

Part 8

Model Construction Contract

Environmental Health & Safety/Training Requirements

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Revision 17

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Part 8
Model Construction Contract
Environmental Health & Safety and Training Requirements

NOTE: Current Revision is Shaded

REVISION:	DATE:	DESCRIPTION OF CHANGE:
0	3/2/94	Initial Issue
1	7/7/94	General Revision
2	9/28/94	General Revision
3	12/11/95	General Revision
4	07/08/96	General Revision - Re-organized and Revised
5	06/04/97	General Revision
6	08/27/97	General Revision
7	09/29/97	Revised to incorporate requirements for equipment spotters per IC97-039&40, incorporated change per revised rigging manual, added option for safety representative.
8	01/29/98	Revised to incorporate changes to sections A 2.0, B 1.0 and moved B 3.1.3 to B 2.1.1 for Performance Enhancement, B 10 per revision 2 to SPR -3-6, B 3.4, B 3.11.1, section B 17 and Exhibit 2 general changes.
9	02/25/98	Revised to incorporate changes to section B 3.4 for Noise Exposure, B 6.0 for Hoisting and Rigging Req., Added new Section 14 for Penetrations, renumbered preceding sections to 15 - 20, added section 5.6 for Combustible Material in Isolated Buildings, revised Section C 2.1.5 Bioassay Cards.
10	03/24/98	Added new section B 2.4 for Behavior Based Safety and renumbered the preceding section 2 paragraphs, revised Sections B 2.7, B 2.8, B 3.6, B 3.7, B 3.8, B 6.0, B 8.0, B 10.0, B 19.0 and E 1.0 in accordance with Revision 7 of RM-0021.
11	08/04/98	This revision replaces the cover sheet, adds a revision sheet, added instructions to the Preface, added symbol Λ for FLUOR FERNALD commitments, Incorporates Revision 8, 11 and 12 of RM-0021 to section B 12.5.2 and B 13.0, performed general revision and combined some sections of sections C&B. (Note: revisions 9 and 10 of RM-0021 required no changes to this document).
12	August 27, 1998	This revision changes to Sections B 1.0 and B 2.2 as a result of the DOE's assessment of H33 a5, it breaks out Daily Inspections as its section number B 2.2.2, it deletes the Health and Safety Hand Book requirements as a result of NCR 0635 and moved Behavior Based Safety up to section B 2.3 and all other preceding section B 2 paragraph up by one section and Deleted Section number B 1.12, changed the director of health and safety in the Preface to Division Vice President in accordance with Procedure CT 2.1.1, it changes section B 4.0 for FLUOR FERNALD furnished PPE, incorporates lessons learned in Section B 11.

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Rev. 13	12/29/98	This revision incorporates revisions 13, 14 and 15 of RM-0021 and changes required through the crosswalk process between the Model Contract and RM-0021. Revised A 1.0 added statement for ISM, A 2.0 to reference Part 6, B 1.0 to add employee rights, B 2.2.2 deleted reference to Lotus Notes, B 2.10 added Penetration Permit, B 2.11 to add 911 as emergency number, B 3.1.3 Exit Physicals, B 3.11.2 changed to add hazardous work permit renumber Carcinogen Control to B 3.11.3, B 4.0 reformatted B 4.1 and B 4.2 added section, B 4.7 Respirator Requirements, B 4.8 for back injury prevention, B 6.6 Overhead Electrical Condition, B 7.2 Power Tools, B 7.4 Hand-Arm Vibration Control, B 9.2 revised to clarify cord assemblies, added section B 9.3 Minimum Distance for Overhead Electrical Work, B 10.0 revised to attach check list to scaffold and reference to B 21, B 11.0 to add operator verification, B 12.0 for Equipment added B 12.6 Backhoes, B 12.7 Trucks with Dumping Beds and B12.8 for Electric Carts, added B 21.0 for Fall Protection, E2.1 Deleted reference to PSHSP form 6 th para. B 17.1 and B 17.3 to remove Heat and Cold Stress Programs. Section D added Heat and Cold Stress Programs
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Model Construction Contract

Environmental Health & Safety and Training Requirements

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REVISION:	DATE:	DESCRIPTION OF CHANGE:
Rev. 14	06/21/99	<p>Revised Section A1 to relocate the Safe Work Plans requirements from section A2, reassigned section A2 to ISM requirements, Added B 1.1 Employee's Right of Refusal and Concern Resolution, Revised B 2.1 for providing the Project Specific Health and Safety Plan and added a Note for ODP, B 2.5 revised to add requirements when lightning is in the area, B 2.10 revised to add (submit to FLUOR FERNALD), B 2.11 deleted the requirement for use of site radio frequencies only, B3.1.1 revised 3rd. Para. and deleted bullet under Use of Prescription Medicine, B 3.1.3 changed (Rad Worker II) to (General Site Worker), B 3.7 added requirement for submittal at project completion, B 4.7 revised temperature range, B 5.2 added (Part 4), B 6.1 Critical Lift Plan changed 80% to 70 %, B 9.1 changes from (construction site) to (each work location), B 10.0 added the word (scaffold) to the first bullet, B 13.0 second paragraph changed (up to 20 feet) to (less than 20 feet), B 18.0 revised second bullet, B 21.0 revised to clarify the contractors responsibility for Fall Protection Training, C 2.1.5 changed (Rad Worker II) to (General Site Worker), Section D deleted section D Safety and Health (Plan) to (Program) and revised section E to section D added paragraph numbers and to clarify Training requirements. C2.3.2 revised for clarification, This revision incorporates RM-0021 Rev.17 and RM-0020 Rev. 8.</p>
Rev. 15	09/09/99	<p>Revised B1.0 General FLUOR FERNALD PL-3081" FEMP Safety Management System Description". Revised Section B16.0 to include the Energy Isolation Planning. This revision incorporates RM-0021 Rev.18,19 and Rev. 20.</p>
Rev. 16	05/23/00	<p>General Revisions as follows: Incorporated Name Change - Fluor Fernald</p> <ul style="list-style-type: none"> B 2.2 Contractor Site Safety and Health Representative Responsibilities B 2.10 Competent/Qualified Person Inspection B 3.2 Industrial Hygiene Exposure Monitoring/Sampling B 3.2.2 Noise Exposure ΔB 3.2.3 Airborne Contaminants Exposure B 3.2.4 Noise and Airborne Contaminant Exposure Data/Results B 3.2.4.2 Airborne Contaminants Exposure Data/Results ΔB 3.3.2 Asbestos Abatement Safe Work Plan Requirements ΔB 3.6 Asbestos Abatement B 3.8.1 Chemical Approval B 3.8.3.1 Carcinogens B 3.8.3.2 Purchase Requirements B 3.8.3.3 Use Requirements Controls B 3.8.4 Hazard Communication Labeling B 3.11.1 Chemical Approval B 13.0 Trenching and Excavation B 19.2 Barriers D 2.1/D 2.3 Removed reference to Exhibit 14.

Rev. 17	02/15/01	<p>This revision incorporates RM-0021 revisions 21 through 28 where those revisions were applicable to this document.</p> <p>A 2.1 Revised to clarify the ESH&TRM as it pertains to ISM.</p> <p>B 3.1.1 Added Specification number to the next to last paragraph.</p> <p>B 3.8.1 Revised to the requirements for Fluor Fernald to track contractor Chemicals, and adds the requirement for the contractor to remove his surplus chemicals from site at completion of his contract.</p> <p>B 3.8 Revised to change Hazardous Chemical to Hazardous Communications and added introduction paragraph</p> <p>B 3.8.4 Revised to delete the contractor submittal register requirement.</p> <p>B 6.2.1 Revised to clarify qualifications of a level 1 rigger.</p> <p>B 12.8 Revised to include ATV's and UV's per RM-0021 rev. 23 and SPR 7-3 rev.5.</p> <p>B 19.2 Revised to add 6 foot requirement.</p> <p>D 1.0 Revised to add Contractor Orientation Program for New Hires.</p> <p>D 1.2 Occasional Site Worker Removed baseline urinalysis – reference RM-0055 rev. 2</p>
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FLUOR FERNALD

SOLICITATION NO. F-----

CONTRACT NO. FSC ----
PROJECT TITLE

PART 8
**ENVIRONMENTAL HEALTH AND SAFETY/
TRAINING REQUIREMENTS**

FLUOR FERNALD

PREFACE

This S&H and Training Contract Model is issued to guide the creation of Construction Contract Part 8. The section should be tailored to the specific requirements of each Contract. The assigned Safety and Health Officers must be included in the review of the final draft and initial issue of the document. Notes to the preparer are in italics throughout the document and should be read and deleted as the document is tailored to each project.

The Δ symbol identifies provisions driven by the S/RID's and DOE commitments that cannot be changed without approval of the Fluor Fernald, Inc. Division Vice President. The Project Safety and Health Representative shall approve all other revisions.

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CONTRACT No. FSC
ENVIRONMENTAL HEALTH & SAFETY/TRAINING REQUIREMENTS
CONTRACT TITLE

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**PART 8
CONTRACT FSC
ENVIRONMENTAL HEALTH & SAFETY/TRAINING REQUIREMENTS
CONTRACT TITLE**

A. ENVIRONMENTAL HEALTH and SAFETY & TRAINING REQUIREMENTS MATRIX

AA 1.0 General

The Environmental Health and Safety & Training Requirements Matrix (EHS & TRM) has been developed to aid the Contractor in identifying the Project and Site Specific hazards associated with the project.

The matrix is a hazard assessment based on the current and planned operations for the project; it outlines the minimum Fluor Fernald medical, radiological, safety and training requirements to perform the listed activities. Additional safety requirements may be required, if work conditions or planned operations change. The matrix does not relieve the contractor from recognizing and complying with other appropriate state and federal safety and health regulations.

The Contractor and his subcontractors shall be committed to Fluor Fernalds ZERO accidents policy while performing work at Fernald. To that end the contractor shall evaluate, commensurate with the work and the associate hazards and utilize the EHS & TRM to determine the general and task specific health and safety requirements.

The EHS & TRM includes a hazard analysis for each task and required mitigators; including, personal protective equipment, engineering and administrative controls, pre-job planning and permits, personnel and air monitoring, medical monitoring and medical surveillance, and decontamination and disposal procedures.

The Contractor shall utilize the EHS &TRM to prepare the safe work plans required for performing each task, refer to Part 6 for Safe Work Plan.

When developing safe work plans for tasks not identified on the EHS & TRM, the Contractor shall develop a means to control worker exposure. The preferred method of control shall be engineering controls. Where engineering controls are not feasible, the contractor shall use administrative and Personal Protective Equipment (PPE) to control worker exposure.

AA 2.0 Integrated Safety Management System

The Contractor shall implement Integrated Safety Management (ISM) for all activities being performed including his Safety and Health Programs and Safe Work Plans.

"ISM focuses on safety throughout work planning and execution. The Environmental Health and Safety & Training Requirements Matrix (EHS&TRM) is a hazard assessment based on the current and planned operations for the project; it outlines the minimum medical, radiological, safety and training requirements to perform the listed activities. Additional safety requirements may be required if work conditions or planned operations change.

ISM is a system that incorporates Seven Guiding Principles and Five Core Functions. These are as follows:

Seven Guiding Principles:

Line Management Responsibility for Safety - All levels of management are responsible for safety. Line management is directly responsible for the protection of the public, the workers, and the environment. The term line management means all levels of leadership in the organization responsible for accomplishing a particular mission, either project or programmatic.

Clear Roles and Responsibilities - Clear lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels. The leadership responsible for accomplishing project or programmatic work is also responsible for ES&H.

Competence Commensurate with Responsibilities - Personnel must possess the experience, knowledge, skills, and abilities that are necessary to perform their responsibilities.

Balanced Priorities - Resources are effectively used, and safety costs are an integral part of the total cost of accomplishing the work scope. Another aspect of integration is the fusion of safety planning with the business process, such as budget and resource allocation. A first step is to translate missions into work requirements in conjunction with the prioritization of budget and resources.

Identification of Safety Standards and Requirements - Before work is performed, the identified hazards are evaluated and an agreed-upon set of safety standards and requirements is established that will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences.

Hazard Controls Tailored to Work Being Performed - Administrative and engineering controls to reduce and mitigate hazards are tailored to the work being performed and identified hazards.

Operations Authorization - The conditions and requirements for operations to be initiated and conducted are clearly established and agreed upon and are addressed. This process is further defined in Contractors Safe Work Plans and is accomplished through preparation of appropriate safety documentation, and demonstrations of readiness. In addition, work control documents, such as safe work plans and permits may include conditions that must be satisfied for work to proceed.

Five Core Functions:

Define the Scope of Work - Missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.

Analyze the Hazards - Hazards associated with the work are identified, analyzed and categorized.

Develop and Implement Hazard Controls - The overall safety envelope is established and controls are implemented. Applicable standards and requirements are identified and agreed-upon, controls to prevent or mitigate hazards are identified, the safety envelope is established, and controls are implemented.

Perform Work within Controls - Documentation is to be followed to perform the work, readiness is confirmed, and work is performed safely.

Provide Feedback and Continuous Improvement - Feedback information from inspections, assessments and appraisals. Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, and line and independent oversight is conducted. Feedback and continuous improvement is documented in the activity specific work management system.

The Seven Guiding Principles and Five Core Functions are captured throughout Part 8 and therefore become a integral part of the Contractor's process.

ENVIRONMENTAL HEALTH AND SAFETY & TRAINING REQUIREMENTS MATRIX

After the Health and Safety Representative has completed the Matrix, it should be inserted here and the pages numbered consecutively 8A-4 through 8A-?

B. GENERAL SITE REQUIREMENTS**ΔB 1.0 General**

All work on this project shall be performed in accordance with OSHA 29 CFR 1926, all other applicable federal, state and local regulations and the requirements provided in this Contract documents.

Fluor Fernald is required to comply with U.S. Department of Energy (DOE) Orders 5480.4, "Environmental, Protection, Safety and Health Protection Standards," 440.1, "Worker Protection Management for DOE Federal and Contractor Employees," also Fluor Fernald RM-0021, "Safety Performance Requirements Manual," and Fluor Fernald PL-3081 " FEMP Safety Management System Description". The specific portions of these documents applicable to this Contract are delineated in Part 8.

ΔB 1.1 Employee's Right of Refusal and Concern Resolution

The Contractor has the responsibility to inform his/her employees of the following:

All Employees have the right and responsibility refuse or stop work without fear of reprisal, harassment, or retaliation whenever they feel that their personal safety and health is or has been jeopardized and must make these situations immediately known to their supervision, or safety and health representative.

Contractor employees who may have a concern about a condition or practice they consider hazardous to their own or a fellow employee's safety, or simply may know a safer means of accomplishing a task should follow his/her companies process for resolution first, if the employee feels that the resolution does not resolve his/her concern then the employee may utilize the Fluor Fernald or DOE Concern Programs.

B 2.0 General Safety and Health Provisions

(The Project Specific Health and Safety Plan only applies to Contracts affected by 29 CFR 1926.65, this requirement should be removed for all other Contracts.)

(Note: Operation Demolition Projects (ODP) will provide the contractor with a Draft PSHSP at mobilization to completed by the contractor and submitted as the Contractors Plan. This section should be revised to reflect this understanding.)

B 2.1 Project Specific Health & Safety Plan

The Contractor shall submit for Fluor Fernald concurrence the contractors Project Specific Health and Safety Plan (PSHSP). The plan shall be read, understood and signed by the Contractor and his subcontractors. The Contractor and his subcontractors shall orientate their employees on the plan and ensure that they sign the acknowledgment sheet signifying that they understand the requirements.

ΔB 2.1.1 Reporting Injuries and Accidents**Accidents, Injuries and Incidents**

The Contractor shall report all accidents, injuries and incidents to Fluor Fernald when they occur. Fluor Fernald will categorize/classify the accident, injury or incident according to DOE orders. Should additional investigation of these occurrences be required, the Contractor shall support Fluor Fernald in all areas of the investigation. In the event of a serious accident, injury, or incident, the involved area shall not be disturbed until approved by Fluor Fernald.

In addition, the Contractor shall conduct his own investigation. A written report shall be provided to Fluor Fernald within three working days after the incident. The report shall determine the root cause and methods to prevent future occurrences.

B 2.1.2 Injuries

All injuries and illnesses, no matter how minor, resulting from work performed at the FEMP shall be reported to the Fluor Fernald Medical facility immediately after occurrence. The employee's supervisor shall accompany the employee. Within 24 hours after an OSHA Recordable injury or illness, the Contractor Project Manager and S&H Representative shall meet with Fluor Fernald to fully explain what caused the event and what preventive measures will be taken to prevent a reoccurrence

B 2.1.3 Radiological Incidents

All radiological incidents or abnormal events shall be immediately reported to Fluor Fernald. Examples include, but are not limited to, skin or clothing [i.e., not personal protective equipment (PPE)] contamination, situations where radioactive material uptake is suspected and situations where contamination is spread to a controlled area or clean area.

The Contractor's supervisor shall document the event or condition in writing. This documentation shall include enough information to reconstruct the event, its associated consequences, corrective and recovery actions, and the estimated dollar amounts of damage to property or cost of the corrective actions taken.

B 2.1.4 Emergency Response

For all activities performed at the Fernald site, Fluor Fernald will provide the required emergency services. The services include but are not limited to: fire, personnel rescue, chemical and radiological releases/spills. Through site training, Contractor personnel will be informed how and when to contact Fluor Fernald Emergency Response.

NOTE: In an emergency situation, the health and safety of an employee takes precedence over radiological controls.

(The Project Team shall determine the project requirements for the Health and Safety Officer and choose between the following and delete the other)

(For Projects that are not complex and are less than 6 months in duration)

B 2.2 Contractor Site Safety and Health Representative Responsibilities

(The Project Team may choose to allow the Contractors Safety and Health Representative to serve a dual role. If this option is chosen the Project S&H representative along with the S&H Team Coach shall approve the option.)

The Contractor's S&H representative may be the Contractor's Superintendent, Foreman or other qualified member of the organization at the site whose duty shall be the prevention of accidents, conducting inspections of work and storage areas, and reporting safety related information.

B 2.2.1 Qualification and Responsibilities

The Contractor's Site S&H Representative shall be a responsible member of the organization at the site whose duty shall be the prevention of injuries and/or accidents, conducting documented daily inspections of work and storage areas, reporting safety related information, and maintaining applicable job site safety records.

The Contractors S&H representative performing dual responsibilities shall have construction field experience and verifiable safety and health experience (i.e. OSHA 32 hr. Construction Outreach training or on the job experience as a Health and Safety officer)

The S&H Representative must be approved by Fluor Fernald before he/she is assigned to the project. Fluor Fernald reserves the right to approve/disapprove any S&H Representative which the Contractor may submit either before the project begins or during project execution. During execution of the Contract, Fluor Fernald

reserves the right to assess the S&H representative's work performance based on the number of first-aid cases, recordable injuries, lost time injuries, contamination incidents, safety violations, and understanding and commitment to safety and require replacement when performance is unsatisfactory.

(OR)

(For Projects with a duration greater than 6 months or are complex)

B 2.2 Contractor Site Safety and Health Representative Responsibilities

The Contractor must designate a full-time Site Safety and Health (S&H) Representative dedicated to this Contract with experience as defined below. The Safety Representative will also work closely with Fluor Fernald management in hazard recognition/prevention and ensuring prompt correction of safety deficiencies, including participating in joint safety inspections at least once per week.

B 2.2.1 Qualification and Responsibilities

The Contractor's Site S&H Representative shall be a responsible member of the organization at the site whose duty shall be the prevention of injuries and/or accidents, conducting documented daily inspections of work and storage areas, reporting safety related information, and maintaining applicable job site safety records.

The S&H Representative must have no other responsibilities and be independent of the project management group (i.e., not report functionally to the Project Manager, unless the Project Manager is also a principal in the company) or be responsible for cost and schedule.

The S&H Representative must be approved by Fluor Fernald before he/she is assigned to the project. Fluor Fernald reserves the right to approve/disapprove any S&H Representative which the Contractor may submit either before the project begins or during project execution. During execution of the Contract, Fluor Fernald reserves the right to assess the S&H representative's work performance based on the number of first-aid cases, recordable injuries, lost time injuries, contamination incidents, safety violations, and understanding and commitment to safety and require replacement when performance is unsatisfactory.

The S&H Representative must meet the following criteria:

(The following criteria will be applicable to larger projects with more complex safety issues.)

- 5 years verifiable applied safety and health experience, with 3 years of that time in the construction industry, as a full-time safety professional.
- Ability to demonstrate adequate safety knowledge of OSHA 1926 and 1910 standards.
- Ability to explain how to effectively implement a safety program for this project.
- Ability to explain how to manage injuries/illnesses as well as accident prevention.
- Ability to keep documentation accurate and up to date as required by the terms and conditions of this Contract as well as those requirements as identified by OSHA or other regulatory agencies.

(The following criteria will be applicable to smaller projects with less complex safety issues.)

- 3 years verifiable applied safety and health experience in the construction industry or 3 years verifiable applied safety and health experience in the specialty of the Contract.
- Ability to demonstrate adequate safety knowledge of OSHA 1926 and 1910 standards.
- Ability to explain how to effectively implement a safety program for this project.

- Ability to explain how to manage injuries/illnesses as well as accident prevention.
- Ability to keep documentation accurate and up to date as required by the terms and conditions of this Contract, as well as those requirements as identified by OSHA or other regulatory agencies.

NOTE: This is the minimum criteria for the (qualification and responsibilities) Contractor S&H Representative to meet at the time of pre-approval (pre-mobilization) by Fluor Fernald. The Contractor shall comply with any other requirements either contractually or required by OSHA and other regulatory agencies.

B 2.2.2 Contractor Industrial Hygiene Representative Responsibilities and Qualifications

This section describes the requirements for personnel used to perform Industrial Hygiene associated work. This person can be the contractor's Site Safety Representative if all of the following qualifications are met:

(Note: This qualified person may train other personnel to perform monitoring as long as they ensure monitoring/sampling is done accurately when the task is performed.)

Three (3) years (35% of time) verifiable experience in the field of industrial hygiene comprehensive practice, or one (1) year field experience (Note: Experience in the field of industrial hygiene shall not include more than 1 year of dedicated asbestos work) and minimum certification as:

- a) an Industrial Hygienist in Training (IHIT) by the American Board of Industrial Hygiene (ABIH),
- b) an Associate Safety Professional (ASP) by the Board of Certified Safety Professionals (BCSP),
- c) a certified Occupational Health and Safety Technologist (OHST) by ABIH/BCSP, or
- d) a certified Construction Health and Safety Technologist (CHST) by ABIH/BCSP.

The IH representative can be an independent third party Industrial Hygiene consultant.

The qualifications of the person(s) developing, approving and performing any industrial hygiene monitoring/sampling shall be submitted to Fluor Fernald for approval prior to the person(s) performing any industrial hygiene monitoring/sampling.

ΔB 2.2.3 Daily Inspections

Daily inspections shall be documented in a bound hard cover journal. Entries will note the date and start and stop time, the person conducting the inspection and accompanying personnel, specific location(s) within the project being inspected, findings and mitigators. If a finding can not be mitigated, then record the interim measures taken and the Fluor Fernald personnel to whom the interim measures were reported. The daily inspection documentation shall be available for review and turned into Fluor Fernald at the end of the project.

(The Behavior Based Safety Criteria will be placed in Contracts having duration of 6 months or longer and more than 10 full-time craft employees. Any project that considers this criteria to not be applicable, should contact Fluor Fernald Manager of Safety & Health)

ΔB 2.3 Behavior Based Safety

The Contractor shall implement a Behavior Based Safety (BBS) Process which incorporates the following elements:

- FLUOR FERNALD will provide a one hour management overview, at the FEMP, to the Contractor's site and home office management within one month after Notice to Proceed. The objective of this overview is to gain management understanding and commitment.

- Contractor, at its option, may elect to use existing CONTRACTOR BBS Process and its salient features. Contractor will provide training to subcontractor. Subcontractor may elect to submit equivalent program. Subcontractor must already have a good traditional safety program, and the ability to coordinate and implement the process.
- Fluor Fernald and Contractor onsite management will jointly present a one and one half hour introduction to the Contractor's employees within 10 workdays after mobilization. Contractor management will participate in the presentation preparation. This presentation will emphasize Contractor management support of the process, the Contractor employee's ownership of the process, describe the process and how it works, describe the process benefits and promote acceptance. Contractor employees will be chosen to be observers, coaches (coaches are usually Foremen), and members of the steering committee;

Ratios for employee participation are as follows:

Observers: 1 Observer per 1 to 15 craft employees;
 2 Observers per 16 to 25 craft employees;
 3 Observers per 26 to 50 craft employees; and
 4 Observers per 51 to 100 craft employees.

Coaches: 1 Coach per 26 to 50 craft employees; and
 2 Coaches per 51 to 100 craft employees.

Steering Committee: 3 Members per 1 to 15 craft employees;
 4 Members per 16 to 25 craft employees;
 5 Members per 26 to 50 craft employees; and
 6 Members per 51 to 100 craft employees.

- Fluor Fernald will provide training for observers, coaches and steering committee members and lead the development of the critical behavior inventory. This training will teach the observers effective observation techniques and train the coaches and steering committee members in their responsibilities. The duration of this effort is:

Observers: 6 Hours

Coaches: 1 Hour

Steering Committee Members: 3 Hours (Excused after Critical Behavior Inventory Is Established)

- Observers will make two, 20 minute observations per week and complete observation data sheets. The observation sheets will be provided to Fluor Fernald.
- FLUOR FERNALD will use the observation sheets to analyze the data for trends and potential improvements. This information will be provided to the Contractor and the steering committee.
- The steering committee will meet monthly for up to two hours to discuss the barriers found during observations and to take proactive action to control the barriers.
- The Contractor will train new and replacement observers, coaches, and steering committee members after the initial training by Fluor Fernald. Fluor Fernald will provide the training outline.
- The Contractor shall submit prior to mobilization an established Behavior Based Safety Program for review by FLUOR FERNALD for use on this project, or a letter stating his intention to follow the FLUOR FERNALD program. To be accepted by FLUOR FERNALD, the program must be a process that:
 - Uses an observation process;
 - Tracts safe and at- risk behaviors;

- Has a documented, "No Name No Blame" approach; and
- Is an employee based program which includes a critical behavior inventory, documented management "buy-in", and training for all employees.

B 2.4 Monthly Manpower Report

The Contractor shall submit to Fluor Fernald by the fifth day of each month a manpower report. The report shall list the Contractor's name, **number of employees**, total work hours, number of injuries, and a brief description of the injury. Required information shall be reported for the Contractor and all of his subcontractor's who work at the FEMP during the previous calendar month.

B 2.5 Natural Occurrence (Weather)

Work will be suspended or delayed if adverse weather conditions are determined by Fluor Fernald.

When lightning is present, stop all work until 30 minutes after last lightning flash.

Any operations utilizing drill rigs, a personnel working on ladders, aerial lifts, or on unprotected heights will be suspended if sustained wind velocity reaches 25 mph or gust equal to or exceeding 35 mph. The contractor shall contact Fluor Fernald prior to restarting work. Cost of work stoppage for adverse weather conditions shall be borne by the Contractor.

Δ B 2.6 Fluor Fernald Permits

Fluor Fernald permits required for this Contract are shown on the EHS & TRM, Part 8 A. The Contractor is responsible for requesting required permits prior to starting a task. Permits are obtained through Fluor Fernald.

Ten working days notice is required to obtain a Permit. Work requiring a permit shall not be started before permits are obtained.

The Contractor shall cooperate in obtaining permits by providing work descriptions and other pertinent information as requested.

Work Permit - This permit is required prior to the start of any work. This permit gives general information and lists the other permits required.

Open Flame and Welding Permit - This permit is required for any flame cutting, open flames, welding, grinding, brazing, and other forms of hot work.

Penetration Permit - This permit is required to delineate any unknown hazards or conditions before the penetration starts. If the project work scope involves penetrating/excavating the surrounding earth, roof, floors, or walls of the facility, a Fluor Fernald permit is required. The Contractor on the permit form shall ensure that any hazard is clearly marked and communicated to the workers involved.

Radiological Work Permit - This permit is required to inform workers of area radiological conditions and entry/exit requirements. (reference C 2.6).

Service Interruption Permit - This permit is required prior to the closing of any roadway, sidewalk, fire exit, electrical system, interruption of utility, telephone, fire protection system, or alarm system. The permit shall specify what will be impacted and what controls are required.

Asbestos Permit - This permit is required for any Class I, II, or III asbestos work performed at the FEMP, and for Class IV asbestos work performed inside a Class I, II, or III asbestos regulated area.

Confined Space Evaluation/Permit - This permit is required prior to any entry into a confined space.

Chemical Hazardous Material Work Permit - This permit is required for work with hazardous chemicals or materials.

Scaffold Inspection Checklist/Access Permit - for access to a scaffold.

Roof Access Permit - for activities that require access to a building or an elevated structure.

ΔB 2.7 Required Safety Meetings/Briefings

Prior to starting work on the project, each Contract employee shall attend a pre-work safety meeting presented by the Contractor to review the PSHSP.

The Contractor and his subcontractors shall hold a 30-minute tool box safety meeting on Monday of each week to reinforce safety and to discuss a Contractor developed safety topic related to the project. To supplement the Contractor's safety topics, Fluor Fernald has available to the Contractor safety bulletins and safety videos for use in these meetings. A record of attendance and topics covered shall be maintained by the Contractor and shall be made available to Fluor Fernald upon request.

Personnel performing work activities will receive from Contractor supervision, at a minimum, a safety briefing at the start of the day, after lunch and at the start of any new work activity. The briefing shall last approximately ten minutes and address hazards, mitigators and controls listed in the Contractor's Safe Work Plan, normal construction hazards, related actions to perform work safely, review of the applicable permit, and rigging plan requirements

The Contractor shall utilize Exhibit 11 (Contractor Safety Meeting/Briefing Report) for each safety meetings/briefing held, and document attendance on Exhibit 12. The meeting/briefing reports and attendance rosters shall be made available to Fluor Fernald upon request and submit at the project completion to Fluor Fernald for retention as a project record.

Employees shall conduct all safety meetings/briefings in a manner that allows active participation.

The Contractor personnel holding the briefing shall be able to conduct the briefing in a manner that the personnel attending the briefing will leave with a complete understanding of the material covered.

ΔB 2.8 Housekeeping

Areas where personnel are expected to walk shall be free of debris. Debris shall be removed as soon as possible or at the end of each shift. Daily documented inspections shall be made by the Contractor to ensure that housekeeping is maintained.

B 2.9 Dry Sweeping

Dry sweeping is not allowed in a radiological contamination area. Clean-up shall be done using vacuum cleaners or another non-airborne generating method approved by Fluor Fernald. (See Part 7 - Specification Section 11010, HEPA Filter Vacuum Requirements.)

B 2.10 Competent/Qualified Person Inspection

Where OSHA or this Contract requires inspections by a competent/qualified person, the inspections shall be documented by log or other means and maintained in a file in the Contractor's facilities at the site.

The Contractor shall submit and maintain a list of all known competent/qualified persons including their qualifications and certifications to Fluor Fernald 15 days prior to need.

The Contractor shall provide names and qualifications including certification of training, of the following competent/qualified persons to be used on this Contract:

- Fall Protection/Arrest Inspection and Training Person(s);
- Scaffold Inspector;
- Ladder Inspector;
- Fire Extinguisher Inspector;
- Excavation Inspector;
- *Crane/Motorized Equipment Inspector;
- Equipment Inspector;
- Rigging and Hoisting Inspector;
- Asbestos Worker;
- Lead Worker; and
- Penetration.

* When the qualified inspector is the Operating Engineer, Exhibit 6 will be sufficient documentation of qualification.

AB 2.11 Emergency Communications

A means to communicate (both send and receive) any emergency condition shall be available at all times during any work activity, in each work location. This may be one of the following:

- Site telephone ;
- Cellular phone furnished by the Contractor; and
- Site EMS (emergency message system).

To report emergencies on site by phone, dial 911 from a Cell Phone dial 648-6511. The Contractor shall post the correct number at the work site.

B 3.0 Occupational Health and Environmental Controls

B 3.1 Required Medical Monitoring

In accordance with 29 CFR 1926.65, "Hazardous Waste Operations and Emergency Response, Occupational Safety and Health Standards," all personnel assigned to a FEMP project and performing actual tasks are required to participate in the Fluor Fernald medical monitoring program.

If an outside medical resource is utilized to provide any portion of the monitoring program, the Contractor must receive prior written authorization from Fluor Fernald who shall have final authority for approval of external medical monitoring programs. Fluor Fernald Medical Services will provide minimum requirements protocols for prospective Contractors. Medical documentation showing that personnel meet minimum requirements shall be submitted in a sealed envelope marked "SENSITIVE" to the Fluor Fernald Medical Director, Mail Stop 30, with a copy of the transmittal to Fluor Fernald Project Document Control (ECDC). Submittals for conformance review by Fluor Fernald Medical Services shall be submitted at least eight working days prior to performing work. Medical approval must be received prior to performing work. Fluor Fernald will provide a list of pre-approved outside medical resources upon request.

Costs for Contractor personnel and for medical services performed by an outside medical resource shall be borne by the Contractor.

When medical monitoring services are provided by Fluor Fernald, Fluor Fernald bears the cost of medical services and the Contractor bears the cost of Contractor personnel wages, etc.

B 3.1.1 General Programs

Contractor employees will be required to undergo medical examinations as indicated in the EHS & TRM. The Contractor shall make employees available for such examinations.

Special medical (health hazard) monitoring requirements as prescribed by 29 CFR 1926, "Safety and Health Standards for Construction"; 29 CFR 1926.65, "Standards for Hazardous Waste Operations"; other federal, state or local statutes; and specific site Health and Safety Plans, may be fulfilled by sources outside of Fluor Fernald (e.g., lead and associated tests). Documentation including copies of medical examinations, and laboratory or other testing including biologic monitoring shall be provided to the Fluor Fernald Medical Director as described above. Biological monitoring requirements will be based upon the EHS & TRM.

The Contractor shall notify employees that no food or drink shall be consumed after 11pm prior to scheduled medical pre-assignment monitoring. Any employee related costs caused by employees eating or drinking after midnight shall be at the Contractor's expense.

Workers shall report any open wounds prior to entry into a controlled area. Workers with wounds that cannot be covered are restricted from working in radiological areas.

Use of Prescription Medicine

- Non-prescription medicine shall not be taken into controlled areas with the single exception of Glucose Tablets which may be taken by diabetics. Employees that need Glucose Tablets shall also register with the Fluor Fernald Medical Department.
- Prescription medicine will only be recognized by Fluor Fernald after the employee to whom the medicine is prescribed registers the medicine with the Fluor Fernald Medical Department.
- In the event of an emergency, an employee may take prescription medicine on the spot, regardless of the area in which he or she is standing. If medicine has been taken under these conditions, the employee should contact Fluor Fernald to determine what action, if any, will be required of the employee in regards to dosimetry.

Contractor employees receiving medical treatment with radio-pharmaceuticals will be restricted from entering controlled areas until such time as the radio-pharmaceutical has cleared sufficiently from his/her system to the point where frisking through a Personal contamination Monitor (PCM) at the control point does not trigger the alarms. Contractor employees that are to receive such treatment shall report to Fluor Fernald Medical Services beforehand so appropriate precautions can be taken. Employees that have received treatment with radio-pharmaceuticals shall report to Medical immediately upon returning to work.

Contractor employees that are pregnant should report to Fluor Fernald Medical. The employee will be informed of risks related to her pregnancy as a result of working on the Contract. The employee may "Declare Pregnancy" in accordance with 10 CFR 835. If declared, Fluor Fernald will ensure that the employee's thermoluminescent dosimeter (TLD) is read monthly (as opposed to quarterly). Fluor Fernald's administrative control limit is 50 mrem/month or 400 mrem/gestation period.

B 3.1.2 Medical Services

The EHS & TRM (Part 8 Section A) contains information on project specific hazards to which workers may be exposed. In addition, those introduced by the Contractor would be identified on Contractor supplied (MSDS).

Fluor Fernald Medical Department has the following Medical Monitoring Programs (including all of the laboratory, x-ray, and other testing ordinarily included in the Biologic Monitoring Program) in place for workers with potential exposures:

- Asbestos Worker;
- Hazardous Waste Worker (including radiation);

- Lead Worker (and other heavy metals); and
- Hearing Conservation.

Some workers are required by regulation to be entered into a long-term Health Surveillance Process Program; however, Fluor Fernald cannot provide nor be responsible for these longer term programs for Contractor employees. Other Standards of Care/Practice in Industrial Hygiene, Occupational Medicine, or Health Physics may also dictate special testing or programs for some workers. The Contractor is responsible

for these requirements. Additional surveillance or monitoring requirements may be generated from the Contractor's method of performing work or for materials used (i.e., such as indicated by hazardous components on MSDSs).

The Contractor shall complete **EXHIBIT 1** Access Request Form for each Contractor employee, which will be used to identify the job classification (e.g., Operating Engineer, Laborer, Clerk) for the employee. Fluor Fernald Medical will use this information to determine Fluor Fernald provided monitoring requirements. The durations for physicals listed in **EXHIBIT 2** Contractors Training and Medical Schedule and Locations, include any medical time necessary for this monitoring.

The Fluor Fernald Medical Director will be the final authority to determine the fitness of any worker or his/her suitability to perform work and be exposed to any of the various hazards at the FEMP.

B 3.1.3 Exit Physicals

Prior to leaving the site, personnel working on the Contract shall take an exit physical unless they have had a Fluor Fernald physical as follows:

- in the past six months for employees with General Site Worker training; or
- 1 year for all other employees.

B 3.2 Industrial Hygiene Exposure Monitoring/Sampling

B 3.2.1 Industrial Hygiene Equipment

The contractor is responsible for providing all industrial hygiene monitoring/sampling equipment. The equipment shall be maintained and calibrated in accordance with manufacture's specifications and good industrial hygiene practices.

B 3.2.2 Noise Exposure

The Contractor shall adhere to the current American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), which establish an eight-hour threshold limit value-time weighted average (TLV-TWA) of 85 decibels A-weighted (dBA), and a 3 dB doubling rate.

The Contractor shall institute feasible engineering or administrative controls when the noise exposure or noise dose of Contractor personnel is equal to or greater than an eight-hour TLV-TWA of 85 (dBA). Engineering or administrative controls shall be designed to reduce exposures to the TLVs for noise as specified by the ACGIH.

The Contractor shall provide hearing protection and enforce its use when the noise exposure or noise dose of Contractor personnel is equal to or greater than 85 dBA for any duration of time. The field attenuation afforded by the hearing protection shall be determined by applying OSHA's 50 percent safety factor to the Noise Reduction Rating (NRR); i.e., $[(NRR - 7)/2]$, or an equivalent de-rating method approved by Fluor Fernald. The field attenuation afforded by double hearing protection shall be determined by applying OSHA's 50 percent safety factor to the higher NRR and adding 5; i.e., $[(Higher\ NRR - 7)/2] + 5$.

The Contractor shall be responsible for obtaining employee noise exposure data, including noise exposure monitoring, to ensure worker safety. The Contractor shall bear the cost of noise exposure monitoring activities. The Contractor shall ensure that the results of any personal and general area noise exposure monitoring, performed by the Contractor or his subcontractor, are provided to Fluor Fernald.

The Contractor shall submit a Hearing Conservation Program Plan as required by 29 CFR 1910. 95, reference Part 6, Exhibit E for submittal requirements.

ΔB 3.2.3 Airborne Contaminants Exposure

The Contractor shall perform personal and general area air monitoring for contaminants other than radiological to ensure compliance with OSHA requirements, and for the purpose of accurately assessing airborne contaminant exposures to which Contractor, Fluor Fernald, or subcontractor employees may be exposed. Fluor Fernald will perform air monitoring for radiological contaminants. In cases where the contaminant presents both a radiological and chemical exposure hazard, the Contractor shall be responsible for evaluating the chemical constituent. The Contractor shall bear the cost of sampling and analysis for all chemical constituents.

Air Monitoring for Friable Asbestos contamination shall be performed by an individual certified by ODOH.

Sampling and analysis shall be performed using NIOSH or OSHA analytical methods. All air monitoring analysis provided by the Contractor shall be performed by an American Industrial Hygiene Association approved laboratory which was rated proficient in the last Proficiency Analytical Testing Program for the contaminant analysis being used.

The Contractor shall ensure that the accurate results of any personal and general area air monitoring (required by OSHA) performed by the Contractor or a subcontractor, are provided to Fluor Fernald.

When air monitoring is conducted in airborne radiological areas:

- The Contractor shall ensure that the laboratory which receives samples collected in airborne radiological areas maintains a Nuclear Regulatory Commission (NRC) or Agreement State License to accept low-level radioactive samples for analysis.
- The Contractor shall provide documentation of the laboratory's original NRC or Agreement State License before the collection of any samples.
- The license shall authorize the possession of the radio nuclides listed below in health protection samples, as laboratory standards and calibration sources, and for use in research and development activities. The laboratory's nuclear materials license shall allow, at a minimum, for the possession of the following amounts of radionuclides:

<u>Radionuclides</u>	<u>Microcuries</u>
U-238 and progeny	25 each
U-235 and progeny	25 each
Th-232 and progeny	25 each
Pu 238, 239, 240	5 total
Pu 241 and progeny	1 each
Sr-90	1
Cs-137	1
Tc-99	5

- The Contractor shall be responsible for complying with all applicable DOT regulations for radioactive samples to be shipped off site.

B 3.2.4 Noise and Airborne Contaminant Exposure Data/Results

B 3.2.4.1 Airborne Contaminants Exposure Data/Results

The Contractor shall be responsible for obtaining employee noise exposure data, including noise exposure monitoring, to ensure worker safety. The Contractor shall ensure that the accurate results of any personal noise exposure monitoring, performed by the Contractor or a subcontractor, are provided to Fluor Fernald. The Contractor shall bear the cost of noise exposure monitoring activities.

Personal

The Contractor shall submit to Fluor Fernald, on a monthly basis, or upon request by Fluor Fernald, a summary report containing the following information:

1. Worker's Name;
2. Badge Number and Social Security Number;
3. Date, Time, and Location Monitored;
4. Duration Monitored;
5. Activity Monitored;
6. Results;
7. Hearing Protection Worn; and
8. Supporting Data (upon request by Fluor Fernald): legible copies of raw data and calculations that support noise exposure monitoring results.

General Area

The Contractor shall submit to Fluor Fernald, on a monthly basis, or upon request by Fluor Fernald, a summary report containing the following information:

1. Date, Time, and Location Monitored;
2. Activity Monitored;
3. Results; and
4. Supporting Data (upon request by Fluor Fernald): legible copies of raw data and calculations that support noise exposure monitoring results.

Exposure data containing data covered by the Privacy Act is to be submitted to Fluor Fernald Medical Services and IH in an envelope marked 'Sensitive'. Additionally, a copy of the transmittal page is to be sent to Fluor Fernald ECDC.

B 3.2.4.2 Airborne Contaminants Exposure Data/Results

The Contractor shall ensure that the accurate results of any personal air monitoring/sampling (required by OSHA) performed by the Contractor or a subcontractor, are provided to Fluor Fernald. The Contractor shall bear the cost of air monitoring/ sampling and analysis.

Personal and general area air samples, collected during project work activities, shall be submitted to an approved laboratory in a timely manner. Samples collected on activities where it is anticipated that the OSHA PEL or the ACGIH TLV may be exceeded, shall be submitted to the laboratory for expedited analysis (i.e., twenty-four hour turnaround). All other samples collected during the project shall be submitted to the laboratory for routine analysis (i.e., five day turnaround by laboratory).

After sample results have been received from the laboratory, the raw data shall be forwarded to Fluor Daniel within twenty-four hours (one work day) after receipt from the laboratory. Raw data would include legible copies of air sample collection worksheets, chain of custodies, and analytical lab reports.

If any personal or general area air sample results indicate concentrations of any airborne contaminant exceeding an OSHA PEL or ACGIH TLV (whichever is most restrictive), the Contractor shall evaluate their current engineering controls and work practices to determine if any feasible changes can be made to lower airborne concentrations below the applicable exposure limit. If changes are identified, those changes shall be incorporated into the applicable Safe Work Plan(s).

In addition, the following shall be provided:

Personal

The Contractor shall submit to Fluor Fernald, on a monthly basis, or upon request by Fluor Fernald, a summary report of the air sampling data containing the following information:

1. Worker's Name;
2. Badge Number and Social Security Number;
3. Date, Time, and Location Sampled;
4. Activity Sampled;
5. Contaminant(s) Sampled;
6. Duration Sampled;
7. Results;
8. Appropriate OSHA PEL or ACGIH TLV; and
9. PPE Worn.

General Area

The Contractor shall submit to Fluor Fernald, on a monthly basis, or upon request by Fluor Fernald, a summary report of air sampling data containing the following information:

1. Date, Time, and Location Sampled;
2. Duration Sampled;
3. Activity Sampled;
4. Contaminant(s) Sampled;
5. Results; and
6. Appropriate OSHA PEL or ACGIH TLV.

Exposure data containing data covered by the Privacy Act is to be submitted to Fluor Fernald Medical Services and IH in an envelope marked 'Sensitive'. Additionally, a copy of the transmittal page is to be sent to Fluor Fernald ECDC.

ΛB 3.3 Asbestos in the Project Work Area

Any Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM) to be abated by or that will affect the Contractor is addressed in the Statement of Work Part 6.

The Contractor shall ensure his employees and his subcontractor employees are informed of the presence, location and quantity of ACM or PACM in the project work area.

The Contractor shall inform Fluor Fernald if he or one of his subcontractors discover suspected ACM or PACM in the project work area that was not originally identified by Fluor Fernald. The Contractor shall ensure that Fluor Fernald is notified within 24 hours of discovery.

ΛB 3.3.1 Asbestos Abatement

The Contractor shall make the required notifications and pay applicable fees to the Ohio Department of Health (ODOH) and provide a copy to Fluor Fernald for the Environmental Compliance Section records.

At least ten working days prior to issuing notification to the ODOH and Environmental Protection Agency, the Contractor shall meet with the Fluor Fernald Construction Manager (CM) Environmental Compliance Officer to ensure that the Contractor's Ohio Department of Health Notification and Fluor Fernald's Ohio EPA Notification are consistent.

The Contractor shall provide documentation of current certification as a licensed asbestos abatement Contractor by the ODOH. This documentation shall be provided as part of the Asbestos Abatement Work Plan (Section B 3.3.2).

The Contractor shall provide the names of all personnel assigned to the asbestos abatement project with the Asbestos Abatement Safe Work Plan.

Contractor personnel involved (including the asbestos abatement Project Designer) in the removal of more than 50 linear or square feet of friable ACM shall be asbestos trained and have a current State of Ohio Asbestos Certification. These certifications may be submitted with the Asbestos Abatement Safe Work Plan.

Note: Removal of non-friable AMC does not require certification by the ODOH.

The Contractor shall provide documentation that each worker performing asbestos abatement work is physically fit to perform asbestos work. This documentation shall be provided in the form of a physician's written opinion stating that each worker is medically fit to perform asbestos work. A physician's written opinion shall be included as part of the Asbestos Abatement Safe Work Plan when an outside source is used for medical monitoring. Reference section B 3.1, for requirements related to outside medical resources.

The Contractor shall provide documentation with the Asbestos Abatement Work Plan of respirator training, medical certification (physician's written opinion for respirator usage), and quantitative respirator fit-test.

Fluor Fernald will conduct daily inspections of the asbestos work area. If leaks are present in a negative pressure enclosure or there is visual evidence of asbestos contamination outside the asbestos regulated area, the asbestos abatement Contractor shall take immediate action to abate the hazard. *(Add the following for D&D Projects)*

See Specifications 2503-TS-(Put project Number Here) Sections 01516 and 07415 for inspection and clearance information.

Reference **EXHIBIT 3**, "Entering and Exiting the Decontamination Facility" for requirements for exiting the asbestos work area within a radiological area.

ΛB 3.3.2 Asbestos Abatement Safe Work Plan Requirements

The Contractor shall submit an Asbestos Abatement Safe Work Plan to Fluor Fernald for compliance review, for all asbestos abatement activities. The asbestos abatement safe work plan shall incorporate the requirements of OSHA, the U.S. EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAPS) and ODOH. Refer to Part 7; ACR-002 (Administrative Contractor Requirements) for Safe Work Plan format requirements. The Contractor is responsible for submittal of a work plan for Fluor Fernald compliance review for all asbestos abatement activities.

For asbestos abatement projects which involve more than 3 linear or square feet of friable ACM or more than 50 linear or square feet of non-friable ACM, the asbestos abatement work plan shall be prepared by an Asbestos Hazard Abatement Project Designer who is currently certified by the ODOH. The Asbestos Abatement Work Plan shall contain information listed in Appendix F of 1926.1101, under the paragraph heading "Planning the Project" as applicable for the scope of asbestos work. The following information as applicable shall also be included in the asbestos abatement safe work plan.

- The method which will be used to notify building occupants of the nature of the asbestos work;
- A description of the method(s) to be used to isolate the work area;
- Employee exposure assessments which have been completed for previous asbestos activities closely resembling the asbestos activities to be performed, which will be used to assign protective clothing and respiratory protection for asbestos work;
- A description of the method to be used to handle and remove waste material from the work site; and
- A description of procedures which will be used in the event of an emergency situation (i.e., medical emergency, breach of containment).

The asbestos abatement safe work plan shall provide the name of the individual who will serve as the competent person during asbestos work activities and address how the Contractor will:

- Ensure that an employee exposure assessment has been completed by the competent person prior to the start of asbestos work, or as soon as practical after the start of asbestos work. Protective clothing, respiratory protection, hygiene requirements and work practices shall be determined based on the results of the exposure assessment.
- Ensure that methods are used to prevent the migration of airborne asbestos from the asbestos regulated area. The requirements for air monitoring described in this paragraph applies to asbestos work where critical barriers are not used to control the migration of asbestos fibers from the work area. For all Class I jobs exceeding 25 linear or 10 square feet of ACM or PACM and for all Class I jobs or indoor Class II jobs (classes of asbestos work as defined by 29 CFR 1926.1101) where a negative exposure assessment can not be produced, when perimeter air monitoring is used to verify that isolation methods prevent the migration of airborne asbestos, the asbestos abatement Contractor shall ensure the results of such air monitoring are provided to Fluor Fernald no later than 24 hours from the end of the work shift represented by the monitoring.
- Ensure the competent person makes routine inspections of the asbestos job site to perform duties specified by OSHA. For Class I asbestos work, the competent person shall inspect the asbestos job site at least once during each work shift. For Class II and III asbestos work, the competent person shall inspect the asbestos job site at least once during the work shift during the first three days of each phase of the asbestos work, and at least once a week after that time.

The Contractor shall document daily asbestos inspections on Fluor Fernald's Asbestos Daily Job Site Inspection, Form FS-F-4151 **EXHIBIT 4**. The contractor shall maintain a file of the Daily Job Site inspections on site, make them available to Fluor Fernald and submit them to Fluor Fernald at the project completion for retention as a project record.

- Ensure that any incidents involving potential asbestos contamination (i.e., spills of asbestos outside the asbestos regulated area, the breach of a negative pressure enclosure) shall be abated immediately by the asbestos abatement Contractor. All incidents shall be reported to Fluor Fernald.
- Ensure that the asbestos regulated area is maintained until Fluor Fernald verifies that final clean-up of the work area is acceptable and signs off on the Fluor Fernald Asbestos Work Permit giving approval to remove asbestos barriers and warning signs.

ΔB 3.4 Lead Abatement

The Contractor shall submit a Written Lead Compliance Plan to Fluor Fernald 30 days prior to the start of lead abatement activities. A safe work plan may be used as the Written Lead Compliance Plan if all requirements for the Written Lead Compliance Plan are contained within the safe work plan. The plan shall contain all of the information listed in 29 CFR 1926(e)(2). Refer to Part 7; ACR-002 for Safe Work Plan Format Requirements.

If the Contractor is using a subcontractor for lead abatement, the Contractor shall submit the subcontractor's safe work plan.

The Contractor shall ensure that the competent person shall make frequent and regular inspections of lead work activities. Documentation of inspections by the competent person shall be in writing and be available to Fluor Fernald upon request.

Contractor lead workers and supervisors shall be trained in accordance with the requirements of 29 CFR 1926.62, reference 8, section E.

The Contractor shall provide the names of workers and documentation of lead worker training with the Written Lead Compliance Plan when training is provided by an outside source.

The Contractor shall provide documentation with the Written Lead Compliance Plan of respirator training, medical certification (physician's written opinion for respirator usage), and quantitative respirator fit-test (reference section B 3.1, for requirements related to outside medical resources).

The Contractor shall submit documentation of lead medical surveillance examination and laboratory and other biological monitoring results to Fluor Fernald for approval by Medical Services in accordance with the Submittal Register in Part 6.

The Contractor shall submit the names of lead abatement workers to Fluor Fernald Medical Services prior to the start of lead abatement work in order to ensure that initial baseline biological monitoring has been performed in accordance with the Submittal Register in Part 6.

B 3.5 Safety Showers/Eye Washes

When required by the EHS & TRM or product MSDS, a safety shower/eyewash shall be located within 100 feet of the hazard. All portable safety showers/eye washes furnished by the Contractor and brought onto site must comply with ANSI Z 358. For small quantities of hazardous materials, the Contractor may request a variance from Fluor Fernald. Approval of a variance shall be at the sole discretion of Fluor Fernald.

B 3.6 Sanitation

All drinking water locations within a radiologically controlled area shall be approved by Fluor Fernald.

Hand washing facilities shall be made available for personnel at lunchroom and toilet facilities.

B 3.7 Lead, Chromium or Cadmium Prohibitions

The use of solder or flux containing more than 0.2% lead or cadmium is prohibited. Paints or other products containing lead or chromium are not permitted onsite.

ΔB 3.8 Hazardous Communications Program:

The Contractor shall have a Written Hazardous Communication Program that incorporates the following site requirements. This program shall be located on site and available to Fluor Fernald upon request.

B 3.8.1 Chemical Approval

The Contractor shall submit to Fluor Fernald for compliance review a list of all chemicals anticipated to be used onsite by their employees and their subcontractor's employees. The list shall include the identity of the chemical, the manufacturer, the quantity to be brought onto the site, the application (i.e. lubricant, paint etc.) and the specific location (confined spaces, pads, etc.) where it will be used and stored. A legible copy of the most current MSDS for each chemical to be used shall accompany this list.

The list and associated MSDSs shall be submitted to Fluor Fernald at least ten (10) calendar days prior to mobilization for compliance review and approval by Fluor Fernald.

The Contractor or his subcontractor shall notify Fluor Fernald at least one (1) work day in advance of the chemical arrival on site. Chemicals in excess of project requirements shall not be brought onto the site.

The Contractor shall update the list each time additional or new chemicals are identified. A legible copy of the most current MSDS for each chemical used shall accompany any revisions. Revisions shall be formally transmitted to Fluor Fernald Construction Document Control with a FAX copy to Fluor Fernald for compliance review by Industrial Hygiene at least two (2) work days prior to the chemical arriving at the FEMP site.

The Contractor shall remove all his surplus Chemical from the site at project completion and provide written notification to Fluor Fernald that all Chemicals have been removed.

B 3.8.2 Chemical/Hazardous Material Work Permit

The contractor shall request a Chemical/Hazardous Material Work Permit ten (10) days prior to start of work requiring the permit. A Chemical Hazardous Material Work Permit shall be required for the following:

- Using material containing carcinogens;
- Work with biological hazards;
- Using organic solvents (mixing or applying quantities > 1 pint);
- Using acids or caustics (mixing or applying quantities > 1 pint);
- Work with mercury, lead, cadmium, arsenic or other toxic metal; and
- Work with material containing coal tar pitch, benzene, toluene diisocyanate (TDI), methylene bisphenyl isocyanate (MDI), Hexamethylene diisocyanate (HDI), polychlorinated biphenyls (PCBs), and other chemicals that require special control or monitoring to ensure action levels/limits are not exceeded (e.g., low permissible exposure limits (PELs), poor warning properties, ceiling limits, enclosed work areas.

B 3.8.3 Carcinogen Control

The Contractor shall comply with the requirements of the Fluor Fernald Carcinogen Control Program. This program establishes requirements for the identification, evaluation and control of occupational exposure to chemical carcinogens. The major elements of the Carcinogen Control Program are summarized in this section.

B 3.8.3.1 Carcinogens

Occupational carcinogens regulated by this program include:

- Those substances regulated as carcinogens by OSHA in 29 CFR 1926, Subpart D and 29 CFR 1926, Subpart Z;
- Those substances that have been evaluated by the International Agency for Research on Cancer and found to be a carcinogen or potential carcinogen (i.e., Groups 1,2A or 2B);
- Those substances listed by the U.S. National Toxicology Program as known to be carcinogenic or reasonably anticipated to be carcinogenic; and
- Those substances categorized as a confirmed human carcinogen or suspected human carcinogen (i.e., A1 or A2) by the ACGIH.

The requirements of this program apply to all regulated occupational carcinogens when the carcinogen is present in its pure form or in concentrations of 0.1 percent or greater in a mixture or product AND they are listed in one or more of the four references above. The requirements of this program are not applicable to

control the hazards associated with exposure to asbestos and radioactive materials (unless the radioactive material is comprised of one or more occupational carcinogens).

B 3.8.3.2 Purchase Requirements

Hazardous chemical approval must be obtained from Fluor Fernald Industrial Hygiene prior to the purchase of any regulated occupational carcinogens. Also, regulated occupational carcinogens shall be brought onto site only after a technical/engineering evaluation has been performed and documented by the Contractor, when required by Fluor Fernald Industrial Hygiene, which justifies that a feasible substitute is not available. The Contractor shall bear the costs associated with performing and documenting a technical/engineering evaluation.

B 3.8.3.3 Use Requirements Controls

If a large quantity of carcinogen will be handled for an extended period of time and there is the potential for worker exposure to the carcinogen, a Carcinogen Control Plan or equivalent will be required.

If smaller quantities of carcinogen will be handled, the duration of use will be for a short period of time, or there is very little potential for worker exposure, then use of the carcinogen can be addressed in a Safe Work Plan or by FEMP Work Permit supplemented by a Chemical/Hazardous Material Work Permit.

The Carcinogen Control Plan (or equivalent) shall be submitted to Fluor Fernald at least 15 calendar days prior to use and/or potential exposure, and it shall be reviewed and approved by Fluor Fernald Industrial Hygiene prior to use and/or potential exposure to the occupational carcinogen.

The Carcinogen Control Plan (or equivalent) will be required to address all or some of the following elements. The elements to be addressed and the level of detail will be determined by Fluor Fernald Industrial Hygiene using a graded approach based on the extent of potential occupational carcinogenic hazard:

Regulated Areas:

- Establish a regulated area where use of occupational carcinogens presents a potential for worker exposure. The characteristics of the regulated area should depend upon the quantity and physical characteristics of the materials to be used and the tasks to be performed.
- Ensure that access to the regulated area is controlled.
- Maintain a record of all entries into the regulated area.

Engineering Controls:

- Use engineering controls as the primary method for minimizing employee exposure.
- Provide details on the engineering controls to be utilized.
- Provide information on the steps that will be taken to ensure the effectiveness of the engineering controls.

Administrative / Personal Protective Equipment (PPE) Controls:

- Use administrative (work practice) controls and/or PPE to supplement engineering controls to minimize employee exposure.

- Provide details on the administrative and/or PPE controls to be utilized.
- Provide information on the steps that will be taken to ensure the effectiveness of the administrative and/or PPE controls.

Warning Signs / Labels:

- Post proper warning signs at all entrances to a regulated area which clearly indicate "Regulated Area" and the chemical hazard.

B 3.8.3.4 Training

Worker training/information for use of carcinogens shall be in compliance with information/training requirements established in 29 CFR 1926.59.

B 3.8.4 Hazard Communication Labeling

The contractor shall perform the following steps to ensure that all containers are properly labeled.

- Verify and maintain manufacturer-applied labels on containers of hazardous chemicals.

Note: Adequate labeling of hazardous chemical containers by the manufacturer consists of the identity of the chemical material, the name of the manufacturer, and hazard warnings that indicate physical and health hazards.

- Place National Fire Protection Association (NFPA) labels, in accordance with NFPA-704 "Standard System for the Identification of the Hazards of Materials for Emergency Response", on any unlabeled secondary containers of hazardous chemicals that will not be used up by the end of the current shift or that will be used by other employees. Include the identity of the hazardous chemical directly above the NFPA label.
- Assign NFPA 0 to 4 hazard ratings for health, fire, reactivity, and special warnings for NFPA-704 labels based on one or more of the following information sources:
 - labels of other containers of the same product;
 - information provided in the hazardous chemical MSDS;
 - NFPA guidelines.
- Ensure that containers of hazardous chemicals entering and leaving the area are labeled.

B 4.0 Personal Protective Equipment

PPE and anti-C requirements anticipated for general work activities are outlined in the EHS&TRM. Final requirements for a particular task will be specified in work permits or Safe Work Plans based on the existing radiological conditions and scope of work.

B 4.1 Head Protection, Eye Protection and Clothing

- Hard Hats

All hard hats shall be ANSI Z89.1 listed. The use of Cowboy style hard hats shall not be permitted. Hard hats are to be worn at all times within a defined construction area. "Soft-cap" welding is not permitted. Welding hoods are to be affixed to hard hats.

The Contractor shall maintain a set of hard hats designated for use in Contamination Areas only. Additional requirements for hard hat usage include the following:

- When an anti-C hood is required, hard hats will be worn over the hood;
- Storage of hard hats in posted Contamination Areas is allowed for hard hats worn over anti-C hoods. The hard hats shall be periodically monitored by Fluor Fernald
- If a hard hat storage area has not been established within the Contamination Area, hard hats shall be doffed (at the control point step-off pad) by individuals exiting these areas. The individual shall turn the hard hat over to Fluor Fernald for survey and release.
- Safety glasses

All eye protection shall comply with American Standards Institute (ANSI) Z87.1. Rigid side shields are required with safety glasses. Safety glasses are a minimum requirement for entrance to the controlled area of the site and for all construction areas.

- Clothing

All personnel working in the construction area shall wear, at a minimum, long pants and shirt covering the entire torso including the shoulders, steel-toed leather safety shoes, safety glasses and a hard hat.

B.4.2 Personal Protective Equipment furnished by Fluor Fernald and the Contractor:

Fluor Fernald Supplied Personal Protective Equipment for work in a radiologically contaminated areas.

- Launderable, fire retardant- nomex, contamination clothing (orange)
- Coveralls, underwear, and socks;
- Winter coats (as required by the weather conditions);
- Sweat pants and shirts (as required by the weather conditions);
- Latex Rubber Shoe Covers at the job site; and
- Launderable Cloth anti-Cs (hood, anti-C coveralls, shoe covers).
- Full Face Air Purifying Respirators (excluding cartridges and Powered APRs)

Contractor Supplied Personal Protective Equipment.

The Contractor shall supply the following PPE and ensure that all personnel wear the appropriate PPE at all times within the construction areas:

- Hard hats (ANSI Z 89.1)
- Safety glasses with rigid side shields which meet or exceed ANSI Z87.1.
- Leather steel-toed safety boots which meet or exceed ANSI Z 41 (Alternate footwear for specific work activities, such as liner installation, must be approved by Fluor Fernald prior to use.

B 4.3 Disposable Anti-Contamination Clothing

Disposable anti-Cs shall be supplied by the Contractor and shall meet the requirements of Part 7, ACR-005, Disposable Anti-Contamination Clothing, found in Contract. Specific anti-C requirements are defined in the EHS&TRM. Disposable anti-Cs cannot be reused.

A full set of disposable anti-Cs. shall consist of:

- Disposable Coveralls with hoods and shoe covers attached;
- Latex Rubber Shoe Covers (supplied by Fluor Fernald);
- Duct Taped Interfaces;
- Cotton Glove Liners;
- Nitrile Gloves; and
- Cotton gloves or Other Work Gloves.

A typical double set of anti-Cs includes an additional set of coveralls, hood and booties.

All cloth and consumable anti-Cs are for single use only (i.e., whenever a worker exits a Contamination Area).

B 4.4 Anti-Contamination Clothing

The five types of anti-C garments that could be specified for likely work conditions at the FEMP are listed below:

1. Lightweight, disposable: barrier to particulates [radiological and non-radiological, (i.e., asbestos, and lead)]. Lightweight disposables shall not be worn as an outer layer for protection from liquids or chemical hazards, or when wet conditions can be expected.

Lightweight disposables shall never be worn as a single layer of anti-Cs. In cases where these anti-Cs are needed, such as asbestos or thorium work, a double layer of anti-Cs is required.
2. Waterproof, disposable: used as a barrier for casual or indiscriminate contact with water or liquids (i.e., mist from spray, wet surfaces, dew, etc.). This waterproof coverall shall not be used when repeated or prolonged contact with water is expected. These are not for chemical protection.
3. Chemical protective, disposable or reusable: used as barrier to liquids, particulates, and specified chemicals. This type of anti-C shall be used for:
 - extremely wet conditions when repeated or prolonged contact with liquids can be expected;
 - disposable "rain suits" and Saranex aprons are other types of waterproof disposables that may be required.
 - contact with contaminated grease, oil or other similar types of surface contamination.

When double anti-Cs are required and water-proof or chemical protective type (Saranex) anti-Cs are necessary for a particular job, any type of anti-C garment can be worn as the inner layer of protection.

NOTE: Radio belts or other objects worn on the outside of the protective anti-"C's" (Saranex coated Tyvek chemical protective coveralls) can degrade or "strip" the Saranex coating from the Tyvek base reducing the protective properties of the garment. Care shall be taken to avoid these situations by placing radio belts (or other) as to avoid direct friction with the Saranex coating. If the object can be worn on the inside of the garment, this would be preferred. If it cannot, a method to consider is the placement of a barrier (duct tape or other appropriate material) between the object and the outer surface of the Saranex garment.

NOTE: Rubber shoe covers worn directly over chemical protective booties has had the same effect. RWP's and Safe Work Plans must account for this whenever Saranex coveralls are required and contact with liquids in the foot area is possible.

4. Fire retardant coveralls will be supplied by Fluor Fernald. When launderable fire retardant anti-Cs are worn in areas that are controlled for isotopes other than uranium (i.e., thorium, radium, or other), Fluor Fernald will survey the garments for release from those areas prior to sending to laundry. Decontamination using tape press may be necessary where feasible.

5. Launderable cloth anti-Cs will be supplied by Fluor Fernald. These anti-C's shall not be used as an outer or single layer of protection from liquids or chemical hazards, or when wet conditions can be expected. Cotton, cotton/polyester-blend, or nylon fabric types shall not be worn as a single layer of protection for heavy work activities, which require repeated, prolonged, or continuous contact with contaminated surfaces.

With the exception of rubber shoe covers and launderable welder coveralls, launderable anti-Cs shall not be worn as outer layer of protection in Contamination, High Contamination, or Airborne Radioactivity areas that are controlled for isotopes other than uranium (i.e., thorium, radium, or other).

B 4.5 Rubber Overshoes

For muddy Contamination Area work or work in Contamination Areas where liquids have accumulated, the Contractor must provide knee high over boots, waders, or PVC rubberized booties extending above the ankles in lieu of the rubber shoe covers. Storage of these items in the Contamination Area at the control point for subsequent reuse is encouraged. For reuse, the protective clothing must be worn on the outside of typical anti-Cs and the Contractor shall maintain the inside surfaces of these items below the removable contamination area limits.

B 4.6 Gloves

The specified glove types for radiological work are nitrile or neoprene. Outer cotton or leather work gloves are required for hands on work where physical hand protection from sharp or rough work surfaces or abrasion resistance is needed. Cotton liners may be worn with these glove types for comfort purposes, but are not considered as a layer of radiological protection. Other types of gloves may be required for physical hand protection and for protection from specified chemicals. All gloves used in Contamination Areas must be disposed of in appropriate waste containers and shall not be permitted to leave areas posted for contamination.

B 4.7 Respirator Requirements

Respiratory protection is required whenever the likelihood of airborne concentrations of chemical hazards (1) exceed one half the OSHA Permissible Exposure Limit (PEL) or ACGIH TLV, which ever is most restrictive; (2) exceed one half of any applicable short-term exposure limit; (3) as required by specific OSHA standards (i.e., asbestos, lead); (4) or as required by MSDSs for materials used.

Respiratory protection is required when airborne radioactivity concentrations are likely to exceed 10% of the applicable DAC or the workers exposure potential exceeds 4 DAC hours per week.

PAPRs, as a minimum, are required for all airborne generating activities in thorium contaminated areas.

Use of PAPRs in cold weather will be restricted in the following manner:

Below 32^o F all personnel must attend a briefing on use of PAPR's in cold weather, the briefing can be conducted during a regularly scheduled safety meeting.

When temperatures are between 15^o F and 0^o F, PAPR use is limited to 15 minutes.

Note: When the temperature is between 15^oF and 0^oF the employee can exit to a heated area without removal of the respirator.

When temperatures fall below 0^o F, PAPR use is prohibited.

For the purposes of radiological control, all respirators are required to have P-100 filter cartridges.

The radiological Protection Factors (PF) that apply to this project include the following:

- PF = 1000 for powered air-purifying respirator;
- PF = 50 for full-face air-purifying respirator; and
- PF = 1 for no respirator or half-mask respirators.

NOTE: If the Contractor desires the use of other types of respirators on the job beyond those listed, the Contractor shall contact Fluor Fernald to determine the respiratory protection factor of that respirator.

The contractor shall comply with the Fluor Fernald respiratory protection program which meets the requirements of all regulatory requirements. Salient features of this program are:

All personnel requiring a respirator shall be trained by Fluor Fernald.

- Fluor Fernald shall supply the following respirators:
- North Model 7700 Silicone Half-mask Air Purifying (Small, Medium, Large);
- MSA Comfo II Silicone Half Mask Air Purifying (Small, Medium, or Large);
- MSA Silicone Ultra Twin Full-Face (Small, Medium, or Large); and

MSA Silicone Ultra Vue Full-Face (Small, Medium, or Large).

Fluor Fernald will provide the required medical monitoring. See Part 8 Section B 3.1, Required Medical Monitoring.

- Quantitative fit-testing will be provided by Fluor Fernald. If Fluor Fernald fit testing is not used, the contractor shall submit fit test records showing fit factors of minimum of 500 for full-face air purifying respirators and 100 for half-mask air purifying respirators.
- Cleaning and repair of respirators, except PAPR adaptors and appurtenances, shall be the responsibility of Fluor Fernald.
- Fluor Fernald will supply clean reconditioned and inspected respirators, as required, at the jobsite.
- Respirator issuance will be by Fluor Fernald at the access control point. Contractor personnel will be required to check out the respirator individually by presenting their badge and having the issuer record information in the log.
- Chemical hazard work respirators and those used for asbestos work (face piece and cartridges) shall be required to be recycled each time they are removed when leaving the work area. Respirators being used for asbestos work shall be bagged and an asbestos warning label affixed before they are placed in the recycling receptacle. Approval by the Fluor Fernald shall be required for reuse of cartridges other than particulate cartridges.
- At the end of the shift or job, whichever is sooner, respirators shall be separated from their cartridges and the cartridges discarded. Respirators shall be placed into a Fluor Fernald furnished green and white recycling receptacle. The same respirator shall not be used for more than one shift.
- A respirator or cartridge may be re-used by an individual during a work shift if it is not used for asbestos or chemical work and is kept clean and radiologically uncontaminated. At the end of the workday, respirators must be turned into Fluor Fernald. If respirator or cartridge reuse is desired, see **EXHIBIT "5"**.
- Breathing air shall be approved by Fluor Fernald prior to installation on site.

- Fluor Fernald will determine the minimum respiratory protection requirements.
- Fluor Fernald shall approve any exemptions from the Fluor Fernald Respiratory Protection Program.

The Contractor is responsible for the following:

- Properly maintain all respirator equipment.
- Supply all cartridges
- When Powered Air Purifying Respirators (PAPR's) are required, supply adapters for the Fluor Fernald supplied air purifying respirators, necessary support equipment (battery chargers, charging racks, belts, and cleaner/sanitizer) and all other appurtenances.
- The Contractor shall complete a daily Fluor Fernald respirator request form to obtain respirators for the next day's use. Requirements for weekends must be included in the request made on Thursday.
- When airline respirators are required, supply the breathing air, adapters for the Fluor Fernald supplied air purifying respirators, necessary support equipment and all other appurtenances.

B 4.8 Back Injury Prevention

The Contractor shall have a Back Injury Prevention Program that ensures that the Contractor's employees lift within their capabilities and incorporates the following:

- When employees lift objects weighing 35-50 pounds, evaluate the task or activity to determine if alternate methods should be used.
- When Employees lift object weighing greater than 50 pounds, ensure use of one of the following controls to start or complete a job.
 1. Engineer the lift out of the task through work planning.
 2. Use a mechanical device.
 3. Use two or more people.

ΔB 5.0 Fire Protection

B 5.1 Temporary Enclosures

Temporary enclosures constructed for any reason shall meet the following fire protection requirements:

- Temporary enclosures shall not be supported by automatic sprinkler piping or other fire protection equipment;
- Enclosure supporting structure shall be constructed of noncombustible or approved fire retardant materials;
- The coverings for walls, floors, and ceilings shall be noncombustible or approved fire retardant materials;
- The enclosure and an area of ten feet around the enclosure shall be posted as "no smoking" areas;
- Combustible materials shall not be stored in the area surrounding temporary enclosures;

- Combustible materials used within the operation of an enclosure shall be removed immediately after use or transported to and stored in approved metal containers with lids. All combustible waste shall be removed from the enclosure after each work shift.
- Exits shall be kept unobstructed at all times;
- Hot work shall not be permitted within an enclosure, without an approved Open Flame and Welding Permit; and
- Portable fire extinguishers shall be provided and positioned for easy visibility and access.

B 5.2 Flammable/Combustible Liquids Use & Storage

The Contractor shall follow the requirements of NFPA 30 - The Flammable & Combustible Liquids Code (the most recent edition), and OSHA 29 CFR 1910.106 - Flammable & Combustible Liquids when utilizing or storing flammable or combustible liquids at the FEMP.

The Contractor shall notify Fluor Fernald at least two working days prior to bringing fuel storage tanks (See Part 4 Special Terms and Conditions - Notification of Fuel Storage Tanks), on site.

B 5.3 Portable Fire Extinguishers

Contractors shall provide FM Approved or UL Listed portable fire extinguisher(s) for all work, storage, and trailer locations in accordance with (OSHA 1926 Subpart F). Ordinary hazard areas shall require a 2A-20BC rated extinguisher within 50 feet of all work task area(s). NFPA 10 shall be followed for all fire extinguisher requirements. Inspections shall be in accordance with ACR: 003 referenced in Part 7.

B 5.4 Temporary Heating

The Contractor shall provide all temporary heat and heating equipment required for performance of the Contract. Fuel heating systems require 24 hour coverage by the Contractor.

B 5.5 Combustible Materials in Utility Isolated Buildings

The Contractor shall not store or leave overnight, combustible materials in buildings where fire protection systems have been isolated.

ΔB 6.0 Hoisting and Rigging Requirements

B 6.1 General

The Contractor shall comply with the following Hoisting and Rigging requirements, taken from the requirements of Fluor Fernald Hoisting and Rigging Manual, RM-0045, Section 15, which will be issued to the Contractor after award.

All personnel engaged in or supervising rigging activities shall attend an eight hour Pre-Work Rigging Orientation that will cover safe rigging practices and site specific requirements.

Fluor Fernald will work directly with the Contractor's rigging supervisor and rigger during the initial rigging activities to ensure compliance with project requirements and safe rigging practices.

Fluor Fernald will have oversight over critical lifts.

The Contractor shall prepare a lift plan prior to making any lift. Plans for lifts over 2,000 lbs. shall be submitted for compliance review to Fluor Fernald.

Lift Plan - A lift plan shall be required for, but not be limited to, lifts utilizing hoists, overhead cranes, earth moving equipment, and mobile cranes. The Contractor shall use Fluor Fernald form FS-F-3943 for Hoists and Overhead Cranes and form FS-F-3944 for Mobile Cranes, forklifts (below the forks), and earth moving equipment. These forms will be made available upon request.

Critical Lift Package For determinations and requirements, refer to Chapter 15 of the Fluor Fernald Hoisting & Rigging Manual, RM-0045. Some lifts that may be considered critical include: multiple crane lifts, crane usage at 80% or above the rated load chart capacity at any configuration. Fluor Fernald reserves the right to review and determine if any lift may be classified as critical.

B 6.2 Rigger Qualifications

Fluor Fernald reserves the right to observe and/or interview riggers as the basis for approving or disapproving rigging qualifications. The Contractor shall submit a completed Rigger Qualification Form at least two days prior to site access for Fluor Fernald using form FS-F-4708. This form will be made available to the Contractor at mobilization, and require that the Contractor verify qualifications and allow for verification by the union representative.

Form FS-F-4708 shall be submitted prior to performing any rigging activities.

a. A Rigger shall have a minimum of 40 hours of rigging training, meeting the requirements of Fluor Fernald, this manual, and the following basic factors with which a rigger should be familiar:

- Stability (equipment).
- Operating characteristics of equipment.
- Environmental hazards-weather.
- Electrical hazards.
- Traveling with load/load control.
- Lifting personnel.
- Rigging equipment selection.
- Maintenance/storage of slings and rigging components.
- Assembly and disassembly.
- Applicable standards and regulations.
- Critical lifts.
- Safety features of equipment.
- Terminology and definitions.
- Ropes and reeving.
- Personal protective equipment.
- Below-the-hook lifting devices.
- D/d ratio.
- Sling types and application.
- Lift plan interpretation.
- Daily inspection techniques for various type of rigging equipment.
- Safe attachment of slings for straight lifts, basket hitches, choker hitches, and multiple-leg bridle assemblies.
- Load sling adjustments to keep the center of gravity in line of hook pull.
- Proper signaling for rigging operations.
- Determining change in the safe working load capacity of slings as the configuration or angular stresses change.
- Determining the weight and center of gravity of an object to be hoisted.
- Testing and inspection of rigging equipment in accordance with recognized industry standards.
- Jacking and rolling.
- Inclined-plane movement of loads.
- Rigging design.

- Snatch block and winch system.
- Lifting angles and compound loading.
- Load control requirements.
- Multiple-hitch systems.
- Load turning.
- Lifting operations involving multiple cranes.
- Load dynamics.

b. Have had 2000 hours of verified experience.

T Verifiable experience is defined as, working on a project which required as part of the persons work scope, hands on rigging. i.e. former employers names and phone numbers, project type, and or union hall records.

B 6.3 Inspection

Prior to site use, mobile cranes and boom trucks shall be inspected by Fluor Fernald. No equipment will be permitted to start work until inspected by a Fluor Fernald crane inspector and documentation of required annual inspection and of maintenance records are presented to Fluor Fernald by the Contractor.

Copies of annual inspection documentation should be presented to Fluor Fernald 24 hours prior to delivery of any mobile cranes or boom trucks.

The Contractor shall maintain a record of daily inspections of mobile cranes or boom trucks.

Daily and monthly inspection records shall be maintained on site and made available for review by Fluor Fernald. Inspection records shall be submitted Fluor Fernald at project completion for retention as a project record.

The Contractor may choose to utilize Fluor Fernald form FS-F- 2965 "Mobile & Hydraulic Crane Safety Inspection", to document inspections. This form will be made available upon request.

Fluor Fernald will periodically check the inspection reports that will be kept on file by the Contractor as outlined in this section.

The monthly inspection of mobile cranes shall be documented by the operator or other designated personnel. The Contractor may choose to utilize Fluor Fernald FS-F-2965 "Mobile & Hydraulic Crane Safety Inspection " to document inspections. This form will be made available upon request.

The Contractor shall record daily inspections of hoists. Any deficiencies found during the daily inspections shall be noted on the checklist. If a deficient condition, noted during the hoist daily inspections, constitutes a safety hazard and if the unit requires more detailed inspection prior to use, the hoist will be taken out of service until the deficiency is corrected. The Contractor may choose to utilize Fluor Fernald form FS-F-2423, "Fluor Fernald Record of Daily Hoist Check." This form will be made available upon request.

B 6.4 Lifting Personnel

If it is determined that there is no practical, alternative way to lift a person other than by crane or forklift, the Contractor shall identify such in his work plan. Fluor Fernald shall review and approve the Contractor's decision prior to the lift being executed.

B 6.5 Load Moment Indicator

When a crane is equipped with a computer system, such as a Load Moment Indicator (LMI), the computer shall not be shut off nor the override engaged. All warning lights and alarms must be operational.

B 6.6 Overhead Electrical Condition

Overhead conductors shall be considered energized. Twenty-Four (24) hours before the commencement of operation near electrical conductors, the Contractor shall notify Fluor Fernald. Fluor Fernald will arrange for the system to be de-energized and perform lockout/tagout of the lines in accordance with Fluor Fernald Lockout/Tagout Procedure OP-0004 (Hazardous Energy and Material Control Procedure).

Equipment in transit with extendable parts shall be fully lowered and maintain a clearance of 5 feet.

B 6.7 Rigging Gear

Only hooks with latches to bridge the throat opening shall be used.

Proof testing of slings applies to all types of sling assemblies (see section 15.7.2) except, synthetic slings used for non-critical lifts. (DOE OS&H Interpretation D97-08-002) slings shall have a manufacturer's tag with the following minimum information:

- Manufacturer's name;
- Wire rope construction; and
- Vertical working load limit.

Below-the-hook lifting devices fabricated for use on site shall be fabricated per engineering documents that have been reviewed and approved by a Registered Professional Engineer (RPE) and shall be designed to meet ANSI/ASME B30.20 allowable design stresses.

The Contractor shall perform periodic inspections of structural and mechanical below-the-hook lifting devices. The Contractor may choose to utilize Fluor Fernald form FS-F-2478, "Fluor Fernald Lifting Devices, Grabs, & Tongs Checklist." This form will be made available upon request.

All below-the-hook-lifting devices purchased or rented for use at Fluor Fernald shall be supplied with a manufacturer's certificate of testing.

B 6.8 Rigging from Forklifts

If it is required to use rigging equipment (e.g., wire rope slings, synthetic slings) to lift with the forks of the forklift, the following requirements must be followed:

- Lifting with only one fork shall not be performed without an engineering analysis by a registered PE and approval by Fluor Fernald;
- The manufacturer's recommendations shall not be exceeded.

If a lift is classified as critical, a PIC shall be appointed and a critical lift plan prepared and processed by the Contractor and approved by Fluor Fernald.

B 7.0 Tools - Hand and Power**ΔB 7.1 Inspection of Hand and Power Tools Prior to Site Access**

Tools will be subject to inspection by Fluor Fernald upon arrival at the site. Inspection shall include but not be limited to the following: OSHA compliance, damage that could render the item inoperable, and oil, hydraulic or other fluid leaks. Tools may be radiologically checked if that there is a possibility they were used on other radiologically contaminated sites. The Contractor shall notify Fluor Fernald at least two working days prior to bringing hand and power tools on site.

Power tools shall have guards and other apparatus in accordance with the manufacturer's data. The Contractor shall be prepared to supply this data in case of questions arising during the inspection.

Note: the user prior to use shall inspect Hand tools.

B 7.2 Power Tools

The Contractor shall provide a copy of the manufacturer's instruction for operating the equipment with each piece of equipment to be used and ensure that employee's using the equipment read and understand those instructions.

Defective tools shall be tagged "DO NOT USE" and removed from the jobsite by the end of the shift.

The Contractor shall perform an document a quarterly inspection of all power tool, the Contractor shall maintain the documentation on site, make available to Fluor Fernald upon request and submit the documentation at project completion for retention as a project record.

Note: the user prior to use shall inspect Power tools.

B 7.3 Powder Activated Tools

The Contractor shall submit a written request to use powder-activated tools to Fluor Fernald prior to use. Fluor Fernald reserves the right to disapprove usage at the FEMP.

B 7.4 Hand-Arm Vibration Control

Activities where powered or vibrating hand tools (i.e., chain saws, chipping hammers, grinders, jack hammers, needle guns, etc.) are used for more than two hours on any one day, or using a vibrating tool for more than one hour per day on two or more consecutive days require the following controls:

- use full finger anti-vibration gloves
- a ten minute break from the vibration source for each hour of exposure to hand-arm vibration.
- The Contractor shall ensure workers are provided with sufficient clothing to keep warm. It is important that workers' hands be kept warm and dry when handling vibrating tools.
- When purchasing or renting vibrating tools, the Contractor should procure, when practical, tools, which have vibration dampening and/or vibration isolation, designed into the tool.

ΔB 8.0 Burning, Welding and Open Flame Work

In addition to OSHA requirements, Fluor Fernald requirements are:

- Open Flame and Welding Permits are required for open flames, flame cutting, welding, grinding, brazing and other forms of hot work. A completed FEMP Flame and Welding Permit is required for each shift. (section B 2.6, Fluor Fernald Permits).
- A continuous fire watch shall be required during, and for a period of at least 30 minutes after, completion of any cutting, welding or burning operation.
- Personnel (including helpers when assisting) performing flame cutting, welding, burning, and grinding shall wear fire retardant coveralls furnished by Fluor Fernald. Additionally, leathers or similar protection

shall be used any time that hot debris is likely to contact clothing. Fire retardant clothing shall not be considered protection from burning slag or other hot debris.

- Combustible materials shall be kept a safe distance (35ft. minimum) from the work being performed. Material and equipment that cannot be moved, building surfaces and openings in ducts, tanks or other confined spaces within 20 feet or below the work must be covered with fire resistant welding blankets.
- Flame cutting or welding on small tanks, piping or containers which cannot be entered, require cleaning, purging and atmospheric testing before starting work.
- The Contractor shall discuss in his Safe Work Plan how he will perform work on piping and tanks used for combustible liquids or gases and require intermittent testing during the work.
- Oxygen-fuel gas systems shall be equipped with listed and approved back flow valves and pressure-relief devices.

B 9.0 Electrical

B 9.1 Ground Fault Circuit Interrupters

Ground Fault Circuit Interrupters (GFCI) shall be furnished by the Contractor on all 15 and 20 ampere, 120 volt circuits at each work location, unless specifically exempted by OSHA. The GFCI shall be placed at the source of the electrical service to protect both the cord and the devices connected. Assured grounding programs are not acceptable.

B 9.2 Flexible Cord Sets

Use of flexible cord sets with repairs to the cord is not permitted. Cord sets are to be routed overhead where possible to avoid damage. All flexible cords shall be UL listed industrial cords and rated for hard usage and damp locations. Cords rated at 120 volts shall be purchased assemblies

B 9.3 Minimum Distance for Overhead Electrical Work

Only allow qualified personnel to work closer to energized overhead lines when either de-energizing introduces additional or increased hazard or de-energizing is not feasible and the line is 480-volt (or less) and usually considered insulated (e.g., double jacketed cables or quad-plex or tri-plex).

Unqualified workers are not to work within, or have conductive material within, the following:

- 10 feet, for voltage to ground 50kv or below.
- 10 feet plus 4 inches for every 10kv over 50 kv.

B 10.0 Scaffold and Ladder Tagging and Inspection

A competent person shall inspect scaffolding daily before use, approve initial use and inspect scaffolding following any occurrence that could affect structural integrity. Inspections shall be documented on Fluor Fernald form FS-F-5077, "Scaffold Inspection Checklist/Users Acknowledgment Sheet," and attached to the scaffold in an obvious location.

The Checklist shall be maintained on site, made available to Fluor Fernald upon request and submitted at project completion for retention as a project record.

Manufacturer's instructions for safe scaffold erection and use must be available for employee reference.

Scaffolds over 50 feet high must be pre-approved by the responsible Contractor manager.

The Contractor shall have a written scaffold-tagging program requiring the competent person to inspect and tag scaffolding daily prior to use. Three Scaffold Tags shall be used addressing the following scaffold configurations:

- Incomplete Scaffold- 100% tie off required;
- Complete Scaffold-follow standard use procedures; and
- Warning Do Not Use.

Ladders shall be inspected and tagged as required by ACR-004 reference Part 7.

For Fall Protection refer to Section B 20.0.

The Contractor shall provide scaffold use training in accordance with the OSHA requirements. Training shall be documented and retained in jobsite files and submit at the end of the project for retention as a project record.

AB 11.0 Aerial Lifts, Manlifts, Scissors Lifts, Etc

Prior to use refer to section B 12.0 for Equipment Operator Verification and Equipment Inspection requirements.

A full body harness and lanyard shall be required while working from self-propelled, extension boom lifts. Tie-off is not required when working from scissors lifts type platforms where fall protection is provided by a top rail, mid-rail and toe-board. These devices shall not be used as a means of access and egress to other elevated workstations without prior approval of Fluor Fernald.

When using scissors lifts or boom lifts for material handling, the load should always be evenly distributed on the platform area, handrails shall not be utilized for lowering or raising material.

AB 12.0 Motorized Vehicles and Mechanized Equipment

Motor vehicles designed for transportation on public roads shall not be allowed to run unattended.

Barricade the swing radius of equipment to keep employees 6 feet from equipment having any portion of the equipment that will swing beyond the outer edge of the continuous track (e.g., counter-balance of a track-hoe).

When using continuous-tracked equipment, place protection on paved road surfaces to prevent damage.

Ensure that equipment operated on public roadways meets the requirements of the local governing body.

During refueling of equipment:

- Shut off and cool down the engine.
- Have a fire extinguisher present.

Remove materials classified as flammable and explosive before using earth-moving equipment in any operating area.

Do not allow personnel to occupy excavators or loader buckets during the operation of the equipment

B 12.1 Equipment Inspection Prior to Site Access

Equipment will be subject to inspection by Fluor Fernald upon arrival at the site. Inspection shall include but not be limited to the following: OSHA compliance, damage that could render the item inoperable, and oil, hydraulic or other fluid leaks. Equipment may be radiologically checked if that there is a possibility that it was

used on other radiologically contaminated sites. The Contractor shall notify Fluor Fernald at least two working days prior to bringing equipment on site.

When OSHA requires equipment inspection by a qualified person, the certification of inspection must accompany the equipment.

B 12.2 Equipment Operator

Before an operator uses equipment on site, the Contractor shall furnish Fluor Fernald with a signed copy of the Operator Verification Form (**EXHIBIT 6**) for the type of equipment to be operated, at least five working days before starting work. Acceptable verifications can be from the equipment manufacturer, a certified trainer, the Operating Engineers Union or the employer.

All material handling equipment and mobile powered personnel lifts shall have the factory approved operator/safety manual for use by the operator and personnel. This manual shall either be with the equipment at the time of use or be on file, available for reference when requested. The safety requirements within the manual shall be followed.

Prior to beginning work on site, the operator shall become familiar with the specific equipment to be operated by reviewing the manufacturer's operating manual and by physically operating the equipment. The Contractor shall document this familiarization and retain a copy in the jobsite files.

The Contractor's qualified person shall perform and document a daily inspection on each piece of motorized equipment prior to its use. The Contractor shall maintain these inspection records on site, make them available to Fluor Fernald and submit them at project completion for retention as a project record.

B 12.3 Back-up Alarms

All self-propelled equipment and vehicles shall be equipped with an automatic electronic audible reverse signal alarm.

B 12.4 Seat Belts

Seat belts are required for all contractor vehicular (including gas or electric powered carts) occupants. Occupants are required to use seat belts when vehicles are in operation.

B 12.5 Spotter

B 12.5.1 The use of a spotter is required when:

- The equipment operator's vision is obstructed in the direction the equipment is moving.

(Note: The operator's vision may be obstructed by the design of the equipment (track hoes, dump truck) or by movement of a load (fork truck, lifting with boom of track hoe); and
- The equipment is operated in a tight configuration.

Note: Tight configuration are considered to be areas where clearance between the equipment and an obstruction (telephone or de-energized overhead lines, buildings) is less than 3 feet.

B 12.5.2 The spotter must:

- Be positioned so as to be visually seen by the operator;
- Wear an orange vest for ease of operator reference and visibility;
- Monitor the clearance between the equipment and obstruction; and

- Ensure hand signals or radio communications between the spotter and operator are understood and agreed to.

B 12.6 Backhoes:

If walking or straddling is necessary, follow approved work plans.

Do not use backhoes for any operations exceeding the manufacturer's recommendations or the capability of the equipment (e.g., unloading a truck with a backhoe boom instead of a crane).

B 12.7 Trucks with Dumping Beds:

If the cab of a dump truck is equipped with vertical and horizontal protection (designed to withstand the impact of the material being loaded), personnel may remain in the cab of the dump truck during the loading of the dump bed with materials less than 3 " in diameter.

During the loading of material greater than 3 inches in diameter, all personnel must:

- Leave the truck.
- Wear all required site-specific safety equipment (e.g., hard hats and safety glasses) when they are outside the vehicle.

During the dumping of material all personnel must:

- Perform dumping operations on stable, compacted areas.
- When dumping a load, follow the manufacturer's recommendation on ground conditions.

NOTE: These recommendations give the "acceptable" slope of the terrain when operating the dump bed.

- Prior to dumping loads on the elevated edges of "new fill" areas, erect a warning barricade or use a designated person as a ground guide to prevent the dump truck from entering the area of unstable material.
- Before operating a dump truck with the bed in the "up" position, verify and check for overhead clearances before and during forward and backward movements
- Use a positive bed lock when any work is required under the dumping bed when the bed is an "up" position.

B 12.8 Electric Carts, ATV's (All-Terrain Vehicles) and UV's (Utility Vehicles):

When the contractor brings an electric cart on site for use the following shall apply:

- A flashing yellow caution light shall be mounted on top;
- The Cart shall have an audible back-up alarm;
- Limit passengers to the equipped seating;
- Do not lap ride or ride on side board; and
- Engage the parking break prior to exiting the cart.

Lights on electric carts shall be turned on between sunset and sunrise.

When the contractor brings either a ATV's or UV's on site for use the following shall apply:

- A marker flag or display light fixture (7 feet from the ground) to be mounted to the unit to increase its visibility when off road activities are performed.
- Ensure operator wears approved impact rated head protection (i.e. hard hats) when operating off road or when not equipped with an enclosed cap.

B 13.0 Trenching and Excavations

Soil must be assumed to be Type "C" as defined by 29 CFR 1926 Subpart P, unless classified by a competent person. Soil within the FEMP fenced area shall be assumed to be disturbed.

Requirements of the Confined Space Program (section B 15.0) apply to excavation four feet or more in depth.

The Contractor shall perform an Excavation Entry and Daily Inspection prior to entering an excavation. The Contractor shall document and maintain the inspection record onsite, make them available for Fluor Fernald review upon request. The inspection records shall be submitted to Fluor Fernald at project completion for retention as a project record. The Contractor may choose to use Fluor Fernald form FS-F-4442 for excavation inspections and form FS-F-4378, "Competent Person's Daily Field Inspection Report." These forms will be made available upon request. The Contractor shall submit his inspection forms for Fluor Fernald compliance review prior to use. At the end of the project, all inspection forms shall be submitted to Fluor Fernald.

The competent person shall determine protection systems for excavations less than 20 feet deep to protect employees from cave-ins. Excavations 20 feet deep or more shall be designed by a Certified Professional Engineer.

The competent person shall be onsite and in communication with personnel at the excavation site when personnel are exposed to excavation hazards.

The Contractor shall install and maintain a minimum physical barrier at the perimeter of all utility excavations, trenches or other open excavations as long as they are open. The Contractor will protect excavations by placing a barricade at least 6 feet horizontally from the hazard.

Excavation within 3 feet of any functional utility requires hand or restricted digging.

Hand digging is defined as manual removal of soil utilizing hand tools and excludes the use of power equipment.

Restricted digging is defined as limited soil removal (approximately 3 inches per scoop) utilizing hand probing and mechanical powered equipment.

During mechanical excavation, hand digging shall be conducted during the last three inches of soil removal.

The Contractor shall be responsible for marking utilities as directed by Fluor Fernald.

AB 14.0 Penetrations

The Contractor shall comply with the requirements of the Fluor Fernald Penetration Permit (reference section B 2.6) for all penetration through soils, roofs, walls, floors, etc.

The Contractor shall request a briefing by Fluor Fernald prior to start of the penetration activities and subsequent to any permit/work scope changes. For penetration of more than one day duration, a daily briefing shall be held. A roster of personnel attending the briefing shall be attached to the permit.

The penetration permit shall be readily available and posted in the project area.

The Contractor competent person shall be on the FEMP site during the activity. The Contractor shall notify Fluor Fernald at least one working day in advance to ensure availability of the Fluor Fernald competent person.

Underground installation shall be identified (flagged, painted, taped etc.) daily, immediately after installations.

The Contractor shall STOP WORK and notify Fluor Fernald if a utility or obstruction is discovered during the penetration activity that has not been previously addressed in the penetration permit.

AB 15.0 Confined Space Program

A list of existing permit-required confined spaces, which are located in the project work area, is provided in **EXHIBIT 7**.

It is the Contractor's responsibility to ensure that their employees and all subcontractor employees are informed of the presence of permit-required confined spaces in the project area.

Any time Contractor personnel or subcontractor employees are required to enter permit-required confined spaces at the FEMP, the Contractor shall observe the requirements of Fluor Fernald's Permit Required Confined Space Program. Fluor Fernald's confined space program complies with the requirements of OSHA 29 CFR 1910.146. Prior to any entry into a confined space at the FEMP site, the Contractor shall ensure that the following criteria are satisfied:

- All confined spaces at the FEMP are classified as permit-required confined spaces until evaluated by Fluor Fernald;
- Prior to making an entry or performing any work in a confined space, the confined space shall be evaluated by Fluor Fernald;
- When no hazards are present in the confined space, a Confined Space Evaluation Form will be completed by Fluor Fernald stating that the space is a non-permit confined space for the work activity and work may progress with minimal requirements;
- If evaluation of the confined space indicates a hazard(s) is present in the space, the space will be classified as a permit-required confined space and a Confined Space Entry Permit will be issued by Fluor Fernald;
- Prior to any entry into a permit required confined space, efforts shall be made to remove the identified hazard(s) from the space. If the hazard(s) cannot be removed from the space, certain steps/criteria specified in 1910.146 are required (i.e., continuous/periodic monitoring of the atmosphere, attendant/standby personnel, entry supervisor, fall protection/retrieval equipment, confined space rescue plan, confined space training);
- Confined space rescues will be conducted by Fluor Fernald; and
- Contractor personnel required to enter into permit required confined spaces, to act as standby/attendant personnel, or to act as entry supervisors shall attend Confined Space Training offered by Fluor Fernald or alternate confined space training which meets the training requirements of 1910.146. Documentation of training by alternate confined space training providers shall be submitted to Fluor Fernald for compliance review.

AB 16.0 Lock and Tag (Energy Control)

B 16.1 Lock and Tag (Energy Control)

The Contractor shall comply with Fluor Fernald Lock and Tag Procedure OP-0004 which meets the requirements of 29 CFR 1910.147. Salient features of this procedure are:

- All personnel involved in energy control shall be trained by Fluor Fernald;

- Initial lockout/tagout shall be performed by Fluor Fernald;
- Independent verification is required for lock and tag;
- The Contractor's appointed employee shall make a safe condition check of Fluor Fernald's Lockout/Tagout;
- Each Contractor appointed employee involved in the work activity shall install his or her own personal lock and tag at each lockout /tagout location;
- At the beginning of each shift, each authorized employee shall perform a physical walk down to verify that lockout/tagout is still in place; and
- An authorized employee is a qualified employee where work will require them to enter the path of hazardous entry or materials.

B 16.2 Energy Isolation Planning

Contractor personnel required to generate an Energy Isolation Plan (EIP) will be trained by Fluor Fernald on the Site Requirements for writing EIPs.

B 17.0 Heat and Cold Stress Requirements

B 17.1 Heat Stress

The Contractors heat stress program shall meet the provisions of the latest edition of the ACGIH TLV booklet. The program shall include monitoring procedures, methods of control and methods of determining work/rest schedules.

The Contractor may use Fluor Fernald's Heat Stress Program. If the Fluor Fernald program is used, written acceptance of the program shall be submitted, and addresses the method to be used for determination of work/rest schedules.

Fluor Fernald's Heat Stress Program uses work/rest schedules based on the following:

- Physiological monitoring - Exhibit 8-1
- ACGIH Threshold Limit Values (TLVs) and Work Limit table - Exhibit 8-2

B. 17.1.1 Physiological Monitoring

Fluor Fernald encourages use of physiological monitoring for determination of work/rest schedules. If physiological monitoring is conducted, it shall be done in accordance with **EXHIBIT "8"**, Requirements for Physiological Monitoring. A dedicated person is required to track personnel exposure. Fluor Fernald will provide training in physiological monitoring. Training will be performed in the work area and last about two hours. Notify Fluor Fernald 5 working days prior to training.

B 17.1.2 ACGIH TLVs and Work Limit Table

If physiological monitoring is not conducted, Contractors can use the work/ rest tables located in **EXHIBIT "8"**. A log in/log out system shall be used during periods when work/rest schedules are used.

B 17.1.3 Other Heat Stress Controls

The Contractor may use the following methods in conjunction with the methods listed in 17.1.1 and 17.1.2:

- The Contractor may conduct physically demanding work during off shifts when protective clothing is required during June, July and August;
- Provide air-conditioned work spaces, air conditioned cabs on equipment, and/or shaded work areas.

- Personal cooling devices (ice vest, cool vests, cool suits, etc.) may be used. Contractor must provide freezer and vests/suits along with any associated equipment required; and
- Develop cool down and/or heat stress rooms. These are areas inside of the work area that are environmentally controlled. The Contractor is responsible for room construction including air conditioning units. Requirements for entry to cool room and heat stress control rooms are given below.

B 17.2 Cool Down Rooms

Cool down rooms may be established in Contamination Areas to allow workers to rest in an air-conditioned or cooler environment. In cool down rooms, workers may not remove respirators, receive physiological monitoring, or obtain a drink of water. Worker entry to a cool down room does NOT require any radiological monitoring prior to entry. Cool down rooms must be maintained at removable contamination levels less than 10,000 dpm/100cm². Workers may not spend more than 15 minutes in a cool down room in any one-hour. If a worker needs to break for more than 15 minutes, that worker must exit the radiological area.

B 17.3 Heat Stress Control Rooms

The Contractors may establish a heat stress control room in the Contamination Area with Fluor Fernald approval. These areas are distinguishable from cool down rooms in that workers may remove respirators, receive physiological monitoring (pulse rate and temperature), and drink water. Heat stress control rooms may not be established in thorium areas. Heat stress rooms are not permitted for use by Class I asbestos workers, or for other Classes of asbestos work unless a negative exposure assessment has been completed.

Workers shall be monitored by Fluor Fernald prior to entry into a heat stress control room. Workers will not be able to enter a heat stress control room if detectable contamination (above background) is found. Workers in double anti-Cs may doff their outer set in order to enter the room.

Heat stress control rooms must be physically isolated (impermeable barrier) from the work area. The room must be maintained at removable contamination levels less than 1,000 dpm/100 cm². When removable contamination in excess of this limit is discovered, the room will be shutdown until it has been decontaminated.

If the heat stress control room is immediately adjacent to an Airborne Radioactivity Area, the room must contain a double-chamber airlock. The chamber adjacent to the Airborne Radioactivity Area shall be

under positive pressure (Specification Section 15067, "Ventilation and Containment"). Entry into the room shall only be through the airlock, but an emergency exit must exist.

Air sampling will be conducted in heat stress control rooms. Airborne radioactivity greater than 2% of the uranium 238 DAC may restrict the removal of respirators.

B 17.4 Cold Stress

The Contractors cold stress program shall meet the provisions of the latest edition of the ACGIH TLV booklet.

The Contractor may use Fluor Fernald's Cold Stress Program. If the Fluor Fernald program is used, written acceptance of the program shall be submitted.

The Contractor shall have a log in/log out system during periods when work/rest schedules are used.

B 18.0 Substance Abuse Requirements

The Contractor shall submit a Substance Abuse Program in compliance with Fluor Fernald's General Provision clauses titled, "Workplace Substance Abuse Program at DOE sites," and "Fluor Fernald Substance Abuse Program." The Contractor's Substance Abuse Program shall include, at a minimum, the elements shown in **Exhibit 9**.

Exhibit 9 may be completed, signed, accepted for use and submitted by the Contractor or the Contractor may submit another Substance Abuse Program meeting the requirements.

As a condition for work under this Contract, Contractor employees will be required to submit to drug and/or alcohol testing conducted by Fluor Fernald.

Initial screening of negative test results is reported to Fluor Fernald within 48 hours following the collection of test. Confirmation of positive tests, including evaluation by Fluor Fernald's Medical Review Officer, requires up to 96 hours following testing. Holidays and weekends are not included in this duration.

Any employee whose Fluor Fernald ID badge has been terminated for less than 60 calendar days does not require re-testing for access. All other Contractor employees shall be tested prior to access.

Contractor employees cannot perform work under the Contract before receipt of negative drug and/or alcohol test results. Training and required medical and In-Vivo examinations can be performed pending test results. In the event that the employee is denied access to the site, the Contractor shall bear the cost of the employee's time for training, etc.

Any employee testing positive for the use of illegal drugs, illegal use of prescription drugs, or alcohol in excess of Fluor Fernald limits shall have their access to the FEMP site inactivated by the Fluor Fernald Medical Review Officer.

Minimum sanctions to be taken by the Contractor against employees who test positively for the use of illegal drugs or alcohol in excess of Fluor Fernald limits shall include:

- Inactivation of site access, for persons seeking initial access, for one year. After one year they shall be required to pass access drug and/or alcohol testing and be approved by the Fluor Fernald Medical Review Officer and provide documentation of completion of evaluation by a substance abuse professional; and
- For first time positive random, suspicion, or occurrence test: inactivation of site access for 14 calendar days, completion of EAP evaluation, and approval of the MRO. At the end of the 14 days, the employee may return to work for the next 30 days in a non-safety sensitive position. Upon expiration of the 30 day period, a return-to-duty drug screen shall be performed. If the return-to-duty drug screen is negative, the employee may return to normal duties; and
- Placement in a follow-up testing program of unannounced testing for a period of one to five years; and
- For a second positive substance abuse test, site access shall be inactivated.

For reasonable suspicion or occurrence testing, in the event that a laboratory confirmed negative is not received within 48 hours from the time that tests are taken, the Contractor employee will not be allowed to perform safety sensitive duties including but not limited to:

- Operation of motor vehicles and hazardous moving equipment or machinery including cranes and forklifts;
- Work at unprotected heights including ladders and scaffolds; and
- The employee cannot perform safety sensitive work until notified by Fluor Fernald of a negative test result. A positive test result may result in inactivation of site access as described above.

Sampling and laboratory costs of drug and alcohol testing shall be borne by Fluor Fernald. Costs for employee time related to drug and alcohol testing, including waiting periods for results and removal from safety sensitive work shall be borne by the Contractor.

Refer to Part 5 - the Project Labor Agreement 14-3 for related provisions.

Work on this Contract has been determined to be "testing designated". Contractor employees are subject to random testing.

Requirements for drug testing do not apply to visitors who are not performing work in safety sensitive functions. A visitor, for purposes of this program, is anyone requiring access to the FEMP for a period of 14 calendar days or less.

See **Exhibit 9** for additional information on the substance abuse program.

(For D&D IFB/RFPs, delete item B19.0, this information is covered by specification Section 01515).

B 19.0 Signs and Barriers

B 19.1 Signs

The Contractor shall supply and post appropriate signs as shown on **Exhibit 10** in proximity to the work and at all entry locations. Signs shall be placed approximately every 50 feet around the defined construction area.

B 19.2 Barriers

The Contractor shall install and maintain, throughout the performance period of this Contract, barriers (minimum - orange snow fence) around the construction area to control access.

To protect temporary floor openings, the Contractor will maintain a standard barricade at least 6 feet horizontally from the hazard or provide standard railing.

B 20.0 Safe use of Lasers

The Contractor's use of lasers shall comply with the requirements of the American National Standards Institute (ANSI) Z136.1.

B 21.0 Fall Protection

Fall protection shall be implemented on unprotected scaffolding and ladders at working heights of 6 feet or greater and on runways and walkways when the fall hazard is 6 feet or greater

Lanyards shall be constructed of synthetic material (no natural rope) and have shock absorbing features.

The Contractor shall be responsible for training their personnel to 29CFR 1926.503. Training shall be documented and retained in jobsite files and submit at the end of the project for retention as a project record.

The Contractor's competent person shall perform and document quarterly (every 3 months) inspection on all personal fall protection equipment. The contractor shall utilize Exhibit 13 to document his inspection. The Contractor shall maintain the documentation on site, make available to Fluor Fernald upon request and submit the documentation at project completion for retention as a project record.

The competent person shall tag unserviceable fall protection with a Danger Unsafe-Do Not Use.

Fall protection shall be used during erection and dismantling of scaffolds, when fall protection creates a greater hazard the contractor shall submit and alternate method for Fluor Fernald concurrence.

ΛC. RADIOLOGICAL REQUIREMENTS**C 1.0 Purpose**

Fluor Fernald and its subcontractors are required to comply with the requirements of DOE Order 5400.5 Radiological Protection of the "Public and Environment," 10 CFR 835, "Occupational Radiation Protection," Fluor Fernald's Radiological Protection Program; and Fluor Fernald RM-0020, "Site Specific Radiological Control Manual." The requirements here in were derived from these requirements.

This section provides the Contractor with many of the radiological requirements by which to plan the project. Additional radiological control requirements are incorporated throughout the body of this Contract. Specific information contained in this section includes: anticipated Fluor Fernald radiological control interface with the Contractor; general radiological considerations, personnel entry and exit protocol through radiological areas, radiological limits, access and monitoring requirements, Radiological Work Permits (RWPs), and PPE.

C 2.0 Project Radiological Requirements Plan**C 2.1 Radiological Control Interface with the Contractor****C 2.1.1 Fluor Fernald-Provided Radiological Control Programs**

Fluor Fernald will provide radiological control support, including providing Radiological Control Technicians (RCTs), radiological monitoring, and record keeping. The Contractor shall comply with all radiological control requirements, directions, RWPs, Safe Work Plans, training requirements, sampling, testing, oversight, etc. Additionally Fluor Fernald will provide the following:

- DOELAP accredited external dosimetry program (including record keeping and reporting);
- All radiological monitoring equipment;
- Internal Dosimetry program (including air sampling, bioassay, In-Vivo analysis, and record keeping);
- Radiological Worker Training program consistent with the requirements of 10 CFR 835 and the DOE Radiological Control Manual; and
- Radiological Control support personnel trained to the requirements of 10 CFR 835 and the DOE Radiological Control Manual.

C 2.1.2 Daily Activities List

The Contractor is required to provide Fluor Fernald with a Daily Activities List describing projected activities (including movement of material and specific personnel activities), crew sizes, crew members, and crew locations. This information shall be provided at least 24 hours prior to commencement of work.

C 2.1.3 Walk Downs/Meetings

Representatives of Fluor Fernald will participate in periodic walkdowns/inspections of the facility, be present at pre-job meetings to address health and safety requirements of the safe work plans or work permits,

attend weekly meetings with the Contractor to raise issues of concern, provide updates on the status of the quality of radiological controls for the project activities, participate in morning safety meetings with the Contractor's personnel, and discuss radiological safety requirements pertaining to work practices previously witnessed and anticipated based on upcoming work.

C 2.1.4 Radiological Sources

Radiological sources may only be brought onsite with prior approval of Fluor Fernald. Required information from the Contractor includes the type and activity of the source, its intended purpose, how long the source is expected to remain onsite, and what controls will be placed on the source to ensure its stability while onsite.

C 2.1.5 Bioassay Cards

All personnel qualified as General Site Worker are required to leave a baseline bioassay (urine sample), and provide sample after every 60 day period and at the end of work on the Contract. Bioassay cards will be provided to the Contractor for distribution to all applicable employees. Employees who will be leaving the job prior to the next sampling date are required to leave a sample just before final departure.

All workers receiving a bioassay card will be required to report to the bioassay station in the S&H Building (Bldg. 53) by the date shown on the card. Failure to report to the bioassay station within the required time period may result in the employee being denied access to the controlled area until the requirement is fulfilled.

It is the Contractor's responsibility to confirm that it has received bioassay cards for all applicable employees. Missing cards must be reported immediately to Fluor Fernald.

C 2.1.6 Radiological Incidents and Reporting for All Project Work

Radiological Deficiency Reports (RDRs) are written by Fluor Fernald to document radiological deficiencies. Examples include, but are not limited to, poor performance of health physics practices, violations of procedures and safety policies, personnel contamination, etc.

The Contractor is responsible for correcting deficiencies and providing a written response summarizing action(s) taken and/or planned to prevent reoccurrence.

C 2.1.7 Stop Work Authority

All Fluor Fernald and Contractor personnel have the responsibility and authority to stop radiological work when radiological controls are inadequate.

In any situation in which stop work authority is used, the following requirements apply:

- Exercise stop work authority in a justifiable and responsible manner;
- Once work is stopped, do NOT resume until proper radiological controls have been established; and
- Resumption of work requires approval of Fluor Fernald.

C 2.2 General Radiological Considerations

C 2.2.1 Radiological Isotopes of Concern

The most limiting isotope (for radiological contamination control purposes) is determined and applied as the isotope of concern. This is determined by Fluor Fernald based on a combination of sampling data, calculation and process knowledge.

See Part 6 for descriptions of the facilities covered by this Contract and their respective isotopes-of-concern. Surface contamination and airborne radioactivity limits will vary based on the isotopes of concern. Frisking techniques and whole body monitoring techniques will necessarily vary in these areas as well.

Movement from an area controlled to thorium limits to an area controlled to uranium limits requires monitoring and, if necessary, decontamination.

C 2.2.2 ALARA Considerations and Exposure Limits

ALARA is an approach to radiological control to manage and control exposures (individual and collective) to the work force and to the general public at levels As Low As Reasonably Achievable, taking into account social, technical, economic, practical and public policy considerations. ALARA is not a dose limit but a process that has the objective of attaining doses as far below the applicable controlling limits as is reasonably achievable.

The Contractor shall perform necessary actions to maintain occupational exposures below site administrative limits (internal and external exposures) and shall practice ALARA at all times.

The Contractor shall take measures to maintain radiation exposures in controlled areas As Low As Reasonably Achievable through facility and equipment design and administrative control. The primary method used shall be physical design features (e.g., confinement, ventilation, remote handling, and shielding). Administrative controls and procedural requirements shall be employed only as supplemental methods to control radiation exposure.

For specific activities where use of physical design features is demonstrated to be impractical, administrative controls and procedural requirements shall be used to maintain exposures ALARA.

ALARA practices shall be documented in the Contractor's safe work plans.

C 2.3 Personnel Entry and Exit Protocol through Radiologically controlled areas

C 2.3.1 Access to the Controlled Area

The workers must obtain their thermoluminescent dosimeter (TLD) PRIOR to reaching the controlled area. TLDs must be worn while the worker is in the controlled area and must be stored on the storage rack assigned to them when not in this area. TLDs shall be worn on the outside of the worker's clothing (non-PPE), facing forward, between their waist and shoulders.

Badging-in at the access control point:

- At the control point (access way from the uncontrolled area to the controlled area), workers will bar code into the computer verifying their training and bioassay requirements are current. If the access control computer system is inoperable, training will be verified by visual inspection of the worker's qualification card; and
- If a worker's training or bioassay is insufficient or out of date, access to the controlled area will be denied.

C 2.3.2 Access to Change Trailer

Personnel and material monitoring is required prior to entry into the project break room.

C 2.3.3 Access to the Contamination Area

The following are standard requirements for access to the contamination area:

- Workers will sign the appropriate RWP for entry into the work area, collect prescribed respiratory protection, enter their badge number and respirator serial number into the project control point computer logging system, show evidence of being respirator fit to the control point RCT or his designee, go to the dressing area, and don the prescribed protective clothing;
- If a worker's training or bioassay is insufficient or out of date, their access to the contamination area will be denied;

- When wearing protective clothing such that no skin is exposed (e.g., full anti-Cs and a respirator), the worker's TLD must be worn underneath the protective clothing. When protective clothing requirements are such that skin is exposed (e.g., no respirator), the TLD must be worn on the outside of the anti-Cs;
- Prior to entering the work area, workers must contact an RCT for assignment to a personal air sampler and testing of the airflow of powered air purifying respirators (if worn). The following conditions apply to wearers of personal air samplers:
 1. In areas where uranium is the isotope of concern, a minimum of 25% of workers in each work group/crew (minimum of one worker) shall wear a belt mounted personal air sampler. All other workers in the work crew must be signed-in on the paperwork under which their crew-partner received their personal air sampler. Workers in the work crew shall work in the general proximity of the other workers such that the assigned personal air sampler is representative of the air being breathed by all parties in the work crew;
 2. When changing work areas, the workers must sign-in on the appropriate RWP and verify that their level of PPE is in compliance with the RWP. If the worker must change PPE to moving to a new job area, the worker must exit the contamination area and go through the appropriate steps for re-entry, wearing the correct protective clothing. The worker will be reassigned to a different personal air sampler; and
 3. In areas where thorium is the isotope of concern, 100% of the workers will be required to wear personal air samplers.
- Where thorium is the radionuclide of concern, the Contractor shall anticipate that anti-C clothing and personal protective equipment requirements will include powered air-purifying respirators, and double anti-Cs (with the outer layer being consumable and the inner layer being launderable or consumable unless otherwise prescribed by the applicable radiological work permit); and
- Personnel entry into the contamination area must be through the established control point.

C 2.3.4 Exiting the Contamination Area

Workers must always leave the work area and doff anti-Cs at the appropriate control point whenever their protective clothing is compromised or when non-water resistant anti-Cs get wet or workers sweat through their protective clothing. Fluor Fernald will periodically monitor contamination levels on the outside of PPE. If contamination, as detected by an RCT, on the outside of a worker's work gloves is found to be greater than 1,000 counts per minute, the worker must change their work gloves. If this level of contamination is found on the outside of a single-layer of anti-Cs, workers must return to the control point to change their protective clothing.

The Contractor should estimate that a minimum of four workers per day will be sent through this routine. If 10% of the Contractor work force is greater than four workers, estimate that 10% of the workers will be sent through this routine daily.

The Contractor should recognize and allow for additional time for monitoring when exiting thorium contamination areas due to the lower contamination limits. Workers in thorium contamination areas or high contamination areas and asbestos areas that are in contamination areas will always be in a double layer of anti-C. Prior to leaving any of these areas, workers will doff their outer set of anti-C's at the work area boundary and proceed directly to the appropriate change out facility. Doffing of the inner layer of anti-C's and personnel monitoring will be performed at the change facility.

The workers themselves (except from areas controlled to thorium limits) may survey personal items out, using friskers provided at the control point.

Tools, lapel samplers, and equipment (and, in the case of thorium contamination areas, personal items) may only be surveyed out of a contamination area by an RCT. Workers requiring items of this nature to be removed from the contamination area must give the RCT notice of such a need at least one full work shift in advance.

Whole body personnel monitoring is required prior to exit from contamination areas.

Workers will sign out on the RWP upon exiting.

C 2.3.5 Exiting Controlled Areas

After exiting the contamination area, to gain access to the clean area of the site (i.e., to exit the controlled area), workers must monitor through a personnel contamination monitor (PCM). All material exiting the controlled area must be surveyed.

After successfully monitoring through the PCM, the workers shall then place their TLD in the appropriate slot of the TLD storage rack (slots are labeled with badge numbers).

C 2.4 Radiological Limits and Respiratory Requirements

C 2.4.1 Personnel Monitoring Limits

When personnel are surveyed upon leaving a contamination or controlled area (including monitoring into the locker room or break area from the controlled area), the following limits shall be applied:

- for leaving a thorium-232 contamination area 1,000 dpm/100cm² alpha; and
- for leaving a uranium contamination area or a controlled area 5,000 dpm/100cm² beta/gamma.

If a personnel monitoring instrument alarms, the worker must notify Fluor Fernald. Fluor Fernald will investigate to determine if there is long-lived contamination (e.g., thorium or uranium) on the worker's clothes or skin. If this is confirmed, Fluor Fernald will begin the documentation of the incident and decontamination of the worker.

C 2.4.2 Airborne Radioactivity Limits

Airborne Radioactivity Areas will be posted around locations that exceed (or have the potential to exceed) a weekly average of 10% of the Derived Air Concentration (DAC) limits for the applicable isotopes. Engineering and/or administrative controls shall be implemented for these areas to control the impact on personnel and other project areas. The DAC levels that apply to this project include the following:

- DAC for Th-232: 5.0E-13 uCi/ml;
- DAC for Th-230 3.0E-12 uCi/ml
- DAC for Uranium: 2.0E-11 uCi/ml;
- DAC for Rn-222 (radon): 0.333 WL (working levels) - one working level equals any combination of short lived radon daughters, in one liter of air without regard to the degree of equilibrium, that will result in the ultimate emission of 1.3E+05 MeV of alpha energy; and
- DAC for Rn-220 (thoron): 1.0 WL.

Within the work area, airborne radioactivity shall be controlled to less than 10% of the specific DAC for the isotope-of-concern, taking into account the protection factor (PF) of the respirator worn by workers in the area, plus ALARA. The PF's that apply to this project include the following:

- PF = 1000 for powered air-purifying respirator;
- PF = 50 for full-face air-purifying respirator; and

- PF = 1 for no respirator or half-mask respirators.

NOTE: If the Contractor desires the use of other types of respirators on the job beyond those listed, the Contractor shall contact Fluor Fernald to determine the respiratory protection factor of that respirator.

If general area airborne radioactivity exceeds 10% of the appropriate DAC (given the appropriate respiratory protection factor), then immediate radiological controls must be implemented at the source of generation to reduce airborne concentration. Upon written notification by Fluor Fernald, the Contractor has one week to provide Fluor Fernald with a written explanation of causes and corrective actions to prevent the reoccurrence of the situation.

In all cases, the Contractor shall control airborne emissions at the project boundaries such that 2% of the DAC for the appropriate radiological isotope-of-concern is not exceeded (based on a weekly average).

C 2.4.3 Contamination Limits

Equipment Release Cleaning Requirements

Requirements, including contamination limits for release of Contractor provided tools, equipment or material from containment or the building enclosure and the contamination area or for unrestricted release from the controlled area, are provided in specification Section 01519 and Part 4 Special Terms and Conditions SC-11.

Facility Release Cleaning Requirements

Prior to removing the exterior siding of a uranium contaminated structure and prior to structural dismantlement where the exterior siding is not removed, all non-porous surfaces (such as steel decking or columns) within the structure shall be below 5,000 dpm/100cm² beta-gamma removable radiological contamination and all above-grade porous surfaces (such as concrete decking or wood) shall be below 1,000 dpm/100 cm² beta-gamma removable, 5,000 dpm/100cm² average beta-gamma fixed plus removable, and 15,000 dpm/100cm² maximum beta-gamma fixed radiological contamination. The average beta-gamma fixed plus removable radiological contamination limit is the average of the radiological contamination levels that exist within an individual 20 ft. x 20 ft. area (generally defined by plant column locations) and the maximum beta-gamma fixed radiological contamination limit is the highest permissible contamination levels within the 20 ft. x 20 ft. area.

The fixed plus removable limit for above-grade porous surfaces is not applicable where the Contractor's safe work plans implement requirements ensuring contamination and airborne radioactivity are adequately contained during facility takedown. An acceptable option is encapsulation of the slab and wrapping the slab with geotextile fabric that is wetted down with amended water prior to felling activities. All at grade slabs shall meet the same limits prescribed for above-grade porous surfaces. However, the Contractor may encapsulate the slab in lieu of meeting the fixed-plus removal limit.

These limits shall be achieved by following the requirements of specification Section 01517. A combination of decontamination and application of fixative may be used.

Thorium Facilities

Prior to removing the exterior siding of a thorium contaminated structure and prior to structural dismantlement where the exterior siding is not removed, all surfaces within the structure shall be below 200 dpm/100cm² alpha removable radiological contamination and 10,000 dpm/100cm² alpha fixed plus removable radiological contamination. All at-grade slabs shall meet the same limits. The Contractor may encapsulate the building interior surfaces in lieu of meeting the fixed-plus removable limit. These limits shall be achieved by following the requirements of specification Section 01517. A combination of decontamination and application of fixative may be used.

C 2.4.4 Radiation Limits, Dose Limits, and Dosimetry Investigations

Radiation areas will be established for any area accessible to individuals in which radiation level could result in an individual receiving a deep dose equivalent in excess of 5.0 mrem in one hour at 30 cm from the source or from any surface that the radiation penetrates.

High radiation areas will be established for any area accessible to individuals in which radiation level could result in an individual receiving a deep dose equivalent in excess of 100 mrem in one hour at 30 cm from the source or from any surface that the radiation penetrates.

Fluor Fernald Radiological Dosimetry performs investigations of unplanned external exposure results when the following levels are exceeded:

- 100 mrem to the whole body; and
- 1,000 mrem to the skin or extremities.

NOTE: If any of these levels are exceeded, the Contractor shall be required to participate in an investigation into the cause of the exposure.

Fluor Fernald Dosimetry performs internal dosimetry investigations with possible follow-up bioassay sampling when one of three conditions listed below occur:

1. Air sampling indicates that a worker(s) may have been exposed to levels above the action level for a particular radionuclide.

NOTE: Action levels are determined by internal dosimetry on a nuclide specific basis. Action levels are typically based on a worker's potential to receive two mrem Committed Effective Dose Equivalent (CEDE) in a one week period.

2. An incident or routine bioassay sample (urine and/or fecal) result is above the decision level for a particular radionuclide.
3. A routine or incident In Vivo measurement (i.e., lung) is above the decision level for a particular radionuclide.

When an internal dosimetry investigation is required, actions taken by internal dosimetry are as follows:

- A preliminary internal dose estimate is performed based on air sampling and/or bioassay results.
- An interview is performed with the worker and/or their supervisor to determine radiological working conditions and potential time of intake.
- If preliminary dose estimates are greater than or equal to 100 mrem CEDE, a radiological work restriction is issued and a field investigation is initiated.

NOTE: A radiological work restriction may be issued by Dosimetry with approval of the Radiological Control Manager when preliminary dose estimates are less than 100 mrem to limit any further exposure that may prevent obtaining valid follow-up bioassay sampling and interfere with the dose evaluation.

- Obtain follow-up bioassay sampling (In-Vitro and/or In-Vivo) to confirm initial results.
NOTE: The type and extent of follow-up bioassay sampling required is determined by internal dosimetry given the type of exposure, the radionuclide, the length of time since the exposure, and the preliminary dose estimate. For incident investigations involving potential exposure to uranium, a minimum of two samples is required.
- Finalize internal dose estimates and notify worker or supervisor after follow-up sampling is completed.

Workers shall be restricted from working in radiologically controlled areas if total (external plus internal) exposures, in any one calendar year, exceed 1,000 mrem Total Effective Dose Equivalent (TEDE). The following conditions also apply:

- The worker restriction shall last until the end of the calendar year in which the exposure was received; and
- An investigation shall be initiated by Fluor Fernald when a worker reaches 80% of this limit. The investigation will determine whether the worker requires limitations on work in a radiological area to ensure that the annual limit (1,000 mrem TEDE) is not exceeded.

C 2.5 Minimum Radiological Requirements for Personnel Access and Work within a controlled area or other Radiological Area.

Contractor personnel requiring access to the controlled areas or other radiological areas are to be trained radiological workers meeting requirements of 10 CFR 835 and DOE Radiological Control Manual (approved Fluor Fernald training programs are available). Workers are to participate in Fluor Fernald DOELAP accredited personnel dosimetry and bioassay programs, and respiratory protection and medical requirements associated with the programs.

Project Personnel Radiological Monitoring and Surveillance Requirements

All project personnel who perform work in a controlled area must participate in the following personnel monitoring and surveillance programs:

- TLD-the Contractor must provide Fluor Fernald with the number of personnel in need of TLDs at least five working days prior to the need for TLDs; and
- Urinalysis-baseline, annual, incident and at termination.

All project personnel who perform work in a radiological area must participate in the following Fluor Fernald personnel monitoring and surveillance programs:

- TLD;
- Baseline, every 60 days, incident and termination urinalysis; and
- Baseline, annual, incident and termination In-Vivo examination.

Specific bioassay requirements for work in thorium areas include baseline (as applicable) and incident fecal sampling. Baseline fecal samples are required for any worker who has a history of exposure to thorium.

C 2.6 Radiological Work Permits (RWPs)

RWPs will be generated by Fluor Fernald. The RWP informs workers of area radiological conditions, work controls, and entry/exit requirements. RWPs are required for activities at FEMP that include, but are not limited to:

- Entry into any radiological area as defined in 10 CFR 835;
- Breaching of any process line, tank, vessel, or enclosure containing radioactive material that may become loose or airborne during the work;
- Any work within the controlled area on contaminated or potentially contaminated equipment where safety precautions are not adequately discussed in technical work documents approved by Fluor Fernald Radiological Control;

- Decontamination of highly contaminated equipment;
- Digging or disturbing soil in a soil contamination area; and
- Breaking the barrier of a fixed contamination area.

All workers must be briefed on the contents of each RWP under which that worker will perform work and the conditions of the work area.

Workers will sign the daily sign-in sheet on the RWP applicable to the work they are going to perform prior to entering the work areas, and will sign-out upon exiting these areas. With reference to the daily sign-in sheet, a worker may only be signed-in on one RWP at a time.

C 2.7 Break Rooms in Radiologically Controlled Areas

The following requirements apply to the establishment and use of break rooms:

- The establishment of break rooms in radiologically controlled areas must be approved by Fluor Fernald;
- In approved break rooms, workers may drink any supplied beverages (i.e., soda, water, coffee, and drink mixes), no smoking or use of other tobacco products is allowed in the break rooms. If a smoking area is provided at the jobsite, it will be immediately adjacent to an approved break room, but will be out of doors. The only access to the smoking area will be through the break room. A smoking area near the break room associated with this project is NOT guaranteed under the terms of this Contract; and
- No anti-C clothing is allowed in break rooms with the exception of bagged and laundered anti-Cs that are being returned to the trailers after laundering, which must be moved immediately to the changing areas/locker rooms for storage. The respirator cabinet may be in the break room for accessibility.

C 2.8 Remote Control Point

All control points (i.e., access/egress points at radiological area boundaries) that are within the work area, beyond the control point trailers, shall be enclosed (building, shed, containment, etc.) to cover those materials and equipment that are necessary for monitoring of personnel, personal items, or equipment and collection of any PPE that may be doffed at this point. These types of control points and step-off pads are required at boundaries of varying radiological conditions (e.g., high contamination area vs. contamination area or thorium contamination area vs. uranium contamination area).

C 2.9 Power Requirements

Radiological air samplers (provided and operated by Fluor Fernald) will require power to be supplied by the Contractor (estimate 20 locations with a gooseneck air sampler each requiring 120 volts/4 amps and a hi-volume air sampler at every location of work on this project, also requiring 120 volts/4 amps each). The Contractor should expect to need extension cords to support this activity. Power to operate the air samplers will be drawn from the temporary power supply designed by the Contractor for use on this project.

C 2.10 Debris Containerization

Waste containers shall be staged in the contamination area when loading material from within the contamination area. Waste containers must be closed when not in use and always at the end of any shift. Workers working above open waste containers will be in respirators (generally Full Face Air Purifying respirators). Personnel working outdoors without respiratory protection but in the contamination area, must maintain a 25 foot distance from waste being transferred to the waste containers.

The openings of internally contaminated equipment shall be sealed prior to movement.
Thorium-contaminated, interior material/debris must be containerized within containment.

D. SITE ACCESS, TRAINING, AND MEDICAL SCHEDULING**AD 1.0 General Training Requirements**

Prior to performing work at Fernald all personnel shall have site-specific training as required by the ESH&TRM and as outlined in this section.

The Contractor shall have a orientation program to ensure new hires are properly trained and equipped for their assigned task. This program shall ensure workers are indoctrinated in the Contractor's project specific requirements.

All personnel performing work at Fernald are required to be trained to one of the following Categories:

- Non-Hazardous Site Worker
- Occasional Site Worker
- General Site Worker

D 1.1 Non-Hazardous Site Worker

An Individual whose duties and responsibilities are primarily administrative and work does not involve any Safety Sensitive Work, Construction work, and does require access to the former production area.

The minimum training requirement for a Non-Hazardous Site Worker is successful completion of the "General Employee Training Program." To maintain currency and continued site access requisites, non-hazardous site workers shall successfully complete the Annual General Employee Training Refresher Program.

D 1.2 Occasional Site Worker

An individual who is on site occasionally or an individual who is regularly on site in areas which have been monitored and fully characterized, whose duties and responsibilities are such that the individual is unlikely to be exposed over permissible exposure limits and published exposure limits where respirators are not necessary.

The minimum training requirement for Occasional Site Workers is successful completion of the 24-hour "Hazardous Waste Operator Training Program." This program includes: General Employee Training, Site Worker Training, Radiological Worker I and Practical Training.

Additional requirements for qualification as an Occasional Site Worker include medical evaluation, external dosimetry, and completion of the One-Day Supervised Field Experience Form. Occasional Site Workers are not permitted unescorted access to contamination areas, airborne radioactivity areas, or high radiation areas.

Occasional Site Workers will continue to maintain currency to site access requisites by completing the following training requirements:

- A. General Employee Training (GET)
- B. General Employee Training Refresher.
- C. Site Worker
- D. Site Worker Refresher
- E. Radiological Worker I and Practical
- F. Radiological Retraining (every two years.)

D 1.3 General Site Worker

An individual (such as a laborer, equipment operator, hazardous waste technician, and supervisory personnel) who is engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances or health hazards, including workers whose work activities are within contaminated or airborne contamination area, shall receive the following training.

The minimum training requirement for General Site Workers is successful completion of the 40 hour "Hazardous Waste Operator Training Program". This program includes: General Employee Training, Site Worker Training, Radiological Worker II, Rad Practical Training and Respirator Training.

Additional requirements for qualification as a General Site Worker include: respirator fit testing (if required to wear a respirator), medical evaluation, baseline in-vivo monitoring, urinalysis, external dosimetry, and completion of the Three-Day Supervised Field Experience Form.

Special bioassay requirements such as fecal monitoring may be required for work in designated areas. All General Site Workers are subject to the routine uranium urinalysis bioassay program.

General Site Workers will continue to maintain current, site access requisites by completing the following training requirements:

- A. The Annual General Employee Refresher Training Program
- B. The Annual Site Worker Refresher Training Program
- C. The Biennial Radiological Retraining Program that is required every two years.
- D. Annual Medical Evaluation
- E. Radiological Worker Practical
- F. Annual Respiratory Training (if required to wear a respirator)
- G. Annual Respiratory Fit Testing (if required to wear a respirator)

Reference the (EHS & TRM), Section A, for project specific training requirements.

D 1.4 Contract Training and Medical Schedule Locations

The Contract Training and Medical Schedule Locations (Exhibit 2) gives duration, provider, schedule and location information for training courses and physicals. Where "Schedule" appears under "Time Provided" it means that training can be scheduled with the Construction Training Coordinator (CTC) on a first-come-first-served basis.

D 1.5 Notification of Special Training.

Per the Project Labor Agreement, Article 3.3: "When the unions are notified that special training or certification for work with hazardous materials is required they will refer qualified workers who have completed the required training and/or who have the required certification". This sentence of Article 3.3 refers to Fernald Site Worker and Radiological Worker I and II training.

When certified, trained personnel for work with hazardous materials are not available, the Contractor may elect to accept untrained personnel from the Unions. Under these circumstances Fluor Fernald will provide, at no cost to the Contractor, training facilities and instructors for Fluor Fernald required training. The Contractor shall be responsible for all costs (e.g. wages, fringes, etc.) associated with training their staff and craft personnel. The Contractor shall submit a request 5 working days prior to training.

The cost of trainers for site specific training provided by Fluor Fernald (e.g. confined space, lock and tag etc.) will be borne by Fluor Fernald.

D 1.6 Certification of Training by Contractor

Certifications of training by a Contractor trainer must be submitted to Fluor Fernald for each employee. The submittal shall be made at least four working days before site access is needed.

Equivalent Site Worker and Radiological Worker Training - Those individuals with documented proof of previous training (i.e., HAZWOPER Training) which is equivalent to Fluor Fernald Site Worker Training may receive exemption from Site Worker Training. In order to receive this exemption, documented proof shall be provided to Fluor Fernald. Exemption may also be granted for current Radiological Worker Training from other DOE Sites or from the GCBCTC by submitting documentation and successfully completing the Fluor Fernald Radiological Worker Test and Practical (approximately 4 hrs).

D 1.7 Exemption of Fluor Fernald Site Worker Training.

Contractor personnel who were granted exemption to FLUOR FERNALD Site Worker Training shall also complete the following: Construction Rules and Regulations, General Employee Training (GET), applicable Radiological Worker Training (i.e., Radiological Worker I, II and Practical Training), and Supervised Field Experience on the FLUOR FERNALD job site.

D 1.8 OSHA Supervised Field Experience Form.

The Contractor's superintendent is responsible for submitting to FLUOR FERNALD an OSHA Supervised Field Experience form, signifying onsite completion of "Hazardous Waste Site Supervised Field Experience", 29 CFR 1926.65, for each employee when Occasional Site Worker and General Site Worker Training, is required.

Prior to supervising employees the Contractors supervisor (i.e., superintendent, project manager, foreman) shall be a trained and experienced supervisor as defined by 29 CFR 1926.65 and shall complete HAZWOPER Training and 8hr HAZWOPER Training for Supervisors, reference Exhibit 2.

Note: Refer to section E 1.3 for exemption form site training, supervisors shall submit verification of prior training.

D 1.9 Contractor Work with Asbestos Containing Material.

Contractor personnel who may perform "repair or maintenance work" (Class III work) with ACM such as drilling holes in floor tile or transite, or similar tasks involving potential asbestos exposure or entry into areas controlled for potential asbestos exposure, shall receive appropriate asbestos Operations and Maintenance (O&M) training provided by FLUOR FERNALD. Respirator Training and Asbestos Fit Testing will also be provided by FLUOR FERNALD. Asbestos O&M Training provided by other training facilities in the past year will be accepted upon presentation of documentation demonstrating successful completion.

Any Contractor personnel providing asbestos related services requiring specific training, including asbestos workers, supervisors, air monitoring technicians and project designers, must have that additional training, provided by the Contractor, in accordance with 29 CFR 1926.1101 and requirements of the State of Ohio Department of Health, (reference section B for Contractor Program requirements).

D 1.10 10 Hour Site Safety Training Course.

In addition to project specific training shown on the EHS & TRM, the Contractor and his subcontractors field supervision (Project Management, Superintendents, Construction Engineers, Construction Coordinators, Safety Personnel, or similar positions) shall take and successfully complete a 10 Hour Site Safety Training course within 60 calendar days following Notice to Proceed. Training will be provided by FLUOR FERNALD.

Reference confined space program section B, for related training.

D 1.11 Lead Worker Training.

Contractor personnel who perform work activities, which may expose them to airborne lead above the OSHA action level, shall receive training required by 29 CFR 1926.62. Lead Worker Training will be provided by FLUOR FERNALD; however, training provided by others in the past year will be accepted upon presentation of documentation demonstrating successful completion.

The individual designated as the competent person for lead work shall have attended a lead training course for supervisors and contractors or other equivalent training. The Contractor shall maintain records of this training on file in his field office for verification by FLUOR FERNALD.

D 1.12 Refresher Training.

Required refresher training is listed in **Exhibit 2**. It is the Contractor's responsibility to coordinate scheduling of refresher training with FLUOR FERNALD.

GET Refresher Supplemental Courses (see Required Additional Annual Training) - required documentation from meetings and briefings shall be submitted by the Contractor to FLUOR FERNALD.

D 1.13 Computer Based Training (CBT)

Where indicated on **Exhibit 2**, training or re-training is available on computers using interactive screens. Self-study booklets are available to assist in preparation for CBT Training.

D 2.0 Access Requirements

D 2.1 General Access Requirements .

The EHS & TRM identifies the minimum training and medical requirements for access.

At least 5 work days prior to personnel arriving at the work site, the Contractor's superintendent should notify FLUOR FERNALD that Contractor personnel will require access. The Request For Access Form **Exhibit 1** is used to make this notification. This notification allows the CTC to reserve training and medical times in advance. Training and medical reservations are made on a "first come - first served" basis.

Contractor personnel shall arrive at the location identified by FLUOR FERNALD to begin the access process by 6:30 AM.

D 2.2 Access Badges and TLDs.

Access Badges and TLDs (if required) will be issued upon completion of access requirements as verified by FLUOR FERNALD.

Reference Part 8 Section B for substance abuse testing requirements related to access.

Unless otherwise noted in the Contract, escorted personnel may not perform physical work.

D 2.3 Requirements for personnel who have had FEMP access previously

Upon receipt of the Access Request Form Exhibit 1, FLUOR FERNALD will review training and medical records to determine what additional training will be required.

The following guidelines will be used:

- In-Vivo testing will be required for Radiological II workers after an absence of 6 months from site or if the employee has worked at another nuclear facility since leaving the site;
- Medical testing will be required for Radiological II workers after an absence of 1 year from site;
- Medical history update will be required for each request (approximately 1 hour); and
- Training will be in accordance with refresher requirements in **Exhibit 2**.

FLUOR FERNALD, DOE-FEMP, and SUBCONTRACTOR ACCESS REQUEST
 (NOTE: PICTURE ID REQUIRED FOR ACCESS)

CITIZENSHIP:	<input type="checkbox"/> US CITIZEN	<input type="checkbox"/> FOREIGN NATIONAL (Special Requirements---Contact Security at 648-5602)
BADGE TYPE:	<input type="checkbox"/> PERMANENT - (Picture Badge) <input type="checkbox"/> TEMPORARY - (Less than 14 days in a 6 month period)	
ACCESS DATES:	Beginning Date: _____ / _____ / _____ Ending Date: _____ / _____ / _____ { One year maximum}	
HOME ADDRESS:	M _____ F _____ Last Name First Name Middle Initial SOCIAL SECURITY NUMBER DATE OF BIRTH SEX	
EMERGENCY CONTACT:	_____ Street / Mailing Address City & State Zip Code Telephone Number	
EMPLOYER INFORMATION	EMERGENCY CONTACT NAME RELATIONSHIP Emergency Contact TELEPHONE NO. _____ (_____) _____ COMPANY NAME: COMPANY TELEPHONE NO. _____ Street/Mailing Address City & State Zip Code	
JOB CODE (mandatory):	_____ Contact Pre-Hire Training Coordinator at X-7549 /7562 or Medical Dept. at X-4433 for current Job Code/Title Listing.	
WORKER CLASSIFICATION & WORK AREA INFORMATION	SELECT WORKER TYPE: SELECT EMPLOYER CLASSIFICATION: <input type="checkbox"/> GENERAL SITE WORKER <input type="checkbox"/> FLUOR FERNALD {Authorized by Human Resources only} <input type="checkbox"/> OCCASIONAL SITE WORKER <input type="checkbox"/> SUBCONTRACTOR <input type="checkbox"/> NON-HAZARDOUS SITE WORKER <input type="checkbox"/> TEAMING PARTNER {Authorized by Human Resources only} <input type="checkbox"/> DOE EMPLOYEE {EXEMPT FROM SAP} IDENTIFY WORK AREAS: SPECIFY SUBCONTRACTOR LABOR TYPE: <input type="checkbox"/> ADMINISTRATION AREA <input type="checkbox"/> CRAFT: _____ <input type="checkbox"/> CONTROLLED AREA <input type="checkbox"/> PROFESSIONAL: _____ <input type="checkbox"/> CONTAMINATION AREA <input type="checkbox"/> CLERICAL: _____ IDENTIFY WORK CONDITIONS REQUIRING SPECIALIZED TRAINING: <input type="checkbox"/> RESPIRATORS <input type="checkbox"/> TRENCHES <input type="checkbox"/> CONFINED SPACES <input type="checkbox"/> ELEVATED PLATFORMS <input type="checkbox"/> LIFTING & RIGGING ACTIVITIES <input type="checkbox"/> OTHER: (Specify Type) _____	
SITE CONTACT	_____ NAME PRINTED BADGE NO. PHONE NO. _____	
AUTHORIZER	_____	
PRE-HIRE COORDINATOR INFORMATION	After completing the REQUIRED information, submit to PRE-HIRE COORDINATOR, Mail Stop 90, or FAX 648-7448. M.I.T. BADGE ISSUED _____ / _____ / _____ ENDING DATE _____ / _____ / _____	
PRE-HIRE APPROVAL	Training and Medical requirements have been completed. APPROVAL: _____ DATE: _____	
SECURITY INFORMATION	PICTURE BADGE NO. _____ BADGE ISSUED _____ / _____ / _____ ISSUED BY _____ VC NUMBER: _____	
SECURITY NOTES:		

THIS DOCUMENT CONTAINS INFORMATION COVERED BY THE PRIVACY ACT

CONTRACT TRAINING AND MEDICAL SCHEDULE LOCATIONS

TRAINING REQUIREMENT	DURATION HOURS	FREQUENCY	PROVIDED BY	TIME PROVIDED	LOCATION PROVIDED
Initial Access Training					
Construction Rules/Regulations	1	One time	Fluor Fernald	As Scheduled	DOS
General Employee Training (GET)	6	One time	Fluor Fernald	As Scheduled	DOS
Site Worker Training (Occasional or General Site Worker Only)	12	One time	Fluor Fernald	As Scheduled	DOS
Radiological Worker I (Occasional Site Worker Only)	8	One time	Fluor Fernald	As Scheduled	DOS
Radiological Worker II (General Site Worker Only)	20	One time	Fluor Fernald	As Scheduled	DOS
Respirator Safety (General Site Worker Only)	4	Annually	Fluor Fernald	As Scheduled	DOS
29 CFR 1926.65 Supervised Field Experience One Day (Occasional Site Worker Only)	8	One time	Sub	Start after successful completion of initial training	Conduct at the job site
29 CFR 1926.65 Supervised Field Experience Three Day (General Site Worker Only)	24	One time	Sub	Start after successful completion of initial training	Conduct at the job site
Site Safety Briefing (Per paragraph D1.9)	10	Within 60 days of notice to proceed	Fluor Fernald	As Scheduled	Varies
Initial Medical					
Physical (General Site Worker Only)	3		Fluor Fernald	As Scheduled	FEMP
IN-VIVO (General Site Worker Only)	1	Prior to start, annually, exit	Fluor Fernald	As Scheduled	FEMP
IN-VITRO (General Site Worker Only)	1	Every 60 days	Fluor Fernald	As Scheduled	FEMP
Initial Training Per Section D1.4					
Respirator Fit Testing	1	Annual	Fluor Fernald	As Scheduled	FEMP
HAZWOPER Training for Supervisors	8	One time	Fluor Fernald	As Scheduled	Varies
Energy Control (Lock and Tag/Energy Isolation Planning) for Qualified/Authorized Employees	8	One time	Fluor Fernald	As Scheduled	T-45
Energy Control (Lock and Tag/Energy Isolation Planning) for Authorized Employees	4	Annually	Fluor Fernald	As Scheduled	T-45
Confined Space	8	One time	Fluor Fernald	As Scheduled	North Star

CONTRACT TRAINING AND MEDICAL SCHEDULE LOCATIONS

TRAINING REQUIREMENT	DURATION HOURS	FREQUENCY	PROVIDED BY	TIME PROVIDED	LOCATION PROVIDED
Refresher Training					
CBT GET Refresher	6	Annually	Fluor Fernald	As Scheduled	CBT Center
CBT Site Worker Refresher (Occasional or General Site Worker Only)	2	Annually	Fluor Fernald	As Scheduled	CBT Center
CBT Radiological Worker Refresher (Occasional or General Site Worker Only)	16	Two years	Fluor Fernald	As Scheduled	CBT Center
Radiological Worker I Practical (Occasional Site Worker Only)	1	Two years	Fluor Fernald	As Scheduled	T-62
Radiological Worker II Practical (General Site Worker Only)	2	Two years	Fluor Fernald	As Scheduled	T-62
CBT Respirator Safety (If required to wear respirator)	4	Annually	Fluor Fernald	As Scheduled	CBT Center
Respirator Fit Test (If required to wear respirator)	1	Annually	Fluor Fernald	As Scheduled	FEMP
Physicals (General Site Worker Only)	3	Annually	Fluor Fernald	As Scheduled	FEMP
Energy Control (Lock and Tag/Energy Isolation Planning) for Qualified/Authorized Employees	2	Annually	Fluor Fernald	As Scheduled	Varies
Energy Control (Lock and Tag/Energy Isolation Planning) for Authorized Employees	4	Annually	Fluor Fernald	As Scheduled	Varies
29 CFR 1926.65 SUPERVISED FIELD EXPERIENCE THREE DAY (FOR RAD II)	24	one time	Sub.	Start after successful completion of initial training	conduct on the job site at the FEMP
ASBESTOS O & M NOTE: Class III Worker not Removal	4	annually	Fluor Fernald or Sub.	Schedule	FEMP
ASBESTOS CLASS IV	2	annually	Fluor Fernald or Sub.	Schedule	FEMP
ASBESTOS ABATEMENT WORKER NOTE: For Removal	32	one time	Sub.	Schedule	
ASBESTOS ABATEMENT WORKER REFRESHER	8	annually	Sub.	Schedule	
TRAINING REQUIREMENT	DURATION HOURS	FREQUENCY	PROVIDED BY	TIME PROVIDED	LOCATION PROVIDED

CONTRACT TRAINING AND MEDICAL SCHEDULE LOCATIONS

ASBESTOS ABATEMENT PRACTICES-CONTRACTOR/SUPERVISOR	40	one time	Sub.	Schedule	
ASBESTOS ABATEMENT PRACTICES-CONTRACTOR/SUPERVISOR REFRESHER	8	annually	Sub.	Schedule	
ASBESTOS ABATEMENT PRACTICES-OTHER AS REQUIRED BY THE CONTRACT	varies		Sub.		
ENERGY CONTROL (LOCK AND TAG/ENERGY ISOLATION PLANNING), for Qualified/ Authorized	8	one time	Fluor Fernald	Schedule	As Scheduled
ENERGY CONTROL (LOCK AND TAG/ENERGY ISOLATION PLANNING) for Authorized	4	one time	Fluor Fernald	Schedule	As Scheduled
ENERGY CONTROL (LOCK AND TAG/ENERGY ISOLATION PLANNING) Refresher	2	annually	Fluor Fernald	Schedule	As Scheduled
K-65 SILO/RTS ACCESS	3	one time	Fluor Fernald	Schedule	FEMP
CONFINED SPACE	8	one time	Fluor Fernald	Schedule	As Scheduled
NTS WAC	1	annually	Fluor Fernald	Schedule	FEMP
LEAD WORKER TRAINING	4	annually	Fluor Fernald	Schedule	FEMP

REQUIRED ADDITIONAL ANNUAL TRAINING

In addition to GET Refresher with supplement annual training, each employee must complete 3 hours of training from the following list:

- Documented attendance for Pre-Work Safety Meeting (Part 8 B 2.8);
- Documented attendance weekly tool box safety meetings (Part 8 B 2.8);
- Cumulated and documented time from daily briefings (Part 8 B 2.8);
- Respirator Training (4 hours);
- Lock and Tag Training (8 hours); and
- Confined Space Training (8 hours).

ENTERING AND EXITING THE ASBESTOS DECONTAMINATION FACILITY

Because of the radiological nature of the FEMP site, it is necessary to take into account radiological requirements when entering and exiting an asbestos regulated area which is located within a radiological area. The following protocols have been developed and shall be used by the asbestos removal Contractor to exit asbestos regulated areas within radiological areas:

1.0 Decontamination for Class I Asbestos Abatement Performed in Radiological Contamination Areas

! When exiting an asbestos regulated area, workers will HEPA vacuum any gross contamination from their respirator and protective clothing in the equipment area.

! Workers will remove their outer rubber shoe covers and place in a labeled plastic bag in the equipment area and then proceed to the asbestos hygiene facility.

! When workers are required to wear two layers of protective clothing for radiological contamination control, workers will remove their outer gloves, coveralls and disposable shoe covers in the equipment area, place them in a labeled container for disposal and then proceed to the remote asbestos hygiene facility.

The asbestos decontamination area (hygiene facility) shall be located adjacent to, but outside of the radiological contamination area.

The dirty change area of the asbestos hygiene facility will be maintained under negative pressure in relation to the rest of the hygiene facility. The air being drawn into the dirty change area will be exhausted through a HEPA filtered air filtration device to assist in cleaning the air in the change area.

The dirty change area in the hygiene facility shall be divided into two areas by fire-retardant material. The first area where workers enter the equipment room will be considered a radiologically contaminated area (this area will be maintained under negative pressure to the rest of the trailer). A step-off pad will be established in the doorway separating the radiologically contaminated area from the radiologically controlled area. The second area will be a radiologically controlled area (buffer area) which will be free of any asbestos or radiological contamination. A sink or wash basin with hose attachment shall be located in the buffer area. A whole body personnel contamination monitor (PCM), provided by FLUOR FERNALD, shall also be installed in the buffer area.

- Upon entering the dirty change area of the hygiene facility, workers will remove their inner rubber shoe covers and place them in a labeled container for laundering.
- Workers will then remove their inner layer of disposable coveralls and second set of gloves and place them into labeled containers for disposal.
- Workers will step through an airlock onto a step off pad which separates the radiological contamination area from the controlled area. Workers will remove their inner disposable shoe covers as they step through the airlock onto the step off pad.
- While in the buffer area, workers will cover the inlets of their respirator cartridges with tape, lean over the sink and rinse their respirator face piece at the sink.
- After the respirator has been rinsed off, the worker will remove the respirator and then remove the cartridges from the respirator.
- The filter cartridges will be disposed of in labeled plastic bags in the contamination area, and the respirator will be placed in a second labeled plastic bag in the contamination area for later cleaning.

- After the respirator has been removed and cartridges disposed of, the worker will remove his/her inner surgical gloves and dispose of them in a labeled plastic bag for disposal.
- Using a "wet wipe", the worker will wet wipe his/her face in the respirator sealing area to ensure that any potential asbestos fibers are removed.
- The worker will exit using a PCM to ensure that radiological contamination of the worker has not occurred.
- If no contamination is detected, the worker will remove any remaining undergarments and place them into labeled containers for laundering.
- The worker will remove his/her work shoes, which are color coded to identify them as asbestos work shoes, and leave them in the radiologically clean area of the buffer area.
- If radiological contamination is detected, radiological control technicians will take measures to remove the contamination from the worker's skin, prior to the worker entering the shower.
- The worker will then exit the buffer area and enter the shower.
- After completing their shower, the worker will return to the buffer area to pick up his/her shoes, then proceed to the clean room where they can change back into their clean area clothing.
- The asbestos work shoes, which are worn beneath two layers of protective clothing, are to be left in the clean side of the change area so they are available to the worker when he/she dresses for their next entry into the asbestos work area.

2.0 Decontamination for Class II or Class III Asbestos Abatement Performed in Radiological Contamination Areas

The following decontamination procedure shall be used to exit asbestos regulated areas within radiological areas when performing Class II and Class III work until completion of a negative exposure assessment:

- When exiting an asbestos regulated area, workers will HEPA vacuum any gross contamination from their respirator and protective clothing in the equipment area, and then proceed to the radiological (contamination) control point.
- When workers are required to wear two layers of protective clothing for radiological contamination control, workers will remove their outer gloves, coveralls, rubber shoe covers and disposable shoe covers in the equipment area (adjacent to the asbestos regulated area), place them in a labeled container for disposal or cleaning and then proceed to the radiological control point.
- At the radiological control point, workers will remove their outer gloves and rubber shoe covers and place them into labeled containers for disposal or cleaning.
- Workers will remove their hood, remove their respirator and then remove the cartridges from their respirator. The hood and respirator cartridges shall be placed into containers for disposal and the respirator placed into a respirator recycling receptacle.
- Workers shall continue removing their protective clothing, shoe covers and inner gloves, and dispose of in labeled containers for disposal or cleaning.

EXHIBIT 3

- The worker will step into a personal contamination monitor to ensure that they have not been radiologically contaminated.
- If no radiological contamination is detected, the worker may exit the radiological contamination area.
- If radiological contamination is detected, radiological control technicians will take measures to remove the contamination from the worker's skin, prior to the worker exiting the radiological contamination area.

ASBESTOS DAILY JOB SITE INSPECTION

Work Location:

Type of Work: **Asbestos Work Permit #:**

Class I **Class II** **Class III** **Class IV**

REQUIRED FOR ALL CLASSES OF ASBESTOS WORK	YES	NO
Warning signs posted		
Work site barriers established: Tape/rope completely around work area		
Plastic sheeting free of holes or tears		
Entry/exit to work area is controlled preventing unauthorized access		
Air monitoring in progress, air samples are worn properly		
Personal protective equipment/respirators properly worn		
HEPA vacuums available/used for clean-up/decontamination		
Wetting agents available/being used at the job site		
Work being performed using wet methods		
No asbestos dust/debris is visible outside the work area		
Waste/debris immediately placed into waste bags		
Workers following appropriate hygiene procedures		

REQUIRED FOR CLASS I ASBESTOS WORK	YES	NO
Negative pressure enclosure maintained at >0.02 inches negative w.g.		
Negative pressure enclosure smoke tested for leaks		
All electric circuits inside negative pressure enclosure are GFCI protected		
Glove bags smoke tested prior to use		
All damaged material adjacent to glove bag has been wrapped/encapsulated		
Two workers performing glove bag removal		

REQUIRED FOR CLASS II ASBESTOS WORK	YES	NO
Asbestos containing material being removed substantially intact		

Comments or corrective action(s) taken for any deficiency identified above is(are) listed on the back of this form.

Competent Person's Signature

Date

RESPIRATOR REUSE CRITERIA

1.0 SCOPE

The following procedures will outline the necessary steps that must be followed to properly sanitize and survey respirators (face piece and cartridges together) so that they may be safely reused. The steps in this procedure, and all release criteria, are for work performed in uranium contamination areas only.

2.0 DEFINITIONS and LIMITS

Buffer Zone Respirator Storage Area - Located on the buffer table, these are the shelves where empty respirator bags are placed by workers before entering the contamination area, and where sanitized and bagged respirators are placed when coming out on break. FLUOR FERNALD RCTs remove the respirators from these shelves and perform surveys on the respirators.

Clean Side Respirator Area - This shelving unit is similar to the Buffer Zone Storage Area, but only sanitized respirators that pass a radiological survey are placed here.

NOTE: All of the above-mentioned areas will be demarcated with signs or labels.

Respirator - The term respirator will refer to the combination of cartridges and face piece as a whole.

Release Limits for Uranium Contamination

RESPIRATOR REUSE

For reuse of respirators from a uranium contamination area, direct frisk contamination surveys using a beta-gamma monitoring instrument (frisker), must indicate levels less than 100 cpm above background, and removable contamination surveys measured by field counting smears using a beta-gamma monitoring instrument (frisker), must indicate less than 100 cpm above background.

Other Restrictions to Reuse

Respirators shall only be used by the same worker for any one shift.

For asbestos and lead jobs, this procedure only applies if a negative exposure assessment has been completed.

This procedure does not apply to cartridges other than particulate cartridges (HEPA cartridges with magenta color or banding). Approval by the FLUOR FERNALD Respiratory Protection Program Administrator shall be required for reuse of cartridges other than particulate cartridges per terms of this procedure.

The wearer shall have the right to refuse reuse of a respirator or cartridge if the wearer feels that the steps outlined in this procedure do not produce an adequately clean, sanitary and in good operating condition respirator. In addition, the wearer shall have the right to refuse reuse of a cartridge if the wearer feels that the breathing resistance of that cartridge is too high.

This procedure does not apply to workers performing work in thorium regulated areas.

3.0 TECHNICAL APPROACH

3.1 Doffing and Frisking Respirator

- a. Write name, badge number and date on the original respirator bag. Place this bag in the buffer zone respirator storage unit prior to entering the contamination area.
- b. When coming out of the area on break, remove hood and outer gloves.

- c. Frisk inner gloves with a portable beta-gamma frisker. If contamination is indicated (>100 cpm above background), a new set of gloves must be donned over the original gloves before continuing.
- d. While looking in a mirror, wipe off the exterior of the face piece and cartridges with a wet wipe designed to clean/sanitize respiratory protection equipment.
- e. While looking in a mirror, perform a frisk of all exposed surfaces of the respirator and cartridges with a portable beta-gamma frisker.
 - 1. If contamination levels are greater than or equal to 100 cpm above background, remove the respirator, dispose of cartridges and place face piece in the respirator drum.
 - 2. If the contamination levels are less than 100 cpm above background on the respirator and cartridges, continue to step 3.1.f.
- f. Doff the respirator. Place the respirator with cartridges still in place, on the appropriate bag on the buffer table or shelving unit.
- g. Continue to doff remaining anti-Cs.

3.2 Sanitizing the Respirator

- a. After removing all anti-Cs, step across the step-off pad and frisk hands at the buffer table. If hands are clean continue to the next step, if the contamination level is greater than or equal to 100 cpm above background, contact a FLUOR FERNALD Radiological Control Technician.
- b. Don a new pair of latex gloves. Use paper towels to dry the respirator if necessary and use a wet wipe designed to clean/sanitize respiratory protection equipment to sanitize the respirator.
- c. Put the sanitized respirator into the bag with your name on it and use a twist tie or tape to close the bag.
- d. Place the bagged respirator on the buffer zone table (or Buffer Zone Respirator Storage Area), dispose of all wet wipes, paper towels, and latex gloves as radwaste, and then monitor out of the area using the PCM-1B as usual.

NOTE: Do not stack respirators on top of each other. If any doubt exists about who a certain respirator face piece was used by, that respirator face piece will not be re-used. Discard the cartridges and place the face piece in the respirator drum.

3.3 Surveying Sanitized Respirators

- a. A FLUOR FERNALD Radiological Control Technician will don clean latex gloves and get a bagged respirator from the Buffer Zone Storage Area. Remove the respirator from the bag and perform a smear of the entire respirator, including the cartridges, beginning with interior surfaces and then proceeding to the exterior surfaces. Survey the smear using a portable beta-gamma frisker.

NOTE: Oil treated cloth (i.e. masslin cloth or equivalent) shall not be used to smear the respirator. The residual oil left on the respirator may cause deterioration of the respirator parts.

- b. Perform a direct frisk for fixed contamination of all accessible surfaces of the respirator using a portable beta-gamma frisker.
- c. Based on the survey results, perform the following:

1. If fixed or loose contamination levels are greater than or equal to 100 cpm above background, remove the cartridges and place the face piece in the respirator drum.
2. If fixed or loose contamination levels are less than 100 cpm above background on the respirator and cartridges, place the respirator back in the bag and put in the designated clean side storage location.

3.4 Reusable Respirator Donning Sequence

- a. Don all anti-Cs except outer gloves and hood, proceed to the Clean Side Respirator Storage Area, and get the re-usable respirator with your name on it.
- b. Perform pre-donning inspection, don respirator, and perform positive and negative pressure tests.
- c. Don outer gloves and hood for re-entry into the area.

**FERNALD SITE
CRANE OPERATOR VERIFICATION**

In compliance with the Department of Energy (DOE) Hoisting and Rigging Manual (Rev 04/93) or successor document.

I verify that _____ of Local _____, who is being referred to a Contractor at the Fernald Environmental Management Project (FEMP), has successfully completed a _____ year Building Trades Apprenticeship Program, registered and approved by the United States Department of Labor (DOL), and that this program included dedicated instruction in:

- o Crane Types
 - o Components/Systems
 - o Terminology
 - o Center of Gravity
 - o Operation Radius
 - o Loading Factors
 - o Effective Weight
 - o Stability
 - o Load Movements
 - o Leverage
 - o Rate of Tip
 - o Failures
 - o Gantries/Live/High Mast
 - o Counter Weights/Cantilever
 - o Boom Angles
 - o Jibs/Extensions
 - o Selecting the Right Crane
 - o Production Lifts
 - o Quadrants of Operation
 - o Weight Determination
 - o Test Lifts
 - o Conditions Affecting Capacity
 - o Outriggers
 - o Multiple Crane Lifts
 - o Overload Hazards
 - o Load Charts
- o Capacities
- o Radius Between Values
- o Boom Length Between Values
- o Boom Angle Between Values
- o Parts of Line
- o Calculating Capacities
- o Boom Assembly and Tear Down
- o Boom Repair
- o Ropes and Reeving
- o Set-up/Daily Inspections
- o Measuring Effective Radius
- o Leveling Techniques
- o Swing Out
- o Slack on Drums
- o Pick and Carry Techniques
- o Lifting on Tires
- o Personnel Protection
- o Operating Around High Voltage
- o Hitting Booms
- o Two Blocking
- o Raising/Tipping Slabs
- o Cold Weather Operation
- o Boom Over Backwards - Tipping
- o Unattended Rigs
- o Responsibilities
- o Signals

Maximum Crane Capacity Qualified to Operate _____

Last Project Worked on _____

Type of Lifts Performed _____

Union/Company Representative (print) Phone Number

Union/Company Representative (sign) Date

NOTE: An Operator Verification must be presented, by the Operator at time of hire as a Crane Operator. Completion of Operator's Verification by the Operating Engineer's local affiliated verifies Operator's training. This does not establish or assume any liability for the project.

**FERNALD SITE
EQUIPMENT OPERATOR VERIFICATION**

This document defines the requirements for training, qualification, and/or certification of equipment operators

for equipment other than rigging equipment.

I verify that _____ of Local _____, who is being referred to a Contractor at the Fernald Environmental Management Project (FEMP), has successfully completed training in operation of _____ and that this training included dedicated instruction in:

- o Preparatory training:
 - 1. Machine terminology;
 - 2. Safe operating procedures; and
 - 3. Pre-operational and post-operational maintenance checks.

- o Basic operating principles:
 - 1. Machine controls and functions;
 - 2. Machine components and attachments; and
 - 3. Operation and function of components and attachments.

- o Review of the following:
 - 1. Manufacturer's operator manual;
 - 2. Occupational Safety and Health Act (OSHA) Regulations; and
 - 3. American National Standards Institute (ANSI B 30.5).

- o Documented examination for each piece of equipment.

- o Practical demonstration by an experienced operator.

- o Documented examination on maneuvering for each piece of equipment or category.

- o On-the-Job (Field) Performance Evaluation.

Union/Company Representative (print) Phone Number

Union/Company Representative (sign) Date

NOTE: An Operator Verification must, be presented by the Operator at, time of hire. Completion of Operator's Verification by the Operating Engineer's local affiliation verifies Operator's training. This does not establish or assume any liability for the project.

**PART 8
SAFETY & HEALTH AND TRAINING REQUIREMENTS
CONTRACT NUMBER FSC**

CONTRACT TITLE

CONFINED SPACES

(The Health and Safety Representative for each Project will provide the List of Confined Spaces within the Project Work Area.)

REQUIREMENTS FOR PHYSIOLOGICAL MONITORING

STAY TIMES

Pulse rate and temperature shall be used to determine the stay time. In addition, worker temperature can be used in combination with pulse rate to determine stay times. Initially the frequency of physiological monitoring depends on the clothing in use, the environmental temperature [Wet Bulb Globe Temperature (WBGT) or adjusted temperature for impermeable ensemble] and the level of physical work (see Table 8-1). The length of the work cycle will be governed by the frequency of the required physiological monitoring.

The length of the rest period will be a minimum of 15 minutes following removal of PPE. FLUOR FERNALD Medical may make exceptions to the physiological monitoring requirements which are described below.

1. PULSE RATE (required)

- If the initial pulse rate exceeds 100 beats per minute (bpm) before the start of the work activity, contact Medical before the start of work; and
- If the pulse rate exceeds 110 bpm at the beginning of the rest cycle, shorten the next work cycle by one-third and keep the rest period the same. If the pulse rate still exceeds 110 bpm at the beginning of the next rest period shorten the next work cycle by one-third (Continue to shorten the work cycles by one-third if subsequent pulse rates exceed 110 bpm).

NOTE: If the pulse rate exceeds 150 bpm at the beginning of the rest cycle, extend the length of the rest period until the pulse rate reaches 110 bpm. Do not allow a worker to wear impermeable or semi-permeable ensemble if rate exceeds 150 bpm.

2. TEMPERATURE - ORAL OR TYMPANIC (EAR): (optional)

- If the worker's initial temperature exceeds 99.6°F before the start of the work activity, contact Medical prior to the start of work; and
- If the worker's temperature exceeds 99.6°F at the beginning of the rest cycle, shorten the next work cycle by one-third without changing the rest period. If the worker's temperature still exceeds 99.6°F at the beginning of the next rest period, shorten the next work cycle by one-third (continue to shorten the work cycles by one-third if subsequent temperatures exceed 99.6°F).

NOTE: If the worker's temperature exceeds 100.4°F, extend the length of the rest period until the temperature reaches 99.6°F. Do not allow a worker to wear impermeable or semi-impermeable anti-Cs when temperature exceeds 100.4°F.

3. FLUID LOSS (optional)

In addition to pulse rate and/or temperature monitoring of workers for stay time, weight change monitoring is also useful to check fluid loss from the body. Weight should be measured at the start of the work shift and at the end of the work shift. Body water loss should not exceed 1.5% of total body weight in a work day. Contact Medical if a weight loss of 5 pounds or greater occurs.

Table 8-1

A. Physiological Monitoring with Normal Work Clothing	
	Frequency of Physiological Monitoring (minutes)
Environmental Temperature	Work Load

(FE, WBGT) ⁽¹⁾	Light	Moderate	Heavy
78-81	—(2)	—(2)	90
82-86	—(2)	90	60
87-90	90	60	45
>90	60	45	30

B. Physiological Monitoring with Semi-impermeable Work Clothing			
Environmental Temperature (FE, WBGT) (1)	Frequency of Physiological Monitoring (minutes)		
	Light	Moderate	Heavy
68-71	—(2)	—(2)	135
72-76	—(2)	135	105
77-81	135	105	75
82-86	105	75	45
87-90	75	45	30
>90	45	30	15

C. Physiological Monitoring with Impermeable Work Clothing			
Environmental Temperature (FE, WBGT) (1)	Frequency of Physiological Monitoring (minutes)		
	Light	Moderate	Heavy
61-67	—(2)	—(2)	90
68-76	150	120	60
77-81	120	90	30
82-86	90	60	15
87-90	60	30	—(3)
>90E	30	15	—(3)

(1) Environmental temperature will be determined as WBGT, except for work in impermeable anti-Cs which use adjusted temperature. Calculate the adjusted temperature (an adj. FE) as: [an adj. E F = shielded dry bulb temp E F + (13 X % sunshine); where 100% sunshine = no cloud and a sharp, distinct shadow; 0% sunshine = no shadows].

(2) Not Required.

(3) Contact Medical (fluid loss monitoring will also be required)

Table 8-2 HEAT STRESS WORK LIMIT GUIDELINES

Protective Clothing (number of layers)			Respiratory Protection		Work Area Temperature °F	Work Stay Time
Anti-Cs	Semipermeable	Impermeable	Negative Pressure	Air Supplied		

EXHIBIT 8

1					83 90 98	2 Hours 1 Hour 30 Minutes
2					75 83 90 98	2 Hours 1 Hour 45 Minutes 45 Minutes 25 Minutes
3					75 83 90 98	1.5 Hours 1 Hour 40 Minutes 20 Minutes
1	1				60 67 75 83 90 98	2.5 Hours 2 Hours 1.5 Hours 1 Hour 35 Minutes 20 Minutes
2	1				60 67 75 83 90 98	2 Hours 15 Minutes 1 Hour 45 Minutes 1 Hour 20 Minutes 50 Minutes 30 Minutes 15 Minutes
1	1 (plus Saranex sleeve apron or rain suit)				60 67 75 83 90 98	2 Hours 1.5 Hours 1 Hour 15 Minutes 45 Minutes 25 Minutes 15 Minutes
1		1			60 67 75 83 90 98	1.5 Hours 1 Hour 45 Minutes 30 Minutes 15 Minutes 10 Minutes
1			Respirator		83 90 98	1.5 Hours 40 Minutes 25 Minutes
2			Respirator		75 83 90 98	1.5 Hours 1 Hour 30 Minutes 20 Minutes
1	1		Respirator		60 67 75 83 90 98	1 Hour 45 Minutes 1 Hour 30 Minutes 1 Hour 45 Minutes 25 Minutes 15 Minutes
<u>Protective Clothing (number of layers)</u>			<u>Respiratory Protection</u>		<u>Work Area Temperature</u> °F	<u>Work Stay Time</u>
<u>Anti-C's</u>	<u>Semipermeable</u>	<u>Impermeable</u>	<u>Negative Pressure</u>	<u>Air Supplied</u>		
2	1		Respirator		60 67 75 83 90 98	1 Hour 30 Minutes 1 Hour 15 Minutes 50 Minutes 40 Minutes 20 Minutes 10 Minutes

EXHIBIT 8

1	1 (plus Saranex sleeve apron or rain suit)		Respirator		60 67 75 83 90 98	1 Hour 15 Minutes 1 Hour 40 Minutes 25 Minutes 15 Minutes 5 Minutes
1		1	Respirator		60 67 75 83 90 98	45 Minutes 30 Minutes 20 Minutes 15 Minutes 10 Minutes 5 Minutes
1 or 2				Full Face Airline	75 83 90 98	1 Hour 50 Minutes 1 Hour 40 Minutes 45 Minutes 25 Minutes
1 or 2	1			Full Face Airline	60 67 75 83 90 98	2 Hours 1 Hour 40 Minutes 1 Hour 15 Minutes 50 Minutes 30 Minutes 15 Minutes
1 or 2	1 (plus Saranex sleeve apron or rain suit)			Full Face Airline	60 67 75 83 90 98	1 Hour 45 Minutes 1 Hour 15 Minutes 1 Hour 40 Minutes 20 Minutes 10 Minutes
1		1		Full Face Airline	60 67 75 83 90 98	1 Hour 15 Minutes 45 Minutes 30 Minutes 20 Minutes 15 Minutes 10 Minutes
1	1			Airhood	60 67 75 83 90 98	2 Hours 1 Hour 45 Minutes 1 Hour 15 Minutes 45 Minutes 30 Minutes 20 Minutes
<u>Protective Clothing</u> (number of layers)			<u>Respiratory Protection</u>		<u>Work Area</u> <u>Temperature</u> °F	<u>Work</u> <u>Stay Time</u>
<u>Anti-C's</u>	<u>Semipermeable</u>	<u>Impermeable</u>	<u>Negative</u> <u>Pressure</u>	<u>Air Supplied</u>		
<u>Protective Clothing</u> (number of layers)	<u>Respiratory Protection</u>	<u>Work Area</u> <u>Temperature</u> °F	<u>Work</u> <u>Stay Time</u>	<u>Protective Clothing</u> (number of layers)	<u>Respiratory Protection</u>	<u>Work Area</u> <u>Temperature</u> °F
1		1		Airhood	60 67 75 83 90 98	2 Hours 1.5 Hours 1 Hour 30 Minutes 15 Minutes minutes

1. These guidelines apply to moderate work activity. Contact Industrial Hygiene for guidance for heavy work activity.
2. These are guidelines and not absolute standards which will assure no health effects. All involved workers must be aware of the signs and symptoms of heat stress, must be observant for these in themselves and their co-workers (buddy system), be in good health and good physical condition, and must take precautions to prevent heat stress. Workers should be allowed to start the rest period early at the first sign of any symptoms to prevent heat stress illness. If at any time someone has any heat stress difficulties he/she is to notify co-workers or supervision promptly so Medical assistance can be obtained as needed.
3. These guidelines apply to acclimatized workers.
4. For work not involving the use of respirators, rest periods shall be half the entry time up to 30 minutes. Whenever respiratory protection is in use, rest periods shall be at least 30 minutes long, or half the entry time, whichever is longer. Rest locations shall be cooler than the work area.

EXHIBIT 8

5. Workers shall be encouraged to drink plenty of water during breaks, and more frequently if feasible, to replace water lost through sweating.
6. Regular work clothes shall be counted as one layer if worn under Anti-C's. Anti-C's are cloth, paper, or other breathable material. Semipermeable protective clothing includes water resistant clothing. Impermeable protective clothing includes chemical resistant clothing and other water vapor barrier clothing such as Saranex, plastic, or acid suits.
7. Temperatures are $^{\circ}\text{F}$ dry bulb and assume high humidity and no radiant heat. Add 5°F to the area temperature measurement if radiant heat is present
8. Personal cooling measures such as cool vests or vortex tubes can be used for added comfort and to permit increased work stay times.

MODEL SUBSTANCE ABUSE PROGRAM

1.0 POLICY

It is the policy of _____ that on Contracts at Fernald Environmental Management Project (FEMP) including offsite locations, a DOE owned or controlled site:

- The use, possession, sale, distribution, or manufacture of illegal drugs or alcohol at work or while on DOE property is prohibited.
- Reporting to work while under the influence of intoxicants (including alcohol), narcotics, hallucinogens, depressants, stimulants, or other such drugs is also prohibited.
- Any employee who violates this policy shall be subject to disciplinary action up to and including termination.
- Any employee working at a DOE owned or controlled site shall receive notification that, as a condition of employment under the Contract the employee will abide by this policy.

2.0 EMPLOYEE EDUCATION AND TRAINING

Education and training programs will be presented to all employees which instruct the employee on the health aspect of substance abuse, safety, security and other workplace-related problems caused by substance abuse, provisions of DOE 10 CFR Part 707, and the employer's policy.

Managers and supervisors will receive additional training in the recognition of deteriorating job performance or judgement, or observation of unusual conduct which may be the result of possible illegal drug use, their responsibility to intervene, and the employer's policy.

3.0 EMPLOYEE ASSISTANCE

Employee assistance programs emphasizing preventative services, education, short term counseling, coordination and referral to outside agencies, and follow up shall be available to all on-site employees involved in the Contract.

4.0 NOTIFICATION REQUIREMENTS

Any employee convicted under criminal drug statute for a violation occurring on a DOE or controlled site must notify Fluor Fernald in writing within 10 days after such conviction. Failure to notify Fluor Fernald of such a conviction is grounds for disciplinary action up to and including discharge. Within 10 days of receiving such notice, Fluor Fernald will notify DOE of the conviction.

Within 30 days of receiving such a notice, appropriate personnel action must be taken against such an employee up to and including termination, or the employee, consistent with Fluor Fernald's policy, may be offered the opportunity to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by federal, state, or local health, law enforcement, or other appropriate agency.

If the employee does not participate in such a rehabilitation program, the Contractor must take appropriate personnel action, up to and including termination, in accordance with Fluor Fernald's policies.

5.0 TESTING DESIGNATED POSITIONS

Personnel determined by Fluor Fernald to be in a Testing Designated Position are subject to random drug testing. Testing Designated Positions are positions directly engaged in production, use, storage,

transportation, or disposal of hazardous material sufficient to cause significant harm to the environment or to public health and safety.

6.0 CERTIFICATION

_____ is committed to providing a safe workplace that is free from substance abuse by requiring that all employees be free of substance abuse of alcohol or drugs, while performing work at a DOE owned or operated facility.

Name and signature of authorized person:

(Print) _____

(Title) _____

(Signature) _____

(Date) _____

CONSTRUCTION AREA PERIMETER SIGN

CONSTRUCTION AREA

AUTHORIZED PERSONNEL ONLY

(Project Name Here)

ENTRY IS ONLY PERMITTED AT DEFINED ENTRANCE POINTS

You must have been briefed on the Project Specific Health & Safety requirements of this project and be approved by construction management prior to entry to this construction area.

CONTACT: _____ BY CONSTRUCTION RADIO # _____ ON CHANNEL # _____ TO OBTAIN PERMISSION FOR ENTRY.

Identified Safety or Housekeeping issues associated with this area should be directed to _____ at Phone Number _____

The above sign is required at all construction entry points (gates) and along the construction perimeter fence line at spacing identified in section B 19.0.

Sign Specifications:

Black Border

- Lower portion of the sign – black lettering on yellow background
- Top portion of the sign - yellow lettering on a shaded (gray) background
- Typical Size - height of 20 inches, width of 30 inches

CONTRACTOR SAFETY MEETING/BRIEFING REPORT

Project Title: _____

Site Location: _____

Contractor: _____

Subcontractor: _____

Date: _____ Time: _____

Type of Meeting/Briefing: _____
(Start of Day/After Lunch/Start of Activity/Monday Morning/Other)

Type of Work/Safe WorkPlan Reviewed: _____

Meeting/Briefing Conducted By: _____

SAFETY TOPICS DISCUSSED

Hazards: _____

Protective Clothing & Equipment: _____

Equipment Safety Procedures: _____

Emergency Procedures: _____

Environmental Concerns (Heat/Cold): _____

Permits/Lift Plans: _____

Lessons learned from current job and from other job sites: _____

Additional Comments: _____

FULL BODY HARNESS and LANYARD INSPECTION SHEET

FULL BODY HARNESS INSPECTION				ACC	UNA	NA	LANYARD INSPECTION				ACC	UNA	NA
1	OSHA/ANSI TAGS INTACT						1	D' RING/THIMBLE STRANDS LOOSE					
2	BELT BUCKLE DISTORTED/BURRS						2	D' RING/THIMBLE EDGES ROUGH					
3	BUCKLE ROLLER MOVES FREELY						3	D' RING/THIMBLE CRACKED					
4	BILLET TONGUE SLIPPING						4	D' RING/THIMBLE DISTORTED					
5	HOLES ELONGATED/WITH TREAD						5	SNAP EDGES ROUGH					
6	GROMMETS LOOSE/BROKEN						6	SNAP EYE AND HOOK DISTORTED					
7	RIVETS CRACKED/PITTED/DISCOLORED						7	SPRING TENSION ON KEEPER					
8	RIVETS FLUSH WITH SURFACE						8	SNAPS AND BINDING DISTORTED					
9	RIVETS LOOSE/BURRS						9	STEEL WORN					
10	D' RING DISTORTED/SHARP EDGES						10	STEEL STRAND BROKEN					
11	BUCKLES DISTORTED						11	STEEL FRAYED					
12	UNUSUAL WEAR						12	ROPE STITCHES DAMAGED/LOOSE					
13	ANY DISCOLORING						13	ROPE CHEMICALLY DAMAGED					
14	CHEMICALLY DAMAGED						14	ABRASION TO ROPE					
15	FRAYED/CUT EDGES						15	ROPE CUT					
16	STITCHES PULLED						16	ROPE WEAR/BREAKS					
17	FIBERS BROKEN						17	CHANGE IN ROPE DIAMETER					
18	CHEST STRAP/BUCKLE						18	BROKEN ROPE FIBERS					
19	BURNS/CHAR HOLES						19	SHOCK ABSORBER/STITCHING					
20	OTHER:						20	OTHER:					

acceptable							ACCEPTABLE						
unacceptable							UNACCEPTABLE						

Serial #	MFR Date:	Serial #	MFR Date:
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REMOVE FROM SERVICE IF MARKED UNACCEPTABLE

EMPLOYEE/COMPETENT PERSON SIGNATURE	DATE:
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COMMENTS:

Safety Harness Inspection Guidelines

FULL BODY HARNESS INSPECTION	LANYARD INSPECTION
<p><u>1. Belts and Rings</u></p>	<p><u>1. Hardware</u></p>
<p>Beginning at one end, holding the body side of the belt toward you, grasp the belt with your hands 6 to 8 inches apart. Bend the harness(s) in an inverted "U" shape. The surface tension resulting makes damaged fibers or cuts easier to see. Follow this procedure the entire length of the harness(s). Watch for frayed edges, broken fibers, pulled stitches, cuts or chemical damage.</p>	<p>a. Snaps: Inspect closely for hook and eye distortions, cracks, corrosion, or pitted surfaces. The keeper (latch) should seat into the nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to firmly close the keeper. Keeper locks must prevent the keeper from opening when the keeper closes.</p>
<p>a. Check dee rings and dee ring metal wear pad (if any) for distortion, cracks, breaks, and rough or sharp edges. The dee ring bar should be at a 90 degree angle with the long axis of the harness strap and should pivot freely.</p>	<p>b. Thimbles: The thimble must be firmly seated in the eye of the splice, and the splice should have no loose or cut strands. The edges of the thimble must be free of sharp edges, distortion, or cracks.</p>
<p>b. Attachments and buckles and dee rings should be given special attention. Note any unusual wear, frayed or cut fibers, or distortion of the buckles or dees.</p>	<p><u>2. Steel Lanyards</u></p> <p>While rotating the steel lanyard, watch for cuts, frayed areas, or unusual wearing patterns on the wire. Broken strands will separate from the body of the lanyard.</p>
<p>c. Inspect for frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface. Any broken, cut or burned stitches will be readily seen.</p>	<p><u>3. Web Lanyard</u></p> <p>While bending webbing over a pipe or mandrel, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discoloration, cracks, charring are obvious signs of chemical or heat damage. Observe closely for any breaks in the stitching.</p>
<p>d. The tongue, or billet of the straps receive heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. Straps should not have additional, punched holes.</p>	<p><u>4. Rope Lanyard</u></p> <p>Rotation of the lanyard while inspecting from end-to-end will bring to light any fuzzy, worn, broken or cut fibers. Weakened areas from extreme loads will appear as a noticeable change in the diameter. The rope diameter should be uniform throughout, following a short break-in period.</p>
<p><u>2. Tongue Buckle</u></p> <p>Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller(s) should turn freely on frame. Check for distortion or sharp edges.</p>	<p><u>5. Shock Absorbers</u></p> <p>The outer portion of the pack should be examined for burn holes and tears. Stitching on areas where the pack is sewn to dee rings, belts, or lanyards should be examined for loose strands, rips, and deterioration.</p>
<p><u>3. Friction and Mating Buckles</u></p> <p>Inspect the buckle(s) for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar(s).</p>	