pound or gallon of chemical, a ton or gallon of fuel, etc.

4.4 **TAKING PHYSICAL INVENTORIES - (As required by 41 CFR 109-27.5009)**

4.4.1 IC&W Section - Annual Inventory

A. Prenumbered Physical Inventory Count Sheets will be used to take physical inventory.

B. The Inventory Control Section will maintain a permanent record of all inventory sheets by number.

4.4.2 Pre-physical Inventory Procedures

The Inventory Control Manager issues the Physical Inventory Schedule for each commodity group.

4.4.3 Physical Inventory Procedures

RESPONSIBILITY		ACTION
WAREHOUSE SUPERVISOR	A.	Obtains the prenumbered Inventory Sheets for the items that are to be inventoried that day.
	B.	Assign one or more inventory taker(s) (Storeroom Attendants) to take the inventory.
INVENTORY TAKER	C.	Compare the description, part number, and unit of issue as indicated on the inventory sheet with the material physically on hand.
	D.	Count the number of units on hand and enters the count in the "QTY" column of the inventory sheet.
	E.	Initial and date the inventory sheet.
	F.	Take the sheet to the Warehouse Supervisor at the end of each day.

TAKING PHYSICAL INVENTORIES - (As required by 41 CFR 109-27.5009) (cont.)

WAREHOUSE SUPERVISOR	G.	Deliver the Inventory sheets to the responsible Inventory Control Clerk.
INVENTORY CONTROL	H.	Enter the commodity number and the physical count into the computer. The program generates three reports: "Physical Inventory Count Complete", which gives a listing of all items that physical and book counts agree; a "Physical Inventory Rejection Report", which reflects any number counted with activity (requisitions or receipts) at the same time; and a "Physical Inventory Variance Report", which reflects the items with a difference in physical versus book count and also acts as the Formal Inventory Adjustment Sheet.
IC&W MANAGER/MANAGER OF LAIC&W/CONTROLLER/ MANAGER OF PROPERTY	I.	Approve the Formal Inventory Adjustment sheet per 41 CFR 109-5009.2

4.5 EXCESS INVENTORY

Inventory Control will conduct, no less than once each 12 months, a review of any Stores inventory that is obsolete or in excess to the project.

RESPONSIBILITY		ACTION
INVENTORY CONTROL	A.	Prepare a Property Disposal Request Form, FS-F-563.
	B.	If multiple items are being excessed, prepare one Property Disposal Request for each category.
	C.	In any category where more than one item is being excessed, the form should be accompanied by a sheet showing a complete listing for that category.
	D.	On the list, enter the Stores number, quantity, unit, detailed description, unit cost, total cost, and location now stored to assist in removal from warehouse.

4.5 EXCESS INVENTORY (cont.)

RESPONSIBILITY		ACTION
INVENTORY CONTROL	E.	After completing all documents and signature approvals by originator, Property Account Custodian (PAC), originating Staff Manager, and Property Manager, the listings shall be given to the Warehouse Supervisor.
WAREHOUSE SUPERVISOR	F.	Assign a Storeroom Attendant to remove all such material from the warehouse and ready the items for movement to the Excess Storage Facility as directed by Property Management. NOTE: All sale of excess materials and property are under the direction of Property Management.

VEHICLE MANAGEMENT

1.0 PURPOSE

This section provides the procedure for management of Fernald Environmental Management Project (FEMP) motor vehicles.

2.0 SCOPE

This information is applicable to vehicles furnished directly or indirectly by the United States Department of Energy (DOE) for use by FEMP employees, DOE employees, and subcontractors performing work at the FEMP.

3.0 RESPONSIBILITIES

Vehicle Administration is a subsection of Logistics Administration, Inventory Control and Warehousing (LAIC&W).

RESPONSIBILITY	ACTION
VEHICLE ADMINISTRATION	A. Apply the provisions of this section and the following departmental procedures: • SOP 50-C-116, Preparation of Motor Vehicles for Disposal • SOP 50-C-117, Operating Motor Vehicles • SOP 50-C-118, Controlling Motor Vehicles
	B. Prepare all associated reports.
	C. Assign vehicles to users.
	D. Track mileage.
	E. Investigate accidents.
	F. Assist in specification of vehicles.
	G. Obtain approval from DOE for purchase or lease of vehicles.
	H. Coordinate procurement of vehicles with the Acquisitions and Finance Division.
	I. Maintain accurate inventories of vehicles.

3.0 **RESPONSIBILITIES** (cont.)

RESPONSIBILITY	ACTION
VEHICLE ADMINISTRATION	J. Monitor usage of vehicles.
	K. Manage fuels for vehicles.
	L. Maintain U.S. Government credit cards.
	M. Operate the site Vehicle Motor Pool.
	N. Issue U.S. Government license tags.
	O. Garage personnel maintain onsite vehicles.
VEHICLE OPERATORS	A. Operate vehicles safely.
	B. Comply with requirements of standard operating procedures for operation of motor vehicles.
VEHICLE REQUISITIONERS	A. Provide funding for acquisition of vehicles.
	B. Complete purchase requisitions.
	C. Obtain all approvals for requisitions.
	D. Provide adequate and satisfactory justification for vehicle(s) being requested.

4.0 **DEFINITIONS** **(For use in the Attachment, in addition to those contained in the basic document.)**

Acquire for Official Purposes - Motor vehicles gained and held or rented/leased from private or commercial sources for a period of 60 continuous days or more.

NOTE: The above definition shall not be construed as the authority for the use of motor vehicles for a period of less than 60 continuous days in any manner other than for official purposes.

Excess - Any motor vehicle under the control of the FEMP that is not required for the needs and discharge of responsibilities as determined by the FEMP Property Manager and approved by the Site DOE Property Manager.

Government Owned Vehicle - A vehicle owned by an agency of the Federal Government.

DEFINITIONS (cont.)

Special Purpose Vehicles - Vehicles that have limited but essential missions. Such vehicles are not generally used to carry passengers, freight, or other materials and are usually trucks with permanently mounted equipment, i.e., fire trucks, special tank trucks, wreckers, and trucks with compressors or generators in a fixed mounting on the body. This category also may include vehicles other than sedans and station wagons which are to be used only during a defined or specified contingency, i.e., evacuation or other similar emergencies. For reporting purposes within DOE, motorcycles and motor scooters will also be reported as special purpose vehicles.

Tag or License Plate - The official U.S. Government motor vehicle identification plate.

Vehicle Lease - A method of obtaining a vehicle by contract or other arrangement from a commercial source for a period of 60 continuous days or more.

Vehicle(s) - All sedans, station wagons, buses, ambulances, carryalls, trucks, and truck tractors that could operate on public roads, highways, or right of ways. Excluded are semitrailers, trailers, and other trailing equipment such as pole trailers, dollies, cable reels, trailer coaches, bogies, and bicycles.

Vehicle Rental - A method of obtaining a vehicle by contract, schedule, or other arrangement from a commercial source for a period of less than 60 continuous days.

5.0 **ACQUISITIONS**

This section describes policies and procedures to be achieved in the procurement and leasing of motor vehicles for use at the FEMP. This section also defines requirements and guidelines to be implemented to provide energy conservation in motor vehicles used for official purposes.

RESPONSIBILITY	**ACTION**
VEHICLE REQUISITIONERS	A. Prepare a purchase requisition for the acquisition of a vehicle. When submitted, the requisition must contain all required approval signatures.
	B. Prepare, and attach to the requisition, a well defined comprehensive justification for the use of the vehicle, and a letter to DOE certifying that funding exists for the acquisition of the vehicle.
	C. Deliver the requisition, the justification, and a copy of the letter certifying funding availability to Vehicle Administration.

5.0 **ACQUISITIONS** (cont.)

RESPONSIBILITY	ACTION
VEHICLE ADMINISTRATION	D. Confer with the requisitioner to determine vehicle specification.
	E. Determine if a suitable vehicle is available within the FEMP Vehicle Motor Pool.
	F. If a suitable vehicle is available, the vehicle may be assigned to the requisitioner. If the vehicle is to be assigned to the requisitioner for more than 30 days, funding will be transferred from the requisitioner to Vehicle Administration.
	G. If no suitable vehicle is available from the FEMP Vehicle Motor Pool, obtain approval from the DOE Site Office for the acquisition of a vehicle.
	NOTE: All motor vehicles acquired for use for official purposes at the FEMP will be selected to achieve maximum fuel efficiency. Vehicles selected will be limited to the minimum body size, engine size, and optional equipment necessary to meet the requirements of the requisitioner.
	H. Upon approval by the DOE Site Office, contact procurement to acquire the vehicle if the vehicle is to be leased or rented. (If vehicle is to be purchased, see paragraph L, below.)
	I. Send copies or synopses of actual vehicle leases and vehicle purchases during the fiscal year and not procured through the General Services Administration (GSA) Automotive Commodity Center to the DOE Site Office, Property Management Officer, not later than October 1 of each year. Information provided will include: • Number of vehicles, by category • Year • Make • Model • Transmission type (if manual shift, number of forward speeds)

ACQUISITIONS (cont.)

RESPONSIBILITY	ACTION
VEHICLE ADMINISTRATION	• Cubic inch displacement • Fuel system (fuel injection or carburetor <number of barrels>) • Monthly lease cost • Duration of lease (include option to renew) • Vehicle type (4x2 or 4x4 - light trucks only) • Gross vehicle weight rating (GVWR) • Lessor's name and address **NOTE**: When a vehicle lease contains an option to renew and the option is exercised, the renewal action is not included as a new acquisition.

J. Before the exercise of the renewal option, request that DOE submit the requirements to GSA to determine if the requirement can be satisfied through GSA's Interagency Fleet Management System.

K. Submit to DOE, for submission to GSA, all requirements for leased motor vehicles that are needed for 60 continuous days or more, for GSA to determine if the requirements can be satisfied through the Interagency Fleet Management System.

L. Submit all requirements to purchase vehicles to the DOE Site Office. DOE will submit its orders to purchase in accordance with applicable regulations.

NOTE: Motor vehicles may be procured with additional systems and equipment as listed in Federal Standard No. 122 (i.e., the latest edition or any interim standard being used temporarily as a replacement) upon concurrence by the FEMP DOE Site Office. The selection of additional systems and equipment will be based on the need to provide for overall safety, efficiency, economy, and suitability of the vehicle for the purposes intended.

6.0 FEMP MOTOR POOL

6.1 The FEMP Vehicle Motor Pool will be operated by Vehicle Administration.

6.2 All site vehicles will be controlled by Vehicle Administration. This includes vehicles assigned to the Vehicle Motor Pool as well as vehicles assigned to other organizations.

NOTE: The Source of funding for vehicles is not a determining factor for control of site vehicles.

6.3 Vehicles required for less than 30 days per year may be assigned to an individual or organization from the FEMP Vehicle Motor Pool without transfer of funds from the user to Vehicle Administration.

6.3.1 Vehicles assigned for greater than 30 days per year will be charged to the user. Funding will be transferred from the user's cost account to Vehicle Administration if the vehicle is assigned from the Vehicle Motor Pool.

6.3.2 Funding for vehicles assigned on a long term basis and purchased or leased with funds from the user's cost account, do not require a transfer to Vehicle Administration.

6.4 Requisitioning vehicles for short term use:

6.4.1 When requesting a vehicle from the FEMP Vehicle Motor Pool, the following information will be provided to Vehicle Administration:

- Name of employee and badge number
- Verification of valid operator's license
- Date, time, and duration of vehicle usage
- Destination
- Purpose of trip

6.4.2 The operator of the vehicle will follow the applicable standard operating procedure governing use of government vehicles.

7.0 VEHICLE ADMINISTRATION

7.1 RECORDS AND REPORTS

7.1.1 Vehicle Administration will compile and submit the following reports:

A. Monthly Mileage Report

B. Monthly Statistical Report of Damage to Motor Vehicles

VEHICLE ADMINISTRATION (cont.)

7.1 RECORDS AND REPORTS (cont.)

C. Monthly Vehicle Accident Report Summary

D. Annual report (to DOE for submission to GSA by December 1 of each year) on the number of vehicles purchased or leased from sources other than GSA.

E. Annual report to DOE on vehicles used at the FEMP.

F. Annual report on total fleet average fuel economy at the end of each fiscal year.

G. Data on FEMP vehicles for the Annual Transportation Report to be submitted to DOE Oak Ridge at the end of each fiscal year.

H. A centralized record of all official U.S. Government tags in use on Government owned or leased motor vehicles will be kept. This record will:

- specify the motor vehicle for which the tags are assigned
- include complete information regarding the reassignment of tags
- include a list of destroyed and/or voided tag numbers.

7.2 REGISTRATION AND IDENTIFICATION OF VEHICLES

7.2.1 Official U.S. Government tags will be used on all Government owned or leased motor vehicles unless specifically exempted by the Manager of LAIC&W in accordance with 41 CFR-101-38.2. Vehicle Administration shall maintain a current record of individual assignments of license tags to motor vehicles.

7.2.2 Official government license tags shall be controlled in the following manner:

A. Acquire official Government license tags in accordance with DEAR 908.7101.7.

B. Unissued license tags shall be stored in a locked drawer, cabinet or storage area with restricted access, to prevent possible fraud or misuse.

7.0 **VEHICLE ADMINISTRATION** (cont.)

7.2 REGISTRATION AND IDENTIFICATION OF VEHICLES (cont.)

C. Tags which are voided will be defaced or destroyed to prevent reuse.

D. Lost or stolen license tags shall promptly be reported to the local DOE security office and local law enforcement authorities.

7.2.3 The official legend and agency identification for DOE shall be of elastomeric pigmented film type decalcomania which is currently available in black and white (DOE Form 1530.1 and 1530.2). These forms may by requisitioned from the Logistics Management Division (MA-235) using DOE Form 4250.2, "Requisition for Supplies, Equipment or Services", a local supply request form, or a memorandum.

A. Each motor vehicle purchased or leased for use at the FEMP will be identified with the legends:

"For Official Use Only
(in letters not less than 1/2 inch high)

U.S. Government
(in letters not less than 3/4 inch high)

Department of Energy."

B. Motor vehicles rented from private or commercial sources (with the exception of sedans and station wagons) for a period of less than six months and used primarily for off-highway work are not required to be identified as specified in subparagraph 7.2.3.A.

C. Sedans and station wagons acquired for periods of 60 continuous days or more are subject to subparagraph 7.2.3.A.

D. Whenever a vehicle is permanently removed from Government service, all agency identification and any other Government identification will be removed from the vehicle before transferring the title or delivering the vehicle.

E. Unissued decals shall be stored in a locker drawer, cabinet, or storage area with restricted access, in order to prevent possible fraud or misuse.

VEHICLE ADMINISTRATION (cont.)

7.2 REGISTRATION AND IDENTIFICATION OF VEHICLES (cont.)

7.2.4 Motor vehicles used by DOE in the conduct of security or in investigations may be exempted from registration and identification requirements upon approval of Manager of LAIC&W or the site DOE Property Manager.

7.2.5 U. S. Government tags may be transferred to a new motor vehicle acquired for official purposes, returned to stock for reuse, or voided against further use.

7.3 MOTOR VEHICLE REPLACEMENT STANDARDS

7.3.1 Motor vehicles which are in usable and workable condition, and which meet the DOE replacement standards may be continued in service provided that:

A. A need exists for the vehicle,

B. the vehicle can be operated safely and dependably without excessive repair and maintenance costs,

C. repair parts are readily obtainable, and

D. retention will not substantially reduce the exchange/ sale value of the vehicle.

7.3.2 Because of the limitation on the total number of passenger vehicles which the DOE may own, replaced passenger vehicles shall be removed from service and disposed of prior to or as soon as practicable after delivery of the replacement equipment to avoid concurrent operation of both vehicles. The conditions to determine "as soon as practicable" are identified in 41 CFR 109.38.908-50.

7.4 SCHEDULED MAINTENANCE OF MOTOR VEHICLES

7.4.1 Individual vehicle maintenance record files will be kept and made readily available to appropriate maintenance personnel to provide historical records of past repairs, as a control against unnecessary repairs and excessive maintenance, and as an aid in determining the most economical time for replacement.

7.0 **VEHICLE ADMINISTRATION** (cont.)

7.4 SCHEDULED MAINTENANCE OF MOTOR VEHICLES (cont.)

7.4.2 Maintenance schedules will be provided to accomplish the following objectives:

A. To maintain the equipment in safe and economical operating condition.

B. To prevent equipment failures resulting in program delays and excessive downtime.

C. To prevent premature wear and deterioration.

D. To prevent undue depreciation.

E. To conserve materials and manpower.

7.4.3 Special attention must be devoted to the warranty of each vehicle to ensure that maximum benefits are realized. Defective materials and workmanship on vehicles under warranty should be corrected under the terms and conditions of the warranty to avoid maintenance and repair of such vehicles at Government expense.

7.5 TRANSFER OF MOTOR VEHICLES

7.5.1 A United States Government Certificate to Obtain Title to a Vehicle, Standard Form 97 (SF 97), will be used when motor vehicles owned by the Government are sold to parties who intend to title the vehicle for operation on highways. Vehicles that are either not designed to operate on highways or are deemed as not legal for operation on highways will be conveyed using an appropriate bill of sale or award document.

NOTE: A SF 97 is only obtained from DOE or through GSA.

7.5.2 All Government owned motor vehicles to be titled by state motor vehicle agencies will be transferred by executing a SF 97.

VEHICLE ADMINISTRATION (cont.)

7.6 STORAGE OF MOTOR VEHICLES

7.6.1 Government owned, rented, or leased motor vehicles should be stored to provide reasonable protection from pilferage or damage.

7.6.2 All unattended Government owned or leased motor vehicles should be locked unless they are stored or parked in a closed building or enclosure.

7.7 DISPOSAL OF VEHICLES

7.7.1 Vehicle Administration will prepare documentation for disposal (scrapping) or excessing of all vehicles prior to the vehicle being disposed of or excessed. A Property Disposal Request Form (FS-F-563) containing approval by a Level II Manager must be prepared prior to the excessing or disposal of any motor vehicle. The site DOE Property Manager must also approve the proposed action prior to excessing or disposing of any motor vehicle.

7.7.2 Removal of all hazardous materials must be accomplished prior to scrapping any motor vehicle. Examples of hazardous materials include, but are not limited to: antifreeze solutions, lead/acid batteries, oil, transmission fluids, brake fluids, etc. Removal and disposal of hazardous materials is to be done in accordance with approved site policies and procedures.

7.7.3 Disposal of motor vehicles by sale to the general public will be accomplished only through guidelines and policies contained in this document and in accordance with Federal Property Management Regulations.

7.7.4 Prior to the sale of a motor vehicle to the general public, Vehicle Administration and the FEMP Garage Supervisor will determine the level of vehicle reconditioning necessary to produce the maximum net proceeds from such sale.

7.7.5 The appropriate level of reconditioning will be commensurate with the estimated fair market value of each vehicle scheduled for sale.

7.7.6 Reconditioning of vehicles will be accomplished just prior to the dates scheduled for public inspection and sale. Reconditioning should be accomplished no earlier than the calendar week prior to the scheduled sale date.

7.8 UTILIZATION OF MOTOR VEHICLES

7.8.1 An annual "Use Objective" will be established for motor vehicles used at the FEMP. The DOE approved "Use Objective" is the usage standard for the FEMP with the following utilization controls:

- The minimum, practicable assignment of equipment to individuals, groups or specific organizational components with bi-annual reviews of such assignments to determine if underutilization exists and whether reassignment is necessary.
- The monthly mileage reports will be monitored to establish usage trends.
- Bi-annual review of vehicle utilization statistics by appropriate levels of management, with prompt reassignment and/or disposal action preformed as required.
- Annual review of vehicle utilization statistics by appropriate levels of management and the assignment of a new "Usage Standard", if applicable.
- The careful selection of equipment types to permit the maximum appropriate use of multi-purpose equipment.
- The rotation of equipment between high and low mileage assignments where practicable to maintain the fleet in the best overall replacement age and mileage balance and operating economy.
- The maintenance of individual equipment use records as appropriate.

7.8.2 Future usage statistics shall be developed, and trends shall be monitored to determine changes in the site standard as the utilization needs of the FEMP change.

8.0 U. S. GOVERNMENT NATIONAL CREDIT CARDS

8.1 The Vehicle Administration Group will administratively control the U.S. National Credit cards.

8.2 A record of credit card issues are maintained and controlled.

U. S. GOVERNMENT NATIONAL CREDIT CARDS (cont.)

8.3 Credit cards may be issued to:

- DOE and/or contractor personnel permanently assigned vehicles appropriately identified as U.S.Government vehicles.
- DOE and/or contractor personnel withdrawing an appropriately identified U.S. Government vehicle from the motorpool for a designated trip.

8.4 Unissued credit cards shall be stored in a locked drawer, cabinet or storage area with restricted access, to prevent possible fraud or misuse.

8.5 In the event a credit card is lost or stolen, the following precautions shall be taken to minimize the opportunity of purchases being made by unauthorized persons:

- Written notification will be made in accordance with 41 CFR 109.1201
- The paying office will be promptly notified of the loss or theft and be requested to be on the alert for any unauthorized bills.

CANNIBALIZATION OF EQUIPMENT

1.0 PURPOSE

The purpose of this procedures is to provide direction on how to obtain approval to cannibalize Government personal property. Cannibalization of Government property may be accomplished when repair parts are no longer available or long lead items prevent timely repair of equipment.

2.0 SCOPE

These procedures apply to all FERMCO organizations responsible for maintenance and repair of Government personal property.

3.0 DEFINITION

Cannibalization - The act of removing components and/or subsystems from one piece of equipment to repair another like item of equipment.

4.0 REQUEST TO CANNIBALIZE GOVERNMENT PROPERTY

NOTE: The removal of LAN cards, memory boards, etc., prior to excess does not require filing a Request for Disposal form unless such removal destroys the functionality of the equipment.

4.1 No Government property may be cannibalized prior to receipt of written Government approval.

4.2 Only equipment that is excess to requirements may be utilized for the purpose of cannibalization.

4.3 Only equipment excessed in conditions codes 8, 9, X, or S will be submitted for approval and authority to cannibalize. (See Section K, Exhibit 1, for the description of the condition codes.)

4.4 The requestor wishing to utilize an item for spare parts must submit a request which includes justification with the Request for Disposal form (FS-F-563) to the Excess and Disposal Section. Upon approval by DOE, the requestor will be provided written notice and authority to utilize an item for cannibalization.

UTILIZATION AND MAINTENANCE OF AUTOMATED DATA PROCESSING EQUIPMENT

1.0 PURPOSE

This attachment provides procedures for the utilization and maintenance of sitewide Fernald Environmental Restoration Management Corporation (FERMCO) Automated Data Processing Equipment (ADPE) by the Information Resource Management (IRM) Department. These procedures do not supersede contract-specified procedures approved by the contracting officer.

2.0 SCOPE

2.1 These procedures apply to all IRM personnel who are responsible for the utilization and maintenance of FERMCO sitewide ADPE.

2.2 These procedures supplement Attachment G "Utilization" and Attachment H "Maintenance".

3.0 DEFINITIONS (For use in this attachment, in addition to those contained in the basic document.)

Automated Data Processing Equipment (ADPE) - Includes the cost of all equipment used in automatic data processing, such as (1) punched card and/or tape equipment, whether used alone or in conjunction with electronic computers; (2) electronic computers and all peripheral or auxiliary equipment; (3) data transmission systems employing devices communicating or transmitting data from place to place for processing in an ADP system; (4) all other equipment that is used in automatic data processing in conjunction with punched card equipment or electronic computers; and (5) the initial package of software that is required to make the system operational. Equipment such as flexowriters, IBM typewriters, and equipment reading the results of experiments, shall be classified as ADP equipment when used primarily in conjunction with an ADP system. Excluded are the costs of equipment such as analog computers card and/or tape file cabinets, and air-conditioning for the processing room. Also, excluded are the costs of automatic data recording or electronic control systems, including the computers, themselves, used to furnish operating guidance for control of machine tools, equipment used in process operations, reactors, accelerators, etc., or equipment used to operate energy monitoring and control systems (EMCS). The cost of this type of equipment is included in the asset code for the (1) equipment or system to which it furnishes operating guidance in conjunction with electronic computers; (2) electronic computers and all peripheral or auxiliary equipment; (3) data transmission systems employing devices communicating or transmitting data from place to place for processing in an ADP system; (4) all other equipment that is used in automatic data processing in conjunction with punched card equipment or electronic computers; and (5) the initial package of software that is required to make the system operational.

3.0 **ACRONYMS AND DEFINITIONS APPLICABLE TO THIS ATTACHMENT** (cont.)

CPU - Central processing unit; the portion of a computer system that contains the arithmetic, logical, and control circuits needed for the interpretation and execution of instructions.

HD - Help Desk

IRM - Information Resource Management

LAN - Local area network

PC - Personal computer

4.0 **GENERAL INFORMATION ON UTILIZATION OF ADPE**

4.1 IRM will ensure that the optimum and economic use of ADPE is realized sitewide, and that the tenets of contractually authorized use are not violated. ADPE shall be used only to the extent, and within the limits, authorized in the performance of the contract.

4.2 Monitoring the use of ADPE shall be carried out by IRM as further detailed in this document in order to ensure that ADPE is utilized to the maximum extent possible. Equipment usage shall be reviewed by the department manager, and each manager and supervisor within IRM, on a semi-annual basis. ADPE not needed shall be processed for turn-in according to the procedure in Attachment K, "Disposition", and 41 CFR 201, "Federal Information Resources Management Regulation".

5.0 **UTILIZATION OF ADPE**

5.1 Maximum use of ADPE at a minimum investment is the responsibility of IRM management. IRM is responsible for maximizing ADPE utilization. The most appropriate hardware shall be purchased and used so that disk space is not wasted; so that the equipment is tuned to established sitewide, industry, and contract standards; and so that the equipment is upgradable.

5.2 ADPE shall be used in such a way that the sitewide user community can use the hardware to its fullest extent. IRM shall make appropriate hardware available to the sitewide user community.

5.3 The optimum and most economic use of ADPE shall be accomplished by:

- monitoring usage. Usage patterns shall be monitored and reviewed periodically to determine more effective, more efficient ways to use and purchase ADPE.
- maintaining the equipment so it is in good working condition.
- providing appropriate security for the equipment.
- re-utilizing equipment whenever possible.

5.0 **UTILIZATION OF ADPE** (cont.)

5.4 To achieve maximum utilization, an interview shall be conducted with the user and her/his supervisor to determine the most appropriate type of PC to be assigned based on her/his needs. When a request is made for a PC, IRM Asset Management personnel shall evaluate each user's needs and assign equipment appropriately on a case-by-case basis. When a request is made for an upgrade to an existing PC, IRM Asset Management personnel shall interview requests to reassign equipment as appropriate on a case-by-case basis. Both of these instances shall assist in providing full utilization of PC equipment.

6.0 **UTILIZATION RESPONSIBILITIES**

RESPONSIBILITY		ACTION
PROPERTY ACCOUNT CUSTODIAN	A.	Return unused ADPE to IRM Asset Management for testing and redistribution.
	B.	Excess appropriate ADPE equipment to the Excess and Disposal Section.
	C.	Report transfers of ADPE between areas, buildings, or departments.
ALL PERSONNEL	D.	Report occurrences of loss, damage, or destruction of ADPE to the FERMCO Property Administrator.
PROPERTY ACCOUNT CUSTODIAN	E.	Forecast the needs for replacement or additional ADPE.
	F.	Keep accurate custodial records, to include ADPE locations.
	G.	Ensure that ADPE is used for official purposes only.
PROPERTY ACCOUNT CUSTODIAN	H.	Report all occurrences of improper use, alteration, unauthorized disclosure, or other improper acts to any ADPE to the Computer Protection Program Manager (CPPM), FERMCO Property Administrator, and Security.
	I.	Optimize property utilization.

6.0 **UTILIZATION RESPONSIBILITIES** (cont.)

RESPONSIBILITY		ACTION
RESPONSIBLE MANAGER	A.	Perform inspection tours or walk-throughs at least once a year (usually in April) to promote better use of ADPE and to identify ADPE that should be considered for reassigning, removal, or disposal (excess).
	B.	Promote the reuse of ADPE by allowing redistribution of equipment assets sitewide.

7.0 **GENERAL INFORMATION ON MAINTENANCE OF ADPE**

IRM shall provide adequate procedures and guidelines for corrective and preventive maintenance of sitewide ADPE furnished to or acquired by FERMCO. FERMCO policy prescribes that ADPE be maintained in accordance with sound business practice and appropriate government regulations. IRM is responsible for recording information and maintaining records which maximize ADPE maintenance programs.

8.0 **MAINTENANCE OF ADPE**

8.1 Maintenance of ADPE shall be conducted and/or directed by IRM in accordance with the manufacturers' suggested procedures and other technical information that is available. Equipment maintenance shall be partially determined by the amount of use, and shall be conducted on a regular basis.

8.2 ADPE shall be maintained in good, operating condition in order to effectively perform the intended functions in accordance with Federal and Department of Energy (DOE) Property Management Regulations and sound business practices. ADPE shall be kept in good condition through a program of preventive maintenance, calibration, or by other means as are applicable to each particular item. The maintenance program for ADPE includes but is not limited to:

- scheduled regular maintenance, cleaning, and minor repair.
- records reflecting maintenance work accomplished and in sufficient detail to disclose the need for replacement.

8.3 Where repair is needed, maintenance personnel shall conduct repairs on ADPE such as personal computers (PC), but shall subcontract for major repairs on ADPE such as the mainframes and telecommunications equipment. (The cost of repair versus the cost of replacement shall partially determine whether the equipment is repaired or replaced.)

.0 MAINTENANCE RESPONSIBILITIES

RESPONSIBILITIES	ACTION
RECEIVING	Forward the manufacturers' recommendations and specifications to maintenance persons so that maintenance schedules may be established.
MAINTENANCE	A. Identify items requiring preventive maintenance or calibration, and establish service frequencies. B. Maintain a computerized preventive maintenance schedule and a maintenance history of ADPE included in the program. C. Service the ADPE and document the actions taken D. Record actions in the Computerized Material Management System (CMMS), where costs are accumulated for each unit. The system shall be reviewed periodically to identify high-cost maintenance items.
PROPERTY ACCOUNT CUSTODIAN	Arrange for repairs to ADPE including items under warranty and those for which maintenance policies have been purchased. Arrangements includes internal and subcontracted repair work.
INFORMATION RESOURCES MANAGEMENT	Maintain warranty information files.

10.0 ADPE CATEGORIES

10.1 TELECOMMUNICATIONS EQUIPMENT

10.1.1 Function

Telecommunications equipment provides the electronic means for individual users to have telephone use and to access the local area network (LAN). It is used for voice transfer and data transfer. This equipment includes wires, cables, electrical cords, phones and phone jacks, concentrators and concentrator cards, the main distribution frame (MDF), the private branch exchange (PBEx), hubs, routers, and switches.

10.1.2 Location/Security

When possible, telecommunications equipment shall be housed in a locked room. Only authorized network, communications, and phone company personnel shall have keys. Otherwise, telecommunications equipment shall be installed so that the highest safety standards are achieved. For example, electrical cords and cables shall be housed in walls and ceilings when possible, and exposed electrical cords and cables shall be taped to the floor.

A. Where voice transfer equipment is concerned, Cincinnati Bell shall perform maintenance eight hours per day, and shall be on-call during off-hours. Traffic studies and analyses shall be provided by Cincinnati Bell in order to determine if trunk lines are being used effectively and efficiently.

B. Where data transfer equipment is concerned, network management software shall be used to detect errors, to notify telecommunications personnel of potential errors, and to recommend methods to correct errors. In addition, usage patterns reports shall be issued quarterly. Usage shall be monitored to determine:

- total number of LAN users at any given time.
- total number of users accessing a LAN application at any given time so that license agreements are not violated.
- data traffic in order to avoid slow-downs in data transfer.
- equipment performance to be sure the equipment is functioning properly and all hook-ups are electrically sound.

C. Telecommunications equipment shall be re-utilized whenever possible.

10.2 DISK DRIVES

10.2.1 Function

Disk drives are devices that are attached to the mainframes to store data in large volumes.

10.2.2 Location/Security

A. Whether onsite or offsite at a contracted facility, disk drives shall be housed in a humidity- and temperature-controlled room specifically designed for computers; i.e., the room shall have a raised floor, and smoke and water detection equipment if required.

B. Disk drives shall be housed in a room equipped with a combination lock. Only authorized personnel shall have the combination.

10.2.3 Maintenance

A. Per-call maintenance shall be performed under a maintenance contract. Users shall notify computer personnel when an error or malfunction occurs.

B. In addition, weekly and monthly charts shall indicate usage patterns to ensure that disk space is used effectively. The system manager shall monitor use in order to achieve maximum usage of equipment.

10.3 TAPE DRIVES

10.3.1 Function

Tape drives are peripheral devices that are attached to the mainframe to allow data to be stored on magnetic tape for temporary or permanent retention. Tape drives include network tape drives which are used for backup applications and for all user files on the file servers.

10.3.2 Location/Security

A. Whether onsite or offsite at a contracted facility, disk drives shall be housed in a humidity- and temperature-controlled room specifically designed for computers; i.e., the room shall have a raised floor, and smoke and water detection equipment if required.

B. Tape drives shall be housed in a room equipped with a combination lock. Only authorized personnel shall have the combination.

10.3.3 Maintenance

A. Per-call maintenance shall be performed under a maintenance contract, although minor maintenance and repair may be performed by computer personnel. The network tape drives shall be cleaned with a cleaning tape when the indicator light blinks. Errors shall be reported to a log on the file server. The log shall be audited daily by computer personnel. In addition, users shall notify the Help Desk (HD) when an error or malfunction occurs.

B. So that the users have maximum access to the tape drives, backups of the tape drives shall be performed during non-prime time hours.

10.4 CPU

10.4.1 Function

Mainframe CPUs control all computer job streams and processes. They include the mainframes (the VAX cluster, and HP 1 and 2), UNIX Servers, and PCs. PCs, whether stand-alones or connected to the LAN, are used to assist in an employees daily work activities such as word processing, user-to-user communication, access to software applications, etc. UNIX Servers are specialized units which process large applications in a network environment.

10.4.2 Location/Security

A. Whether onsite or offsite at a contracted facility, the mainframes shall be housed in a humidity- and temperature-controlled room specifically designed for computers; i.e., the room shall have a raised floor, and smoke and water detection equipment if required.

B. The mainframes UNIX Servers, and LAN Servers shall be housed in a room equipped with a combination lock. Only authorized personnel shall have the combination. PCs are located throughout FERMCO and contractor sites, and access shall be limited to FERMCO employees, DOE employees, and subcontractors only.

10.4.3 Maintenance

A. Where the mainframes are concerned, per-call maintenance shall be performed under a maintenance contract. The Abnormal System Performance Log shall be maintained to record unusual operating conditions such as system crashes and memory dumps (used for diagnostic purposes).

B. Repairs are performed as directed by the Information Resource Management Department.

10.4.3 Maintenance (cont.)

C. Where PCs are concerned, each shall be assigned to an individual user who is responsible for notifying the HD when errors or malfunctions occur. The HD shall then assign a technician who shall take the appropriate action to remedy a problem. The user is also responsible for informing the FERMCO Property Administrator and Security within 24 hours when this equipment is missing or damaged due to vandalism.

For equipment not yet assigned to an individual user, the Property Account Custodian (PAC) to which the equipment is assigned will fulfill the users responsibilities.

D. Preventive maintenance for PCs shall include periodic checkups by a qualified technician who shall reboot each PC to make sure it is operating properly. The technician shall also check floppy disks to make sure they are operating properly.

E. When repair of PC equipment is required, a diagnosis shall be made to determine if the repair is major or minor. Repair of PC equipment shall be based on several factors including cost, availability of spare parts, and time needed to make the repair or to order new parts. An effective use of exchange/sale programs shall be used to reduce cost, and the broken PC shall be repaired and placed in the PC pool for reuse, or it shall be excessed.

10.5 MODEMS

10.5.1 Function

Modems are telecommunications devices used to directly access the system through telephone dial-up. They include the Gandalf switch and any network modems.

10.5.2 Location/Security

Modems shall be housed in a room equipped with a combination lock. Only authorized personnel shall have the combination.

10.5.3 Maintenance

A. Maintenance shall be performed by IRM computer personnel. Users shall notify the HD when an error or malfunction occurs.

B. In addition, a 24-hour-per-day printer shall record all logons through the Gandalf switch. This printout shall be audited daily by computer personnel for unusual conditions.

10.6 NETWORK EQUIPMENT

10.6.1 Function

This computer equipment stores data and software applications (e.g., Lotus, WordPerfect, and dBase) for the Novell local area network (LAN). Network file servers provide print and file services to network users.

10.6.2 Location/Security

The network equipment shall be housed in a locked room. Only authorized personnel shall have keys.

10.6.3 Maintenance

A. Weekly maintenance shall be done after the standard close of business hours. It shall include shutdown and rebooting of the equipment in order to

- clear problems that might exist within the equipment;
- make modifications and adjustments; and
- reset the buffer and clear the memory counters.

B. Also during shutdown, equipment shall be added to stabilize and enhance the system.

C. Maintenance inspections shall include removing equipment covers to dust the equipment and de-fragmenting the drives. (De-fragmenting is performed to reduce the amount of time it takes for the disk controller to locate information and to decrease the movement of the read/write heads across the surface of the drive.)

D. System management software shall be used to detect errors. Errors shall be reported to the operator's console and recorded.

E. Maximum use of network equipment shall be achieved by setting threshold limits for the number of users connected to the network. In addition, the equipment shall be placed where it is needed the most.

10.7 MONITORS

10.7.1 Function

Monitors are the screens that display computer information. They include those that are attached to PC, and those that are stand-alones (called terminals or CRTs) where access is direct-connect.

10.7.2 Location/Security

Monitors are located throughout FERMCO and contractor sites, and access shall be limited to FERMCO employees, DOE employees, and subcontractors only.

10.7.3 Maintenance

Per-call maintenance shall be performed under a maintenance contract, although minor maintenance and repair may be performed by computer personnel. Users shall notify the HD when an error or malfunction occurs.

10.8 KEYBOARDS

10.8.1 Function

Keyboards are computer input devices that operate in similar fashion to a typewriter.

10.8.2 Location/Security

Keyboards are located throughout FERMCO and contractor sites, and access shall be limited to FERMCO employees, DOE employees, and subcontractors only.

10.8.3 Maintenance

A. Keyboards shall be assigned to an individual user who is responsible for notifying the HD when errors or malfunctions occur. The HD shall then assign a technician who shall take the appropriate action to remedy the problem. Preventive maintenance for keyboards shall include periodic checkups by a qualified technician who shall clean the keyboard.

10.8.3 Maintenance (cont.)

B. When repair is required, a diagnosis shall be made to determine if the repair is major or minor. Repair shall be based on several factors including actual cost, availability of spare parts, and time needed to make the repair or to order new parts. An effective swap shall be made to reduce cost, and the broken keyboard shall be repaired and placed in the keyboard pool for reuse, or it shall be excessed.

C. The user is also responsible for informing the FERMCO Property Administrator and Security within 24 hours this equipment is missing or damaged due to vandalism.

10.9 PRINTERS

10.9.1 Function

Printers are peripheral devices that enable the user to obtain a paper copy of computer information. Printers include network printers and line printers. Network printers are those that are shared by several network users in order to achieve maximum use at least cost; line printers are used to print large-volume documents and forms.

10.9.2 Location/Security

A. Network printers shall be located at all site offices and access shall be limited to FERMCO employees and DOE employees only. They shall be centrally located in each building for the most advantageous use; for example, at the end of an aisle. Network printers shall be considered sensitive property where the normal security procedures apply.

B. Whether onsite or offsite at a contracted facility, line printers shall be housed in a humidity- and temperature-controlled room specifically designed for computers; i.e., the room shall have a raised floor, and smoke and water detection equipment if required.

C. Line printers shall be housed in a room equipped with a combination lock. Only authorized personnel shall have the combination.

10.9.3 Maintenance

A. Where network printers are concerned, the user is responsible for notifying the HD when errors or malfunctions occur. The HD shall then assign a technician who shall take the appropriate action to remedy the problem. Depending on the problem, the network printer shall be repaired on the spot, available parts shall be used to replace dysfunctional parts, or the printer shall be excessed (usable parts shall be put in a spare parts pool) and a new one purchased if possible.

B. Maximum use of network printers shall be achieved by assigning one printer per four to eight people, depending on the need of the users involved.

C. Where line printers are concerned, per-call maintenance shall be performed under a maintenance contract, although minor maintenance and repair may be performed by computer personnel.

10.10 OFFLINE ARCHIVAL STORAGE DEVICES

10.10.1 Function

Offline archival storage devices are used to store data that require long-term retention and infrequent use. They include compact disks (CD), optical disks, jukeboxes, and magnetic tapes.

10.10.2 Location/Security

A. This equipment shall be housed in a locked room. Only authorized personnel shall have keys.

B. Mainframe magnetic tapes shall be housed in a vault under similar climate-controlled conditions. This vault may be located onsite or offsite. The vault shall be equipped with a combination lock. Only authorized personnel shall have the combination.

10.10.3 Maintenance

A. Quarterly maintenance on this equipment shall be performed by the vendor. However, an operator shall clean tape heads nightly with cleaning pads. Per-call maintenance shall be performed under a maintenance contract. Users shall notify the HD when an error or malfunction occurs.

10.10.3 Maintenance (of Offline Archival Storage Devices) (cont.)

B. Errors shall be reported to the operator's console and recorded. In the event of hardware failure, the operator shall contact the vendor for maintenance. In the event of software failure due to hardware failure, the operator shall contact the systems administrator for problem diagnosis and possible maintenance by the vendor.

C. Maximum use shall be achieved by this equipment being directly connected to a multi-user, shared computer system. All users on this system may access these devices in order to archive their data. Performance monitoring software on the system shall monitor utilization throughput rates for these devices.

D. Utilization of this equipment shall be recorded continuously in operator log files. An entry shall be made in the log file each time a user has allocated a device for use. In addition, an entry shall be made to record the time when the user is finished using the device. So that the users have maximum access to the tape drives, backups of the tape drives shall be performed during non-prime time hours.

10.11 MISCELLANEOUS EQUIPMENT

10.11.1 Function

Miscellaneous equipment includes an uninterrupted power supply (UPS), site master, datawave power supply, air conditioners, smoke alarms, and water sensors and sprinklers. The UPS supplies battery backup to maintain electrical contact in the event of a power outage. The site master controls the alarms from the air conditioners, the sprinklers and the datawave power source. The datawave power source is a separate power source from the sub-station. The smoke alarms and water sensors are located under floor and overhead where applicable.

10.11.2 Location/Security

This equipment shall be housed in the same room as the computer equipment in order to protect the computer equipment from power outages, smoke or water damage, etc., and so that the equipment is kept under proper climate-controlled conditions. The room shall be equipped with a combination lock. Only authorized personnel shall have the combination.

10.11.3 Maintenance

Maintenance shall be performed quarterly under contract and shall include changing the filters and batteries where applicable. Per-call maintenance shall be performed under a maintenance contract. In addition, onsite maintenance personnel from the Fire and Safety Department shall perform monthly checkups.

MANAGEMENT OF EQUIPMENT HELD FOR FUTURE PROJECTS

1.0 PURPOSE AND SCOPE

The "Equipment Held for Future Projects" program is intended to enable DOE and FERMCO to retain equipment not in use in current programs but which has a known or potential use in future DOE programs. At the same time, through review and reporting procedures, this program provides visibility on the types and amounts of equipment that is retained. The program's intent is to retain equipment that is economically justifiable for retention (considering costs of replacement, storage, obsolescence, deterioration, and/or future availability); that it be made available for use by others; and that equipment no longer needed will be promptly excessed. This does not include spare equipment.

2.0 DEFINITION

Equipment held for future projects (EHFFP) - Equipment that is being retained, based on approved written justifications, for a known future use, or for a potential use in planned projects. This classification excludes spare equipment retained as backup for equipment in service or standby equipment (classified as "In Service"), spare and other equipment constituting a part of the facilities in standby, and excess equipment.

3.0 JUSTIFICATION AND REVIEW PROCEDURE

3.1 The original decision to classify and retain equipment as EHFFP shall be justified in writing. The justification shall provide sufficient detail to support the need for the retention of the equipment. The justification will also cite the project for which the equipment is retained, the potential use to be made of the equipment, or any other reason(s) for retention.

3.2 The validity of initial classification of equipment held for future projects shall be reviewed at a level of management one echelon above that of the individual making the initial determination.

3.3 The organization making the original decision to classify and retain equipment as EHFFP will forward the list of equipment and the approved justification to the Manager, Property Management. The organization making the original decision will be responsible for having the equipment packaged for storage and for transportation to the warehouse designated for that purpose.

3.4 The Property Management Department will provide shipping instruction to the requesting organization.

3.5 Retention of EHFFP must be rejustified annually to ensure that original justification remain valid. These rejustification will be supported with sufficient detail to support retention.

3.6 The annual rejustification for retention of EHFFP for longer than one year shall be reviewed at a level of management at least two levels above that of the individual making the determination to retain the equipment as held for future projects. EHFFP retained for periods longer than three years shall be approved by the head of the DOE field office or her/his designee.

4.0 STORAGE

EHFFP will be stored in warehouse space designated specifically for that purpose. When such space cannot be made available, EHFFP equipment may be stored in storage yards or other areas with due consideration to the type of property and protection required. The Property Management Department will coordinate with the Inventory Control and Traffic Department to identify where EHFFP will be stored.

5.0 RECORDS

Records of all EHFFP shall be maintained by the Property Management Department. Included shall be a listing of items with original date of classification as EHFFP, initial justifications for retaining EHFFP, rejustifications for retention, and documentation of reviews made by higher levels of management.

6.0 UTILIZATION

It is DOE policy that, where practicable and consistent with program needs, EHFFP be considered as a source of supply to avoid or postpone acquisition. Property Management will distribute lists of EHFFP to acquisition offices and potential users for screening against requirements prior to acquisition.

-6944

CONTROL NO. FER-0018
SITE PROCEDURE EW-0003 (SSOP-0034)
REVISION NO. 1

NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT

Effective Date: 06-10-94

NON-CONTROLLED COPY

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: _____ 2/15/95
Terence D. Hagen, Manager of Environmental Restoration and Waste Management
Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

000739

CONTROL NUMBER: -6944
SITE STANDARD OPERATING PROCEDURE
DOCUMENT NO. SSOP-0034
REVISION NO. 1

NUCLEAR MATERIALS DISPOSITION

ORDER MANAGEMENT

SSOP-0034

Effective Date: 06-10-94

AUTHORIZED BY: _____ 6/2/94
D. Ofte, President Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 398704
Cincinnati, Ohio 45239-8704

Fernald Environmental FERMCO Restoration Management Corporation	Title: NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT
	DOCUMENT NO: SSOP-0034 REVISION NO: 1
	Effective Date: 06-10-94 | Page 1 of 21

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Fernald Environmental FERMCO Restoration Management Corporation	Title: **NUCLEAR MATERIALS DISPOSITION ORDER MANAGEMENT**	
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RECORD OF ISSUE/REVISIONS

DATE	REV. NO	DESCRIPTION AND AUTHORITY
10-29-91	0	Procedure requirement for managing the material disposition order process required per Request No. P91-439, initiated by S. Kaushiva.
06-10-94	1	Procedure required for nuclear materials disposition order management per Request No. S93-064, initiated by Shirley Kaushiva. This document replaces SSOP-0034, Rev. 0, dated 10-29-91.

1.0 PURPOSE

This document provides instructions for the establishment and maintenance of the Fernald Environmental Restoration Management Corporation (FERMCO) system for management of the customer order requirements for nuclear materials disposition activities from order receipt through material release.

2.0 SCOPE

This procedure applies to any program, activity, or project that pertains to the relocation of nuclear materials required for defense programs, locating customers to purchase recyclable materials, and disposing of material categorized as waste for the Fernald Environmental Management Project (FEMP). It pertains to all Fernald Environmental Restoration Management Corporation (FERMCO) personnel and subcontract personnel involved in the management and execution of customer order requirements to ensure the site's nuclear materials inventory is dispositioned in the most appropriate manner.

3.0 DEFINITIONS

Nuclear Materials Disposition Order (NMDO) - An authorized directive to communicate specific customer requirements to package and ship nuclear materials in response to Department of Energy (DOE) direction or Work-for-Others Program requests. The NMDO also serves as a work plan for moving, handling, packaging, and shipping nuclear materials.

Work-for-Others Program - A program of reimbursable (nonbudgeted) work available to DOE contractors, federal agencies, and the commercial private sector.

4.0 RESPONSIBILITIES

Safe Shutdown Program Planning (SSPP)

- Implements the Nuclear Materials Disposition Order Management System to ensure that customer requirements are met.
- Plans and schedules routine disposition activities to meet DOE programmatic requirements.
- Coordinates special disposition activities of excess nuclear materials in conjunction with DOE-FN and DOE-HQ and in accordance with Federal Property Management Regulations and consistent with the Atomic Energy Act.

4.0 **RESPONSIBILITIES** (cont.)

- Distributes and tracks Nuclear Materials Disposition Orders.
- Maintains documentation relating to packaging and shipping nuclear materials.
- Administers all aspects of the Work-for-Others Program.
- Maintains official records of customer specifications for all orders.
- Assumes primary liaison role internally and externally on routine technical and product quality requirements.
- Receives inquiries for nonprogrammatic work or service.
- Coordinates with supporting departments and maintains liaison with the requester.
- Prepares cost estimates and ensures that funding has been provided prior to initiation of any work described in the Work-for-Others purchase order.

Remediation Support Operations (RSO)

- Performs authorized work in accordance with customer requirements.
- Provides specialized services approved under the Work-for-Others Program.
- Extracts materials from storage and configure/stages shipments.
- Performs special packaging when necessary.
- Performs work in accordance with the Radiological Controls Manual, RM-0009.
- Loads FEMP nuclear materials onto the carrier vehicle for final delivery.

Analytical Laboratory Services (ALS)

- Provides necessary product analytical services.
- Provides technical support.
- Performs specialized services approved under the Work-for-Others Program.

4.0 **RESPONSIBILITIES** (cont.)

Logistics Administration and Inventory Control and Warehousing

- Maintains records of packaging and shipping regulations.
- Specifies or concurs with packaging, arranges shipments with carriers, and ensures compliance with applicable regulations.

Materials Control and Accountability (MC&A)

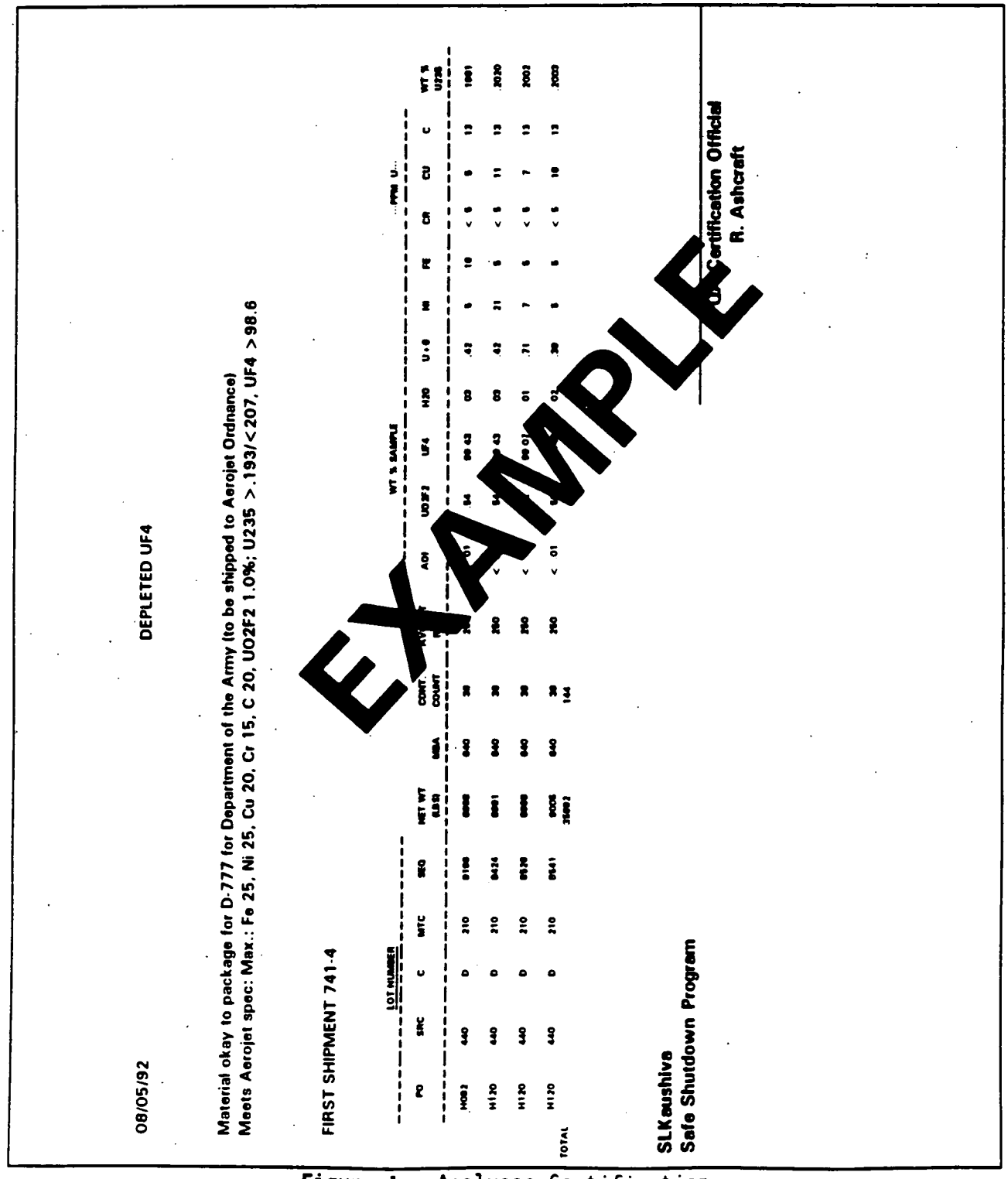
- Maintains nuclear material inventory information.
- Acts as liaison with prospective receivers of nuclear materials to verify their authorization to receive quantities and types of materials specified and to obtain approval to ship.
- Prepares forms and maintains records for transferring nuclear materials between sites.
- Maintains formal records and documentation of nuclear materials transfers.

Contracts and Acquisition (C&A)

- Coordinates with Safe Shutdown Program Planning in marketing excess nuclear materials to the private sector.
- Provides contracting services to finalize sales.
- Expedites receipt of funds from the sale of the material and transfer or credit of these funds to the U.S. Government.

Quality Assurance (QA)

- Provides listings of analyses and shipment reports when required (Figure 1).
- Inspects outgoing shipments, certifies product analyses, reviews and approves shipping document packages.
- Provides overview of activities to verify required actions are performed as specified.
- Provides certifications of compliance to customer requirements.
- Provides documentation of activities, analyses, materials listings, shipping reports, and any other needed information to support certification and/or shipment.



08/05/92

DEPLETED UF4

Material okay to package for D-777 for Department of the Army (to be shipped to Aerojet Ordnance)
Meets Aerojet spec: Max.: Fe 25, Ni 25, Cu 20, Cr 15, C 20, UO2F2 1.0%; U235 >.193/<207, UF4 >98.6

FIRST SHIPMENT 741-4

LOT NUMBER PO	SRC	C	MTC	SEQ	NET WT (LBS)	MBA	CONT. COUNT	AVG WT	WT % SAMPLE AOV	UO2F2	UF4	H2O	U ppm	NI	FE	CR	CU	C	WT % U235
H082	440	D	210	8188	8888	840	30	250	< .01	.84	99.43	.02	.42	5	10	< 5	8	13	.1981
H120	440	D	210	8426	8881	840	30	250	< .01	.84	99.43	.02	.42	21	5	< 5	11	13	.2020
H120	440	D	210	8528	8888	840	30	250	< .01	.71	99.01	.01	.31	7	5	< 5	7	13	.2003
H120	440	D	210	8541	8005	840	30	250	< .01	.38	99.43	.02	.42	5	5	< 5	10	13	.2003
TOTAL					35982		144												

SLKaushiva
Safe Shutdown Program

Certification Official
R. Ashcraft

EXAMPLE

Figure 1 - Analyses Certification

4.0 **RESPONSIBILITIES** (cont.)

Radiological Compliance (RC)

The Manager of Radiological Compliance is responsible for ensuring that radionuclide materials shipments meet the requirements for radiological parameters as outlined in ES&H Plan.

Waste Management

Coordinates with SSPP to obtain a nuclear materials disposition order for waste disposition as a final step after analysis, characterization, obtaining waste stream approvals, etc., in complying with the regulatory requirements for disposition of waste.

5.0 **GENERAL**

- The Nuclear Materials Disposition Order Management System work flow is shown in Figure 2.

6.0 **PREREQUISITES**

None

7.0 **PROCEDURE**

7.1 PREPARATION OF ROUTINE NUCLEAR MATERIALS DISPOSITION ORDERS

SAFE SHUTDOWN PROGRAM PLANNING

1. Transmit delivery requirements for programmatic nuclear materials to FERMCO management via the DOE Site Manager's Office.

2. Forward inquiries for nonprogrammatic work or services to the Work-for-Others Coordinator (within Safe Shutdown Program Planning) for follow-up liaison with other supporting departments.

3. After receiving official delivery requirements and/or changes for routine DOE programmatic work, contact other applicable groups to verify resource availability.

   NOTE: The principal managers responsible for the work will affirm availability of resources and consider whether the change control procedure is applicable.

4. Receive, maintain, and distribute official customer specification documentation for routine orders.

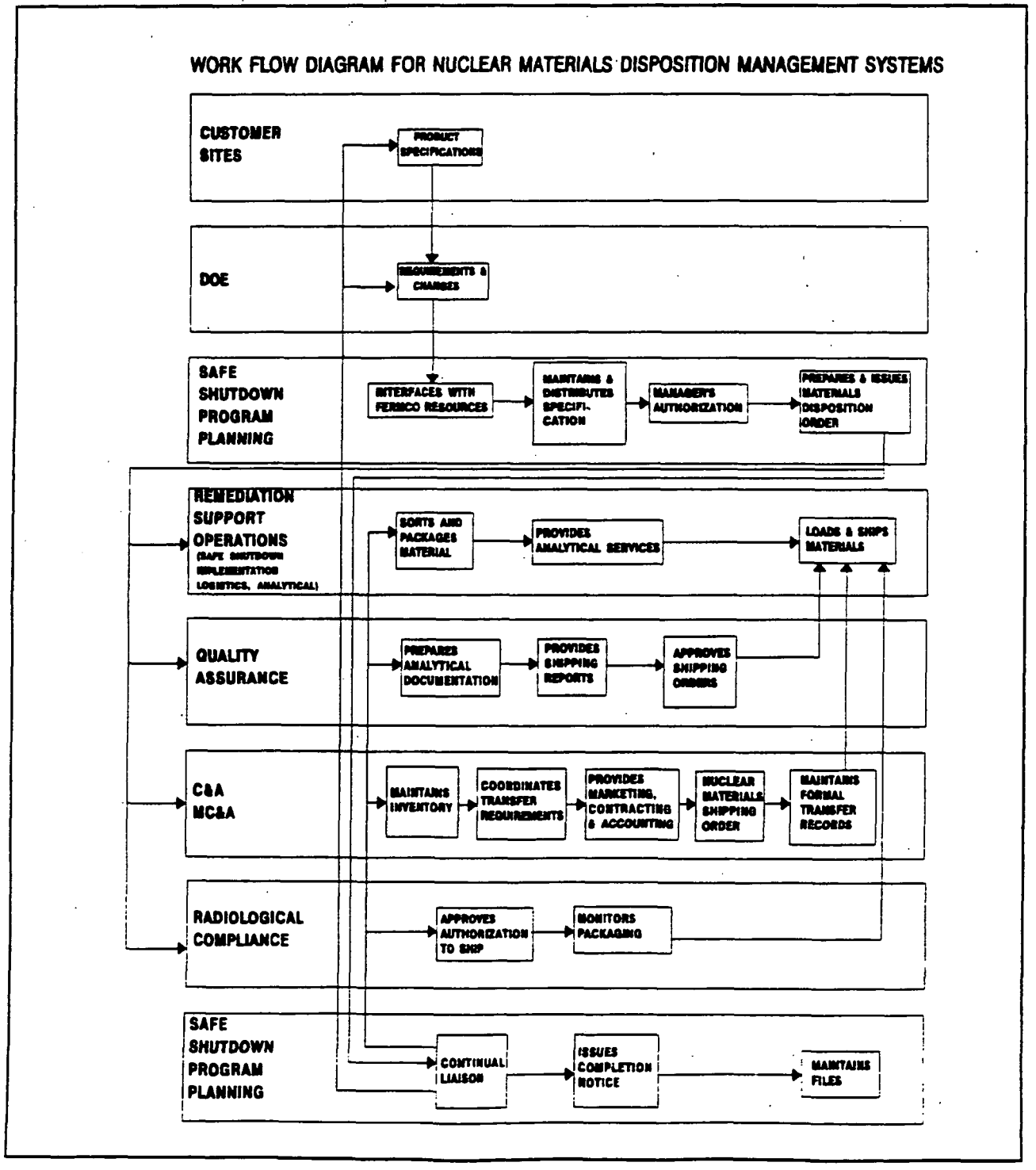


Figure 2 - Nuclear Materials Disposition Management System Work Flow Diagram

7.1 PREPARATION OF ROUTINE NUCLEAR MATERIALS DISPOSITION ORDERS (cont.)

5. Schedule deliveries of nuclear materials, including revised requirements.

6. Prepare the formal Nuclear Materials Disposition Order (NMDO) Form FS-F-404 (Figure 7).

7. Approve the NMDO or revision for release.

7.2 PREPARATION OF NUCLEAR MATERIALS DISPOSITION ORDERS FOR WORK-FOR-OTHERS PROGRAM

SAFE SHUTDOWN PROGRAM PLANNING

1. Nuclear Materials Disposition Orders for work or services to be performed under the Work-for-Others Program shall include detailed information on the project with quantities, specifications, delivery instructions, the method of cost recovery, who is to perform the work, and other special stipulations or safety requirements. The orders are issued after formal DOE approval and funding is provided for the project.

   NOTE: An inquiry may end at any point in the Work-for-Others sequence due to lack of FEMP capabilities, relative costs, or interference with DOE mission objectives.

2. Specific Work-for-Others Program projects shall be evaluated to determine if government resources exist to perform the task, that the work will not interfere with prime DOE missions, and that private facilities are not available to perform the work on a timely and/or cost effective basis. DOE shall approve services to be performed and funding under the Work-for-Others Program prior to starting.

3. After receiving inquiries to perform special work or provide services to other DOE contractors, federal agencies, or the commercial sector, confirm availability of resources and feasibility of performing the request.

4. Coordinate with other departments as required to determine the feasibility of the requested work.

   NOTE: The principal managers responsible for the work will confirm availability of resources, considering whether the change control procedure is applicable.

7.2 PREPARATION OF NUCLEAR MATERIALS DISPOSITION ORDERS FOR WORK-FOR-OTHERS PROGRAM (cont.)

5. Prepare a cost estimate for the requested work and obtain the Safe Shutdown Program Planning Manager's approval of the estimate. Ensure that funding has been provided or assured prior to initiation of any work.

6. Fill out the applicable section of a "Work-for-Others Inquiry," Form FS-F-2398.

   NOTE: Section I and/or Section II of the Work-for-Others form is used to inform FERMCO Management and DOE/FN of inquiries. Section I of FS-F-2398 may not be required. If the initial contact is definite and results in an immediate purchase order, then Section I would be needed and the initial communication to management and DOE would be Section II. Section II is always required.

7. Provide the formal response to the requesting party, including cost estimates.

8. Submit the completed form to Safe Shutdown Program Planning Manager.

SAFE SHUTDOWN PROGRAM PLANNING MANAGER

9. Concur with the recommendations contained in Section II of Inquiry Form and approve submission to DOE for project authorization.)

SAFE SHUTDOWN PROGRAM PLANNING

10. After authorization is granted by DOE, and funding has been verified, prepare a Nuclear Material Disposition Order (Form No. FS-F-404).

11. Submit the NMDO to the Manager of Safe Shutdown Program Planning, for authorization.

12. Approve the NMDO or revision for release.

7.3 PREPARATION OF NUCLEAR MATERIALS DISPOSITION ORDERS FOR WASTE DISPOSAL

WASTE MANAGEMENT

1. Provide program management of legacy waste.

7.3 PREPARATION OF NUCLEAR MATERIALS DISPOSITION ORDERS FOR WASTE DISPOSAL (cont.)

2. Characterize the waste materials to determine RCRA status.

3. Obtain DOE-NV approval of waste streams or award contracts for private sector disposition.

4. Coordinate with Safe Shutdown Program Planning Department for issuance of Nuclear Materials Disposition Order for each projected activity.

SAFE SHUTDOWN PROGRAM PLANNING

5. Coordinate with Waste Programs Management to obtain necessary information for issuance of NMDO.

   NOTE: Section I and II Work-for-Others Forms are not required for waste shipments.

6. Reference documents (such as an award contract, if private sector, or revised waste stream approval, if DOE-NV) shall be noted on the NMDO.

7. Submit the NMDO to Safe Shutdown Program Planning Department Manager.

SAFE SHUTDOWN PROGRAM PLANNING MANAGER

8. Approve the NMDO or revision for release.

7.4 DISTRIBUTION OF NUCLEAR MATERIALS DISPOSITION ORDERS

SAFE SHUTDOWN PROGRAM PLANNING

1. Forward the approved NMDO to RSO, RC, C&A, and the DOE Site Manager.

2. Maintain and distribute purchase orders and product specifications received by the Work-for-Others Coordinator.

3. Ensure that any other permissive (i.e., Safety Assessment, Health & Safety Plan, etc., are in place before work begins).

4. Prepare an acknowledgement letter (see Figure 3) for transmittal to the principal managers responsible for the work.

5. Receive and file signed acceptance verifying all details of the work, including scheduling.

Fernald Environmental FERMCO Restoration Management Corporation

INTEROFFICE MEMORANDUM

To: Frank Peters
Location: Fernald
From: Edward Schonegg
Location: T-76, MS 52-9
Extension: 8660

Date: December 6, 1993
Reference:
FERMCO M:CRU3:930947
Contract: DOE DE-AC05-920R21972
Subject: Acknowledgment of Material Disposition Order/Intra-Plant request No. B-665

EXAMPLE

c: S. Kaushiva
CRU3 Project File
SSD:93-283

Please review the attached Material Disposition Order and/or Request and complete this form. Return the signed form to Shirley Kaushiva at Mail Stop 52-9.

This request can be completed fulfilling all:		Yes	No
1.	Product Specifications	✓	
2.	Conditions	✓	
3.	Packaging	✓	
4.	Completion Date	✓	

Comments: _____

Manager's Signature: _____ Date: _____

Title: _____

Figure 3 - Acknowledgment Letter

7.4 DISTRIBUTION OF NUCLEAR MATERIALS DISPOSITION ORDERS (cont.)

SAFE SHUTDOWN PROGRAM PLANNING

6. Coordinate with MC&A to determine that any potential receiver of nuclear materials is authorized to process the types and quantities involved.

7. Request the applicable "Authorization to Ship", (e.g., Form UCN-16708 for Y-12 or Form RF-4394 for Rocky Flats as applicable), from MC&A.

   NOTE: Rocky Flats, Y-12, Los Alamos, and some private commercial firms require a completed, approved, "Authorization to Ship" request form or some other type of prior approval (normally initiated just after the material disposition order is issued).

8. Complete form and submit a preliminary copy of the form to Quality Assurance.

9. Transmit the original of the authorization form to ES&H for approval.

RC

10. Approve the "Authorization to Ship" form for safety requirements and return the form to the Safe Shutdown Program Planning.

SAFE SHUTDOWN PROGRAM PLANNING

11. Transmit a copy of the approved form to Quality Assurance.

12. Send the original of the "Authorization to Ship" form to MC&A.

MC&A

13. Approve the "Authorization to Ship" form.

14. Contact the requestor site and coordinate nuclear material control transfer requirements.

7.5 IMPLEMENTATION OF NUCLEAR MATERIALS DISPOSITION ORDERS

SAFE SHUTDOWN IMPLEMENTATION

1. Coordinate work specified by the nuclear materials disposition order.

LOGISTICS ADMINISTRATION

2. Maintain packaging and cost control records.

3. Ensure compliance with all Federal, State and local regulations, DOE Orders and Directives.

4. Provide guidance on the requirements for onsite movement and offsite shipment of all hazardous and nuclear materials.

5. Advise personnel when special packaging is required.

SAFE SHUTDOWN PROGRAM PLANNING

6. Coordinate with RSO Operations to track the progress of nuclear materials disposition orders.

7. Report the progress of NMDO action to principal FERMCO management.

ACQUISITIONS AND FINANCE

8. Bill individual customers for reimbursable work performed by the Work-for-Others orders in accordance with the terms and conditions of the purchase order or contract.

7.6 NUCLEAR MATERIALS DISPOSITION ORDER CERTIFICATION

SAFE SHUTDOWN IMPLEMENTATION

1. Package nuclear products according to applicable section procedures.

MC&A

2. Initiate a "FERMCO Shipping Order for Nuclear Material," Form FS-F-558 (Figure 4).

3. Send the completed form to Quality Assurance.

7.6 NUCLEAR MATERIALS DISPOSITION ORDER CERTIFICATION (cont.)

QUALITY ASSURANCE (QA)

4. Prepare analytical documentation regarding the material to be shipped when required.

5. Transmit a copy of the analytical documentation to Safe Shutdown Department.

6. Return the shipping order and analytical documentation to MC&A.

MC&A

7. Complete the Material Control Data portion of the shipping order with additional inventory control data.

8. Return the shipping order to Quality Assurance.

QUALITY ASSURANCE (QA)

9. Certifies the completed shipping order.

10. Forward the shipping order and shipping reports to Logistics Administration.

7.7 COMPLETION OF NUCLEAR MATERIALS DISPOSITION ORDERS

RC

1. Monitor the packaged material for conformity to Department of Transportation radiological regulations.

LOGISTICS ADMINISTRATION

2. Review the packaging and shipping documentation per Site Procedure PP-0314.

QA

3. Verify all packages for proper markings and labeling

4. Verify that all packages have been surveyed.

5. Verify that transport trailer has been surveyed and garage check for safety,

6. Verify loading of all packages and that load is secure.

7.7 COMPLETION OF NUCLEAR MATERIALS DISPOSITION ORDERS (cont.)

7. Load the material for shipment.

8. After loading, verify that the trailer has been sealed.

9. Ensure that all appropriate regulations are met.

LOGISTICS ADMINISTRATION

10. Arrange for a carrier and notify the receiving site of the carrier name and all associated shipment information. (In some cases, the customer is the shipper and would make these arrangements in coordination with FERMCO Logistics Administration).

11. Prepare Bill of Lading and associated shipping papers and coordinate scheduling with carrier. (In some cases, the customer is the shipper and would complete this step.)

12. Notify Safe Shutdown Program Planning, MC&A, and Quality Assurance upon final shipment of the product.

MC&A

13. Fill out a "DOE Nuclear Material Transaction Report," Form DOE/NRC-741 (Figure 5).

14. Mail the completed "Nuclear Material Transaction Report" to the customer.

    NOTE: The report shall be sent within one work day of shipment leaving the site.

QUALITY ASSURANCE (QA)

15. Prepare and transmit a formal analyses and shipping report letter (see Figure 1) to the customer when required.

SAFE SHUTDOWN PROGRAM PLANNING

16. Prepare "Nuclear Materials Disposition Order Completion Notice" letter (see Figure 6) and send the letter to the involved departments.

17. The files on Nuclear Materials Disposition Orders are (see Figure 7) maintained by Safe Shutdown Program Planning.

Fernald Environmental Restoration Management Corporation

SHIPPING ORDER FOR NUCLEAR MATERIAL — Date Prepared:

SHIP TO:	ROUTING:			SHIPPING AUTHORIZATION NO.:	SHIPPING ORDER NO.:
STREET:	☐ PREPAID ☐ COLLECT	CAR OR TRAILER NO.:	SEAL NO.:	SHIPPED FROM PLANT:	ORIGINATOR NO.:
CITY: STATE: ZIP CODE:	BILL OF LADING NO.:		QUALITY CONTROL APPROVAL:		DATE SHIPPED:
SPECIAL INSTRUCTIONS:	COUNTRY CONTROL NO.:			PROJECT NO.:	TIME SHIPPED:

Type of Material _____ FEMP Production Order No. _____ Originator's Signature _____

Station RIS _____ DOE 741 No _____ Shipment Authorized By _____
NUCLEAR MATERIALS REPRESENTATIVE

NMC DATA			ORIGINATOR'S DATA						MATERIAL CONTROL DATA					
FROM MBA	COST CODE	741 NO	P.O. NO.	LOT NUMBER	QUANTITY	WEIGHT (LB) GROSS	TA		ANA CODE	ELE. ANAL	ELE. LBS.	ELE. GRAMS OR KGS	ISO. ANAL	U^{235} GRAMS OR KGS

EXAMPLE

DISTRIBUTION OF COPIES			
	WMA RECORD COPY	4	Environmental Restoration
	Traffic	5	Quality Certification
	WMA ...	6	Originator

I _____ certify that this shipment was made on the above date after complying with all regulations

Audited by _____ Date _____

-558 (REV 2/11/93)

Figure 4 - FERMCO Shipping Order for Nuclear Material

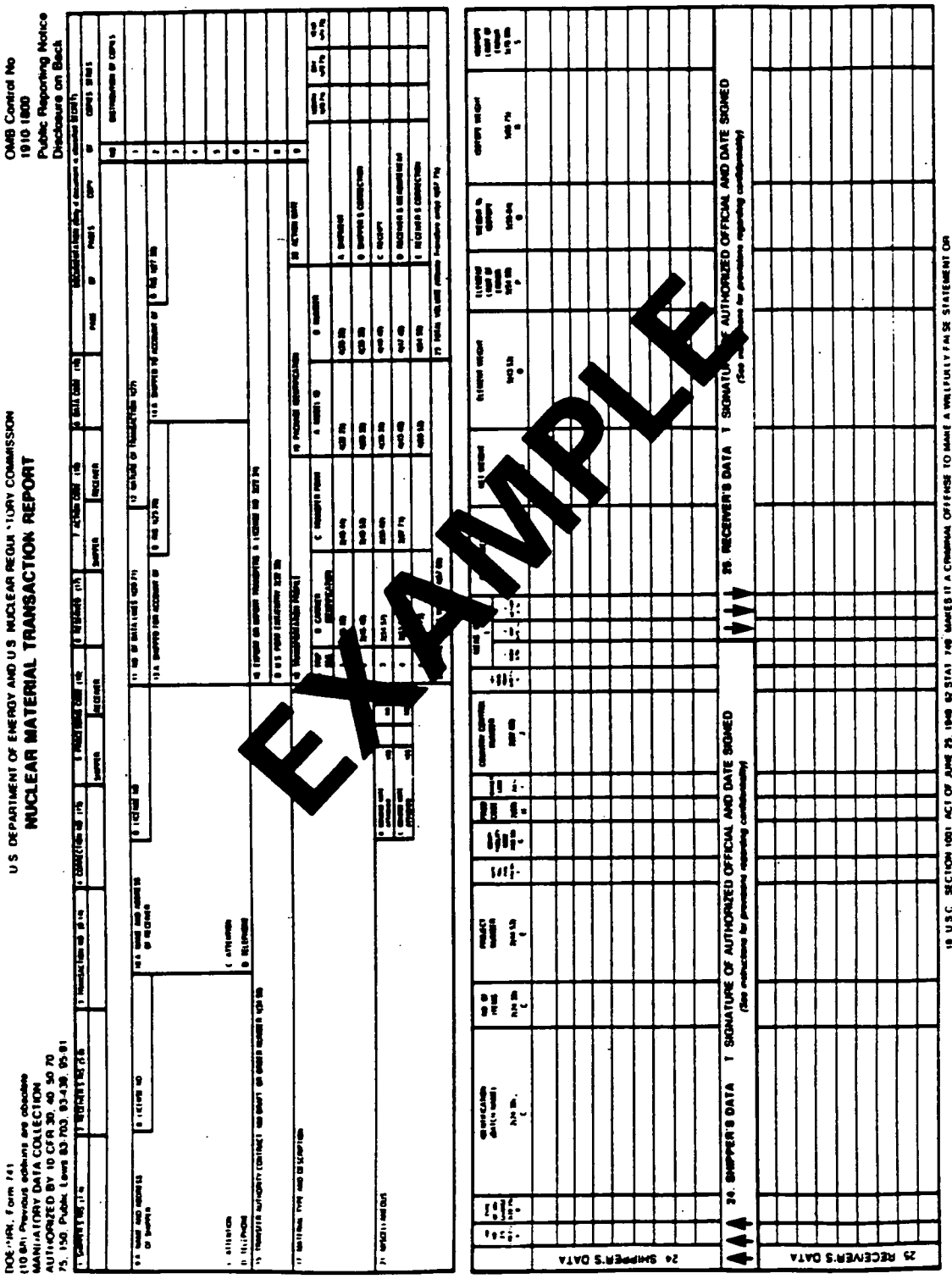


Figure 5 - DOE Nuclear Material Transaction Report

Fernald Environmental FERMCO Restoration Management Corporation

TO: Distribution

Reference: 1) WEMCO Order No. D-777, Issued April 9, 1992
2) Military Interdepartmental Purchase Request W52P1J2CD022

D-777, for ~340 metric tons uranium weight equivalent UF_4 has been completed. With the concurrence of the customer, Aerojet Ordnance, the order ran over by 6 MTU to avoid a partial truckload at the end; total shipped [illegible] MTU. Final shipment was made on July 21, 1992, and all the boxes loaned for this project were returned by September 30, 1992. Charge Number NUF00 should be closed immediately, and all charges against this order should cease.

EXAMPLE

E. Schonegg, Manager
Safe Shutdown Program

SLK:slk

Distribution:

R. L. Ashcraft	C. W. Lower
J. D. Bardua	J. P. McGrogan
C. E. Block	J. M. Miller
D. L. Dunaway	D. S. Montgomery
L. M. Federmann	O. Pollard
R. J. Gall	M. E. Schroer
R. L. Gardner	J. L. Trujillo
J. A. Grumski	G. W. Westerbeck, DOE-FN
R. J. Hansen,DOE-FN	M. Woods
J. P. Hopper	Work-for-Others File
H. J. Knue	AR Coordinator
	Central Files
	ER Files

Figure 6 - Nuclear Materials Disposition Order Completion Notice

Fernald Environmental FERMCO Restoration Management Corporation

MATERIAL DISPOSITION ORDER

EXAMPLE

No. B-665
Date: December 3, 1993

TO: Remediation Support Operations

SUBJECT: Depleted Uranium Derbies for Manufacturing Scien[illegible] Corporation (MSC)

For utilization under Prime Contract No. DE-AC05-920R21872[illegible] requested to ship the materials described below:

DESCRIPTION OF WORK:

Package and ship all remaining Grade I Mark 31 Depl[illegible] Uranium Derbies to MSC as per attached Shipping/Receiving Plan.

SPECIFICATIONS: N/A. MSC agrees to accept the historical analyses as provided. In those cases where the derbies have not been sampled at all, MSC accepts the risk of the analyses as forecast through statistical projections.

SHIPMENT SCHEDULE: Two truckloads on a "RUSH" basis. Remainder at one (1) load per month. Customer reserves the right to cancel a month's shipment as needed; however, all material must be shipped by December 31, 1996.

SPECIAL CONDITIONS:

1. Ship via: Motor freight
   (Carrier to be contracted by MSC.)
2. Costs: Freight prepaid by MSC.
3. Classification: Unclassified.
4. Copy to: J. P. Hamric, DOE-FN.
5. Use 9BAA4 to collect charges.
6. See attached Shipping/Receiving Plan for additional details.

COMPLETION DATES: 12/31/96

CONSIGNEE:

Manufacturing Sciences Corporation
804 Kerr Hollow Road
Oak Ridge, TN 37830

APPROVALS:

By: _____

Title: Director, CRU3

REFERENCES:
1. Section II No. 366-P, approved December 2, 1993.
2. Negotiated Contract SD-416A, Date of Acceptance: 11/19/93.
3. M:CRU3:93-0875, E. Schonegg to Distribution, "Shipping Plan for Depleted Uranium Derbies", 11/10/93.

Figure 7 - Material Disposition Order

8.0 APPLICABLE DOCUMENTS

8.1 DRIVERS

- DOE Order 2200.6, "Financial Accounting"
- DOE Order 4300.2B, "Non-Department of Energy Funded Work"
- DOE Order 5633 Series, "Control and Accountability of Nuclear Materials"
- DOE Order 5660.1A, "Management of Nuclear Material"

8.2 REFERENCE DOCUMENTS

- PP-0314, "Packaging, On-Site Movement and Off-Site Shipment of Material"
- RM-0009, "Radiological Controls"

-6944

CONTROL NO. FEA-0018
SITE PROCEDURE OP-0005 (SSOP-1021)
REVISION NO. 0

DISPOSITION OF SAFE SHUTDOWN EXCESS PERSONAL PROPERTY

NON-CONTROLLED COPY

Effective Date: 10-15-93

Originator (Subject Expert): _____
Date

Checker Concurrence: _____
Date

APPROVED BY: Don Paine _____ 3/22/95
Don Paine, FAM Date

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Restoration Management Corporation
P. O. Box 538704
Cincinnati, Ohio 45253-8704

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