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INFORMAL REPORT

HEALTH AND SAFETY PLAN TASK ADDENDUM FOR OPERATIONS PERFORMED FOR THE ENVIRONMENTAL RESTORATION PROGRAM RADIOACTIVE WASTE MANAGEMENT COMPLEX SUBPIT SAMPLING AND ANALYSIS PLAN

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HEALTH AND SAFETY PLAN FOR OPERATIONS PERFORMED FOR THE ENVIRONMENTAL RESTORATION PROGRAM TASK: RADIOACTIVE WASTE MANAGEMENT COMPLEX SUBPIT SAMPLING AND ANALYSIS PLAN

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HEALTH AND SAFETY PLAN FOR **OPERATIONS PERFORMED FOR THE** ENVIRONMENTAL RESTORATION PROGRAM

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ACRONYMS, ABBREVIATIONS, and DEFINITIONS

Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
ARDC	Administrative Record and Document Control
ASM	Area Shift Manager
CERCLA	Comprehensive Environmental Response Compensation, and
	Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CGI	Combustible Gas Indicator
COCA	Consent Order and Compliance Agreement
СР	Company Procedure
CPR	Cardiopulmonary Resuscitation
DOE	Department of Energy
DOE - ID	Department of Energy - Idaho Operations Office of DOE
DOP	Detailed Operating Procedure
DOT	Department of Transportation
DRR	Document Revision Request
EG&G	EG&G Idaho, Inc.
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FTL	Field Team Leader
H&S	Health and Safety
HEPA	High-efficiency Particulate Air
НРТ	Health Physics Technician
HSO	Health and Safety Officer
HW	Hazardous Waste
IAG	Interagency Agreement
IH	Industrial Hygienist
INEL	Idaho National Engineering Laboratory

Acro	onyms (d	continued):
	LEL	Lower Explosive Limit
	MSDS	Material Safety Data Sheets
	NEPA	National Environmental Policy Act
	NIOSH	National Institute for Occupational Safety and Health
	NRTS	National Reactor Testing Station
	OMP	Occupational Medical Program
	OSHA	Occupational Safety and Health Administration
	PD	Program Directive
	PM	Project Manager
	PPE	Personal Protective Equipment
	QPP	Quality Program Plan
	QAPjP	Quality Assurance Project Plan
	RCRA	Resource Conservation and Recovery Act
	RE	Radiological Engineer
	SAP	Sampling and Analysis Plan
	SCBA	Self-contained Breathing Apparatus
	SE	Safety Engineer
	SSWP	Special Safe Work Permit
	SWP	Safe Work Permit
	TIPS	Timely Incident Posting System
	TLD	Thermoluminescent Dosimeter
	TRU	Transuranic
	USCG	United States Coast Guard
	USGS	United States Geological Survey
	WBGT	Wet Bulb Globe Temperature

Abbreviations:

NIOSH, 10/85--<u>NIOSH/OSHA/USCG/EPA Occupational Safety and Health</u> <u>Guidance Manual for Hazardous Waste Site Activities</u>, October 1985.

Definitions:

Task Site--Immediate working area where ERP task operations are being performed.

Area--A geographic subdivision of the INEL or a location outside the INEL dependent on the INEL for logistical or administrative support (e.g., TAN, TRA, CFA, IF).

Facility--The minimum complete and usable unit of Real Property designed to contain an organizational unit or operational function (e.g., building, central steam station).

HEALTH AND SAFETY PLAN FOR OPERATIONS PERFORMED FOR THE ENVIRONMENTAL RESTORATION PROGRAM

1. INTRODUCTION

This Health and Safety (H&S) Plan for operations performed for the Environmental Restoration Program (ERP) establishes the procedures and provides general guidelines to minimize health and safety risks to the worker and public. This plan, in conjunction with associated task specific information required by this plan, shall be used during selected activities aimed at assessing and remediating past hazardous waste and/or hazardous constituent disposal at the Idaho National Engineering Laboratory (INEL). ERP is responsible for the implementation of designated portions of the Consent Order and Compliance Agreement (COCA) among the Idaho Operations Office of the Department of Energy (DOE-ID), Region 10 of the Environmental Protection Agency (EPA), and U.S. Geological Survey (USGS). ERP is also responsible for implementing hazardous substance operations under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended. As other agreements [e.g., the Interagency Agreement (IAG) among DOE-ID, EPA Region 10, and State of Idaho] are reached and supersede the COCA, ERP will also be responsible for implementation of tasks assigned by these agreements.

This H&S Plan applies to EG&G Idaho, Inc., subcontractors to EG&G and employees of other firms, and Department of Energy (DOE) Laboratories working at the ERP task investigation sites. It has been prepared in recognition of and is consistent with the <u>NIOSH/OSHA/USCG/EPA Occupational</u> <u>Safety and Health Guidance Manual for Hazardous Waste Site Activities</u>,

October 1985 (hereafter referenced as NIOSH, 10/85); the <u>EG&G Safety</u> <u>Manual</u>; and the <u>EG&G Radiological Controls Manual</u>.

1.1 Policy Statement

The policy of EG&G Idaho, Inc. is to take every practical precaution to protect the health of its employees, the employees of its subcontractors, the surrounding community, and visitors from any adverse effect that might result from activities at a hazardous waste site. The safety and health precautions in this plan allow the ERP investigative activities at the INEL to be accomplished in a safe manner without placing an excessive burden of equipment and procedures on the personnel performing the work. This allows all projects to be performed efficiently and expeditiously.

Activities conducted in accordance with this policy will be in compliance with the Occupational Safety and Health Administration (OSHA), 29 CFR 1910.120 Standard governing hazardous waste operations. All EG&G employees who conduct, supervise, and/or manage hazardous waste operations are responsible for conducting activities in compliance with the provisions of this policy.

1.2 <u>H&S Plan Task Specific Addendum</u>

This H&S Plan must address the many diverse conditions encountered for each task included in the ERP investigations. Therefore, an addendum shall be written as Appendix A for each task that requires a H&S Plan. The task addendum shall include any <u>additions</u>, <u>omissions</u>, or <u>modifications</u> to the main body of this H&S Plan that can individualize this plan into a task specific plan.

NOTE: If a document meets the intent of Appendix A [e.g., Detailed Operating Procedure (DOP)], it may be attached as Appendix A to this H&S Plan. A statement indicating that the substituted

document meets the intent of the task specific H&S Plan must be included at the beginning of Appendix A. The task specific H&S Plan will be considered complete when the H&S Plan task addendum is reviewed and approved per ERP Program Directive (PD) 2.2.

Upon request, a copy of this generic H&S Plan (annual revisions to H&S Plan as required) and an electronic copy of the generic H&S Plan Task Specific Addendum (Appendix A) may be obtained from the ERP Administrative Record and Document Control Office (ARDC, 525-5662). The electronic copy of the Task Specific Addendum is provided as a guide in producing a task specific H&S Plan. Pertinent topics referencing the main body of this H&S Plan are provided in the electronic copy of the blank H&S Plan Task Specific Addendum to aid the author in writing a complete task specific H&S Plan.

When the electronic guide is used to produce a Task Specific Addendum, each suggested topic must be evaluated to determine how it applies to the specific task requiring the addendum. If the topic does not apply to the subject task, "N/A" shall be written in that portion of the Task Specific Addendum. If additional information is required to make a complete task specific H&S Plan, additional blank pages should be added at the end of the Task Specific Addendum. All technical information requested in the addendum must be obtained from knowledgeable individuals associated with the specific task [e.g., monitoring equipment information should be obtained from the task Radiological Engineer (RE) and/or Industrial Hygienist (IH)]. Once a Task Specific Addendum is completed and reviewed, it will be sent to ARDC, appended onto the generic H&S Plan, and given a document number. The resulting task specific plan can then be approved and issued. ARDC is responsible for maintaining the electronic copy and originals of the Task Specific H&S Plans.

Any modifications to an approved task specific plan shall be implemented through a Document Revision Request (DRR), as described in ERP PD 4.1. If the change is made in a document that meets the intent of a

task specific plan and is not an ERP document, the changes will be made in accordance with the project directives of the program/facility responsiblefor the document. Documentation of any changes made to documents external to ERP must be provided to ARDC.

1.3 <u>Site Description</u>

INEL is a multipurpose laboratory originally established in 1949 by the U.S. Government, under the direction of DOE-ID. The primary mission of INEL is to support the engineering and operations efforts of DOE and other federal agencies in areas of nuclear safety research, reactor development, reactor operations and training, nuclear defense materials production, waste management and technology development, and energy technology/conservation programs.

INEL, formerly the National Reactor Testing Station (NRTS), encompasses 890 square miles and is located approximately 20 miles west of Idaho Falls, Idaho (Figure 1-1). The United States Atomic Energy Commission, now DOE, established the NRTS in 1949 as a site for building and testing a variety of nuclear facilities. INEL has also been the storage facility of transuranic (TRU) radionuclides and low-level radioactive wastes since 1952. DOE-ID has responsibility for the INEL and designates authority to operate the site to government contractors. The primary contractor for DOE-ID at INEL is EG&G Idaho, Inc. which provides managing and operating services to the majority of INEL facilities. Other contractors operating facilities at INEL but not covered by this H&S Plan include Westinghouse Idaho Nuclear Company, Argonne National Engineering Laboratory, Westinghouse Electric Corporation, and Rockwell Corporation.

Tasks being performed for the ERP are scattered throughout INEL, and detailed facility or task site descriptions are too numerous to include in this generic portion of the H&S Plan. Therefore, specific facility and/or task site descriptions shall be provided in the Task Specific Addendum located in Appendix A.



Figure 1-1. Map of INEL showing location of the major facilities.

1.4 Scope of Work

ERP supports the objectives identified in Chapter 2 of the <u>Management</u> <u>Plan for the ERP</u>. As stated in the Management Plan, the following general objectives have been established for the ERP:

- Identify and remediate all past waste units presenting a potential threat to human health or the environment
- Comply with the COCA by implementing the COCA Action Plan
- Comply with the CERCLA and the Resource Conservation and Recovery Act (RCRA) as established in an IAG among DOE-ID, EPA, and the State of Idaho
- Support the DOE Environmental Restoration Program, as directed by DOE Headquarters in Washington, D.C.

A detailed work scope will be included in the Task Specific Addendum located in Appendix A.

Field activities conducted during investigations may result in an exposure to hazardous and/or radioactive materials or wastes resulting from direct contact with contaminated soil, rock, groundwater, airborne particulates, and vapors. Protecting task site personnel from occupational health and safety hazards will be of major concern during the field activities. To this end, the ERP has identified a number of subjects that will provide protection to personnel and the environment. Ten major subjects to be addressed are as follows:

- Health and safety responsibilities
- Personnel training

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- Medical surveillance program
- Hazard evaluation
- Levels of protection and use of personal protective equipment (PPE)
- Safe work practices
- Establishment of work zones, site entry, and security procedures
- Personnel and environmental monitoring and record keeping requirements
- Decontamination procedures
- Emergency procedures, equipment, and information.

Each subject is detailed in the following sections.

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2. HEALTH AND SAFETY RESPONSIBILITIES

Direct implementation of the H&S Plan will be the responsibility of the Field Team Leader (FTL), Industrial Hygienist (IH), Health Physics Technician (HPT), Health and Safety Officer (HSO), Safety Engineer (SE), and all task operations personnel. It is imperative that open communications and responsiveness exist among Task Operations Personnel mentioned above to ensure the safe completion of each task. The FTL shall develop the task organizational structure and identify and record key personnel staff using the organizational chart located in Appendix A. A qualified person may act in dual positions for a task (e.g., IH and HSO). The following subsections outline the responsibilities of key personnel necessary to perform hazardous waste investigations at the INEL. If warranted by the requirements of the task, additional specialized positions may be necessary.

2.1 <u>Field Team Leader</u>

The FTL has ultimate responsibility for the safe and successful completion of task activities and for all phases of safety at the task site. An FTL is assigned to each task performed by ERP. If operations have been halted due to a potentially hazardous health and safety issue, the FTL will confer with the IH, HSO, RE, HPT, Project Manager (PM), SE, and Area Shift Manager (ASM) (as required by the situation) to provide a safe solution to the problem. In addition, the FTL must remain responsive to health and safety issues raised by task operations personnel.

The FTL will conduct an orientation meeting before the start of a task to review and discuss operating procedures and the H&S Plan (including any attachments) with task operations personnel (the FTL may assign the HSO to perform this duty). If new team members arrive at the task site after initiation of the task, this orientation shall also be given to them. At the beginning of each work day, the FTL (or alternate) will meet with task

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operations personnel to discuss the day's activities and address any health and safety issues that may have arisen or potentially could arise that day.

The FTL will ensure that all task operations personnel have received the appropriate training as required by Section 3 of this H&S Plan and that records of training for ERP personnel (including a copy of the signed Health and Safety Certification form, Appendix B) are submitted to the ERP Quality and Compliance Unit. The FTL shall report any accident, illness, or safety-related occurrence in accordance with Supplement 3.1 of the <u>EG&G</u> <u>Safety Manual</u>.

The FTL will interface with the analytical laboratories regarding any analyses of personnel monitoring and/or ambient air samples. The FTL will make provisions with the laboratory for a 24 to 48-hour turnaround for analysis in the event of an exposure suspected of being above an action level.

Additional responsibilities of the FTL include:

- Halting or modifying any task and/or evacuating the task site if work conditions are considered unsafe. This decision will be made after consulting with the HSO, IH, SE, and/or RE
- Notifying the ASM (if applicable) of any modifications or suspension of the task
- Ensuring that all task site personnel understand and comply with all safety requirements
- Initiating corrective action for observed safety violations
- Ensuring that safety training is implemented as described in this plan (Section 3).

An FTL not at the task site must appoint a qualified alternate to act in his place. This change must be communicated to the ASM, where necessary, and recorded in the daily activity log.

2.2 Health and Safety Officer

The HSO (position specified in response to OSHA 29 CFR Part 1910.120 requirement) is responsible for ensuring compliance with and the execution of the health and safety procedures described in this plan and the associated Task Specific Addendum. The HSO shall be at the task site whenever operations personnel are present. The HSO will be supported by the SE, IH, HPT, RE, and ASM (where applicable).

Responsibilities of the HSO include:

- Ensuring that all necessary safety equipment is located on or near the task site and properly maintained and calibrated by the appropriate personnel as described in the Task Specific Addendum
- Observing task site activities and reporting any deviations from the H&S Plan to the FTL
- Initiating contact with the INEL emergency response agencies (security, fire, medical) at the beginning of the task, ensuring personnel and environmental monitoring requirements are established by the IH and RE (Section 9), and testing the emergency phone numbers to ensure accuracy
- Ensuring that an up-to-date file of Material Safety Data Sheets (MSDS) is available and that <u>all</u> hazardous materials are properly labeled per EG&G Company Procedure (CP) 11.2

• Conducting the orientation meeting before the beginning of the task if requested by the FTL.

2.3 Industrial Hygienist

The IH is the primary source of information regarding health issues at the task site. The IH is responsible for operations and maintenance of all monitoring equipment with the exception of radiological equipment and will maintain a daily logbook of monitoring activities. The IH will conduct task site health hazard assessments and advise the FTL on adequate health protection for task operations personnel. The IH will advise the FTL on changes to monitoring or PPE requirements throughout task activities. He/she will advise the FTL on any conditions necessitating task site evacuation and permitting personnel reentry to the task site.

The IH is responsible for designing a practical monitoring program to determine worker exposures to hazardous substances. The IH will also log results from field samples and observations.

NOTE: Much uncertainty is involved as to the chemical hazards that may be encountered. Not everything can be monitored, and professional judgment must be exercised at all times.

If an employee experiences health effects resulting from an exposure to hazardous substances or environments, it is the responsibility of the IH to identify such workers to the Occupational Medical Program (OMP) and the FTL. The IH will provide the following information at the time of the medical examination if requested:

- Name, job title, work location, supervisor's name, and supervisor's phone number
- Substances/physical agents (e.g., noise) involved

- Date the employee was first exposed to the substance/physical agent on this task
- Monitoring data including locations of samples and dates samples were taken, if exposed over action level
- PPE in use during this task
- Number of days per month PPE has been in use
- How long this employee will be exposed to the substance or physical agent
- Training the employee has received in the use of personal protective equipment
- Type of respirator, if any, being used.

2.4 <u>Health Physics Technician</u>

The HPT is the primary source of information and guidance with regards to radiological hazards. The HPT will be present at the task site before operations begin and at any point during task operations when a radiological hazard to operations personnel may exist or is anticipated.

Responsibilities of the HPT include:

- Ensuring radiological equipment is calibrated and functioning properly
- Radiological surveying of the task site, equipment (before and after decontamination), and samples

- Collecting and analyzing smears as directed by the RE
- Supervising decontamination of equipment (radiological contaminants)
- Providing the OMP and RE with radiological monitoring information as requested
- Immediately notifying the FTL of any radiological occurrence that must be reported as directed by the <u>EG&G Safety Manual</u>, Supplement 3.1, Appendix H.
- Accompanying victim to the nearest INEL Medical Facility for evaluation if significant contamination from a confirmed internal body deposition of a radioactive material occurs.

2.5 <u>Radiological Engineer</u>

The RE is the primary source of information and guidance for radiological controls imposed on a task. The RE will make recommendations to ensure the safety of task operations personnel if a radiological hazard exists or occurs at a task site.

The responsibilities of the RE include:

- Performing radiation exposure estimates using information provided by cognizant engineers, area HPTs, history of past work evaluations, bioassays, FTLs, etc.
- Identifying the type(s) of radiological monitoring equipment necessary to maintain safe working conditions for task operations personnel

- Attending pre-job briefings if required by the FTL
- Advising FTL and HPT of changes in monitoring or PPE and task site evacuation and reentry.

2.6 Administrative Record and Document Control Office

The ARDC is responsible for organizing and maintaining data and reports (safety, sampling, and operations) generated by ERP investigations. ARDC maintains a supply of all controlled documents and provides a documented checkout system for the control and release of controlled documents, reports, and records. A copy of the H&S Plan and the associated electronic copy of the Task Specific Addendum are available upon request by calling 525-5662.

2.7 Quality and Compliance Unit

The ERP Quality and Compliance Unit provides certified environmental professionals in the diciplines of safety, quality, health physics, and industrial hygiene to support ERP tasks. Responsibilities of the Quality and Compliance Unit include:

- Ensuring tasks are in compliance with applicable DOE, EPA, and State of Idaho regulatory requirements
- Coordinating National Environmental Policy Act (NEPA) documentation with other environmental requirements
- Providing technical training needed by ERP personnel
- Scheduling and tracking all training for ERP personnel.

2.8 Occupational Medical Program

The OMP is mandated by DOE 5480.8 and uses the sciences related to preventive medicine and environmental health to determine the effects of environmental stress on human health or disease.

The OMP has responsibilities in the following areas:

- Review and comment on INEL emergency plans and operations
- Provide diagnosis, medical opinion, and treatment for INEL employees with occupational or nonoccupational illness or injuries
- Assist in the documentation and investigation of work-related illnesses or injuries
- Provide medical opinion whenever there is doubt by the FTL, advisors, or employee of the ability of the employee to perform assigned work or work being considered for assignment
- Plan and provide emergency medical care in support of individuals and Area emergency actions
- Maintain and operate a radiation and chemical decontamination facility at Central Facilities Area (CFA)
- Provide medical surveillance of workers who are identified by an IH as having been or are likely to be exposed over action levels to specific hazardous environments or substances.

2.9 Area Shift Manager

The ASM serves as the Area Landlord representative and is responsible for the safety of personnel and safe completion of all project activities conducted within his/her Area. Therefore, the ASM will be kept informed of all activities performed in the Area. Where applicable, the ASM and FTL shall agree upon a schedule for reporting task progress and plans for work. The ASM will serve as advisor to task operations personnel with regard to the Area operations when the task is performed in his/her Area. In case of emergency, the ASM will contact the Area Emergency Action Director who will act as coordinator of the situation regarding the facilities and personnel in the Area.

2.10 ERP Group Manager

The ERP Group Manager is responsible for investigation and remediation activities performed by ERP. This manager provides technical coordination and interfaces with the DOE-ID Environmental Support Office. The ERP Group Manager ensures that all activities are conducted in accordance with DOE/EPA requirements and agreements; monitors and approves program budgets and schedules; ensures the availability of necessary personnel, equipment, subcontractors, and services; and participates in the development of tasks, evaluation of findings, development of conclusions and recommendations, and production of reports. The ERP Group Manager has primary responsibility for the technical quality of all projects.

2.11 Project Manager

The PM has the responsibility for ensuring that all tasks conducted during the project are in compliance with the <u>Management Plan for the EG&G</u> <u>ERP</u> and all applicable OSHA, EPA, DOE, Department of Transportation (DOT), and State of Idaho requirements. The PM is responsible for ensuring tasks

comply with the ERP Quality Program Plan (QPP, QPP-149) Quality Assurance Project Plan (QAPjP), H&S Plan, Program Directives, and Sampling and Analysis Plans (SAPs) of ERP. The PM coordinates all field, laboratory, and modeling activities.

2.12 Program and/or Facility Manager

The Program and/or Facility Manager is responsible for managing all aspects of the Area in his charge. The Program and/or Facility Manager must be cognizant of work being conducted in the Area.

2.13 Environmental Hazardous Waste Engineer

The Environmental Hazardous Waste (HW) Engineer oversees, monitors, and advises EG&G organizations performing field activities at the INEL. Responsibilities include ensuring compliance with DOE Orders, EPA regulations, and other regulations concerning effects of activities on the environment. Additional responsibilities of the HW Engineer include:

- Acting as advisor for environmental concerns associated with ERP task activities
- Maintaining a library of applicable environmental information
- Disseminating applicable environmental information where/when needed.

2.14 Safety Engineer

The SE offers guidance on all safety issues arising at the task site, observes tasks and advises the FTL on required safety equipment necessary to promote a safe work environment, advises FTL and HSO about safety concerns arising during task operations, and recommends solutions to any concerns.

2.15 Task Operations Personnel

All task operations personnel, including EG&G and subcontractor personnel, are responsible for understanding and complying with requirements of the task specific H&S Plan. Task operations personnel will be briefed by the FTL before starting each day's activities. They should identify and discuss potential unsafe task site activities or conditions with the FTL for corrective action.

2.16 <u>Visitors</u>

To minimize risks that may result from task site activities, all visitors will be required to follow the rules as set forth in this plan, specifically:

- Only visitors who have official business at the task site and who have notified the FTL in advance will be allowed at the task site.
- No visitors will be allowed beyond the support zone unless they have received a minimum of 24 hours of hazardous material worker training, including radiation worker or nonradiation worker training and respirator training/fit testing, as required for the specific task. Proof of this training shall be presented to the FTL.
- Visitors will be provided with the required PPE by the HSO.
- Visitors will be instructed by the HSO on the task operations, established task site zones, safety precautions in effect, and emergency action information.

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3. PERSONNEL TRAINING

Task Operations Personnel classified by the PM and/or FTL as Hazardous Material Workers shall receive hazardous material worker training as specified by OSHA 29 CFR 1910.120 and the <u>EG&G Safety Manual</u>, Section 8. Specific training requirements for each hazardous material worker may vary depending on the hazards associated with the job assignment (e.g., noise, radiation). All ERP hazardous material workers must obtain OSHA Hazardous Waste Operator training. Additional training to be considered for hazardous material workers includes:

- Respirator Fit Test Qualification
- Radiation Worker
- Hearing Conservation.

In addition to the above mentioned training, at least one worker at the task site shall receive Medic 1st [Cardiopulmonary Resuscitation (CPR) and First Aid] training. Managers of hazardous material workers (e.g., PM, FTL) shall obtain Hazardous Waste Worker Supervisor Training. Additional safety training courses may be required as dictated by the job assignment. Section 8 of the <u>EG&G Safety Manual</u> contains course numbers and descriptions for all EG&G safety training courses.

Employees who attend training classes requiring an annual refresher course must attend the annual courses for as long as they remain active hazardous material workers. Proof of all required training courses must be provided to the ERP Quality and Compliance Unit. ERP personnel can also obtain information regarding ERP personnel training records (e.g., due dates of refresher courses) from the Quality and Compliance Unit.

The FTL will ensure that all task operations personnel understand the specific site hazards associated with each task at the daily shift meetings. Each FTL will also design and implement a task specific training orientation to inform task operations personnel about the unique hazards or procedures, task specific H&S Plan, DOPs, etc. associated with the task at hand. The FTL may assign presentation of this orientation to the HSO. Table 3-1 summarizes the above mentioned training requirements.

The following outline shall be used by the FTL for training and orientation before starting a task. If applicable to the specific task, personnel who will be working on the task site shall be informed of the information listed in the outline.

A. WORKPLAN [Sampling and Analysis Plan (SAP), Test Plan, etc.]

B. GENERAL FIELD SAFETY TECHNIQUES

- 1. Personnel responsibilities
- 2. Medical program
- 3. Task site work zones
- 4. Vehicle operation and parking
- 5. Task site air and radiological monitoring
 - a. Monitoring equipment (task site and personal)
 - b. Calibration
 - c. Cleaning procedures
- 6. Personal monitoring equipment

b Training Topic	Personnel Job Description	Task Operations <u>Personnel</u>	Field <u>Managers</u>
OSHA Hazardous Waste Operator	Cleanup or operations of hazardous waste sites	R	R
Respirator Fit Test Qualification	Work area requires use of respirator	R	R
Radiation Worker	Level of radiation exposure determines level of training	R	R
Medic 1st	First Aid, CPR	R*	0
Personal Protective Clothing and Equipment	Chemical and/or Radiological	R	R
Site Specific Hazards (FTL develops this training)	Encounters task specific potential hazards	R	Develop
Decontamination	Chemical and/or Radiological	R	R
Hearing Conservation	IH determines exposure to noise above 8-hour time-weighted average of 85 decibels	R	R
Legal and Regulatory Aspects	Knowledge of applicable health and safety regulations	0	0
Emergency Training	Knowledge of Area drills, rescue, response, information	R	R
R: Required O: Optional *: At least one worker	is required to receive Medic J	st Training.	
a. Additional training	may be required for each task	or individual	and should

TABLE 3-1. TRAINING REQUIREMENTS AND RECOMMENDATIONS FOR ERP HAZARDOUS MATERIAL WORKERS^a

 be listed in the addendum located in Appendix A.
 b. These training topics include both the initial and refresher training (See <u>EG&G Safety Manual</u>, Section 8 for specific safety training course descriptions and numbers).

B. GENERAL FIELD SAFETY TECHNIQUES (continued)

- 7. Potential hazardous contaminants and chemical hazards (toxicity and symptoms) present at the task site
- 8. Potential radiological contaminants
- 9. Contingency plans and responses
- 10. Use of field equipment and supplies
 - a. Drilling equipment
 - b. Work tools
 - c. Sampling equipment
- 11. Task site control and security
- 12. Buddy system and hand signals
- 13. Work limitations
 - a. Weather
 - b. Fatigue
 - c. Heat stress
 - d. Cold stress
 - e. Hours of work
 - f. Illumination
 - g. Lightning
- C. PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING
 - 1. General

C. PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING (continued)

- 2. Availability
- 3. Level D PPE and clothing, as defined by OSHA, including limitations of protection
 - a. Work clothing
 - b. Eye protection
 - c. Foot protection
 - d. Head protection
 - e. Hearing protection
- 4. Level C PPE and clothing, as defined by OSHA, including limitations of protection
 - a. Respiratory protection
 - b. Work clothing
 - c. Eye protection
 - d. Foot protection
 - e. Head protection
 - f. Hearing protection
 - g. Skin/hand protection
- 5. Level B PPE and clothing, as defined by OSHA, including limitations of protection
 - Air supplied hood or self-contained breathing apparatus (SCBA)
 - b. Disposable chemical-resistant coveralls
 - c. Anti-C clothing as recommended by the RE
 - d. Chemical resistant safety shoes with steel toe
 - e. Chemical resistant shoe covers
C. PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING (continued)

- f. Hard hat
- g. Inner and outer chemically resistant gloves
- h. Hearing protection, as required by IH
- 6. Level A PPE and clothing, as defined by OSHA, including limitations of protection
 - a. SCBA
 - b. Fully encapsulating, chemical resistant suit
 - c. Additional Anti-C clothing, as recommended by the RE
 - d. Chemical resistant safety shoes with steel toe
 - e. Chemical resistant shoe covers
 - f. Hard hat
 - g. Inner chemically resistant gloves
 - h. Hearing protection, as required by IH
- D. EMERGENCY ASSISTANCE
 - 1. Availability of emergency services and location of telephone and telephone numbers, MSDSs, and other emergency information
 - 2. Transportation of emergency cases and accompanying medical monitoring procedures
 - 3. Emergency assistance and review of hand and audible signals
- E. SPECIAL PRECAUTIONS DURING TASK SPECIFIC OPERATIONS
 - 1. Most dangerous times
 - 2. Most dangerous conditions

E. SPECIAL PRECAUTIONS DURING TASK SPECIFIC OPERATIONS (continued)

3. Specific task checklist.

The FTL shall maintain a file of completed Health and Safety Certification Forms, Appendix B (with copies filed with the ERP Quality and Compliance Unit) indicating that each worker has read and understands this H&S Plan and has attended the training sessions described above. In addition, the FTL will conduct safety briefings (a) <u>at the beginning of</u> <u>each shift</u>, (b) <u>whenever new personnel arrive at the task site</u>, and (c) <u>as</u> <u>significant changes to task site or work conditions occur</u>.

4. MEDICAL SURVEILLANCE PROGRAM

The INEL OMP medical director has specified, per ANSI Standard 288.2-1980 and OSHA 1910.120, that all hazardous material and hazardous waste handlers will be qualified medically by an annual medical record review, interview, and a respiratory questionnaire. In addition, the OMP shall perform tests and examinations as required to recommend that each worker is capable of withstanding the physical stresses and hazards associated with wearing PPE including respirators. The OMP examining physician provides an opinion regarding the relationship of existing disease to conditions on the job when "job related information" is furnished as outlined below.

The OMP is responsible for evaluating the physical ability of a worker to perform the task assigned. The OMP provides medical clearance to the worker for the work to be performed. The OMP may impose restrictions on the employee by limiting the amount or type of work performed. The PM (or the IH and/or HP with the approval of PM) must provide Form EG&G-3044 (Hazardous Material Worker Job Related Background Information) to the OMP for each hazardous material worker. This information must be submitted to the OMP before work begins and annually, one month before his/her birth date to maintain hazardous material worker medical clearance. Information required to qualify or restrict an employee as a hazardous material worker and to receive respirator training includes the following:

- Medical history and physical examination
 - Preemployment medical examination for full-time employees
 - Current comprehensive medical examinations for full-time employees in an INEL medical facility

- Records and reports from employees' private physicians, as required by the Site Occupational Medical Director
- Seen by OMP on return to work following an absence in excess of 40 hours as a result of an illness (as stated by EG&G Idaho Benefits)
- Immediate examination in the event a supervisor questions the physical condition of an employee
- Examination in the event the employee questions his/her physical condition
- Job related information (Form EG&G-3044)
 - What type of job does the individual perform?
 - When was the individual first exposed or working in an environment with potential hazardous exposure?
 - Relevant environmental monitoring (IH and HPT) data including sample dates and places (if the employee has been exposed to substances or physical agents above an action level)
 - How and when was/will the employee trained in PPE including respirators?
 - What type of respiratory protective device is to be used?
 - How many days per month is respiratory protection to be used?
 - How long is this work to continue?

The above information and examinations are used to determine the following for each employee:

- Ability to perform routine occupational tasks
- Work in protective equipment and/or heat stress environments
- Use of respiratory protection
- Need to be entered into additional specific medical surveillance examination programs.

Employees are cleared as Hazardous Material Workers with or without specific restrictions relating to heat stress, certain job tasks, and/or use of respirators. If the OMP does not have sufficient information at the time of request for clearance for respirator training, the supervisor is notified and clearance is withheld until the needed information is provided and any necessary additional examination or testing is completed.

Results of the following tests shall be made available to the OMP when any abnormal exposure is noted or a radiologic contamination incident occurs:

- Whole body count (baseline, annual, and on actual or suspected radiologic contamination incident)
- Bioassay (baseline, as required to assess internal radiation dose, and on actual or suspected radiologic contamination incident).

Subcontractors are responsible for being in compliance with health and safety requirements as stated in 29 CFR 1910.120. All medical data collected pursuant to hazardous material worker qualification of a

subcontractor worker shall be made available to the OMP. Background information about the subcontractor worker will assist the OMP in assessing the medical ability of the subcontractor worker to work should doubt arise during task operations. This information is also required from the subcontractor in order for the OMP to identify the subcontractor worker as a hazardous material worker.

It is the policy of the OMP that medical examinations for subcontractor workers be performed by OMP in the event of an IH and/or RE documented exposure to toxic substances or physical agents over an action level.

Before initiation of any task where a chemical/radiological hazard exists, the appropriate Medical Facility will be notified of the start of the task, anticipated schedules, and task site locations by the HSO. In addition, the OMP shall be supplied with an inventory of the known hazardous constituents located at the task sites.

If an exposure occurs above an action level and the IH identifies the need, or if personnel exhibit symptoms of exposure, the worker(s) shall be transported to the nearest medical facility for evaluation. Further medical evaluation will be in accordance with the symptoms, specific hazard involved, exposure level, medical surveillance requirements, current health and safety directives, and sound medical practices.

5. HAZARD EVALUATION

Personnel may be exposed to a variety of substances and physical agents while working at the task site. Exposures may be a result of contacting materials stored, handled, or disposed; equipment being used; weather conditions or time of day; environmental surroundings; and/or task specific working conditions. The FTL should asterisk all suspected hazardous materials pertinent to the task on the list provided in the Appendix A Task Specific Addendum. Any additional stress agents should also be listed in the Task Specific Addendum. All personnel working at a task site should be aware of existing hazards.

The following sections provide general information on the types of potential exposures anticipated while working at task sites.

5.1 <u>Chemical Agents</u>

Exposure to chemical agents may result when personnel come in contact with gaseous, liquid, or solid materials encountered at the investigation sites. Personnel shall make every effort to avoid direct contact with disposed or hazardous materials.

5.1.1 <u>Routes of Chemical Exposure</u>

Task operations personnel may be exposed to contamination through inhalation, ingestion, absorption (skin/eye), and injection (puncture wound).

 Inhalation of hazardous materials can occur due to lack or improper use of respiratory equipment, malfunctioning monitoring equipment, presence of undetected chemicals, or chemicals in quantities greater than the respiratory equipment protection limits.

- Gastro-intestinal system may be affected by hazardous substances when workers do not practice good personal hygiene habits (e.g., washing hands thoroughly after completion of work and before smoking, eating, drinking, and chewing gum or tobacco).
- Dermal absorption of solid, liquid, or gaseous hazardous substances can occur through cuts or abrasions. Dermal absorption can occur when a worker does not wear proper protective clothing or when a breach of protective clothing has occurred.
- Eye irritation may develop from solid, liquid, gaseous contaminants. This irritation may occur when a worker does not wear proper eye protection or when unwashed hands come in contact with the eyes.
- Hazardous substances may be injected into the body through puncture wounds occurring from contaminated equipment with sharp edges or protrusions.

5.1.2 Indicators of Chemical Exposure

Observable signs that a person may have been overexposed to chemical agents include:

- Changes in complexion, skin discoloration
- Lack of coordination
- Changes in demeanor
- Excessive salivation, papillary response
- Changes in speech pattern
- Breathing difficulties.

Signs of chemical exposure that cannot be observed by other personnel may include:

- Headaches
- Dizziness
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory tract.

5.2 Fire and Explosion

Many potential causes of explosions and fires exist at hazardous waste sites. Explosions and fires may arise spontaneously; however, they more commonly result from activities such as moving drums, accidentally mixing incompatible chemicals, introducing an ignition source into an explosive or flammable environment, or refueling equipment. Intense heat, open flame, smoke inhalation, flying objects, and the release of toxic chemicals into the environment can result.

To protect against this hazard, the SE will determine what monitoring equipment is necessary to detect explosive concentrations prior to reaching the lower explosive limit (LEL). Other preventive measures include keeping all potential ignition sources at least 50 feet from an explosive or flammable environment; using non-sparking, explosion-proof equipment; and following safe practices when performing any task that might result in agitation or release of flammable vapors or gases. Task personnel shall comply with all chemical hazard directives written for the area in which the task is being performed.

5.3 Oxygen Deficiency

Oxygen deficiency can result from the displacement of oxygen by another gas or the consumption of oxygen by a chemical reaction. Confined spaces or low-lying areas such as pits or trenches are particularly susceptible to oxygen deficiency and should always be monitored by the IH before entry. The <u>EG&G Safety Manual</u>, Section 20 Appendix A and the <u>EG&G Company</u> <u>Procedures Manual</u>, CP-11.3, should be reviewed by those working in a confined space.

5.4 <u>Radiological Hazards</u>

The potential exists for personnel exposure to radiologic contaminated materials and radiation fields while working at INEL. The RE will determine the possible radiological hazards and monitoring equipment necessary to alert operations personnel to airborne radioactivity and other sources. This information should be documented in the Appendix A Task Specific Addendum. Confined spaces (i.e., containment buildings, pits, and trenches) may be especially hazardous and should be monitored by a HPT before personnel entry. Use of high-efficiency particulate air (HEPA) filters may be recommended by the RE to ventilate work zones where particulate airborne activity may exist.

5.5 <u>Biological Hazards</u>

Waste from research facilities, garbage, and animal feces may contain disease-causing organisms. If these agents are present, they could infect task operations personnel and be dispersed in the environment by water and wind. It is recommended (not required) that operations personnel be immunized against tetanus bacteria, which live in the soil, to minimize the effects of possible exposure.

The FTL (or the HSO if designated by FTL) will inform task operations personnel that encounters with wildlife may be possible. Snakes, insects, and other animals can and will bite if disturbed and avoidance is the best solution. Prompt first aid will be performed if this type of injury occurs.

5.6 Industrial Safety Hazards

Numerous unsafe conditions or actions may be encountered. These may include:

- Existing objects and terrain
- Elevated work areas
- Lifting heavy objects
- Moving machinery and falling objects
- Personal protective equipment
- Task related equipment.

Task operations personnel should look for potential hazards and immediately inform the FTL of new hazards so that action can be taken to minimize injury due to an unsafe condition or action.

5.6.1 Existing Objects or Terrain

Existing objects and terrain can present safety hazards such as:

- Holes and ditches
- Precariously positioned objects (e.g., drums or boards that may fall)
- Sharp objects (e.g., nails, metal shards, and broken glass)
- Slippery surfaces
- Overhead power lines

- Steep grades
- Uneven terrain
- Unstable surfaces (e.g., walls that may collapse or flooring that may give way).

Additional safety hazards introduced by the task should be listed in the Appendix A Task Addendum.

5.6.2 Elevated Work Areas

During the course of task activities, personnel may be required to work on elevated equipment. When such work must be performed, the provisions stated in Section 16 of the <u>EG&G Safety Manual</u> shall be followed.

5.6.3 Lifting Heavy Objects

Operations personnel may risk injury by lifting heavy objects. All operations personnel should be trained in the proper method of lifting heavy equipment and cautioned against lifting objects that are too heavy. Mechanical and hydraulic assists will be used whenever possible to minimize lifting dangers.

5.6.4 Moving Machinery and Falling Objects

Task operations personnel may be subject to lacerations and contusions (cuts and bruises) when activity involves contact with moving machinery and falling objects. Injury can be minimized by wearing protective clothing, hard hats, steel-toed boots, and using mechanical assists whenever possible. Loose clothing or neck chains for security badges should not be worn when personnel work around equipment with moving parts or any other potentially hazardous piece of equipment. All moving and rotating machinery must be properly guarded and guarding must remain in place.

5.6.5 Personal Protective Equipment

Wearing PPE may reduce a worker's ability to move freely, see clearly, and hear directions and noise that might indicate a hazard. Also, PPE can increase the risk of heat stress. Personnel must adjust their work habits to accommodate limitations.

5.6.6 Task Related Equipment

Hazardous equipment and/or situations not mentioned above shall be listed in the Appendix A Task Specific Addendum. The FTL shall make all personnel aware of possible dangers associated with use of hazardous equipment and/or situations.

5.7 <u>Electrical Hazards</u>

Overhead power lines, downed electrical wires, and buried cables all pose the danger of shock or electrocution of workers. Electrical equipment may also pose a hazard to workers. Careful observation for overhead electrical hazards will be performed by operating personnel before raising masts on drill rigs or using cranes. Telecommunications (526-1688/526-2512) will be contacted to obtain underground utility clearances before drilling or excavating operations. The <u>EG&G Safety Manual</u>, Supplement 2.2 "Safe Work Permits (SWPs)/Special Safe Work Permits (SSWPs)," and Section 10, "Electrical Safety," shall be followed for all work performed near overhead electric lines and electrical work.

5.8 Heat Stress

Workers may be required to wear protective clothing that could prevent the body from cooling naturally, thus causing a rise in body temperature. High body temperatures can result in heat fatigue, physical discomfort, and death. The IH must inform the FTL of signs and symptoms of heat stress to

preserve safe work conditions at the task site. Work scheduled for summer months is subject to higher ambient temperatures than in winter. Radiant heat can create a hazard in the summer. The IH shall monitor the ambient air temperature and suggest adjustments of the work/rest cycles to the FTL according to the physical response of the workers. Guidelines for the work/rest schedule have been established by the American Conference of Governmental Industrial Hygienists (ACGIH) and are intended for the initial establishment of a work/rest schedule. The IH will evaluate task site conditions and suggest an initial work/rest schedule to the FTL. The IH may adjust this work/rest schedule as atmospheric conditions change and/or as indicated by the physical condition of task personnel.

Task operations personnel shall be aware of the following signs and symptoms of heat stress:

- <u>CONFUSION</u>
- <u>FAINTING</u>
- SLURRED SPEECH
- Clammy skin
- Dizziness
- Fatigue
- Nausea
- Profuse sweating
- Skin color change
- Vision problems.

Task operations personnel who exhibit any of these symptoms will be immediately removed from the task site. An individual who shows any of the symptoms that are capitalized and underlined, or any other evidence of change in level of consciousness, will be transported to an OMP facility for medical evaluation. Mental confusion and decreased level of consciousness must always be considered an emergency requiring medical evaluation and treatment. Use of an ambulance should be considered normal procedure in this situation. Individuals showing any of the remaining symptoms listed will be provided cool water and allowed to rest. On any occasion when the FTL, worker experiencing the heat stress symptoms, or IH believes the heat stress is severe or desires medical evaluation, the employee may be brought to an OMP medical facility.

Many methods are available to minimize the effects of heat stress besides personnel monitoring and varying the work/rest regimen. Work can be scheduled to begin early in the day or later at night to minimize the effect of radiant heat generally encountered in the afternoon. During break, each worker will rest and should drink cool liquids such as water or commercial drink mixes.

5.9 Cold Exposure

Exposure to low temperatures may be a factor if work is done in the evening hours, if winds are high, if unpredictable weather moves in, and in the winter months (e.g., at 50°F, with a 25 mph wind, the equivalent chill temperature is 32°F). Adequate protective clothing as required by IH should be worn to protect against the cold. Extra care must be exercised while working in this environment. Workers should observe each others facial extremities (ears and nose) for signs of frostbite (whitening of the skin surface). Decreased mental coherence and body movements are signs of hypothermia. Individuals with suspected hypothermia or other significant cold injury (e.g., frostbite) will be taken to an OMP medical facility.

5.10 <u>Noise</u>

Task operations personnel may be exposed to high levels of noise generated by heavy equipment and other sources. Any employee whose work exposes him/her to more than 85 dBA, 8-hour time weighted average or otherwise exceeds the noise exposure criteria, shall be placed in a hearing conservation program developed for the employee or task by the IH. The IH will survey the task site, designate, and post areas where hearing protection is required.

5.11 <u>Decontamination</u>

The hazardous and radiological decontamination processes for tools, equipment, and personnel to remove contaminant generated by the activities identified in this document have the potential for spreading contamination and increasing the exposure to personnel if care is not exercised when decontamination activities are taking place. High pressure hot water and steam used in the process can present a hazard if blasts of either agent rebound into the face or onto the body. Good housekeeping measures will be followed, so that decontamination liquids do not present a hazard.

5.12 <u>Work Stress</u>

Hazardous activities that rely on a high degree of personal alertness shall be performed under controlled conditions of job performance as outlined in Section 20 of the <u>EG&G Safety Manual</u>. The FTL assumes responsibility of good judgment in the assignment of personnel fatigued by excessive hours of work in psychologically and possibly physiologically stressful environments.

6. LEVELS OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

Selection of PPE is based on the recommendations contained in NIOSH, 10/85. Each work location will be evaluated for potentially hazardous contaminants by the SE, IH, and HPT before entry. Due to the types of known contaminants and the likelihood of unknown contaminants being present, several recommended levels of PPE are described in this section. The levels are Level A, Level B, Level C, and Level D. The required level for PPE will depend on the IH and RE task site hazard assessment, physical conditions, and monitoring data. The level of PPE used at the task site shall be specified by the IH and RE. The PPE level for each day shall be documented by the FTL in the Daily Activity Log.

Wearing PPE may increase work and heat stress. Without compromising the protection from chemical and radiological exposure, and considering the comfort of the workers, Level B and Level C clothing may be modified as stated in Chapter 8 of the referenced NIOSH, 10/85. That decision will be made by the IH and HPT and documented by the FTL in the Appendix A Task Specific Addendum.

When evaluating the task site to determine the levels of PPE, the IH should be aware that organic vapor detector readings can be affected by engine exhaust, dust particles, wind, moisture, radiation, temperature, and response of the chemicals measured. Professional judgment must be used when interpreting readings of the organic vapor detector.

6.1 Provisions for Task Site Evacuation

If measurements on the Combustible Gas Indicator (CGI) exceed 10% of the LEL for a duration of time indicated by the SE, the work will be suspended. The FTL in conjunction with the IH and the SE will determine the next course of action and develop safe procedures for continuing operations.

The RE, SE, and IH will establish provisions for task site evacuation based on the conditions that develop. These provisions shall be outlined in the Task Specific Addendum. If a task site evacuation occurs and conditions that prevent reentry persist, the PM in conjunction with the IH, HPT, FTL, and SE will determine a course of action that will allow safe operations.

6.2 Level D Personal Protective Equipment

Personnel working inside the task site and wearing Level D PPE shall wear, as a minimum:

- Safety glasses
- Safety shoes as described in Supplement 16.4 of the <u>EG&G Safety</u> <u>Manual</u>
- Hard hat
- Hearing protection (as required by the IH).

6.3 Level C Personal Protective Equipment

Personnel working inside the task site and wearing Level C PPE shall wear, as a minimum:

 Full-face or half-face air-purifying respirator (with appropriate filters and eye protection) as required by INEL Health Physics and the IH.

- NOTE: The use of half-face respirators is not permitted in a radiological environment without the program/facility manager's approval.
- Disposable chemical-resistant coveralls
- Anti-C clothing as recommended by RE if radiological hazards exist
- Safety shoes as described in Supplement 16.4 of the <u>EG&G Safety</u> <u>Manual</u>
- Chemical-resistant shoe covers
- Hard hat
- Inner chemical-resistant gloves
- Outer chemical-resistant gloves
- Hearing protection (as required by IH)
- Eye protection (as required by SE).

6.3.1 <u>Respiratory Protection</u>

All personnel shall wear only those protective respirators for which they have been trained and acceptably fit-tested. Respirators shall be used under the recommendation of the IH and HPT. Also, guidelines for respirator use, storage, cleaning, and maintenance, as stated in <u>EG&G</u> <u>Company Procedures Manual</u>, CP-11.1, shall be followed.

Inspection procedure performed before respirators are used:

- Check to make sure respirator is clean.
- Look for breaks or tears in the headband material. Stretch the bands to ensure sufficient elasticity.
- Ensure that all headbands, fasteners, and adjusters are in place and not bent.
- Check the facepiece for dirt, cracks, tears, or holes. Ensure that the rubber is flexible, not stiff.
- Check the shape of the facepiece for possible distortion that may occur if the respirator is not properly stored.

- Check the exhalation valve located near the chin between the cartridge holders by:
 - unsnapping the cover,
 - lifting the flexible rubber valve and the valve seat to check for cracks, tears, dirt, and distortion, and,
 - After replacing the cover, ensuring that it spins freely.
- Check both inhalation valves located under the respirator cartridges for the same items listed above.
- Check the cartridge holders to ensure that they are clean, necessary gaskets are in place, threads are not worn, and there are no cracks or other visible signs of damage and ensure that they are the correct type of filter required for the job.
- Check cartridges (especially the threaded portions) for dents or other damage.

6.3.2 <u>Respirator Repair and Replacement</u>

Respirators should not be repaired by unqualified personnel. Respirators requiring repair or replacement shall be sent to the Respirator Maintenance Facility CF 617 (phone 6-6380).

6.4 Level B Personal Protective Equipment

Level B is the same as Level C except the respiratory protection is upgraded to air supplied hood or SCBA. Personnel working inside the task site with designated Level B PPEs shall wear, as a minimum:

- Air supplied hood or SCBA
- Disposable chemical-resistant coveralls
- Anti-C clothing as recommended by the RE if radiological hazards exist

- Safety shoes as described in Supplement 16.4 of the <u>EG&G Safety</u> <u>Manual</u>
- Chemical-resistant shoe covers
- Hard hat
- Inner chemical-resistant gloves
- Outer chemical-resistant gloves
- Hearing protection (as required by IH).

6.5 Level A Personal Protective Equipment

In rare circumstances, it may be necessary for operating personnel to wear Level A PPE. Level A has the same maximum respiratory protection as Level B; however, the highest available skin and eye protection are required for Level A. All personnel required to wear Level A PPE should include:

- SCBA
- Fully encapsulating, chemical-resistant suit
- Additional Anti-C clothing as recommended by the RE if radiological hazards exist
- Safety shoes as described by Supplement 16.4 of the <u>EG&G Safety</u> <u>Manual</u>
- Chemical-resistant shoe covers (if applicable)
- Hard hat (if applicable)
- Inner chemical-resistant gloves
- Hearing protection (as required by IH).

7. SAFE WORK PRACTICES

An SWP or SSWP is required for work containing significant and unusual hazards or extremely hazardous activities as described in Section 2.4 of the <u>EG&G Safety Manual</u>. The SWP or SSWP shall be completed in accordance with the <u>EG&G Safety Manual</u>, Section 2.4 and Supplement 2.2. The SWPs for ERP specific tasks will be signed by the FTL, HPT, SE, IH, and the ASM as required. In addition, if an SSWP is required, it must be signed by the ERP Group Manager or the specified Program and/or Facility Manager for the field activities.

Several factors may affect the safe working environment in the field (e.g., inclement weather, extended working schedules, work in heavy PPE, temperature, and work done under artificial illumination). These factors can compromise the work performance of task operations personnel. The FTL is responsible for communicating with task operations personnel to ensure safe and efficient work conditions.

If it is anticipated that work schedules will be extended, Section 20 in the <u>EG&G Safety Manual</u> offers the guidelines and managerial approval needed for personnel working more than a 48-hour week. The FTL is responsible for the safety of task operations personnel; however, when work weeks are in excess of 48 hours, the FTL must realize that physiological and psychological stresses reduce the safety and efficiency of the field operations. The ultimate responsibility for safety of operations belongs to the FTL.

Work performed in heavy PPE creates additional stresses which severely limit the ability of operations personnel to work long shifts. The FTL should be aware of such limitations and adjust schedules accordingly. The IH and HPT will advise the FTL on this issue.

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If hot and/or windy conditions exist during the regular work shift, schedules may be changed to perform operations at night. Artificial illumination, although a necessity, can create an environment of reduced visibility for the workers. Task operations personnel must be alert and cautious as they maneuver around work areas.

The buddy system is an effective way of making sure each worker is monitored as to his mental and physical well being during the course of a work day. By using the buddy system, task operations personnel can reduce the chance of being ill or injured and not be noticed. This is particularly crucial for workers in the Exclusion Zone (Section 8.1). The FTL will pair workers to regularly check on one another during the day's activities. Each member of the pair will observe the other for alertness, motor functions, and coherence.

If the task requires performing work in a confined space, task operations personnel shall not enter the confined space until the atmosphere has been evaluated by safety personnel (i.e., HPT, IH, and SE) and a SWP and/or other procedure (e.g., DOP) has been approved. Personnel working in the confined space shall review Section 20, Appendix A of the <u>EG&G Safety Manual</u> before entering the confined space.

The following are general safe work practices to be followed on each task (if work practices vary from those described below, the FTL must record changes in the Appendix A Task Specific Addendum):

- Contact lenses shall not be worn in eye-hazard areas unless they are essential to correct a vision defect not correctable by prescription safety glasses. Additional restrictions apply as per the <u>EG&G Safety Manual</u>, Section 16, paragraph 3.7.
- Eating, drinking, chewing gum or tobacco, smoking, and any other practice that increases the probability of hand-to-mouth transfer

and ingestion of material are prohibited within the work zones (Section 8). Approved eating areas shall be established or are designated at each Area facility.

- Avoid contact with potentially contaminated substances. Do not walk through puddles, pools, mud, etc. Avoid kneeling, leaning, or sitting on equipment or the ground.
- Task operations personnel should watch for dangerous situations (the presence of strong, irritating, and/or nauseating odors, high airborne concentrations of dust, breached drums, etc.).
 Personnel should report all potentially dangerous situations to the FTL.
- Prevent releases of oil or hazardous materials used in task operations to the extent possible. If spillage occurs, contain it; report it to the ASM, where applicable; and immediately clean it up in accordance with the Emergency Preparedness Procedures for the Area.
- Prevent splashing of contaminated materials during decontamination.
- Task operations personnel will familiarize themselves with the physical characteristics of the task site including, but not limited to:
 - wind direction
 - accessibility to fellow workers, equipment, and vehicles
 - communications at and near the task site
 - exclusion zones (areas of known or suspected contamination)
 - site access (both Area and Task)
 - nearest water sources
 - nearest emergency assistance.

- At all times, a worker in the Exclusion Zone shall be in line-of-sight contact with his partner.
- Observe your coworker. Look for signs of exhaustion, heat or cold stress, or exposure to harmful vapors. Ask regularly if he/she is okay. Talk to your partner.
- All wastes generated during the task site investigation shall be managed in accordance with the <u>EG&G Safety Manual</u>, Section 15.
- Adhere to strict personal hygiene practices such as washing face, neck, and hands before eating, drinking, smoking, or using the restroom. Keep hands away from mouth and eyes when working in an Exclusion Zone or after handling samples or sample containers. A complete shower may be required at the end of a work shift (IH or HPT discretion).

8. WORK ZONES, SITE ENTRY, AND SECURITY

Based on the expected levels of contamination and work activity anticipated by each task, several work zones may be established for the task site. If it is determined that specific zones must be established for a particular task, then entry shall be controlled. Unnecessary personnel shall be excluded. Visitors must (a) notify the FTL in advance of the visit, (b) obtain the required training as specified in Section 3 of this H&S Plan, and (c) have business at the task site to obtain access.

Figure 8-1 provides an example of an approved work site and its established work zones as recommended by NIOSH, 10/85. If work zones are deemed necessary by the FTL upon the advice of the HPT, SE, and IH, each project's established work zones should be documented in the Task Specific Addendum. Several work zones required for Levels A, B, C, and D work activities are:

- Exclusion Zone
- Contamination Area
- Contamination Reduction Corridor
- Contamination Reduction Zone
- Support Area.

Radiological control zones will be incorporated into the work zones as stated in Section 8.6.

8.1 Exclusion Zone

The Exclusion Zone includes the immediate work area around the Contamination Area. The minimum number of personnel required to safely perform the required operations will be allowed into the Exclusion Zone. The cordon around the Exclusion Zone is called the "Hot Line."



Figure 8-1. Diagram of typical hazardous material task site as recommended by NIOSH, 10/85.

8.2 Contamination Area

The Contamination Area is the immediate area inside the Exclusion Zone where investigation activities are taking place. In this area, operations personnel may be subject to the hazards listed in Section 5.

8.3 <u>Contamination Reduction Corridor</u>

The Contamination Reduction Corridor is a transition area between the Exclusion Zone and the Support Zone. This area will serve as a decontamination area for equipment and a PPE removal area for task operations personnel. In addition, this area may contain emergency response equipment, equipment resupply, and a worker temporary rest area. Due to its sensitive nature, sample packaging and preparation equipment should <u>not</u> be stored here, but rather, in a contamination free area.

8.4 Contamination Reduction Zone

The Contamination Reduction Zone is an area that surrounds the Exclusion Zone and Contamination Reduction Corridor. This area may consist of several work stations (i.e., sampling, handling, and record keeping) as well as staging areas for equipment. The cordon around the Contamination Reduction Zone is called the "Contamination Control Line."

8.5 <u>Support Area</u>

The Support Area is the area outside of the Contamination Reduction Zone. It may contain the equipment trailer, command post, vehicle parking, equipment staging, or any support activity related to the task at hand. All personnel not trained in hazardous material work and visitors are restricted to this area.

8.6 <u>Radiological Control Zones</u>

If a task site is deemed to be radiologically hazardous as stated in the <u>EG&G Radiological Controls Manual</u>, Chapter 4, paragraph 3.1, Contamination Control Zones and/or Radiation Areas must be established at the task site.

Contamination is classified as Zone I, II, III, based on contamination levels, as follows:

Zone Classification	Contamination Levels (dpm/100 cm ²)		
	<u>Beta and Gamma</u>	<u>Alpha</u>	
I I I I I I	200 to 5000 >5000 to 20,000 >20,000	20 to 50 >50 to 250 >250	

The RE will determine the radiological zoning requirements and how these zones will be incorporated at the task site. All operations, barriers, and postings will be in accordance with the Chapter 4 requirements in the <u>EG&G Radiological Controls Manual</u>. These zones will be documented in the Appendix A Task Specific Addendum.

Radiation Areas are classified as:

- a. Radiation Area Any area, accessible to personnel, in which radiation exists at such levels that a major portion of the body could receive in one hour a dose in excess of 5 mrem.
- b. High Radiation Area Any area, accessible to personnel, in which radiation exists at such levels that a major portion of the body could receive in one hour a dose of 100 mrem or greater.
- c. Very High Radiation Area Any area, accessible to personnel, in which radiation exists at such levels that a major portion of the body could receive in one hour a dose of 5000 mrem or greater.

9. ENVIRONMENTAL MONITORING

Employee exposure to contaminants and physical hazards will be monitored during all task site activities using a combination of techniques. The FTL in conjunction with the IH, HSO, RE, SE, and HPT for each task should list the equipment monitoring requirements for specific potential hazards in the Task Specific Addendum. An <u>example</u> of items that may be required is:

- 1. Organic vapor using an organic vapor monitor
- 2. Combustible gas using a combustible gas indicator
- 3. Heat or cold stress using field measurements and observations and, if necessary, body temperature measurements
- 4. Radiation surveys using radiological monitoring equipment that is operated by a HPT
- 5. Personal exposure to organic vapors, particulate contamination (heavy metals) using personal monitoring pumps and appropriate filter collection media (active sampling)
- Personal exposure to radiation using Thermoluminesent Dosimeters (TLDs) and direct reading dosimeters
- 7. Mercury vapors using a mercury vapor detector
- 8. Noise levels using a sound level meter and/or noise dosimeter.

9.1 <u>Chemical Exposure Monitoring</u>

Personnel working in an Exclusion Zone will be monitored for organic vapors <u>in the breathing zone</u> (chest or face level) as specified by IH and in accordance with CP-11.5 in the <u>EG&G Company Procedures Manual</u>. Negligible readings from the organic vapor detector should <u>never</u> be interpreted as a complete absence of airborne toxic substances. If the indicator on the organic vapor detector rises to 100 ppm above background (or any other limit and timeframe specified by the IH in the Appendix A Task Specific Addendum), the IH will advise on an appropriate plan of action.

9.2 <u>Combustible Gas Monitoring</u>

If deemed necessary by the SE, the task site will be monitored for combustible gases at time intervals recommended by the SE. Elevated readings from the organic vapor detector might indicate the presence of combustible gases. If at any time the LEL is greater than 10%, work at the task site will be suspended. The SE and IH will advise the FTL on the course of action and ensure the task site is safe before work continues.

9.3 <u>Radiological Monitoring</u>

The RE and HPT will be responsible for radiological monitoring and determination of appropriate PPE in accordance with the <u>EG&G Radiological</u> <u>Controls Manual</u>. It is the responsibility of the HPT to assure the presence of the appropriate radiological instruments at the task site. This information should be recorded in the Appendix A Task Specific

Addendum by the FTL. The HPT will initiate steps to confine/minimize any radiological hazards that arise in accordance with the designated Area PDs.

Personnel entering a task site must follow the Area program directives regarding the use of TLDs and direct reading dosimeters to monitor individual radiological dosages. In addition, bioassays may be required as specified in Section 4 of this H&S Plan.

9.4 Heat and Cold Stress Control and Monitoring

The FTL will set work and break schedules depending upon the ambient weather conditions or work conditions in coordination with the IH. The HSO and/or IH will ensure that operations personnel follow established work and break schedules, adequately replace body fluids, and keep body temperatures in a normal range.

The IH may use the Wet Bulb Globe Temperature (WBGT) index to assess work conditions with regards to heat stress. Results of the monitoring will be used to establish the initial work/rest regime.

The work/rest schedule recommended by the American Conference of Governmental Industrial Hygienists (ACGIH), assuming a moderate work load, should be established as follows:

	WBGT	
Work/Rest Regime	<u>•</u> F	<u>°C</u>
Continuous Work	80	26
75% work, 25% rest, each hour	82	28
50% work, 50% rest, each hour	85	29
25% work, 75% rest, each hour	88	31

However, the guidelines established by the ACGIH cannot account for the acclimatization of workers, thus being conservative. This work/rest regime is also based on a 5-day/8-hour schedule and, if necessary, must be adjusted by the IH to accommodate the 4-day/10-hour schedule.

The FTL in coordination with the IH will adjust the schedule if it is determined that the rest breaks are not effective and the workers not acclimatized to existing conditions. Workers will be interviewed by the IH and/or HSO periodically to ensure that the controls are effective and excessive heat exposure is not occurring. Workers will be encouraged to monitor their body signs and take a break if symptoms of heat stress occur.

Rest breaks shall include the following preventive measures:

- Drink adequate liquids
- Rest in a cool, shaded area
- Remove protective clothing to allow evaporative cooling
- Do not perform other work during the break.

If personnel are wearing semipermeable or impermeable PPE, the work/rest schedule may be adjusted and monitoring of individual personnel temperatures may be required by the IH. If ambient temperatures are considered excessive by the IH and/or symptoms outlined in Section 5.2.7 exhibited, workers must be monitored for heat stress and recovery. This includes measuring heart rates and temperatures. Temperatures can be obtained using disposable thermometers. The HSO will ensure that sufficient liquids (electrolyte replacement fluids such as Gatorade) are provided and that they are consumed only in the designated and approved eating/drinking area.

Finally, the FTL or IH will refer a worker to the OMP for medical evaluation whenever there is doubt concerning the medical ability of an employee to continue in the assigned task.

9.5 <u>Noise-Level Monitoring</u>

If high noise levels are encountered by operations personnel at the task site, worker exposure will be assessed by the IH. A hearing conservation program must be developed by the IH when the sound levels exceed an 8-hour time weighted average of 85 dBA. Noise level monitoring, PPE requirements, and audiometric tests shall be outlined in the hearing conservation program for the task or employee. Requirements shall be imposed by the PM based on the advice of the IH and the requirements stated in the <u>EG&G Company Procedures Manual</u>, CP-11.7 and the <u>EG&G</u> <u>Industrial Hygiene Manual</u>, Section 26.

9.6 <u>Physical Hazard Control and Monitoring</u>

The FTL will have the primary responsibility for ensuring the task site is maintained in a safe condition by requiring maintenance of barriers and signs, correction of unsafe conditions, and cleaning of debris and trash. The IH, SE, and HPT will inspect and recommend changes in work habits to the FTL.

Individuals working on a task have a specific responsibility to use safe work techniques, report unsafe working conditions, and exercise good personal hygiene and housekeeping habits throughout the course of their job.

9.7 <u>Record Keeping Requirements</u>

ERP is required to maintain the following information in the ARDC program file in accordance with 29 CFR 1910.120:

• Copies of the Management Plan for the ERP, Task Specific H&S Plan, QPP, QAPjP, and workplan
In addition, ERP shall track the following information for each ERP hazardous material worker through its Quality and Compliance Unit:

- Proof of training in health and safety hazard recognition, radiation worker training, respirator training, and any other training specific to the employee
- Scheduling of required training and updates
- Copy of the signed Health and Safety Certification Form.

The IH is required to maintain a logbook of air monitoring data, personal sampling data, times of sampling intervals, calibration of instruments, and identity of personnel wearing the monitoring equipment. Instrumentation detection ranges and uncertainties should also be recorded in the IH logbook. The HPT is required to keep a logbook of all radiological monitoring, daily operational activities, and instrument calibrations. All project records and logbooks, except HPT logbooks, shall be forwarded to ARDC at intervals agreed upon by the FTL and ARDC.

10. DECONTAMINATION PROCEDURES

Decontamination procedures for personnel and equipment are necessary to control contamination and to protect operations personnel. If equipment or personnel are radiologically contaminated, decontamination procedures shall be specified by the RE using guidelines established in the <u>EG&G Radiological Controls Manual</u>. Combined chemical and radiation decontamination procedures are not discussed here and must be developed by the IH and RE if required for a specific task. Decontamination procedures must be presented in the Task Specific Addendum. These procedures can be amended upon recommendations by the IH and RE. When chemically hazardous material decontamination is required, the following procedures are suggested.

10.1 Modified Level A and B Decontamination Procedures

If Level A or B PPE is required, then two decontamination stations will be used at the task site--one at the hotline between the Exclusion Zone and the Contamination Reduction Corridor and one at the Contamination Control Line, which is the personnel access point to the Support Zone from the Contamination Reduction Zone. Decontamination Station A supports personnel and equipment exiting the Exclusion Zone. Figure 10-1 lists the recommended decontamination procedures. Steps 1 through 8 shall be completed at Station A. Coveralls shall be removed at Station B.

10.2 Modified Level C Decontamination Procedures

Decontamination Station B should be located at the personnel access to the Contamination Reduction Corridor. It is to be used by personnel working in the Contamination Reduction Corridor. Figure 10-2 lists the modified Level C decontamination procedures. If Tyveks are worn (if recommended by the IH), they are decontaminated and removed at Station A.

1.	Remove equipment	
2.	Wash and rinse boot covers and gloves	ZUNE
3.	Remove tape	
4.	Remove hood, boot covers, and outer gloves	
5.	Disconnect air hose and tape end	
 		HOT LINE (STATION A)
6.	Wash and rinse suit and boots	
7.	Remove suit	
8.	Wash, rinse, and remove inner gloves	CORRIDOR
9.	Remove coveralls	
10.	Field wash/shower	(STATION B)
11.	Put on personal clothing	SUPPORT ZONE

Figure 10-1. Recommended modified Level A and B PPE hazardous chemical decontamination steps.

1. 2. 3.	Remove equipment Wash and rinse boot covers and gloves (if worn) Remove and drop respirator	CONTAMINATION REDUCTION CORRIDOR
4.	Wash, rinse, and remove suit (if worn)	
5.	Wash, rinse, and remove inner gloves	
6.	Remove coveralls	
7.	Field wash/shower	CONTAMINATION CONTROL LINE (STATION B)
8.	Put on personal clothing	SUPPORT ZONE

Figure 10-2. Recommended modified Level C PPE hazardous chemical decontamination steps.

At the end of the work day, a full-body shower (including a soaping with a wash cloth) may be required by the IH or HPT.

10.3 <u>Equipment Decontamination and Disposal</u> <u>of Contaminated Materials</u>

Decontamination procedures for equipment should be recorded or referenced in the Task Specific Addendum. All waste generated by performing decontamination must be disposed in accordance with Section 15 of the <u>EG&G Safety Manual</u>. Disposable clothing, tools, buckets, brushes, and other contaminated equipment shall be secured in containers provided by EG&G and stored in a suitable location for disposal by EG&G. Unused contaminated equipment that can be used at a later time shall be placed in plastic bags and stored at the task site. Waste disposal shall comply with <u>EG&G Safety Manual</u>, Section 15.

10.4 Decontamination During Medical Emergencies

If a person is injured or becomes ill and lifesaving care is required, the situation will be evaluated by the appropriate personnel (e.g., first aid personnel) on a case-by-case basis. Emergency care will be initiated in accordance with the emergency preparedness procedure for the facility at which the task is being performed. The IH and/or HPT will accompany the employee to the medical facility and relay information requested by medical personnel.

11. EMERGENCY PROCEDURES, EQUIPMENT, AND INFORMATION

Work at hazardous waste sites makes emergencies a continual possibility, no matter how infrequently emergencies may occur. Emergencies happen quickly, unexpectedly, and require immediate response. Locations and telephone numbers of emergency personnel and facilities will be posted at places specified in the Task Specific Addendum. The appropriate emergency facilities will be notified by telephone at the beginning of the project to inform personnel at the facilities that work has begun at the task site. The following sections describe the procedures used during emergency situations; equipment that will be available for emergency situations; and agencies, facilities, and personnel who must be notified in case of emergency.

11.1 <u>Emergency Procedures</u>

The following procedures will be used if an emergency arises:

- FTL will be notified of accidents or conditions that have the potential for adversely affecting or threatening personnel safety, property, or environment. The FTL is responsible for ensuring that the appropriate procedures are followed in the event of an accident or unusual condition.
- All injuries will be reported and recorded in a field logbook.
- All occupational injuries or illnesses deemed reportable by the SE, vehicle accidents resulting in damage or losses above \$500, and property damage occurrences resulting in losses of \$1000 or more will be reported on the Timely Incident Posting System (TIPS) and DOE Form 5484X. The form will be completed and transmitted to the Environment, Safety, and Quality Department on or before the 10th day of the month following the date of the

accident. The <u>EG&G Safety Manual</u>, Section 3, Supplement 3.2 should be reviewed to determine if the accident is reported as an Unusual Occurrence.

11.1.1 <u>Personnel Occupational Injury or Illness in the Exclusion Zone</u>

In the event of an occupational injury or illness in the Exclusion Zone, an assessment of the situation shall be made by the FTL using the advice of appropriate personnel (e.g., IH, SE, personnel trained in first aid). If the situation is deemed reportable as described in Supplement 3.1 of the <u>EG&G Safety Manual</u>, the FTL is responsible for initiating reporting procedures. In addition, task personnel shall act in accordance with the emergency preparedness procedures for the facility at which the task is being performed. In the event that the task site is shut down due to an injury, task operations personnel shall not reenter the Exclusion Zone until the cause of the injury or illness is identified and corrective action implemented. Decontamination shall be performed in accordance with the above mentioned emergency procedures and with recommendations made by the IH, HPT, and/or first aid personnel.

11.1.2 Personnel Occupational Injury or Illness in the Support Zone

If an occupational injury or illness occurs in the Support Zone, the same procedures as described in 11.1.1 shall be followed. If the FTL determines the cause of the occupational injury or illness and the absence of the injured or ill party does not affect the performance of other personnel, task operations will continue.

11.1.3 <u>Transportation of and Follow-up of Injury</u>

An injured worker transported to a medical facility will be accompanied by at least one worker (preferably the IH and/or HPT) to inform medical personnel of the level of decontamination performed before

leaving the task site and provide specific details about the illness or injury.

11.1.4 Fire/Explosion

Before initiating task activities, brush and grass will be cleared from the task site to eliminate the risk of fire. The <u>EG&G Safety Manual</u>, Section 11 and any applicable facility emergency preparedness procedures shall be reviewed.

In the event of a fire or explosion, all personnel not essential to controlling the situation will be evacuated from the task site and fire and explosive experts will be notified. In addition, Section 11 of the <u>EG&G Safety Manual</u> and applicable emergency preparedness procedures for the facility at which the task is being performed shall be followed.

11.1.5 <u>Personal Protective Equipment Failure</u>

If any task site worker experiences a failure or alteration of PPE, that person and his workmate shall immediately leave the Exclusion Zone. The HPT and IH will assess the situation and determine if exposure to hazardous substance or radiological uptake has occurred. Reentry will not be permitted until the equipment has been repaired or replaced.

11.1.6 Other Equipment Failure or Hazardous Material Spill

If task site equipment fails to operate properly, the FTL will be notified and will determine the effect of the failure on continuing operations. If the failure affects the safety of personnel or prevents completion of the tasks described in the Sampling and Analysis Plan (SAP) or other workplan, operations personnel shall leave the task site until the situation is evaluated and appropriate actions are taken.

If hazardous or potentially hazardous material is spilled, refer to the emergency preparedness procedure for the Area in which the task is being performed and report the spill to Area personnel as directed. Spillage of petroleum products, decontamination solutions, calibration material, equipment fuels, and other liquids containing hazardous materials must be assessed.

11.1.7 <u>Hand Signals</u>

Hand signals shall be used if an emergency situation arises and communication becomes impossible or unsafe. The following hand signals will be used in an emergency:

- Hand gripping throat signals that the person is out of air or cannot breathe
- Grip partner's wrist or both hands around waist means leave area immediately
- Hands on top of head signals that assistance is needed
- Thumbs up okay, I am all right, I understand
- Thumbs down no, I am not all right, I do not understand.

11.1.8 <u>Emergency Escape</u>

In cases of <u>life-threatening</u> emergencies such as fire or explosion, personnel should leave the vicinity using the shortest possible route without regard for decontamination at that time and move upwind of the affected area. When the situation has stabilized, personnel will take necessary steps to decontaminate themselves, equipment, and other affected areas.

11.1.9 Task Operations Shutdown

Task operations may be suspended for several reasons as indicated below. However, the reasons for operations shutdown are directly related to the degree of hazard each task possesses. Specific reasons for suspending task operations should be listed in the Appendix A Task Specific Addendum. Examples include excessive vapor/gas concentrations, radiological hazards, uncovering waste, inclement weather, etc.

- If a combustible gas indication >10% of the LEL occurs, indicating a buildup of explosive vapors, work shall stop.
 Evaluation of the situation will be made and a course of action determined by the FTL in conjunction with the IH and SE.
- When significant radiological hazards are identified by an HPT at the sampling site.
- When actual waste material is uncovered or found in soil samples, even when the appearance of such material may not be associated with a rise in detected contamination levels.
- In addition, drilling, sampling, instrumentation, and other weather sensitive activities will stop during consistent high winds (i.e., greater than 25 mph), electrical storms, or other inclement weather that may affect the work.

11.1.10 Task Site Reentry

In all situations, when a task site emergency results in evacuation of the task site, personnel shall not reenter until authorized to do so by the FTL. The FTL will ensure that:

- 1. The hazards have been reassessed by the HSO, IH, SE, and/or the RE.
- 2. The conditions resulting in the emergency have been corrected.
- The task specific H&S Plan, SAP, Operational Safety Requirements/Safety Assessments, Standard Operating Procedures, DOPs, and the Area Emergency Action Plan have been reviewed.
- 4. Site personnel have been briefed on any changes in the ERP task specific H&S Plan.

Reentry into an evacuated zone to monitor or collect air samples requires minimum Level C PPE. The IH may upgrade to Level B or A if deemed necessary.

11.2 <u>Emergency Equipment</u>

The following emergency equipment shall be available at the task site during field operations as required. (A complete emergency equipment list shall be provided in the Task Specific Addendum in Appendix A.)

<u>Fire Extinguishers</u>: Because of the potential threat of fire at hazardous waste sites, at least one 20-pound (minimum) ABC fire extinguisher will be readily available and at hand throughout the task activities. Additional fire extinguishers may be necessary. This should be indicated in the Appendix A Task Specific Addendum.

<u>SCBA</u>: Two SCBAs will be available for emergencies such as reentering a contaminated zone to retrieve injured personnel.

<u>First Aid Kits</u>: An industrial first aid kit with sufficient supplies for five people shall be kept in the Support Zone. At least one individual on

the task will be trained and certified in First Aid and CPR. The OMP will advise on the selection of first aid supplies to be included at each task site. The HSO will be responsible for maintaining the proper level of first aid supplies in the task site first aid kit.

<u>Eye Wash</u>: Portable eyewash fountains and sufficient potable water for flushing will be readily available for the duration of the task. The location of the eyewash will be determined by the IH.

<u>Communications</u>: Emergency telephone numbers shall be included in the Appendix A Task Specific Addendum and posted for all operations personnel. Emergency communication shall be discussed in the safety training prior to initiation of site investigation activities. A two-way radio or telephone with capability to contact emergency personnel shall be located on each task site.

<u>Personal Hygiene</u>: A sufficient supply of clean water and hand soap will be provided at the task site.

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12. BIBLIOGRAPHY

American Conference of Governmental Industrial Hygienists, <u>Threshold Limit</u> <u>Values and Biological Exposure Indices for 1988-1989</u>, Second Printing.

EG&G Company Procedures Manual.

EG&G Emergency Action Manual.

EG&G Environmental Restoration Program, Program Directives.

EG&G Industrial Hygiene Manual.

EG&G Radiological Controls Manual.

EG&G Safety Manual.

Environmental Restoration Program, <u>Health and Safety Plan for Operations</u> <u>Performed for the Buried Waste Program</u>, EGG-WM-8504, May 1989.

<u>Management Plan for the EG&G Environmental Restoration Program</u>, EGG-WM-8676.

NIOSH/OSHA/USCG/EPA, <u>Occupational Safety and Health Guidance Manual for</u> <u>Hazardous Waste Site Activities</u>, October 1985.

OSHA, 29 CFR 1910.120.

Hazardous Material References:

Buried Sludge Waste Characterization, TLC-29-88, T. L. Clements, Jr. ltr to C. J. Bonzon, May 2, 1988.

Engineering Design File BWP-ISV-004, Detailed Estimate of Radioactive Contents for Pit 9, E. C. Garcia and J. L. Knight.

Estimate of Rocky Flats Plant Organic Wastes Shipped to the RWMC, D. E. Kudera, July 24, 1987.

Radioactive Waste Management Information System content code material listing, 1954 to 1970.

APPENDIX A

Logic Diagrams

CHANGE CONTROL

Changes to this Long-Range Planning Document will be controlled by issuance of a revised copy. The original document will be called Revision 0. Subsequent revisions will be Revision 1, Revision 2, Revision 3, etc. The EG&G GTCC-LLW Program Manager will control this document.

The original document will be kept and controlled in the GTCC-LLW Program file.

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APPENDIX A

HEALTH AND SAFETY PLAN TASK ADDENDUM FOR OPERATIONS PERFORMED FOR THE ENVIRONMENTAL RESTORATION PROGRAM

RADIOACTIVE WASTE MANAGEMENT COMPLEX SUBPIT SAMPLING AND ANALYSIS PLAN EGG-WM-9244 Revision O Page A-2

HEALTH AND SAFETY PLAN TASK ADDENDUM FOR OPERATIONS PERFORMED FOR THE ENVIRONMENTAL RESTORATION PROGRAM

RADIOACTIVE WASTE MANAGEMENT COMPLEX SUBPIT SAMPLING AND ANALYSIS PLAN (EGG-WM-9244)

This addendum (Appendix A) complements the Health and Safety Plan for Operations Performed for the Environmental Restoration Program, EGG-WM-8771.

TASK: <u>RWMC Subpit Sampling</u>

DATE: <u>9-14-90</u>

EGG-WM-9244 Revision O Page A-4

HEALTH AND SAFETY PLAN ADDENDUM FOR OPERATIONS PERFORMED FOR THE ENVIRONMENTAL RESTORATION PROGRAM RWMC SUBPIT SAMPLING AND ANALYSIS PLAN

APPROVED BY:

J.	Β.	Hebdon, WAG 7 Manager	Date
RE	VIE	WED BY:	
T.	Ρ.	O'Rourke, Project Manager	Date
<u>M.</u>	Μ.	Garcia, Task Industrial Hygienist	Date
R.	С.	Caummisar, Task Safety Engineer	Date
s.	Ε.	MacLeod, Task Radiological Engineer	Date
s .	Μ.	Medina, Task Environmental Engineer	Date
D.	L.	French, RWMC/SWEPP Operations	Date
W.	F.	Belk, Occupational Medical Program	Date

(Original signatures appear on DRR #ERP-174 dated October 9, 1990)

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ACRONYMS AND ABBREVIATIONS

anti-C	anti-contamination
C	carcinogeneity
CAM	constant air monitor
CAS	Chemical Abstract Services
CFA	Central Facilities Area
CH	carcinogeneity established for humans
CSA	carcinogeneity suspected for animals
CSH	carcinogeneity suspected for humans
DAC	derived air concentration
DOP	detailed operating procedures
EDTA	Ethylene diametetraacetic acid
EG&G Idaho	EG&G Idaho, Inc.
HAZMAT	hazardous material
HEPA	high-efficiency particulate air
HP	health physics technician
HSO	health and safety officer
IH	industrial hygienist
INEL	Idaho National Engineering Laboratory
OMP	Occupational Medical Program
OSHA	Occupational Safety and Health Act
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PM	project manager
PPE	personal protection equipment
QA/QC	quality assurance/quality control
RML	Radiation Measurements Laboratory
RSA	radiological safety analysis
RWMC	Radioactive Waste Management Complex
S&T	science and technology
SCBA	self-contained breathing apparatus
SWEPP	Stored Waste Examination Pilot Plant
TCE	trichloroethylene
TLD	thermoluminescent detector
TLV	threshold limit value
TRA	Test Reactor Area
WMF	Waste Management Facility

WMF Waste Management Facility WCC Warning Communications Center

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HEALTH A	ND SAFETY PLAN ADDENDUM								
	Pro	oject No. <u>9244</u>							
Task: <u>RWMC_Subpit_Sample_Handlin</u>	g DOE Operations Office:	Jaho							
Project Manager: <u>T. P. O'Rourke</u>	Phone No.:	526-9897							
Other Contacts: R. M. Lugar									
	Pho	one No: 525-5649							
	Pho	one No:							
Date Plan Requested: October 1	990								
Purpose of Task: Drill. sample.	receive, containerize, documer	nt. and							
ship environm	ental samples for analysis								
Proposed Dates of Work: October	1990	<u></u>							
Proposed Site Investigation Team	(2)(2 3)								
<u></u>									
Personnel:	Discipline/Tasks Assigned	1.							
R. M. Lugar	Task Project Manager (Field Te	am leader)							
I. Anderson	Field Team Member*								
T. A. Miller	Field Team Member [*]								
and the second	<u>rend reum tremeet</u>								
	*Subject to change depending o	n project							
	schedule.	<u></u>							
	<u> </u>								
University of the second s									
Other:	Purpose								
(Including task project	Turpose.								
manager alternates)									
••••••••••••••••••••••••••••••••••••••									
<u>Plan Preparation</u>									
Prepared by: [Numbers in parentheses indicate	J. M. Brooks	$\frac{(5/24/90)}{\text{and Safety}}$							
Plan associated with this inform	ation.]	and Jarevy							

FIELD ORGANIZATIONAL CHART (2.)



Task: Subpit Sampling

 Line of Authority Line of Communication EGG-WM-9244 Revision 0 Page A-10

SCOPE OF WORK (Task 1, Task 2, etc.)

<u>General: This Health and Safety Plan Addendum addresses the basic tasks to be</u> <u>performed for the drilling, recovery, and initial packaging of samples from</u> <u>the Radioactive Waste Management Complex (RWMC) Acid Pit and Exterior Pit 9.</u> <u>It also addresses the tasks to properly log, containerize, and ship these</u> <u>samples. Specific tasks are given below.</u>

1. Drilling, Retrieval-Drilling is to be performed at the exteriors of the Acid Pit and Pit 9 by use of a Sonic Drill. Drill penetration relies heavily on vibration and low speed rotation to advance the drill string. Enough weight is applied to keep the bit at the cutting surface allowing coring to take place where the cuttings are included as part of the core sample and provide little chance of cross contamination. Core samples will be retrieved via a split spoon sampler.

2. Handling, Containerizing-All subpit core soil samples will be received inside a split spoon sampler. Initially, the split spoon sampler will be bagged and labeled. After initial bagging and labeling, the split spoon containing the core sample will be transferred to Waste Management Facility (WMF) 601 or WMF 602 for repackaging and containerizing prior to shipment to the analytical laboratories. (See the Radioactive Waste Management Complex Subpit Sampling and Analysis Plan [EG&G Idaho, Inc. (EG&G Idaho), 1990] for further details).

3. Package for Shipment from the RWMC-Samples will be packaged in individual containers for each analysis requested. Samples will be prepared in a laboratory hood in WMF 601 or in a portable hood equipped with a highefficiency particulate air (HEPA) filter in WMF 602. Containers will be sealed and labeled in accordance with documentation requirements outlined in the Sampling and Analysis Plan (EG&G Idaho, 1990).

4. Transportation-EG&G Idaho will transport samples to the Central Facilities Area (CFA) and the Test Reactor Area (TRA) analytical laboratory, provided field measurements indicate the samples meet each lab's sample acceptance criteria. Site services will arrange shipment to the appropriate laboratory from these facilities.

5. Analysis-Sample analysis is to be performed for radionuclides at the Idaho National Engineering Laboratory (INEL) Radiation Measurements Laboratory (RML), while volatile organics, semivolatile organics, pesticides, polychlorinated biphenyls (PCBs), dioxins/dibenzofurans, metals, sulfide, cyanide, tributyl phosphate, total petroleum hydrocarbons, sequential extraction, and ethylene diaminetetraacetic acid (EDTA) will be analyzed by a contract laboratory.

6. Well Installation-Upon completion of coring procedures and sample retrieval, a high-strength fiberglass monitoring well will be installed in all of the boreholes. These wells will be used to collect gas or liquid samples. The well will also allow for periodic downhole geophysical measurements to identify material and contaminants within and beneath the pits.

7. Disposal-Samples will be returned to the Environmental Restoration Program (ERP) for appropriate disposal based on the sample results. Sample material will be disposed of with collected waste material from the sampling process. Disposal of waste generated during sample handling and containerizing will be coordinated with RWMC operations and disposal will be the responsibility of the ERP.

TRAINING CONDUCTED IN FIELD

<u>Attendees</u>

<u>Subject</u>

All Site Personnel

Review of Appendix A, Task-Specific Health and Safety Plan Site-specific training

a. This table reflects formal and informal training conducted in the field by Safety Personnel.

Employee Name											
Topic	Hours	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
Introduction											
First Aid											
CPR							1				<u> </u>
Decontamination											
OVA									· · · · · · · · · · · · · · · · · · ·		<u> </u>
HNu				···							
SCBA Review				- · · " _							
Sampling											
Task Specific		··-								·	
OSHA		·			· · · ·						
Respirator					<u> </u>	· · · · · · · · ·					
Radiation											
Personnel Monitoring											

BACKGROUND

Task Site Description (1.2): <u>Sonic drilling will be used for reaching sample</u> <u>depth inside the Acid Pit and the exteriors of both pits.</u> <u>Samples collected</u> <u>from the RWMC Acid Pit and Pit 9 will be handled, logged, and packaged for</u> <u>shipment in a Class A hood with HEPA filtered exhaust in WMF 601 or WMF 602</u> <u>(portable hood). Well installation will occur in the Acid Pit, the exterior</u> <u>of the Acid Pit, and the exterior of Pit 9.</u>

Waste Description (type and location): <u>Samples will be received from split</u> <u>spoon samplers for handling, packaging, shipping, and documenting. The</u> <u>samples will consist of subsurface core soil samples collected from the RWMC</u> <u>Acid Pit and the Pit 9 exterior. Soil samples collected from the Acid Pit may</u> <u>contain low concentrations (approximately 500 ppm or below for each</u> <u>constituent) of various volatile and semivolatile organic compounds,</u> <u>pesticides, PCBs, dioxins and dibenzofurans, toxic metals, sodium,</u> <u>potassium, nitrates, acids, sulfides, and cyanide. Little radioactive</u> <u>contamination is expected in the samples from the Acid Pit. Pit 9 samples may</u> <u>contain any of the contaminants listed for the Acid Pit in addition to</u> <u>tributyl phosphate, total petroleum hydrocarbons, EDTA, and radionuclides.</u> Unusual Features (e.g., containers, buildings, dikes, power lines, terrain):

None.

Status of task site (active, inactive, unknown):

Samples will be collected from inactive disposal sites.

History (worker or nonworker injury, complaints from public, previous agency action):

No previous adverse reports known.

Previous On-site Monitoring; Previous Sampling Data:

No previous quantitative field sampling investigations have been performed at this particular pit. Trace amounts of organic vapors have been detected from soil gas analysis in addition to some contamination in the perched and regional aquifer. Previous soil gas analysis from Pit 9 has revealed concentrations ranging from 143-222.6 ppm for CCl₄, 14.7-126.9 ppm for trichloroethylene (TCE), and 3-6 ppm for tetrachloroethylene (PCE). Samples taken in the breathing zone in the same areas did not reveal any measurable concentrations of these contaminants (Golder and Associates, 1987). Disposal records and interviews with employees have been used to develop current qualitative, and in some cases quantitative, information for the entire subsurface disposed area (SDA). (Garcia and Knight, 1989).

POTENTIAL ON-SITE HAZARDS (5.)

Asterisk or add those materials that may be present at the task site:

*1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane *1,1-Dichloroethane *1,1-Dichloroethylene 1,2-Dichlorobenzene 1,2-Dichloropropane 1,2-Trans-Dichloroethylene Acetone Acids(HF, HCl, etc.) Aluminum²⁴¹Americium Ammonia Animal carcasses and feces Arsenic Asbestos Barium Batteries Benzene Beryllium Butane (probably in compressed gas cylinders) Cadmium (Perchloroethylene) Calcium Calcium silicate *Carbon tetrachloride Caustic compounds (NaOH, etc.) *Chloroform Chromium Cobalt Copper *Cyanide Dichlorodifluoroethane

*Dichlorodifluoromethane Ethylene glycol Gasoline Herbicides Lead Magnesium Meat with botulinus Mercury Mixed activation products Mixed fusion products Nickel Nitrate 0il *²³⁸Pu, ²³⁹Pu, ²⁴⁰Pu, ²⁴¹Pu,²⁴²Pu Potassium *Regal Oil Roaster oxide *Santo Wax Sodium Tantalum *Tetrachloroethylene Thallium oxide Toluene *Trichloroethylene (Trichloroethene) Tritium *²³³U,²³⁵U,²³⁸U UO₂ powder Vanadium **Vehicles** Zinc Zirconium

List potential on-site radiological hazards (5.2.3)

In	addit	ion	to	the	abo	ve 1	iste	d	radi	ois	oto	bes	, 2	⁴¹ Am	, ⁹⁰ Sr	, 144	⁺Ce,	¹³⁷ C	s,	and	
500	o may	als	o be	e fo	und	in	10-3	to	_10-'		'Ci	lev	e 1:	s.	Beta,	gam	ma,	and	alp	oha	
10	nizina	ra	liat	ion	haz	ards	; pot	en	tial	<u>]y</u>	exi	st	in	any	samp	les (co11	ecte	d.		

Additional Contaminants

Tributyl Phosphate EDTA PCBs Freon 113 **Terphenyls**

1,2-Dichloroethylene

Toxicity Expected Environmental In Sample Concentration (soil. water. Route of CAS No. Substance (w/units) air. waste) TLV Exposure Comments С daa Tributy1 Phosphate 126-73-8 soil 0.2 ppm Inhalation Carbon Tetrachloride 56-23-5 Inhalation ppm soil 5 ppm CSH Skin Chlorodiphenyl (.42) 53469-21-9 * soil 1 000 Skin. Inhalation Clorodiphenvl (.54) 11097-69-1 × soil 0.5 ppm Skin. Inhalation CN AS * Hydrogen Cyanide 74-90-8 soil 10 mm Inhalation (ceiling) Skin 1,1.1-Trichloroethane 71-55-6 * soil 350 ppm Inhalation * Trichloroethylene 79-01-6 soil 50 ppm Inhalation CSA CSH Chloroform * 67-66-3 soil 10 ppm Inhalation CSH * Perchloroethylene 127-18-4 soil 50 ppm Inhalation CSH 1.1.2-Trichloro-76-13-1 * soil Inhalation 1000 ppm trifluoroethane (Freon 113) Dichlorodifluoro-75-71-8 * soil 200 ppm Inhalation methane (Freon 12) * 1,1 Dichloroethane 75-34-3 soil 200 ppm Inhalation * Vinylidene Chloride 75-35-4 soil 5 ppm Inhalation CSH Terpheny Is 26140-60-3 * soil 0.5 ppm Inhalation Toluene 108-88-3 * soil 100.0 ppm Inhalation

Known	On-site	Substances
INDUMI	VII JIUC	JUDDLAIICCO

				Toxicity						
Substance	CAS No.	Expected Environmental Concentration (w/units)	In Sample (soil, water, air, waste)	TLV	Route of _Exposure	Connents	C			
1,2 Dichloroethylene	540-59-0	*	soil	200.0 ppm	Inhalation					
1,2 Dichlorobenzene	95-50-1	*	soil	50.0 ppm	Inhalation, Skin					
1,2-Dichloropropane	78-87-5	*	soil	75 ppm	Inhalation					
Metals:										
Chromium	7440-47-3	*	soil	0.5 mg/m ³	Inhalation		СН			
Nickel	7440-02-0	*	soil	1.0 mg/m ³	Inhalation		CSH			
Lead	7439-92-1	*	soil	0.05 mg/m ³	Ingestion/Inhalation		CSH			
Arsenic	7440-38-2	*	soil	0.2 mg/m ³	Inhalation					
Beryllium	7440-41-7	*	soil	0.002 mg/m ³	Inhalation		CSH			
Cadmium	7440-43-9	*	soil	0.05 mg/m ³	Inhalation					
Coba lt	7440-48-4	*	soil	0.05 mg/m ³	Inhalation					
Copper	7440-50-8	*	soil	1.0 mg/m ³	Inhalation					
Uranium oxide	7440-61-1	*	soil	0.02 mg/m ³	Inhalation					
Vanadium (V ₂ 0 ₅)	1314-62-1	*	soil	0.05 mg/m ³	Inhalation					
Thallium oxide	7440-28-0	*	soil	0.01 mg/m ³	Inhalation					

Known On-site Substances (continued)

*Anticipated low ppb levels based on site history

Key: CAS, Chemical Abstract Services; TLV, threshold limit value; C, carcinogenicity; CH, carcinogenicity established for humans; CA, carcinogenicity established for animals; CSH, carcinogenicity suspected for humans; CSA, carcinogenicity suspected for animals.
TASK SITE HAZARDS AND PERSONAL PROTECTION REQUIREMENTS

Characteristics of Waste

 Corrosive:
 Flammable:
 Radioactive:
 X

 Toxic:
 X
 Volatile:
 Reactive:
 Inert:

 Other:
 Inert:
 Inert:
 Inert:
 Inert:

Physical Hazards of Site: (5.2.5)

Hazards (taking into account reactivity, stability, flammability, operational concerns, sampling decontamination, etc.):

Hazards during drilling and sample retrieval consist of potential exposure to organic vapors, dust, noise, and conditions conducive to heat related disorders (if work is performed in the summer). Additionally, exposure to airborne radiological contamination and radiation fields is possible during drilling and sample retrieval. Direct reading instruments will be used during drilling and sample retrieval to control exposure to organic vapors. Because of low vapor concentrations expected from these samples and the use of adequate ventilation during sample handling and packaging, physical hazards are minimal for this operation.

<u>Safe Work Practices:</u> (7.)

Record all variations in safe work practices for this task.

Detailed procedures as outlined in the Sample Handling and Analysis Plan (EG&G Idaho, 1990) will be followed. Any variations to the task will require approval by the site supervisor, field team leader, industrial hygienist (IH), health physics technician (HP), safety engineer, and the RWMC/Stored Waste Examination Pilot Plant (SWEPP) operations manager.

Personal Protection: (6.)

Personal protection used on previous site visits (dates and scope of work included):

<u>None.</u>

Level of Protection Required for this Task: A B C D X

<u>Respiratory and Dermal Requirements - Personal Protection Equipment (PPE)</u>:

Based on HP and IH survey results, the appropriate protective clothing will be worn for IH concerns and radioactive contamination control purposes during drilling, sample retrieval, and initial handling and for containerizing and shipping preparation work. Level D clothing will be adequate based on monitoring performed during sample extraction. Any upgrades to PPE for sample handling and processing will be based on measurements taken during sample retrieval and the professional judgment of the on-site IH and HP.

Selection Criteria:

Initial selection of PPE is based on the ppb concentration of contaminants and the ability of the on-site health and safety personnel to make professional decisions based on direct reading instrumentation. Because of the criteria cited in this document from the *Radiological Controls Manual* (EG&G Idaho, 1989), PPE levels will be upgraded or downgraded during site drilling and retrieval operations and during the processing of collected smaples, including containerizing. Samples will be monitored during extraction and a closed sample bag-out procedure will be performed. Due to the methods that will be used to perform this task in the field and in the laboratory, and giving consideration to the low concentrations of these contaminants and their physical properties, these activities are not likely to require an upgrade in PPE. Exposure via skin for the indicated potential contaminants will be precluded by the use of the gloves specified in "Initial Required Levels of Protection" during sample handling operations.

Modifications for Personal Protection Requirements: (6.)

No respiratory protection is anticipated based on radiation hazards. Anti-C clothing will be specified by the HP after the initial survey and during the operation as data obtained concerning radioactive contamination becomes available. Company clothing (blues) is adequate for other potential hazards. Action Levels Regarding Limitations in Tasks Assigned, PPE Requirements, and Withdrawal from Site: (11.1.9)

Sustained readings (in excess of one minute) at the breathing zone with the photoionization detector (HNU or other suitable substitute) or flame ionization detector (organic vapor analyzer) during drilling, sample retrieval, or initial packaging (prior to transport to lab) will require PPE <u>upgrade. Direct reading organic vapor measurement readings of >50 ppm will</u> require Level C PPE until the sample is placed in an initial container for transport to the lab for preparation work. PPE equipment upgrades based on organic vapor measurements are given below (respirators only need to be <u>upgraded if concentrations of vapors are encountered</u>: Sustained Reading PPE Level <10 ppm D >50 ppm С >500 ppm В >1000 ppm Job shutdown

<u>Direct reading instrument results will be interpreted by a professional IH.</u> <u>The IH will have final authority concerning job shutdown based on any chemical hazard. Professional judgment may be used by the hygienist in interpretation of these measurements.</u>

Levels of Protection

Level A protection should be worn when the highest level of respiratory, skin, eye, and mucous membrane protection is needed. List Level A PPE requirements here.

Pressure-Demand Self-Contained Breathing Apparatus (SCBA)
Fully encapsulating, chemical-resistant suit
Chemical-resistant inner and outer gloves (Viton)
Chemical-resistant boots with steel toe (may be worn over or under suit)
Thermoluminescent detector (TLD) badge for radiation

Personal radiation detector

Hard hat (under suit)

Coveralls (under suit)

Two-way radio communication (intrinsically safe)

<u>Cool vest (if applicable)</u>

Level B protection should be selected when the highest level of respiratory protection is needed, but a lower level of skin and eye protection is sufficient. List Level B PPE requirements here.

Pressure-Demand SCBA

<u>Chemical-resistant clothing (Saranex coated Tyvek)</u>

<u>Coveralls (under Tyvek)</u>

TLD badge

<u>Chemical-resistant inner and outer gloves (latex, Viton if free liquids are</u> encountered)

<u>Chemical-resistant boots with steel toe</u>

Two-way radio communications (intrinsically safe)

Hard hat

<u>Cool vest (if applicable)</u>

Level C protection should be selected when the type of hazardous airborne substance is known, concentration is measured, criteria for using air-purifying respirators are met, and skin and eye exposure are unlikely. Monitoring of the air must be performed to comply with Occupational Safety and Health Act (OSHA) regulations and to ensure respirator effectiveness. List Level C PPE requirements here.

Full-face, air-purifying respirator [National Institute of Occupational Safety and Health (NIOSH)-approved] with GMC-H cartridge or GMHF-C canister, if not precluded by conditions referred to in Task Site Hazards and Personal Protection Requirements Section.

Chemical-resistant clothing (Saranex Tyvek)

TLD badge for radiation

<u>Personal radiation detector</u>

<u>Chemical-resistant inner (Neoprene) and outer (latex, Viton if free liquids</u> <u>are encountered) gloves</u>

Chemical-resistant boots with steel toe, shoe covers

Level D protection is primarily a work uniform. It should not be worn on any site when respiratory or skin hazards exist. List Level D PPE requirements here.

Protective coveralls (blues) and gloves (latex, Viton if free liquids are

___encountered)*

<u>TLD badge for radiation</u>

Personal radiation detector

Boots or shoes with steel toe (shoe covers)*

<u>Safety eye wear</u>

*Note that the HP may additionally require the use of cotton glove liners and shoe covers.

Task	Name	<u>PPE Level</u>	Other <u>Modifications</u>
Drilling/Sample Retrieval	Gloves-Leather (drill) Viton (retrieval)	D	
Sample Handling	Gloves-Viton Clothing TBD [*] by HP	D	
Packaging for Shipment	Gloves-Viton Clothing TBD [*] by HP	D	
Transportation			
Analysis			
Disposal	Gloves-Viton Clothing TBD [*] by HP	D	

Initial Required Levels of Protection (6.)

Key: T, Tyvek; S, Saranex; L, latex; N, neoprene; V, Viton; B, Butyl; F, fireman's; K, Kaysams; C, covers.

To be determined.

*

TASK SITE OPERATIONS

Operations and Monitoring Equipment Checklist (9.) (9.1) (9.3) (9.5)

Type of Equipment	<u>Number Needed</u>	Calibrated	<u>Field-Ready</u>
Photoionization meter	1	<u>daily as required</u>	
<u>or organic vapor analyzer</u>	1		
<u>(intrinsically safe)</u>			
<u>Ludlum 14 (or equivalent)</u>	1	<u>semiannually</u>	
<u>Ludlum 2A (or equivalent)</u>	1	semiannually	
<u>Ludlum 61 (or equivalent)</u>	1	semiannually	
Eberline RO3A (or	1	semiannually	11111200-1000-00-0
<u>equivalent)</u>			
<u>Combustible gas analyzer</u>	1	<u>daily as required</u>	

Operating Procedures and Methods for Surveillance

All operations will be performed in accordance with applicable detailed operating procedures (DOPs). Monitoring will occur during drilling and sample retrieval allowing PPE upgrade for organic vapors if necessary. The IH will use these measurements for decisions regarding PPE upgrade for drilling and retrieval operations in addition to sample containerizing/handling. Any samples not contained by a closed sample bag-out procedure will be surveyed (entire length of core sample) with the direct reading organic vapor instrument prior to initial containerizing. During sample processing, a sign limiting entry will be placed on the lab door during sample preparation. Limiting entry to the lab will allow for optimal performance of the lab hood face velocity. A minimum face velocity (measured at any point) of 125 lin ft/min is required. A preliminary Radiological Safety Analysis (RSA) has been performed based on maximum radiation levels found in three subpit samples. The results of the RSA indicate the performance of sample preparation in the lab hood may be conducted in accordance with Science and Technology (S&T) Procedure, SP2.2.4, "Radioactive Materials Handling". Table 1 also indicates the maximum alpha activity for sample processing in the Table 1. Maximum alpha activity concentration for a four-stage HEPA filtered hood

Release Assumptions from contaminated soil processing. Consider use in a type 2 lab hood: 125 lin ft/min at all points on hood face 60×30 -in. hood opening $Q = A \times V$ Q = 1800 in.² x $\left(\frac{125 \text{ lin ft/mi}}{144 \text{ in.}^2/\text{ft}^2}\right)$ = 12.5 ft2 x 125 lin ft/min = 1562.5 ft³/min minimum exhaust air volume for maintenance of required hood face velocity Based on the above: L = liter d = dav480 min/d x 1563 ft³/min = 750,240 ft³/d $750,240 \text{ ft}^3/\text{d} \times 28.3 \text{ L/ft}^3 = 2.12 \text{ x } 10^7 \text{ L/d}$ 2.12×10^7 L/d × 1000 cm³/L = 2.12×10^{10} cm³/d Public derived air concentration (DAC) for 239 Pu = 2.0 x 10⁻¹³ µCi/cm³ $\begin{array}{c} 2.0 \ \times \ 10^{-13} \ \mu \text{C}\text{i}/\text{cm}^3 \\ \underline{\times \ 2.12 \ \times \ 10^{10} \ \text{cm}^3/\text{d} \ \text{air}} \\ 4.24 \ \times \ 10^{-3} \ \mu \text{C}\text{i}/\text{d} \end{array}$ $4.24 \times 10^{-3} \mu Ci/d \times 3.7 \times 10^4 dps/\mu Ci = 156.88 dps$ $156.88 \text{ dps} \times 60 \text{ s/min} = 9412.8 \text{ dpm}$ 9.4 x 10^3 dgm (limit of DAC based on air volume) \times 5.9 \times 10⁷ [Decontamination Factor, (Elder et al., 1986)] = 5.6 \times 10¹¹ dpm before exceeding decon factor.

WMF 601 hood. Additionally, beta/gamma and alpha constant air monitors (CAMs)are located in Rooms 601 and 602. Table 2 indicates the maximum alpha activity for sample processing in a portable HEPA-filtered hood placed in WMF 602. If a portable HEPA-filtered hood is used, it will be DOP-tested in accordance with Chapter 3, Section 3.6 of the Radiological Controls Manual (EG&G Idaho, 1989).

Perimeter Establishment (8.)

Site Secured:	Containment Zones	Mapped:	<u> X </u>
Perimeter Identified:	Containment Zones	Identified:	<u>,</u>

EG&G Idaho personnel will use site control zones as established by the IH and the Health and Safety Officer (HSO) or designee when conducting drilling operations, retrieving samples, or handling samples during preparation for shipment. An example of an acceptable site work control zone map is shown in Figure 1.

Contamination control zones (if applicable) will be established for laboratory processing of samples by the HP based on field measurement of samples. Table 1 is an estimation of the maximum alpha activity concentration that may be used in a four stage HEPA-filtered hood without exceeding the public DAC for ²³⁹Pu. The air volumes exhausted indicate the minimum exhaust volume for a type 2 hood. Therefore, the gross activity limit calculated for maximum usage is a conservative estimate. The public DAC for ²³⁹Pu was multiplied by the exhaust volume for an estimate of the maximum activity as compared to the decontamination factor for a four stage hood as cited by Elder et al. (1986).

Table 2 is an estimation of the maximum alpha activity concentration that may be used in a single stage HEPA-filtered hood without exceeding the public DAC for ²³⁹Pu. The air volumes exhausted indicate the minimum face velocity for a type 2 hood. Therefore, the gross activity calculated for maximum usage is a conservative estimate. The public DAC for ²³⁹Pu was multiplied by the exhaust volume for an estimate of the maximum activity as compared to the decontamination factor for a single stage hood as cited by Elder et al. (1986). Table 2. Maximum alpha activity concentration for a one-stage HEPA filtered portable hood

Release Assumptions from contaminated soil processing. Consider use in a type 2 portable lab hood: 125 lin ft/min at all points on hood face 9.25×46 -in. hood openings $0 = A \times V$ $Q = \frac{425 \text{ in.} 2 \times 125 \text{ lin ft/min}}{144 \text{ in.}^2/\text{ft}^2}$ = 2.96 ft² x 125 lin ft/min = 368.75 ft³/min minimum exhaust air volume for maintenance of required hood face velocity Based on the above 480 min/d × 368.75 ft³/min = 177,000 ft³/d 177,000 ft³/d × 28.3 L/ft³ = 5,009,100.0 L/d 5,009,100.0 L/d × 1000 cm³/L = 5.0091 × 105 cm³/d Public DAC for ²³⁹Pu = 2.0 × 10⁻¹³ μ Ci/cm³ 2.0 × 10⁻¹³ μ Ci/cm³ $\times 5.0091 \times 105 \text{ cm}^3/\text{d}$ 0.001 µCi/d $0.001 \ \mu Ci/d \times 3.7 \times 10^4 \ dps/\mu Ci = 37.07 \ dps$ $37.07 \text{ dps} \times 60 \text{ s/min} = 2224.04 \text{ dpm}$ Decontamination factor for a 1 stage HEPA Filter = 1000.02224.04 dpm (limit of DAC based on air volume) x 1000 (decon factor) 2,224,040 dpm before exceeding decontamination factor



Medical Surveillance Procedures (9.4)

The INEL Occupational Medical Program (OMP) provides medical advice and service to all INEL employees and employers. The INEL Occupational Medical Program resides in the Health and Medical program organization of EG&G Idaho and its activities are required and authorized by DOE Order 5480.8. The OMP helps to ensure compliance with OSHA and other regulations that require medical surveillance of workers exposed above TLVs 30+ d/yr, those wearing respiratory protection 30+ d/yr, those injured/overexposed from emergency incidents, and other personnel involved in the handling of hazardous materials (HAZMAT). Medical services are provided at one decontamination facility, two facilities staffed by physicians and nurses, and four dispensaries staffed by nurses. The major medical facility at CFA is open during all shifts, every day of the year. Physicians are available during the day shift and available on a call-in basis for other shifts.

 The OMP has responsibilities in the following areas:

 Treatment of illness and injuries in or arising out of the source of

 work

 Assistance in the documentation and investigation of work-related

 illness or injury

 Providing medical opinions about the ability of employees to perform

 the assigned work

 Advice on medical treatment and transportation

 The maintenance and operation of a radiological and chemical

 decontamination facility at CFA

 Providing medical surveillance programs for workers who are properly

 identified by a qualified IH as exposed, or at risk to become

 exposed, over action limits to specific toxic substances.

<u>A baseline physical examination must be on file with the INEL OMP for all</u> employees identified as HAZMAT handlers (see EG&G Idaho Resource Manual, Section 8). The following information will be provided by the project Manager (PM) prior to beginning work:

Substances to which the employee	is likely to be exposed, expected
frequency, and duration of exposu	re
Time, place, and extent of previo	us exposure to these substances
above TLV	
Type of PPE to be used by the emp	loyee, when, and what training has
been given about its use	
The estimated number of days per r	nonth the worker is to use PPE,
especially respirators, in the con	ning year
The estimated length of time the	employee is expected to continue as
a HAZMAT worker.	

Emergency Equipment (11.2)

List emergency equipment below:

Existing emergency equipment at the laboratory facility where the samples will be processed will be used. The location and description of this equipment is found on the following page. Emergency equipment required for the drilling and sampling will be maintained in the support zone. A list of this equipment is given in the sample location section below. In addition, each drill rig will require and individual fire extinguisher.

Sample Location:

Fire Extinguishers -	No.: <u>(2) 20-16 ABC</u>
Location(s) · <u>Support</u>	Zone
SCBAs -	No.:2
Location(s) <u>Support</u>	Zone
First Aid Kits -	No.:1
Location(s) <u>Support</u>	Zone
Portable Eyewashes –	No.:2
Location(s) <u>Support</u>	Zone
OtherSt	cretcher (1)

RWMC Facility:

Fire Extinguishers -	No.:2
Location(s) <u>WMF 601</u>	and WMF 602
SCBAs -	No.:2
Location(s) <u>WMF 602</u>	
First Aid Kits -	No.:1
Location(s) <u>WMF 601</u>	
Portable Eyewashes -	No.:
Location(s) <u>WMF 601</u>	or WMF 602
Other	
A	

DECONTAMINATION AND DISPOSAL PROCEDURES (8.0) (10.3)

Map of Facilities

Is there a map enclosed showing restricted access zones, protection levels, decontamination areas, equipment layout, and clean zones?

Yes: X No: See explanation below

If not, sketch below:

Explanation: <u>Map is included in the additional information section of this</u> document (see Figures 2 and 3).

Decontamination Procedures

Personnel and equipment exiting the exclusion zone will be monitored for radioactive contamination. Contaminated personnel and equipment will be decontaminated in the contamination reduction zone as deemed appropriate by the HP and/or IH. All drilling and sampling equipment will be decontaminated in accordance with the DOP outlined in the Sampling and Analysis Plan. Large equipment items (drill rigs, drill steel, and casing) may be transported to a separate, specially designated area for decontamination. Any equipment used in initial containerization must be decontaminated prior to removal from the work area. The equipment will be washed with a nonphosphate detergent, rinsed with tap water, rinsed with deionized water, and rinsed with pesticide-grade menthanol prior to drying and wrapping in foil. All rinses not submitted for guality assurance/guality control (OA/QC) will be collected for proper disposal. Samples will be transported to the preparation laboratory in clean plastic wrapping or bags.

It is not anticipated that PPE above level D will be necessary for personnel performing tasks as outlined in this plan. However, Level C PPE, although not anticipated, may be required. If Level C clothing is required for drilling, sampling, or for initial containerization, personnel decontamination will be performed in accordance with Figure 10-2 of the ERP Health and Safety Plan (Morton, 1990).

Personnel performing sample preparation, containerizing, and packaging will be required to remove their protective gloves and bag them to be held for disposal with other waste materials. Protective coveralls will be removed and placed in a laundry bin. Anti-contamination (anti-C) clothing (if needed) will be removed and placed in the appropriate containers in accordance with Chapter 4, Section 3.2 of the Radiological Controls Manual (EG&G Idaho, 1989), and as specifically directed by the HP.

Decontamination of Sampling Bottle and Equipment

Samples will be handled using appropriate tools that will minimize the potential of contaminating the exterior of jars and bottles. Sample containers will be surveyed for radioactive contamination prior to shipment. Any sample containers needing decontamination will be cleaned using Radiac wash and deionized water.

<u>Decontamination Modification (e.g., personnel, surfaces, materials, instruments, equipment)</u>

Prior to performance of sample preparation in the laboratory hood, the working surfaces to be used will be covered with blotter paper to minimize the spread of transferable contamination to work surfaces. Plastic covering used to seal samples will be used as an additional work surface. All gloves and blotter paper will be placed in plastic bags at the end of the sample preparation and surveyed.

Disposal Procedures

On-site:

All materials, equipment, and disposable protective clothing (if applicable) that are used for decontamination and/or disposable equipment will be secured in containers provided by EG&G Idaho PM and stored in an appropriate location based on field measurements and/or analysis results. All potentially contaminated materials used in the laboratory hood (gloves, blotter paper) will be bagged for proper containerizing and disposal. Off-site:

Samples shipped off-site for analysis will be returned by the analyzing laboratory to the ERP in accordance with applicable local, state, and federal regulations.

EMERGENCY REFERENCE

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Task: <u>RWMC_SUBPIT_SAMPLING</u> Project No.: <u>EGG-WM-9244</u>

Emergency Information (Local Resources)

٠	Warning Communications Center (WCC)	526-1515
•	RWMC/SWEPP Emergency Action Director	526-1348
٠	First Aid – INEL Bldg. CFA 603	526-2356
	(Kansas Avenue)	
٠	Emergency Action Director	526-2766
	D. L. French	
٠	OMP - INEL Bldg. CFA 603	526-2424
	(Kansas Avenue)	
	D. E. Minner	
•	Ambulance - INEL Bldg. CFA 666	526-2211
	(Nevada Street)	
•	Fire - INEL Bldg. CFA 666	526-2211
	(Nevada Street)	
•	Fire Safety and Investigations	526-2172
	R. W. Woodfin	
•	Security – INEL Bldg. CFA 609	526-2321
	(Memphis Street)	
•	Safety Engineering Support:	
	- Industrial Hygiene	
	M. M. Garcia	526-8072
	- Explosives Expert	
	Richard Green	526-2702
	- Safety Engineer	
	R. C. Caummisar	526-4381
•	HP Office at RWMC	526-2710
٠	RWMC Safety	526-4381
٠	RWMC Operations Shift Manager	526-2767
•	Task Project Manager	
	R. M. Lugar	525-5649

EME	RGENCY REFERENCE (continued)
Project Manager	
T. P. O'Rourke	526-9897
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Note: This emergency refer	ence list will be nosted at. WME 602 and the
drilling contractor's field	command center.

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Emergency Routes

INEL Medical Facility: <u>INEL Bldg. CFA 603</u>
Map attached? Yes: <u>X</u> No:
Will this information be posted at the task site? Yes: <u>X</u> No:
Alternate Emergency Facilities To Be Noted: <u>None.</u>
Procedures for Inclement Weather: Weather restriction will be employed in

accordance with the main body (11.1.9) of this Health and Safety Plan (Morton, 1990). The field team leader may also halt work based on his judgment concerning weather related problems. Initial containerizing (field handling) of samples will not be performed during adverse weather conditions. Operation of the drill rigs during these conditions will not occur and therefore will preclude any field handling of samples during adverse weather conditions.

Task Site Emergency Procedures and Responsibilities

<u>Name</u>	<u>Responsibility</u>	<u>Action</u>	
D. L. French R. M. Lugar To be determined	<u>RWMC Emergency Action Director</u> <u>Field Team Leader</u> <u>Site Supervisor</u>	<u>RWMC Emergencies</u> <u>Reporting Requirements</u> <u>Reporting Requirements</u>	
Location of Emergency Fire extinguishers: 1			
Self-Contained Breath	ing Apparatus: WMF 602		
First Aid Kit: WMF 60	01	a ala magana ang ang ang ang ang ang ang ang an	

Task	Date	Location	Kit No.
<u>Drilling</u>	<u>October 1990</u>	<u>Support Zone</u>	<u>NA</u>
Sample handling	<u>October 1990</u>	WMF 601	<u>NA</u>
<u>and preparation</u>			

First Aid Supplies (11.2)

ITEMS: Type (and content) of first aid kits are approved by the EG&G Idaho OMP. No substitutions are allowed.

REFERENCES

- EG&G Idaho, 1990, Radioactive Waste Management Complex Subpit Sampling and Analysis Plan, EGG-WM-8934, July.
- EG&G Idaho, 1989, Radiological Controls Manual, DRR-RC-7, Issue No. 14, March.
- Elder et al., 1987, A Guide to Radiological Accident Considerations for Siting and Design of DOE Nonreactor Nuclear Facilities, LA--10294 MS.
- Garcia, E.C., and J.L. Knight, 1989, *Hazardous Organic Content of Pit 9*, Engineering Design File, BWP-ISV-003.
- Golder Associates, 1987, Summary of Field Analytical Services Provided to EG&G Idaho, Contract No. C87-131432, Redmond, WA.
- S. L. Morton, 1990, Health and Safety Plan for Operations Performed for the Environmental Restoration Program, EGG-WM-8771, Rev. 0, April.

ADDITIONAL INFORMATION







Figure 3. Layout of the Subsurface Disposal Area.

APPENDIX B

HEALTH AND SAFETY CERTIFICATION FORM

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HEALTH AND SAFETY CERTIFICATION FORM

TASK: <u>RWMC_SUBPIT_SAMPLING</u>

DATE: OCTOBER 1990

HEALTH AND SAFETY CERTIFICATION FORM

Task Title: RWMC SUBPIT SAMPLING

Project Manager: T. P. O'ROURKE

Field Team Leader: R. M. LUGAR

I certify that I have been given a copy of the task specific ERP Health and Safety Plan for the <u>RWMC SUBPIT SAMPLING</u> Task, and agree to comply with the procedures described therein. I further certify that I understand the potential health and safety hazards of the program (as outlined in this Health and Safety Plan) and have been trained in the use of the personal protective equipment selected for this task.

Employee:

(Print)	(Signature)	(Date)
Company of Employmen	t:	
Field Team Leader:		
(Print)	(Signature)	(Date)
Health and Safety Of	ficer:	
(Print)	(Signature)	(Date)